COUNTY OF SOLANO
MIDDLE GREEN VALLEY SPECIFIC PLAN & EIR

Department of Resource Management
675 Texas St., Suite 5500
Fairfield, CA 94533
(707) 784-6765 / (707) 784-4805

MEMORANDUM: Agenda Item No. 1

TO: Solano County Planning Commission

FROM: Matt Walsh, Principal Planner

DATE: May 20, 2010

RE: Public Hearing to consider the Middle Green Valley Specific Plan, Final EIR, & Master Development Agreement

---

Recommendation:

Staff recommends that the Planning Commission:

1. Receive a presentation and review of the Middle Green Valley Specific Plan, Final EIR, and Master Development Agreement;
2. Conduct a Public Hearing;
3. Adopt a resolution, recommending that the Board of Supervisors:
   - Certify the Final EIR;
   - Adopt the Middle Green Valley Specific Plan, as amended;
   - Approve the Master Development Agreement

BACKGROUND

The Middle Green Valley area is located north of the Fairfield city limits, along Green Valley Road, and is approximately 1,903 acres in size. It is nestled on the edge of the western hills with a mixture of cultivated agricultural land on the valley floor and grazing land in the hills. It lies between 1/3 to 2.5 acre residential development in upper Green Valley (north) and the City of Fairfield (south). The area is valued for its rural character and scenic qualities.

In August 2008, Solano County completed and adopted a comprehensive update to its General Plan, portions of which were approved by voters at the November 4, 2008 election. Through the General Plan update process, various specific project areas were identified for further planning, including the Middle Green Valley area.

The primary goal of the General Plan for this area is to maintain the rural character of Middle Green Valley while allowing opportunities for compatible residential development in accordance with the Plan's goals and policies. The General Plan directs that land use tools, such as clustering and transfers of development rights are to be utilized to limit the effects of residential development on the rural character of the valley, including protection of the existing viewsheds, wildlife habitat, and agricultural activities.

The General Plan set forth policies to provide specific guidance in reaching and maintaining the goal. These policies served as the "backbone" in developing the draft Specific Plan. (General Plan Ch. 2, pg. LU-54, and Specific Plan Ch. 1, pg. 1-15)

- Maintain the rural character of Middle Green Valley while still allowing development to be guided into areas screened from Green Valley Road because of natural contours in the land and woodland vegetation, and/or riparian vegetation. Locate upland development in areas screened by landforms or vegetation.

- Balance the protection of resources in Middle Green Valley (e.g. viewsheds, oak woodlands, riparian habitat, sustainable agricultural use) while allowing development to occur.

- Allow for the migration and movement of wildlife.

- Provide a variety of incentives and techniques to encourage property owners to preserve natural and visual resources, in addition to the transfer of development rights.

- Encourage cluster residential development through incentives to property owners in hillside and valley floor areas that can support residential uses with least affect on resources, steep slopes, or very high wildfire hazard areas.

- In accordance with balancing the protection of resources described in these policies, adopt a program that provides residential development credits to property owners who voluntarily forego or limit development on their lands. The transfer of development rights program should focus incentives on land in areas to be preserved.

- Adopt a specific or master plan to implement the policies for Middle Green Valley.

- Create additional methods to assist landowners who choose to continue farming, such as, but not limited to:

    - enforcing the right-to-farm act and educating residents on the act, and;
    - investigating mechanisms for providing farmers with economic assistance to ensure agricultural viability.

In August 2008, the Board of Supervisors established a six person Citizens Advisory Committee (CAC) to help guide the development of the plan. The CAC has met twelve times over the last 16 months, and consists of three representatives from the Green Valley Landowners Association (GVLA) and three representatives of the property owners within the Specific Plan area boundary, and two alternates. All CAC meetings were noticed public meetings.

The effort has culminated in the proposed draft Specific Plan, a draft Final EIR, and a draft Master Development Agreement. All of which are now before the Planning Commission for review and recommendation to the Board of Supervisors, which is the decisionmaking body for the proposal.

General Plan Requirements for the Specific Plan

The 2008 General Plan requires that the MGV Specific Plan specify the following (General Plan Ch. 2, pg. LU-58):

1. Identification of the area covered by the plan;

2. Techniques to ensure development is compatible with the rural character of Middle Green Valley and surrounding areas. Such techniques should include design guidelines and development standards;

3. Guidelines for cluster development, including minimum and maximum lot sizes, development standards, and density bonus credits for clustered development;

4. The details for a transfer of development rights program (with an implementing ordinance), which include: identification of areas where development is preferred, creating appropriate and equitable rezoning, clustering of housing, and determining the ratio of credits to property owners who voluntarily forego development;

5. The number of units/credits, with or without clustering, that will provide incentives for all landowners in the area to participate in a market driven transfer of development rights program, based on 400 units;

6. Location and dimensions of a wildlife corridor;

7. Maximum number of units any property owner can develop (with or without clustering);

8. Techniques to be applied voluntarily by property owners that ensure permanent protection and maintenance of resources/views on lands to remain undeveloped;

9. Details of how development would be served by water and wastewater service. Attempt to secure public water and wastewater service through a cooperative effort of property owners, residents, the County, and the City of Fairfield.

DISCUSSION

Specific Plan Organization

The Specific Plan consists of five primary chapters and related appendices as described below:

- Chapter 1: Vision
- Chapter 2: Plan Purpose, Authority and Context
- Chapter 3: The Neighborhood Plan – Patterns, Concepts and Character
- Chapter 4: Implementation – Finance, Implementation, and Execution
- Chapter 5: The Neighborhood Design Code
- Appendices:
  - A. Definitions
  - B. Sustainability Index
  - C. General Plan Consistency Reference
  - D. Approved Plant List
  - E. Abbreviations

Key Elements of Specific Plan

The Specific Plan will guide the long term realization of a vision for Middle Green Valley in which long-term conservation of agriculture is accomplished alongside and sustained by a series of connected and sustainable rural neighborhoods. This Plan is a result of community, landowner, and County consensus building and cooperation, recognizing the need to protect the unique rural qualities of the area, while providing the means for appropriate settlement patterns to take place.

The General Plan policies for the Study Area served as a backbone for the development of the Plan, however, those policies were also considered minimum requirements in its development. Not only does the Plan directly address the policies laid out in the General Plan concerning the Middle Green Valley area, but it also strives to address many of the other goals, objectives, and policies set forth in the General Plan. Appendix C to the Plan provides a matrix identifying over 100 of the General Plan's goals and policies with which the Specific Plan can be found to be consistent. They relate to agriculture, water use, energy resources, biological and recreational resources, public health, sustainable land use, and many others. This matrix is an important reference tool which shows how the complexities of the proposed Specific Plan advance and build upon the important goals and policies set forth in the General Plan.

The heart of the Specific Plan is an emphasis toward preserving, maintaining, and managing the open lands and agricultural areas while utilizing the Plan's community development as a tool to achieve this goal. As the Plan states, the development is viewed as a "community within a conservation framework".

The Plan's support and protection of the agricultural landscape cannot be overstated. Links to the valley's agricultural heritage are found intertwined within all aspects of the vision, the community Plan, implementation strategies and the Neighborhood Code. For much of the century, Green Valley has served as a vital agricultural resource for the production of grapes, orchards, and row crops. Over the last 20 years, agricultural

success has been intermittent. Urban encroachment has threatened the local farming economy, while attempting to compete in a global marketplace for food products. As one landowner stated, "We can grow anything. We just can't sell it.".

This Plan provides for long term financial stability for farming in Middle Green Valley. Concepts such as clustered development, the transfer of development rights program, establishment of the Green Valley Agricultural Conservancy, transfer fees used to fund the Conservancy, agricultural easements, and establishment of the Green Valley Farm Stand to provide access to locally produced products will all serve to support the viability and success of local agriculture in the valley, while allowing for it to be a more visible part of day to day life. While these tools directly serve the local farming economy, the allowed land uses and Neighborhood Design Code will ensure that the built environment, both in land use and in design, reflects the rural agricultural history of California and this area.

The following concepts serve as key elements to the Specific Plan:

Green Valley Conservancy (Sect. 4.2.1): The Plan calls for the establishment of a conservancy, which will oversee the management and monitoring of conservation easements encompassing the approximately 1,490 acres of agricultural lands, pastures, and natural areas. The conservancy would be an objective organization which would focus its attention on education, resource and open space preservation, community connectivity, and agricultural awareness. The conservancy would have three primary areas of responsibility:

1. Assisting and encouraging the farms in Green Valley and where appropriate helping to manage agricultural operations and public education activities;
2. Overseeing the management, stewardship, enhancement, restoration and access easements for conservation lands including oak woodlands, riparian areas, pastures, rangelands, and agricultural lands and assisting landowners to identify and interface with an established, qualified, accredited land trust to hold title to the conservation easements;
3. Managing and developing a design review process for the community that is consistent with Specific Plan goals and principles and that anticipates the review process conducted by the County. This design review process is **in addition** to all applicable County review processes.

The conservancy would utilize an Agricultural Business Plan to guide the agricultural operations and management of all agricultural lands placed under conservation easements. It would utilize a Resource Management Plan to provide the framework and performance standards for managing the resources. And the conservancy would set up and oversee a comprehensive design review process utilizing the Neighborhood Design Code (Specific Plan, Ch. 5).

The conservancy would operate as certified non-profit organization and would be eligible for grants and donations, its primary funding source is through "transfer fees." As final subdivision maps are recorded within MGV, 1% of the sale price of undeveloped parcels will transfer to the conservancy. Once developed, a one-time 3% of the sale price on the developed parcel will be transferred to the conservancy. Thereafter, 1% of the price for each resale will go to the conservancy. This revenue will fund an endowment that will provide funds to cover operational aspects of the conservancy, as well as subsidize the

cost and expense of the agricultural activity as needed. The Master DA provides the mechanism to establish both the Conservancy and the transfer fees.

Transfer of Development Rights (TDR) Program (Section 4.2.3, page 4-18 of the Specific Plan): In general, the concept of traditional TDR programs is to serve as a land use regulatory tool where development rights can be severed from one parcel(s) and transferred or sold to other parcels. The parcels that give up their rights (sending areas) are then permanently restricted by easements and the parcels receiving the rights (receiving areas) are provided with a greater density for development. This technique is generally used to relocate development away from sensitive natural resource areas, important farmland, historic resources, or areas within viewsheds. Traditional TDR programs are market-based and rely on the negotiation of private, one-by-one transactions for eventual implementation. The TDR Program, as implemented through the Specific Plan and "Sales Participation Agreement" for MGV, builds on these traditional TDR tools, but, as described below, has been carefully designed to avoid some of the traditional difficulties associated with TDR Programs to help ensure its success and the implementation of the Specific Plan.

For the Specific Plan, a constraints map was generated which identified the location of areas in which development should be avoided as much as possible. These areas include: flood zone, dam inundation areas, areas within viewsheds, creek corridors, steep slopes, prime agricultural areas, etc. These sensitive areas became sending areas, while lands outside these sensitive areas became receiving areas. Primary areas for development are located and clustered in the receiving areas, encouraging more of a neighborhood type of development and land use pattern. Prior to the recordation of any subdivision maps or approval of building permits for new development under the Specific Plan, a conservation easement will be required to be recorded over the corresponding sending areas. At build-out, over 1,400 acres of open lands, sensitive habitat, and agricultural areas will have been permanently preserved under easements.

The number of development rights (credits) that each property owner has was calculated based on a total of 400 new residential units allowed pursuant to the General Plan. A landowner's percentage of new units is strictly proportional to the ratio of land they own in the study area. For example, if a landowner owns 40 acres of the 1,905 acre study area (2%), he would be credited with 2% of the 400 units, or approximately 8 units. This ratio methodology applies to all sending and receiving parcels to determine how many credits they are entitled to for their existing lands, regardless of market value of the underlying land. From the inception of the MGV Specific Plan process, each acre has been considered equally valuable from a policy perspective to implement the goals and policies of the General Plan. Pursuant to direction from the General Plan, participation in the TDR program is voluntary and incentive based. For those who choose not to participate in the TDR program, a smaller number of units are credited to the land owner based on the number of units allowed under the existing General Plan and zoning. Most non-participating land owners would receive one unit per 20 acres of land, based on the existing agricultural zoning and General Plan designation.

As a result of the constraints and opportunities analysis in the Specific Plan, most property owners within the Specific Plan area "send" and "receive" within their own property. Most landowners can essentially cluster the allowed development on a portion of their property and will be required to record a conservation easement on the remainder

as part of the normal development process. In the end, only 37 residential unit "credits" created by the Specific Plan were allocated to properties that cannot accommodate the entire allocation. These excess credits are proposed to be assigned from one property owner's land ("sending property") to another's "receiving property" through the Sales Participation Agreement. To participate in the TDR program , landowners are being required to be a party to the Master Development Agreement (MDA) (and the Sales Participation Agreement that is incorporated into the MDA) which provides the details and implementation procedures for the TDR program. The MDA is described further below and a draft has previously been sent to the Planning Commission.

The Sales Participation Agreement will be executed and recorded concurrent with the Master Development Agreement. The proposed Sales Participation Agreement works, essentially, as a contract between the sending properties and the three receiving properties whereby the sending properties are agreeing to allow the excess credits allocated through the Specific Plan to be reallocated to the receiving properties in exchange for compensation. The compensation will be based on the "Market Value" established by a reputable, experienced local appraiser (Ronald Garland) of each residential unit at the time a receiving property is sold. When a receiving property is sold in the future to a bone fide third party purchaser, the appraiser will determine the current market value of a residential unit, based on the zoning established by the Specific Plan, Master DA and Final EIR. The appraisal will be directed to exclude the residual value of the land, as well as any value based on subsequent entitlements (such as subdivision mapping, design review, state and federal permits, etc.) At closing on all or a portion of each of the three receiving properties, each sending owner will receive a payment based on the number of unit credits they are sending, multiplied by the Market Value of a unit established by the appraiser, minus a pro rata share of the standard closing costs and the cost of the appraisal. In order to receive any payment under the agreement, the sending owner must submit evidence that a conservation easement acceptable to the County has been recorded against the open space identified in the Specific Plan.

It should be noted that all landowners who own predominantly undeveloped agricultural land in the Plan area, with the exception of three, have signed a letter of intent to participate in the TDR program. At this time, Mr. Dedomenico, Mr. Del Castillo and Mr. Parenti have not committed to the program. Dedomenico and Parenti have indicated they are not interested in participating, and Del Castillo submitted written concerns with the process, but has not confirmed or denied participation. For the Planning Commission's review, Exhibit E is attached which is the current TDR Table that illustrates the allocation if all landowners in the Study Area were to participate, with the exception of Dedomenico and Parenti.

Non-participating landowners, and those who have not responded, have been notified that they have until June 1, 2010 to opt into the program in order to prepare and finalize the documents for the Board of Supervisors' approval and adoption. The Specific Plan, once approved, will apply to new development on all property within its boundary regardless of whether the property owner is a party to the Development Agreement. While participation in the Development Agreement is voluntary, any landowner that chooses not to participate will not obtain benefits offered by the Development Agreement, including, protection against changes in the Specific Plan and the County Code that can affect the cost and right to develop, and protection against new and increased County development fees. In addition, for any landowner not participating in the Development Agreement any units

assigned to a property in excess of the otherwise allowable units under their existing zoning will be reallocated to other appropriate land within the Specific Plan on the same pro rata acreage basis.

Neighborhood Design Code: (Chapter 5 of the Specific Plan) The Neighborhood Design Code (NDC) provides Development Standards, Design Guidelines, and the design review process which will guide and direct the development of the neighborhood areas. The development plan focuses on the primary goal of preserving rural character while defining appropriate development patterns. The patterns draw from settlement traditions of small California towns.

The first important aspect of the NDC is the introduction of Transect Zones, which provide for six different zones ranging from the most natural and passive of areas (Conservation area) to the more intensely developed areas (Neighborhood Center). Different Building Types are assigned to each Transect Zone, consistent with the nature of the permitted development in those areas. The Building Types include: Agriculture/Community, Courtyard, Bungalow, Farmstead, Meadow, Compound, and Secondary Units/Ancillary Structures. Each Type includes its own placement, form, and other development standards. The Building Types and Standards are described in Section 5.4 of the Specific Plan.

Sustainability: Where the intended design and build-out of the Specific Plan area are that of a small rural California town, the actual design concepts and integration of the land uses is more modern in nature. Many of the elements incorporated into the Plan are typically associated with sustainable types of development, please refer to Appendix B – Sustainable Design Index for a full list of sustainability requirements and programs. Some highlights include:

- Increased preservation of active agriculture through the use of conservation easements, clustering of development, and establishment and funding for an agricultural conservancy.

- Incorporation of agri-tourism uses and focus on locally produced food

- Providing a mixture of land uses (residential, community service, commercial, agri-tourism, recreation, etc.), creating a whole community; encouraging pedestrian oriented neighborhoods.

- New and remodel construction to exceed Title 24 state energy efficiency standards by 20%.

- LEED certified and participation in the California Energy Commission's New Solar Homes Partnership for residential development exceeding six units.

- Use of water efficient appliances, Energy Star appliances and lighting, and use of recycled and renewable building materials to the greatest extent possible.

- Water efficient landscaping and reuse of water for landscaping/toilets; approximately a 40% decrease in water use compared to more typical developments in the County.

- Use of sustainable stormwater approaches (Section 3.3.3 in Specific Plan) which includes minimizing paved areas, increasing infiltration opportunities, utilizing pervious solutions where feasible and handling water at the source.

Infrastructure and Financing: (Chapter 4 of the Specific Plan) The General Plan provides specific implementation direction relating to the Middle Green Valley Special Study Area to secure water and wastewater service for the development in a cooperative effort between the County, City of Fairfield, property owners and residents. As such, the proposed Plan anticipates connecting to the City of Fairfield for domestic water supply or utilizing community wells, and either connecting to the Fairfield-Suisun Sewer District for sewer service or to allow onsite treatment through a package treatment facility. The development of more detailed site specific information will occur through the processing of the first tentative subdivision maps. To allow for this infrastructure development, the County must form a County Service Area (CSA), governed by the Board of Supervisors.

Once established, the CSA will facilitate the eventual formation of a Community Facilities District (CFD). The CFD will serve as the primary financing tool to fund the necessary infrastructure improvements. Construction costs for the water and sewer infrastructure as well as new roads is estimated at approximately $20-25 million. The likely scenario for funding is for the CFD to issue infrastructure bonds to generate the initial financing for the improvements. The CFD will then assess property owners for the reimbursement of those bonds and to provide for ongoing maintenance.

Master Development Agreement

As noted above in the discussion on the TDR program, the Specific Plan also requires the County's approval of a Master Development Agreement to implement the TDR portion of the plan. The Master Development Agreement will vest provisions of the Specific Plan for the duration of the agreement, so that those provisions do not change for those landowners who sign the agreement. The term of the agreement is 25 years. The Master Development Agreement would promote and encourage the orderly development and conservation of the plan area by providing a greater degree of requisite certainty. Landowners not signing the Master Development Agreement will not obtain the vesting that it provides, but will still be subject to the Specific Plan.

The Master Development Agreement—and the Sales Participation Agreement incorporated in it—also establish a transfer of development rights ("TDR") program discussed above. The TDR program makes it possible for significant acreages of agricultural land to be conserved in an area of fragmented ownership, through the clustering of non-agricultural uses. By means of the TDR program, a mechanism is instituted for specified landowners to voluntarily commit to forgoing development on their property, while being compensated by other landowners whose properties will be designated for higher development densities.

The Master Development Agreement is consistent with the goals, objectives, and policies of the General Plan and the Middle Green Valley Specific Plan. The 2008 General Plan designated the Middle Green Valley Area as a special study area. The Sales Participation Agreement provides mechanisms and incentives to achieve clustering, conservation, and balancing of protection and development, all of which are called for in

the General Plan policies for this area. Appendix C of the Specific Plan is a matrix setting forth the references between the plans and the specific points of consistency between them.

The proposed Master Development Agreement could provide a substantial benefit to the community. The Sales Participation Agreement provides for recordation of conservation easements. By conserving agriculture and providing for a transfer tax to fund a conservancy, the agreement is expected to facilitate not only the preservation of open space but also an institutional structure to promote the viability of agriculture in the valley, together with the active conservation of this working landscape and the natural features within it.

Below is a summary of the key business terms of the Master Development Agreement:

- Each landowner, by becoming party to Agreement, vests the landowner's rights to uses, densities and intensities of use, locations, and maximum height and size of buildings, and other development and design standards as described in specific plan.
- Each landowner determines the order, rate and timing of development during the 25 year life of the Agreement.
- The Development Agreement would provide a mechanism for reimbursing any landowner who must construct oversized public infrastructure in order to develop their property.
- Landowners agree to participate in the TDR program, whereby development rights will be transferred from certain properties within Middle Green Valley to certain other properties, in order to provide for a planned and orderly mechanism for the development of certain areas of Middle Green Valley and the preservation of the rural and open space character and agricultural viability of other areas of Middle Green Valley.
- Landowners agree to participate in the Master Property Owners Association and the Conservancy as described in the Specific Plan.
- During the life of the Development Agreement, the County will be obligated to process development applications and charge fees in accordance with the County's development-related requirements (e.g., laws related to permitted uses, density or intensity of use, the maximum height and size of buildings, impact fees, exactions) that exist as of the date the Agreement goes into effect, except to the extent the County is required by law to do otherwise.
- The Agreement reserves the County's right to modify and apply: (1) regulations governing construction standards, including building code, plumbing codes, mechanical code, electrical code, fire code, grading code and other uniform construction codes applicable at time of permit application; (2) any procedural rules that are uniformly applied on a County-wide basis to all substantially similar types of development projects and properties (e.g., regarding hearing bodies, petitions, applications, notices, appeals and any other matter of procedure); (3) new county laws necessary to protect persons or property from dangerous or hazardous conditions.
- The amount of specified development impact fees will be equal to: (1) during the first ten years, the levels current as of the beginning of the Agreement plus an amount reflecting increases in inflation through time of payment; and (2) during the second ten years, at the fee levels current at the tenth anniversary plus an amount

reflecting increases in inflation through time of payment; (3) during the final five years, at the then-current fee levels.

- The County's costs to prepare, adopt and implement the Specific Plan (Initial County Costs) are recovered, if development later proceeds, as a cost attached to issuance of each later residential building permit.

Property Owner and Public Comments

The majority of public comments to date are in response to the DEIR, and were submitted during the approved comment timeframe for the DEIR, December 27, 2009 to February 25, 2010. The comments and responses to those comments are included in the FEIR. The County has also received comments from the public that are either addressing the Specific Plan or are outside the timeline for comments on the EIR. These letters are attached as Exhibit C for review by the Planning Commission.

Sweeney: Nancy Sweeney is requesting that her property, located on Green Valley Road at the northern boundary of the plan area, be designated Rural Farm to accommodate a future subdivision of the site into two 5 acre parcels. Her property has historically been a non conforming 10 acre parcel designated Agriculture in the General Plan. The proposed Specific Plan's designation of Rural Farm and Agriculture-Preserve reflects the current development of the property.

Ms. Sweeney's request was submitted well after the work on the Specific Plan was underway, and the DEIR was already in public circulation. The EIR did not recognize her request and did not consider any associated impacts. Further, policies and implementation programs in the General Plan as they relate to Middle Green Valley state that new development should be guided into areas screened from Green Valley Road (Policy SS.P-1). For land designated Agriculture in the 1980 General Plan and not participating in the TDR program, the number of housing units/credits should be one per 20 acres (Implementation Program SS.I-1). As such, Ms. Sweeney is not entitled to additional units beyond her existing residence. Additionally, the Plan is designed for up to 400 new primary residential units. These units have been allocated to the various participating property owners in the TDR program. No additional units/credits are available to be allocated and any units exceeding the 400 have not been reviewed and analyzed in the DEIR. Staff does not recommend that the Planning Commission and Board of Supervisors grant Ms. Sweeney's request to designate her property entirely Rural Farm.

Del Castillo: Saturnino Del Castillo has expressed concern that the nature of the TDR program unfairly treats all acreage in the study area equally. He believes that land near the valley floor is more developable and should be valued higher, providing a greater number of development credits. The County has always looked at all acreage in the study area to be of equal value, whether it is considered developable property or whether it is considered to be of great scenic or habitat value. As such, the plan provides for "an acre is an acre" philosophy in its allocation of development credits. Mr. Del Castillo has not yet committed to the TDR program. If he participates, his development credit allocation will be 19 total units. If he does not participate, his allocation will be 4 total units.

Berman: Bob Berman's comments provide his recommendations relating to the structure of the Conservancy, revisions to the text and figures concerning the trail system, and more of an explanation of how the Plan relates to the bigger regional open space system.

Bay Area Ridge Trail Council: The Bay Area Ridge Trail Council requests that language be included in the text of the Plan to recognize the potential connection to the Bay Area Ridge Trail located along the ridge to the west of the Plan area.

It should be noted that the Plan does identify trails, paralleling the Neighborhood Roads-Type 3, that terminate at the western edge of the Plan area boundary. While the December version of the Plan shows these trails as "potential", the recommended amendments included in Exhibit A propose to show them as part of the "primary trail system". The Plan cannot control or provide for trails outside its boundary, but trails are provided to the boundary of the Plan area.

Kemble: The Department of Resource Management received a letter from Amber Kemble, Esq., on April 23, 2010, sent on behalf of an unincorporated association named the Upper Green Valley Homeowners. In part, the letter seeks modifications in policy aspects of the draft Specific Plan, some of which have already been reflected in staff-proposed modifications to the plan accompanying this Staff Report (see, e.g., sec. 26 of attached 4/30/10 memo regarding changes to plan section 5.7.6, limiting street lighting to only key intersections and proposed roundabout). Other portions of the letter seek modifications in the EIR, offering some comments which have been reflected in responses to other comments already provided through the FEIR. The April 23 date on which the letter was sent was also 57 days past the expiration of the comment period, and more than 16 weeks after the comment period commenced. The DEIR was circulated for public comment on December 27, 2009. The comment period on the DEIR closed on February 25, 2010. Under CEQA Guidelines section 15105, the County was legally required to provide only a 45-day public review period, but instead the County provided 60 days for public review and comment. Under CEQA, when a comment letter is received after the close of the public comment period, a lead agency does not have an obligation to respond. (Pub. Resources Code, § 21091, subd. (d)(1)("The lead agency shall consider comments it receives on a draft environmental impact report . . . if those comments are received within the public review period."); Pub. Resources Code, § 21092.5, subd. (c)("Nothing in this section requires the lead agency to respond to comments not received within the comment periods specified in this division, to reopen comment periods, or to delay acting on a negative declaration or environmental impact report.").).

In light of responses to comments in the FEIR and modifications to the plan already formulated, however, staff is evaluating the letter as to any further response that is appropriate.

Draft Environmental Impact Report

The MGV Draft Environmental Impact Report (DEIR) was released for public review on December 27, 2009. This initiated the 60-day public review period for the Draft EIR. Generally a 45 day review period is utilized, however, an additional 15 days was provided. The review period concluded at 5:00p.m. on February 25, 2010. The Planning Commission was provided a copy of the DEIR and, on January 28, 2010, held a public

hearing to accept comments on the Draft EIR for the Specific Plan. When the 60 day review period closed, preparation of the Final EIR commenced. The attached Final EIR includes comments received during the review period as well as responses to those comments. The Final EIR, along with the Planning Commission recommendation on the MGV Specific Plan will then be forwarded to the Board of Supervisors for consideration. Public comments on the Draft EIR and staff's responses are incorporated into the FEIR.

Unavoidable Significant Impacts

The DEIR identified six unavoidable significant impacts, for which the incorporation of mitigation measures cannot reduce the impact to a level of "less than significant". Those impacts are:

Impact 3-3:	Project Contribution to General Plan-Identified Countywide Cumulative Impacts on County Visual Character.
Impact 4-1:	Impact on Prime Farmland
Impact 5-3:	Long-Term Regional Air Emissions Increases
Impact 7-1:	Specific Plan-Related and Cumulative Increase in Greenhouse Gas Emissions
Impact 17-1:	Baseline Plus Project Impacts on Intersection Operations
Impact 17-2:	Cumulative Plus Project Impacts on Intersection Operations

These impacts are summarized in Chapter 20 of the DEIR (pg. 20-2), and are discussed in greater detail in their respective chapters of the DEIR.

Because the proposed project includes impacts that cannot be mitigated to less than significant, in order for the Board of Supervisors to approve the Plan it must adopt a Statement of Overriding Considerations. The statement reflects the County's views in balancing the merits of the project against the potential for environmental impacts.

Alternatives

Under the California Environmental Quality Act (CEQA), the County must consider the impacts of the Draft Specific Plan on the environment. The CEQA Guidelines require the analysis of alternatives to reduce potential environmental impacts and identification of an environmentally superior alternative. The guidelines further require the implementation of feasible mitigation measures to reduce environmental impacts or findings of overriding consideration.

The Draft EIR analyzed four alternatives to the proposed Draft Specific Plan. The following is a summary of the Alternatives from Chapter 19 of the Draft Environmental Impact Report. For each alternative, a brief summary of the alternative is provided. Table 19.1 of the DEIR provides a summary comparison of the environmental impacts of each of the four identified alternatives with those of the proposed Plan.

Alternative 19.1: No Project – Existing Conditions

This No Project Alternative assumes that the Specific Plan would not be implemented, and that the Plan area would remain in its existing land use condition.

The existing General Plan land use map is provided as Figure 12.2 of the Draft EIR, page 12-6. Without any new General Plan changes or Specific Plan designations, this area would remain as a Special Study Area. Existing zoning would be in effect.

Alternative 19.2: No Project – Anticipated Plan Area Future Growth Without the Proposed Specific Plan

Though the 2008 General Plan designates the Middle Green Valley area as a "Specific Project Area," the implementation programs for the Plan area provides that the minimum development credit for property designated Agriculture in the 1980 General Plan is one unit per 20 acres. This No Project alternative compares the proposed project against the anticipated future build-out of the area under a 20 acre minimum parcel size scenario. A conceptual map showing a possible build-out under this assumption is provided in the DEIR on page 19-3.

This alternative would rely on onsite water supply and wastewater disposal. No open space conservation mechanisms would be in place that would otherwise benefit the long term agricultural viability and biological resources for the area.

Under this alternative, peak period traffic impacts and associated air pollutant and greenhouse gas emission impacts would be reduced, but the development would be less energy efficient than that proposed with the draft Specific Plan. This alternative also prohibits the economic plan, proposed in the draft Plan, which increases the sustainable agriculture production of the area. The ability of a conservancy to provide farmers economic assistance towards the agricultural viability would be eliminated.

Alternative 19.3: Modified Specific Plan Land Use Layout to Avoid Prime Farmland Areas

This alternative provides for the same amount of residential units, neighborhood commercial, agricultural tourism, community services uses, with similar infrastructure as the proposed Plan, however, it directs the land use and circulation framework away from Prime Farmland.

Under the proposed project, approximately 189 acres of Prime Farmland would be dedicated to neighborhood development. Of this, 66 acres would be dedicated to land uses that foster and serve the viability of continued agricultural production, and 123 acres would be used for residential and other land uses that do not facilitate continued agricultural production.

Under this alternative, the 123 acres of higher density development would be shifted to Non-Prime Farmland on the valley floor. This scenario would displace existing cultivated agricultural lands, provide greater potential for exposure to views from Green Valley Road and other areas, and would result in greater development exposure to existing 100 year flooding and dam failure inundation.

Alternative 19.4: Reduced Development Capacity ("200/200 Plan")

This alternative provides a similar development program as the proposed Plan, but with modified primary and secondary residential units caps, 200 primary units and 200 secondary units. This would include a proportional reduction in commercial service,

agricultural tourism, and neighborhood commercial uses. Only the Elkhorn Neighborhood footprint would be incorporated, along with the Elkhorn foothills.

This alternative would have more environmental benefits than does the proposed Plan. Prime Farmland conversion, traffic related air and greenhouse gas emissions, habitat disturbance, cultural resource disturbance, energy use, noise, and sewer/water demands would all be reduced under this scenario.

This alternative would have a significant adverse effect on the economic viability of the Specific Plan program. The reduction in residential units would destabilize the proposed economic plan for continued and increased sustainable agricultural production in the area. A reduction in development credits for owners who voluntarily forego development would decrease the use of easements as a preservation tool, as well as reducing the possible success of a conservancy, which would in turn provide economic assistance toward agricultural viability.

Staff Recommended Changes

A resolution is attached as Exhibit A, recommending that the Board adopt the Specific Plan, with proposed amendments. The resolution includes its own exhibit which provides staff recommended revisions to the draft Specific Plan. The revisions include:

Removal of references to a 325 student elementary school: The draft Plan anticipated the possible location of a neighborhood school site in the Nightingale Neighborhood. The 325 student limit was due primarily to estimated traffic volumes and that any additional traffic would require additional environmental review. The school has since commented that it cannot locate a school of that size in the project area. As a result, this site is recommended to be changed to allow for community services which could include a private school of up to 100 students. County staff has met with school district representatives and have agreed to assist in locating an alternative site outside the Specific Plan study area that could suit the district's needs in the vicinity.

Trail clarification: The revisions include clarification that the trail along Neighborhood Roads, Type 3, in the Elkhorn and Three Creeks foothills will be built with the road improvements. These trails extend to the western edge of the SP area.

Road clarification: Multiple revisions are recommended concerning road improvements, road landscaping, roundabout standards, and utilizing best management practices.

Stormwater Design: The recommended changes reflect references to Grading and Drainage Standards in Section 5.5.3, as well as indicating that there should be no increased runoff beyond pre-development conditions.

Next Steps

After the close of the public hearing, the Planning Commission will forward its recommendations on the FEIR, Middle Green Valley Specific Plan, and Master Development Agreement to the Board of Supervisors. It is anticipated that the Board will consider the project on June 22, 2010.

Attachments

Exhibit A – Resolution with recommended amendments to Draft Specific Plan
Exhibit B – Draft Mitigation Monitoring Checklist
Exhibit C – Comments received, not included in FEIR
Exhibit D – Summary of changes between October 28 and December 21, 2009 drafts of Specific Plan
Exhibit E – Participation in TDR Program

Notes:

The Draft Specific Plan, Draft EIR, FEIR, and Draft Master Development Agreement have been previously sent to the Planning Commission. These documents are also available online at:
http://www.solanocounty.com/depts/rm/boardscommissions/middle_green_valley_cac/documents.asp

SOLANO COUNTY PLANNING COMMISSION
RESOLUTION NO. _____

Recommending that the Board of Supervisors Adopt
The Middle Green Valley Specific Plan, with Amendments

WHEREAS, the Solano County Planning Commission has reviewed and considered the Draft Middle Green Valley Specific Plan (Draft Specific Plan); and

WHEREAS, the Solano County Planning Commission has reviewed and considered the Draft Master Development Agreement for the Middle Green Valley Specific Plan (Master Development Agreement); and

WHEREAS, the Commission has reviewed the report of the Department of Resource Management and heard testimony relative to the Draft Specific Plan and Master Development Agreement at a duly noticed public hearing held on May 20, 2010; and

WHEREAS, a Final Environmental Impact Report (FEIR) has been prepared for the Draft Specific Plan, in accordance with the California Environmental Quality Act (CEQA) and the County CEQA Guidelines; and

WHEREAS, the Commission has considered the FEIR and public comments thereon prior to making its recommendation on the Draft Specific Plan; and

WHEREAS, the Solano County Planning Commission finds that the Draft Specific Plan, with specified amendments, is consistent with the General Plan; and

WHEREAS, the Solano County Planning Commission finds that adoption of the Draft Specific Plan, with specified amendments, is in the public interest and is necessary for the public health, safety, and welfare of Solano County; and

WHEREAS, the Solano County Planning Commission finds that:

1. Approval of the Master Development Agreement could provide a substantial benefit to the community;

2. The Master Development Agreement is consistent with the goals, objectives, and policies of the General Plan and the Middle Green Valley Specific Plan;

3. The Master Development Agreement is compatible with the uses authorized in, and the regulations prescribed for, the land use district in which the real property is or will be located, including any policy plan overlay applicable to the property;

Exhibit A

4. The Master Development Agreement would not be detrimental to the public health, safety, or welfare of the community;

5. The Master Development Agreement would promote the public convenience, general welfare, and good land use practices, and is in the best interest of the community;

6. The Master Development agreement would not adversely affect the orderly development of property and surrounding area, or the preservation of property values; and

7. The Master Development Agreement would promote and encourage the development of the proposed project by providing a greater degree of requisite certainty.

BE IT, THEREFORE, RESOLVED, that the Solano County Planning Commission recommends that the Board of Supervisors certify the FEIR, adopt findings and a mitigation monitoring and reporting program pursuant to CEQA, adopt the Draft Specific Plan, with amendments in Exhibit 1, attached to and made a part of this resolution, and approve the Master Development Agreement.

I hereby certify that the foregoing resolution was adopted at the regular meeting of the Solano County Planning Commission on May 20, 2010, by the following vote:

AYES:	Commissioners	_____
NOES:	Commissioners	_____
ABSTAIN:	Commissioners	_____
ABSENT:	Commissioners	_____

By: _____
Clifford K. Covey, Secretary

Exhibit 1 to
Planning Commission Resolution No. _____

Recommended Text Amendments to Middle Green Valley Specific Plan

---

1) **Figure 3-4 - Green Valley Corridor Plan Detail – Page 3-9.**
The graphic will be expanded to include the total Study Area boundary so that the most northeasterly portion (Engel property) is completely shown.

2) **Figure 3-5 – Elkhorn Neighborhood Plan Detail – Page 3-11.**
The "potential trail connection" will be removed from the neighborhood road type 3 shown in the western foothill area. A trail would be built as part of the road improvements as depicted on page 3-41, Neighborhood Road – Type 3.

3) **Page 3-12 – Nightingale Neighborhood – Built Fabric**
The third sentence will be revised as follows to be consistent with County direction regarding the potential school use:
A ***community services use, which could include a private*** neighborhood elementary school (maximum ***100*** 325 students) with adjoining sports fields is envisioned in the northwesterly portion of the neighborhood. Next to the school ***community services area***, a recreational/fitness center (or similar) is located to provide the community with an active gathering space.

4) **Figure 3-6 – Nightingale Neighborhood Plan Detail – Page 3-13.**
This figure will be updated to remove the label "Potential Neighborhood Elementary School Site (Public or Private)" to read "Community Services use" in the northwesterly portion of the neighborhood.

5) **Page 3-27 – 3.3.3 - Sustainable Stormwater Design**
The following sentence will be inserted after the second sentence in the first paragraph to per County direction:
"***This includes no increased runoff from the pre-development conditions.***"

6) **Page 3-28 – 3.3.3B -Sustainable Stormwater Design – Best Management Practices**
The following sentence will be inserted after the first sentence in the first paragraph of Section B:
"***Refer to Sections 5.5.3 for Grading and Drainage Standards for specific information.***"

7) **Page 3-28 – 3.3.3B2 - Best Management Practices – *Roads and Streets***
The following language will be inserted at the end of Section B2 as follows:
"Refer to Figures 3-13 and 3-14 for road and street design approaches, ***and Section 5.7 for Street and Circulation Standards.***"

8) **Page 3-33 – 3.3.4E Environmental Stewardship – *Conservation Easements***
The following language will be inserted in this paragraph to read:

As described in Chapter 4 –Implementation, conservation easement will be used to preserve agricultural and open space lands in exchange for development rights. ***Conservation easements will be held by a qualified, accredited non-profit organization for those portions of the Open Lands that require agricultural, grazing and/or on-going resource management. The Conservancy will assist in overseeing and coordinating these easements.*** This provides the main tool in preserving and aggregating agricultural and open space lands so that they are managed comprehensively.

9) **Page 3-40 – Green Valley Road (Rural Collector)**
The following language will be inserted in this paragraph to read:
This is an ***existing*** moderately paced 2-lane country road with an ***existing*** 6-8 foot asphalt trail on one side. ***This Specific Plan proposes to replace the existing trail with an improved pervious surface and provide a wider (one foot on each side), improved shoulder area (per County request). No widening of the travel way will occur. Street tree treatments and the addition of two roundabouts along the Middle Green Valley portion of the road provide traffic calming.***

10) **Figure 3-45 – Land Use Summary – Green Valley Road Corridor – Page 3-56.**
The maximum new unit number will be corrected to "***20***" rather than 23 throughout this section for the Green Valley Corridor. Three (3) units are included in the Nightingale Neighborhood for a total of ***100*** rather than 97.

11) **Figure 3-47 – Land Use Summary Nightingale Neighborhood – Page 3-60.**
The maximum new unit number has been corrected to "***100***" rather than 97.

12) **Page 3-54, Table 3-4 – Allowed Uses – b. *Recreation, Education and Public Assembly* –**
This portion of the table has been updated to reflect the revised school use designation which is: ***School (Private, Max. 100 Students).***

13) **Page 4-7 – Section 4.2.1 – Connecting on Many Levels**
The following language will be added after the last sentence of the second paragraph in this section as follows:
Conservation easements will be held by a qualified, accredited non-profit organization for those portions of the Open Lands that require agricultural, grazing and/or on-going resource management. The Conservancy will assist in overseeing and coordinating these easements to ensure that a comprehensive management strategy is used.

14) **Page 4-18 – Section 4.2.3 – Transfer of Development Rights Program, Table 4-1 – Unit Allocation**
This Table will be updated according to the final participation of landowners. Staff will provide the final Table for approval.

15) **Pages 4-21 and 4-23, Figures 4-4 and 4-5 –**
These figures will be updated to show the service routes to water storage tanks and wastewater Surge Tank.

16) **Page 4-36– Section 4.4 – Administrative Procedures – *Subsequent***

Environmental Review
The first two paragraphs on this page will be removed.

17) **Page 4-37 – Section 4.4.4– Administration**
The following language will be added after the last sentence of the second paragraph in this section as follows:
The CRC review process is in addition to all County, local, state and federal approvals and/or permitting that must take place, as applicable, for any Improvement in the Plan Area. Refer to Section 5.9.2 – Conservancy Design Review Committee Organization.

18) **Page 4-40- Section -4.5 – Development Sequencing**
The sixth bullet in this section, regarding the school sequencing requirements will be removed.

19) **Page 4-44– Section 4.6 – Financing Plan-** ***School District Impact Fees.***
The last sentence in this section will be removed.

20) **Page 5-42– Section 5.42D –** ***Exterior Walls***
Under "General", the first bullet item, the following will be added to the list of approved materials:
-Metal applications (*non-reflective, non painted, this could include corten and galvanized finishes or similar*).

21) **Page 5-70 – Section 5.5.6 – Tree and Habitat Protection, Removal, Pruning and Defensible Space**
The first full sentence will be revised as follows:
In order to maintain...the removal of trees is to be avoided whenever possible **practical.**

22) **Page 5-92 – Section 5.7.3– Roundabout and Street Standards**
The third sentence of this section will be revised as follows:
The roundabout will have a 16 foot travel lane with an ***approximate*** inside radius of 45 ***40-50 feet (to be determined in consultation with County staff).***

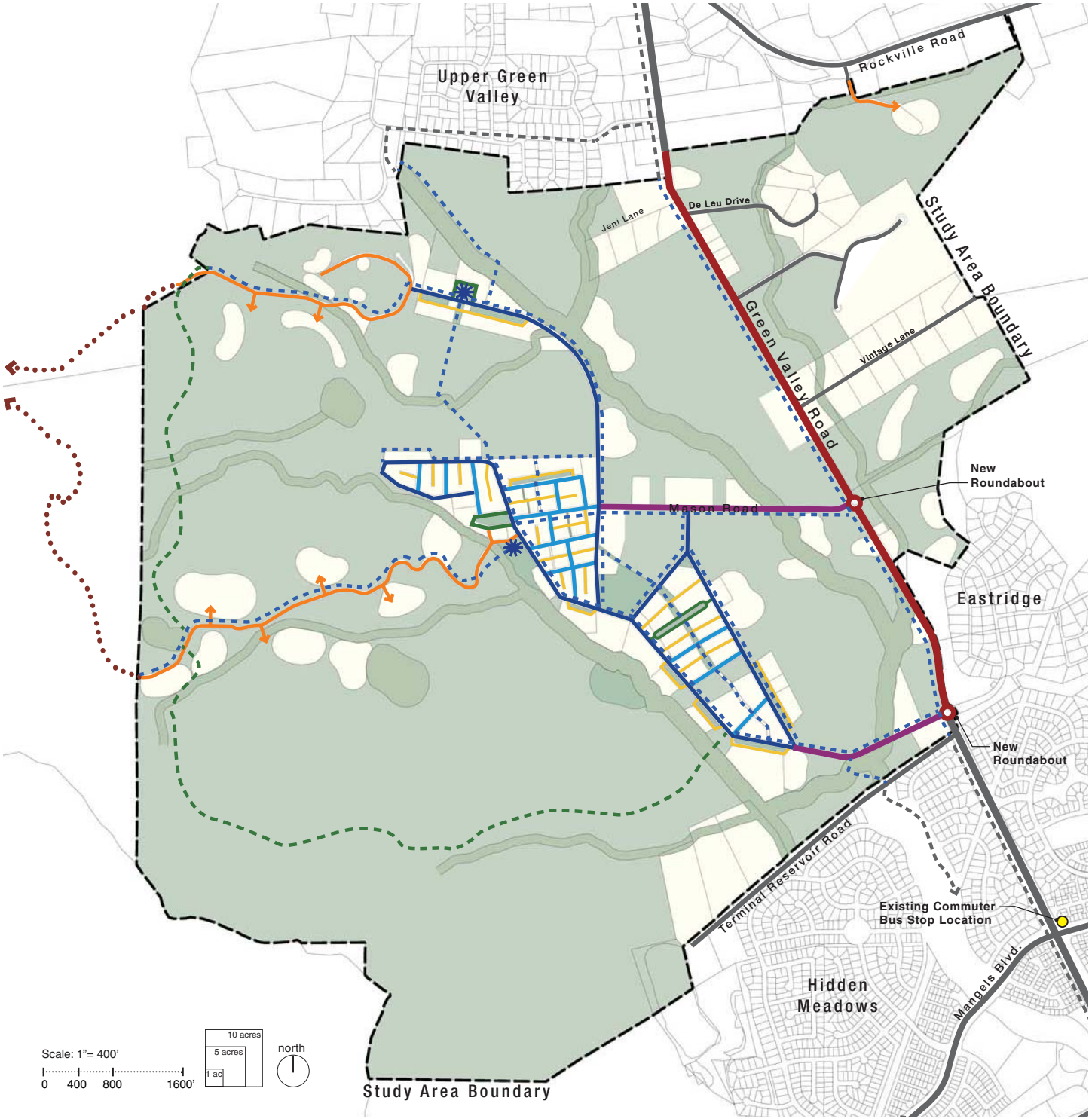
23) **Page 5-94 – Figure 5-70: Rural Collector Section and Table 5-6 – Green Valley Road Specifications**
The figure and table on this page will be updated as follows per County request:
-A 4' shoulder on each side will be shown (not including the vegetated swale and planting area)
-The maximum design speed will be revised to indicate a range, ***35mph to 45 mph.***

24) **Page 5-95– Figure 5-71: Local Road Section and Table 5-7 – Local Road Specifications**
The figure and table on this page will be updated as follows per County request:
-A 4' shoulder on each side will be shown (not including the vegetated swale and planting area)
-The ROW width will be revised to indicate to ***50-70*** feet (rather than 50-60 feet)

25) **Page 5-102 and Page 3-36 – Figures 5-77 and 3-23: Trail Network and Gray Fabric**
The figures will be updated to correct the trail indication along the Neighborhood Road Type 3 to "***Primary Trails***" rather than "Potential" trails.

