

MEMORANDUM

DATE: May 23, 2024

To: Chris Lee, SCWA

FROM: Steve Kohlmann and Steve Foreman

SUBJECT: California Forever – Assessment of the New Community on Ability to Implement the Solano Habitat Conservation Plan.

INTRODUCTION

On January 29, 2024, Flannery Associates aka “California Forever” (CF) submitted their “East Solano Homes, Jobs, and Clean Energy Initiative” to the County of Solano. The Initiative has since been amended twice: on January 29 and February 14, 2024. The Initiative, if approved by Solano County voters, would amend sections of the County General Plan to authorize construction of a “New Community” with a total size of approximately 17,500 acres in eastern Solano County and an initial population of at least 50,000 residents (Figure 1; all figures are provided at the end of this memo). The initiative also claims to increase the Travis Reserve Area by approximately 6,929 acres and intends to create a 712-acre open space buffer between the New Community and the City of Rio Vista (Figure 1).

Purpose

This memorandum provides a brief analysis of the implications of the Initiative for land use in Solano county. Specifically, the analysis examines some of the environmental impacts associated with the proposed development and the effects this development will have on the implementation of the Solano Habitat Conservation Plan. Finally, the analysis also identifies misleading and factually incorrect assertions by the project proponents regarding potential impacts.

Location

CF/Flannery Associates has reportedly purchased or controls over an estimated 62,383.4 acres in eastern Solano County, between Fairfield/Suisun City and Rio Vista. This estimate is based on recorded land purchases and other lands included in their initiative (Figure 2). Lands within and adjacent to the north of the proposed new community are conservation lands of high conservation importance. Several are existing mitigation properties or potential mitigation lands (e.g., Petersen Ranch, Alex Cook Ranch). In addition, the proposed development includes several inholdings that are not owned by CF. Several are existing partially developed industrial sites, but inholdings also include four existing mitigation sites for previous projects (County of Solano, City of Fairfield, Foxboro, and Peabody mitigation) (Figure 3). Lands to the east include the city of Rio Vista and agricultural lands within the legal Sacramento-San Joaquin Delta. State Route 12 separates the New Community from agricultural land in the Solano Wind Resource Area to the south. To the west, the proposed new Community abuts to private agricultural lands, the Suisun Marsh and TAFB.

What We Do Not Know About The New Community

CF's Initiative assertions are generally vague and unspecific, making it difficult to assess potential impacts of the proposed project. In addition, there are numerous "promises" that do not provide sufficient detail for concise analyses, including:

- CF promises to "produce a new source of clean energy by permitting solar farms with potential generation capacity of over 2 gigawatts." The locations of the solar farms have not been identified in the Initiative, but graphic renderings available at the CF website show an extensive coverage of solar panels north and west of the proposed development.
- The source and amount of additional water and associated delivery systems for residential and industrial uses has not been specified.
- Other unspecified infrastructure expansion proposed in CF's East Solano Homes, Jobs, and Clean Energy Initiative includes:
 - the rerouting and expansion of Highway 12 between Suisun City and the Rio Vista Bridge, generally along the northern boundary of the New Community, including (if supported by the City of Rio Vista) the potential rerouting of Highway 12 outside of downtown Rio Vista and replacement of the Rio Vista Bridge¹;
 - significant improvements of several County roads, including Creed Road, portions of Robinson, McCormack, Cartright roads and possibly others between the New Community and Rio Vista and additional sections of Creed Road and Branscomb Roads west of the New Community.
 - the potential renovation and completion of a rail connection between the New Community and the Fairfield-Vacaville Amtrak Station and/or the Suisun City Amtrak Station (including but not limited to by improving the former Sacramento Northern rail alignment for use by passenger or freight traffic, which may impact existing conservation lands.
 - the potential for improvements to Highway 113 and (if supported by city of Dixon) rerouting the same outside of downtown Dixon¹.
 - unspecified olive orchards and other agricultural production areas in areas where irrigation may interfere with existing hydrology and native vernal pool landscapes.
- Furthermore, CF has not indicated where the extensive mitigation lands required under state and federal law will be located and how they will avoid conflict with the Solano HCP. CF claims to support existing conservation. "In our habitat conservation work, we're the stewards of many habitat conservation and protection areas. These include several conservation banks on Jepson Prairie, which collectively contains many vernal pools that

¹ "We'll provide right of way for upgrades to Highways 12 and 113, including the Rio Vista and Dixon bypass" (<https://eastolanoplan.com/faq/transportation>)

flood in the winter, creating a unique habitat for wildflowers, amphibians, crustaceans, and birds. Our stewardship also touches Suisun Marsh, where our properties help conserve freshwater emergent wetlands and grasslands.” (<https://californiaforever.com/what-we-do>.)” The statement is misleading as CF does not own conservation banks or engages in visible “habitat conservation work” or “stewardship.”