26) **Page 5-115– Section 5.7.6 – Streetscape Lighting**
The first paragraph of this section will be revised as follows to clarify the intent of the street lighting approach:
The exterior lighting objective for Middle Green Valley is to preserve the dark, nighttime sky. ***With that in mind, only key intersections and the proposed roundabouts will have street lighting.*** In common areas, standard pole street lighting may only be used at key intersections. (See Figure 5-82 for ***the limited street*** light locations and Figures.... The ambient lighting from houses.....needs in neighborhoods. ***Final street light locations will be finalized in consultation with County staff to both ensure safety while complying with the goals of preserving the nighttime sky.***

27) **Page 3-61 – 3.5.5 – Neighborhood Land Use Overview – C. Nightingale Neighborhood –**
Community Services Designations and Agricultural Tourism Overlays
The second sentence will be revised as follows:
"A neighborhood elementary school (maximum of 100~~325~~ students) is envisioned in the northwesterly area ~~that focuses on agricultural awareness and education (Refer to Section 4.5 for development sequencing requirements)~~."



LEGEND

- Green Valley Road (Rural Collector)
- Local Road
- Neighborhood Road- Type 1
- Neighborhood Road- Type 2
- Neighborhood Road- Type 3
- Neighborhood Green
- Alley
- Emergency Vehicle Access
- Primary Trail System
- Potential Trail Connections
- Existing Trails
- Trailhead
- New Roundabout

Figure 3-23: Gray Fabric

5.7.4 TRAIL NETWORK – HIKING, BIKING AND PEDESTRIAN CONNECTIVITY

A network of trails, paths, and trailheads are to knit the community together and provide links to regional open space and adjacent residential areas. A hierarchy of trail types provides a multi-layered system that offers many alternative routes to move around the community on foot or by bike. Trail design principles center on creating safe, high quality walking environments while utilizing softer and more rustic paving (such as stabilized crushed rock), and wall and fence treatments, to reinforce the rural design aesthetic.

The following section provides the trail and trailhead Standards within the Plan Area. Refer to applicable street types (Section 5.7.3) for trail types, which occur along roads.

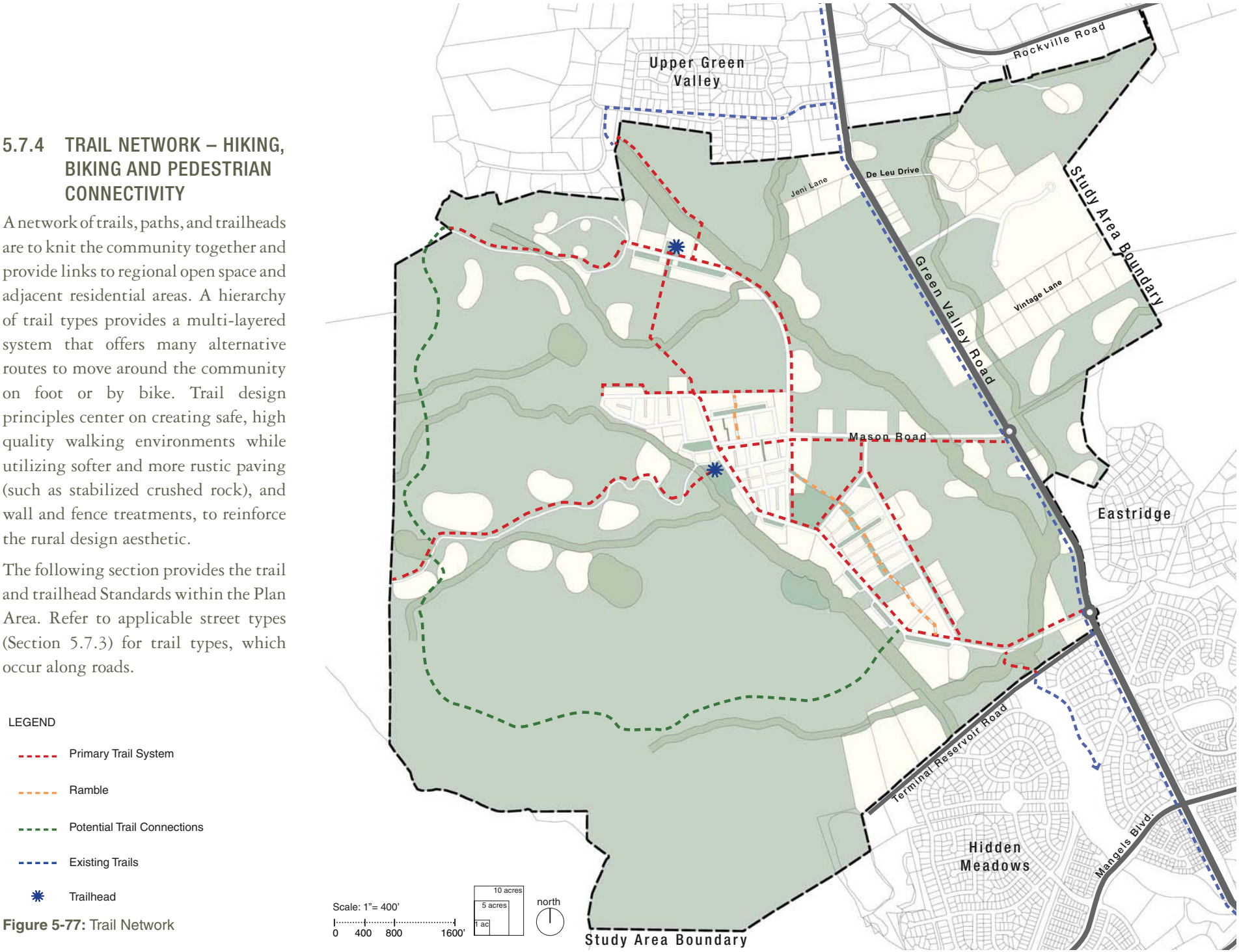


Figure 5-77: Trail Network

MITIGATION MONITORING CHECKLIST-- MIDDLE GREEN VALLEY SPECIFIC PLAN

This Mitigation Monitoring Checklist contains the Mitigation Monitoring and Reporting Program for the Middle Green Valley Specific Plan. The mitigation measures in the table represent the final language of all project mitigation measures. The mitigation measures listed in column two below have been incorporated into the Middle Green Valley Specific Plan, or the Board of Supervisors has otherwise determined that they shall be implemented, in order to mitigate identified environmental impacts. A completed and signed chart will indicate that each mitigation requirement has been complied with and that monitoring requirements have been fulfilled with respect to Public Resources code section 21081.6.

Following direction from the Solano County Board of Supervisors to implement all mitigation measures, all measures described in the Mitigation Monitoring and Reporting Program will be implemented through a combination of one or more of the following, as appropriate to nature of the measure: (1) incorporation into the Specific Plan, the plan's policies, regulations, or project designs; (2) incorporation into conditions of approval, permits, entitlements, and agreements with contractors and other parties concerning plan implementation; or (3) carried out directly by County staff.

		MONITORING			VERIFICATION	
IDENTIFIED IMPACT	**RELATED MITIGATION MEASURE**	**Implementation Entity**	**Monitoring and Verification Entity**	**Timing Requirements**	**Signature**	**Date**
AESTHETICS						
Impact 3-1: Impacts on Scenic Vistas. Prominent views from the plan area of the Western Hills have been identified in the Solano County General Plan as one of the County's important "scenic vistas." The Draft Specific Plan (DSP) neighborhood and open lands framework (DSP section 3.2.1) and associated visual resource protection policies, development standards, and design guidelines (DSP sections 3.2, 3.3, 3.4, 4.2, 4.4, and 5.1 through 5.9) have been specifically formulated with the intent to ensure that future plan area land use and development under the Specific Plan remains compatible with, benefits from, enhances and protects the rural character and unique scenic features of Middle Green Valley, including views of the Western Hills, as well as views of plan area riparian corridors, meadows and foothills. The DSP calls for establishment of a system of environmental stewardship (section 3.3.4) to implement the plan's visual and agricultural landscape preservation and enhancement goals, to be applied in conjunction with a plan area *Neighborhood Design Code* and associated Design Review Process. The Design Code would identify project-specific design submittal requirements for all future discretionary development. The proposed plan area Design Review Process is intended to supplement the requirements of the standard County development review process with a newly-established Middle Green Valley Conservancy Design Review Committee.	**Mitigation 3-1:** Prior to County approval of any future plan area subdivision or other discretionary development application, the project applicant/developer shall provide site plan, architectural, landscape and infrastructure design details demonstrating to the satisfaction of the Middle Green Valley Conservancy Design Review Committee, County staff and County Planning Commission that the development design: ▪ sufficiently protects existing visual access from Green Valley Road and other important plan area vantage points towards foreground and middle-ground rural landscapes and the Western Hills background; ▪ protects existing intervening landforms and vegetative buffers; ▪ maintains building rooflines that do not exceed existing intervening landforms and vegetative screening; and ▪ emphasizes building forms, designs, colors, materials, etc. that are reflective of and conducive to the surrounding rural landscape. Implementation of this measure would reduce this potential impact to a ***less-than-significant level.***	Individual project applicants.	MGV Conservancy Design Review Committee and County.	Prior to any subdivision or other discretionary approval.		

Exhibit B

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
Nevertheless, until individual project-specific applications are submitted with associated detailed design information sufficient to verify to Green Valley Conservancy Design Review Committee and County staff satisfaction adequate protection of scenic vistas and adequate visual screening from Green Valley Road, it is assumed that future individual development projects undertaken in accordance with the Specific Plan may disrupt views of the Western Hills and plan area riparian, meadow and foothill features, from Green Valley Road and other important vantage points. In particular, development within the DSP-designated neighborhood areas nearest Green Valley Road would have the potential to alter foreground and middle-ground views from Green Valley Road. This possible Specific Plan effect on scenic vistas represents a ***potentially significant impact.***						
Impact 3-2: Increase in Nighttime Lighting and Glare. The DSP includes a streetscape lighting description (section 5.7.6) that suggests, but does not mandate, "low-level lighting"..."where nighttime events may warrant a lighted trail or path of travel for safety" and "directional and/or facility identification signs" that "may integrate low levels of light for visibility." The DSP also indicates that "All fixtures used in the landscape will be full-cut-off fixtures that will help maintain the dark nighttime sky." (DSP page 5-113). Nevertheless, although the degree of darkness experienced in Middle Green Valley and views of stars and other features in the nighttime sky would not be substantially diminished as a result of Specific Plan implementation, project-specific new development permitted by the Specific Plan in the four designated neighborhoods, as well as the farmstand envisioned along Green Valley Road immediately north of Mason Road, would include new sources of exterior lighting in an otherwise rural setting that could result in localized "light trespass" into the nighttime sky (i.e., new sources of sky-glow) or towards Green Valley Road,	**Mitigation 3-2:** To minimize glare and "sky glow" from new outdoor area lighting, prior to County approval of any future plan area subdivision or other discretionary development application that includes exterior lighting, the project applicant/developer shall include in the project application materials lighting design measures that ensure protection of surrounding uses from spillover light and glare, use of low lighting fixtures, use of adequately shielded light sources, use of light sources that provide a natural color rendition, and avoidance of light reflectance off of exterior building walls. Incorporation of these and similar measures by a qualified design professional into the project-specific design would reduce this potential for light and glare impacts to a ***less-than-significant level.***	Individual project applicants.	MGV Conservancy Design Review Committee and County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
Mason Road, or other plan area travel routes. In addition, development of neighborhood facilities such as the anticipated school and firehouse, could include new exterior lighting features with noticeable and potentially adverse light and glare effects. The possible Specific Plan light and glare effects represent a ***potentially significant impact.***						
Impact 3-3: Project Contribution to General Plan-Identified Countywide Cumulative Impacts on the County Visual Character. The General Plan EIR has determined that cumulative development of General Plan-permitted urban land uses throughout Solano County would permanently change views, including valued scenic vistas, throughout the County and would substantially alter the visual character of the County through conversion of agricultural and open space lands to developed urban uses. The General Plan EIR notes that, although implementation of General Plan-required project-specific comprehensive design guidelines and architectural standards would reduce project-specific impacts on aesthetic resources, "there is no mechanism to allow implementation of development projects while avoiding the conversion of the local viewsheds from agricultural land uses and open spaces to urban...development." The General Plan EIR has also determined that no feasible mitigation measures or policies are available that could fully preserve existing visual qualities countywide while allowing development of urban uses under the adopted General Plan, and "Therefore, this impact would remain **significant and unavoidable"** (General Plan Draft EIR page 4.11-9). Existing vegetative screening would block views of Draft Specific Plan-designated neighborhood development from Green Valley Road. The Draft Specific Plan land use and open space framework and associated stringent development standards and design guidelines would also minimize	**Mitigation 3-3:** No mitigation has been identified which would be sufficient to eliminate the project contribution; therefore the project contribution to this impact would be ***significant and unavoidable.***	--	--	--		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
project visual impacts. The Draft Specific Plan would also retain about 78 percent of the plan area in permanent agricultural and open space use. In addition, the Draft Specific Plan includes detailed development standards and form-based design guidelines that would serve to substantially reduce the aesthetic impacts of development within the various Specific Plan-designated neighborhood areas. Nevertheless, the project contribution to this General Plan-identified cumulative impact would not be "de minimis" (the commonly-used CEQA term for an effect so small or minimal in difference to the status quo that it does not constitute an environmental impact). Therefore, under CEQA, the project contribution to this General Plan-identified significant unavoidable cumulative impact would be ***significant.***						
AGRICULTURAL AND MINERAL RESOURCES						
Impact 4-1: Impact on Prime Farmland. The 2008 Solano County General Plan indicates that the county included approximately 365,650 acres of agricultural land in 2007, including approximately 157,740 acres of "Important Farmland." This "Important Farmland" included state-designated "Prime Farmland" (farmland considered to have the soil quality, growing season, and moisture supply needed to produce sustained high yields) and "Farmland of Statewide Importance" (farmland similar to "Prime Farmland," but with minor shortcomings, such as greater slopes, etc.). The plan area includes approximately 700 acres of Prime Farmland. A principal goal of the Draft Specific Plan (DSP), implemented through the DSP-proposed Green Valley Agricultural Conservancy, Agricultural Business Plan, Resource Management Plan, and Transfer of Development Rights program, is to return the substantial portion of this 700-acre total that has not been in recent cultivation back to	**Mitigation 4-1:** The DSP would facilitate rural development within the plan area in accordance with the adopted 2008 Solano County General Plan. It has been determined that such development could, over time, permanently remove up to an estimated 123 acres of Prime Farmland from agricultural production. Chapter 19 of this Draft EIR, Alternatives to the Proposed Action, evaluates an alternative Specific Plan land use layout that would avoid all plan area Prime Farmland (Alternative 19.2). The evaluation indicates that the land use layout changes necessary to accommodate the County General Plan-suggested maximum development capacity of up to 400 new primary residential units and up to 100 new secondary residential units in a manner that avoids the 123 acres of plan area Prime Farmland would force more development into sensitive viewsheds and wildlife habitat and corridors, thereby defeating many of the key project objectives listed in section 2.3 of this Draft EIR. Therefore, it has been determined	–	–	–		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
cultivated agricultural use. Nevertheless, the DSP-designated Elkhorn, Nightingale and Three Creeks neighborhood areas overlap some areas of Prime Farmland in the plan area. The DSP-designated Agriculture Residential (5-acre minimum residential lots) and Rural Farm (2 to 5 acres per unit) land use categories within these three neighborhoods, totaling roughly 66 acres, would not preclude continued primary use for sustained high-yield agricultural production. However, the DSP-designated Rural Neighborhood (1 to 4 units per acre) and Rural Mixed-Use Center (4 to 8 units per acre) categories within these neighborhoods, totaling roughly 123 acres, would preclude continued high-yield agricultural production. The DSP would therefore, over time, convert up to approximately 123 acres of Prime Farmland to non-agricultural use. Although this DSP-related Prime Farmland loss would constitute a small (0.08 percent) portion of the County's total "Important Farmland" inventory, and would be offset by the DSP measures to return other plan area Prime Farmlands to high-yield agricultural production, it would nevertheless represent a ***significant environmental impact*** under CEQA.	that no feasible mitigation is currently available to avoid this impact, this Specific Plan-related long-term potential for conversion of Prime Farmland in the plan area to urban use would represent a ***significant and unavoidable impact.***					
Impact 4-2: Indirect Impacts on Prime Farmland. DSP-facilitated development in the Elkhorn, Nightingale and Three Creeks neighborhoods could cause conflicts between new, project-facilitated Residential or Community Services (e.g., private school) uses and adjacent or nearby Prime Farmland agricultural activity. The large size of most DSP-proposed residential lots would allow substantial building setbacks from this property line, which would reduce the possibility for conflicts. Nevertheless, the introduction of new residential uses near existing Prime Farmland operations could result in land use compatibility problems for the existing farmland operations, such as nuisance complaints from new residents, livestock disturbance by domestic pets, trespassing, and vandalism. Nuisance	**Mitigation 4-2:** Chapter 2.2 of the Solano County Code protects farm operations from nuisance complaints associated with residential uses located next to active agricultural operations. The County's "right-to-farm ordinance," as it is commonly known, guarantees existing farm owners the right to continue agricultural operations, including, but not limited to, cultivating and tilling the soil, burning agricultural byproducts, irrigating, raising crops and/or livestock, and applying approved chemicals in a proper manner to fields and farmland. The ordinance limits the circumstances under which agriculture may be considered a nuisance. To prevent future residential/agriculture conflicts in the County, notice of this ordinance is currently required to be given to purchasers of real	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
complaints can potentially cause farm operators to curtail operations, and can deter additional investment in farm-related improvements that support the county's agriculture economy. This potential conflict between DSP-facilitated existing farmland operations, residential development and existing agricultural uses represents a ***potentially significant impact.***	property. Consistent with the Solano County Code, and as a condition of future subdivision and other discretionary development approvals in the plan area, the County shall require the development applicant/developer to provide notification in writing to all prospective purchasers of Residential or Community Services property of the potential nuisances associated with adjacent and nearby farm operations and the existence of the County right-to-farm ordinance. Implementation of this measure would reduce the potential for project indirect impacts on Prime Farmland to a ***less-than-significant level.***					
AIR QUALITY						
Impact 5-1: Construction-Related Air Quality Impacts. Construction or demolition activities permitted and/or facilitated by the proposed Specific Plan may generate construction-period exhaust emissions and fugitive dust that could temporarily but noticeably affect local air quality. This would represent a ***potentially significant impact.***	**Mitigation 5-1.** The County shall require construction contractors to comply with Solano County General Plan Implementation Program HS.I-59 (best management practices) and Implementation Program RS.I-49 (requirements for diesel vehicles). In addition, for all discretionary grading, demolition, or construction activity in the Specific Plan area, the County shall require implementation of the following measures by construction contractors, where applicable: *Dust (PM_{10}) control measures that apply to all construction activities:* ▪ Water all active construction areas that have ground disturbances at least twice daily and more often during windy periods. ▪ Cover all hauling trucks or maintain at least two feet of freeboard. ▪ Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.	Individual project applicants and their construction contractors.	County.	Condition of subdivision map approval; verified during individual project construction.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	▪ Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas, and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads. *Enhanced dust (PM_{10}) control measures (for construction sites that are greater than four acres, are located adjacent to sensitive receptors, or otherwise warrant additional control measures):* ▪ Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously graded areas that are inactive for 10 days or more). ▪ Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles. ▪ Limit traffic speeds on any unpaved roads to 15 miles per hour. ▪ Replant vegetation in disturbed areas as quickly as possible. ▪ Suspend construction activities that cause visible dust plumes to extend beyond the construction site. *Measures to reduce diesel particulate matter and $PM_{2.5}$:* ▪ Post clear signage at all construction sites indicating that diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite or adjacent to the construction site. ▪ Prevent the use of construction equipment with high particulate					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	emissions. Opacity is an indicator of exhaust particulate emissions from off-road diesel powered equipment. The project shall ensure that emissions from all construction diesel-powered equipment used on the project site do not exceed 40-percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40-percent opacity (or Ringelmann 2.0) shall be repaired or replaced immediately. ▪ Ensure that contractors install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors). ▪ Properly tune and maintain equipment for low emissions. The above measures are BAAQMD-identified "feasible control measures for construction emissions of PM_{10}." Implementation of these measures would reduce the construction-related air quality impact to a ***less-than-significant level.***					
Impact 5-2: Odor Impacts on "Sensitive Receptors." Specific Plan-facilitated development in the plan area may expose sensitive receptors, such as housing and potentially a school, to odors. This effect is considered to be a ***potentially significant project and cumulative impact.***	**Mitigation 5-2.** In reviewing projects proposed in accordance with the Specific Plan, the Middle Green Valley Conservancy and County shall implement Solano County General Plan policies and implementation programs to reduce the potential for odor impacts on sensitive receptors, including Implementation Program HS.I-58 (encouraging agricultural best management practices) and Implementation Program HS.I-63 (establishing buffers). Implementation of these measures would be expected to reduce odor impacts on sensitive receptors to a ***less-than-significant level.***	MGV Conservancy and County-implemented education program; individual project applicant-implemented development design measures.	MGV Conservancy and County-implemented ongoing monitoring program (for best management practices); MGV Conservancy Design Review Committee and County verification of adequate buffering through design review (for buffer requirement).	Ongoing inspection/ monitoring of ag. operations by MGV Conservancy and County to advocate best management practices; condition of subdivision map approval (for buffering).		
Impact 5-3: Long-Term Regional Air Emissions Increases. Specific Plan-facilitated development is not reflected in the latest applicable Clean Air Plan (CAP). In	**Mitigation 5-3.** In addition to the energy-efficiency and other emissions-reducing measures already included in the Specific Plan (e.g., provisions of sidewalks, bicycle	County, by incorp. these requirements into Specific Plan; individual project	MGV Conservancy Design Review Committee and County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
addition, future traffic increases associated with Specific Plan-facilitated development would generate regional emissions increases that would exceed the latest proposed BAAQMD emission-based threshold of significance for reactive organic gases (ROG). The effect of long-term regional emissions associated with Specific Plan-facilitated development is therefore considered to be a ***significant project and cumulative impact.***	lanes, etc.), the County shall require that the Specific Plan include the following requirements: ▪ Wire each housing unit to allow use of emerging electronic metering communication technology. ▪ Restrict the number of fireplaces in residences to one per household and/or require residential use of EPA-certified wood stoves, pellet stoves, or fireplace inserts. EPA-certified fireplaces and fireplace inserts are 70- to 90-percent effective in reducing emissions from this source. Also encourage the use of natural gas-fired fireplaces. ▪ Require outdoor outlets at residences to allow use of electrical lawn and landscape maintenance equipment. ▪ Make natural gas available in residential backyards to allow use of natural gas-fired barbecues. ▪ Require that any community services operation in the plan area use electrical or alternatively fueled equipment for maintenance of the areas under its jurisdiction. These strategies can be expected to reduce Specific Plan-related regional emissions assumed in the air quality analysis by perhaps 5 percent. This amount would fall short of the 23-percent reduction needed for emissions to fall below the proposed BAAQMD significance threshold for ROG. The finding of a significant impact is based primarily on inconsistencies among the land use projections used in various plans (i.e., the proposed Specific Plan, the recently adopted Solano County General Plan, and the 2005 Bay Area Ozone Strategy). As a result, the Specific Plan's	applicants, by incorp. into project designs.				

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	inconsistency with the CAP is primarily an administrative effect, in that the CAP is out-of-date and does not reflect current planning projections. The BAAQMD is likely to adopt an updated CAP that would include the latest County projections, including proposed development in the Specific Plan area. Until the current CAP is updated to reflect changed assumptions regarding the County General Plan and Specific Plan projections, adoption and implementation of the Specific Plan would remain technically inconsistent with the current CAP. In addition, however, Specific Plan-facilitated development would likely exceed the proposed BAAQMD significance threshold for ROG, should that threshold be adopted. Since no additional feasible full mitigation has been identified, the Specific Plan's effect on long-term regional emissions increases, as reflected in these administrative provisions, would therefore represent a ***significant and unavoidable impact.***					
BIOLOGICAL RESOURCES						
Impact 6-1: General Areawide Impacts on Biological Resources. The Draft Specific Plan (DSP) neighborhood and open lands framework (DSP sections 3.2.1 and 3.3.2), street network (DSP section 3.4.3) and associated environmental stewardship provisions and habitat protection objectives (DSP sections 3.3.4 and 5.5.6) have been formulated with the intent to avoid and protect mixed oak woodland forest, grassland pockets, and Hennessey Creek and Green Valley Creek riparian corridors, and to minimize biological resource impacts in general. The Draft Specific Plan also specifically acknowledges the framework that would be established by the Bureau of Reclamation and Solano County Water Agency's proposed Solano Multi-Species Habitat Conservation Plan (HCP) (DSP section 2.4.3) for complying with federal and state regulations for special-status species	**Mitigation 6-1.** The County shall encourage avoidance, minimization and compensatory mitigation of identified biological resources, including careful consideration by prospective individual project applicants of the biological resource constraint information provided in this EIR during the pre-application project design phase. In addition, prior to County approval of any future plan area subdivision or other discretionary development application, the project proponent shall submit a *biological resources assessment report* prepared by a qualified biologist for County review and approval. The *biological resources assessment report* shall contain a focused evaluation of project-specific impacts on biological resources, including any protocol level surveys for biological resources that have been performed as may be necessary	Individual project applicants (must demonstrate compliance to County satisfaction).	MGV Conservancy Design Review Committee and County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
while accommodating future urban growth. In addition, the tree and habitat protection objectives identified in the DSP (section 5.5.6) specifically call for the protection of existing mature hardwood and oak trees; preservation, conservation and enhancement of open lands that provide wildlife habitat; minimization of tree and shrub removal in foothill areas; and repair of environmental degradation that has previously occurred. Nevertheless, based on the evaluation of biological resources occurring or potentially occurring within or in the vicinity of the DSP-designated development areas by the EIR consulting biologist, it has been determined that future individual development projects undertaken in accordance with the DSP may result in potential site-specific impacts on biological resources including sensitive vegetation and aquatic communities, special-status plant species, and special-status wildlife species, due to future individual project-level residential, commercial and mixed- use development, landscaped parkland construction, active open space land uses, and associated road and utility/infrastructure construction activities. This possibility represents a ***potentially significant impact.***	for temporary and indirect impacts, as well as all related biological impact avoidance, minimization, and compensatory mitigation measures included in the project. If the assessment results in a determination that: (a) no oak woodland area, potentially jurisdictional wetland area, or riparian habitat or other stream features would be affected; and (b) no special-status plant or animal species habitat known to occur or potentially occur on or in the vicinity of the project would be affected; no further mitigation would be necessary. If the assessment results in a determination that one or more of these features would be affected, the assessment shall identify associated avoidance, minimization, and/or compensatory mitigation measures shall be consistent with the requirements of corresponding Mitigation 6-2 through 6-13 which follow in this EIR chapter, as well as all other applicable state and federal laws and regulations. Prior to project approval, the County shall also confirm that project-level development has received the necessary permits, approvals, and determinations from applicable biological resource agencies as identified under Mitigations 6-2 through 6-13 which follow. Implementation of these measures would reduce the potential impact to a ***less-than-significant level.***					
Impact 6-2: Potential Conflict with Solano County Multispecies Habitat Conservation Plan. The Draft Specific Plan includes substantial measures intended to minimize potential conflicts between future individual developments undertaken under the Specific Plan with the policies of the Bureau of Reclamation and Solano County Water Agency's Administrative Draft Solano County Multispecies Habitat Conservation Plan (HCP). Nevertheless, if future individual project-level development undertaken under the Specific Plan includes aspects, or	**Mitigation 6-2.** The County shall ensure that, prior to construction, project-level applicants implement (a) multispecies impact avoidance, minimization and compensatory mitigation measures consistent with the Solano HCP (even if the individual project-level application does not require a jurisdictional approval from an HCP implementing agency such as the SCWA, City of Fairfield Municipal Water, or SID); or (b) comparable measures approved by applicable resource agencies. This measure would reduce the potential	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
proposes special-status species impact avoidance, minimization and/or compensatory mitigation measures, that are not consistent with the HCP as ultimately adopted, the individual project would conflict with the provisions of an adopted Habitat Conservation Plan. This possibility represents a ***potentially significant impact.***	impact to a ***less-than-significant level.*** *[Note: This mitigation measure is intended to incorporate the final HCP, once adopted.]*					
Impact 6-3: Impact on Oak Woodlands. The Draft Specific Plan includes land use and circulation configurations and associated measures intended to avoid or minimize potential impacts on existing oak woodlands. Nevertheless, future individual project-level development undertaken in accordance with the Specific Plan may result in direct, temporary and/or indirect impacts on oak woodland communities, representing a ***potentially significant impact.***	**Mitigation 6-3.** Prior to approval of future individual, site-specific development projects within the plan area, the project proponent shall submit an *oak woodland management plan*, prepared by a trained arborist or forester, which is consistent with the requirements of the Specific Plan and this EIR (see below). The *oak woodland management plan* may be integrated into the *biological resources assessment report* (see *Mitigation 6-1*). Direct impacts on oak woodland shall be mitigated by (a) conservation of oak woodland through the proposed Transfer of Development Rights program (or other method if necessary) at a minimum of a 1:1 ratio by acreage, and (b) replanting of removed heritage oaks at a 1:1 ratio. Transplantation of existing oaks would not require compensatory mitigation, unless subsequent monitoring shows that the transplanted oak has not survived the process. Implementation of this measure, combined with the detailed mitigation provisions included in the Specific Plan (see below), would reduce the potential impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 6-4: Impacts on Riparian Communities. The Draft Specific Plan includes land use and circulation configurations and associated measures intended to avoid or minimize potential impacts on Green Valley Creek and Hennessey Creek riparian communities. Nevertheless, future, individual project-level development undertaken in accordance with the Specific Plan may result in direct,	**Mitigation 6-4.** Proponents of projects that have been determined through *Mitigation 6-1* (biological resource assessment report) to involve potential impacts on riparian vegetation communities shall: (a) contact the California Department of Fish and Game (CDFG) to determine whether a Lake and Streambed Alteration Agreement is necessary; and	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
temporary, indirect impacts on riparian communities in the plan area, representing a ***potentially significant impact.***	(b) provide a detailed description of the potential riparian habitat impacts and proposed mitigation program to the Regional Water Quality Control Board (Water Board) as part of the project's Water Quality Certification application. Final mitigation for direct and permanent impacts on riparian vegetation/habitat would be subject to *jurisdictional agency approval*–i.e., approval by the CDFG and Water Board. (The term "jurisdictional agency" as used throughout the mitigation program description in this EIR chapter refers to the federal and state resource agencies with authority pertaining to the subject impact--i.e., the applicable combination of USFWS, Corps, CDFG and/or Water Board, based on the jurisdictional authorities described in sections 6.2.2 and 6.2.3 herein.) Mitigation shall include: (a) preservation of riparian habitat at the jurisdictional agency-established minimum ratio, measured by acreage, either onsite or at an approved mitigation bank; and (b) replanting riparian vegetation in preserved riparian areas at the jurisdictional agency-established minimum ratio as measured by acreage, either onsite or at an approved mitigation bank. Temporary impacts on riparian habitat may be mitigated by replanting of riparian vegetation at the jurisdictional agency-established minimum ratio. Preserved riparian habitat areas shall be protected in perpetuity by a conservation easement. New development lot lines and the edges of cultivated agricultural fields in preserved lands shall be set back from preserved riparian corridors by a minimum of 50 feet for tributaries and a minimum of 100 feet from Green Valley Creek and lower Hennessey Creek. The potential for introduction of invasive species into riparian communities shall be					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	minimized through use of the planting palettes recommended in the Specific Plan, or a comparable palette approved by the authorized jurisdictional agencies. The use of native plants shall be encouraged. To provide additional direct mitigation for project impacts on Hennessey Creek riparian vegetation, and potential indirect, in-kind mitigation for riparian impacts elsewhere in the plan area, a *Hennessey Creek conceptual restoration plan* shall be prepared. This conceptual restoration plan shall be prepared to jurisdictional agency satisfaction prior to final approval of any future plan area subdivision map or other discretionary approval involving direct impacts on Hennessey Creek riparian communities, or impacts on riparian communities elsewhere in the plan area that may be subject to in-kind mitigation. Implementation of these measures would reduce the potential impact to a ***less-than-significant level.***					
Impact 6-5: Impact on Wetlands, Streams, and Ponds. The Draft Specific Plan includes land use and circulation configurations and associated measures intended to avoid or minimize potential impacts on existing wetlands, streams and ponds. Nevertheless, future, individual project-level development undertaken in accordance with the Specific Plan may result in direct, temporary, and/or indirect impacts on wetlands, streams, and ponds in the plan area, representing a ***potentially significant impact.***	**Mitigation 6-5.** Proponents of projects that have been determined through *Mitigation 6-1* (biological resources assessment report) to involve potential impacts on wetlands, streams and ponds shall: (a) contact the California Department of Fish and Game (CDFG) to determine whether a Lake and Streambed Alteration Agreement is necessary; and (b) submit a Section 404 permit application to the U.S. Army Corps of Engineers (Corps) and a Water Quality Certification application to the Regional Water Quality Control Board (Water Board). A jurisdictional Section 404 delineation must be approved by the Corps before permits can be issued by the above-listed agencies. Final mitigation for direct and temporary impacts on wetlands, streams, and ponds	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	shall be subject to the approval of the CDFG and Water Board. Mitigation for direct impacts shall include a minimum of (a) preservation of wetland, stream, and/or pond habitat at the jurisdiction agency-established minimum ratio, measured by acreage, either onsite or at an approved mitigation bank; and (b) creation of wetland, stream, and/or pond habitat in preserved areas at the jurisdiction agency-established minimum ratio, either onsite or at an approved mitigation bank. Onsite preserved habitat areas shall be protected in perpetuity by a conservation easement. New development lot lines and the edges of cultivated agricultural fields in preserved lands shall be set back from preserved wetlands, streams, and ponds by a minimum of 50 feet from tributaries and a minimum of 100 feet from Green Valley Creek and lower Hennessey Creek. New and expanded road crossings over streams shall be designed and constructed to minimize disturbance to the stream channel by the use of measures such as clear span bridges or arch span culverts when feasible, and minimizing the number and area of footings placed in and at the margins of stream channels. The Hennessey Creek conceptual restoration area (see *Mitigation 6-4*) shall be made available to provide for mitigation of direct impacts on Hennessey Creek riparian communities, or potential in-kind mitigation for riparian impacts elsewhere in the plan area. As indicated in *Mitigation 6-4*, the potential for introduction of invasive species shall be minimized through use of the planting palettes recommended in the Specific Plan, or a comparable palette approved by the authorized jurisdictional agencies. The use of native plants shall be encouraged.					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	These measures would reduce the potential impact to a ***less-than-significant level.***					
Impact 6-6: Impact on Special-Status Plant Species Observed or Known to Occur in the Plan Area. Development undertaken in accordance with the Specific Plan may result in direct, temporary, or indirect impacts on one special-status plant species observed or known to occur in the plan area, Northern California black walnut, which is a California Native Plant Society (CNPS) List 1B species. This possibility represents a ***potentially significant impact.***	**Mitigation 6-6.** Prior to approval of future individual project-level development plans in the plan area, the potential for occurrence of special-status plant species in the proposed project area should be evaluated under *Mitigation 6-1* (biological resources assessment report requirements) by a qualified professional biologist and based on the information provided by this EIR and other appropriate literature resources. If suitable habitat for special-status plant species is present in the proposed project area, protocol-level special-status plant surveys shall be conducted during the appropriate blooming period by a qualified professional biologist. The results of the report shall be provided as part of a protocol-level *special-status plant survey report*, or integrated into other biological documentation. If special-status plant species are found during protocol-level special-status plant species surveys, the special-status plant species survey report shall provide a discussion of avoidance, minimization, and mitigation measures as appropriate for each species population. Species observed to be present shall be avoided if feasible. If avoidance of these species is not feasible, the special-status plant species shall be transplanted to suitable habitat areas using techniques most suited for the species based on best available science. This may include seed collection, transplantation, or other appropriate methods depending on the observed plant species. Potential indirect hydrology impacts shall be evaluated as part of the *special-status plant species survey report.* If special-status plant species populations could be affected by changes in hydrology as a result of the proposed project, measures	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	such as establishment of appropriate buffers and/or changes to grading contours (if feasible) shall be recommended to maintain preserved and avoided plant species populations. The potential for introduction of invasive species shall be minimized through use of planting palettes recommended in the Specific Plan or a comparable palette approved by the authorized jurisdictional agencies. The use of native plants is encouraged. Construction activities shall disturb the minimum area necessary to complete construction work and disturbed areas seeded with a mix containing native species as soon as possible following disturbance. Construction equipment shall be kept clean of vegetative material, and construction traffic shall be restricted to those areas necessary to complete construction. Implementation of these measures to the satisfaction of the listing jurisdictional agency would reduce the potential impact to a ***less-than-significant level.*** The listing jurisdictional agency is the federal, state and/or local agency--i.e., the USFWS, or CDFG, CNPS, or County–that has recognized (i.e., listed) the species as a special status species deserving special consideration because of its rarity or vulnerability.					
Impact 6-7: Impacts on Special-Status Plant Species with Potential Habitat in the Plan Area. Development undertaken in accordance with the Specific Plan may result in direct, temporary or indirect impacts on special-status plant species that have not yet been observed or are not yet known to occur, but could potentially occur, based on habitat conditions in the plan area, including CNPS List 1B species (Alkali milk-vetch, Big-scale balsamroot, Big tarplant, Narrow-anthered California brodiaea, Mt. Diablo fairy lantern,	**Mitigation 6-7.** Implement *Mitigation 6-6*. Implementation of this measure as a condition of future individual discretionary project approvals, to the satisfaction of the listing jurisdictional agency (CDFG), would reduce this potential impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
Tiburon paintbrush, Holly-leaved ceanothus, Pappose tarplant, Western leatherwood, Adobe lily, Diablo helianthella, Brewer's westernflax, Robust monardella, Baker's navarretia, Snowy Indian clover, and Saline clover) and CNPS List 2 species (Dwarf downingia, Rayless ragwort, and Oval-leaved viburnum). This possibility represents a ***potentially significant impact.***						
Impact 6-8: Impacts on Special-Status Wildlife Species Observed or Known to Occur in the Plan Area. Development undertaken in accordance with the Specific Plan may result in direct, temporary or indirect impacts on special-status wildlife species observed or known to occur in the plan area, including CDFG Species of Special Concern (Loggerhead Shrike, Grasshopper Sparrow, and Western Pond Turtle), a USFWS Bird of Conservation Concern (Lewis's Woodpecker), a Federal Threatened Species (Steelhead) and a CDFG Protected Species (Monarch Butterfly). This possibility represents a ***potentially significant impact.***	**Mitigation 6-8.** The *biological resources assessment reports* submitted by applicants for project-level developments in the plan area shall evaluate the potential for special-status wildlife species to occur in the proposed project areas and shall identify appropriate avoidance, minimization and/or compensatory measures. In accordance with *Mitigation 6-2*, the *biological resources assessment reports* shall refer to the anticipated Solano HCP for appropriate avoidance and minimization measures. Impacts on avian species protected by the Migratory Bird Treaty Act (MBTA) shall be avoided through preconstruction breeding bird surveys and avoidance of occupied nests. Implementation of this measure as a condition of individual discretionary project approval, to the satisfaction of the listing jurisdictional agency(ies), would reduce this potential impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 6-9: Impacts on Special-Status Wildlife Species with Potential Habitat in the Plan Area. Development undertaken in accordance with the Specific Plan may also result in direct, temporary or indirect impacts on special-status species that have not yet been observed or are not yet known to occur, but could potentially occur, based on habitat conditions in the plan area, including CDFG Species of Special Concern (Pallid Bat, various Western Bat species, American Badger, and Northern Harrier), CDFG Fully Protected Species (Golden Eagle and White-Tailed Kite), State Threatened Species (Swainson's Hawk) and a USFWS Bird of Conservation Concern (Golden Eagle). This	**Mitigation 6-9.** Implement *Mitigation 6-8*. Implementation of this measure as a condition of future individual discretionary project approvals, to the satisfaction of the listing jurisdictional agency (CDFG), would reduce this potential impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
possibility represents a ***potentially significant impact.***						
Impact 6-10: Impact on Loggerhead Shrike, Lewis's Woodpecker, Grasshopper Sparrow and Other Protected Bird Species. Future, individual project-level development undertaken in accordance with the Specific Plan may result in direct, temporary, and/or indirect impacts on nesting and foraging habitat for protected bird species known to occur in the plan area, including Loggerhead Shrike, Lewis's Woodpecker, and Grasshopper Sparrow, as well as other special-status and Migratory Bird Treaty Act-protected bird species with the potential to occur in the plan area, representing a ***potentially significant impact.***	**Mitigation 6-10.** If construction or other disturbance to suitable nesting habitat for these and other potential special-status bird species is conducted between February 1 and August 31, pre-construction breeding bird surveys shall be conducted by a qualified biologist no later than 30 days prior to the anticipated start of construction. Construction and removal of suitable nesting vegetation may be initiated without pre-construction surveys if removal and disturbance of suitable nesting habitat is conducted between September 1 and January 31. If breeding birds are observed during pre-construction surveys, disturbance to active nests shall be avoided by establishment of a buffer between the nest and construction activities. Appropriate buffer distances are species- and project-specific but shall follow the guidelines of the ADHCP: for example, a minimum of 500 feet would be required for Swainson's Hawk and a minimum of 250 feet for Special Management Species (Loggerhead Shrike, Grasshopper Sparrow, and Tricolored Blackbird). For all other special-status bird species, a minimum buffer distance of at least 50 feet shall be required. The *biological resources assessment reports* required under *Mitigation 6-1* for all individual discretionary development projects in the plan area shall contain analysis of measures that would be used by a proposed development project to minimize and avoid potential indirect impacts on special-status bird species. Implementation of these measures would reduce the potential impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 6-11: Impact on Western Pond Turtle. Future individual discretionary project-specific development undertaken in	**Mitigation 6-11.** The presence of suitable aquatic and dispersal habitat for WPT shall be evaluated by a qualified biologist as part	Individual project applicants (must demonstrate	County.	Prior to any subdivision or other discretionary approval.		

		MONITORING			VERIFICATION	
IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
accordance with the Specific Plan may result in direct, temporary, and/or indirect impacts on Western Pond Turtle and suitable habitat for this species, representing a ***potentially significant impact.***	of the *biological resources assessment report* required under *Mitigation 6-1*. Projects containing suitable aquatic habitat for WPT shall provide an analysis of potential impacts, along with avoidance, minimization, and mitigation measures for potential impacts on WPT. It is recommended that final avoidance, minimization, and mitigation measures be developed in consultation with CDFG and/or be consistent with the measures outlined in the anticipated Solano HCP. Direct impacts on WPT habitat shall be mitigated through implementation of the mitigation measures described above for wetlands, streams, and ponds (*Mitigation 6-5*). Indirect hydrology and water quality impacts on WPT shall be mitigated through implementation of mitigation measures recommended in chapter 11, Hydrology and Water Quality, of this EIR. These measures would reduce the potential impact to a ***less-than-significant level.***	compliance to County satisfaction).				
Impact 6-12: Impact on Steelhead. The Draft Specific Plan includes land use and circulation configurations and associated measures intended to avoid or minimize potential direct and indirect impacts on plan area streams and stream habitats. Nevertheless, future individual project-specific discretionary development undertaken in accordance with the Specific Plan may result in direct, temporary, and/or indirect impacts on Steelhead in Green Valley Creek, a Federal Threatened Species, representing a ***potentially significant impact.***	**Mitigation 6-12.** Utility crossings and new and expanded road crossings over streams shall be designed and constructed to minimize disturbance to the stream channel by using measures such as clear span bridges or arch span culverts when feasible, and by minimizing the number and area of footings placed in and at the margins of stream channels. Appropriate construction Best Management Practices (BMPs) such as those recommended in this EIR or in the anticipated Solano HCP to minimize impacts on Steelhead shall also be implemented. Design and minimization measures are subject to approval, and may change, based on consultation with the National Marine Fisheries Service (NMFS). Riparian vegetation mitigation measures outlined in *Mitigation 6-4* shall also be implemented to reduce impacts on riparian	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	vegetation that may affect Steelhead. Mitigation measures for stormwater quality and quantity identified recommended in chapter 11, Hydrology and Water Quality, of this EIR shall be implemented to minimize indirect impacts on Steelhead from stormwater and water quality changes due to construction. Implementation of these measures would reduce the potential impact to a ***less-than-significant level.***					
Impact 6-13: Impact on Wildlife Habitat Corridors and Linkages. Compared to other forms of development, the cluster development patterns proposed by the Specific Plan would greatly reduce the potential impact on habitat corridors and linkages, and the proposed preservation of large open space areas would help preserve opportunities for wildlife habitat use and movement. Nevertheless, future individual discretionary project-level development undertaken pursuant to the Specific Plan has the potential to impact wildlife habitat corridors and linkages, through the introduction of barriers to wildlife movement in the form of wider roads with increased traffic and increased development and human presence, representing a ***potentially significant impact.***	**Mitigation 6-13.** As part of the *biological resources assessment report* required under *Mitigation 6-1*, each project undertaken pursuant to the Specific Plan shall include minimization and mitigation measures for potential impacts on wildlife corridors. Measures may vary based on project location, project design, and habitat types present. Project-level developments shall maintain the limits of development specified in the Specific Plan to provide adequate buffers for habitat corridors. Stream setbacks specified in *Mitigation 6-4* shall be implemented to maintain adequate corridor widths in riparian areas to allow for movement of wildlife. Implementation of these measures would reduce the potential impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 6-14: Cumulative Impact on Biological Resources. Development in the Specific Plan area, in combination with other future development elsewhere in the county and subregion, could contribute to cumulative biological resources impacts, including cumulative losses of special-status species, Heritage Trees, and other vegetation and wildlife. These cumulative impacts have been considered in the preparation and adoption of the Solano County General Plan and County-certified General Plan EIR, as well as in similar documents prepared for and adopted in other jurisdictions. The Specific Plan's potential contribution to cumulative	**Mitigation 6-14.** The County shall ensure that *Mitigations 6-1* through *6-13* above are implemented. With successful implementation of these measures, the Specific Plan's contribution to the cumulative biological resources impact would be reduced to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
effects on biological resources would represent a ***potentially significant cumulative impact.***						
CLIMATE CHANGE						
Impact 7-1: Specific Plan-Related and Cumulative Increase in Greenhouse Gas Emissions. Construction and ongoing operation of Specific Plan-facilitated development would result in a net increase in carbon dioxide and other greenhouse gas emissions. The Specific Plan contains guidelines and principles for encouraging energy efficiency in new development within the plan area. In addition, Specific Plan-facilitated new building construction and other improvements would be required to meet California Energy Efficiency Standards for Residential and Nonresidential Buildings, helping to reduce associated future energy demand and associated Specific Plan contributions to cumulative regional greenhouse gas emissions. Nevertheless, conservatively assuming construction emissions of 66 to 1,443 tons per year and an estimated ongoing "worst case" net increase in greenhouse gas emissions of approximately 10,779 metric tons per year (or 6.65 metric tons per year per capita), the proposed Specific Plan could be expected to result in a ***significant project and cumulative global climate change impact.***	**Mitigation 7-1.** The proposed Specific Plan contains measures to encourage energy efficiency in new Specific Plan-facilitated development. To further ensure that the proposed Specific Plan facilitates growth in a manner that reduces the rate of associated greenhouse gas emissions increase, discretionary approvals for Specific Plan-related individual residential, commercial, agricultural, and public services projects in the Specific Plan area shall be required to comply with the Climate Action Plan to be developed and adopted by the County. In the interim, Specific Plan-related discretionary approvals shall incorporate an appropriate combination of the following greenhouse gas emissions reduction measures (from Table 7.3): ▪ features in the project design that would accommodate convenient public transit and promote direct access for pedestrians and bicyclists to major destinations; ▪ adoption of a project design objective for residential and commercial buildings to achieve Leadership in Energy and Environmental Design (LEED) New Construction "Silver" Certification or better, in addition to compliance with California Code of Regulations Title 24 Energy Efficient Standards; ▪ planting of trees and vegetation near structures to shade buildings and reduce energy requirements for heating and cooling; ▪ preservation or replacement of existing onsite trees;	Individual project applicants.	MGV Conservancy Design Review Committee and County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	▪ construction and demolition waste recycling (see *Mitigation 16-12* of this EIR); and ▪ preference for replacement of project exterior lighting, street lights and other electrical uses with energy efficient bulbs and appliances. Implementation of appropriate combinations of these mitigation measures in individual Specific Plan-related developments would substantially reduce Specific Plan-related greenhouse gas emissions impacts. However, because the effectiveness of this mitigation program in reducing the Specific Plan-related contribution to cumulative greenhouse gas emissions in the region cannot be reasonably quantified, it has been determined that the Specific Plan, when combined with anticipated overall cumulative development in the region as a whole, would potentially produce a substantial net increase in greenhouse gas emissions, representing a ***significant unavoidable project and cumulative climate change impact.***					
CULTURAL, HISTORIC AND PALEONTOLOGICAL RESOURCES						
Impact 8-1: Disturbance of Archaeological Resources. The Draft Specific Plan (DSP) neighborhood and open lands framework (DSP sections 3.2.1 and 3.2.2), streetwork (DSP section 3.4.3) and associated environmental stewardship objectives (DSP section 3.3.4) have been formulated with the intent to preserve and protect archaeological resources. The DSP proposes development of housing, community/public service uses, "agricultural tourism uses," and neighborhood commercial uses clustered around four neighborhoods, with the remaining 78 percent of the plan area preserved as open land. The DSP-proposed Green Valley Conservancy, a non-profit conservation organization, would oversee these preserved areas. Nevertheless, DSP-designated	**Mitigation 8-1.** During the County's normal project-specific environmental review (Initial Study) process for all future, discretionary, public improvement and private development projects in the Specific Plan area, the County shall determine the possible presence of, and the potential impacts of the action on, archaeological resources, based on the information provided by this EIR. For projects involving substantial ground disturbance, the individual project sponsor or environmental consultant shall be required to contract with a qualified archaeologist to conduct a determination in regard to cultural values remaining on the site and warranted mitigation measures.	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Ongoing inspection/ monitoring during construction.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
development and agricultural areas have the substantial potential to contain buried or obscured prehistoric cultural resources, as verified by the EIR consulting archaeologist. Agricultural activities and grading activities associated with future individual development projects undertaken in accordance with the DSP may disturb existing unrecorded sensitive archaeological resources in the plan area. This possibility represents a ***potentially significant impact.***	In general, to make an adequate determination, the archaeologist shall conduct a preliminary field inspection to (1) assess the amount and location of visible ground surface, (2) determine the nature and extent of previous impacts, and (3) assess the nature and extent of potential impacts. Such field inspection may demonstrate the need for some form of additional subsurface testing (e.g., excavation by auger, shovel, or backhoe unit), or, alternatively, the need for onsite monitoring of subsurface activities (i.e., during grading or trenching). To complete the inventory of prehistoric cultural resources, mechanical testing is recommended in areas adjoining Hennessey Creek and Green Valley Creek where ground disturbance may be proposed. In addition, evaluative testing may be necessary to determine whether a resource is eligible for inclusion on the California Register of Historic Places. If a significant archaeological resource is identified through this field inspection process, the County and project proponent shall seek to avoid damaging effects on the resource. Preservation in place to maintain the relationship between the artifact(s) and the archaeological context is the preferred manner of mitigating impacts on an archaeological site. Preservation may be accomplished by: ▪ planning construction to avoid the archaeological site; ▪ incorporating the site within a park, green space, or other open space element; ▪ covering the site with a layer of chemically stable soil; or ▪ deeding the site into a permanent conservation easement (e.g., an easement administered by the proposed Green Valley Conservancy).					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	When in-place mitigation is determined by the County to be infeasible, a *data recovery plan*, which makes provisions for adequate recovery of culturally or historically consequential information about the site, shall be prepared and adopted prior to any additional excavation being undertaken. Such studies shall be submitted to the California Historical Records Information System (CHRIS). If Native American artifacts are indicated, the studies shall also be submitted to the Native American Heritage Commission. Identified cultural resources shall be recorded on form DPR 422 (archaeological sites). Mitigation measures recommended by these two groups and required by the County shall be undertaken, if necessary, prior to resumption of construction activities. A *data recovery plan* and data recovery shall not be required if the County determines that testing or studies already completed have adequately recovered the necessary data, provided that the data have already been documented in another EIR or are available for review at the CHRIS (CEQA Guidelines section 15126.4[b]). In the event that subsurface cultural resources are otherwise encountered during approved ground-disturbing activities for a plan area construction activity, work in the immediate vicinity shall be stopped and a qualified archaeologist retained to evaluate the finds following the procedures described above. If human remains are found, special rules set forth in State Health and Safety Code section 7050.5 and CEQA Guidelines section 5064.5(e) shall apply. Implementation of this measure would supplement the County's existing General Plan policies and implementation programs					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	and would reduce this impact to a ***less-than-significant level.***					
Impact 8-2: Destruction/Degradation of Historic Resources. The planning process for the Draft Specific Plan (DSP) included consideration of the Secretary of the Interior's standards and other provisions for protecting historic resources. In addition, the 55 existing housing units in the plan area--some of which represent historic-period resources--would not be affected by DSP-facilitated neighborhood and infrastructure framework. Nevertheless, future project-specific development in accordance with the Specific Plan may result in substantial adverse changes in the significance of one or more individual potentially significant historic properties in the plan area. If a historic resource were the subject of a future, site-specific development proposal, substantial adverse changes that may potentially occur include physical demolition, destruction, relocation, or alteration of one or more of these identified resources, such that the resource is "materially impaired." A historic resource is considered to be "materially impaired" when a project demolishes or materially alters the physical characteristics that justify the determination of its significance (CEQA Guidelines section 15064.5[b]). Such an adverse change to a CEQA-defined historic resource would constitute a ***potentially significant impact.***	**Mitigation 8-2.** Generally, for any future discretionary action within the Specific Plan area that the County determines through the CEQA-required Initial Study review process may cause a "substantial adverse change" to an identified historic resource, the County and applicant shall incorporate measures that would seek to improve the affected resource in accordance with either of the following publications: ▪ The Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*; or ▪ The Secretary of the Interior's *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.* In accordance with the recommendations of the Holman & Associates cultural resources inventory, evaluation of the affected resource shall include consideration of (a) the research potential of the property type, (b) the total number of similar resources in the Specific Plan area and potential impacts on the plan area as a whole, and (c) the preservation and study priorities identified in the Holman & Associates inventory. Each site shall be formally recorded on State of California primary record forms (form DPR 523) and applicable attachments. Recording shall consolidate as many of the structures and features as possible into one site (i.e., record form) where there is a clear historical association, despite the frequent dispersal of features across the plan area. Successful incorporation of these measures would supplement the County's existing General Plan policies and	County (CEQA-required Initial Study responsibility) and individual project applicants.	County.	Prior to issuance of grading or building permit.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	implementation programs and would reduce the impact to a ***less-than-significant level*** (CEQA Guidelines section 15126.4[b]). This mitigation shall be made enforceable by its incorporation into the Specific Plan as a County-adopted requirement to be implemented through subsequent development-specific permits, conditions, agreements, or other measures, pursuant to CEQA Guidelines section 15064.5(b)(3-5). For any future discretionary action that would result in the demolition of an identified historic resource, or otherwise cause the significance of the resource to be "materially impaired," the County shall determine through the Initial Study process that the resulting potential for a significant impact is unavoidable, thereby requiring a project-specific EIR (CEQA Guidelines section 15064.5[a] and [b]). In these instances, potentially significant standing structures and/or features shall be evaluated by a qualified architectural historian familiar with the region and its resources. The County shall use this information to formulate a mitigation plan for the resource, including avoiding the structure or feature or moving it to another location and/or donating some features or samples of artifacts to local historical guilds for public interpretation and permanent curation. If standing structures would be moved or destroyed, potential subsurface impacts and the presence/absence of below-ground features, such as buried foundations and filled-in privies and wells, shall be evaluated and addressed. While existing archival information may be sufficient to address applicable research issues for some resources, focused documentary research and/or oral histories may be required to develop an appropriate contextual framework for interpretation and evaluation of other resources.					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
Impact 8-3: Destruction/Degradation of Paleontological Resources. Development facilitated by the Specific Plan could disturb existing known or unrecorded paleontological resources in the plan area. This possibility represents a ***potentially significant impact.***	**Mitigation 8-3.** During the County's normal project-specific environmental review (Initial Study) process for all future, discretionary public improvement and private development projects in the Specific Plan area, the County shall determine the possible presence of, and the potential impacts of the action on, paleontological resources. For projects involving substantial ground disturbance, the County shall require individual project applicants to carry out the following measures: *(1) Education Program.* Project applicants shall implement a program that includes the following elements: ▪ Resource identification training procedures for construction personnel; ▪ Spot-checks by a qualified paleontological monitor of all excavations deeper than seven feet below ground surface; and ▪ Procedures for reporting discoveries and their geologic content. *(2) Procedures for Resources Encountered.* If subsurface paleontological resources are encountered, excavation shall halt in the vicinity of the resources and the project paleontologist shall evaluate the resource and its stratigraphic context. The monitor shall be empowered to temporarily halt or redirect construction activities to ensure avoidance of adverse impacts on paleontological resources. During monitoring, if potentially significant paleontological resources are found, "standard" samples shall be collected and processed by a qualified paleontologist to recover micro vertebrate fossils. If significant fossils are found and collected, they shall be prepared to a reasonable point of identification. Excess sediment or matrix shall be removed from the specimens to reduce the bulk and cost of	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Ongoing inspection/ monitoring during construction.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	storage. Itemized catalogs of material collected and identified shall be provided to the museum repository with the specimens. Significant fossils collected during this work, along with the itemized inventory of these specimens, shall be deposited in a museum repository for permanent curation and storage. A report documenting the results of the monitoring and salvage activities, and the significance of the fossils, if any, shall be prepared. The report and inventory, when submitted to the lead agency, shall signify the completion of the program to mitigate impacts on paleontological resources. Implementation of this measure would reduce the impact to a ***less-than-significant level.***					
GEOLOGY AND SOILS						
Impact 10-1: Landslide and Erosion Hazards. The Specific Plan would allow development in areas that may be subject to landslide and erosion hazards, representing a ***potentially significant impact.***	**Mitigation 10-1.** At County discretion and consistent with Solano County General Plan policies HS.P-12 through HS.P-15 and HS.P- 17 and implementation programs HS.I-21 and HS.I-22, future subdivision and other discretionary development approvals may be subject to *detailed, design-level geotechnical investigations* that include analysis of landslide and erosion hazards and recommend stabilization measures. The County may also require preparation of Preliminary Grading Plans and/or Preliminary Geotechnical Reports, prepared by a licensed Engineering Geologist, before approval of specific developments within the plan area. Under this existing County authority, the investigating Engineering Geologist may be required to determine the extent of any necessary landslide remediation and supervise remediation activities during project construction to ensure that any existing or potential future landslides are fully stabilized. Mitigation measures (e.g., soil replacement, setbacks, retaining walls) shall be required as needed to protect against damage that might be caused by	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	slope failure. Required compliance with these existing Solano County policies, implementation programs and development review procedures to the satisfaction of the County would reduce the potential effects of landsliding and soil erosion to a ***less-than-significant level.***					
Impact 10-2: Expansive Soil Hazards. Most of the areas proposed for development under the Specific Plan have "moderate" to "high" shrink-swell potential. The plan area's moderately to highly expansive soils would be expected to undergo repeated cycles of shrinking and swelling in response to changes in soil moisture. Utility lines, road and building foundations, and sidewalks and concrete flatwork constructed on top of naturally occurring expansive soils, or based on fills that contain a high percentage of expansive soils, would be subject to long-term damage, representing a ***potentially significant impact.***	**Mitigation 10-2.** The *detailed, design-level geotechnical investigations* required at the County's discretion (see *Mitigation 10-1*) shall include analysis of expansive soil hazards and shall recommend warranted stabilization measures. The individual project Engineering Geologist shall inspect and certify that any expansive soils underlying individual building pads and all roadway subgrades have been either removed or amended in accordance with County-approved construction specifications, or shall make site-specific recommendations for grading, drainage installation, foundation design, the addition of soil amendments, and/or the use of imported, non-expansive fill materials, as may be required to fully mitigate the effects of weak or expansive soils and prevent future damage to project improvements. These recommendations shall be reviewed and approved by a County-retained registered geologist and incorporated into a report to be included with each building permit application and with the plans for all public and common area improvements. Implementation of these measures to the satisfaction of the County, combined with conformance with standard Uniform Building Code and other applicable regulations, would reduce the potential effects of expansive soils to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 10-3: Groundwater Impacts. Mass grading, construction of cuts and fills, redirection of existing drainage patterns, and installation of landscaping irrigation as part of future development allowed by the Specific Plan could affect existing patterns of groundwater flow in the plan area, resulting in	**Mitigation 10-3.** Onsite drainage systems shall be regularly maintained to ensure that storm water runoff is directed away from all slope areas. Educational materials that discourage overwatering in landscaped areas shall be furnished to all future lot owners and property managers at the time	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
slope instabilities that would represent a ***potentially significant impact.***	of purchase and periodically thereafter (perhaps by inclusion with water or tax bills), as part of an effort to control groundwater seepage. Implementation of these measures to the satisfaction of the County would reduce this potential effect to a ***less-than-significant level.***					
HYDROLOGY AND WATER QUALITY						
Impact 11-1: Construction-Period Impacts on Water Quality. Surface water pollutants associated with Specific Plan-facilitated construction activity, including soil disturbance associated with grading activities, could significantly degrade the quality of receiving waters in Hennessey Creek, Green Valley Creek and, ultimately, Suisun Bay, representing a ***potentially significant impact.***	**Mitigation 11-1.** The County shall ensure that the developer of each future Specific Plan-facilitated discretionary development in the plan area complies where applicable with all current state, regional, and County water quality provisions, and in particular, complies with the process of development plan review established in the County's Storm Water Management Plan (SWMP), and associated County NPDES permit issuance requirements instituted to address short-term and long-term water quality issues, including construction period activities. Implementation of this requirement would reduce this impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 11-2: Ongoing Impacts on Water Quality. Ongoing activities associated with project-facilitated development could increase the level of contaminants in receiving waters. Sources of pollutants could include (a) runoff from new roadways, parking areas, and other paved areas; (b) increased soil disturbance, erosion and sedimentation in surface waters due to expanded and new agricultural activities; and (c) herbicides, pesticides, and fertilizers used in expanded and new agricultural activities and new domestic landscaping. These factors could combine to significantly reduce drainage channel capacities and degrade the quality of receiving waters in Hennessey Creek, Green Valley Creek, and ultimately, Suisun Bay, representing a ***potentially significant impact.***	**Mitigation 11-2.** As a condition of future discretionary development approvals in the plan area, the County shall ensure that developers comply with applicable Solano County Storm Water Management Plan and NPDES permit requirements, including implementation of erosion and sediment control measures for farming activities in accordance with Solano County storm water management requirements and best management practices. In addition, as recommended in the County General Plan under Implementation Program RS.I-67, the minimum riparian buffer width to protect water quality and ecosystem function shall be determined according to existing parcel size. For parcels more than 2 acres in size, a minimum 150- foot development setback shall be provided. For parcels of 0.5-2.0 acres, a minimum 50-foot setback shall be provided. For parcels less than 0.5 acre a minimum 20-foot setback shall be provided. Exceptions to these	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	development setbacks apply to parcels where a parcel is entirely within the riparian buffer setback or development on the parcel entirely outside of the setback is infeasible or would have greater impacts on water quality and wildlife habitat. Implementation of this measure would reduce the impact to a ***less-than-significant level.***					
Impact 11-3: Flooding Impacts. For the most part, the Specific Plan-designated development areas avoid identified creek and dam failure inundation areas. Nevertheless, a limited number of Specific Plan-designated Agricultural-Residential (5-acre minimum lots), Rural Farm (1 to 5 acres per unit) and Rural Neighborhood (1 to 4 units per acre) land use designations in the proposed Elkhorn, Nightingale and Three Creeks neighborhoods overlap the Solano County General Plan-identified Lakes Madigan & Frey Dam Inundation Area and Green Valley Creek 100-year flood zone, the latter as mapped by the Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM) program. Since there are as yet no specific development proposals associated with these residential land use designations, direct flooding impacts cannot be determined. Nevertheless, these Specific Plan-designated residential development area overlaps could potentially result in the placement of housing within a dam failure inundation zone or 100-year flood hazard area, with associated risks to public safety and property damage, and could result in the placement of structures in the flood zone which would impede or redirect flood flows. These possible effects represent a ***potentially significant environmental impact.***	**Mitigation 11-3.** As a condition of future residential subdivision and other discretionary development approvals in these particular areas, the County shall ensure that project-specific applications comply with Solano County General Plan policies and requirements related to flood hazard protection, including policies HS.P-5 (appropriate elevation and flood proofing), HS.P-7 (mitigation requirements to bring risks from dam failure inundation to a reasonable level), and HS.I-11 (applicant-prepared engineering report requirements for new development for human occupancy in designated dam failure inundation areas). Implementation of this measure would reduce the impact to a ***less-than-significant level.***	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		
NOISE						
Impact 13-1: Impact of Green Valley Road Traffic Noise on Specific Plan-Facilitated Residential Development. The Draft Specific Plan (DSP) designated neighborhood framework (DSP section 3.2.1)	**Mitigation 13-1.** For project-specific residential development proposals on sites adjoining Green Valley Road, the County shall require applicants to conduct site-specific noise studies that identify, to	Individual project applicants.	MGV Conservancy Design Review Committee and County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
has been formulated with the intent to separate noise sensitive land uses from Green Valley Road. Nevertheless, DSP-designated residential development in the Three Creeks Neighborhood along Green Valley Road may be exposed to traffic noise that exceeds "normally acceptable" levels established by the Solano County General Plan (i.e., noise greater than 60 dBA L_{dn}), representing a ***potentially significant impact.***	County satisfaction, noise reduction measures that would be included in final design to meet State and County noise standards. These measures may include the following: ▪ Minimizing noise in residential outdoor activity areas (i.e., ensuring that noise levels would be below 65 dBA L_{dn}) by locating the areas at least 50 feet from the center line of Green Valley Road and/or behind proposed buildings. ▪ Providing air conditioning in all houses located within 100 feet of Green Valley Road so that windows can remain closed to maintain interior noise levels below 45 dBA L_{dn}. Implementation of these measures would reduce the impact to a ***less-than-significant level.***					
Impact 13-2: Effect of Proposed Noise-Generating Land Uses on Noise-Sensitive Land Uses. Noise-generating land uses facilitated by the Draft Specific Plan, such as agricultural activities, commercial uses, and the possible fire station and wastewater treatment plant, may expose noise-sensitive uses such as housing, recreational areas, and the possible future onsite school to noise and/or vibration. Possible noise exposure exceeding State and Solano County standards represents a ***potentially significant impact.***	**Mitigation 13-2.** New noise-generating uses facilitated by the Specific Plan shall be subject to the noise compatibility guidelines, standards, policies, and implementation programs established by the Solano County General Plan. In accordance with General Plan Implementation Program HS.I-67, noise analysis and acoustical studies shall be conducted for proposed noise-generating uses, as determined necessary by the County, and noise abatement measures shall be included to County satisfaction to ensure compliance with applicable guidelines and standards. In addition, new noise-sensitive uses developed adjacent to noise-generating uses shall be designed to control noise to meet the noise compatibility guidelines, standards, policies, and implementation programs established by the Solano County General Plan. In accordance with General Plan Implementation Program HS.I-67, noise analysis and acoustical	Individual project applicants.	MGV Conservancy Design Review Committee and County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	studies shall be conducted for proposed noise-sensitive uses, as determined necessary by the County, and noise attenuation features shall be included to ensure compliance with applicable guidelines and standards. Implementation of these measures would reduce this impact to a ***less-than-significant level.***					
Impact 13-3: Specific Plan-Facilitated Construction Noise. Existing and future rural residential and other potential noise-sensitive land uses throughout the Specific Plan area could be intermittently exposed to noise from Specific Plan-facilitated future, project-specific construction activity, representing a ***potentially significant impact.***	**Mitigation 13-3.** To reduce noise impacts from Specific Plan-related construction activities, the County shall require future project-specific discretionary developments to implement the following measures, as appropriate: ▪ *Construction Scheduling.* Ensure that noise-generating construction activity is limited to between the hours of 7:00 AM to 8:00 PM, Monday through Friday, and that construction noise is prohibited on Saturdays, Sundays, and holidays. ▪ *Construction Equipment Mufflers and Maintenance.* Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment. ▪ *Equipment Locations.* Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project site. ▪ *Construction Traffic.* Route all construction traffic to and from the construction sites via designated truck routes where possible. Prohibit construction-related heavy truck traffic in residential areas where feasible.	Individual project applicants.	MGV Conservancy Design Review Committee and County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	▪ *Quiet Equipment Selection.* Use quiet construction equipment, particularly air compressors, wherever possible. ▪ *Noise Disturbance Coordinator.* For larger construction projects, designate a "Noise Disturbance Coordinator" who would be responsible for responding to any local complaints about construction noise. The Disturbance Coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and institute reasonable measures to correct the problem. Conspicuously post a telephone number for the Disturbance Coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule. (The County should be responsible for designating a Noise Disturbance Coordinator and the individual project sponsor should be responsible for posting the phone number and providing construction schedule notices.) Implementation of these measures would reduce this impact to a ***less-than-significant level.***					
Impact 13-4: Specific Plan-Facilitated and Cumulative Traffic Noise Impacts on Green Valley Road. Traffic from Specific Plan-facilitated development would increase traffic noise levels on Green Valley Road by 3 to 4 dB above existing levels. While the Specific Plan-related traffic noise increase alone would not represent a significant impact, its contribution to the cumulative traffic noise increase on Green Valley Road south of Eastridge Drive would represent a ***significant cumulative impact.***	**Mitigation 13-4.** To reduce the traffic noise increase along Green Valley Road, the County should consider the use of noise-reducing pavement, along with traffic calming measures (which could achieve noise reductions of approximately 1 dBA for each 5 mile-per-hour reduction in traffic speed). These measures may not be feasible, however, and may not be directly applicable to the Specific Plan, particularly since the segment of Green Valley Road where the highest traffic noise increase is expected (the northbound segment south of Eastridge Drive) is not within the Specific Plan area. The Specific Plan's contribution to the cumulative traffic noise increase along Green Valley Road is therefore	County.	County.	None.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	considered a ***significant unavoidable impact.***					
PUBLIC HEALTH AND SAFETY						
Impact 15-1: Future Storage and Use of Agricultural Chemicals. In all four Draft Specific Plan-designated neighborhoods, the plan would permit residential development adjoining agricultural uses, some of which may store and/or use pesticides or other hazardous substances. Agricultural uses allowed by the Draft Specific Plan would also adjoin certain offsite residential areas, such as the upper Green Valley neighborhood north of the Specific Plan area and the Hidden Meadows subdivision south of the plan area. In addition, in the proposed Nightingale Neighborhood, the Specific Plan would also allow development of an elementary school in the northwestern corner of the neighborhood, close to but not adjoining agricultural areas. The potential exposure of residents or other site occupants to pesticides or other hazardous substances used in agriculture would represent a ***potentially significant impact.***	**Mitigation 15-1.** As an amendment to the proposed Specific Plan (Policy OL-11) and/or as part of the proposed Resource Management Plan and/or Agricultural Business Plan, the County shall require a minimum 200-foot-wide buffer between residential and school uses and locations on agricultural properties within and adjoining the Specific Plan area where agricultural pesticides or other hazardous substances may be stored or used. In addition, the County shall ensure that agricultural operators within the Specific Plan area comply with all applicable local, state, and federal regulations regarding hazardous materials, including Solano County General Plan provisions, Solano County Code requirements, and the permitting processes of the Solano County Department of Resource Management and Solano County Agriculture Department. These measures would reduce the impact to a ***less-than-significant level.***	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		
Impact 15-2: Hazardous Materials from Proposed Onsite Wastewater Treatment Plant (Wastewater Options B and C). Operation of the proposed wastewater treatment plant within the Specific Plan area under proposed Wastewater Option B (Onsite Treatment) and Wastewater Option C (Fairfield-Suisun Sewer District Connection/ Onsite Treatment Combination) would involve regular handling, use, and disposal of hazardous materials and wastes during the course of normal operations. In addition, the onsite wastewater treatment plant would create the potential for release of raw or treated sewage or other stored hazardous materials through mishandling or an emergency situation. These potential hazards would represent a ***potentially significant impact.***	**Mitigation 15-2.** Implement *Mitigation 16-5.* In addition, after the wastewater treatment plant and associated collection system have been installed, the County shall confirm that a full environmental regulatory compliance review has been conducted to verify that, based on the actual equipment stalled and specific quantities of hazardous materials handled, used, and disposed, the facility is operating in compliance with applicable environmental laws and regulations. These measures would reduce the impact to a ***less-than-significant level.***	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
PUBLIC SERVICES AND UTILITIES						
Impact 16-1: Project Domestic Water Facilities Impacts on Existing Wells--Option B (Onsite Groundwater). It is anticipated that the three or more onsite wells proposed under water supply Option B under full buildout conditions would use a small and less than significant portion of the water annually recharged into the Green Valley-Suisun Valley aquifer. Although the precise location of the three or more wells proposed under Option B has not yet been determined, it is considered unlikely that any existing wells located in the Middle Green Valley would experience significant water table fluctuations attributable to pumping from one or more of the proposed project wells, given the relatively high water table elevation, high soil permeability, and large aquifer volume in the area. Nevertheless, until Option B well locations have been specifically identified and adequately tested, analyzed and monitored, it is assumed for CEQA purposes that one or more of the project wells could possibly contribute to underperformance or failure of one or more existing nearby wells due to water table fluctuations, particularly after successive years of drought conditions. This possibility represents a ***potentially significant environmental impact.***	**Mitigation 16-1:** Under water supply Option B, the well monitoring and reporting procedure required by the County for community water systems shall include evaluation (testing, analysis and monitoring) of potential drawdown resulting from operation of the proposed Option B wells. In the event that significant drawdown with documented adverse effects on nearby existing wells is observed, the Option B CSA management shall implement corrective measures sufficient to mitigate the impacts to a level of less than significant, to the satisfaction of the County Division of Environmental Health, possibly including some combination of the following: ▪ Extending the depth of the problem project well(s) or affected well(s) sufficient to correct the impact; ▪ Providing replacement project or replacement affected well(s); or ▪ Providing a water supply connection for the affected well(s) to the Option B water supply system. Implementation of this measure would reduce this impact to a ***less-than-significant level.***	MGV County Service Area.	County.	Monitoring and reporting procedure shall be established to County satisfaction prior to approval of first subdivision map.		
Impact 16-2: SID System Adequacy to Meet Project Irrigation Demands. The Solano Irrigation District (SID) would continue to provide for agricultural irrigation supply needs within existing SID boundaries. The Specific Plan also proposes that most development area domestic landscape irrigation needs would be supplied by the SID, as is typical of other kinds of residential development in the unincorporated portions of Green Valley. SID has indicated that its existing system serving the plan area is operating at or near capacity, and that additional analysis may be necessary to	**Mitigation 16-2:** Implement the following: (1) SID will not serve any lands located outside the SID boundary. SID service to any lands within the plan area that are outside the existing SID boundary would require annexation to SID. Annexation of land to SID shall conform to the requirements of SID, USBR, and the Solano County Local Agency Formation Commission (LAFCO). For any proposed SID annexation, complete the additional analysis deemed necessary by SID to determine whether sufficient capacity is available to serve the proposed annexation	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
determine whether sufficient capacity is available to provide additional service within the plan area. Until such additional analysis is completed and verifies to SID satisfaction sufficient system capacity to serve the plan-proposed additional demands, it is assumed that SID capacity may be insufficient, representing a ***potentially significant environmental impact.***	area, and satisfy the other annexation requirements of SID, USBR, and LAFCO. (2) Per SID Rules and Regulations, a separate water service (turnout) shall be provided to each newly created parcel within the district (i.e., with the current SID boundary or annexed plan area land) at the applicant/ developer's expense. SID and the applicant/ developer will need to determine how, If, and what type of service (agricultural irrigation or municipal landscape irrigation) each separate parcel is to receive. The applicant/developer may be required to pay to have SID's engineer perform an analysis of the existing system to determine if there is sufficient capacity to serve the proposed development. (3) Landscape irrigation service to the proposed development would require the design and installation of a municipal-style water system. At a minimum, the applicant/ developer shall provide for a headworks pumping plant, either off one of SID's pipelines or off the USBR Green Valley Conduit, to provide pressurized service to each parcel of the development. Depending on anticipated demand and existing SID system capacity, the applicant/developer may be required to pay for any necessary upgrades to existing SID water facilities required to adequately serve all parcels of the development at the same times, since rotated water service deliveries are impractical and difficult to enforce on municipal-type systems. (4) If additional SID agricultural service to the proposed development is required, the design and installation of individual turnouts to each parcel and a rotational service schedule would need to be determined and followed. At a minimum, the applicant/developer shall provide for pipelines and appurtenances to provide service to each parcel of the development. In addition, the applicant/developer may be required to pay for any necessary					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	upgrades to existing SID water facilities required to adequately serve all parcels of the development at the same time, depending on the proposed demand and system capacity. (5) All costs associated with the design and installation of any SID water extension system shall be at the expense of the applicant/ developer. SID shall review and approve the proposed system design prepared by the applicant/developer's engineer. (6) System installation shall be to SID's standards. SID would require the applicant/ developer to sign a work order acknowledging and approving all costs associated with the review of the design and to have a SID inspector onsite during system installation. (7) Arrangements satisfactory to SID shall be made for the design and construction of the new system before SID will approve a parcel map. (8) The applicant/developer shall provide easements for all new pipelines and facilities that would be granted to SID, including all facilities up to and including individual lot meters. (9) No permanent structures shall be allowed to be constructed over SID's existing rights-of-way, nor shall any trees be planted within 6 feet of the edge of any SID pipelines. (10) SID pipelines shall not be located within any of the proposed residential lots. (11) Water that could be provided by SID is non-potable and not for human consumption, and cannot be treated onsite for potable uses. Therefore, before SID provides non-potable water service, the developer shall provide proof of an alternate source of potable water for the					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	property. Since each parcel would be served with both potable and non-potable water, all lines and fixtures connected to SID's non-potable service shall be clearly marked "NON-POTABLE – DO NOT DRINK." (12) Upon completion of construction of non-potable service to the subject properties, land owners shall contact SID to establish water service accounts. (13) The SID certificate shall be added to all final parcel maps, subdivision maps, and improvements plans in the plan area, and SID shall review, approve, and sign all maps and plans. Implementation of this measure would reduce this impact to a ***less-than-significant level.***					
Impact 16-3: Project Construction Impacts on Existing SID, USBR and City of Vallejo Facilities in the Plan Area. Construction activity associated with buildout under the proposed Specific Plan, including general development activity as well as Specific Plan-proposed water and wastewater facilities construction, may affect existing Solano Irrigation District (SID), U.S. Bureau of Reclamation (USBR) and City of Vallejo water easements and facilities in the plan area, representing a ***potentially significant environmental impact.***	**Mitigation 16-3:** Plans for development contiguous to SID, USBR and City of Vallejo easements and facilities, or roadway or utility crossings of these facilities, shall be submitted to and approved by these agencies prior to implementation. Any submittal to the USBR shall be through the SID. No permanent structures shall be located over or within these existing pipeline easements without an alternative route being offered at developer expense. Utility crossings shall provide a minimum of three feet of clearance between the utility and the pipelines. Proposals for roadway crossings of any of these pipes shall include an engineered stress analysis on the pipe to ensure the pipeline would withstand proposed roadway loadings. Residential lots shall not be located within SID, USBR, City of Vallejo easements. Wastewater lines and other facilities on residential lots shall be kept clear of SID and USBR easements. Any sewer lines crossing USBR facilities shall be installed	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	in a secondary casing across the USBR right-of-way. The applicant/developer shall sign an "Agreement for Protection of Facilities" before the start of any construction on or contiguous to any SID or USBR facilities. The agreement shall be followed during construction contiguous to or crossing any SID or USBR pipelines and easements. At the applicant/ developer's expense, SID would repair any construction damage to SID or USBR facilities, and the City of Vallejo would repair any construction damage to City facilities. Implementation of this measure would reduce this impact to a ***less-than-significant level.***					
Impact 16-4: Potential Project Exceedance of FSSD Wastewater Treatment System Capacity--Options A (FSSD Connection) and C (FSSD Connection/Onsite Treatment Combination). Specific Plan wastewater treatment Option A would involve connection of the proposed Specific Plan development area to the Fairfield Suisun Sewer District (FSSD) via an existing City of Fairfield conveyance system. The proposed Specific Plan development program would generate an estimated approximately 135 acre feet per year of wastewater treatment demand not specifically accounted for in current FSSD wastewater management planning, including the current FSSD Master Plan. The adequacy of the FSSD treatment plant, Cordelia Pump Station and associated City of Fairfield collection mains to accommodate the project contribution to anticipated cumulative future treatment demands has not been determined. The project-plus-cumulative demands for wastewater treatment may therefore exceed future City of Fairfield conveyance and FSSD treatment capacity, representing a ***potentially***	**Mitigation 16-4:** The Specific Plan proposes establishment of a County Service Area (CSA) pursuant to California Government Code section 25210.1 et seq. to provide the financing and management for providing wastewater treatment services to the proposed Specific Plan development areas. Once approved, the CSA would be granted limited funding and management powers and the Board of Supervisors may act as the CSA board. The proposed CSA may issue general obligation bonds or revenue bonds to finance the necessary wastewater and other common infrastructure, which would be funded by development connection and user fees. Prior to County approval of any future residential subdivision map or substantive discretionary non-residential development application in the plan area under wastewater treatment Options A or C, implement the following: (1) establish the Specific Plan-proposed County Services Area (CSA) for the development area;	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
significant project and cumulative environmental impact.	(2) formulate and adopt the Specific Plan-proposed Wastewater Master Plan for the development area; (3) establish agreement with the FSSD to serve the ultimate development area wastewater treatment need identified in the Wastewater Master Plan; and (4) establish associated wastewater system connection and user fees sufficient to fund the ultimate development area wastewater treatment facility needs identified in the Wastewater Master Plan, including purchase of required FSSD treatment capacity and construction of associated sewer system infrastructure--e.g., onsite collection system, offsite parallel municipal sewer main installation, associated capacity upgrades to the Cordelia Pump station, etc. (CSA Responsibility). Incorporation of these measures as Specific Plan policy would reduce this potential impact to a ***less-than-significant level.***					
Impact 16-5: Potential Project Inconsistency with State Tertiary Wastewater Discharge Standards--Options B (Onsite Treatment) and C (FSSD Connection/Onsite Treatment Combination). Under proposed wastewater service Option B (onsite wastewater treatment system), Wastewater from the Specific Plan development areas would be collected and treated onsite using a local collection system similar to Option A, but instead of a connection to the FSSD, the collected wastewater would be conveyed to an onsite Membrane Bioreactor (MBR) package wastewater treatment plant that would treat the collected wastewater to tertiary recycled water standards. The tertiary treated wastewater would then be reused onsite for agricultural irrigation, ornamental landscaping irrigation, park and playing field landscaping irrigation, toilet	**Mitigation 16-5:** Prior to County approval of any future residential subdivision map or discretionary non-residential development application in the plan area under wastewater treatment option B or C, implement the following: (1) establish the Specific Plan-proposed CSA for the Specific Plan development area; (2) formulate and adopt the Specific Plan-proposed Wastewater Master Plan for the proposed development areas (CSA responsibility); (3) establish associated wastewater system connection and user fees sufficient to fund ultimate Specific Plan development area wastewater treatment facility needs identified in the Wastewater Master Plan,	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
flushing, and other jurisdictionally permitted uses. Although the Specific Plan proposes to treat all collected wastewater to County and State tertiary cycled water standards, until the Specific Plan proposed Master Wastewater Plan for Options B and C, including complete engineering specifications for the onsite treatment system, are completed to County satisfaction and the associated recycled wastewater reuse aspect is approved by the RWQCB and CDPH, it is assumed that Options B and C may not comply with the wastewater treatment water quality and environmental health protection standards, and ongoing monitoring and reporting requirements, administered by these two state agencies, representing a *potentially significant environmental impact.*	including construction and ongoing operation, monitoring and maintenance of the onsite wastewater treatment and disposal system (CSA responsibility); and (4) complete the RWQCB Discharge Permit process for the proposed irrigation in designated areas, and CDPH permit procedures pursuant to CCR Title 22 standards for the proposed use of tertiary treated wastewater for irrigation (CSA responsibility).					
Impact 16-6: Potential Project Inconsistencies with SID Standards--Options B (Onsite Treatment) and C (FSSD Treatment Combination/Onsite Treatment). The Specific Plan proposes that, under wastewater treatment Options B or C, tertiary-treated wastewater would be reused onsite for agricultural and domestic irrigation purposes in conjunction with Solano Irrigation District (SID) water. The Solano Irrigation District (SID) may determine that delivery of tertiary effluent from the onsite MBR treatment plant via the existing SID conveyance system for agricultural and domestic irrigation purposes may be unsuitable for certain types of irrigation and therefore undesirable to the District. This proposed aspect of Wastewater treatment Options B and C may therefore be infeasible, representing a ***potentially significant impact.***	**Mitigation 16-6:** In addition to compliance with California Department of Public Health (CDPH) and San Francisco Bay Regional Water Quality Control Board (RWQCB) groundwater and environmental health protection standards (see Mitigation 16-1-2), any project Wastewater Management Plan proposal to use SID conveyance or delivery components to supplement the project recycling system shall be designed to SID satisfaction or eliminated. One possible approach may involve SID delivery of raw water to a single point in the proposed CSA system, for plan area distribution by a CSA-operated distribution system. Formulation of this Wastewater Master Plan component to SID satisfaction would reduce this impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 16-7: Project Impact on Fire Protection and Emergency Medical Services. Development in accordance with the Specific Plan may increase the demand for fire protection and emergency medical services sufficiently to create a need for new or altered facilities, representing a ***potentially significant impact.***	**Mitigation 16-7.** Before approval of the first Tentative Subdivision Map application in the Specific Plan area, the County shall obtain written verification from the Cordelia Fire Protection District (CFPD) that either (1) the CFPD's need for a new fire station in the general vicinity has been met (e.g., by plans for a new station on the Rockville	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	Trails Estates site), or (2) a new fire station is needed within the Specific Plan area. If the latter is verified, the County shall require plans for construction of a fire station within the plan area as a condition of Tentative Subdivision Map approval, and confirm that any necessary additional environmental review is conducted. Incorporation of these measures as Specific Plan policy would reduce the impact to a ***less-than-significant level.***					
Impact 16-8: Project Impacts on Emergency Response, Evacuation, and Access. Development in accordance with the Specific Plan would cause traffic increases and congestion on Green Valley Road, possibly delaying emergency response and evacuation, representing a ***potentially significant impact.***	**Mitigation 16-8.** Implement mitigation measures identified in chapter 17, Transportation and Circulation, to reduce the impacts of Specific Plan-related traffic on Green Valley Road and other local roads. In addition, before approval of each Tentative Subdivision Map in the Specific Plan area, the County shall obtain written verification from the CFPD and Cal-Fire that proposed emergency access provisions meet CFPD and Cal-Fire road design and emergency access standards and require any necessary changes as a condition of map approval. Incorporation of these measures as Specific Plan policy would reduce impacts on emergency response, evacuation, and access to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 16-9: Project Wildfire Hazard Impact–Ongoing. The Specific Plan would introduce residential (Rural Meadow, Rural Neighborhood and Agriculture-Residential) and residential/commercial (Rural Neighborhood/ Community Service) land within or adjacent to areas where wildland fire danger is "moderate" to "very high." Specific Plan-facilitated development within or abutting these areas would create an "urban/wildland interface," increasing the risk of wildland fires and associated needs for additional fire protection personnel and facilities. Failure to sufficiently reduce this urban/wildland interface fire hazard through appropriate fuel management and other fire suppression techniques and/or provide the necessary fire equipment access, emergency evacuation, and additional fire protection	**Mitigation 16-9.** Implement *Mitigation 16-7* and *Mitigation 16-8*. In addition, as a condition of Certificate of Occupancy approval, each individual discretionary development project in the Specific Plan area shall meet all applicable California Building Code and California Uniform Fire Code standards (including standards for building materials, construction methods, fire sprinklers, etc.) and all applicable State and County standards (including Solano County General Plan policies) for fuel modification and/or brush clearance in adjacent areas. Incorporation of these measures as Specific Plan policy would reduce the impact to a ***less-than-significant level.***	Individual project applicants.	County.	Prior to County issuance of Certificate of Occupancy.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
personnel and facilities, could result in substantial safety hazard and impair CFPD response time and evacuation efforts, representing a ***potentially significant impact.***						
Impact 16-10: Project Wildfire Hazards–Construction Period. Construction in Specific Plan-designated development areas may involve handling and storage of fuels and other flammable materials, creating temporary fire hazards in the "urban/wildland interface" and representing a ***potentially significant impact.***	**Mitigation 16-10.** As a condition of each Tentative Subdivision Map in the Specific Plan area, the County shall require that construction contractors conform to all applicable fire-safe regulations in applicable codes, including California Occupational Safety and Health Administration (OSHA) and local requirements for appropriate storage of flammable liquids and prohibition of open flames within 50 feet of flammable storage areas. Incorporation of these measures as Specific Plan policy would reduce the impact to a ***less-than-significant level.***	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		
Impact 16-11: Impact of Specific Plan Proposed Trails on Bay Area Ridge Trail Plan. Unless subsequent trail implementation plans are coordinated with the Bay Area Ridge Trail Council, proposed trails within the Specific Plan area may not meet Bay Area Ridge Trail standards, representing a ***potentially significant impact.***	**Mitigation 16-11.** As a condition of each Tentative Subdivision Map in the Specific Plan area, the County shall require written verification that the Bay Area Ridge Trail Council has reviewed and approved final trail design and construction to ensure that trails within the Specific Plan area comply with Bay Area Ridge Trail standards, as appropriate. Incorporation of this measure as Specific Plan policy would reduce the impact to a ***less-than-significant level.***	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		
Impact 16-12: Project Construction-Period and Long-Term Solid Waste Impact on Landfills. Construction and operation of land uses proposed by the Specific Plan would generate solid waste that would require disposal at a landfill. While landfill capacity is currently expected to be adequate to serve this development, the situation could change over the life of the Specific Plan, particularly if the currently pending Potrero Hills Landfill expansion proposal is not approved before the scheduled landfill closure date of January 1, 2011. Any potential for inadequate landfill capacity or the potential need for new facilities would represent a ***potentially significant impact.***	**Mitigation 16-12.** The project shall comply with Solano County General Plan policies and other provisions calling for source reduction and recycling in construction and ongoing operations. As a condition of each Tentative Subdivision Map in the Specific Plan area, the County shall require the applicant to provide written verification from the appropriate landfill operator that adequate landfill capacity is available to accommodate construction and operation of the project. In addition, the applicant shall be required to prepare and implement a recycling plan for the construction phase of the project.	Individual project applicants (must demonstrate compliance to County satisfaction).	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	The recycling plan shall address the major materials generated by project construction and identify means to divert a portion of these materials away from the chosen solid waste landfill. Incorporation of this measure as Specific Plan policy would reduce the impact to a ***less-than-significant level.***					
TRANSPORTATION AND CIRCULATION						
Impact 17-1: Baseline Plus Project Impacts on Intersection Operations. The project would contribute significantly to baseline level of services impacts (i.e., intersection turning movement volumes) at the following local intersections during typical weekday peak hours: *Weekday AM Peak Hour:* (Intersection #9) Green Valley Road at the I-80 Westbound On-Ramp (project-generated traffic would exacerbate already unacceptable baseline operations [LOS F] by increasing the overall intersection traffic volume by more than one percent at this stop-sign controlled intersection) (Intersection #10) Green Valley Road at the I-80 Eastbound Ramps (project-generated traffic would exacerbate already unacceptable baseline operations [LOS F] by increasing the overall intersection traffic volume by more than one percent at this signalized intersection) *Weekday PM Peak Hour:* (Intersection #5) Green Valley Road at Westlake Drive (project-generated traffic would result in an LOS change from C under baseline conditions to E under baseline plus project conditions at this stop sign controlled intersection) (Intersection #7) Green Valley Road at Business Center Drive (project-generated traffic would result in an LOS change from E	**Mitigation 17-1:** (1) Baseline plus project impacts on this stop sign controlled intersection 5, Green Valley Road at Westlake Drive, would trigger the need for mitigation sufficient to bring project-plus-baseline operations back to LOS B and C in the AM and PM peak hours respectively. If the City of Fairfield determines in the future that a traffic signal is warranted at this intersection, the City and County shall agree on a fair-share portion of the signal installation cost to be assigned to the plan area, and the County shall identify an associated fair share per residential unit contribution as a condition of subsequent individual subdivision map approvals in the plan area. Implementation of this measure would reduce this particular intersection impact to a ***less-than-significant level.*** (2) For project impacts on intersections 7 and 9, the City and County shall agree on a proportionate fair-share of the cost of planned interim improvements to the Green Valley Road/I-80 interchange that have been identified by the City of Fairfield to be assigned to future subdivision and other discretionary development approvals in the plan area, including: ▪ At signalized intersection 7, Green Valley Road at Business Center Drive, improvement plans are being developed to allow for free right-turn	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
under baseline conditions to F under baseline plus project conditions at this signalized intersection) (Intersection #9) Green Valley Road at the I-80 Westbound On-Ramp (project-generated traffic would exacerbate already unacceptable baseline operations [LOS F] by increasing the overall intersection traffic volume by more than one percent at this stop-sign controlled intersection) (Intersection #10) Green Valley Road at the I-80 Eastbound Ramps (project-generated traffic would result in an LOS change from E under baseline conditions to F under baseline plus project conditions at this signalized intersection) These project-generated intersection LOS changes would represent a ***significant impact.***	movements on the northbound and southbound approaches to the intersection. The southbound free right-turn would also include construction of a separate right-turn lane for the southbound Green Valley Road approach to Business Center Drive. ▪ At unsignalized intersection 9, Green Valley Road at the I-80 Westbound on-ramp, the on ramp leg of the intersection is to be realigned to allow for the addition of a separate left-turn lane for northbound Green Valley Road, along with a new traffic signal. The County and City shall agree on a fair-share cost to be assigned to the plan area for these improvements, and the County shall identify an associated fair share per residential unit contribution as a condition of subsequent individual subdivision map approvals in the plan area. (3) For project impacts on signalized intersection 10, Green Valley Road at the I-80 Eastbound Ramps, the planned reconstruction of the Green Valley Road/I-80 interchange would ultimately mitigate the anticipated AM and PM peak hour baseline plus project operational impacts; however, no feasible interim improvements to the interchange have been identified to mitigate this impact (mitigation would ultimately require reconstruction–i.e., widening--of the overpass). Implementation of the mitigation measures identified above for intersections 7 and 9 would substantially reduce the amount of peak hour delay per vehicle at these two intersections, but not to less than significant levels. The projected background plus project peak hour ratings at study intersections 7, 9, and 10 would remain at LOS E or F. In addition, because the County does not have jurisdiction over any of these study intersections within the					