SOLANO HABITAT CONSERVATION PLAN (HCP)

The Solano Habitat Conservation Plan (HCP) establishes a framework for complying with federal endangered species regulations while accommodating future urban growth, development of infrastructure, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure undertaken by or under the permitting authority/control of the Plan Participants within the HCP Plan Area encompassing all of Solano County and a portion of Yolo County during the 30-year permit term. The anticipated Covered Activities include:

- 13,731 ac of urban development within the urban growth boundaries of Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo;
- 393 ac of secondary support development such as communication service facilities, flood control facilities, roads, and recreation facilities outside of the six cities’ urban growth boundaries;
- 112 miles (equivalent to 554 ac) of new irrigation and flood control facilities for the Solano County Water Agency (SCWA), Solano Irrigation District (SID), Maine Prairie Water District (MPWD), Reclamation District No. 2068 (RD 2068), Dixon Resource Conservation District (Dixon RCD), Vallejo Flood and Wastewater District (VFWD), and Fairfield-Suisun Sewer District (FSSD); and
- 866 miles of operation and maintenance activities for streams, flood control channels, irrigation ditches, pipelines, and ditches, and thousands of associated appurtenant features.

To offset these effects, the HCP anticipates habitat preservation at full build-out of almost 21,000 ac of reserves, preserves, and other cooperative habitat restoration/construction areas (e.g., commercial and institutional mitigation and conservation banks).

The following HCP conservation targets have been established for the Plan Area:

- Preserve and manage an estimated 12,050 ac of valley floor grassland and vernal pool habitat that shall include, but is not limited to, the following elements:
 - 9,690 ac of California tiger salamander (CTS) upland and movement habitat.
 - 5,300 to 5,400 acres shall be within Contra Costa goldfield habitat (a significant portion of which will overlap with CTS habitat).

- 200 ac of restored and at least 800 ac of preserved vernal pool and associated aquatic habitats for many Covered Species.
- Preserve and manage an estimated 5,480 ac of agricultural foraging habitat for Swainson’s hawks and burrowing owls. In addition, provide increased long-term nesting opportunities through the establishment of a tree planting program and installation and maintenance of artificial burrow complexes for burrowing owls.
- Preserve and manage 50 ac of riparian and 36 ac of freshwater marsh, pond, and seasonal wetland habitat within Priority Watersheds and Drainages.
- Restore and manage 80 ac of coastal salt and/or brackish marsh habitat.
- Restore and manage 200 ac of aquatic habitat and associated upland habitat for giant garter snakes.
- Preserve and manage an estimated 3,100 ac of Inner Coast Range habitat for California red-legged frogs, Callippe silverspot butterflies, Swainson’s hawk and burrowing owl foraging habitat, foothill yellow-legged frogs, and monarch butterflies.

As identified in LSA’s October 31, 2023, Memorandum, the primary topic of concern is the effects of the CF New Community on the ability to achieve the goals, objectives, and occupancy commitments for conservation and mitigation identified in the HCP, with a primary focus on species associated with the Valley Floor Grassland and Vernal Pool Natural Community. Therefore, the following analysis focuses is limited to the effects to this Natural Community and associated species.

Can the New Community be Covered by the Solano HCP?

On November 7, 2023, California Forever (CF) released an open letter to William Emlen, Solano County Administrator, David Gassaway, Fairfield City Manager, and Chris Lee Solano County Water Agency General Manager offering \$1 million to fund completion of the Solano County Habitat Conservation Plan (HCP) with the purpose of achieving coverage under the HCP in return. This request is unrealistic in several ways:

- First, the exact location of the CF proposed city, required infrastructure and other land use (e.g., olive groves, solar farms) are vague and undefined. The “New Community” would more than double the Planned Development (Covered Activities) to be mitigated under the Solano HCP.
- Secondly, the HCP is currently in its final phase of development. Mitigation and conservation activities to offset effects of the current Planned Development have been completed. It took over 20 years to arrive at this close-to-final point.
- Furthermore, to be covered under the HCP, effects of this development need to be analyzed regarding potential direct, indirect and temporary effects on 39 Covered species in 5 Natural Communities. To analyze effects of such a magnitude will significantly delay the adoption of the current HCP. Associated permits (e.g., 2081 take permit from CDFW) and CEQA analysis

would also need to be analyzed, adding to the time needed to complete the HCP. A conservative estimate for such a complete re-write of the HCP would be at least 3 years, costing in excess of \$ 2 Million, assuming all details of the Planned Development have been provided with sufficient resolution to allow a comprehensive effects analysis.

- Finally, mitigation required for the new development would depend on the Covered Species and Natural Communities affected. Mitigation to impact ratios are rarely 1:1 and can be as high as 13:1 for rare species or highly valuable habitat. Considering that the New Community would more than double the developed acreage in the Solano county and much of that development would affect intact, high value valley grassland and vernal pool areas, it is questionable if sufficient acreage is available within Solano County to achieve adequate mitigation for the additional unavoidable impacts from the New Community and proposed solar development.