IDENTIFIED IMPACT	RELATED MITIGATION MEASURE	MONITORING			VERIFICATION	
		Implementation Entity	Monitoring and Verification Entity	Timing Requirements	Signature	Date
	City of Fairfield, implementation of the mitigation measures listed above for intersections 5, 7 and 9 cannot be assured. Therefore, until the proposed City/County fair-share funding program for intersections 5, 7 and 9 is established, and the planned I-80/I-680/SR 12 Interchange Improvement Project (the planned reconstruction of the I-80/I-680/SR 12 and Green Valley Road interchange, as described in section 17.1.3 herein) is funded and implemented, the projected interim baseline plus project intersection impacts on intersections (5), (7), (9) and (10) are considered to be ***significant and unavoidable.***					
Impact 17-2: Cumulative Plus Project Impacts on Intersection Operations. Under projected cumulative (2030) plus project conditions, the project would contribute significantly to further deterioration of traffic operations at intersection 5, Green Valley Road at Westlake Drive, in the PM peak hour, reducing operations from LOS C to LOS E. This intersection LOS change would represent a ***potentially significant cumulative impact.***	**Mitigation 17-2:** The cumulative plus project condition at this intersection would not warrant installation of a traffic signal. It is recommended that this intersection remain in its current unsignalized condition, since the project-related significant delay would be limited to the left-turn movement at the side street (Westlake Drive) approach in the PM peak hour only, and alternative routes are available to motorists at this location. This impact is therefore considered to be ***significant and unavoidable.***	Individual project applicants.	County.	Prior to any subdivision or other discretionary approval.		

Nancy Sweeney, MSW, MPA.
Fairfield, California 94534
Tel. (707) 864-9440
Fax (707) 864-9440

March 9, 2010

Matt Walsh – Principal Planner
675 Texas Street, Suite 5500
Fairfield, CA 94533

RE: **Request for changing my parcel # 0148-020-040 from A-40 to AG-R designation included in the Middle Green Valley Specific Plan Preliminary DRAFT**

Dear Mr. Walsh:

Thank you very much for meeting with me this afternoon at Supervisor James Spering's office. As I indicated to you this study is non-consistent because all of my neighbors are in RF zoning while my property is being singled out through the proposed plan which divides it into 5 acres AG-R and 5 acres AG-P. As a result, I am requesting that my 10 acre parcel be placed under AG-R designation.

Please respond by March 16, 2010.

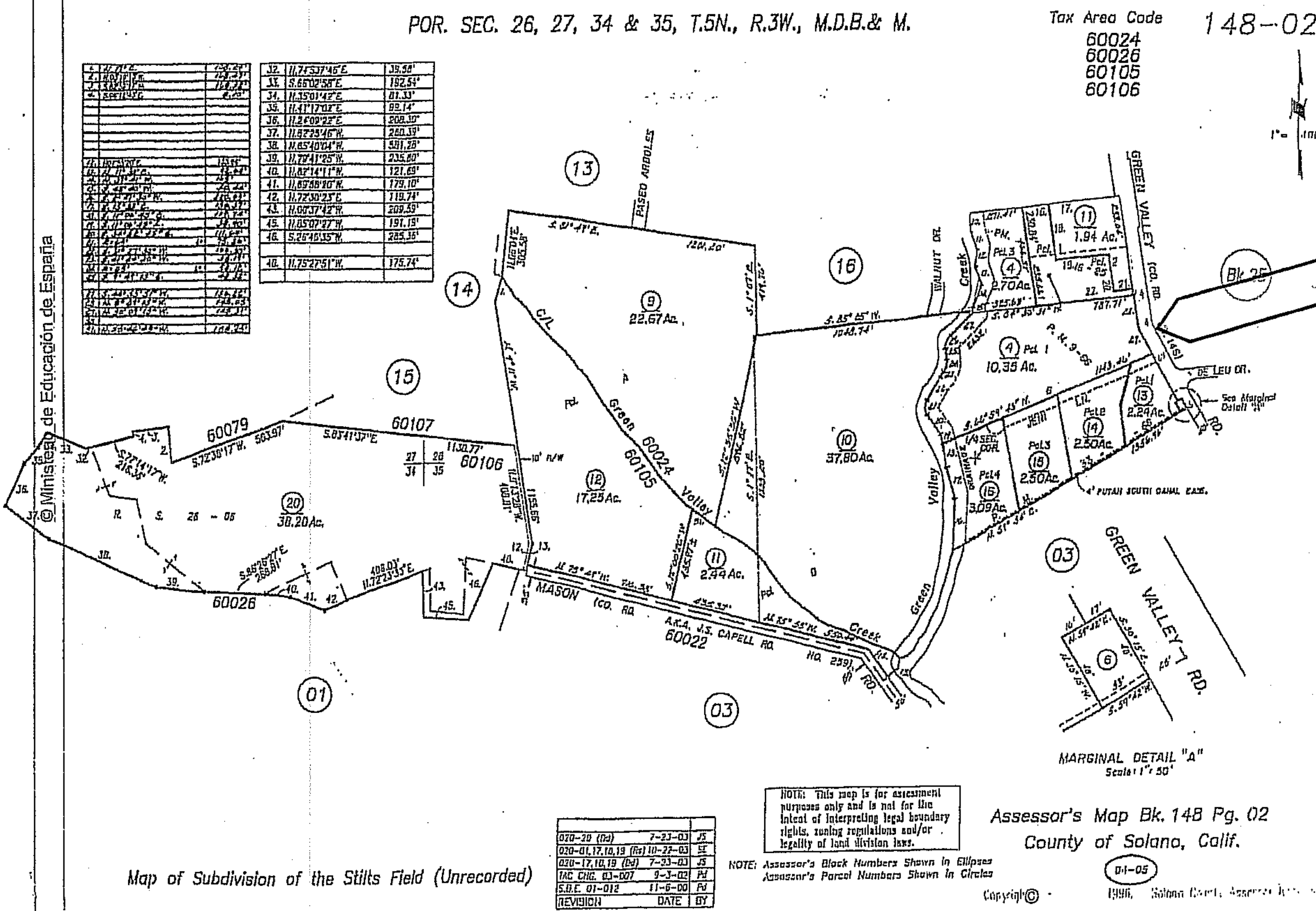
Sincerely,

Nancy I. Sweeney

Nancy I. Sweeney, MSW, MPA.

Attachments:
1) Location Map

Exhibit C


POR. SEC. 26, 27, 34 & 35, T.5N., R.3W., M.D.B.& M.
Tax Area Code
60024
60026
60105
60106
148-02
1" = 100'
GREEN VALLEY (CO. RD.
GREEN VALLEY RD.
MASON (CO. RD.
A.K.A. J.S. CAPELL RD.
60022
PASEO ARBOLES
WALNUT DR.
DE LEU DR.
Green Valley Creek
Bk. 25
13
14
15
16
01
03
9
22.67 Ac.
10
37.80 Ac.
11
2.44 Ac.
12
17.25 Ac.
20
38.20 Ac.
4
10.35 Ac.
11
1.94 Ac.
4
2.70 Ac.
13
2.24 Ac.
14
2.50 Ac.
18
2.50 Ac.
15
3.09 Ac.
60079
60107
60106
60024
60105
60026
MARGINAL DETAIL "A"
Scale: 1" = 50'
See Marginal Detail "A"
NOTE: This map is for assessment purposes only and is not for the intent of interpreting legal boundary rights, zoning regulations and/or legality of land division laws.
NOTE: Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles
Assessor's Map Bk. 148 Pg. 02
County of Solano, Calif.
01-05
Map of Subdivision of the Stilts Field (Unrecorded)
020-20 (Dd) 7-23-03 JS
020-01,17,18,19 (Rs) 10-22-03
020-17,18,19 (Dd) 7-23-03 JS
TAC CHG. 03-007 9-3-02 Pd
S.D.E. 01-012 11-6-00 Pd
REVISION DATE BY

Saturnino Del Castillo
1630 Mason Rd.
Fairfield, CA 94534
(707) 864-2072

March 1, 2010

Brigitta Corsello
675 Texas St. Suite 5500
Fairfield, CA 94533

Dear Ms. Brigitta Corsello:

We are the owners of the 82 acres located at 1630 Mason Rd. in Green Valley (parcel number 0148-030-020-01). I am writing to you because we are very unhappy with the way the Green Valley specific plan is going. In the past we have tried to communicate our concerns to Mr. Yankovich but he has not responded to us or helped us in any way. We are very unhappy because we have been treated very unfairly in this planning process.

The county assigned a task force to work on this project which included landowners Ms. Linderman, daughter of Mr. Mason, Mr. Russo (B&L Properties), Mr. Hager, and Mr. Wiley. The task force which was set up to work on this project is suppose to represent all of the property owners but it is clear that the decisions they have made about how to develop the properties benefit them at our expense. The following chart shows how the allowed development units are broken up for the task force members and how they compare to our allotment:

Name	Acres	Terrain	Allowed New Units	Existing Units	Total Acres/Dwelling	Additional Units
Mason	772.1	Mostly Hills	178	2	4.29	Many Mixed Use Units
B&L Properties	253	Flat	58	6	3.95	CS Units
Hager	40.2	Flat	9	1 Winery	4.02	CS Units
Wiley	15.6	Flat	4	2	2.6	None
Del Castillo	82.4	Flat	19	1	4.12	None

The Mason family (Ms. Linderman) has been allotted 1 dwelling per 4.29 acres plus a substantial portion of additional mixed use units. B&L Properties (Mr. Russo) has been allotted 1 dwelling per 3.95 acres plus additional mixed use units. Mr. Hager has been allotted 1 dwelling per 4.02 acres plus additional mixed use units. Finally, Mr. Wiley has been allotted 1 dwelling per 2.6 acres. We have been allotted 1 dwelling per 4.12 acres with no additional mixed use units,

which is significantly less than what Mr. Mason, B&L properties, Mr. Hager and Mr. Wiley received.

We find this to be very unfair because all of the task force members are receiving more rights than us to build higher density units on their land or have additional mixed use units on their land, which we have not received.

Further, we are very upset that the task force has conveniently ignored the fact that most of the hilly lands, of which a substantial portion is owned by the Mason family, are undevelopable and worth substantially less than our property but have been treated the same as our property. A large portion of the lands in the hills are too steep to build homes on, or subject landslides. For example, the Mason family has received about the same dwellings per acre as we have plus the additional mixed use units when most of their land is in the hills and cannot be developed because these hill lands are either existing lakes or too steep to build on.

I have brought up these concerns with Mr. Brendan Kelly on several occasions and he has refused to help us. I have also brought up these concerns with Mr. Yankovich on several occasions and he has ignored me. The last time I brought this up to Mr. Yankovich at a CAC meeting, Mr. Yankovich told me that I should talk to the task force. I told Mr. Yankovich that there was a conflict of interest and that the task force members benefited by not cooperating with us. As I explained to Mr. Yankovich, the task force members benefit by allocating fewer units to us because that results in more units being allocated to them.

The task force and Mr. Yankovich have instigated a take it or leave it policy which further incentivizes the task force members to make the terms of this development project unfavorable for us. They have threatened us that if we do not go along with this project, then the 19 dwellings that were allocated to us would go to the other property owners which include the task force members. This take it or leave it policy is a further conflict of interest because the task force has every incentive to not include us in the project and to make conditions so unfavorable for us that we do not participate because the end result will be more units for the task force members.

Further, the current plan leaves a substantial part of our property as agriculture while developing other lands on the valley floor that have better soil. The current plan ignores the fact that our property has very poor soil and is not suitable for agriculture. Our soil is heavy clay, which makes it very difficult to grow crops. We have attempted to farm this land for about 35 years and we have never obtained a reasonable crop. During the community involvement planning process workshops that occurred at Solano Community College, several discussions occurred about conserving the best agriculture land in the valley floor. During those workshops we discussed how our property was one of the worse lands for agriculture because of the high clay content. The task force is ignoring this fact about our soil and is opting to develop lands that have better agricultural soil. The expectation that our heavy clay soil can be used for agriculture

in any economically feasible manner is unrealistic and is contrary to the discussions we had at the community involvement planning process.

I am requesting that the County intervene so that the 400 dwellings and the 100 mixed use units are divided among the different parcels in a manner that is more consistent with the developable potential of the land and take into account the natural physical constraints of the land. The existing process benefits the task force members and significantly hurts us.

Sincerely,

S. Del Castillo

Saturnino Del Castillo

Bob Berman
250 West K Street
Benicia, CA 94510
bob@nicholsberman.com

MEMORANDUM

DATE:	April 23, 2010
TO:	Matt Walsh, Solano County Resource Management Solano County Planning Commission
REGARDING:	Middle Green Valley Specific Plan – Preliminary Comments
FROM:	Bob Berman

MESSAGE:

I have reviewed the December 21, 2009 Draft Middle Green Valley Specific Plan. While I have a lot of comments / concerns regarding the plan at this time I would like to concentrate on three main areas.

Regional Open Space

Proposed Trail System

The Green Valley Conservancy

REGIONAL OPEN SPACE

There is a significant amount of discussion of open space (referred to as Open Lands in the Specific Plan). Figure 3-8 shows a Regional Open Lands Map. The figure shows both passive and active open lands, existing trails, and potential connections (presumably trails). The implication is that the proposed Specific Plan open space and trails will become a part of a much larger regional open space system. Unfortunately there is no meaningful discussion in the Draft Specific Plan as to how the proposed Open Lands fit into the regional open space system. Figure 3-9 shows the proposed Open Lands but neither the figure nor the text clearly explain which of these lands will be open to the public, beyond residents of Middle Green Valley.

Figure 3-8 shows a potential trail connection to Skyline County Park (Napa County) and the Vallejo Lakes Watershed to the north and Lynch Canyon to the south. However:

What is the reality of such trail connections? Who will construct and when will they be completed?

Will the Middle Green Valley developers be responsible to construct these potential connections?

Recommendation

I fully support the idea of a regional open space system, as described in the Specific Plan. I would also note that, as shown on Figure 3-8, significant parts are already in place. It is my recommendation that the Specific Plan be revised as follows:

The section on Open Lands (pages 3-22 through 3-26) should describe how the Specific Plan's open lands fit into this larger regional open space system.

On page 5-102 it is stated that the "network of trails, paths, and trailheads are to knit the community together and provide links to regional open space ..." Nice idea but the proposed land uses and trails simply do not link to regional open space. The Specific Plan needs to include a trail system that provides the links to the regional open space and demonstrate how this will be accomplished.

PROPOSED TRAIL SYSTEM

I find the entire discussion of the trails confusing and incomplete.

Figure 3-23 shows the Gray Fabric which includes the trail system. This includes a Primary Trail System (which looks like the street system to me) and potential trail connections. Why are certain trails only shown as "potential" trails? Starting on page 3-43 there is a discussion of Community Paths – which includes several types of trails.

In my experience typical trail users are hikers, equestrians, and bicyclists. Each user has their own needs and some trails are normally designed for single use (say hikers only) or multiple use (hikers, equestrians, and bicyclists).

It is not clear to me which of the various trails described on pages 3-44 and 45 will be available for which users. This needs to be clarified.

It is also stated on page 3-45 that the emergency access "may also be used to compliment the trail network". Not clear what this means. The emergency access should be designed and available for all trail users.

Figure 5-77 and subsection 5.7-4 discusses the trail network. It is not clear to me why certain trails here are referred to as "potential trail connections". I thought these are to be a part of the Specific Plan. On page 5-103 there is a specification for the Foothill Trail. Not sure where this is located. It is stated that these are Hiking Trail Specifications - so no use by equestrians and bicyclists?

Pages 5-104 and 5-105 describe the Ramble and the Emergency Access but again not clear which trail users will be able to use these facilities.

Two trailheads are shown on Figure 5-77. There is a need for a trailhead at the southernmost trail (I think this is the Nightingale neighborhood). There is a need for a better description of the trailheads – need not just parking but also water and bathrooms would be nice. Also, the trailheads need to be constructed and available for use before residents start moving into the various neighborhoods.

A word about bicyclists – there are off-road bicyclists and there are on-road bicyclists. It is not clear to me if bicyclists will be permitted on any of the various roads. A look at the road sections on pages 3-40 and 3-41 (and in Section 5.7.3) does not seem to show any provision for bicyclists. For example, Green Valley Road (and two other roads) is shown as a Rural Collector. Will bicycles be permitted on the roads? An 11 foot travel lane is not adequate for automobiles and bicycles. If the response is that bicycles will be permitted on the adjacent multi-use trail to me (as one who often rides a bicycle on roads) this is not practical.

Several figures (see Figure 3-23 and 5-82) designate a Neighborhood Road – Type 3. The road appears to parallel a portion of the Potential Trail and they seem to come to an abrupt end at the study area boundary. It is not clear how these would operate with the potential trails and what happens at the study area boundary.

Recommendation

It is my recommendation that certain figures be revised and that text be included in the Specific Plan that clearly indicates:

All of the trails shown on Figures 3-23 and 5-77 are an integral part of the Specific Plan, and that it will be the responsibility of the developers to construct the trails and that the Green Valley Conservancy will be responsible to maintain the trails. A specific timing mechanism regarding by when the trails must be completed shall also be included in the Specific Plan.

Text on page 5-103 provides specifications for the Foothill Trail. There does not, however, appear to be any designation of a foothill trail on any of the figures. Please revise the figures to designation the location of the foothill trails.

Text on page 5-105 provides specifications for the Emergency Access. These roads will be used to compliment the trail network. The only figure that seems to show the Emergency Vehicle Access is Figure 3-23. These accesses, however, appear to be outside of the study area boundary. Please clarify in the text and in the figures the location of the Emergency Access, who will be responsible to build them, and the timing for their construction.

The Specific Plan needs to clarify when the Neighborhood Road – Type 3 will be constructed, who will pay for them, and what happens at the study area boundary.

THE GREEN VALLEY CONSERVANCY

I have a lot of concerns regarding the Green Valley Conservancy. Who will hold the proposed conservation easements, what will be the relationship between the easement holder and the conservancy, how is the financial viability of the conservancy assured, etc.?

But now I want to focus on the issue of governance. There is only one paragraph (page 4-13) regarding the issue of governance. The issue of governance is critical. According to page 4-13 "The Board shall be comprised of property owners and qualified persons with expertise ...". The overall structure and governance of the Conservancy must be discussed in detail in the Specific Plan. While it may be ok for some property owners to serve on the Board they can not be a majority of the Board nor can they be able to control the operations of the Conservancy.

Recommendation

The Specific Plan needs to be revised to provide additional information regarding the structure of the proposed Conservancy. The basic organizational and operating principles of the Conservancy must be included in the Specific Plan. It must be clear that this is an independent body and property owners within the area can not be a majority of the Board.

BAY AREA
RIDGE TRAIL
COUNCIL

1007 General Kennedy Avenue, Suite 3
San Francisco, CA 94129
www.ridgetrail.org
email: ridgetrail@prodigy.net

April 28, 2010

Mr. Fred Barnes, Chairman
Solano County Planning Commission
Department of Resource Management
675 Texas Street, Suite 5500
Fairfield, CA 94533

Dear Chairman Barnes:

RE: Draft Middle Green Valley Specific Plan –Trail System

Thank you for the opportunity to comment on the Draft Middle Green Valley Specific Plan. The Solano County Committee of the Bay Ridge Trail Council supports the proposed trail system and trailheads that are identified on Specific Plan map and incorporated into the design elements for the Plan. As part of the foot hill trails described on page 3-45 of the Draft Specific Plan and shown on the Specific Plan map, two trails are identified as "Potential Trail Connections". These two trails could potentially connect to the Bay Area Ridge Trail planned at the top of the ridge along the Napa/Solano County boundary. We would request that the Draft Specific Plan text be amended and language added to recognize this potential connection to the Bay Area Ridge Trail. These two potential trails could act as connector trials linking the proposed Middle Green Valley trail system as outlined in the Specific Plan to the regional Bay Area Ridge Trail system. We recognized and support the language in the Specific Plan that these "'Potential Trail Connections' are subject to future permit and/or use restrictions as agreed to by the landowners and applicable state and federal permits".

Thank you for your consideration of our request.

Sincerely,

Harry L. Englebright, Co-Chair
Solano County Committee
Bay Area Ridge Trail Council.

cc Dee Swanhuyser

LAW OFFICE OF AMBER KEMBLE

TEL: (707) 410-6690

ATTORNEYS AT LAW

4160 SUISUN VALLEY ROAD, SUITE E444
FAIRFIELD, CA 94534

FAX: (707) 747-5209

deltalawyers@gmail.com

April 22, 2010

Mr. Mike Yankovich
County of Solano
Department of Resource Management
675 Texas Street, Suite 5500
Fairfield California 94533

RE: *Draft Environmental Impact Report, dated December 2009 for the Middle Green Valley Specific Plan*

Dear Mr. Yankovich:

Thank you for this opportunity for public comment with respect to the Draft Environmental Impact Report dated December 2009 for the Middle Green Valley Specific Plan ("DEIR" or "Project"). This office has been retained by an unincorporated association -- the Upper Green Valley Homeowners ("UGH"). While UGH supports compatible residential development in Middle Green Valley in accordance with the Solano County General Plan of 2008, UGH opposes parts of the Project, as drafted. This is because there are serious flaws pertaining to the environmental review of the Middle Green Valley Specific Plan ("MGVSP") that must be rectified and re-circulated prior to the County's consideration of the Final Environmental Impact Report ("FEIR"). Additionally, parts of the Project are not consistent with the General Plan.

The Project proposes significant land use changes from the existing agricultural zoning to the following: 337 acres of residential zoning comprised of 500 residential units -- 400 new primary residential units and 100 new secondary residential units, ranging in density from to 8 units per acre to 1 unit per 5 acres; community services including a chapel, a recreation center, a school, and a nature conservancy office; agricultural processing, commercial nurseries; hotel and retail for agricultural products; 10,000 feet of general retail and office space; and 60 acres of roads. For centuries past and to the present day the subject land area consists of agricultural fields, cattle ranch, and/or or open space. While permanent open space and agricultural preserves would be

a benefit to Green Valley, as is proposed by the Project, it comes at an unreasonable cost of significant environmental impacts.

The proposed Project is subject to environmental review of the California Environmental Quality Act ("CEQA").[1] UGH submits this comment letter as part of the ongoing CEQA analysis of the Project with the goal of helping to mold a lawful Project in Middle Green Valley. This comment letter elaborates on the parts of the DEIR that are not in accordance with law and/or supported by substantial evidence in the record and urges that the DEIR be corrected and re-circulated for further public comment prior to consideration of the FEIR.

INTRODUCTION

EIRs are intended to serve a number of complementary public policy objectives. "The purpose of an [EIR] is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project."[2] An EIR serves as an "environmental 'alarm bell' whose purpose is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return."[3] In addition, an EIR "serves not only to protect the environment but also to demonstrate to the public that it is being protected."[4] Here, the DEIR has failed to rise to the minimum requirements of these 3 basic purposes of CEQA.

More specifically, the DEIR fails to satisfy CEQA in eight legal categories: (1) the DEIR fails to disclose the proper environmental baseline; (2) the DEIR fails to disclose adequate information regarding the Project's potentially significant environmental impacts; (3) the DEIR fails to provide adequate mitigation measures to avoid significant environmental impacts; (4) the DEIR fails to avoid significant environmental impacts, though it is possible to do so; (5) the DEIR fails to include reports and documents relied upon in the DEIR; (6) the DEIR fails to disclose and analyze cumulative impacts; and (7) the DEIR fails to provide adequate alternatives analysis; and (8) the DEIR ignores

[1] Public Resources Code §§21000 *et seq.*
[2] Public Resources Code §§ 21061, 21002.1.
[3] *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376, 392.
[4] CEQA Guidelines, § 15003 (b). The CEQA Guidelines are codified at Title 14 California Code of Regulations section 15000 *et seq.* and are cited in this comment letter as "CEQA Guidelines."

important land use planning considerations and is inconsistent with the General Plan. In sum, this Project requires more extensive disclosure and analysis with respect to the significant environmental impacts of the Project, as is further discussed below.

I. THE DEIR FAILS TO DISCLOSE THE PROPER ENVIRONMENTAL BASELINE.

One of the basic objectives of CEQA is "to inform governmental decision makers and the public about potentially significant environmental effects of proposed activities."[5] To this end CEQA requires that the County disclose the project's baseline – the environmental setting as it exists when the EIR is being prepared.[6] This is a description of the existing environment for which the project's environmental impacts are measured.[7] An EIR must be prepared with a sufficient degree of analysis to provide decision-makers with the information needed to make an intelligent judgment concerning a project's environmental impacts.[8] Without full disclosure, the Project description fails to lay an adequate basis for proper analysis of the Project.[9] Here, the DEIR fails to provide an adequate baseline that is required for the county decision-makers and the public to meaningfully analyze the Project's significant environmental impacts.

Examples of this DEIR's failure to disclose the proper baseline include, but are not limited following existing conditions: 1.) Chinook salmon are present in Green Valley Creek; 2.) the current zoning is not disclosed; and 3.) the actual availability of water for the project is not disclosed. Each of these omissions is further discussed below.

A. CHINOOK SALMON ARE PRESENT IN GREEN VALLEY CREEK, BUT ARE NOT DISCLOSED IN THE DEIR.

The DEIR purports to "include all environmental issues to be resolved and all areas of controversy known to the County."[10] However, important disclosures, analyses,

---

[5] Guidelines §15002(a)(1).
[6] Guidelines §15125(a).
[7] Guidelines §15125, See also *Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal App 4th 99, 119.
[8] Guidelines §15151. See also *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal. App. 4th 342, 356.
[9] *Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal. App. 4th 20, 27. See also Guidelines §§15126, 15165.
[10] DEIR, page 1-2.

mitigation and avoidance of environmental impacts have been omitted, in violation of CEQA. One example is the omission of the presence of fall run Chinook salmon (*Oncorhynchus tshawytsha*) in Green Valley Creek. Instead, the DEIR erroneously states that Chinook salmon are not present in Green Valley Creek per Leidy et al. (1996).[11] However, *current evidence* from the National Marine Fisheries Service demonstrates that there the Chinook salmon *are* present in Green Valley Creek. "[Central Valley Fall-Run] Chinook salmon have been observed upstream to the base of Green Valley Falls..."[12]

The failure of the DEIR's disclosure of the presence of Chinook salmon creates several violations of CEQA – failure to disclose and failure to analyze significant environmental impacts, *inter alia*. Lack of disclosure illegally limits the discussion of avoidance, mitigation and alternatives – the essence of CEQA's goals.

The DEIR must be re-circulated and seek comment on the Project's environmental impacts to the migratory anadromous salmon. Thereafter, the public and the county can have a meaningful discussion about the required mitigation and avoidance of significant environmental impact on the salmon. For example, mitigation measures may include stocking hatchery fish,[13] better fish passage at road crossings, creek restoration and maintenance, and the like.[14]

---

[11] DEIR, page 6-30. It is not known what the DEIR refers to when it cites, "Leidy et al. 1996." As discussed elsewhere in this letter, this omission of reports is another problem with the DEIR because it relies on documents that are not included in the DEIR. In this case one cannot discern what 1996 report to which it is referring.

[12] Salmonid Habitat Assessment, Solano Habitat Conservation Plan, dated June 30, 2008, LSA Associates, Inc., submitted to Solano County Water Agency, page 10. This document is attached hereto as Exhibit A and incorporated herein by this reference. Showing the same 45 page document, see also the website for National Marine Fisheries Service Central Valley Chinook Salmon, Current Stream Habitat Distribution Table. http://swr.nmfs.noaa.gov/hcd/dist2.htm.

[13] Several nearby hatcheries raise steelhead and Chinook salmon. Juvenile fish may be released into Green Valley Creek thereby enhancing the populations of these rare and endangered fish in our local stream. As has occurred in other counties, such a project could involve school children and create an interesting destination for tourists. For example, see Exhibit B which is attached hereto and incorporated herein by this reference, showing the San Francisco Chronicle article, dated March 27, 2010, entitled "Fake Stream a Real Dream, Ideal fish-spawning prototype feeds into Warm Springs Hatchery," which discusses the attraction for tourists and school children to view and become a part of the life cycle of our important native fish.

[14] See http://www.dfg.ca.gov/fish/REsources/HabitatManual.asp for a link to a document, which is incorporated herein by this reference, entitled "Part VII: Fish Passage Design and Implementation" (April 2009).

B. THE CURRENT ZONING OF THE SPECIFIC PLAN AREA IS OMITTED FROM THE DEIR.

The DEIR references the "existing plan area," but omits a zoning map that shows the current zoning of the 1,905 acres under consideration for zoning changes. In order to evaluate the impact that is likely to result from changing the current zoning and land use, the DEIR should show the zoning of the Project area if the Project doesn't occur.

C. THE DEIR FAILS TO DISCLOSE THE AVAILABILITY OF WATER

The Project DEIR offers two options for supplying water to the project. Neither option has presented a sufficient environmental baseline. For example, Option B in the Public Services section states that its analysis is based on "speculation" that there is adequate water from wells, but notes that "low flow and poor water quality" of Middle Green Valley.[15] Furthermore, the FEIR for the General Plan notes that there are "...some uncertainties about the groundwater within this subbasin, including poor water yield and elevated concentrations of boron and chloride (SID 1995).[16]

The DEIR *must quantify* the amount of groundwater available for major housing development, such as the proposed Project.[17] Here, a discussion of the quality of water is also appropriate, given the likely elevated concentrations of boron and chloride. Only then can the impacts of drawing the required water for the Project can be adequately analyzed (i.e. the impact of the Project on existing wells and the water quantity and quality in the local creeks and the endangered species that depend on water quality and quantity). It is highly inappropriate to defer this analysis until subdivision map consideration, as is proposed, because by then it will be too late -- the train will have already left the station. Worse yet, there may be no tracks for the train, if there is no water available in one of the options relied upon in the DEIR.

In addition to the DEIR's failure to disclose information regarding groundwater impacts, the proposed mitigations for impacts to groundwater are impossible to analyze because one cannot discern whether or not they actually reduce significant environmental impacts to less than significant levels. For example, Mitigation 16-1

---

[15] DEIR, page 16-17 through 16-20

[16] EDAW 2008 Draft General Plan FEIR, Master Responses, page 2-110.

[17] See *Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal App 4th 74, 99, where the court rejected a description of the environmental setting for a landfill on the basis that the EIR did not quantify the size of the aquifer that underlay the proposed landfill site.

purports to mitigate impacts to domestic water facilities on existing wells. Mitigation 16-1 provides that the CSA will mitigate the drop in existing wells by putting in a deeper well or giving water they pump back to the well owners adversely affected. However, in reality, depending on the type of aquifer underlying MGV, the proposed mitigation may be *impossible*. For example, if there is one main aquifer with adjoining tributaries underlying MGV, then the proposed mitigation measure will fail. Without the sufficient baseline having been disclosed the decision-makers and the public cannot judge whether Mitigation 16-1 is effective. In addition, the DEIR should require other water saving mechanisms, including but not limited to native or xeriscape plants and a prohibition of sizeable lawns.

II. THE DEIR FAILS TO DISCLOSE ADEQUATE INFORMATION REGARDING THE PROJECT'S POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS.

CEQA requires that an EIR must not only identify the impacts, but must also provide "information about how adverse the impacts will be."[18] The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding.[19] One of the primary purposes of an EIR is to prevent CEQA lead agencies from approving projects if there are feasible mitigation measures or project alternatives available to reduce or avoid significant environmental impacts.[20] In order to be lawful, the proposed Project must provide further disclosures of the adversity of the environmental impacts.

For example, the DEIR's fails to quantify significant environmental impacts in regards to the potential of flooding impact. This is because is Impact 11-3 does not show where the flooding zones actually are located. Showing the 100 year flood areas should be disclosed in the DEIR because it would assist the public and the decision-makers and the public in locating the proposed neighborhoods in a different location, likely with greater setback from Green Valley and Hennessey Creeks.[21]

---

[18] *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 831.
[19] *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 728. See also CEQA Guidelines, §15151.
[20] Public Resources Code §§21002, 21002.1(a).
[21] Moreover, in addition to flooding mitigation, greater setbacks should occur to mitigate for the Project's potentially significant impact on salmonids, as is also discussed elsewhere in this letter.

III. THE DEIR FAILS TO PROVIDE ADEQUATE MITIGATION MEASURES TO AVOID SIGNIFICANT ENVIRONMENTAL IMPACTS.

A. VAGUE, UNENFORCEABLE AND DEFERRED MITIGATIONS VIOLATE CEQA.

There are several instances in the DEIR where mitigation is deferred and/ or entirely vague so as to be unenforceable.[22] Some examples are mentioned elsewhere in this letter. Other examples include but are not limited to the following.

In the Biological Resources section Mitigation 6-1 indicates that "The County shall encourage avoidance, minimization and compensatory mitigation of biological resources..."[23] *Encouragement* by the County is not mitigation because it is unenforceable. Additionally, Mitigation 6-1 requires that the Project proponent submit a "biological resources assessment report..." Thereafter, if the report shows that (a) no oak woodland area, potentially jurisdictional wetland area or riparian habitat or other stream features would be affected; and (b) no special –status plant or animal species habitat known to occur or potentially occur on or in the vicinity of the project would be affected; no further mitigation would be necessary."[24] The mere submission of a report is not mitigation. Rather, it is merely a paper mitigation that fails to meet the basic goals of CEQA – actual avoidance and mitigation, *not just on paper*. Moreover, the mitigation improperly limits analysis. It should include impacts to other biological resources, such as sediment runoff and pollution into creeks originating from outside of the riparian habitat, as one example.

Mitigation 6-1 continues -- requiring permits and approvals. However, this is not really mitigation because a project proponent is required to comply with the law *anyway*. Mere compliance with the law is not mitigation without further analysis. Deferring mitigation to the future, as this mitigation attempts to do, violates CEQA. Mitigation 6-1 then asserts that implementation of Mitigations 6-2 through 6-13 and compliance with the law is sufficient. As is discussed below, the following mitigations are also insufficient for the purposes of CEQA.

---

[22] Public Resources Code §21081.6(b) and Guidelines §15126.4(a)(2). Mitigation measures must be enforceable through conditions of approval, contracts or other means that are legally binding.
[23] DEIR, page ES-20.
[24] DEIR, page ES-21.

Mitigation 6-3, is also a flimsy "paper mitigation," requiring only that the Project proponent shall submit an *oak woodland management plan.*[25] Mitigations 6-4 and 6-8 also improperly purports to mitigate for impacts to biological resources by merely a submission of a plan.[26]

Mitigation for Impact 6-5 of the DEIR indicates that it will "encourage" the use of native plants or bridges and arch span culverts should be used when "feasible."[27] Encouragement is not a legally enforceable standard and therefore is not mitigation. Similarly "feasible" is too vague of a standard to provide sufficient guidance as to whether or not such mitigation will actually be mitigated. The DEIR should include analysis of the actual expense of such spans, since fish passage at roads will be required by DFG and the Endangered Species Act, Section 7 consultation with NMFS.[28]

Another example of an entirely vague mitigation is Mitigation 10-3 for Groundwater Impacts requiring maintenance of onsite drainage systems. This proposed mitigation begs the question as to who will maintain the drainage systems? Will it be a *condition* of the development permit? Further, this mitigation calls for the distribution of educational materials, but having people read about what they should be doing is not a sufficient mitigation and again it begs the question as to who will be charged with the task. Arguably, it is an impact because of the paper resources required for dissemination of information. Next, the mitigation states that if the County is "satisfied" with the implementation of the measure, then the mitigation is sufficient. However, the County has no legal mechanism to force homeowners/others to change if the County is not satisfied. Additionally, there are no guidelines in the DEIR as to what will qualify as "satisfaction" by the County. Who in the County (i.e. what department) need be "satisfied." Mitigation 10-3 fails to meet CEQA standards and the impact remains potentially significant for groundwater impacts and the County cannot accept it, as drafted.

In addition to vague and unenforceable mitigation measures, many mitigation measures in the DEIR are improperly deferred into the future. CEQA must quantify potentially significant impacts, not in the future, but prior to a decision. EIRs must be prepared with sufficient degree of analysis to provide decision makers with information needed to make informed decisions concerning project's environmental consequences.[29]

---

[25] DEIR, page ES-22.
[26] DEIR, page ES-23 and 31.
[27] DEIR, page ES-27.
[28] See *supra* Note 14.
[29] CEQA Guidelines §15126.4 (a)(2).

It is illegal for the Project to identify impacts on plant and wildlife species after the fact because there is no way for the decision-makers to evaluate the efficacy of the proposed mitigations for such impacts. Rather, the public and decision-makers remain unaware and uninformed of the severity of the potentially significant environmental effects of the proposed Project. Only by disclosing the actual impacts to plant and wildlife species will the County be able to adequately describe how mitigation or avoidance will reduce the significant impacts to less than significant levels, or if an alternative is more appropriate for MGV. Alternatively, future mitigation measures must cite sufficient performance standards that will actually be implemented,[30] but such is not the case here.

In addition to examples listed above other examples of illegally deferred mitigations include, but are not limited to Impacts 6-7 thru 6-14. By way of illustration, Mitigation 6-7 is to be completed to the satisfaction for the Department of Fish and Game ("DFG"). In so doing, it cuts the public out of its rightful opportunity to comment and defers any actual mitigation "to the satisfaction of the listing agency."[31] While the DFG is very important, it is only part of the lawful process. CEQA expressly affords to public opportunity to analyze the efficacy of a mitigation. In contravention to CEQA, Mitigation 6-7 does not allow the public opportunity to comment, but rather improperly defers it in the future at a time where there is considerably less opportunity for the public to comment.

Another example of illegally deferred mitigation is the impact to western pond turtles. Mitigation 6-11 requires merely that a report be provided and it is *recommended* that the final avoidance, minimization and mitigation measures be developed in consultation with CDFG and/or be consistent with the Solano HCP. Submission of a report does nothing for actual physical mitigation and a recommendation.[32] As a result Impact 6-11 remains potentially significant, in violation of CEQA. Other aspects of this mitigation defer any real analysis to the future when the public has less of an opportunity to comment. Moreover, it fails to provide these decisions makers with the information that they need to make a decision about this Project.

---

[30] *Endangered Habitats League v. County of Orange* (2005) 131 Cal. App. 4th 777.
[31] DEIR, page ES-30.
[32] *Defend the Bay v. City of Irvine* (2004) 119 Cal. App. 4th, 1261, 1275.

Mitigations must have legally binding and stronger language. Otherwise they will not mitigate significant environmental effects, which begs the question as to why the County spent so much money on the EIR for this Project if it fails to meet minimum CEQA requirements?

B. MERE COMPLIANCE WITH THE LAW IS NOT MITIGATION.

Several of the Project's mitigations require that future developers shall comply with the law, without further specific project analysis. These purported mitigations are inadequate for the purposes of CEQA. In part, this is because compliance with the law must occur anyway and thus it is not a mitigation. Moreover, the DEIR must include an *evaluation of the risks* to the environment and to human health.[33]

For example, in the DEIR the purported mitigations to water quality impacts are not adequate. The DEIR proposes compliance with NPDES permits and other state, regional and county water quality provisions as mitigation for impacts to water quality.[34] However, since compliance with NPDES permits are required anyhow, it is not actually a mitigation. Moreover, the DEIR provides *no analysis* as to the adequacy of the proposed minimum riparian buffer setbacks.