ENVIRONMENTAL IMPACTS OF THE NEW COMMUNITY

Our analysis for the purposes of this assessment evaluates three proposed actions of the California Forever Initiative:

1. The California Forever proposed New Community
2. The California Forever proposed Solar Energy Development
3. The proposed Travis Reserve Expansion or Travis Security Zone as identified in the Initiative.

Permitting

The establishment of the proposed New Community with a total size of approximately 17,500 acres of built-up land and an additional as yet unidentified acreage for solar farms, orchards, energy and transportation infrastructure would result in significant environmental effects on existing land use, air and water resources, agricultural lands, and habitat for numerous common and rare plant and animals. In addition to County approvals LSA expects the following federal and State approvals and permits will be required at a minimum:

- U.S. Fish and Wildlife Service (USFWS) and possibly the National Marine Fisheries Service (NMFS) – compliance with the Federal Endangered Species Act, likely an Incidental Take Permit through Section 10 (a)(1)(B) Habitat Conservation Plan.
- U.S. Army Corps of Engineers – Clean Water Act Section 404 Permit for effects to Waters of the United States.
- California Department of Fish and Wildlife (CDFW) – Section 2081 Incidental Take Permit and Section 1600 Lake and Streambed Alteration Agreements for multiple wetlands and streams within the proposed development area (e.g., Denverton Creek, Big Ditch, multiple unnamed, smaller tributary streams).

- State of California Water Resources Control Board – Clean Water Act Section 401 certification and/or Waste Discharge Requirements under the Porter Cologne Act.

Analysis Approach

The following analysis builds upon our October 31, 2023, Memorandum assessing the potential implication of the California Forever land holdings. Now that the size and boundaries of the proposed New Community have been identified, our analysis focuses on tangible impact estimates that can be inferred from the current initiative proposal. LSA examines the implications of the CF New Community on the natural communities and special status species within its proposed boundaries. Furthermore, we analyze how the project would impact the ability to implement and achieve goals, objectives, and occupancy commitments for conservation and mitigation identified in the Solano Habitat Conservation Plan (HCP)

LSA used the existing data layers from CDFW and the HCP to assess the new development in regards to biodiversity impacts, including special status species, landscape ecology impacts (including linkages and habitat connectivity) and conservation impacts (i.e., the ability of the HCP to fulfill its conservation and mitigation commitments arising from the HCP and its requested authorized take pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531-1544). We used CF’s published map (revised version as of 2/14/2024²) to measure spatial impacts (overlap) with the currently existing natural resources of the county. Because the CF map does not show associated infrastructure (transportation, water, energy) and has not indicated the location or planned orchards, these affects have not been quantified.

Natural Community Effects

The majority of the CF lands and the proposed New Community lie within the HCP designated Valley Floor Grassland and Vernal Pool Natural Community which, aside from extensive vernal pool grasslands, also includes components of freshwater marsh, dry-land farming, orchard, and riparian habitat types. Based on current information, modeled habitat for 21 of the 39 HCP Covered Species (54 percent) falls within or overlaps with portions of the New Community boundary (Figure 4). While the occurrence and distribution of these species and overall ecological value of the habitats within the New Community boundary cannot be fully understood until adequate biological resources surveys are conducted (some of which may take multiple years), assessments of impacts to HCP covered species can be broadly assessed following Solano HCP criteria and experience with other local, state, and federal projects in Solano County.

Biodiversity Effects

CF asserts that “the new community is proposed largely on lands that the draft Solano County Habitat Conservation Plan declared as having zero or limited conservation value”³. At the February 9, 2024, Solano Economic Development Commission (EDC) annual breakfast meeting, Mr. Jan

²

https://downloads.ctfassets.net/ivxuf0dn6dhw/6p3T8ccrYuqrvj7BBO7khw/fba3cf4d7ca54dfdc4054e3717d7bf70/2024-02-14_Initiative.pdf

³ <https://eastsolanoplan.com/myths>

Sramek of CF used a Figure of the Administrative Draft HCP (Rarity Weighted Richness Index Map of Covered Species and Special Management Species within the Plan Area, Figure 5) apparently to demonstrate that the New Community was deliberately located in some of the lowest ecological value in the County. This assertion suggests an incomplete understanding of what the index represents and a misleading use of this map.

The Rarity-Weighted Richness index (RWRI) is a frequently used index to assess relative biodiversity, but it is not free of inherent biases (Hunting 2003)⁴. This index is the aggregate importance of a particular map grid cell to the species occurring there. For each species, the RWRI value for a cell is the proportion of the species' range contained within that cell. Thus, cells that have many species with a wide distribution will be weighted less than cells that contain few species with very restricted ranges or where the actual distribution is not well known. RWRI is by no means an expression of the cell's "ecological value," which is defined as the "level of benefits that the space, water, minerals, biota, and all other factors that make up natural ecosystems provide to support native life forms."

The RWRI Map was one of multiple tools employed during early phases of developing the HCP conservation strategy to identify important areas for conservation in the County. While Figure 5 does indicate generally low to moderate RWRI values in the boundaries of the proposed New Community, Mr. Sramek failed to consider the cautions described in Section 4.3.1.2 of the HCP that discusses the inherent bias of RWRI index maps. This significant bias is that the index values are based on available species records. In areas that lack survey data such as occurs for many of the large blocks of private land in the County such the proposed New Community, the richness index typically tends to show lower diversity. However, with more data collection as noted in Section 4.3.1.2, the resulting diversity patterns can be expected to increase. In addition, RWRI is sensitive to overall diversity of communities, which in turn is affected by topography and climate. The hot and relatively flat grasslands of eastern Solano county are expected to have lower RWRI values due to a lack of topographical features, but they provide essential habitat to endemic species that do not exist anywhere else in the county.

The RWRI is also based on diversity of the cumulative presence of multiple species and does not effectively address the value for a specific species. For example, there are at least six recorded Swainson's hawk (State Threatened) nesting records within or immediately adjacent to the New Community and one State and Federally threatened California tiger salamander breeding record within the New Community. In addition, review of available aerial imagery indicates at least 12 to 15 additional water bodies (constructed ponds and natural vernal pools) within the New Community footprint that appear to support sufficient hydrology to support California tiger salamander breeding.

Biodiversity and other factors were considered in the determination of the important General Plan conservation areas. The location of the new Community is in the center of a Priority Habitat Area, i.e., the High Value Vernal Pool Conservation Area, and it would sever some of the better understood and high value habitat linkages (Figure 5). Likewise, it is centrally located within the County General Plan Resource Conservation Overlay (Solano County General Plan, Figure 5). The

⁴ <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116553&inline=1>

Initiative's proposed changes to these General Plan priority designations appear not to be based on a rigorous analysis or science-based justification.

New Community Mitigation Requirements

While insufficient information is available to identify and calculate mitigation requirements for the New Community, LSA assessed -on an order-of-magnitude basis- the potentially required mitigation acreage to offset significant impacts to natural resources. This includes the assumption that the New Community would be held to the same standards as established in the in the Draft Solano HCP. Similarly, multiple other developments in Solano County have been required to provide mitigation under state and federal incidental take permits at similar ratios. The New Community and Rio Vista Parklands⁵ would result at a minimum in the direct loss of an estimated 17,800 acres of various habitats. This estimate does not include additional infrastructure and any other "off-site" energy, parkland, potential orchard development/conversion of grassland habitats, and isolation of in-holding parcels, which would affect additional special status species habitat.

The proposed New Community lies within HCP designated Valley Floor Grassland and Vernal Pool Conservation Areas 1A, 1F, and 2I (Figure 4). The following mitigation ratios are specified in the HCP for these two Conservation Areas to provide mitigation for multiple species including California tiger salamander, Swainson's hawk, burrowing owl, and vernal pool fairy shrimp:

- **Upland Component Direct Effects:** Preserve upland habitat at a ratio of 3:1 in all three subareas.
- **Upland Component Indirect Effects:** In Subarea 1A, 1F, and 2I all uplands within 250 feet of proposed development are considered indirectly affected (e.g., light, glare, changes in hydrology, proximity to human activity) in the absence of intervening barriers and will be preserved a ratio of 1:1.
- **Wetland Component Direct Effects:**
 - In Subarea 1A vernal pool and swale habitats shall be preserved at a ratio of 9:1 (mitigated-to-affected) and vernal pool and swale habitats shall be restored/established at a ratio of 1:1 if restored habitats are in place and functional at the time of effect or at a 2:1 ratio if habitats are restored concurrent with the effect.
 - In Subarea 2I vernal pool and swale habitats shall be preserved at a ratio of 2:1 and vernal pool and swale habitats shall be restored at a ratio of 1:1 if restored habitats are in place and functional at the time of effect or at a 2:1 ratio if habitats are restored concurrent with the effect.
- **Wetland Component Indirect Effects:**

⁵ While the Initiative identifies natural conservation areas, buffers, wildlife corridors, and greenways as allowed uses in the Parks and Recreational Lands, many of the other allowable uses are incompatible with resource conservation unless planned and implemented carefully. Without detailed plans, we have assumed the entire Rio Vista Parklands would be adversely affected.