The foregoing failure to provide any analysis is not saved by the DEIR's next statement that "[another riparian buffer setback will be used if the other riparian setback] is infeasible or would have greater impacts on water quality and wildlife habitat."[35] This sentence is vague and unenforceable. Additionally, the DEIR must provide further analysis as to the risks to the riparian environment by having houses with direct runoff into the riparian environment. For example, the use of many household products, such as lawn and plant fertilizers have nitrogen, which may runoff into the creek and disrupt the delicate balance of temperatures that are suitable to fish.[36]

---

[33] *Californians for Alternatives to Toxics v. Department of Food & Agric.* (2005) 136 Cal. App. 4th 1, 38 where the court set aside an EIR for a statewide crop disease control plan because it did not include an evaluation of the risks to the environment and human health from the proposed program, but simply presumed that no adverse impacts would occur from the use of pesticides in accordance with the registration and labeling program of the California Department of Pesticide Regulation. See also *Ebbetts Pass Forest Watch v. California Department of Forestry & Fire Protection* (2008) 43 Cal. 4th 936, 956, where the court required specific analysis of the effects of certain herbicides on a specific project.

[34] DEIR, pages ES-49 through 51.

[35] DEIR, page ES-50.

[36] Salmonid Habitat Assessment, Solano Habitat Conservation Plan, June 30, 2008, LSA Associates, Inc., submitted to Solano County Water Agency, pages 3-4 & 6-7, showing that optimal temperatures for steelhead trout are 39° to 50° though eggs may die at 56° and optimal temperatures for Chinook salmon

This is important to do at this stage in the environmental review process because it will shape the location and number of houses approved for the Specific Plan.

Also, it is important to note that Mitigation 11-2 discusses setbacks and indicates that the minimum riparian buffer shall be determined according to existing parcel size. However, there are no existing parcels as described in the DEIR. Moreover, the setbacks from the creek should be determined in consultation with the state and federal agencies based on environmental factors, such as the sensitivity of wildlife and plants in the riparian corridor, along with slope, flooding, and other physical aspects of the environment. Basing setbacks on arbitrary future-described parcel sizes is inadequate and vague. Given the richness of species in the Project's creeks, the buffer should be at least 250 feet and include bio-swales to prevent sediment and pollution runoff into the Creeks. This is especially important in this case because of the high quality of creek with endangered and rare species present. Likely the necessary 250 feet buffers will inherently remove some of the proposed housing because they are situated too close to the creek.[37]

Another example of when mere compliance with the law is not adequate for the purposes of CEQA is the DEIR's reliance on the Right to Farm Act as a means of preventing a future nuisance and negligence lawsuit from a homeowner who becomes disenchanted with living immediately next to agricultural endeavors. The DEIR's faith in the current legislation is misplaced. This is because the Right to Farm Act may be repealed or modified. In which case a simple lawsuit could change the agricultural character of land that *this* Project intends to set aside as permanent agriculture. The most effective solution to this impact is to require covenants that run with the land. This is especially important in a climate where certain homeowners may not want to live next to pesticides, odors, and other issues demonstrating the incompatibility of dense residential development next to agriculture.[38]

In addition to covenants running with the land, another mitigation for to ensure residents support local farming activity is for the Project to dedicate space to a centralized, accessible location for a weekly farmers' market. Common sense dictates that the more benefit that local residents receive from the local farming, then the more

---

are 50° to the mid-60°s, depending on the life stage of the eggs or juvenile fish . This document has been attached hereto and incorporated herein as Exhibit A.

[37] For example, the Elkhorn Neighborhood proposes a variety of structures on the west side of Hennessey Creek, which do not, but should, maintain a 250 feet buffer to the Creek.

[38] See Exhibit C, attached hereto and incorporated herein showing a Daily Republic newspaper article dated February 6, 2010, showing residents who do not want to live next to agriculture.

supportive they will be. A weekly farmer's market would have less of an impact than a farm stand.

IV. THE DEIR FAILS TO AVOID SIGNIFICANT ENVIRONMENTAL IMPACTS THOUGH IT IS POSSIBLE TO DO SO.

CEQA requires that an EIR identify ways in which environmental impacts are avoided or mitigated to less than significant levels. This DEIR identifies a total of 6 impacts that purportedly cannot be avoided. Solano County's commitment to clean air, prime farmland, rural character and are all seriously undermined by this DEIR, as drafted. The best solution for maintaining a reasonable environment for the existing Solano County and Green Valley residents is to **SCALE BACK THE PROJECT**, such that there are not as many significant unavoidable impacts. For example, some of the 123 acres of state designated prime agriculture must be spared by decreasing the size of the Project's developments. As is discussed elsewhere in this letter, at a minimum, the Project must limit the residential to 400 units and *prohibit secondary units and non-residential land uses.* Both of these measures of scaling back the Project will significantly help to avoid significant but "unavoidable" impacts.

Additionally, the proposed Project suggests the establishment of the Green Valley Conservancy to oversee the protection and management of the approximately 1,590 acres of agricultural and open lands.[39] However, land management is a task that is best charged to an established land trust agency. Without a track record, there is not substantial evidence that a newly formed group will adequately execute land management, including but not limited to control of invasive plants, funding, fences, legal perpetuity, and the like.

As is further discussed below, several of the purportedly unavoidable impacts can actually be avoided.

AESTHETIC IMPACT 3-3 CAN BE MITIGATED.

Many homeowners in Upper Green Valley enjoy the view of the agriculture that the agricultural zoning has thus far maintained. The conversion of the valley floor to the residential and non-residential uses, as proposed by the Project, is a major adverse impact on hundreds of homeowners in Upper Green Valley. This impact can be further mitigated and avoided.

[39] DEIR, page E-3.

Impact 3-3 on the County's visual character can and must be further mitigated by better screening of the Project using the natural contour of the land. For example, Three Creeks development can be better screened behind the hill where Siebe Drive is located. Additionally, the Project's development that most affect the views of Upper Green Valley residents, if not all of the Project's structures, should have living roofs. Both of these measures would mitigate the degradation of view sheds and is further discussed later in this letter.

PRIME FARMLAND IMPACT 4-1 CAN BE MITIGATED.

The Project should be scaled back by removing the 100 secondary homes, imposing smaller residences in a denser area. In so doing the Project would avoid significant environmental impacts to prime farmland. Additionally, the Project proposes that it include non-residential uses, such as community services including a chapel, a recreation center, a school, and a nature conservancy office; agricultural processing, commercial nurseries, hotel and retail for agricultural products, and 10,000 feet of general retail and office space. These non-residential uses must be prohibited in the Project. This is because they are not contemplated nor compatible with the General Plan and they create a significant environmental impact. In fact, the FEIR for the General Plan indicated that there would be no non-residential square feet in Middle Green Valley.[40]

Additionally, for *any* prime farmland that is impacted by the Project there must be offset by preservation of prime farmland elsewhere by a sufficient ratio.

AIR EMISSION IMPACT 5-3 CAN BE FURTHER MITIGATED.

According to the DEIR, the impact to reactive organic gases is purportedly unavoidable because a 23 percent decrease cannot be obtained.[41] However, there are a *host* of mitigations that may help reduce the long-term regional air emission increases, including, but not limited to prohibiting fireplaces in the Project's residences and limiting the Volatile Organic Compound quantity in paints and solvents in the Project, imposing further green building requirements. [42]

---

[40] 2008 Draft General Plan FEIR EDAW, Response 26-5 Comments and Individual Responses.
[41] DEIR, page 5-18.
[42] See http://www.airquality.org/ceqa/GuidanceLUEmissionReductions.pdf, dated January 2010 and shows Sacramento's recommended guidance for air use emissions.

GREENHOUSE GAS EMISSION IMPACT 7-1 CAN BE FURTHER MITIGATED.

Further mitigation for greenhouse gas emissions may be achieved in the DEIR. The Project should minimally require LEED certification as mitigation for *all* development.[43] LEED promotes a whole building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. Other examples of how greenhouse gas emission can be further mitigated for this Project include, but are not limited to: enhanced recycling/waste reduction, reuse and composting; requirement of native plants and xeriscaping; having a local farmers' market; project featuring high efficiency pumps and prohibiting fireplaces or wood burning stoves; project features only natural gas or electric stoves; project requires onsite renewable energy systems, such as passive and active solar; project uses shade; project require vegetated roofs; project uses materials which are resource efficient with long life cycles; project is required to recycle and reuse demolished construction material rather than sending it to the landfill; if all else fails, then project is required to purchase offsets by acquiring carbon credits or engaging in other market "cap and trade" systems. See http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf[44] and http://www.capcoa.org/modelpolicies/CAPCOA-ModelPolicies-6-12-09-915am.pdf.[45]

Finally, the DEIR fails to include a Statement of Overriding Considerations, as required by CEQA.[46]

---

[43] The Project proposes that residential development of more than six units construct LEED-certified units or meet equivalent performance standards.

[44] The California Air Pollution Control Officers Association, "CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act" (January 2008). The entire website comprised of 155 pages is incorporated herein by this reference and attached hereto as Exhibit D are relevant excerpts from Appendix B of this website, showing a Mitigation Measure Summary Table.

[45] "Model Policies for Greenhouse Gases in General Plans: A Resource for Local Government to Incorporate General Plan Policies to Reduce Greenhouse Gas Emissions" (June 2009). The entire website comprised of 250 pages is incorporated herein by this reference and attached hereto as Exhibit E are relevant excerpts from the document, showing examples of Greenhouse Gas Reduction Planning Policies.

[46] Public Resources Code §21081(b) and Guidelines §15093.

V. THE DEIR FAILS TO INCLUDE REPORTS AND DOCUMENTS THAT IT RELIED UPON.

The contents of the EIR must include information relied upon in order to make relevant conclusions. For example, the DEIR relies on the Draft Solano HCP to mitigate impacts to less than significant (i.e. Mitigation 6-1 and 6-8, among others), but it fails to include and/or incorporate this report, in violation of CEQA.[47] As a result, it is impossible to discern the actual value of the proposed mitigations.

VI. THE DEIR FAILS TO DISCLOSE AND ANALYZE CUMULATIVE IMPACTS.

An EIR must discuss a cumulative impact if the project's incremental effect combined with the effects of other projects is cumulatively considerable.[48] The CEQA Guidelines define cumulative impacts as "two or more individual effects which, when considered together are considerable or which compound or increase other environmental impacts.[49] As mentioned elsewhere, the DEIR must further disclose, analyze and mitigate for cumulative impacts to aesthetics, air emissions, biological resources, and greenhouse gas emissions.

VII. THE DEIR FAILS TO PROVIDE ADEQUATE ALTERNATIVES ANALYSIS.

Public Resources Code §21081 provides that if one or more significant impacts will not be avoided or substantially lessened by adopting mitigation measures, then alternatives described in the EIR that can avoid or reduce the impact, must be found infeasible by specific reasons, if they are not adopted.[50] The Project's alternatives analysis is flawed because the alternatives section in the DEIR fails to adequately analyze and explain its determination of infeasibility. For example, the DEIR relies on the following statement in dismissing the Reduced Capacity 200/200 plan due to its infeasibility.[51] The Reduced Capacity 200/200 alternative "would be substantially less

---

[47] *Vineyard Area Citizens for Responsible Growth v. County of Rancho Cordova* (2007) 40 Cal.4th 412, 442.
[48] Guidelines §15130(a).
[49] Guidelines §15355.
[50] Guidelines §15091 and Public Resources Code §21081.5.
[51] Feasibility is defined in 21061.1 as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."

effective than the proposed project in attaining the economic balance between compatible development and sustained farming and ranching, open space preservation, and natural resource management through viable development rights transfer and conservancy mechanisms, and therefore may not constitute a feasible project."[52] However, the DEIR fails to present any meaningful reasoning to support its conclusion. There are *no actual numbers or analysis* that discuss the "economic balance" that is referenced. The DEIR must analyze *why* the alternatives are not economically feasible.[53] This DEIR fails to do so.

Common sense dictates that fewer houses surrounded by a higher quality natural and organically farmed environment would result in significant economic gain for the county, land owners, homeowners, and surrounding neighbors. Arguably, more economic benefits can be gained from a reduced capacity alternative than from solely from the Project.

Better yet, a 200 unit alternative could be most beneficial at striking the right environmental and economic balance. Picture this: high quality state of the art suitably sized solar homes with living roofs and energy efficiency with ample energy advanced windows to bring in the natural beauty and light. Surround these houses by community supported organic agriculture[54] and edible landscape.[55] Additionally, preserve, enhance and *feature* the local native treasures of the area, such as the migration of steelhead and Chinook salmon, ducks, geese and songbirds.[56] This type of scenario would promote better "economic balance." At any rate the DEIR must meaningfully discuss how its proposal strikes the superior economic balance and dismisses reduced capacity alternatives as infeasible.

The DEIR's failure to analyze its finding of infeasibility for the reduced capacity alternative is especially egregious, considering the amount of prime farmland that would

---

[52] DEIR, page 19-10.

[53] *Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal App 3rd 1167 – in this case the administrative record included no analysis of comparative costs, profits, or economic benefits of scaled-down project alternative was insufficient to support a finding of economic infeasibility.

[54] As an example of agriculture that would involve the local community, see www.shootingstarcsa.com – a 10 acre community supported farm, located in Suisun Valley.

[55] As an example of edible landscape see Village Homes, located in Davis California. This valuable 70 acre development with 225 homes began in 1975 and has 23 acres in greenbelts, orchards, vineyards, vegetable gardens, and edible landscape. See http://www.villagehomesdavis.org.

[56] For example, rather than just minimally mitigating for impacts to the native species, this project could feature creek walks, hatchery released fish and interpretive signs as to what is seen throughout the year. Grants are available from the Department of Fish and Game -- See http://www.dfg.ca.gov/fish/Administration/Grants/FRGP/

be spared by the alternatives and the DEIR's failure to mitigate several of the significant impacts.

Additionally, the DEIR must discuss alternative project locations because the proposed Project requires a major change in the land use designations – Ag 20 and A-40 to a denser residential, along with retail, community and open space. In *Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal. App. 3d 1167, 1179, the project proponent sought amendments to the land use designation, development policies, and zoning ordinances. There the court concluded that alternative sites must be considered. Here, as in *Goleta*, since implementation of the proposed Project requires such a major zoning overhaul, the alternatives section must analyze *different locations* that would satisfy most of the project objectives – both inside and outside of the plan area.[57]

As an alternative to locating the development of the Project elsewhere within the specific plan area, the DEIR should also consider and analyze location(s) of the development portions of the Project *outside* of the specific plan area. This is because the Project objectives can be met and are feasible by adopting one of the alternatives – both an alternative Project location and a reduced capacity size. For example, consider the following objectives.[58]

- Protect and maintain the rural character of MGV while allowing opportunities of compatible residential development to occur.

The rural character of MGV would best be preserved by locating the proposed neighborhoods elsewhere and/or reducing the capacity and/or maintaining (some of) the existing zoning (A-20 on the valley floor), which best fosters "compatible residential development to occur." This is because the existing zoning fosters owner developed properties, rather than the industrial housing, where all the houses match. Looking to the surrounding neighborhood, "compatible [rural] residential development" is comprised of a mix of different styles and individuality, *not* a track house development with a few different styles of housing, as is inevitable with the proposed Project's new zoning.

---

[57] The importance of alternative locations analysis is especially applicable in light of the view shed issues outlined above – the Three Rivers neighborhood proposes a serious pockmark to hundreds of homes that enjoy a view of rural, agricultural and rural residential. Moreover, the view of Middle Green Valley was expected to continue when most of the residents of Upper Green Valley purchase their homes because at that time Middle Green Valley was zoned Agriculture.

[58] DEIR Page 2-8.

- Maintain the rural character of MGV while still allowing development to be guided into areas screened from Green Valley Road...

A reduced capacity or alternative location to the development would best maintain the rural character of Green Valley because there would be more rural land preserved. Additionally, the Three Creeks neighborhood requires more screening (i.e. behind Siebe Drive) in order to maintain the valley's view shed.

- Balance the protection of the resources in MGV while allowing development to occur.

View sheds would be better maintained with the abundance of open space that is inherent in Ag-20 zoning—where the houses are spread far apart and surrounding by small farming operations or open space. Moreover, the greatest resource of the valley is the prime agricultural land, of which the Project proposes to annihilate 123 acres. A reduced capacity project or alternative location would feasibly meet this objective.

- Encourage cluster residential development through incentives to property owners in hillside and valley floor areas that can support residential uses with least affect on resources, steep slopes, or very high wildfire hazard areas.

Cluster residential development can and should be done, but on a smaller scale. This objective can be feasibly accomplished by a reduced capacity alternative.

- In accordance with balancing the protection of resources described in these policies, adopt a program that provides residential development credits to property owners who voluntarily forego or limit development on their lands. The transfer of development rights program should focus incentives on land in areas to be preserved.

There are other options to obtain this objective, such as land trust acquisitions, grants, and the inability and unlikelihood that any one existing homeowner will develop their existing parcels. Additionally, this objective may be achieved with a reduced capacity alternative.

- Create additional methods to assist landowners who choose to continue farming, such as, but not limited to: enforcing the right-to-farm act and educating

residents on the act; and investigating mechanisms for providing farmers with economic assistance to ensure agricultural viability.

This intention of this objective would be much better served with stronger language, such as: requiring covenants that run with the land the ensure agricultural operations, requiring homeowners to participate in subscriptions on some level to make viable the following: an organic farm, orchards, and livestock operation that support the new developments and the farmers that need assurance that they will make a living from farming.[59]

VIII. THE DEIR IGNORES IMPORTANT LAND USE PLANNING CONSIDERATIONS AND IS INCONSISTENT WITH THE GENERAL PLAN.

The Specific Plan must prohibit street lights, secondary residential units and non-residential uses, and preserve the existing view shed of upper Green Valley residents. The DEIR notes that the plan area is "highly valued for its rural character and scenic qualities,"[60] and yet the DEIR fails to adequately mitigate the impacts of the proposed developments and protect the rural character and scenic qualities. One of the primary means to preserve the rural character of MGV is to prohibit street lights, which will cause unacceptable impacts of nighttime glare.

For decades, upper Green Valley homeowners have enjoyed mostly natural lighting in MGV – dark at night, interrupted by the occasional lights from individual homes or winery. The DEIR proposes street lighting, forever changing this significant environmental aesthetic to upper Green Valley homeowners.[61]

1. STREET LIGHTS MUST BE PROHIBITED IN THE PROJECT AREA.

The Project allows for street lights in MGV.[62] However, to maintain consistency with the General Plan, the MGVSP must *prohibit* street lights because the General Plan requires the Specific Plan to maintain the rural character of Green Valley. Additionally, the General Plan requires the adoption of a Specific Plan to "ensure development is

---

[59] See http://www.localharvest.org/csa/ for more information on community supported agricultures benefits to farmers and the community.
[60] DEIR, page ES-1.
[61] As mentioned below, there is also language in the DEIR aimed at minimizing the impact of street lights, but as explained in this latter, such mitigation is not enforceable and essentially non-existent.
[62] DEIR, page ES-8 & -9.

compatible with the rural character of Middle Green Valley and the surrounding areas."[63] Rural areas in the vast majority, if not all of Green Valley and Suisun Valley, **HAVE NO STREET LIGHTS**. Accordingly, illumination of street lights that are part of development in the Project are *highly incompatible with the surrounding rural character* and would be inconsistent with the General Plan.

In addition to the DEIR's failure to prohibit streetlights in the Project area, the proposed mitigation for glare is flawed because it is merely a paper mitigation—it's unenforceable, vague and meaningless —in violation of CEQA. Mitigation 3-2 requires that the "project applicant/developer shall include in the project application materials lighting design measures that ensure protection of surrounding uses from spillover light and glare, use of low lighting fixtures, use of adequately shielded light sources, use of light sources that provide a natural color rendition, and avoidance of light reflectance off of exterior building walls."[64] This mitigation would be satisfied merely when the developer/project applicant *submits paperwork*. As such, the potentially significant impact created by the increase in nighttime lighting and glare remains unmitigated and potentially significant.

Moreover, the language used in Mitigation 3-2, such as "adequately shielded" and "protection of surrounding uses" is entirely too vague to be a meaningful, quantifiable and enforceable mitigation. What is *adequate* shielding? It is different for people living next door to the light versus the upper Green Valley residents. Similarly "protection of surrounding uses" is also vague. Again, it is different for people living next door to the light versus the upper green valley residents.

In sum, the proposed lighting for the four designated neighborhoods, as well as the farm stand and elsewhere will have a significant environmental impact, especially on the upper Green Valley residents who have long enjoyed the rural character of primarily natural lighting in middle Green Valley. The DEIR fails to mitigate this significant environmental impact, in violation of CEQA. The impact is from increased nighttime lighting and glare is avoidable by prohibiting street lighting in the proposed area, which is also the only way to make the proposed project compatible with the surrounding areas and consistent with the General Plan. Additionally, by prohibiting non-residential uses, as is also proposed in this letter, the impact stemming from exterior lighting (separate from street lights) is also reduced.

---

[63] See Solano County General Plan, page LU -54.
[64] DEIR, page ES-9.

2. THE PROPOSED SECONDARY RESIDENTIAL UNITS AND NON-RESIDENTIAL USES PROPOSED IN THE DEIR ARE INCONSISTENT WITH THE GENERAL PLAN.

The General Plan only discussed a maximum build out of 400 units. However, the Project proposes 100 secondary units. This is inconsistent with the General Plan. Secondary residential units in Agriculture or Rural Residential zoning are generally for the purpose of having hired help due to the demands of living in a rural environment. The type of condensed housing that is proposed in the Project makes secondary residential units inappropriate.

3. THE VIEWSHED FROM NEARLY ALL LOCATIONS UPPER GREEN VALLEY IS NOT SUFFICIENTLY MITIGATED IN THE DEIR, IN VIOLATION OF CEQA.

Impact 3-3 in the DEIR states, "there is no mechanism to allow implementation of the development projects while avoiding the conversion of the local view sheds from agricultural land uses and open spaces to urban ... development."[65] However, CEQA requires that significant impacts be avoided or mitigated. In this case, both alternatives and further mitigation for the aesthetic impacts of the Project may feasibly be obtained and CEQA so requires.

Additionally, the General Plan requires the Project to limit the impacts on the valley's view sheds. More specifically, General Plan Policies LUP-14 and SSP-1 require that the future development in Middle Green Valley protects the views and screen development by landforms and vegetation. The proposed Project, however, puts development so far up the valley that the view shed from hundreds of Green Valley residents is unnecessarily sacrificed. The Three Creeks development, especially, will deteriorate the view of the field between it and the Elkhorn development. In so doing the benefit that could be gained by the Agriculture Preserve between these two neighborhoods is largely lost in terms of view shed for upper Green Valley residents.

Accordingly, the Three Creeks development should be moved or combined with the Nightingale development.[66] For example, consistent with the General Plan which

[65] DEIR, page ES-10.
[66] This analysis of moving the Three Creeks Neighborhood or combining it elsewhere within the Specific Plan area or outside of it should be included in the alternatives analysis which analyzes a different location.

requires protection of the rural character by screening developments with "natural contours in the land [and] woodland vegetation," the Three Creeks Neighborhood would be better screened if it is moved further to the southwest, behind Siebe Drive. In so doing it would be hidden from most upper green valley homeowners by a hill. Alternatively, the Three Creeks development could be consolidated with the Nightingale development, or moved elsewhere, where development is already prominent.

Additional measures must be discussed to mitigate for the significant environmental impacts to view sheds. For example, to maintain the rural character and the view shed for the existing upper Green Valley residents, the proposed developments should have living roofs

IN SUM, this letter respectfully requests that the DEIR be modified to minimally require the following, *inter alia*:

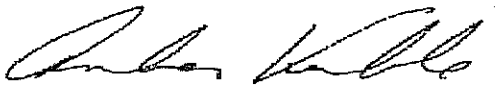
1. Prohibit non-residential uses and secondary units;
2. Prohibit street lights;
3. Require at least 250 set backs from streams and creeks;
4. Protect and enhance populations of steelhead and Chinook salmon in Green Valley Creek;
5. Provide disclosures, mitigations and avoidance in accordance with this letter;
6. Require that covenants run with the land prohibiting a future nuisance lawsuit against the surrounding agriculture operations;
7. Move the Three Creeks neighborhood so that it is better hidden from the view of Upper Green Valley and require green roofs to the residences nearest to Upper Green Valley as a mitigation for the impact;
8. Offset conversion of prime farmland by off-site preservation;
9. Implement mitigations for adverse air emissions, such as prohibiting fire places;
10. Require LEED certification on all residences;
11. Include all the documents that are relied upon in the DEIR;
12. Adequately analyze cumulative impacts; and
13. Provide further alternatives analysis, including a 200 reduced capacity alternative and an off-site alternative(s).

CONCLUSION

The foregoing flaws to the DEIR require further disclosures, analysis avoidance and mitigations. As such, the DEIR fails to meet CEQA's minimum standards for

environmental review, as currently drafted. UGH hope that comment letters, such as this one and the others submitted to the County, further refine the Project to make it the best it can be. There is only one Middle Green Valley and it deserves a Plan that better discloses, mitigates and avoids significant environmental impacts. Accordingly, UGH respectfully request that the DEIR be corrected and re-circulated for public comment.

Respectfully submitted,



Amber Kemble
Attorney for Upper Green Valley Homeowners

SALMONID HABITAT ASSESSMENT

SOLANO HABITAT CONSERVATION PLAN

LSA

June 30, 2008

SALMONID HABITAT ASSESSMENT

SOLANO HABITAT CONSERVATION PLAN

Submitted to:

Solano County Water Agency
508 Elmira Road
Vacaville, California 95687

Prepared by:

LSA Associates, Inc.
157 Park Place
Point Richmond, California 94801
(510) 236-6810

LSA Project No. SWG0701

LSA

June 30, 2008

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

In 2003, the Solano County Water Agency (SCWA) received an Endangered Species Act (ESA) Section 6 grant from the U.S. Fish and Wildlife Service to address specific data gaps identified in the Solano Habitat Conservation Plan's (HCP) *Report of Science Advisors* (Noss 2002). For anadromous salmonids, the report recommended evaluating the factors affecting the survival and growth rate of juvenile salmonids. Before this type of evaluation can take place, it is necessary to understand factors affecting spawning; most importantly, the location and availability of potentially suitable spawning and rearing habitat within Solano County streams. Studies to determine if potential salmonid habitat is available (or could be made available through restoration actions) are critical since it is estimated that greater than 82% of steelhead spawning and rearing habitat in the Central Valley has been lost (Yoshiyama et al. 1996). In addition, the presence and distribution of salmonid species and habitat in Solano County is poorly documented.

The ultimate goal of this salmonid habitat assessment is to provide background information on the location of suitable/potentially suitable salmonid habitat to landowners, agencies, and other entities who may become involved in salmonid habitat restoration projects. Plan Participants can use the information provided in this report to help evaluate applicable conservations measures for the Solano HCP. This study also helps address proposed conservation measures directed at species recovery contained in Working Draft 2.0 of the Solano HCP:

> **Conservation Measure RSM 21 – Salmonid Stream Surveys.** This measure requires Solano HCP Plan Participants to conduct surveys within their jurisdiction to assess barriers within public rights-of-way and at public facilities along streams known or suspected to support important populations of steelhead and other native fishes. Creeks specifically identified in this conservation measure are Jameson Canyon, American Canyon, Ledgewood, Suisun, and Green Valley creeks and their tributaries that contain suitable breeding and rearing habitat for steelhead.
>
> **Conservation Measure RSM 22 – Removal of In-Stream Barriers.** Plan Participants will also work to remove or minimize existing barriers at existing facilities and to prevent creation of barriers on private lands as new development occurs on the creeks identified in Conservation Measure RSM 21. This conservation measures requires that all barriers within Plan Participants' rights-of-way be removed or corrected within 10 years of the adoption of the HCP. Plan Participants will also work with, and provide technical assistance to, landowners to remove or minimize barriers on private lands.

1.2 SCOPE OF ASSESSMENT

This report focuses on two salmonid species found in Solano County, Chinook salmon (*Oncorhynchus tshawytscha*) and the federally-threatened steelhead trout (*Oncorhynchus mykiss iredeus*). This report provides an overview of available information for selected streams in Solano

County in order to assess the potential for these streams to support Chinook salmon and steelhead trout. This habitat assessment focuses on the Central California Coast and Central Valley steelhead Evolutionarily Significant Units (ESUs), and one Chinook salmon ESU (Central Valley fall and late-fall run). This report is not intended to present an exhaustive summary of literature related to Solano County fisheries but focuses on key factors affecting salmonids. This report provides recommendations for prioritizing streams where habitat enhancement projects have better potential to improve or increase steelhead habitat in Solano County's streams.

This assessment focuses on the following streams located within two main hydrologic units: the Suisun Bay watershed (hydrologic unit code [HUC] 18050001) and Lower Sacramento watershed (HUC 18020109). The Suisun Bay watershed includes the range of the steelhead Central California Coast ESU and includes the following waterways: American Canyon Creek, Jameson Canyon Creek, Green Valley Creek, Suisun Valley Creek, Ledgewood Creek, and Laurel Creek. Figure 1 (Appendix A) shows the locations of these streams within Solano County. The Lower Sacramento watershed lies within the designated range of Central Valley ESU and includes two primary waterways and their associated tributaries: Alamo Creek and Ulatis Creek. The streams listed above are included in this assessment because limited information is available for these streams and they are known or suspected to have potential salmonid habitat.

Two other major waterways, the Napa River and Putah Creek, are not addressed in this assessment. Within Solano County, none of the Napa River tributaries contain suitable steelhead breeding habitat and the Napa River itself provides primarily passage habitat. Putah Creek is not included because it is beyond the scope of the Solano HCP and salmonid habitat issues have been thoroughly addressed by the Solano Project Contract Renewal. Also, the California Department of Fish and Game (CDFG) conducted a study (the Fish Passage Improvement Project) that includes major streams and rivers (including Putah Creek) but does not include smaller creeks or creeks with "potential" or unconfirmed salmonid habitat or populations (CDFG et al. 2005).

2.0 METHODS

2.1 REVIEW OF EXISTING INFORMATION

LSA reviewed a variety of sources for information regarding historic and current conditions of Solano County streams and salmonid populations in the region. The following types of sources were consulted or reviewed:

1. Documents produced by LSA, including:

   - The *Solano Multispecies Habitat Conservation Plan (HCP), Working Draft 2.2* (LSA 2007)
   - A Riparian Habitat Assessment of Solano County Streams (LSA 2008)
   - A freshwater shrimp survey of Jameson Canyon Creek in Solano and Napa counties (LSA 2006)

2. Various sources providing previous records or studies of streams and salmonids in Solano County and the Central Valley

3. Government agency memos and guidance on fish passage, water rights and other issues

4. Government databases related to fisheries (CDFG 2007 and 2008; NMFS 2008)

5. Air temperature model database (Daly and Gibson 2006)

6. Aerial imagery provided by the Solano County Water Agency (2004)

7. Various published species accounts and field guides

2.2 HABITAT SUITABILITY MODEL

In the absence of sufficient stream temperature and flow data for most Solano County streams, potentially suitable habitat for anadromous salmonid spawning and rearing was predicted with a model utilizing air temperature and stream gradient. This model is based on a comparable habitat suitability model used for identifying streams in the Central Valley that were likely to support steelhead during summer months (Lindley et al. 2006).

The model used in the Central Valley stream assessment identified suitable stream reaches that met the following parameters: mean annual discharge >0.028 m^3s^{-1} (1 ft^3s^{-1}), gradient <12%, and mean August air temperature <24° C (75.2° F). The Central Valley assessment selected these habitat parameters based on previously published data indicating that (1) stream temperature is linearly related to air temperature between 0 and 24° C (32 and 75.2° F), (2) the highest reported maximum air temperature for steelhead rearing was determined to be 24° C (75.2° F), and (3) steelhead are commonly found in stream reaches with gradients less than 6% but in some systems they are not

uncommon in reaches with gradients of up to 12% and occasionally higher. Air temperature of 24° C is correlated with stream temperature of 22° C (71.6° F).

The monthly air temperature model results for Solano County show that the highest mean air temperatures occur in July rather than August; therefore, our model utilizes mean temperature data from July. The model was developed using interpolated from data collected at climate stations for the period from 1971 to 2000 to provide four-hundred-meter resolution grids of temperature data (Daly and Gibson 2006) for the County. These grids were used to determine zones within Solano County where the monthly mean air temperature is either above or below 24° C (75.2° F) during July. Streams were segmented into 100- to 200-meter reaches. Segments were compared to the climate data and were classified based upon their position within the watershed relative to the high temperature zones. Stream gradient was modeled by first converting the segments to 3D features and then by overlaying them onto 10-meter resolution NED digital elevation data (USDA Edition 1). Mean percent slope was calculated for each segment and the resulting segments were classified by gradient into three categories: 0-6% slope, 6-12% slope, and >12% slope.

2.3 FIELD ASSESSMENT

A field assessment of the eight streams was conducted in spring of 2008 in an attempt to fill data gaps identified during the review of existing information. The field component focused on (1) locating potential barriers to fish passage, and (2) evaluating which stream reaches support riparian canopy that provides shade over the channel during the afternoon, when air temperatures are highest.

Data collection in the field was limited to locations where the streams could be accessed by public roads. In many areas, there is no public access to the streams. Data collected during this field assessment were added to data previously collected for the Riparian Habitat Assessment (LSA 2008). All assessment locations were recorded using GPS technology.

3.0 SALMONID LIFE HISTORY AND HABITAT REQUIREMENTS

3.1 LIFE HISTORY

Salmonids share general characteristics such as basic life history traits and habitat preferences. Salmonid life history generally follows an anadromous cycle, spawning in streams and rivers and then migrating to the sea to mature. Timing of migration and spawning varies between and within species (see discussion below). Adults migrate to the streams of their birth by using their olfactory memory of a specific creek's organic molecular compounds (McGinnis 2006). Once they have arrived in the upper reaches of the creek, the adult salmon spawn in gravel beds in the upper reaches of streams. The eggs are laid and fertilized in the redd (a depression created by the female salmonid) after which time they are lightly buried. The adult Chinook salmon die following spawning, whereas adult steelhead may spawn multiple times (Moyle 2002). The eggs take a month or more to hatch, and the alevins (newly emerged fry) then remain in the gravel beds maturing and subsisting on large yolk sacs. Once the fry emerge from the gravel layer and become free-swimming, they develop dark vertical bands called parr marks. These juvenile fish reside in freshwater for a variable length of time, dependent on species, before beginning their migration to the ocean. During their ocean-bound migration, the young spend time in the estuarine ecosystem, where they develop the silvery coloration of adults and adapt to the physiological demands of living in salt water in a process known as smoltification (McGinnis 2006).

Chinook Salmon. Chinook salmon show a wide array of life histories, probably as an adaptation to highly variable river conditions. Spawning Chinook salmon generally are confined to perennial, lower reaches of larger watersheds (Leidy 2007).

Steelhead Trout. Central valley steelhead migrate upstream in the fall, beginning in August and peaking in late September-October. They spawn several months later, when flows in tributary streams are high enough. Steelhead spawn in headwater reaches with deep pools. These fish exhibit highly variable juvenile rearing times with 1-3 years being spent in fresh water followed by 1-4 years at sea.

3.2 STATUS AND DESCRIPTION

3.2.1 Steelhead Trout

Steelhead are the anadromous (sea-run) form of rainbow trout. Steelhead in California are classified as the coastal subspecies, *Oncorhynchus mykiss irideus* (Behnke 1992). The Central Valley steelhead ESU was listed as a threatened species on March 19, 1998 (63 FR 13347). This ESU includes all naturally spawned populations of steelhead (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, including Ulatis and Alamo creeks and their tributaries. Historically, the Central Valley ESU steelhead were well-distributed throughout the Sacramento and San Joaquin river systems: from the upper Sacramento/Pit river systems south to the Kings and possibly Kern river systems in wet years (Yoshiyama et al. 1996).

Steelhead in the western portions of the County are classified as being in the Central California Coast ESU. The Central Valley steelhead ESU was listed as a threatened species on March 19, 1998 (63 FR 13347). This ESU includes all naturally spawned populations of steelhead (and their progeny) in the San Francisco, San Pablo, and Suisun Bays and their tributaries. Steelhead from the Central California Coast ESU would be expected to spawn in the streams of western Solano County such as American Canyon, Jameson Canyon, Green Valley, Suisun Valley, Ledgewood, and Laurel creeks.

3.2.2 Chinook Salmon

The Central Valley fall and late fall-run Chinook salmon ESU was designated as a candidate for listing on September 16, 1999. This ESU includes all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin River Basins and their tributaries, east of the Carquinez Strait, California (NOAA Fisheries 1999).

Historically, it is estimated that fall and late fall-run Chinook salmon occurred at elevations up to 1,000 feet based on known records from the McCloud River (NOAA Fisheries 2003). This run was historically the most abundant in the Central Valley. The fall and late fall run occurred in all the major tributaries in the Sacramento-San Joaquin drainage, however it is unclear how far upstream Chinook salmon reached (Moyle 2002). Currently, hatchery fish are believed to augment this run by 10 to 65 percent (Behnke 2002).

In the late nineteenth century, many fish hatcheries were established in northern California in response to the decline of the commercial salmon fishery of the Sacramento River. No hatcheries were based in Solano County (JRP 2001). It has been suggested that the small natural population of Chinook salmon in the Solano HCP area contributes to the natural production of the Central Valley fall/late-fall ESU, which is currently heavily subsidized by hatchery production in the Sacramento River watershed (Noss et al. 2002).

3.3 HABITAT REQUIREMENTS

Both Chinook salmon and steelhead require riparian river and stream habitat, with spawning and rearing habitat characterized by perennial streams with clear, cool to cold, fast flowing water with a high dissolved oxygen content (near 100 percent for spawning), and abundant gravels and riffles. Both salmonids require sufficient flow and appropriate habitat for spawning, rearing, and migration, including shallow riffles for spawning and deep pools with well-developed riparian cover for rearing (Leidy 2000). In addition, water quality is important for both species; they prefer water with low suspended sediment and contamination loads, and minimal pollution levels.

3.3.1 Steelhead Trout

A summary of habitat requirements for steelhead is provided in Table A (Appendix B). Optimal water temperatures for steelhead range from 39° F to 50° F depending on habitat use. Although eggs can die at 56° F and fish can experience difficulty in extracting oxygen from the water when temperatures exceed 70° F (Hooper 1973), steelhead are adapted to survive conditions where preferred temperatures are exceeded for long periods of time (McEwan and Jackson 1996). Preferred water depth for spawning is 6-24 inches, for fry rearing is 2-14 inches, and for parr rearing is 10-

20 inches (Bovee 1978). The preferred water velocity for spawning is approximately two feet per second (ft/s) (Barnhart 1986). Steelhead can survive low oxygen concentrations at low temperatures, but require oxygen concentrations near saturation for growth (Moyle 2002).

3.3.2 Chinook Salmon

Chinook salmon generally are confined to perennial, lower reaches of larger watersheds. Table B (Appendix B) provides a summary of Chinook salmon habitat requirements. The upper range of thermal tolerance for Chinook salmon is 71.6-73.4° F (stream temperature), with an upper lethal level of 77 °F (Moyle 2002). The Chinook salmon's optimal migratory temperature is 60.8 °F, although a range of temperatures is tolerated (Torgersen et al. 1999). Spawning temperatures of 50-59° F are preferred. Optimal juvenile growth occurs at temperatures of 55.4-64.4° F, although positive growth occurs in a wider range of temperatures, from 41-66.2° F (Moyle 2002).

Chinook salmon primarily spawn at depths between 9.8 and 39.4 inches and velocities of 1.0-2.6 feet per second (Behnke 2002). Optimal conditions for embryo survival include water temperatures between 41 and 55.4° F and oxygen levels must be close to saturation (Behnke 2002). Optimal rearing temperatures for juvenile fall-run Chinook salmon are between 55.4 and 64.4° F. Juvenile Chinook salmon remain in freshwater for 1-7 months (Leidy 2007).

4.0 RESULTS

4.1 WATERSHED SUMMARIES AND BACKGROUND INFORMATION

4.1.1 Land Use

Data related to land use in Solano County watersheds are available from mapping conducted previously for preparation of the Solano HCP (LSA 2007). Land use data provide broad information regarding the potential of individual streams to provide habitat for salmonids. Land use data can provide clues for assessing water quality, potential for water withdrawals (and subsequent lowered depth and velocity), impacts to riparian habitat, and other factors that have the potential to impact salmonid habitat or migration potential. Existing land use data for each stream are summarized in Table C (Appendix B) and discussed below.

The American Canyon and Jameson Canyon watersheds are both located in areas with relatively low agricultural development and low urban development (Table C). Vegetative cover in the American Canyon and Jameson Canyon watersheds is primarily inner coast grassland with some oak woodland and other riparian vegetation. The lower reaches of these creeks (east of Interstate 80 [I-80], along Interstate 680 [I-680]) are in developed areas but these areas are much less developed than the lower reaches of other creeks covered in this assessment. American Canyon and Jameson Canyon, along with Laurel Creek, have the smallest watersheds of all those considered in this assessment.

The upper reaches of Green Valley Creek have relatively low agricultural and urban development; however, the lower reaches of this creek have higher agricultural development and urban development than American Canyon Creek or Jameson Canyon Creek. The Green Valley Creek watershed within Solano County is located in areas with vegetative cover consisting of inner coast range grassland, oak woodland, scrub/chaparral, and agriculture (LSA 2007). This watershed, along with the Ulatis Creek watersheds, is one of the largest watersheds in the county, after the Suisun Creek watershed.

Vegetative cover in the Suisun Creek watershed is predominantly agriculture with oak woodland and inner coast range grassland in the upper reaches and relatively low urban development. The Suisun Creek watershed is by far the largest of all of the watersheds (approximately 49 sq. mi) included in this assessment. Although the watershed has a relatively high amount of agriculture, it has a low percentage of development relatively to watershed size.

The vegetative cover within the Ledgewood Creek watershed is similar to that of Suisun Valley Creek except that the lower reaches are much more developed (LSA 2007). This is a mid-sized watershed, comparatively speaking, and is similar in size to the Alamo Creek watershed. The lower portion of this creek has been channelized for flood control.

The upper reaches of Laurel Creek (west of I-80) are located in areas with low percent development and low agriculture with vegetative cover consisting of oak woodland and inner coast range grassland. However, a significant portion of this small (approximately 8-square-mile) watershed is

located in highly urbanized areas and lacks riparian vegetation. Much of the lower length of Laurel Creek has been channelized for flood control.

The uppermost portions of the Ulatis Creek and Alamo Creek watersheds are located in areas of relatively low development with vegetation consisting of scrub/chaparral, oak woodland, inner coast range grassland, and agriculture. The lower reaches of these creeks are predominantly located in developed areas (near the I-80 corridor) and within agriculture lands (further east of I-80 and closer to the Delta). Some reaches of Lower Ulatis Creek are located adjacent to vernal pool grassland areas.

4.1.2 Beneficial Uses of Streams

The Regional Water Quality Control Boards (Regional Boards) established beneficial uses (i.e., "uses that benefit the people of the state") for major streams within their jurisdiction. One of the purposes of the Regional Boards is to protect these uses from waste discharges. Beneficial uses established for some of the Solano County streams are listed in Table D in Appendix B and discussed further in the paragraphs that follow. Uses were specifically established by the San Francisco Bay Regional Board for Green Valley Creek, Suisun Valley Creek, Ledgewood Creek, and Laurel Creek. Beneficial uses for other creeks within the SF Bay Region were not specifically designated; therefore, the beneficial uses for these creeks (American Canyon Creek and Jameson Canyon Creek) are based on those listed for Suisun Slough (SFRWQCB 2007). Likewise, the Central Valley Regional Board does not specifically identify beneficial uses for Alamo Creek or Ulatis Creek (the only drainages in this assessment that fall under the jurisdiction of the Central Valley Regional Board). These drainages are located within the Sacramento-San Joaquin Delta. Beneficial uses vary throughout the Delta and are evaluated on a case-by-case basis (CVRWQCB 2007).

Three beneficial uses relate to the ability of a stream to support salmonid habitat. These beneficial uses are cold freshwater habitat (COLD), fish migration (MIGR), and fish spawning (SPWN). These beneficial uses are described briefly below. Full definitions of beneficial uses are provided in Appendix C.

Coldwater habitat is listed as a beneficial use for Green Valley Creek, Laurel Creek, Ledgewood Creek, and Suisun Valley Creek. Cold freshwater habitats are well-oxygenated and generally support trout and may support anadromous salmonids (SFRWQCB 2007). These habitats typically support species less tolerant to poor water quality. Although Jameson Canyon Creek and American Canyon Creek are not included, this does not necessarily reflect the ability of these streams to provide coldwater habitat because beneficial uses for these streams are based on the greater watershed (i.e., Suisun Slough). Beneficial uses for Ulatis Creek and Alamo Creek are also based on the greater watershed (i.e., Sacramento-San Joaquin Delta) and most likely do not support coldwater habitat.

Laurel Creek, Ledgewood Creek, Suisun Valley Creek, and Ulatis Creek are designated as supporting fish migration. As defined by the Regional Board, the beneficial use of fish migration implies similar water quality as streams supporting cold water fisheries but adds provisions for maintaining fish passage whether it be a physical, thermal, chemical, or other water quality barrier (SFRWQCB 2007).