- In Subareas 1A vernal pool and swale habitats shall be preserved at a ratio of 3:1 for indirect effects to avoided wetlands within 250 feet of proposed development.
- In Subarea 2I vernal pool and swale habitats shall be preserved at a ratio of 1:1 for indirect effects to avoided wetlands within 250 feet of proposed development.
- **California Tiger Salamander Breeding Habitat:**
 - Direct effects to any breeding habitat require a mitigation ratio will be mitigated by preserving currently occupied breeding habitat at a 3:1 ratio and by establishing new breeding habitat at a 1:1 ratio or 0.35 acre, whichever is greater. Alternatives are available to fulfill mitigation requirements in cases where creating new breeding habitat may not be possible due to land use restrictions, Travis Air Force Base air traffic hazard considerations, and other factors.
 - Indirect effects to any breeding habitat within 500 feet of development requires preservation of an additional mitigation ratio of 1:1.
- **Swainson’s Hawk and Burrowing Owl Foraging and Nesting Habitat**
 - Direct loss of at least 17,800 acres of foraging habitat for Swainson’s hawk and burrowing owl, requiring mitigation at various ratios, depending on habitat quality, proximity to nesting sites and general landscape characteristics (e.g., absence of wind farms).
 - Direct loss of additional foraging habitat where solar farms, water/road infrastructure and olive orchards will be constructed.
 - Direct loss of at least 6 known Swainson’s hawk nest sites and several confirmed burrowing owl breeding and wintering sites.
 - Indirect effects to breeding and nesting habitat within 1 mile of the New Community and its affiliated infrastructure (including solar farms and olive orchards)

In addition to these primary habitat mitigation requirements, the HCP includes additional measures that are species-specific. Many mitigation measures are very specific about the location, ecological condition and other criteria that must be met to implement required habitat conservation.

An initial order of magnitude assessment of the New Community’s mitigation needs is based on a conservative 3:1 mitigation ratio for direct impacts. The following minimum mitigation would be necessary to offset impacts from the development of 17,800 acres within the New Community boundary and Rio Vista Parklands, as specified in the Initiative:

- 53,400 acres of mitigation would be necessary for direct effects.
- 800 to 1,000 acres for indirect effects within 250 feet of the New Community property, not including any unspecified “off-site” infrastructure, energy, and agricultural development.

- Additional acreage likely on the order of several hundred acres may also be necessary to preserve existing wetlands and to establish/restore wetland habitats and California tiger salamander breeding habitat.

Thus, the total minimum mitigation requirements would be on the order of 54,000 to 56,000 acres excluding any additional mitigation required for as of yet unspecified “off-site” infrastructure, offsite solar energy development, and agricultural development.

Conservation Land Availability

The minimum estimated need for valley floor grassland and vernal pool habitat mitigation and conservation under both the Solano HCP (12,050 acres) the New Community mitigation (54,000 to 56,000 acres) ranges from an estimated 66,000 to 68,000 acres. Initial mapping has identified approximately 99,000 acres of designated Valley Floor and Vernal Pool Grassland Conservation Area in the County. Of these, only 61,000 acres of the unprotected Valley Floor and Vernal Pool Grassland Conservation Area are suitable for achieving HCP conservation objectives (Table A) and potentially available for mitigation purposes. Once the New Community is excluded from this potential conservation land, the available land for mitigation drops to approximately 28,500 acres.

Table A: Acreages¹ of Remaining Unprotected Valley Floor Grassland and Vernal Pool Conservation Areas Suitable for HCP Conservation Purposes

Valley Floor and Vernal Pool Grassland Natural Community	Total Acres within Vernal Pool Conservation Subareas 1A, 1C, 1E, 1F, 1J, 2C, 2I, 2E, and 2F	Total Acres Remaining After Excluding Existing Protected Lands	Acres within California Forever New Community Boundary and Rio Vista Parkland	Total Acres Remaining after Excluding the New Community Boundary and Rio Vista Parklands	Acres within other California Forever owned Parcels	Total Acres Remaining and Potentially Available for HCP Mitigation
Conservation Areas with High Preservation Potential	11,699	2,640	0	2,640	1,644	995
Conservation Areas with High Preservation and Restoration Potential	49,301	42,926	17,066	25,860	10,946	14,914
Conservation Area without High Preservation or Restoration Potential (CF Community Boundary Only)	-	-	735	-	-	-

Valley Floor and Vernal Pool Grassland Natural Community	Total Acres within Vernal Pool Conservation Subareas 1A, 1C, 1E, 1F, 1J, 2C, 2I, 2E, and 2F	Total Acres Remaining After Excluding Existing Protected Lands	Acres within California Forever New Community Boundary and Rio Vista Parkland	Total Acres Remaining after Excluding the New Community Boundary and Rio Vista Parklands	Acres within other California Forever owned Parcels	Total Acres Remaining and Potentially Available for HCP Mitigation
Total	61,000	45,566	17,801	28,500	12,591	15,909

¹ All acreages exclude existing developed land and areas designated for planned development under the Solano HCP.

High Preservation and Restoration Potential Lands

The majority of the remaining 28,500 acres of unprotected Valley Floor and Vernal Pool Grassland Conservation Area are identified in the HCP as having High Preservation and Restoration Potential (HPRP, Figure 7) to meet HCP mitigation and conservation objectives. HPRP lands are likely to have the necessary characteristics for mitigating through direct preservation or preservation and restoration of habitat to achieve the anticipated effects of development under the HCP⁶.

The 28,500 acres of remaining HPRP lands is not sufficient to provide the necessary 66,000 to 68,000 acres that would be required to mitigate the effects of planned development in the Valley Floor and Vernal Pool Grassland Natural Community in the Solano HCP participant cities of Suisun, Fairfield, Vacaville, and Rio Vista and the New Community. The projected shortfall of 37,500 to 39,500 acres cannot be met within Solano County.

Assuming CF owned lands will not be available for HCP mitigation and conservation (i.e., because CF may reserve these lands for their own purposes), approximately 15,909 acres is potentially available to achieve projected HCP conservation objectives for the Valley Floor Grassland and Natural Community. However, not all of this land may be available from willing sellers, suitable for restoration, or may require significant additional investments before mitigation would be considered successful. An unknown additional acreage in Conservation Area 2I may also not be suitable Swainson’s hawk and burrowing owl because of the potential conflicts with existing and potential future wind energy development. This would require modification of the HCP to allow for acquisition and enhancement of additional conservation lands beyond the base 3:1 mitigation requirement.

Solar Development

CF proposes to build up to 2 gigawatts (GW) of solar generation. The initiative primarily references establishing the solar fields within the Travis Security Zone (the renamed Travis Reserve), pending Travis Air Force Base approval, and within the Travis Compatible Infrastructure Zone within the western portions of the New Community boundary. CF has also announced an initial gift to UC Davis to fund research into use of land for Photovoltaic (PV) solar energy production combined with

⁶ Unprotected lands not included in the High Preservation and Restoration Potential lands will require extensive restoration or enhancement to provide mitigation under the HCP.

agricultural activities and habitat conservation, a practice known as agrivoltaics/ecovoltaics or agrisolar.

While specific locations and acreage required to produce 2 GW of solar power are lacking in the Initiative, various sources indicate on average 5 to 10 acres of land are needed to produce 1 MW of power⁷. Land requirements for agrisolar installations may be greater due to the fact that solar arrays may need to be spaced farther apart to accommodate livestock grazing and other agricultural practices. Greencoast⁸, a commercial developer of solar farms on agricultural land estimates a land requirement of about 21.5 acres per MW, including the space for the hardware plus the space needed between rows to avoid shading (and consequent power loss) as well as space for periodic array maintenance. Thus, the proposed 2 GW solar farm could consume as much as 43,000 acres.

Field-scale arrays of ground-mounted PV modules, or “solar farms,” have been deployed in European and several Asian countries since around 2005. Currently, there are at least 5 commercially grazed solar farms in California⁹. The BRE (2014) Agricultural Good Practice Guidance for Solar Farms¹⁰ considers larger farm animals such as horses and cattle unsuitable for solar grazing since they can dislodge standard mounting systems, while pigs or goats may damage wires. Sheep and free-ranging poultry have been successfully employed to manage grassland in solar farms (BRE 2014).

While an agrisolar farm may be compatible with certain agricultural activities, such as limited livestock grazing, the effects of agrisolar development on many native species has not been extensively studied. Construction grading for solar projects will remove habitat, condense soils and alter hydrological conditions, which all can lead to an unavoidable permanent effect on native species, which will require mitigation. Photovoltaic solar panels contain toxic materials like lead, cadmium, selenium and tellurium which can leach into the natural environment, particularly if panels are damaged in a hailstorm or fire. This could negatively affect sensitive species such as amphibians (e.g., the threatened California tiger salamander) or pollute water and soil. Smallwood (2022¹¹) estimates that California wildlife fatalities/MW/year averaged 11.61 birds and 0.06 bats at Photovoltaic projects. Thus, a 2 GW facility in Solano County would cause the mortality of 23,200 birds and at least 120 bats annually.

Although CF claims purported benefits for habitat conservation, these are questionable for the majority of the species dependent the grassland and vernal pool ecosystems present in locations where solar farms are identified in the Initiative. Effects of dual-purpose solar development are highly dependent on where the solar arrays are located. Field solar production of this magnitude could have the following consequences:

⁷ <https://betterenergy.org/blog/the-true-land-footprint-of-solar-energy/>

⁸ <https://www.seia.org/initiatives/land-use-solar-development>

⁹ <https://greencoast.org/solar-farm-land-requirements/>

¹⁰ <https://solargrazing.org/map/>

¹¹ https://files.bregroup.com/solar/NSC_-_Guid_Agricultural-good-practice-for-SFs_0914.pdf

¹¹ Smallwood, K. S. 2022. Utility-scale solar impacts to volant wildlife. *Journal of Wildlife Management* 86:e22216. <https://doi.org/10.1002/jwmg.22216>