The same creeks that support fish migration, plus American Canyon Creek, Jameson Canyon Creek, and Green Valley Creek have a designated beneficial use for fish spawning. This beneficial use focuses on maintenance of high dissolved oxygen levels (near saturation) and un-obstructed flow and

notes that size distribution and organic content of sediments, water depth, and velocity also affect the ability of a stream to provide suitable spawning habitat (SFRWQCB 2007 and CVRWQCB 2007).

Although it is uncertain what background information or research was used to make these decisions about beneficial uses, they can add to the need to preserve or restore salmonid habitat. If there is an activity or a barrier that threatens the health or survival of the salmonids, then the Regional Board could prohibit that activity/barrier (or potentially require mitigation/restoration) based on the established beneficial uses (SFRWQCB 2007). The intended uses of these streams add to the impetus to restore passage in creeks where these uses (i.e., COLD, MIGR, and SPWN) are established.

4.1.3 Historical and Current Distribution of Salmonids in Solano County Streams

American Canyon Creek and Jameson Canyon Creek. A preliminary search did not yield data or reports related to the historical presence of fisheries in American Canyon Creek or Jameson Canyon Creek. However, a winter steelhead distribution map produced by CDFG in June 2007 indicates that anadromous steelhead were observed in 2004 in Jameson Canyon Creek (CDFG 2007). Steelhead were reportedly observed in American Canyon Creek within the last ten years in association with a spill of well-drilling clay from a slide repair project on I-80 near Lynch Canyon (Greg Martinelli, personal communication); however, specific information is lacking.

Green Valley Creek. Steelhead have been observed in Green Valley Creek from the 1950s to at least as recently as 2002. Observations have been made at several locations upstream of I-80 (Leidy et al. 2005). Chinook salmon have been observed upstream to the base of Green Valley Falls and redds have been observed at Mankas Corner (Edwards, personal communication *In* National Marine Fisheries Service [NMFS] 2008). The winter steelhead distribution map produced by CDFG in June 2007 indicates that anadromous steelhead were observed in 2004 in Green Valley Creek (CDFG 2007).

Suisun Valley Creek. Steelhead have been observed in Suisun Valley Creek and its tributaries since the 1950s and as recently as June 2002 (Leidy et al. 2005). It is unclear whether spawning steelhead have been observed in recent years. The winter steelhead distribution map produced by CDFG in June 2007 indicates that anadromous steelhead were observed in 2004 in Suisun Valley Creek (CDFG 2007). Steelhead runs have diminished primarily due to the construction of the dam at Lake Curry in 1926 and subsequent issues related to inadequate surface water flows (Leidy et al. 2005). A 1969 memo from CDFG indicated that the greatest concentration of steelhead juveniles in the Suisun Creek watershed was in Wooden Valley Creek (Greenwald 1969 *In* Leidy et al. 2005). This same report noted that lack of nursery habitat was limiting steelhead populations in Suisun Creek. In 1980, a CDFG report recommended removing barriers, improving agricultural practices, and preventing dumping to improve steelhead habitat (Cox 1980 *In* Leidy et al. 2005).

Chinook salmon have been observed over multiple years upstream to the Napa/Solano County line. These individual were possibly strays (Edwards, personal communication *In* NMFS 2008).

Ledgewood Creek. Chinook salmon have been found upstream of I-80 in multiple years, it is unknown whether they spawn in the creek (Edwards 1998, personal communication *In* NMFS 2008). Additional information provided in the *Historic Record of Salmon and Steelhead in Solano County Streams: Final Progress and Findings Report* (JRP 2001) suggests that Ledgewood Creek historically

supported steelhead, at least until the mid-1970s. However, no specific observations of steelhead are noted.

Laurel Creek. Chinook salmon have been found in Laurel Creek from upstream to Travis Boulevard, possibly strays; it is unknown whether they spawn in the creek (Edwards 1998, personal communication *In* NMFS 2008). Additional information provided in the *Historic Record of Salmon and Steelhead in Solano County Streams: Final Progress and Findings Report* (JRP 2001) suggests that Laurel Creek also historically supported steelhead, at least up until the mid-1970s. However, no specific observations of steelhead were noted.

Alamo Creek and Ulatis Creek. A preliminary search did not yield data or reports related to the historical presence of fisheries in Alamo Creek or Ulatis Creek. However, CDFG's winter steelhead distribution map indicates that anadromous steelhead were observed in 2005 in both Alamo Creek and Ulatis Creek (CDFG 2007). Fall-run Chinook salmon have been observed periodically in Ulatis Creek, at Nut Tree Road between the mid 1970s and late 1990s (Steve Foreman, personal observation).

4.2 HABITAT SUITABILITY

4.2.1 Stream Gradient/Temperature Model

Upper Alamo and Ulatis Creeks. These are two of the northernmost streams in Solano County and are shown on Figure 2 (Appendix A). These creeks originate in the Vaca Mountains, just west of the Napa/Solano County line. For the purposes of this assessment, the downstream limit of "upper" Alamo and Ulatis Creeks is located roughly where the creeks enter the densely developed limits of the City of Vacaville (see assessment locations AC02 and UC02 in Figure 2). Upper Alamo and Ulatis Creeks are well shaded by riparian vegetation that forms a closed to partially-closed canopy. The most typical substrates occurring in upper Alamo and Ulatis Creeks are gravel, cobble, and boulder (LSA 2008).

Within upper Alamo and Ulatis Creeks, the majority of stream reaches with the most suitable gradient (<6%) for salmonid habitat are located in the region that exceeds the temperature threshold for salmonid habitat (i.e., too hot to provide suitable rearing habitat in summer). These segments also tend to dry during many summers.

The uppermost reaches of these watersheds are located in areas within the suitable temperature threshold; however, the topography of the area results in steeper stream gradients. In the upper reaches of Alamo and Ulatis creeks, only 13% and 19%, respectively, of the stream reaches are of low to moderate gradient (<6%; ≥6% to ≤12%). The majority of the stream reaches in the upper watersheds are characterized by gradients of >12%. The low to moderate gradient stream reaches are interspersed among the higher gradient stream reaches, thus likely making these sections inaccessible to steelhead.

Lower Alamo and Ulatis Creeks. Lower Alamo and Ulatis Creeks are located in heavily developed or agricultural bottomlands. These are entirely low gradient (<6%) streams that have been channelized and rerouted in several locations. Where riparian vegetation does occur along the two

creeks, the canopy is more open than along upper Alamo and Ulatis Creeks. Riparian canopy is sparse or absent from many of the channelized reaches farther east.

Because the lower gradient reaches receive runoff from the upper watersheds and also pass through portions of diked baylands, the most typical substrates occurring in lower Alamo and Ulatis Creeks are silt/clay/mud and cobble (LSA 2008). Approximately 90% of the lower reaches of Ulatis Creek, and 65% of the lower reaches of Alamo Creek, are located in areas within the suitable monthly temperature threshold for salmonid habitat (Figure 2); however, these sections of creek can typically experience several continuous weeks of unsuitable temperatures in most years. Old Alamo Creek meets the gradient and temperature criteria for salmonid habitat, but is not considered suitable because of dewatering and other passage barriers.

Laurel Creek. Laurel Creek, another stream in the central/northern portion of the county, is shown on Figure 2. This creek originates in the Vaca Mountains and terminates at Hill Slough. The entire length of this creek is located within the suitable temperature threshold for salmonid habitat and approximately 96% of this creek is characterized by a low gradient (<6%). Low, moderate and steep gradient stream reaches are fairly evenly interspersed along the uppermost reaches in the hills, where closed canopy riparian vegetation is common. South of Cement Hill Road and Laurel Creek Park the stream is channelized for flood control and supports little or no riparian canopy.

American Canyon Creek. American Canyon Creek, the southernmost creek in Solano County, originates in the low hills southeast of I-80 and approximately one-half of a mile northeast of the Napa/Solano County line (Figure 3, Appendix A). This creek is channelized for flood control through the flat agricultural fields before it drains to Cordelia Slough. Two tributaries in Lynch Canyon, northwest of I-80, are included in the assessment of American Canyon Creek. The entire creek is located within the suitable temperature threshold for salmonid habitat and approximately 95% of this creek is characterized by low to moderate gradients. The most typical substrates occurring in this creek are silt/clay/mud and gravel (LSA 2008).

The upper reaches of American Canyon Creek support a nearly continuous corridor of closed-canopy riparian vegetation. Along the lower, easternmost reaches, riparian vegetation cover is less dense and more patchily distributed along the channel.

Jameson Canyon Creek. The headwaters of Jameson Canyon Creek are located in Jameson Canyon, just east of the Napa/Solano County line (Figure 3). The lower reaches of Jameson Canyon Creek are channelized through agricultural fields before it drains to Cordelia Slough through a flapgate. Five small, unnamed tributaries in the canyon are included in the assessment. The entire creek is located within the suitable temperature threshold for salmonid habitat and approximately 99% of this creek is characterized by low to moderate gradients. The most typical substrate occurring in this creek is silt/clay/mud and many reaches are concrete-lined (LSA 2008).

Riparian canopy is sparse where the upper reaches of Jameson Canyon Creek are located in grazed pastures. As the creek makes its way eastward, the stream corridor is dominated by closed-canopy riparian vegetation until the channel is culverted underneath I-80. Riparian canopy is patchily distributed along the channel where it passes through industrial development southeast of Cordelia Junction and becomes sparse, then absent, once the channel is diverted through agricultural fields and toward Cordelia Slough.

Green Valley Creek. Green Valley Creek originates in Green Valley, northwest of Rockville Hills Regional Park, and drains into Cordelia Slough via flood control channels southeast of Cordelia Junction. Several unnamed tributaries and one major tributary (Dug Road Creek) are included in the assessment of Green Valley Creek (as shown on Figures 1 and 3). All reaches of Green Valley Creek and its tributaries are located in areas within the suitable temperature threshold and 84% of the stream reaches assessed (i.e., as mapped on Figure 3) are characterized by low to moderate gradients. The most typical substrates occurring in the upper reaches of Green Valley Creek are boulders and cobble and silt/clay/mud is the dominant substrate in the lower, wider reaches (LSA 2008).

The uppermost reach of the mainstem of Green Valley Creek is located in an open, low-gradient valley where riparian canopy is absent. The mainstem and the tributaries in the surrounding hills become steeper and support closed-canopy riparian vegetation as they drain toward Green Valley. Closed-canopy riparian vegetation remains nearly continuous until the creek enters residential development and the Green Valley Golf Course. Here the creek is mostly channelized, with the exception of a portion of the golf course, where the stream channel is less confined, with natural braids and meanders and patchily distributed riparian vegetation. Closed-canopy riparian vegetation is again dominant along the channel south of the golf course until the creek reaches South Putah Canal. From that point until it drains to Cordelia Slough, riparian vegetation is sparse and provides little shade over the wetted channel.

Suisun Valley Creek. Suisun Valley Creek originates in Napa County. It enters Solano County as a low-gradient stream that meanders through Suisun Valley before draining to Cordelia Slough southeast of Cordelia Junction. Two unnamed tributaries originating in the hills west of Suisun Valley Creek are included in the assessment. Approximately 88% of Suisun Valley Creek within Solano County is located in areas within the suitable temperature threshold for salmonid habitat and 88% of the stream reaches assessed are characterized by low to moderate gradients. The most typical substrate occurring in Suisun Valley Creek are cobble, silt/clay/mud, and gravel.

North of I-80 this creek is characterized by partially-closed riparian canopy. South of I-80, the channel becomes gradually wider and the riparian canopy is much more open, providing less shade over the creek.

Ledgewood Creek. Ledgewood Creek originates in the Vaca Mountains north of the Solano/Napa County line and drains into Paytonia Slough southwest of Suisun City. The entire length of this Creek within Solano County is located within the suitable temperature threshold for salmonid habitat and is characterized by a low gradient. The most typical substrate occurring in this creek is silt/clay/mud (LSA 2008).

The upper reaches of this creek (within Solano County) flow between agricultural fields and low-density residential areas where the naturally sinuous path of the creek has been maintained for the most part. These upper reaches support closed to partially-closed riparian canopy. Between the Putah South Canal and Paytonia Slough, some reaches of Ledgewood Creek are sinuous and shaded by riparian vegetation, while others are channelized for flood control and lacking riparian canopy.

4.2.2 Fish Passage Barriers

Potential barriers to fish passage occur in six of the eight streams that were included in this assessment. Potential fish passage barriers were identified by reviewing existing literature, interviewing Solano County residents, and by direct field observation where possible. Potential fish passage barriers may include culverts, large headcuts or drops in streambed elevation greater than three vertical feet, debris dams, and agriculture/irrigation diversions. Twenty-one potential fish passage barriers identified by this assessment are summarized in Table E (Appendix B) and their approximate locations are depicted in Figures 2 and 3 (Appendix A).

Ulatis Creek. Five potential fish passage barriers were identified in Ulatis Creek or its tributaries (Figure 3, Appendix A). Salmonids entering this creek from the bay would first encounter a pair of water control structures that create 6-foot vertical drops in the concrete-lined portions of the flood control channel (see assessment locations UC11 and UC10). One of these structures is shown in Photo #1 in Appendix D. Approximately three miles further upstream, between assessment locations UC04 and UC03, a debris dam of wood and riprap creates a potential barrier to passage during seasons of low flow. The debris dam is shown in Photo #2 (Appendix D). Approximately five miles further upstream, in the Vaca Mountains (see assessment location UC13), a concrete box culvert under a road creates a 5-foot vertical drop in the channel. The culvert outlet is shown in Photo #3 (Appendix D). Approximately one quarter mile further upstream, at assessment location UC12, another culvert creates a 4-foot vertical drop in the channel.

Alamo Creek. Six potential fish passage barriers were identified in Alamo Creek or its tributaries. Four of these barriers occur in Old Alamo Creek (see Photo #4 in Appendix D), which is cut off from New Alamo Creek (a channelized flood control channel) by flapgates. Salmonids entering this creek from the bay would be directed upstream via New Alamo Creek. Approximately three miles upstream from the New Alamo Creek diversion (see assessment location AC03), a beaver dam creates a potential barrier to passage during low flow. Approximately three miles further upstream, in the Vaca Mountains (between assessment locations AC14 and AC13), fish passage to a tributary entering the mainstem of Alamo Creek is potentially blocked by a culvert that creates a 4-foot drop (see Photo #5).

Laurel Creek. Two potential fish passage barriers were identified in Laurel Creek: small double culverts underneath Nelson Road (assessment location LRLC02), and a culvert under Lyon Road (assessment location LRLC01) with a grade control structure or trash grate across the outlet. The creek also passes underneath I-80 between Lyon Road and Nelson Road.

American Canyon Creek. Three potential fish passage barriers were identified in American Canyon Creek or its tributaries (Figure 3, Appendix A). Salmonids are most likely prevented from entering this creek from the bay by a levee and flapgate at Cordelia Slough. Approximately five miles upstream, just below the confluence with a tributary from Lynch Canyon, a break in the channel's concrete lining creates a 5-foot drop. This potential barrier is shown in Photo #6 (Appendix D). Approximately one-half mile further upstream, an old asphalt road has eroded creating a 3-foot drop above the channel bottom.

Jameson Canyon Creek. Two potential fish passage barriers were identified in Jameson Canyon Creek or its tributaries. As with American Canyon Creek, salmonids are most likely prevented from entering this creek from the bay by a levee and flapgate at Cordelia Slough. Approximately

three miles upstream a tributary entering Jameson Canyon Creek is most likely impassible where it is culverted underneath Highway 12 because the 24-inch culvert is clogged with sediment.

Green Valley Creek. Four potential fish passage barriers were identified in Green Valley Creek or its tributaries. Salmonids entering this creek from the bay would travel through Cordelia Slough, where there appears to be no flapgate or other barrier preventing passage upstream. Approximately one mile upstream from the Cordelia Slough/Green Valley Creek confluence, between Green Valley Road and I-80 (see assessment location GRNV07), a large beaver dam creates a potential barrier to passage during seasons of low flow. Another mile further upstream, at assessment location GRNV04, a potential high velocity barrier exists where the Putah South Canal discharges into Green Valley Creek at Reservoir Lane. In the upper reaches of Green Valley Creek, the Green Valley Falls below Lake Frey create an impassible, natural 50-foot drop.

Suisun Valley Creek. No potential barriers to fish passage were identified in Suisun Valley Creek.

Ledgewood Creek. No potential barriers to fish passage were identified in Ledgewood Creek. Fish passage structures (i.e., baffles) were installed where the creek is channelized and lined with concrete underneath I-80.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Overall, the greatest potential for enhancing salmonid habitat in Solano County exists in the southern streams. All five of the southern streams included in this assessment (American Canyon Creek, Jameson Canyon Creek, Green Valley Creek, and Suisun Valley Creek), plus Laurel Creek, have extensive lengths of potentially suitable habitat based on gradient and temperature thresholds included in our model. The northern streams (Ulatis Creek, Alamo Creek) generally appear to be too hot and inaccessible to merit much effort in restoration. Air temperature (and, thus, water temperature) of the northern streams is influenced by the hot summers of the Central Valley, whereas summer temperatures of the southern streams are moderated by the coastal fog that spreads north from the bay, typically no farther than Jameson Canyon or Green Valley.

In the absence of long-term field data, the gradient and temperature model provided a starting point for determining which streams have potentially suitable habitat for salmonid spawning and/or rearing. Temperature/stream gradient assessment at this broader scale cannot (or does not necessarily) account for localized temperature fluctuations. Other factors that can affect temperature on a reach or pool/riffle scale are the presence or condition of riparian vegetation, the amount of water (discharge and depth), and the length of time that a given stream holds water. This assessment did not include stream discharge (minimum requirement < 1 cfs), as the Lindley et al. (2006) study did. Other considerations besides temperature are the presence of adequate gravel substrate for redds, water quality, including sediment loads (type and amount of sediment), and the uses of the creek. Still other considerations relate to urbanization and flood control. For example, Laurel Creek and Ledgewood Creek, though they meet the temperature/gradient criteria, are maintained as flood control channels for at least a portion of their lengths. Therefore, they have limited riparian vegetation and habitat diversity (gravel/cobble, woody debris, etc.).

Based on a qualitative analysis of land use and other watershed characteristics, the ability of a stream to support salmonids is not necessarily related to watershed size, percent irrigated agriculture, or percent developed land. Three of the southern streams (American Canyon, Jameson Canyon, and Suisun Valley Creek) are different from the northern streams in that they have low percent development throughout their reaches. The lower reaches of the remaining southern creeks (Green Valley Creek, Ledgewood) as well as the northern streams Alamo Creek, Ulatis Creek, and Laurel Creek have a high percentage of development in their lower reaches. However, Green Valley Creek still has strong potential to support steelhead, partly because its upper reaches have a low percentage of development. The smaller watersheds of American Canyon, Jameson Canyon, and Laurel Creek could mean lower water quantity, fewer pools, and potentially flows below the threshold for salmonids. Some of the upper portions of Jameson Canyon and some of the upper and lower portions of American Canyon, where steelhead have been reported, were dry during field surveys in June 2008 (note: 2008 was the second consecutive year of substantially below normal rainfall for this region). However, long-term discharge studies are necessary to make determinations regarding adequate water supply for salmonids (e.g., the ability of a stream to provide pools throughout the summer).

The above conclusions summarize the potential of streams to provide steelhead spawning and rearing habitat. More information about water temperature, substrate, and flow would be necessary to make conclusions regarding the *actual* suitability of each stream as salmonid habitat. Studies of this nature are costly and labor intensive; therefore, the results of this assessment can be used to prioritize or direct future research and restoration efforts in Solano County.

5.1 RESTORATION PRIORITIES

Among the southern streams, the highest priority for salmonid habitat restoration efforts should be given to Green Valley Creek and Suisun Valley Creek. These two creeks are known to support salmonids and, compared to other creeks in Solano County, their watersheds are much less impacted by development. These two creeks also have established beneficial uses of coldwater habitat and spawning, and Suisun Valley Creek has an established beneficial use of fish migration. There are no major fish passage barriers known to occur in Suisun Valley Creek and the potential barriers identified in the mainstem of Green Valley Creek are potentially restorable. The next highest priority for restoration efforts could be given to Jameson Canyon and American Canyon Creeks. Ledgewood Creek appears to have sufficient summer flow for juvenile salmonid rearing and no known barriers to fish passage; however, the watershed of this creek is more developed than the other two streams. Much of Ledgewood Creek is channelized for flood control and/or degraded by adjacent land uses. The watersheds of Jameson Canyon Creek and American Canyon Creek are relatively undeveloped and support robust riparian vegetation, but uncertainty remains as to whether there is sufficient flow in summer for rearing of juvenile salmonids. Access to these two creeks by anadromous salmonids is another factor that needs to be addressed. We were not able to access the mouths of these two creeks to determine if fish passage is possible via Cordelia Slough. Aerial photo imagery indicates that fish passage is likely restricted by one-way flow flap gates and the potential for restoring passage is unknown.

5.2 RECOMMENDED ACTIONS

5.2.1 Fish Passage

Potential barriers to fish passage identified in the southern streams should be analyzed using established/approved methods to determine the degree to which passage is actually restricted and the feasibility of restoring passage. If possible, more extensive field surveys or polling of property owners should be conducted to identify other potential passage barriers that may have been overlooked by this assessment. Wherever feasible, barriers should be removed or altered to restore fish passage. Further research and/or restoration should focus on those streams that are, or could be made, passable to salmonids. For some of the creeks, this will require research on streamflow. If flow in a creek is not sufficient to sustain a population of steelhead, efforts to remove fish passage barriers may not be appropriate. In other locations, especially urban areas, culverts may not be removable but could be made more amenable to fish passage (e.g., by installing baffles or fish ladders).

5.2.2 Research and Restoration

Within each passable stream, additional field surveys and data collection should be conducted to identify and prioritize sites where spawning and rearing habitat can be expanded, enhanced or restored.

Research actions may include the following:

- Installing water and air temperature data loggers to obtain annual or seasonal temperature data, capture diurnal variation in temperature, and obtain temperature data on a reach scale. These data may help determine if shade cast by riparian vegetation keeps water temperatures sufficiently low for salmonids.
- Conducting substrate/pool-riffle mapping (full habitat assessment).
- Conducting basic water quality studies that would begin with analyzing pH, dissolved oxygen, and conductivity. Depending on the results of these initial analyses, other potential water quality studies may include sediment (total suspended solids), pesticides, and/or heavy metals, depending on adjacent land uses and suspected pollutants.
- Utilizing an established procedure for analyzing fish passage barriers, such as the USDA-Forest Service Inventory and Assessment Procedure for Fish Passage Barriers (USDA 2005).
- Obtaining streamflow and water level data, including an assessment of water withdrawal locations and amounts of water withdrawn seasonally. Flow measurements and stream gauging (installing permanent staff plates and water level monitors at a stable location in the channel) would be useful.

Restoration actions may include the following:

- Planting riparian vegetation to provide afternoon shade over the channel.
- Adding woody debris to the channel to provide shelter.
- Excavating deeper pools where fish can retreat from predators or high surface water temperature.
- Addressing sources of sediment (e.g., stabilize a landslide).
- Addressing water withdrawal issues.

6.0 REFERENCES

6.1 LITERATURE CITED

Barnhart, R.A. 1986. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Pacific Southwest) – steelhead. U.S. Fish and Wildlife Service Biological Report 82 (11.60). U.S. Army Corps of Engineers, TR EL-82-4. 21pp.

Bell, M.C. 1986. Fisheries handbook of engineering requirements and biological criteria. Fish Passage Development and Evaluation Program, U.S. Army Corps of Engineers, North Pacific Division, Portland, Oregon. 290 pp.

Behnke, R.J. 2002. Trout and Salmon of North America. Simon & Schuster, New York, New York. 359 pp

Bovee, K.D. 1978. Probability-of-use-criteria for the family Salmonidae. Instream Flow Information Paper 4, U.S. Fish and Wildlife Service, FWS/OBS-78/07. 79 pp.

California Department of Fish and Game (CDFG). 2008. Passage Assessment Database (data download from CalFish website), January 2008 version accessed on June 27, 2008. http://www.calfish.org/FishDataandMaps/tabid/87/Default.aspx

_____. 2007. Winter Steelhead Distribution Map (data download from CalFish website), June 2007 version accessed on June 27, 2008. http://www.calfish.org/FishDataandMaps/tabid/87/Default.aspx

California Department of Fish and Game, NOAA National Marine Fisheries Service, U.S. Fish and Wildlife in Partnership with the California Department of Water Resources. 2005. Service Bulletin 250 (Fish Passage Improvement). An element of CalFeds Ecosystem Restoration Program.

Central Valley Regional Water Quality Control Board (CVRWQCB). 2007. Sacramento River Basin and San Joaquin River Basin Regional Water Quality Control Plan (Basin Plan). California State Water Resources Control Board, Sacramento.

Cox, B. 1980. *Stream Survey Suisun, Wooden Valley Creeks*. California Department of Fish and Game. Report dated July-August.

Daly, C. and W. Gibson. 2006. United States Average Monthly or Annual Minimum, Maximum, and Mean Temperature, 1971-2000. Raster digital data published by the PRISM Group at Oregon State University, Corvallis, Oregon.

Gerstung, E.R. 1964. *Memo to file. Re: Suisun Creek, observations of April 2, 1964.* U.S. Army Corps of Engineers. Dated April 30.

Greenwald, W. 1969. *Memo to Chief of Operations Re: Water Rights, Suisun Creek, Napa and Solano counties.* California Department of Fish and Game. Dated May 22.

Hooper, D.R. 1973. Evaluation of the effects of flows on trout stream ecology. Department of Engineers Res., Pacific Gas and Electric Co., Emeryville, California. 97 pp.

JRP Historical Consulting Services (JRP). 2001. *Historic Record of Salmon and Steelhead in Solano County Streams: Final Progress and Findings Report.* Prepared for Solano County Water Agency, Vacaville, California.

Leidy, R.A., G.S. Becker, B.N. Harvey. 2005. *Historical distribution and current status of steelhead/rainbow trout* (Oncorhynchus mykiss) *in streams of the San Francsico Estuary, California.* Center for Ecosystem Management and Restoration, Oakland, CA.

Leidy, R.A. 2007. Ecology, Assemblage Structure, Distribution, and Status of Fish in Streams Tributary to the San Francisco Estuary, California. San Francisco Estuary Institute. Contribution No. 530. San Francisco, California.

Lindley, S.T., R.S. Schick, A. Agrawal, M. Goslin, T.E. Pearson, E. Mora, J.J. Anderson, B. May, S. Greene, C. Hanson, A. Low, D. McEwan, R.B. MacFarlane, C. Swanson, and J.G. Williams. 2006. *Historical population structure of Central Valley steelhead and its alteration by dams.* San Francisco Estuary and Watershed Science. Vol. 4, Iss. 1 [February 2006], Art. 3.

LSA Associates, Inc. (LSA). 2008. *Riparian Habitat Assessment.* Prepared for the Solano County Water Agency, Elmira, California, June 30, 2008.

_____. 2007. *Solano Multispecies Habitat Conservation Plan, Working Draft 2.2.* Submitted to the Solano County Water Agency, Elmira, California. February 2007.

_____. 2006. *SR12 Jameson Canyon Widening and SR12/SR29 Interchange Improvement Project California Freshwater Shrimp (Syncaris pacifica) Survey, Napa and Solano Counties, California.* Prepared for CH2M HILL, September 18, 2006.

McEwan, D. and T.A. Jackson. 1996. Steelhead restoration and management plan for California. California Department of Fish and Game, Inland Fisheries Division, Sacramento, California. 234 pp.

Moyle, P.B. 2002. Inland fishes of California. University of California Press, Berkeley, California. 408. pp.

National Marine Fisheries Service (NMFS). Central Valley Chinook Salmon, Current Stream Habitat Distribution Table. http://swr.nmfs.noaa.gov/hcd/dist2.htm. Accessed June 25, 2008.

NOAA Fisheries. 2003. Central Valley Chinook Salmon: Historic Stream Habitat Distribution. *Published at:* http://swr.nmfs.noaa.gov/hcd/cvschshd.htm.

NOAA Fisheries. 1999. Endangered and Threatened Species; Threatened Status for Two Chinook Salmon Evolutionarily Significant Units (ESUs) in California; Final Rule. Federal Register: 64: 50394-50415.

Noss, R., R. Amundson, D. Arnold, M. Bradbury, S. Colling, B. Grewell, R. Grosberg, L. McKee, P. Northen, C. Swanson, and R. Yoshiyama. 2002. *Report of Science Advisors- Solano County Natural Community Conservation Plan (NCCP) and Habitat Conservation Plan (HCP).*

Reiser, D.W. and T.C. Bjornn. 1979. Habitat requirements of anadromous salmonids. USDA Forest Service, Pacific Northwest Forest and Range Experiment Station, Portland, Oregon, General Technical Report 82 (11:62). 24 pp.

San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). 2007. San Francisco Bay Basin Water Quality Control Plan (Basin Plan). California State Water Resources Control Board, Sacramento.

Sauter, S.T., L.I. Crawshaw, and A.G. Maule. 2001. Behavioral thermoregulation by juvenile spring and fall chinook salmon, *Oncorhynchus tshawytscha,* during smoltification. *Environmental Biology of Fishes* 61: 295–304.

Tetra Tech, Inc. 2004. *Use Attainability Analysis for Old Alamo Creek.* Prepared for Environmental Protection Agency, Region 9, January 2004.

Torgersen, C.E., D.M. Price, H.W. Li, B.A. McIntosh. 1999. Multiscale thermal refugia and stream habitat associations of Chinook salmon in northeastern Oregon. *Ecological Applications,* Vol. 9, No. 1 (Feb. 1999), pp. 301-319. Ecological Society of America. Accessed June 26, 2008. http://www.jstpr.org/stable/2641187

U.S. Department of Agriculture (USDA) Natural Resources Conservation Services, National Cartography & Geospatial Center. National Elevation Dataset 10 Meter 7.5x7.5-minute quadrangles, Edition 1.

U.S. Department of Agriculture National Forest Service. 2005. National Inventory and Assessment Procedure for Identifying Barriers to Aquatic Organism Passage at Road-Stream Crossings. National Technology and Development Program. November 2005.

Yoshiyama, R.M., E.R. Gerstung, F.W. Fisher, and P.B. Moyle. 1996. Historical and present distribution of Chinook salmon in the Central Valley drainage of California. Sierra Nevada Ecosystem Project: final report to Congress. Pages 306-362 in Volume 3. Assessments, commissioned reports, and background information. University of California, Center for Water and Wildland Resources, Davis, California.

6.2 PERSONAL COMMUNICATIONS/OBSERVATIONS

Foreman, Steve. LSA Associates. Personal Observation.

Martinelli, Greg. California Department of Fish and Game. June 2008. Personal Communication.

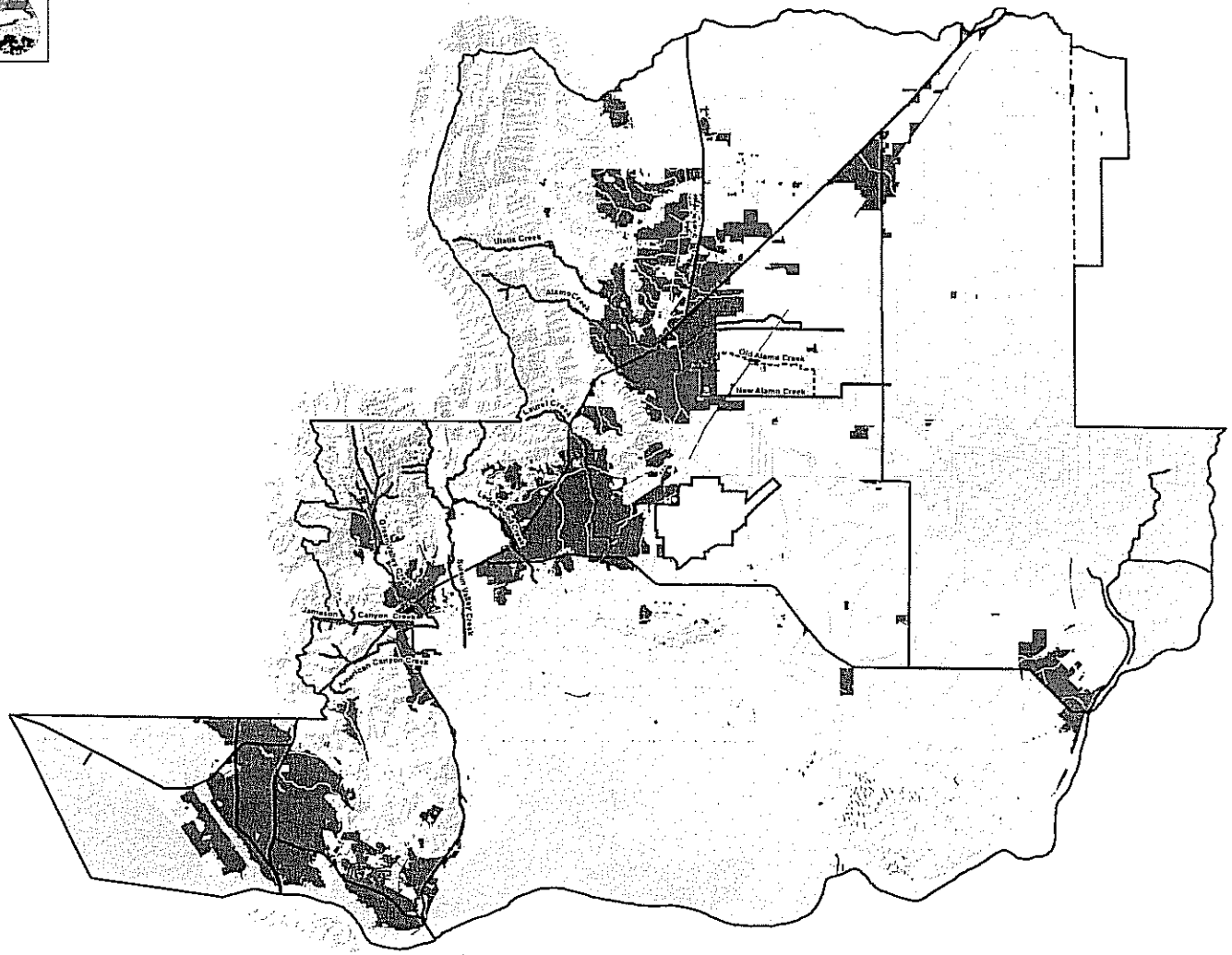
APPENDIX A

FIGURES

LIST OF FIGURES

SOLANO COUNTY WATER AGENCY

Figure 1
Location of Streams Included in Salmonid Habitat Assessment



L:\SWG0701\GIS\Maps\Section 6\Salmonid Assessment\Figure01_Location of Streams.mxd (07/09/2008)

LSA

Solano County Water Agency

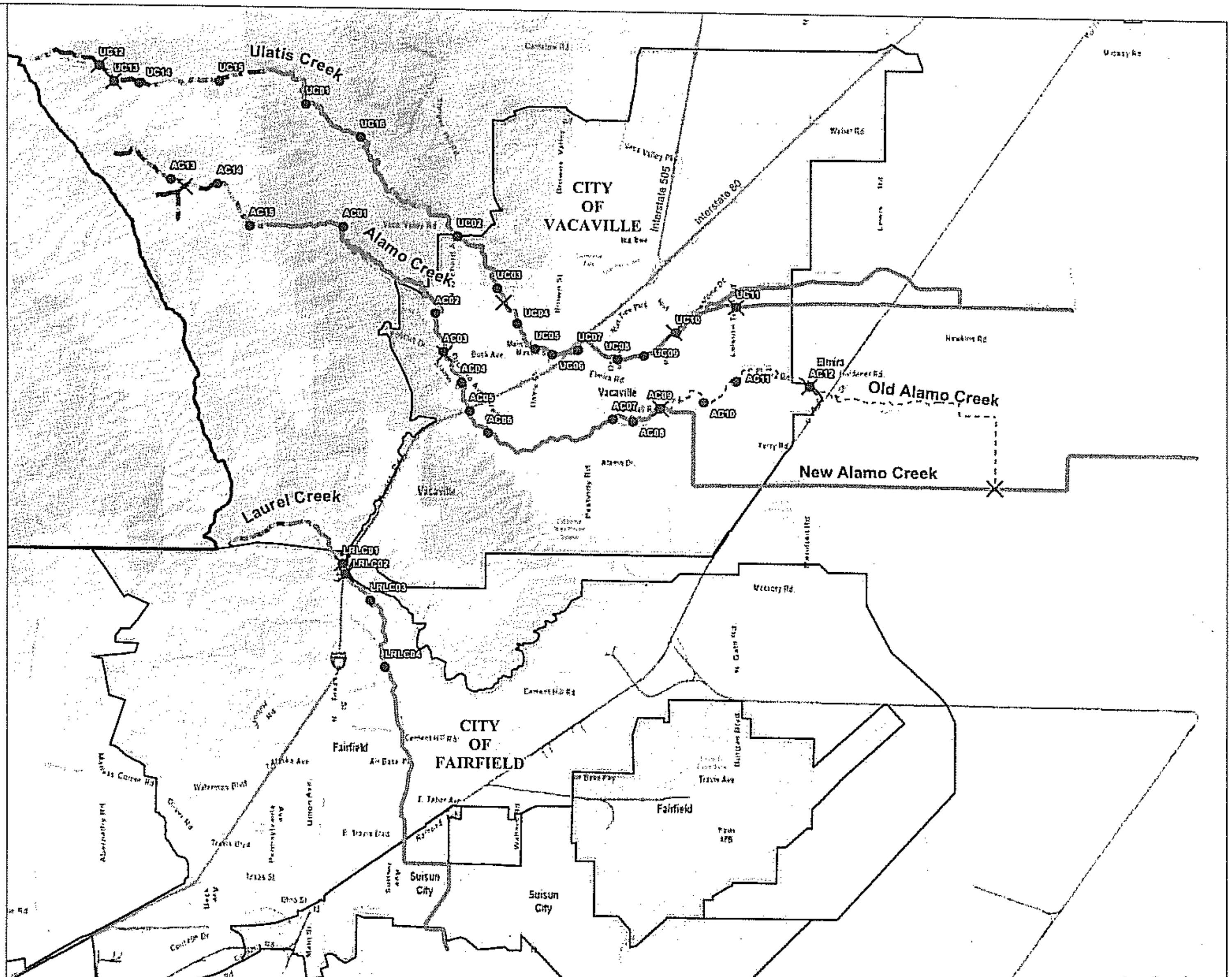
Figure 2
Northern Streams

- Urban Limit Lines
- Plan Area
- Assessment Location

Drainage Gradient

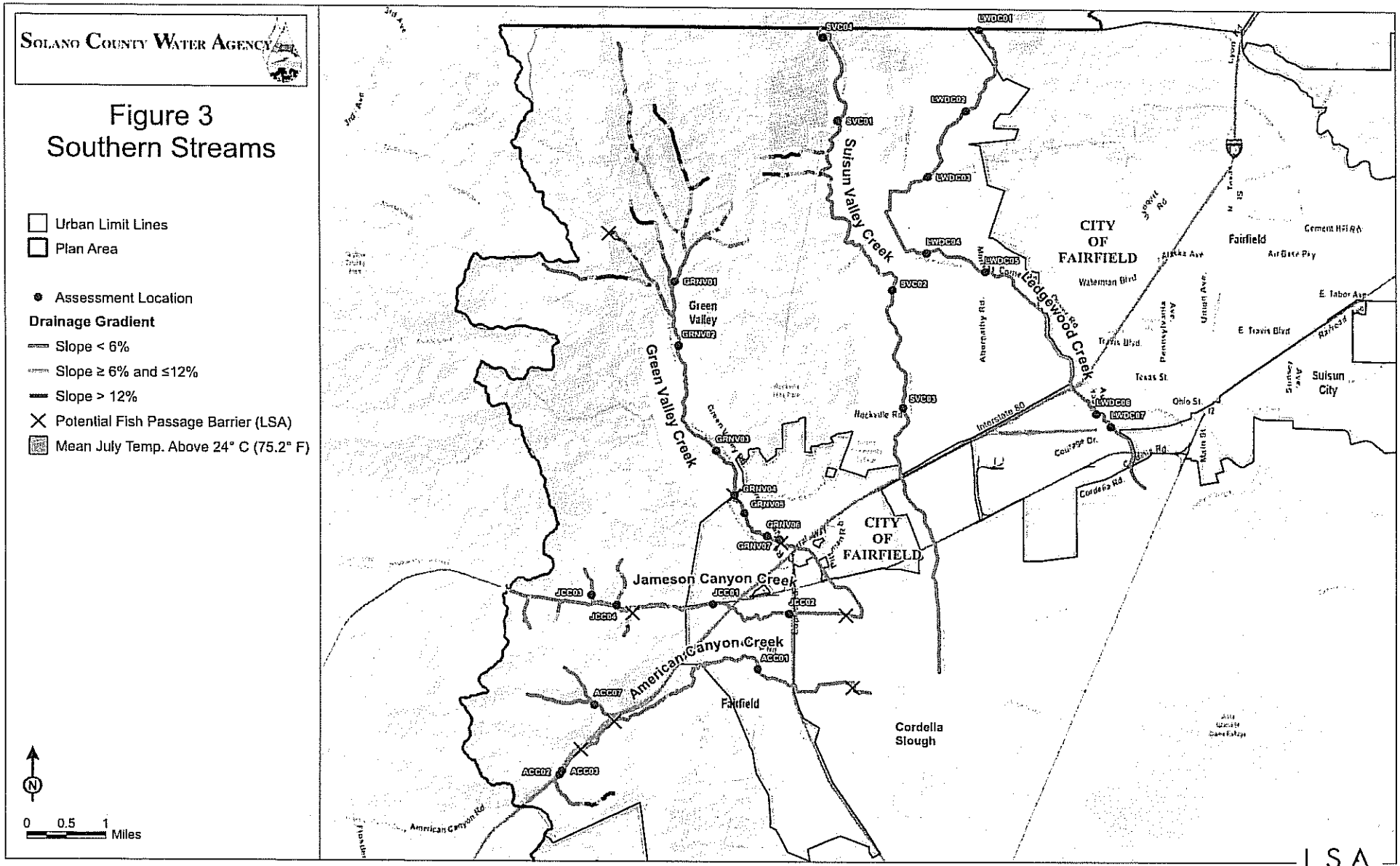
- Slope < 6%
- Slope ≥ 6% and ≤12%
- Slope > 12%
- Potential Fish Passage Barrier (LSA)
- Mean July Temp. Above 24° C (75.2° F)

0 0.5 1 Miles



LSA

I:\SWG0701\GIS\Maps\Section 6\Salmonid Assessment\Figure02_Northern Streams.mxd (07/15/2008)



I:\SWG0701\GIS\Maps\Section 6\Salmonid Assessment\Figure03_Southern Streams.mxd (06/07/2008)

APPENDIX B

TABLES

LIST OF TABLES

Table A. Steelhead Trout Stream Temperature Requirements

Habitat Use	Stream Temperature (°F)[1]
Migration	46-52
Spawning	39-52
Incubation/emergence	48-52
Rearing	45-60
Smoltification	< 57

[1] Bovee 1978, Reiser and Bjornn 1979, Bell 1986
[2] Depending on size of fish.
[3] Barnhart 1986
[4] Bovee 1978

Table B. Chinook Salmon Stream Temperature Requirements

Habitat Use	Stream Temperature (°F)
Migration	60.8[2]
Spawning	50-59[3]
Incubation/emergence	41-55.4
Rearing	55.4-64.4[4]
Smoltification	Fall Run: 59-79.2 (June- August)[5]

[1] Behnke 2002
[2] Torgersen et al. 1999
[3] Moyle 2002
[4] Leidy 2007
[5] Sauter et al. 2001

Table C. Drainage Area and Land Use[1]

Watershed	Approximate Drainage Area (square miles)[2]	Percent Irrigated Agriculture	Percent Developed
Alamo Creek (Upper)	9.39	0-8%	0-8%
Alamo Creek (Lower)	8.97	28-56%	25-50%
American Canyon Creek	6.82	0-8%	0-8%
Green Valley Creek (Upper)	11.47	0-8%	0-8%
Green Valley Creek (Lower)	10.65	9-27%	25-50%
Jameson Canyon Creek	3.90	0-8%	0-8%
Laurel Creek (Upper)	2.38	0-8%	0-8%
Laurel Creek (Lower)	5.66	0-8%	51-80%
Ledgewood Creek (Upper)	16.26	28-56%	0-8%
Ledgewood Creek (Lower)	1.39	9-27%	51-80%
Suisun Valley Creek	48.85	28-56%	0-8%
Ulatis Creek (Upper)	10.61	9-27%	0-8%
Ulatis Creek (Lower)	16.32	28-56%	25-50%

[1] Source = Figures 4-11 and 4-12 in the Solano HCP (LSA 2007)
[2] One square mile = 640 acres

Table D. Beneficial Uses[1,2]

WATERBODY	AGR	MUN	FRSH	IND	PROC	COLD	MIGR	SPWN	WARM	WILD	REC-1	REC-2
Alamo Creek (Old)[3] (from Sacramento-San Joaquin Delta info)	E	-		E	E	-	-	-		E	E	E
American Canyon Creek (from Suisun Slough info)								E	E	E	E	E
Green Valley Creek			E			E		E	E	E	E	E
Jameson Canyon Creek (from Suisun Slough info)								E	E	E	E	E
Laurel Creek			E			E	E	E	E	E	E	E
Ledgewood Creek			E			E	E	E	E	E	E	E
Suisun Valley Creek			E			E	E	E	E	E	P	P
Ulatis Creek (from Sacramento-San Joaquin Delta info)	E	E		E	E		E	E		E	E	E

E: Existing beneficial use

[1] From the San Francisco Bay Regional Water Quality Control Board Water Quality Control Plan (Basin Plan) (SFRWQCB2007) and the Central Valley Regional Water Quality Control Board Water Quality Control Plan (Basin Plan) (CVRWQCB 2007).