- Construction of utility-scale solar energy facilities would involve a variety of possible impacts normally encountered in construction of large-scale industrial facilities. Ground disturbance for installation and maintenance could result in incidental take of special status species (which is not covered under the HCP).
- Large scale disturbance could lead to establishment of invasive weeds or interfere with the natural hydrology of the vernal pool grasslands.
- If new electric transmission lines or related facilities were needed to service a new solar energy development, construction, operation, and decommissioning of the transmission facilities could also cause a variety of unavoidable environmental impacts.
- The hard/impermeable surfaces of the solar panel arrays, coupled with substantial bare ground underneath panels will increase runoff and reduce infiltration, which could adversely affect the vernal pools, other seasonal wetland communities, creeks, and associated species in this portion of the county.
- Shading and loss of native/naturalized vegetation could lead to additional predation of special-status species due to lack of cover; erosion and siltation effects in vernal pools may result from excessive bare soil under solar panels.
- Loss of raptor foraging habitat for common resident and migratory raptors. Raptors such as Swainson's hawk, burrowing owl, golden eagle, red-tailed hawk, northern harrier, and ferruginous are relatively common on the Jepson Prairie. These grassland raptors are unlikely to forage significantly between solar arrays. The loss of 43,000 acres of Swainson's hawk foraging habitat would be a significant and unavoidable impact to this threatened species.
- Migratory waterbirds are abundant on the Prairie, especially during spring and fall migrations. Waterfowl and other birds can be attracted to the reflective quality of solar panels, which can appear like bodies of water (i.e., "lake effect", Kagan et al. 2014¹²).
- The US Fish and Wildlife Service notes that one of the primary forms of mortality from solar facilities occurs when birds collide with project infrastructure, including security fences, collector and generation tie lines, and solar panels¹³.
- Glare from panels or mirrors, polarized light, and night lighting can disorient birds or attract them to solar facilities. Waterfowl are also unlikely to forage in and around solar farms to any significant extent, decreasing the habitat available for foraging and resting.

¹² Kagan, R. A., T. C. Viner, P. W. Trail, and E. O. Espinoza. 2014. Avian mortality at solar energy facilities in Southern California: a preliminary analysis. National Fish and Wildlife Forensics Laboratory, Ashland, Oregon, USA.

¹³ <https://www.fws.gov/story/incidental-take-beneficial-practices-solar>.

- Reflected self-images on mirrors of solar thermal projects, or even of PV panels, might elicit aggressive responses of birds motivated to defend territory (Kahle et al. 2016¹⁴).
- Bats might fail to detect angled collector panels or mirrors because of reduced echolocation output (Gorresen et al. 2017¹⁵). Bats might also misinterpret echolocation-detected flat panels as water bodies from which they attempt to drink while in flight (Greif and Siemers 2010¹⁶).

Solar development would likely be subject to similar mitigation requirements as urban development with respect to vernal pool and associated grassland dependent species. This would potentially result in the need for 120,0000 acres of required conserved land if solar fields are established on grassland habitats as implied by CF. The potential cumulative mitigation needs for the CF New Community and solar production would greatly exceed the total available remaining unprotected habitat within the Valley Grassland and Vernal Pool Natural Community in the County.

TRAVIS SECURITY ZONE

On February 14, in response to concerns regarding the potential impact of the proposed development on flight operations and the mission of Travis Air Force Base (TAFB), CF revised their original proposal, to include approximately 4,200 acres in the northwest corner of the New Community as “Travis Compatible Infrastructure” (i.e., (a) infrastructure including solar farms, energy storage, water, stormwater, wastewater, solid waste, information communications technology, and transportation infrastructure utilizing location, technology, and design acceptable to Travis AFB as applicable, and (b) agricultural and habitat uses authorized in the Travis Security Zone). This is in addition to the existing 14,900-acres Travis Reserve Area where new residential and commercial community development is prohibited, and only agriculture, open space, and solar farms are allowed (provided that the solar technology is acceptable to Travis AFB).

Expansion of the Travis Reserve/Travis Security Zone by itself would not conflict with and is compatible with HCP conservation objectives for the Valley Grassland and Vernal Pool Natural Community. However, CF’s proposed expansion of the Travis Reserve by 6,929 acres is exaggerated. CF used the Travis Reserve Boundary in the County General Plan but the Travis Reserve was expanded in May 2023 (ALUC-23-06 Travis Reserve Area Overlay Zone) to encompass approximately 2,300 acres of the CF proposed Travis Security Zone (Figure 8). In addition, two of the proposed expansion parcels covering 1,420 acres now owned by CF are already protected by Conservation Easements that preclude development or other activities. Thus, the effective expansion proposed by the CF Initiative is approximately 3,209 acres or 46 percent of what is promoted in the Initiative.

¹⁴ Kahle, L. Q., M. E. Flannery, and J. P. Dumbacher. 2016. Bird-window collisions at a west-coast urban park museum: analyses of bird biology and window attributes from Golden Gate Park, San Francisco. *PLoS ONE* 11(1):e144600.