[2] The beneficial uses of any specifically identified water body generally apply to its tributary streams (San Francisco Bay RWQCB Basin Plan, 2007).

[3] On April 28, 2005, the Central Valley Water Board adopted Resolution No. R5-2005-0053, that amended the basin plan to remove (i.e., "dedesignate") MUN, COLD, MIGR and SPWN as beneficial uses for Old Alamo Creek.

Table E: Potential Fish Passage Barrier (PFPB) Locations[1] and Descriptions

Drainage	PFPB No.	Site ID[2]	Location	Description of Barrier	Potential for Removal or Alteration of Barrier to Allow for Passage
Alamo Creek	1	None	Old Alamo Creek at junction with flood control channel (aka New Alamo Creek)	Flapgates	Unknown.
	2	None	Long reach of Old Alamo Creek between Eleanor Nelson Park and South A St. (not labeled on Figure 3)	Channel is dewatered because all streamflow is diverted into New Alamo Creek flood control channel; Old Alamo Creek carries water again below this point due to discharges from EWWTP, groundwater remediation projects, and SID return water[3]	Passage potentially restorable if compatible with flood control.
	3	AC12	Bridge on Elmira Rd. near Meridian Rd. - downstream	Irrigation diversion	Potential for fish passage structures to be added is unknown.
	4	Between AC09 and AC11	Reach of Old Alamo Creek between Nut Tree Rd. and Leisure Town Rd.	36-inch CMP culvert with 2 to 3-foot drop (depending on water level)	Passage potentially restorable.
	5	AC03	Alamo Creek Park in Vacaville, corner of Buck Ave. and Alamo Dr.	Beaver dam (seasonal barrier)	Passage potentially restorable.
	6	Between AC13 and AC14	Uppermost tributary entering Alamo Creek from south of Gates Canyon Rd, approximately 1 mile east of Solano/Napa County lines	4-foot culvert under road with 4-foot drop to channel bottom; potential barrier to tributary, not mainstem of Alamo Creek	Passage potentially restorable.
American Canyon Creek	1	None	East of I-680, southeast of Cordelia	Levee/flapgate at Cordelia Slough[4]	Unknown.
	2	None	Southeast of McGary Rd. and Lynch Rd. junction, downstream of Lynch Canyon tributary	5-foot drop from broken concrete-lined channel to streambed below	Passage potentially restorable.
	3	None	Southeast side of McGary Rd/I-80.	An old asphalt road has eroded creating a 3-foot drop to channel bottom.	Passage potentially restorable.
Green Valley Creek	1	Near GRNV07	Just downstream of Green Valley Road (above I-80)	Large beaver dam[3] (seasonal barrier)	Passage potentially restorable.
	2	GRNV04	South Putah Canal discharge point at Reservoir Lane bridge	Potential high velocity barrier at discharge into Green Valley Creek	Unknown.

Drainage	PFPB No.	Site ID[2]	Location	Description of Barrier	Potential for Removal or Alteration of Barrier to Allow for Passage
Green Valley Creek	3	None	Green Valley Falls below Lake Frey	Approximately 50-foot drop[4]	No potential for passage.
Jameson Canyon Creek	1	None	East of I-680, Southeast of Cordelia	Flapgate at confluence with Green Valley Creek/Cordelia Slough[4] (same feature as Green Valley Creek PFPB#1)	Unknown.
	2	JCC04	Downstream-most tributary entering mainstem from north side of Hwy 12	24-inch culvert under Hwy 12 is half buried in sediment	Passage potentially restorable.
Laurel Creek	1	LRLC02	Nelson Rd.	Culvert	Passage potentially restorable.
	2	LRLC01	Lyon Rd.	Culverts	Passage potentially restorable.
Ulatis Creek	1	UC11	New Ulatis Creek Bridge 23C0137	Water control structure with 6-foot drop	Potential for fish passage structures to be added is unknown.
	2	UC10	Nut Tree Rd. bridge	Water control structure with 6-foot drop	Potential for fish passage structures to be added is unknown.
	3	Between UC03 and UC04	Reach of Ulatis Creek between Fruitvale Rd. and 97 Dobbins Rd.	Wood and riprap debris dam; approximately 1 foot tall; probably not a barrier in high flows; could either be washed out or could divert water depending on flow	Passage potentially restorable.
	4	UC13	Vaca mountains, approximately 1.5 mile east of Solano/Napa County lines; across from 2778 Mix Canyon Rd, below culvert	Sloped concrete slab with 25- to 30° angle; 8-foot wide concrete box culvert with approximately 5-foot drop	Passage potentially restorable.
	5	UC12	Vaca mountains, approximately 1 mile east of Solano/Napa County lines and approximately 200 feet upstream from 2751 Mix Canyon Rd.	6-foot culvert with 4-foot drop to channel bottom	Passage potentially restorable.

[1] Listed downstream to upstream, where applicable.
[2] Refer to Assessment Locations in Figures 2 and 3 and Datasheet Locations in the Riparian Habitat Assessment (LSA 2008).
[3] Tetra Tech, Inc. (2004).
[4] Steve Foreman, personal observation.

APPENDIX C

DEFINITIONS OF STREAM BENEFICIAL USES

DEFINITIONS OF BENEFICIAL USES

The following definitions are taken from the San Francisco Bay and Central Valley Regional Water Control Boards Basin Plans (SFRWQCB 2007 and CVRWQCB 2007).

AGRICULTURAL SUPPLY (AGR)

Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing. The criteria discussed under municipal and domestic water supply (MUN) also effectively protect farmstead uses. To establish water quality criteria for livestock water supply, the Regional Board must consider the relationship of water to the total diet, including water freely drunk, moisture content of feed, and interactions between irrigation water quality and feed quality. The University of California Cooperative Extension has developed threshold and limiting concentrations for livestock and irrigation water. Continued irrigation often leads to one or more of four types of hazards related to water quality and the nature of soils and crops. These hazards are (1) soluble salt accumulations, (2) chemical changes in the soil, (3) toxicity to crops, and (4) potential disease transmission to humans through reclaimed water use. Irrigation water classification systems, arable soil classification systems, and public health criteria related to reuse of wastewater have been developed with consideration given to these hazards.

COLD FRESHWATER HABITAT (COLD)

Uses of water that support cold water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. Cold freshwater habitats generally support trout and may support the anadromous salmon and steelhead fisheries as well. Cold water habitats are commonly well-oxygenated. Life within these waters is relatively intolerant to environmental stresses. Often, soft waters feed cold water habitats. These waters render fish more susceptible to toxic metals, such as copper, because of their lower buffering capacity.

FRESHWATER REPLENISHMENT (FRSH)

Uses of water for natural or artificial maintenance of surface water quantity or quality.

INDUSTRIAL SERVICE SUPPLY (IND)

Uses of water for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization. Most industrial service supplies have essentially no water quality limitations except for gross constraints, such as freedom from unusual debris.

FISH MIGRATION (MIGR)

Uses of water that support habitats necessary for migration, acclimatization between fresh water and salt water, and protection of aquatic organisms that are temporary inhabitants of waters within the region. The water quality provisions acceptable to cold water fish generally protect anadromous fish as well. However, particular attention must be paid to maintaining zones of passage. Any barrier to

migration or free movement of migratory fish is harmful. Natural tidal movement in estuaries and unimpeded river flows are necessary to sustain migratory fish and their offspring. A water quality barrier, whether thermal, physical, or chemical, can destroy the integrity of the migration route and lead to the rapid decline of dependent fisheries. Water quality may vary through a zone of passage as a result of natural or human- induced activities. Fresh water entering estuaries may float on the surface of the denser salt water or hug one shore as a result of density differences related to water temperature, salinity, or suspended matter.

MUNICIPAL AND DOMESTIC SUPPLY (MUN)

Uses of water for community, military, or individual water supply systems, including, but not limited to, drinking water supply. The principal issues involving municipal water supply quality are (1) protection of public health; (2) aesthetic acceptability of the water; and (3) the economic impacts associated with treatment or quality-related damages. The health aspects broadly relate to: direct disease transmission, such as the possibility of contracting typhoid fever or cholera from contaminated water; toxic effects, such as links between nitrate and methemoglobinemia (blue babies); and increased susceptibility to disease, such as links between halogenated organic compounds and cancer. Aesthetic acceptance varies widely depending on the nature of the supply source to which people have become accustomed. However, the parameters of general concern are excessive hardness, unpleasant odor or taste, turbidity, and color. In each case, treatment can improve acceptability although its cost may not be economically justified when alternative water supply sources of suitable quality are available. Published water quality objectives give limits for known health-related constituents and most properties affecting public acceptance. These objectives for drinking water include the U.S.Environmental Protection Agency Drinking Water Standards and the California State Department of Health Services criteria.

INDUSTRIAL PROCESS SUPPLY (PRO)

Uses of water for industrial activities that depend primarily on water quality. Water quality requirements differ widely for the many industrial processes in use today. So many specific industrial processes exist with differing water quality requirements that no meaningful criteria can be established generally for quality of raw water supplies. Fortunately, this is not a serious shortcoming, since current water treatment technology can create desired product waters tailored for specific uses.

WATER CONTACT RECREATION (REC1)

Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and uses of natural hot springs. Water contact implies a risk of waterborne disease transmission and involves human health; accordingly, criteria required to protect this use are more stringent than those for more casual water-oriented recreation. Excessive algal growth has reduced the value of shoreline recreation areas in some cases, particularly for swimming. Where algal growths exist in nuisance proportions, particularly bluegreen algae, all recreational water uses, including fishing, tend to suffer. One criterion to protect the aesthetic quality of waters used for recreation from excessive algal growth is based on chlorophyll a.

NONCONTACT WATER RECREATION (REC2)

Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where water ingestion is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities. Water quality considerations relevant to noncontact water recreation, such as hiking, camping, or boating, and those activities related to tide pool or other nature studies require protection of habitats and aesthetic features. In some cases, preservation of a natural wilderness condition is justified, particularly when nature study is a major dedicated use. One criterion to protect the aesthetic quality of waters used for recreation from excessive algal growth is based on chlorophyll a.

FISH SPAWNING (SPWN)

Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish. Dissolved oxygen levels in spawning areas should ideally approach saturation levels. Free movement of water is essential to maintain well-oxygenated conditions around eggs deposited in sediments. Water temperature, size distribution and organic content of sediments, water depth, and current velocity are also important determinants of spawning area adequacy.

WARM FRESHWATER HABITAT (WARM)

Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. The warm freshwater habitats supporting bass, bluegill, perch, and other panfish are generally lakes and reservoirs, although some minor streams will serve this purpose where streamflow is sufficient to sustain the fishery. The habitat is also important to a variety of nonfish species, such as frogs, crayfish, and insects, which provide food for fish and small mammals. This habitat is less sensitive to environmental changes, but more diverse than the cold freshwater habitat, and natural fluctuations in temperature, dissolved oxygen, pH, and turbidity are usually greater.

WILDLIFE HABITAT (WILD)

Uses of waters that support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl. The two most important types of wildlife habitat are riparian and wetland habitats. These habitats can be threatened by development, erosion, and sedimentation, as well as by poor water quality. The water quality requirements of wildlife pertain to the water directly ingested, the aquatic habitat itself, and the effect of water quality on the production of food materials. Waterfowl habitat is particularly sensitive to changes in water quality. Dissolved oxygen, pH, alkalinity, salinity, turbidity, settleable matter, oil, toxicants, and specific disease organisms are water quality characteristics particularly important to waterfowl habitat. Dissolved oxygen is needed in waterfowl habitats to suppress development of botulism organisms; botulism has killed millions of waterfowl. It is particularly important to maintain adequate circulation and aerobic conditions in shallow fringe areas of ponds or reservoirs where botulism has caused problems.

APPENDIX D

PHOTOGRAPHS OF POTENTIAL FISH PASSAGE BARRIERS

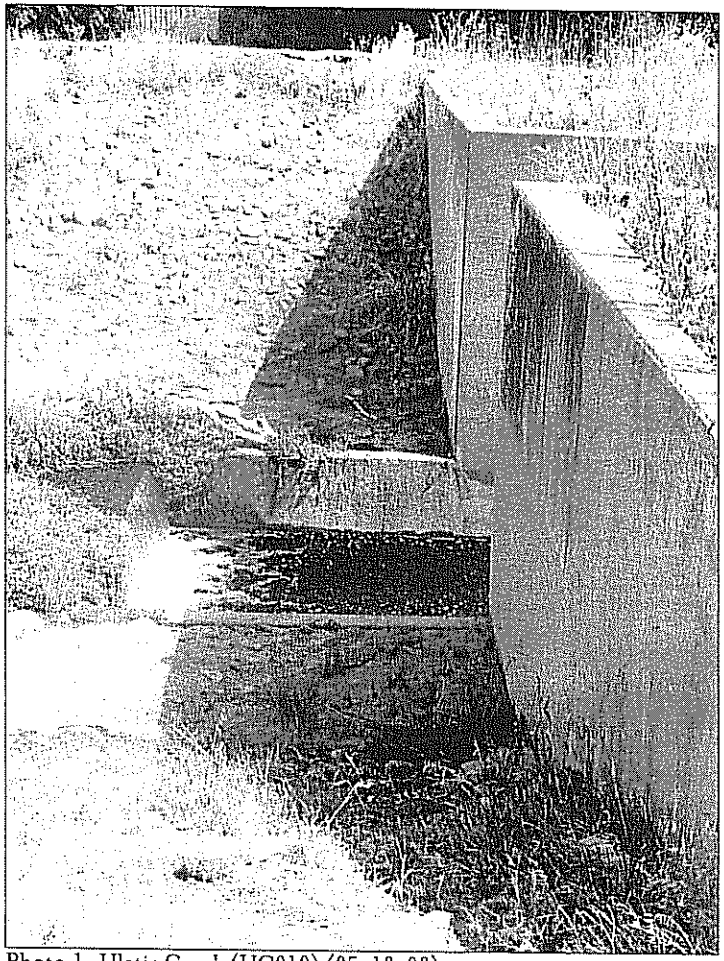


Photo 1: Ulatis Creek (UC010) (05-18-08)

Photo 2: Ulatis Creek (UC03) (05-14-07)

LSA

Solano County HCP Salmonid Assessment

Potential Fish Passage Barriers

Photos 1 and 2

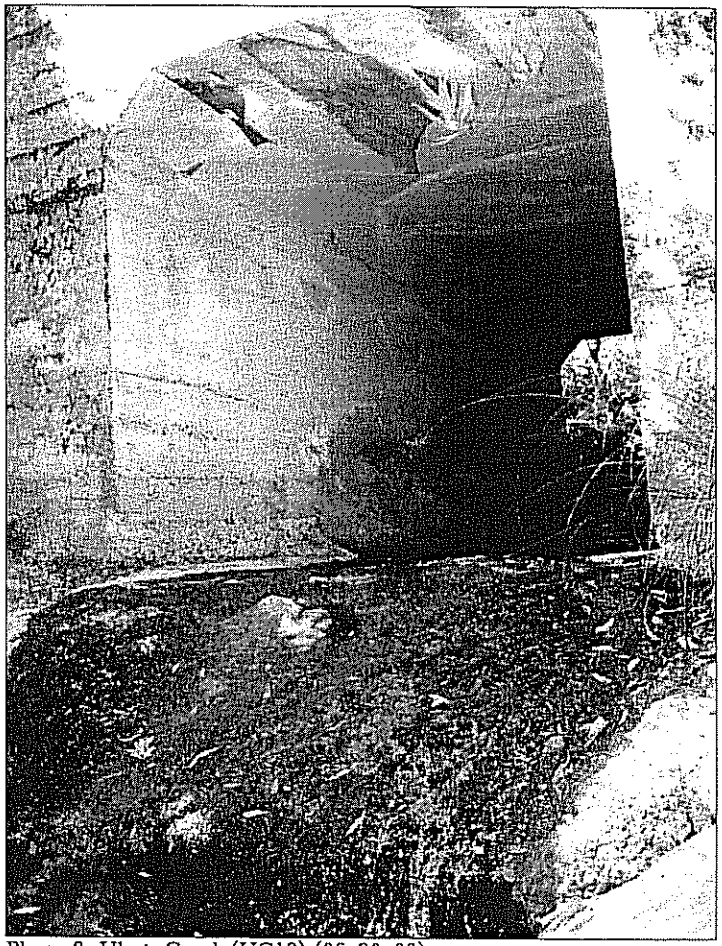


Photo 3: Ulatis Creek (UC13) (06-20-08)

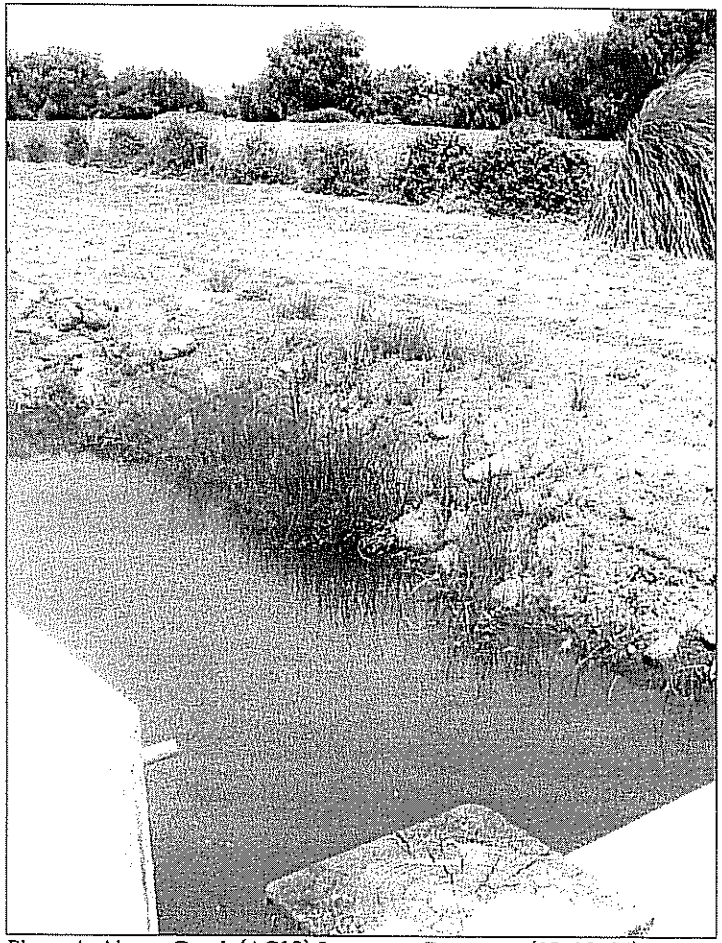


Photo 4: Alamo Creek (AC12) Irrigation Diversion (05-18-07)

LSA

Solano County HCP Salmonid Assessment

Potential Fish Passage Barriers

Photos 3 and 4

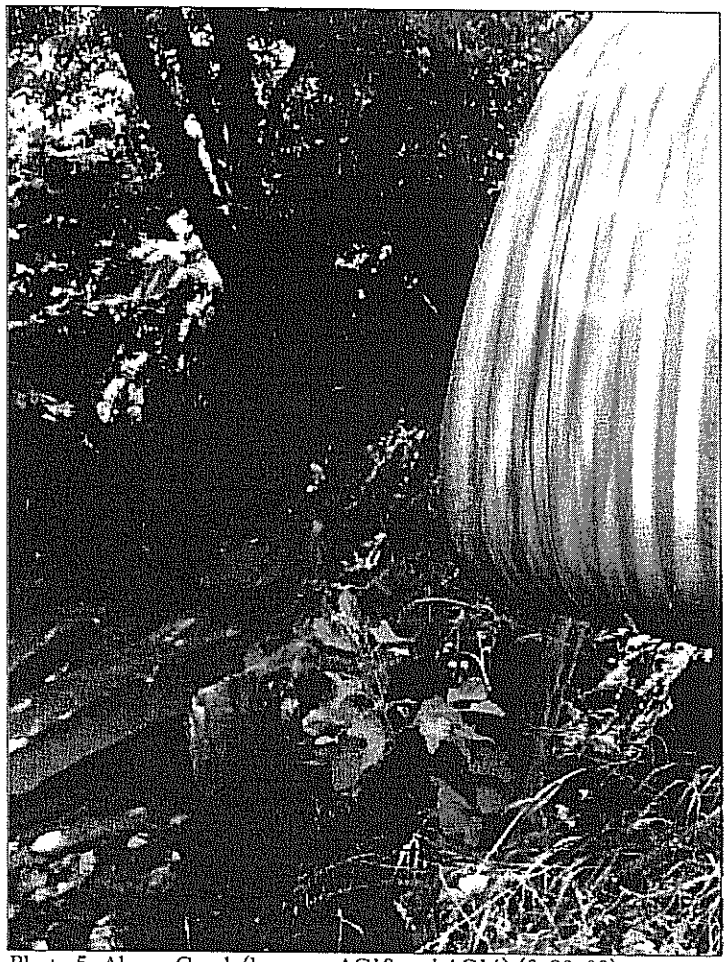


Photo 5: Alamo Creek (between AC13 and AC14) (6-20-08)

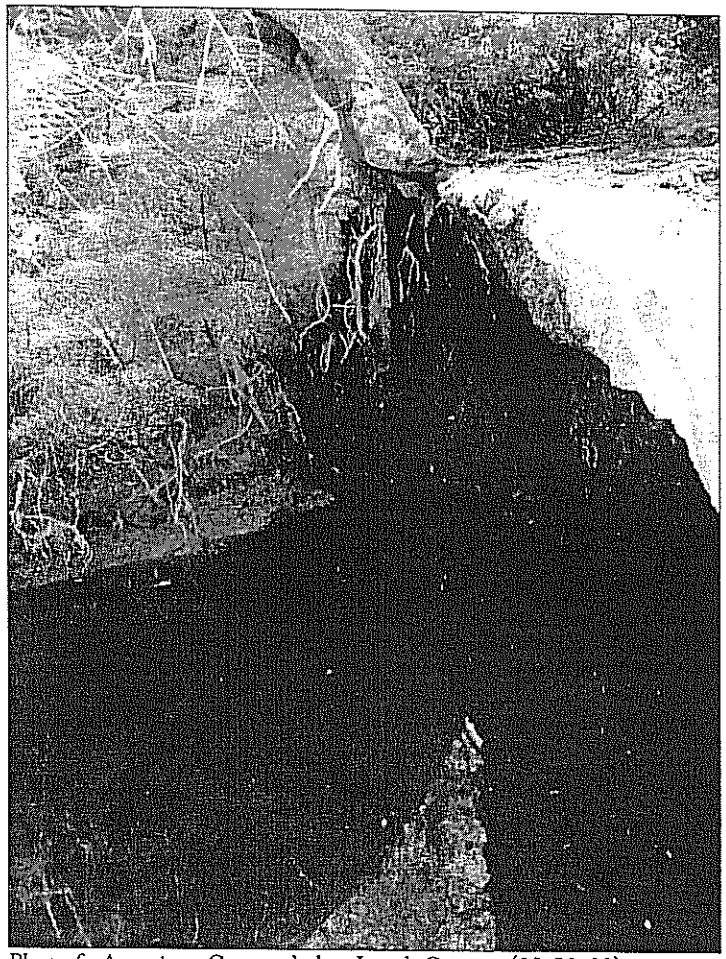


Photo 6: American Canyon below Lynch Canyon (06-20-08)

LSA

Solano County HCP Salmonid Assessment

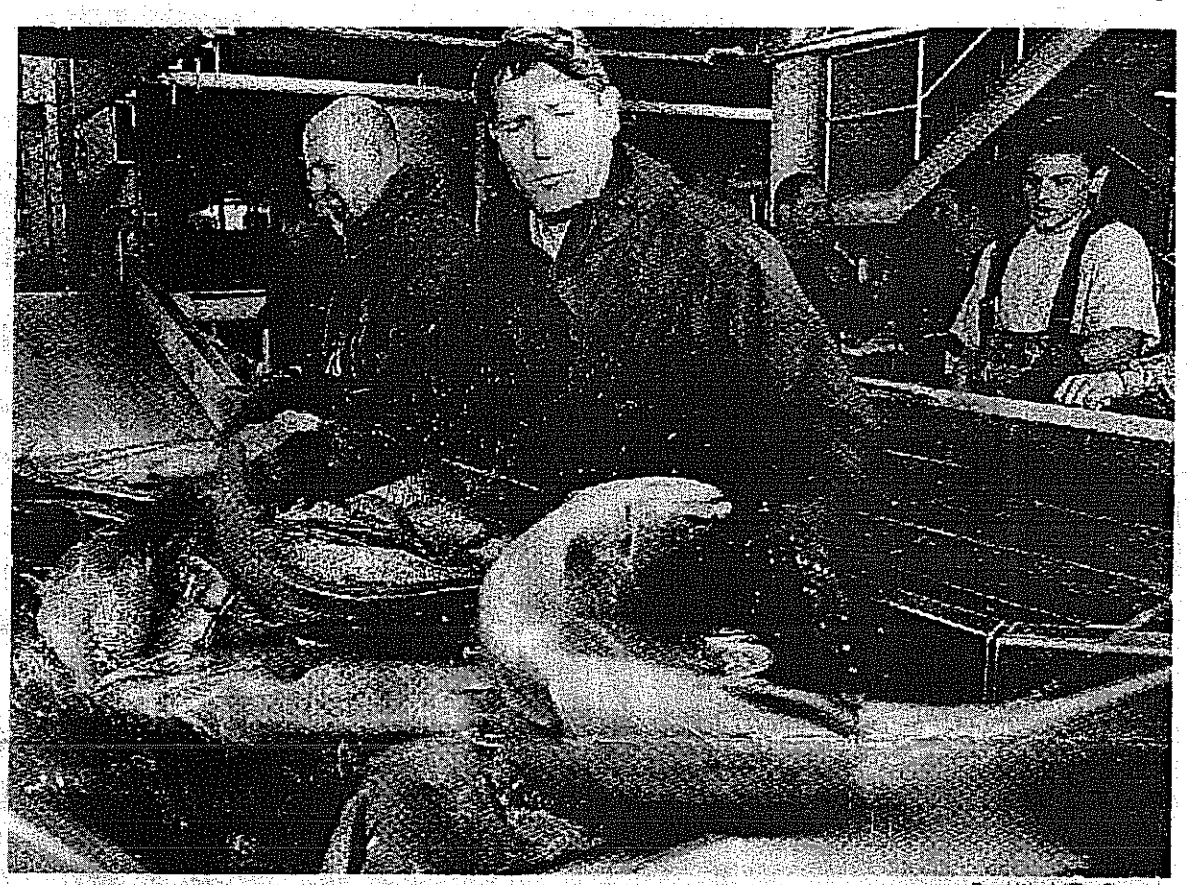
Potential Fish Passage Barriers

Photos 5 and 6

WILDLIFE

Fake stream a real dream

Ideal fish-spawning prototype feeds into Warm Springs hatchery



Grant Ward / The Chronicle

After swimming 46 miles from the ocean and through the newly restored stream, the steelhead end up at the Warm Springs Fish Hatchery in Geyserville, where fish technicians will help the fish with spawning.

By Peter Fimrite
CHRONICLE STAFF WRITER

A crowd of schoolchildren stood at a bend in a creek under the shadow of the Warm Springs Dam last week and watched 14 large steelhead trout thrashing against the current.

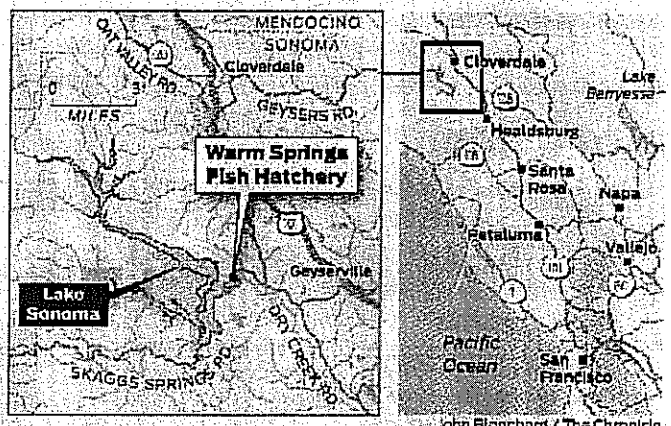
It was the last push for the fish, which had struggled 46 miles from the ocean up the mighty Russian River into Dry Creek in search of the spot where they were born three years ago.

This last 100-yard stretch of gravel streambed surrounded by greenery did not exist at this time last year. It was built last summer by the California Department of Fish and Game at the site of what was essentially a carved-out ditch channeling fish from a concrete fish ladder into the Warm Springs Fish Hatchery.

The idea was to create a small stretch of ideal fish-spawning habitat to show visiting school groups and tourists. While it is mainly an educational showpiece, the teeming stream is also an example of what fishery advocates would like to see throughout California.

"This is the prototype habitat," said Kent MacIntosh, a fishing guide and organizer for

Stream continues on A10



John Blanchard / The Chronicle

Visiting the hatchery

The Warm Springs Fish Hatchery is at 3246 Skaggs Springs Road, Geyserville, and is open year round. Visitors can see the hatchery, view displays on the life cycle of steelhead trout and coho and chinook salmon, and watch spawning fish in the man-made creek. A visitor center has audio-visual and ranger-led tours that tell the story of the Warm Springs Dam, the history of the Dry Creek Valley and the native Pomo Indians. For tours, call (707) 433-9483 or (707) 431-4533.

FROM THE COVER

Fake stream is a real spawning dream

Stream from page A1

Trout Unlimited. "All you need to do is to get rid of any concrete, put in woody debris, add gravel for spawning substrate, plant creekside greenery and you have this."

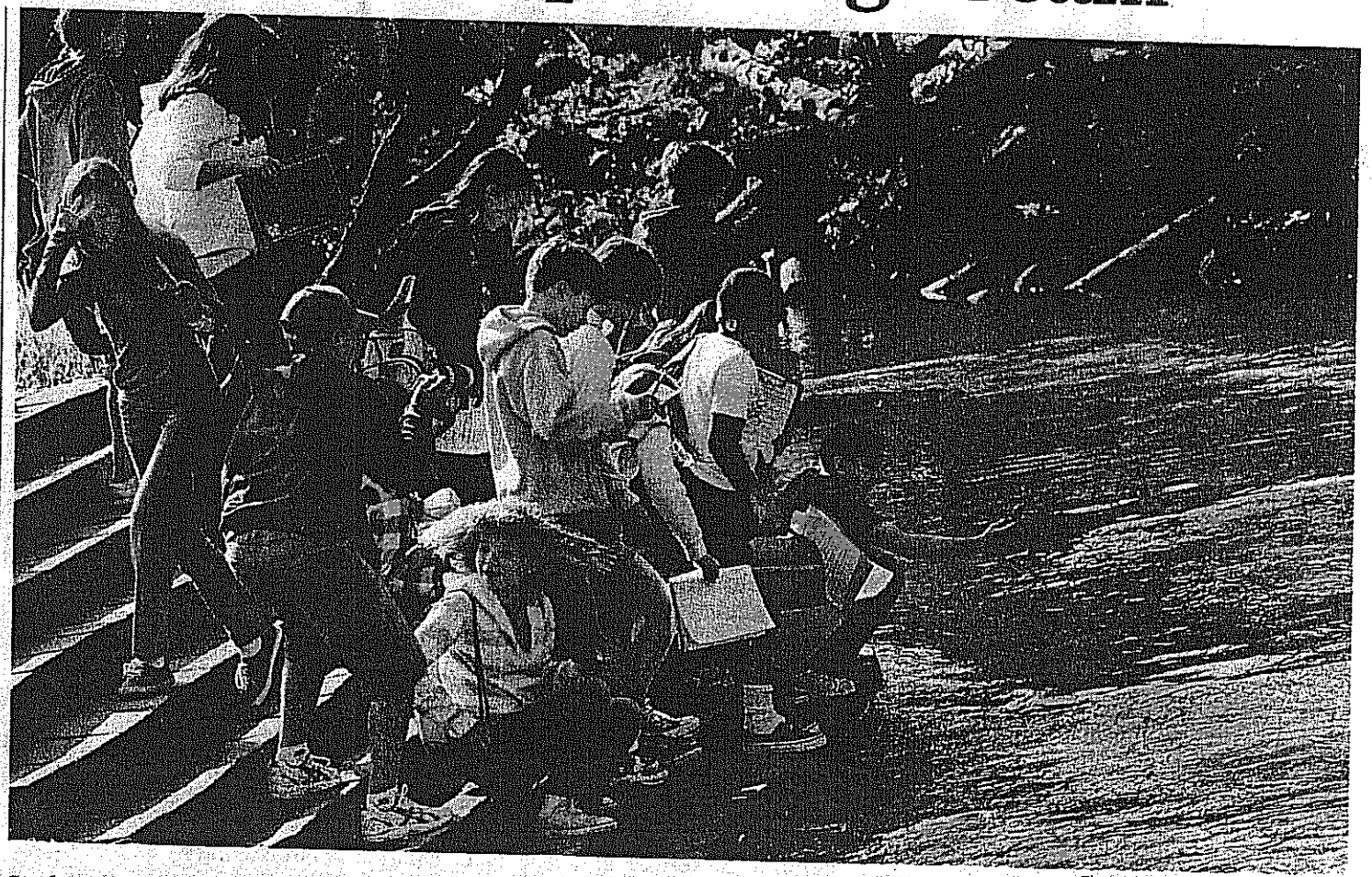
Fish meet people

When the steelhead reach the end of the restored stream, they will be lifted up on conveyor belts and poured flopping into tanks, where fish technicians will manually milk the sperm from the males. Eggs will be sucked out of the female's ovaries and artificially fertilized. The resulting babies will be raised for a year and released next to the hatchery, ensuring their return to that location when they leave the ocean to spawn at age 3.

The new spawning stream may seem like small progress given that hatcheries could be exacerbating California's plummeting steelhead populations. A recent Oregon State University study found that hatchery-raised steelhead pass on genetic defects that hamper survival of their offspring.

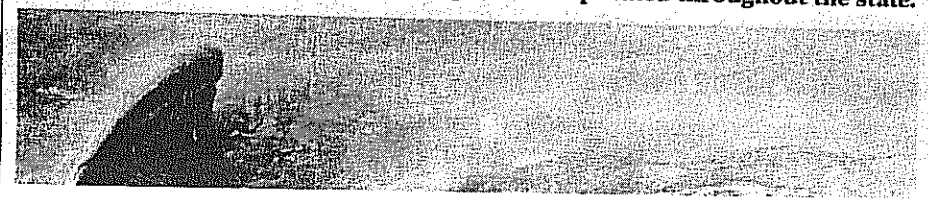
Only 1,250 steelhead have returned to spawn this year at the Warm Springs hatchery, a small fraction of the 300,000 yearlings that were released two years ago.

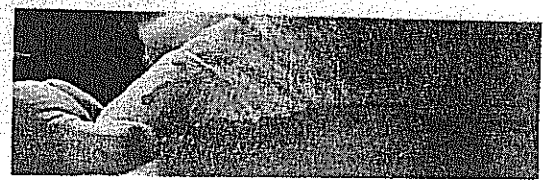
Brett Wilson, the hatchery supervisor, said he expects to



Photos by Brant Ward / The Chronicle

Students from Hidden Valley School in Santa Rosa watch steelhead swim through the newly restored habitat, a 100-yard stretch of gravel streambed, which experts hope to see replicated throughout the state.





the Warm Springs hatchery, a small fraction of the 300,000 yearlings that were released two years ago.

Brett Wilson, the hatchery supervisor, said he expects to see at least 2,000 steelhead by the end of the season, still well below the average of about 4,500. Last year, a record low 886 fish returned, Wilson said.

Dismal returns have been a problem all along the coast for steelhead as well as coho and chinook salmon, especially in Central California. Scientists point to a number of environmental and man-made problems, including a warming ocean and water diversions by state and federal water systems.

The California Department of Fish and Game built this stream last summer at the site of a ditch channeling fish from a concrete fish ladder into the hatchery.

Steelhead eggs are harvested at the Warm Springs Fish Hatchery in Geyserville.

Long way to recovery

A two-year ocean fishing ban for chinook is expected to be lifted this year in California and Oregon, but experts say salmonid populations are still a long way from recovery. Hatcheries release more than 40 million salmon and steelhead into California rivers every year.

"The truth is, the hatchery program has been a failure since day one," MacIntosh said.

Still, he said, if a cash-strapped government agency can build a spawning stream from scratch, then private landowners, cities and counties should be able to restore riparian habitat destroyed by thousands of miles of culverts, drainage channels and other concrete diversions.

"We have to ask the question what happened to the fish that used to be here?" MacIntosh said. "Their habitat is not here anymore. If you restore the habitat, they will come."

Such restoration work is already happening just down the road in the Dry Creek Valley. The Quivira Vineyards and Winery and Michel-Schlumberger Wine Estate recently turned channeled sections of Wine Creek into meandering fish-friendly habitat, with native riparian willows and Buckeye trees, rocky substrate, gravel and woody debris.

"This creek used to be quiet because it would shoot straight through here, but we built weirs that aerate the water and create pools," said Mike Brunson, the winemaker at Michel-Schlumberger as he stood next to a nearly mile-long section that was restored in 2005 with funding from the Department of Fish and Game and Trout Unlimited. "Now we have the sound of a creek, which is music to my ears."

Degraded Russian River

The sighting of a few endangered coho salmon nearby was a major incentive for the work. Coho are virtually extinct in the Russian River Basin, which conservationists consider one of the most degraded watersheds in California. Rampant gravel mining, the channelization of creeks, agriculture and the siphoning of groundwater by wells and pumps contributed to the demise of the great squiggling masses of fish that once filled the river.

Construction of the Warm Springs Dam, which created Lake Sonoma in 1983, didn't help, but Wilson said the hatchery is at least trying to do something about it. It was here that one of the state's first coho recovery efforts began in 2004. This year, about 140,000 coho will be released into Russian River tributaries.

It is crucial that the fish imprint on habitat suitable for spawning, which is why the winery projects are so important. Such habitat restoration is also critical, MacIntosh said, if California ever hopes to end its perpetual water shortages without destroying its native fisheries.

"This is a showcase," he said. "It is an example of what needs to be done everywhere."

E-mail Peter Fimrite at pfimrite@sfchronicle.com.

The Associated Press file

Tara Kolla examines a seedling container amid other vegetable seedlings that will be planted this spring in the garden at her home in Los Angeles' Silver Lake district. Jan. 27. Like many eco-minded gardeners, Kolla planted seeds only to find that her garden violated local zoning laws and alienated her neighbors.

Urban farmers fight to sow green business

THE ASSOCIATED PRESS

LOS ANGELES — Tara Kolla fancied herself a green thumb-turned-green businesswoman when she planted an organic flower plot in her yard and sold poppies, sweet peas and zinnias at the local farmers market. For her neighbors, it was an eyesore.

Where Kolla saw her efforts as creating a lush sanctuary, her neighbors witnessed dusty pots, steaming compost, flies and a funky aroma on their tiny cul-de-sac in Los Angeles. They complained to zoning officials — and prevailed.

Kolla and other urban farmers are fighting back by challenging city halls across the country to rewrite ordinances that govern residential gardens. They believe feeding their fellow urbanites homegrown tomatoes, fresh eggs and sweet corn will change the world one backyard at a time.

Seattle has loosened its rules for backyard goats, New York City's health department is taking steps to legalize beekeeping and Detroit is looking into regulating compost and greenhouses.

In Detroit, where zoning laws ban growing crops and raising livestock for profit, city planner Kathryn Lynch Underwood is part of a work group rewriting the regulations and defining what kinds of urban farms might need more oversight.

"The city has not been treating it as an illegal use or a nuisance because it has been a good thing," Underwood said.

She is hopeful that urban agriculture and the city's nearly 1,000 community gardens will create good jobs in a city that desperately needs them and put vacant lots to use in blighted neighborhoods.

Kolla, meanwhile, found a loophole allowing her to grow vegetables while lobbying for the right to set up a city farm at her home just four miles from the urban jungle of downtown Los Angeles.

> **'There's such enthusiasm that people push the laws and upset their neighbors. The fact is you can't do anything you want on your property.'**
>
> — *Alfonso Morales, professor of planning, University of Wisconsin*

The challenge for cities is to balance the potential to grow green businesses with the concerns of neighbors who don't want a thriving, for-profit enterprise next door, never mind the noise and smells that come from compost and small livestock.

Urban agriculture crosses jurisdictional lines, said Alfonso Morales, a professor of planning at the University of Wisconsin. He advises cities to set up a one-stop-shop for urban farms, like they have for small business development, so that city farmers can deal with zoning, home business regulations and nuisance laws all in one place.

"There's such enthusiasm that people push the laws and upset their neighbors," he said. "The fact is you can't do anything you want on your property."

While most urban farms operate under the radar of city officials and many neighborhoods welcome productive plots and even backyard chickens, other city growers run into trouble with neighbors who won't be placated with gifts of salad greens or fresh eggs.

In middle class areas, concerns about property values and aesthetic differences lead to conflicts.

Kolla alienated neighbors on her quiet cul-de-sac of Spanish bungalows and neat green lawns in the city's Silver Lake section when she began peddling organic bouquets at farmers markets that she grew on her 21,000 square-foot lot.

"They're trying to grow it into something bigger than what should be in a small neighborhood," said Frank San Juan, who lives across the street from Kolla. "When she started having these gardening workshops without telling anybody, there was no parking. You couldn't enjoy your weekends."

Just a half century ago, Los Angeles was transforming itself from the most lucrative farm county in the nation into a major metropolis. A zoning ordinance written in 1946 as developers were cutting down the San Fernando Valley's citrus orchards to build suburbia allowed small farms to grow vegetables to truck to market, but banned growing fruit, nuts or flowers for sale on residential plots.

Kolla could get a cond tional use permit, but she h a stubborn streak and it cos $15,000 just to apply. She ar others are trying to reven the zoning laws with a pr posal called "The Food ar Flowers Freedom Act."

Growers from across L Angeles formed the Urb Farming Advocates to ral around Kolla, defend h right to grow and lobby t city.

"Most people would pay have a view of her backyard said founding member Er Knutzen, who keeps chicke and grows food in his yard. can understand someone n wanting 50 roosters or an a tobody shop next door, b our proposal is about brin ing common sense back our lives."

In July, City Council Pre ident Eric Garcetti intr duced a motion to clarify ci policies on urban farms ar allow cultivation and sales flowers, fruits, nuts or ve etables.

While the city farme wait patiently for the propc al to work its way through t planning commission, Kol started a weekly vegetab box subscription service as not to miss too many Southern California's lo growing seasons.

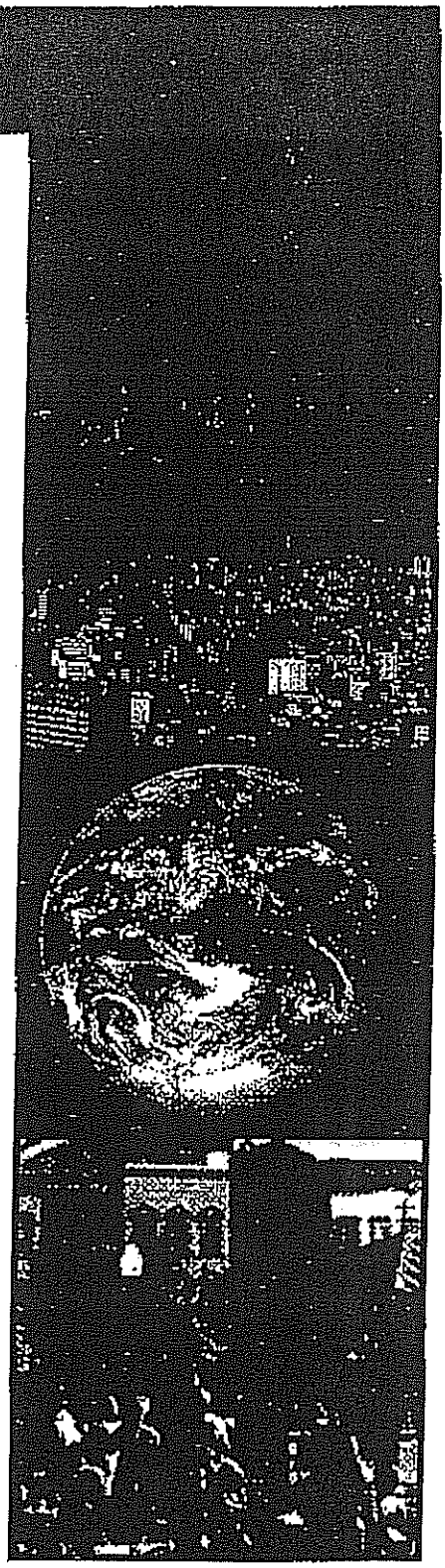
She feels the distinctic between vegetables and fr is arbitrary and unscientific

"Broccoli is a flower, anc tomato is a fruit. And some my flowers are edible," Kol said. "It's more legal for pe ple to grow marijuana in L. than flowers."

FEB. 6, 2010 DAILY REPUBLIC

CAPCOA

CALIFORNIA
AIR
POLLUTION
CONTROL
OFFICERS
ASSOCIATION



CEQA & Climate Change

Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act

January 2008

Disclaimer

The California Air Pollution Control Officers Association (CAPCOA) has prepared this white paper consideration of evaluating and addressing greenhouse gas emissions under the California Environmental Quality Act (CEQA) to provide a common platform of information and tools to support local governments.

This paper is intended as a resource, not a guidance document. It is not intended, and should not be interpreted, to dictate the manner in which an air district or lead agency chooses to address greenhouse gas emissions in the context of its review of projects under CEQA.

This paper has been prepared at a time when California law has been recently amended by the Global Warming Solutions Act of 2006 (AB 32), and the full programmatic implications of this new law are not yet fully understood. There is also pending litigation in various state and federal courts pertaining to the issue of greenhouse gas emissions. Further, there is active federal legislation on the subject of climate change, and international agreements are being negotiated. Many legal and policy questions remain unsettled, including the requirements of CEQA in the context of greenhouse gas emissions. This paper is provided as a resource for local policy and decision makers to enable them to make the best decisions they can in the face of incomplete information during a period of change.

Finally, this white paper reviews requirements and discusses policy options, but it is not intended to provide legal advice and should not be construed as such. Questions of legal interpretation, particularly in the context of CEQA and other laws, or requests for advice should be directed to the agency's legal counsel.

Acknowledgements

This white paper benefited from the hard work and creative insights of many people. CAPCOA appreciates the efforts of all who contributed their time and energy to the project. In particular, the Association thanks the following individuals:

Principal Authors

Greg Tholen, BAAQMD
Dave Vintze, BAAQMD
Jean Getchell, MBUAPCD
Matt Jones, YSAQMD
Larry Robinson, SMAQMD
Ron Tan, SBCAPCD

Editor

Barbara Lee, NSAPCD

Reviewers

CAPCOA Climate Protection Committee

Barbara Lee (NSCAPCD), Chair

Larry Allen, SLOCPCD
Bobbie Bratz, SBAPCD
Karen Brooks, SLOCAPCD
Chris Brown, MCAQMD
Tom Christofk, PCAPCD
Jorge DeGuzman, SMAQMD
Mat Ehrhardt, YSAQMD
Jean Getchell, MBUAPCD
Larry Greene, SMAQMD
Henry Hilken, BAAQMD
Alan Hobbs, PCAPCD
Jim Jester, SMAQMD
Dave Jones, KCAPCD
Tom Jordan, SJVUAPCD
Tom Murphy, SBAPCD
Don Price, VCAPCD
Jean Roggenkamp, BAAQMD
Ana Sandoval, BAAQMD
Amy Taketomo, MBUAPCD
Tim Taylor, SMAQMD
Mike Villegas, VCAPCD
David Vintze, BAAQMD
Dave Warner, SJVUAPCD
Jill Whynot, SCAQMD
John Yu, CAPCOA
Mel Zeldin, CAPCOA

CAPCOA Planning Managers: CEQA & Climate Change Subcommittee

Dave Vintze (BAAQMD), Chair
Greg Tholen (BAAQMD), Project Manager

Charles Anderson, SMAQMD
Aeron Arlin Genet, SLOCAPCD
Jean Getchell, MBUAPCD
Melissa Guise, SLOCAPCD
Matt Jones, YSAQMD
Barbara Lee, NSCAPCD
Ryan Murano, NSAQMD
Tom Murphy, SBCAPCD
Susan Nakamura, SCAQMD
Larry Robinson, SMAQMD
Jean Roggenkamp, BAAQMD
Ana Sandoval, BAAQMD
Ron Tan, SBCAPCD
Brigette Tollstrup, SMAQMD
Jill Whynot, SCAQMD

External Reviewers

James Goldstene, CARB
Annmarie Mora, CARB
Terri Roberts, OPR

Proofing & Layout

Jake Toolson, CAPCOA
John Yu, CAPCOA

Contract Support

Jones & Stokes, Sacramento, CA *(analysis of non-zero threshold approaches)*
EDAW, Inc., Sacramento, CA *(review of analytical methods and mitigation strategies).*

Table of Contents

List of Figures

List of Tables

Appendix B

Mitigation Measure Summary

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]		
MM D-14: Enhanced Recycling/Waste Reduction, Reuse, Composting	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	NA/Low	Yes	Yes	Yes: Association with social awareness.	Adverse: No Beneficial: CAPs, TACs	CIWMB	Provide infrastructure/education that promotes the avoidance of products with excessive packaging, recycle, buying of refills, separating of food and yard waste for composting, and using rechargeable batteries.
MM D-15: LEED Certification	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	NA/Moderate	Yes: Receive tax rebates, incentives (e.g., EDAW San Diego office interior remodel cost $1,700,000 for 32,500 square feet) (USGBC 2007)	Yes	Yes: More than 700 buildings of different certifications in CA (USGBC 2007).	Adverse: No Beneficial: CAPs, TACs	USGBC, CA air quality management and control districts and cities/counties (e.g., BAAQMD).	LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.
MM D-16: Retro-Commissioning	LD (C, M), I, SP, AQP, RR, P/Stationary & Area	8%-10% reduction in energy usage/Moderate: (Mills et al. 2004)	Yes: Average $0.28/square feet, varies with building size (Haasl and Sharp 1999).	Yes	Yes: 27 projects underway in CA, 21 more to be completed in 2007, mostly state buildings owned by DGS (DGS 2007).	Adverse: No Beneficial: CAPs, TACs	DGS, CA air quality management and control districts and cities/counties (e.g., BAAQMD).	The process ensures that all building systems perform interactively according to the contract documents, the design intent and the owner's operational needs to optimize energy performance.
MM D-17 Landscaping	LD (R, C, M), I, SP, AQP, RR,	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	Alliance for the Chesapeake Bay, EPA Green Landscaping	Project shall use drought resistant native trees, trees with low emissions and high carbon

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[a]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
	P/Stationary & Area						Resources	sequestration potential. Evergreen trees on the north and west sides afford the best protection from the setting summer sun and cold winter winds. Additional considerations include the use of deciduous trees on the south side of the house that will admit summer sun; evergreen plantings on the north side will slow cold winter winds; constructing a natural planted channel to funnel summer cooling breezes into the house. Neighborhood CCR's not requiring that front and side yards of single family homes be planted with turf grass. Vegetable gardens, bunch grass, and low-water landscaping shall also be permitted, or even encouraged.
MM D-18: Local Farmers' Market	LD (M), SP/Mobile, Stationary, &	NA/Low	Yes	Yes	Yes: Associated with social	Adverse: No Beneficial: CAPs, TACs	Cities/counties (e.g., Davis, Sacramento)	Project shall dedicate space in a centralized, accessible location for a weekly farmers' market.

AG=Attorney General; ARB=California Air Resources Board; ASTM=American Society for Testing and Material; BAAQMD=Bay Area Air Quality Management District; BEES= Building for Environmental and Economic Sustainability; CA=California; Caltrans=California Department of Transportation; CAPs=Criteria Air Pollutants; CCAP=Center for Clean Air Policy; CF=Connectivity Factor; CIWMB=California Integrated Waste Management Board; CO= Carbon Monoxide; CO_2=Carbon Dioxide; DGS=Department of General Services; DOE=U.S. Department of Energy; DPF=Diesel particulate Filter; E85=85% Ethanol; EERE=Energy Efficiency and Renewable Energy; EOE=Encyclopedia of Earth; EPA=U.S. Environmental Protection Agency; ETC=Edmonton Trolley Coalition; EVs/CNG=Electric Vehicles/Compressed Natural Gas; FAR=Floor Area Ratio; GHG=Greenhouse Gas; ITE=Institute of Transportation Engineers; kg/m^2=kilogram per square meter; km=Kilometer; lb=pound; LEED=Leadership in Energy and Environmental Design; M=Million; NA=Not Available; NEV=Neighborhood Electric Vehicle; NIST=National Institute of Standards and Technology; NO_X=Oxides of Nitrogen; NREL=National Renewable Energy Laboratory; N/S=North/South; PG&E=Pacific Gas and Electric; PM=Particulate Matter; SJVAPCD=San Joaquin Valley Air Pollution Control District; SMAQMD=Sacramento Metropolitan Air Quality Management District; SMUD=Sacramento Municipal Utilities District; SO_X=Sulfur Oxides; SRI=Solar Reflectance Index; TACs=Toxic Air Contaminants; TDM=Transportation Demand Management; TMA=Transportation Management Association; THC=Total Hydrocarbon; ULEV=Ultra Low Emission Vehicle; USGBC=U.S. Green Building Council; and VTPI=Victoria Transit Policy.

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
	Area				choice and public awareness.			
MM D-19: Community Gardens	LD (M), SP/Mobile, Stationary, & Area	NA/Low	Yes	Yes	Yes: Associated with social choice and public awareness.	Adverse: No Beneficial: CAPs, TACs	Cities/counties (e.g., Davis)	Project shall dedicate space for community gardens.
Indirect Energy Efficiency Enhancement								
MM E-1: High-Efficiency Pumps	LD (R, C, M), SP, AQP, RR, P/Stationary & Area	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., BAAQMD).	Project shall use high-efficiency pumps.
MM E-2: Wood Burning Fireplaces/Stoves	LD (R, M), SP, AQP, RR, P/Stationary & Area	NA/Low: EDAW 2006	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project does not feature fireplaces or wood burning stoves.
MM E-3: Natural Gas Stove	LD (R, M), SP, AQP, RR, P/Stationary & Area	NA/Low: EDAW 2006	Yes: Cost of stove—$350 (gas) and $360 (electric) same brand, total yearly cost of $42.17 as opposed to $56.65 for electric (Saving Electricity 2006).	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project features only natural gas or electric stoves in residences.

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)			Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
MM E-4: Energy Star Roof	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	0.5%-1%/Low: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes	Yes: 866 Energy Star labeled buildings in California (Energy Star 2007)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project installs Energy Star labeled roof materials.
MM E-5: On-site Renewable Energy System	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	1%-3%/Moderate: SMAQMD presents this % reduction (USGBC 2002 and 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (USGBC 2002 and 2005)	Yes (USGBC 2002 and 2005)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project provides onsite renewable energy system(s). Nonpolluting and renewable energy potential includes solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies. When applying these strategies, projects may take advantage of net metering with the local utility.

AG=Attorney General; ARB=California Air Resources Board; ASTM=American Society for Testing and Material; BAAQMD=Bay Area Air Quality Management District; BEES= Building for Environmental and Economic Sustainability; CA=California; Caltrans=California Department of Transportation; CAPs=Criteria Air Pollutants; CCAP=Center for Clean Air Policy; CF=Connectivity Factor; CIWMB=California Integrated Waste Management Board; CO= Carbon Monoxide; CO_2=Carbon Dioxide; DGS=Department of General Services; DOE=U.S. Department of Energy; DPF=Diesel particulate Filter; E85=85% Ethanol; EERE=Energy Efficiency and Renewable Energy; EOE=Encyclopedia of Earth; EPA=U.S. Environmental Protection Agency; ETC=Edmonton Trolley Coalition; EVs/CNG=Electric Vehicles/Compressed Natural Gas; FAR=Floor Area Ratio; GHG=Greenhouse Gas; ITE=Institute of Transportation Engineers; kg/m^2=kilogram per square meter; km=Kilometer; lb=pound; LEED=Leadership in Energy and Environmental Design; M=Million; NA=Not Available; NEV=Neighborhood Electric Vehicle; NIST=National Institute of Standards and Technology; NO_X=Oxides of Nitrogen; NREL=National Renewable Energy Laboratory; N/S=North/South; PG&E=Pacific Gas and Electric; PM=Particulate Matter; SJVAPCD=San Joaquin Valley Air Pollution Control District; SMAQMD=Sacramento Metropolitan Air Quality Management District; SMUD=Sacramento Municipal Utilities District; SO_X=Sulfur Oxides; SRI=Solar Reflectance Index; TAC=Toxic Air Contaminants; TDM=Transportation Demand Management; TMA=Transportation Management Association; THC=Total Hydrocarbon; ULEV=Ultra Low Emission Vehicle; USGBC=U.S. Green Building Council; and VTPI=Victoria Transit Policy.

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)			Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
MM E-6: Exceed Title 24	LD (R, C, M), I, GSP, AQP, RR, P/Stationary & Area	1%/Moderate: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes (PG&E 2002, SMUD 2006)	Yes (PG&E 2002, SMUD 2006)	Adverse: No Beneficial: CAPs, TACs	PG&E, SMUD, CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project exceeds title 24 requirements by 20%.
MM E-7: Solar Orientation	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	0.5%/Low: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project orients 75% or more of homes and/or buildings to face either north or south (within 30° of N/S). Building design includes roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows. Trees, other landscaping features and other buildings are sited in such a way as to maximize shade in the summer and maximize solar access to walls and windows in the winter.
MM E-8: Nonroof Surfaces	LD (R, C, M), I, GSP, AQP, RR, P/Stationary & Area	1.0%/Low: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes (USGBC 2002 and 2005)	Yes (USGBC 2002 and 2005)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's nonroof impervious surfaces, including parking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for a minimum of

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
								50% of the parking lot area. The mitigation measure reduces heat islands (thermal gradient differences between developed and undeveloped areas to minimize impact on microclimate and human and wildlife habitats. This measure requires the use of patented or copyright protected methodologies created by the ASTM. The SRI is a measure of the constructed surface's ability to reflect solar heat, as shown by a small rise in temperature. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is "0" and a standard while (reflectance 0.80, emittance 0.90) is 100. To calculate SRI for a given material, obtain the reflectance value and emittance value for the material. SRI is calculated according to ASTM E 1980-01. Reflectance is measured

AG=Attorney General; ARB=California Air Resources Board; ASTM=American Society for Testing and Material; BAAQMD=Bay Area Air Quality Management District; BEES= Building for Environmental and Economic Sustainability; CA=California; Caltrans=California Department of Transportation; CAPs=Criteria Air Pollutants; CCAP=Center for Clean Air Policy; CF=Connectivity Factor; CIWMB=California Integrated Waste Management Board; CO= Carbon Monoxide; CO_2=Carbon Dioxide; DGS=Department of General Services; DOE=U.S. Department of Energy; DPF=Diesel particulate Filter; E85=85% Ethanol; EERE=Energy Efficiency and Renewable Energy; EOE=Encyclopedia of Earth; EPA=U.S. Environmental Protection Agency; ETC=Edmonton Trolley Coalition; EV=/CNG=Electric Vehicles/Compressed Natural Gas; FAR=Floor Area Ratio; GHG=Greenhouse Gas; ITE=Institute of Transportation Engineers; kg/m^2=kilogram per square meter; km=Kilometer; lb=pound; LEED=Leadership in Energy and Environmental Design; M=Million; NA=Not Available; NEV=Neighborhood Electric Vehicle; NIST=National Institute of Standards and Technology; NO_x=Oxides of Nitrogen; NREL=National Renewable Energy Laboratory; N/S=North/South; PG&E=Pacific Gas and Electric; PM=Particulate Matter; SJVAPCD=San Joaquin Valley Air Pollution Control District; SMAQMD=Sacramento Metropolitan Air Quality Management District; SMUD=Sacramento Municipal Utilities District; SO_x=Sulfur Oxides; SRI=Solar Reflectance Index; TACs=Toxic Air Contaminants; TDM=Transportation Demand Management; TMA=Transportation Management Association; THC=Total Hydrocarbon; ULEV=Ultra Low Emission Vehicle; USGBC=U.S. Green Building Council; and VTPI=Victoria Transit Policy.

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
								according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance is measured according to ASTM E 408 or ASTM C 1371. Default values for some materials will be available in the LEED-NC v2.2 Reference Guide.
MM E-9: Low-Energy Cooling	LD (C, M), I, SP, AQP, RR, P/Stationary & Area	1%-10%/Low: EDAW presents this percent reduction range (EDAW 2006).	Yes	Yes (USGBC 2002 and 2005)	Yes (USGBC 2002 and 2005)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project optimizes building's thermal distribution by separating ventilation and thermal conditioning systems.
MM E-10: Green Roof	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	1.0%/Moderate: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes (USGBC 2002 and 2005)	Yes (USGBC 2002 and 2005)	Adverse: Increased Water Consumption Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Install a vegetated roof that covers at least 50% of roof area. The reduction assumes that a vegetated roof is installed on a least 50% of the roof area or that a combination high albedo and vegetated roof surface is installed that meets the following standard: (Area of SRI Roof/0.75)+(Area of vegetated roof/0.5) >= Total Roof Area. Water consumption reduction measures shall be considered in the design of the green roof.
MM E-11: EV Charging Facilities	LD (C, M), SP, AQP, RR, P/Stationary & Area	NA/Low	Yes: $500-$5000/ vehicle site (PG&E 1999)	Yes	Yes: 381 facilities in CA (Clean Air Maps 2007).	Adverse: No Beneficial: CAPs, TACs	DOE, BERE, CA air quality management and control districts and cities/counties (e.g., BAAQMD).	Project installs EV charging facilities.
MM E-12:	LD (R, C, M),	NA/Low: Increasing	Yes: Light	Yes	Yes: Apply	Adverse: No		Project provides light-colored

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]		
Light-Colored Paving	I, SP, AQP, RR, P/Stationary & Area	the albedo of 1,250 km of pavement by 0.25 would save cooling energy worth $15M per year.	colored aggregates and white cement are more expensive than gray cement. Certain blended cements are very light in color and may reflect similarly to white cement at an equivalent cost to normal gray cement.		natural sand or gravel colored single surface treatments to asphalt (EOE 2007).	Beneficial: CAPs, TACs		paving (e.g., increased albedo pavement).
MM E-13: Cool Roofs	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	NA/Low	Yes: 0.75–1.5/square feet coating (EPA 2007a)	Yes	Yes: Over 90% of the roofs in the United States are dark colored	Adverse: No Beneficial: CAPs, TACs	CEC	Project provides cool roofs. Highly reflective, highly emissive roofing materials that stay 50-60°F cooler than a normal roof under a hot summer sun. CA's Cool Savings

AG=Attorney General; ARB=California Air Resources Board; ASTM=American Society for Testing and Material; BAAQMD=Bay Area Air Quality Management District; BEES=Building for Environmental and Economic Sustainability; CA=California; Caltrans=California Department of Transportation; CAPs=Criteria Air Pollutants; CCAP=Center for Clean Air Policy; CF=Connectivity Factor; CIWMB=California Integrated Waste Management Board; CO=Carbon Monoxide; CO_2=Carbon Dioxide; DGS=Department of General Services; DOE=U.S. Department of Energy; DPF=Diesel particulate Filter; E85=85% Ethanol; EERE=Energy Efficiency and Renewable Energy; EOE=Encyclopedia of Earth; EPA=U.S. Environmental Protection Agency; ETC=Edmonton Trolley Coalition; EVs/CNG=Electric Vehicles/Compressed Natural Gas; FAR=Floor Area Ratio; GHG=Greenhouse Gas; ITE=Institute of Transportation Engineers; kg/m^2=kilogram per square meter; km=Kilometer; lb=pound; LEED=Leadership in Energy and Environmental Design; M=Million; NA=Not Available; NEV=Neighborhood Electric Vehicle; NIST=National Institute of Standards and Technology; NO_x=Oxides of Nitrogen; NREL=National Renewable Energy Laboratory; N/S=North/South; PG&E=Pacific Gas and Electric; PM=Particulate Matter; SJVAPCD=San Joaquin Valley Air Pollution Control District; SMAQMD=Sacramento Metropolitan Air Quality Management District; SMUD=Sacramento Municipal Utilities District; SO_x=Sulfur Oxides; SRI=Solar Reflectance Index; TACs=Toxic Air Contaminants; TDM=Transportation Demand Management; TMA=Transportation Management Association; THC=Total Hydrocarbon; ULEV=Ultra Low Emission Vehicle; USGBC=U.S. Green Building Council; and VTPI=Victoria Transit Policy.

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
					(EPA 2007a).			Program provided rebates to building owners for installing roofing materials with high solar reflectance and thermal emittance. The highest rebate went to roofs on air conditioned buildings, while buildings with rooftop ducts and other nonresidential buildings were eligible for slightly less. The program aimed to reduce peak summer electricity demand and was administered by the CEC.
MM E-14: Solar Water Heaters	LD (R, M), SP, AQP, RR, P/Stationary & Area	20%–70% reduction in cooling energy needs/Moderate	Yes: $1675/20 square feet, requires a 50 gallon tank, annual operating cost of $176 (DOE 2007).	Yes	Yes: Based on solar orientation, building codes, zoning ordinances.	Adverse: No Beneficial: CAPs, TACs	Europe	Project provides solar water heaters.
MM E-15: Electric Yard Equipment Compatibility	LD (R, M), SP, AQP, RR, P/Stationary & Area	NA/Low	Yes: $75–$250/outlet from existing circuit (Cost Helper 2007).	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Project provides electrical outlets at building exterior areas.
MM E-16: Energy Efficient Appliance Standards	LD (R, C, M), SP, AQP, RR, P/Stationary & Area	NA/Low	Yes: Varies for each appliance—higher capital costs, lower operating costs (Energy	Yes	Yes: Major retail stores.	Adverse: No Beneficial: CAPs, TACs		Project uses energy efficient appliances (e.g., Energy Star).

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
			Star 2007).					
MM E-17: Green Building Materials	LD (R, C, M), SP, AQP, RR, P/Stationary & Area	NA/Low: 25-30% more efficient on average.	Yes	Yes: BEES software allows users to balance the environmental and economic performance of building products; developed by NIST (NIST 2007).	Yes	Adverse: No Beneficial: CAPs, TACs		Project uses materials which are resource efficient, recycled, with long life cycles and manufactured in an environmentally friendly way.
MM E-18: Shading Mechanisms	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low: Up to $450 annual energy savings (Energy Star 2007).	Yes: Higher capital costs, lower operating and maintenance costs (Energy Star 2007).	Yes	Yes: Major retail stores.	Adverse: No Beneficial: CAPs, TACs		Install energy-reducing shading mechanisms for windows, porch, patio and walkway overhangs.

AG=Attorney General; ARB=California Air Resources Board; ASTM=American Society for Testing and Material; BAAQMD=Bay Area Air Quality Management District; BEES= Building for Environmental and Economic Sustainability; CA=California; Caltrans=California Department of Transportation; CAPs=Criteria Air Pollutants; CCAP=Center for Clean Air Policy; CF=Connectivity Factor; CIWMB=California Integrated Waste Management Board; CO= Carbon Monoxide; CO_2=Carbon Dioxide; DGS=Department of General Services; DOE=U.S. Department of Energy; DPF=Diesel particulate Filter; E85=85% Ethanol; EERE=Energy Efficiency and Renewable Energy; EOE=Encyclopedia of Earth; EPA=U.S. Environmental Protection Agency; ETC=Edmonton Trolley Coalition; EVs/CNG=Electric Vehicles/Compressed Natural Gas; FAR=Floor Area Ratio; GHG=Greenhouse Gas; ITE=Institute of Transportation Engineers; kg/m^2=kilogram per square meter; Km=Kilometer; lb=pound; LEED=Leadership in Energy and Environmental Design; M=Million; NA=Not Available; NEV=Neighborhood Electric Vehicle; NIST=National Institute of Standards and Technology; NO_x=Oxides of Nitrogen; NREL=National Renewable Energy Laboratory; N/S=North/South; PG&E=Pacific Gas and Electric; PM=Particulate Matter; SJVAPCD=San Joaquin Valley Air Pollution Control District; SMAQMD=Sacramento Metropolitan Air Quality Management District; SMUD=Sacramento Municipal Utilities District; SO_x=Sulfur Oxides; SRI=Solar Reflectance Index; TACs=Toxic Air Contaminants; TDM=Transportation Demand Management; TMA=Transportation Management Association; TIC=Total Hydrocarbon; ULEV=Ultra Low Emission Vehicle; USGBC=U.S. Green Building Council; and VTPI=Victoria Transit Policy.

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]		
MM E-19: Ceiling/Whole-House Fans	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low: 50% more efficient than conventional fans (Energy Star 2007).	Yes: $45-$200/fan, installation extra (Lowe's 2007).	Yes	Yes: Major retail stores.	Adverse: No Beneficial: CAPs, TACs		Install energy-reducing ceiling/whole-house fans.
MM E-20: Programmable Thermostats	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low: $100 annual savings in energy costs (Energy Star 2007).	Yes: $60/LCD display and 4 settings for typical residential use (Lowe's 2007).	Yes	Yes: Major retail stores.	Adverse: Yes, Mercury Beneficial: CAPs, TACs		Install energy-reducing programmable thermostats that automatically adjust temperature settings.
MM E-21: Passive Heating and Cooling Systems	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low	Yes: $800 (wall heaters) to $4,000+ (central systems)	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Install energy-reducing passive heating and cooling systems (e.g., insulation and ventilation).
MM E-22: Day Lighting Systems	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low	Yes: $1,300 to $1,500 depending upon the kind of roof (Barrier 1995), installation extra.	Yes	Yes: Work well only for space near the roof of the building, little benefit in multi-floor buildings.	Adverse: No Beneficial: CAPs, TACs		Install energy-reducing day lighting systems (e.g., skylights, light shelves and interior transom windows).
MM E-23: Low-Water Use Appliances	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low: Avoided water agency cost for using water-efficient kitchen pre-rinse spray valves of $65.18 per acre-foot.	Yes: Can return their cost through reduction in water consumption,	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Require the installation of low-water use appliances.

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)			Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
			pumping, and treatment.					
MM E-24: Goods Transport by Rail	LD (C, M), I, SP, AQP, RR, P/Mobile	NA/Moderate	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	ARB Goods Movement Plan (ARB 2007)	Provide a spur at nonresidential projects to use nearby rail for goods movement.
[illegible]								
MM S-1: GHG Emissions Reductions Education	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile, Stationary, & Mobile	NA/Low	Yes	Yes	Yes: Similar programs currently exist in CA.	Adverse: No Beneficial: CAPs, TACs		Provide local governments, businesses, and residents with guidance/protocols/information on how to reduce GHG emissions (e.g., energy saving, food miles).
MM S-2: School Curriculum	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile, Stationary, & Mobile	NA/Low	Yes	Yes	Yes: Similar programs currently exist in CA.	Adverse: No Beneficial: CAPs, TACs		Include how to reduce GHG emissions (e.g., energy saving, food miles) in the school curriculum.
[illegible]								
MM C-1: ARB-Certified Diesel Construction Equipment	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes: Oxidation Catalysts, $1,000-	Yes	Yes	Adverse: Yes, NO_x Beneficial: CAPs, TACs	AG, EPA, ARB, and CA air quality management and pollution control districts.	Use ARB-certified diesel construction equipment. Increases CO_2 emissions when trapped CO and carbon particles

AG=Attorney General; ARB=California Air Resources Board; ASTM=American Society for Testing and Material; BAAQMD=Bay Area Air Quality Management District; BEES= Building for Environmental and Economic Sustainability; CA=California; Caltrans=California Department of Transportation; CAPs=Criteria Air Pollutants; CCAP=Center for Clean Air Policy; CF=Connectivity Factor; CIWMB=California Integrated Waste Management Board; CO= Carbon Monoxide; CO_2=Carbon Dioxide; DGS=Department of General Services; DOE=U.S. Department of Energy; DPF=Diesel particulate Filter; E85=85% Ethanol; EERE=Energy Efficiency and Renewable Energy; EOE=Encyclopedia of Earth; EPA=U.S. Environmental Protection Agency; ETC=Edmonton Trolley Coalition; EVs/CNG=Electric Vehicles/Compressed Natural Gas; FAR=Floor Area Ratio; GHG=Greenhouse Gas; ITE=Institute of Transportation Engineers; kg/m^2=kilogram per square meter; km=Kilometer; lb=pound; LEED=Leadership in Energy and Environmental Design; M=Million; NA=Not Available; NEV=Neighborhood Electric Vehicle; NIST=National Institute of Standards and Technology; NO_x=Oxides of Nitrogen; NREL=National Renewable Energy Laboratory; N/S=North/South; PG&E=Pacific Gas and Electric; PM=Particulate Matter; SJVAPCD=San Joaquin Valley Air Pollution Control District; SMAQMD=Sacramento Metropolitan Air Quality Management District; SMUD=Sacramento Municipal Utilities District; SO_x=Sulfur Oxides; SRI=Solar Reflectance Index; TACs=Toxic Air Contaminants; TDM=Transportation Demand Management; TMA=Transportation Management Association; THC=Total Hydrocarbon; ULEV=Ultra Low Emission Vehicle; USGBC=U.S. Green Building Council; and VTPI=Victoria Transit Policy.

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)			Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
			$2,000. DPF, $5000-$10,000; installation extra (EPA 2007b).					are oxidized (Catalyst Products 2007, ETC 2007).
MM C-2: Alternative Fuel Construction Equipment	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes	Adverse: Yes, THC, NO_x Beneficial: CO, PM, SO_x	AG, EPA, ARB, and CA air quality management and pollution control districts.	Use alternative fuel types for construction equipment. At the tailpipe biodiesel emits 10% more CO_2 than petroleum diesel. Overall lifecycle emissions of CO_2 from 100% biodiesel are 78% lower than those of petroleum diesel (NREL 1998, EPA 2007b).
MM C-3: Local Building Materials	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes: Depends on location of building material manufacture sites.	Adverse: No Beneficial: CAPs, TACs		Use locally made building materials for construction of the project and associated infrastructure.
MM C-4: Recycle Demolished Construction Material	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Recycle/Reuse demolished construction material. Use locally made building materials for construction of the project and associated infrastructure.

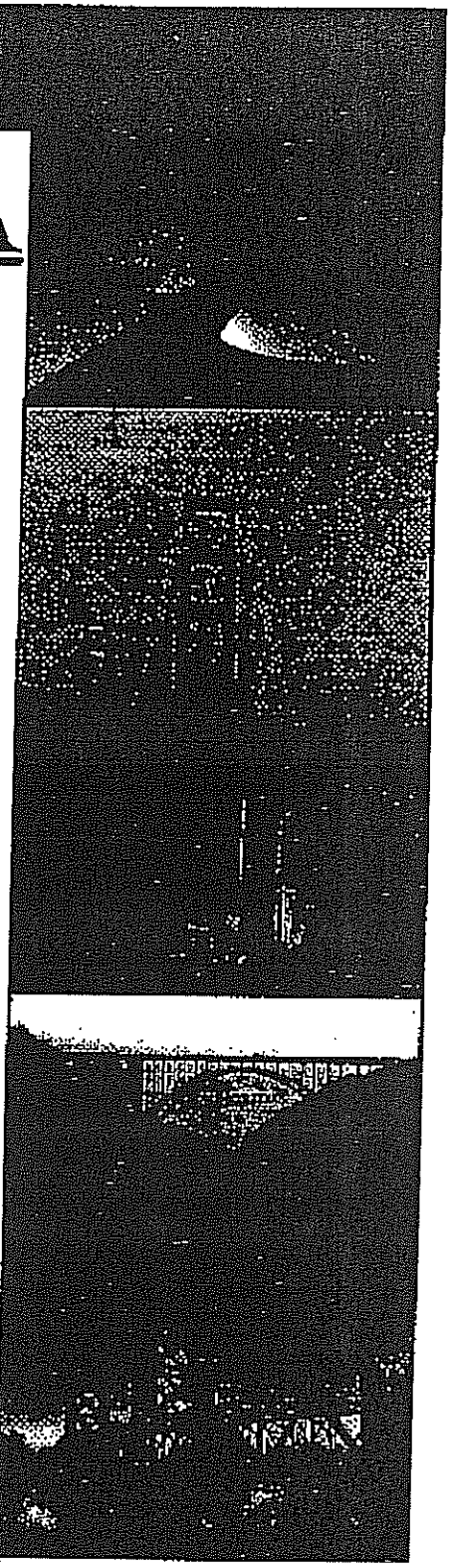
Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
Mitigation Measures								
MM M-1: Off-Site Mitigation Fee Program	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile & Area	NA/Moderate-High: Though there is currently no program in place, the potential for real and quantifiable reductions of GHG emissions could be high if a defensible fee program were designed.	Yes	Yes	No: Program does not exist in CA, but similar programs currently exist (e.g., Carl Moyer Program, SJVAPCD Rule 9510, SMAQMD Off-Site Construction Mitigation Fee Program).	Adverse: No Beneficial: CAPs, TACs		Provide/Pay into an off-site mitigation fee program, which focuses primarily on reducing emissions from existing development and buildings through retro-fit (e.g., increased insulation).
MM M-2: Offset Purchase	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile, Stationary, & Area	NA/Low	Yes	Yes	No: ARB has not adopted official program, but similar programs	No		Provide/purchase offsets for additional emissions by acquiring carbon credits or engaging in other market "cap and trade" systems.

AG=Attorney General; ARB=California Air Resources Board; ASTM=American Society for Testing and Material; BAAQMD=Bay Area Air Quality Management District; BEES= Building for Environmental and Economic Sustainability; CA=California; Caltrans=California Department of Transportation; CAPs=Criteria Air Pollutants; CCAP=Center for Clean Air Policy; CF=Connectivity Factor; CIWMB=California Integrated Waste Management Board; CO= Carbon Monoxide; CO_2=Carbon Dioxide; DGS=Department of General Services; DOE=U.S. Department of Energy; DPF=Diesel particulate Filter; E85=85% Ethanol; EERE=Energy Efficiency and Renewable Energy; EOE=Encyclopedia of Earth; EPA=U.S. Environmental Protection Agency; ETC=Edmonton Trolley Coalition; EVs/CNG=Electric Vehicles/Compressed Natural Gas; FAR=Floor Area Ratio; GHG=Greenhouse Gas; ITE=Institute of Transportation Engineers; kg/m^2=kilogram per square meter; km=Kilometer; lb=pound; LEED=Leadership in Energy and Environmental Design; M=Million; NA=Not Available; NBV=Neighborhood Electric Vehicle; NIST=National Institute of Standards and Technology; NO_x=Oxides of Nitrogen; NREL=National Renewable Energy Laboratory; N/S=North/South; PG&E=Pacific Gas and Electric; PM=Particulate Matter; SJVAPCD=San Joaquin Valley Air Pollution Control District; SMAQMD=Sacramento Metropolitan Air Quality Management District; SMUD=Sacramento Municipal Utilities District; SO_x=Sulfur Oxides; SRI=Solar Reflectance Index; TACs=Toxic Air Contaminants; TDM=Transportation Demand Management; TMA=Transportation Management Association; THC=Total Hydrocarbon; ULEV=Ultra Low Emission Vehicle; USGBC=U.S. Green Building Council; and VTPI=Victoria Transit Policy.

CAPCOA

CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION



Model Policies for Greenhouse Gases in General Plans

A Resource for Local Government to Incorporate General Plan Policies to Reduce Greenhouse Gas Emissions

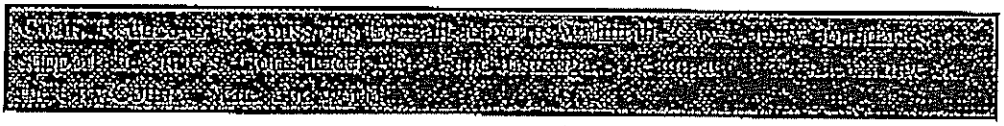
June 2009

Table of Contents

List of Figures

List of Tables

Greenhouse Gas Reduction Planning Policies



Objective GHG-1: By 2020, the City/County will reduce greenhouse gas emissions from within its boundaries to a level 30% less than the level that would otherwise occur if all activities continued under a "business as usual" scenario.

GHG-1.1 Emission Inventories: The City/County will establish GHG emissions inventories including emissions from all sectors within the City/County, using methods approved by, or consistent with guidance from, the ARB; the City/County will update inventories every 3 years to incorporate improved methods, better data, and more accurate tools and methods, and to assess progress.

1.1.1 The City/County will establish a baseline inventory of GHG emissions including municipal emissions, and emissions from all business sectors and the community.

1.1.2 The City/county will define a "business as usual" scenario of municipal, economic, and community activities, and prepare a projected inventory for 2020 based on that scenario.

GHG-1.2 Climate Action Plans: The City/County will establish plans to reduce or encourage reductions in GHG emissions from all sectors within the City/County.

1.2.1 The City/County will establish a Municipal Climate Action Plan which will include measures to reduce GHG emissions from municipal activities by at least 30% by 2020 compared to the "business as usual" municipal emissions (including any reductions required by ARB under AB 32).

1.2.2 The City/County will, in collaboration with the business community, establish a Business Climate Action Plan, which will include measures to reduce GHG emissions from business activities, and which will seek to reduce emissions by at least 30% by 2020 compared to "business as usual" business emissions.

1.2.3 The City/County will, in collaboration with the stakeholders from the community at large, establish a Community Climate Action Plan, which will include measures reduce GHG emissions from community activities, and which will seek to reduce emissions by

at least 30% by 2020 compared to "business as usual" community emissions.

1.2.4 Or: The City / County will, in collaboration with the stakeholders from the community at large, establish a CCAP, which will include measures to reduce GHG from community, municipal and business activities by at least 30% by 2020, compared to "business as usual".

GHG-1.1*A* **Emission Inventories:** *(Alternative form)* The City/County will establish GHG emissions inventories including emissions from all sectors within the City/County, using methods approved by, or consistent with guidance from, the ARB; the City/County will update inventories every 4 years to incorporate improved methods, better data, and more accurate tools and methods, and to assess progress.

1.1.1 The City/County will establish a baseline inventory of GHG emissions including municipal emissions, and emissions from all business sectors and the community.

GHG-1.2*A* **Climate Action Plans:** *(Alternative form)* The City/County will establish plans to reduce or encourage reductions in GHG emissions from all sectors within the City/County.

1.2.1 The City/County will establish a Municipal Climate Action Plan which will include measures to reduce GHG emissions from municipal activities by at least 15% by 2020 compared to the baseline municipal emissions inventory (including any reductions required by ARB under AB 32).

1.2.2 The City/County will, in collaboration with the business community, establish a Business Climate Action Plan, which will include measures to incentivize and support reductions in GHG emissions from business activities, and which will seek to reduce emissions by at least 15% by 2020 compared to the baseline business emissions inventory (including any reductions required by ARB under AB-32).

1.2.3 The City/County will, in collaboration with the stakeholders from the community at large, establish a Community Climate Action Plan, which will include measures to incentivize and support reductions in GHG emissions from community activities, and which will seek to reduce emissions by at least 15% by 2020 compared to the baseline community emissions inventory (including any reductions any reductions required by ARB under AB-32).

Objective GHG-2 The City/County will ensure that its local Climate Action, Land Use, Housing, and Transportation Plans are aligned with, support, and enhance any regional plans that have been developed consistent with state guidance to achieve reductions in GHG emissions.

GHG-2.1 Sustainable Communities Strategy/Regional Blueprint Planning: The City/County will participate in the Sustainable Communities Strategy/Regional Blueprint Planning effort and will ensure that local plans are consistent with the Regional Plan.

HART | HOWERTON

Robert L. Hart, AIA, AICP
David P. Howerton, ASLA, AICP
Paul D. Milton
Craig Roberts
A. James Tinson, AIA

One Union Street
San Francisco, CA 94111
Tel: 415 439 2200 Fax: 415 439 2201
www.harthowerton.com

April 20, 2010

Memorandum

TO: Matt Walsh
Mike Yankovich
John Wagstaff

FROM: Amie MacPhee

CC: Tamsen Plume
Brendan Kelly

RE: ***Middle Green Valley Specific Plan*** -
Comparison of October 28th and December 21st, 2009 Specific Plan Drafts

---

This document is a brief summary of the main additions and/or clarifications to the October 28th Middle Green Valley draft, which in turn was published as the December 21st draft. Most importantly, there were no land plan changes (no shifts in units from neighborhood to neighborhood, no changes in land use designations, and no change in location of open space areas). The main differences are that the December 21st version clarified some of the main concepts as well as updated sections due to inquiries on explaining the plan/implementation strategies, in particular the existing setting:

1)An "Acronyms" appendix was added as Appendix E, in response to comments.

2)Figure 2-5, *Existing Context*, was incorporated into Section 2.0. This Figure is the same as Figure 2.4 in the DEIR which Hart Howerton prepared and forwarded to Wagstaff and Associated for inclusion in the DEIR.

3)Throughout the document, where appropriate, "**potential trail**" connections were clarified. This clarification appears in Section 3.4.3D- Community Paths, on page 3-45 and in Section 5.7.4, page 5-103, the following language was inserted: "***Trails identified as "potential trail connections" are subject to permit and use restrictions as agreed to by the Landowner and applicable state and federal permits***"

ISO Exhibit D

4) Throughout the document, per DPW"s request, "*Traffic Circle*" was changed to "*Roundabout*".

5) Per DPW's request, a "*Local Street*" road type was included, which is essentially the same as the "Rural Collector" street type (Green Valley Road) but with a reduced right-of-way. Essentially, Mason Road and the new connector at the southerly boundary became "Local Road" types instead of "Rural Collector".

6) Additional *Residential Uses* in Table 3-4 on page 3-54 were included, to be consistent with County format and at County request. The following land use descriptions were added: *Secondary Dwelling, Accessory Buildings, Guest House, and Farmworker Housing*. These uses were already described in the Code, in Section 5.0 under Building Types, but this clarified "Residential uses" further. This did not result in any change in land uses or units.

7) Per County request, language was added to Section 3.6, page 3-67 regarding *Workforce Housing*:"***The Housing Element is updated every 5 years to respond to shifts in local and regional employment and housing opportunities***".

8) Relevant Agriculture policies and Implementation Programs from the General Plan were added to Section 4.2.1 in a box, to reiterate the policies that would guide the Conservancy in crafting their *Agriculture Business Plan*, and *Design Review* documents, and this appears on Page 4-12 in the blue box.

9) Figure 4-2, *Important Farmlands Map*, was updated, on page 4-17, to show the vineyard on Bill Maher's land in the southerly section of the Study Area which was not included in the earlier draft. This update was in response to our discussions verifying and preparing the *Existing Context Map* (DSP Figure 2-5, DEIR Figure 2.4). Acreage calculations were updated, and included in the DSP text and DEIR as well.

10) Refinement to Table 4-1, *Transfer of Development Rights,* page 4-18. This update did not change any unit counts, or locations of units, it simply corrected some math errors.

11) Text deletions to Section 4.3.2, which explained the law behind Mello Roos Districts and County Service Areas (previously titled, *The CSA Concept and Law, and Community Facilities Districts (Mello Roos Districts*). Additionally, the Section titled, "*Potential Expansion of the Green Valley CSA*" was removed.

12) Update to Table 4-3 – *Total Water Demand Forecast*. This Table was updated to reflect adjustments to include the potential school option at the time.

13) Clarifications to Section 4.5 -*Development Sequencing* requirements, which clarified further when certain components of the Plan were to be established. This appears on page 4-40,

- ***The Green Valley Farm Stand shall be established prior to the issuance of the 25th***

building permit in Phase 3A.

- ***The wastewater treatment plant shall be established prior to the 150th building permit in Phase 3A.***
- ***The Green, Chapel and Conservancy Office shall be established prior to the 25th building permit in Phase 2A.***
- ***The Elkhorn Foothills (Phase 2B) shall be developed concurrently and/ or after the development of the balance of the Elkhorn neighborhood (Phase 2A).***
- ***The sports fields (Phase 3A) shall be established prior to the issuance of the 25th building permit within Phase 3A.***
- ***The confirmation and transfer of ownership of the elementary School Site (Phase 3A) to a public or private education entity is to occur prior to the issuance of the 50th building permit within Phase 3A. If this transfer does not occur, this site may be used for other purposes consistent with the land use designation.***

14) Minor additions/clarifications to The Neighborhood Code were also included on the following pages/sections due to comments received by the public and the County:
   a. Page 5-41, clarification regarding solar applications for rooftop solar equipment
   b. Page 5=58, Update to implementation box on page regarding the County's relevant Climate Change implementation programs.
   c. Page 5-59, addition of language for waste minimization requirements, and requirements for commercial water efficient appliances.
   d. Page 5-67, update to Landscape Objectives to include that solar applications should not be obstructed by plantings;
   e. Page 5-71, increased size of tree to 24" box for mitigation for Heritage Tree, (increased from 15 gallon). In addition, language was added to say "***No tree, regardless of size, is to be removed without prior approval of the CRC, and applicable County agencies***".
   f. Added Section 5.5.11 on *Utilities and Service Areas*.
   g. Added *Local Road* Section to Section 5.7.3. (See #5 above).
   h. Added Section 5.9.2-I, *Appeals* (in design review section).

Participating Landowners	Acreage	% of Participating Area	Allowed New Unit Count (TDR Program)	Allowed New Unit Count (No TDR Program)
B+L Properties	253.0	15.3%	60	9
Del Castillo	82.4	5.0%	20	3
Engell	52.3	3.2%	12	9
Hager	40.2	2.4%	10	2
Mason/Lindemann	296.0	17.9%	70	14
Mason/Lawton Trust	476.1	28.8%	113	21
Maher	146.8	8.9%	35	7
Ragsdale	168.6	10.2%	40	7
Siebe (James)	18.2	1.1%	4	0
Siebe (Jean)	23.7	1.4%	6	0
Volkhardt	38.4	2.3%	9	1
Wiley	15.6	0.9%	4	0
Wirth	40.7	2.5%	10	1
SUBTOTAL	**1,652**	100.0%	**393**	**74**

Non-Participating Landowners	Acreage	New Unit Count	New Unit Count (No TDR Program)
Biggs	61.6	6	6
DeDomenico	40.6	1	1
Parenti	12.9	0	0
SUBTOTAL	**115**	7	7
Existing Dev & Infrastructure	**138**		
TOTAL STUDY AREA	**1,905**	**400**	**81**

Exhibit E