¹⁵ Gorresen, P. M., P. M. Cryan, K. Montoya-Aiona, and F. J. Bonaccorso. 2017. Do you hear what I see? Vocalization relative to visual detection rates of Hawaiian hoary bats (*Lasiurus cinereus semotus*). *Ecology and Evolution* 7: 6669–6679.

¹⁶ Greif, S. and B. M. Siemers. 2010. Innate recognition of water bodies in echolocating bats. *Nature Communications* 1: 107.

SUMMARY

Development of the proposed New Community would affect essential habitat for several Covered Species in the HCP and result in numerous significant effects on the natural environment and biological resources. Based on this broad scale assessment, there is shortfall of 37,500 to 39,500 acres suitable land to adequately mitigate even the base New Community and HCP conservation objectives. While there may be sufficient acreage remaining to achieve the HCP's ability to meet its mitigation and conservation commitments, the extensive CF project will result in substantially increased costs for HCP participants by directly competing for conservation acreage with the HCP and shifting mitigation to lower value lands that will require additional costs and time to implement necessary restoration actions (see additional discussion below).

CEQA IMPLICATIONS

Based on currently available information, the New Community development, at a minimum would result in the following impacts following standard CEQA Environmental Checklist Questions:

- a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*
- Direct loss of at least 17,800 acres¹⁷ of Swainson's hawk and burrowing owl foraging habitat and California tiger salamander habitat, including one known and 11 to 14 additional potential California tiger salamander breeding ponds.
 - Reduced general habitat quality and loss of biodiversity on 10,000 to 20,000 acres for proposed solar development.
 - Special status species habitat suitability in solar arrays would be severely reduced.
 - Anticipated loss of six recorded and possibly additional Swainson's hawk nesting territories (State threatened species)..
 - Loss of an unknown number of wintering and resident burrowing owls (State threatened species).
 - Loss of one known tricolored blackbird nesting colony (State threatened species).

¹⁷ The specified Zoning Districts in the Initiative identify 1,737 acres of open space. The Initiative Open Space Zoning description allows for a range of recreational, open space, and agricultural uses that could include active recreational uses as well as passive parks with trails and trail related amenities. Since the Initiative does not specifically designate areas for resource conservation within this land use designation, we used the total 17,500 acres identified in the Initiative for the New Community for the purposes of this preliminary assessment.

- Potential loss of habitat and populations for several additional special-status plants and animals.
- Indirect adverse effects related the light, glare, noise, and changes in hydrology that could extend 250 to 500 feet out from the boundaries of the New Community. This could affect and additional 800 to 1,000 acres of adjacent conservation lands that provide essential high value habitat for multiple special status species.
- Increased presence of pets, native as well as nonnative predators and invasive species that could affect special status species on adjacent conserved lands.

Conclusion - Significant and unavoidable.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

- Loss of an unknown but estimated potential loss of 50 to 100 acres of vernal pool and other state and/or federally regulated wetland communities some of which are expected to support populations of federally listed vernal pool fairy shrimp, vernal pool tadpole shrimp, and possibly Conservancy fairy shrimp. Reestablishment of replacement wetlands will be difficult because of wildlife hazard restrictions within 5 miles of Travis Air Force Base that preclude activities that could increase wildlife hazard such as wetland establishment/creation.
- Surround and isolate approximately 195 acres of existing City, County, and private conservation and mitigation lands, effectively eliminating their long-term conservation value.
- The New Community boundary and proposed solar farms lie within USFWS designated critical habitat and Jepson Prairie Core Recovery Area for multiple vernal pool associated species (USFWS 2006¹⁸). The Recovery Plan establishes a goal of preserving 90 percent of the habitat for vernal pool species addressed in the Plan. In our opinion, the CF New Community and solar facility development proposed by CF would preclude the ability to achieve the USFWS's critical habitat preservation and vernal pool species recovery objectives.

Conclusion - Significant and unavoidable.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

¹⁸ <https://www.fws.gov/species-publication-action/recovery-plan-vernal-pool-ecosystems-california-and-southern-oregon>

- Loss of an unknown but estimated potential loss of 50 to 100 acres of vernal pool and other state and/or federally regulated wetland communities. Reestablishment of replacement wetlands will be difficult because of wildlife hazard restrictions within 5 miles of Travis Air Force Base that preclude activities that could increase wildlife hazard such as wetland establishment/creation.

Conclusion - Significant and potentially unavoidable.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

- The New Community would create a major barrier that would effectively eliminate terrestrial animal movement and connectivity along a well-known linkage between the Jepson Prairie and the Montezuma Hills (Figure 9).
 - This would increase genetic isolation of documented California tiger salamander populations within the Montezuma Hills and larger populations on the Jepson Prairie.
 - The New Community would preclude State, federal, and Solano HCP objectives to increase existing wildlife connectivity created by existing barriers such as Highway 12 and Highway 113 for California tiger salamander, western pond turtle, and other special status species populations.
 - It would also create additional barriers to California tiger salamander movement resulting from increased traffic levels local roads and highways.

Conclusion - Significant and unavoidable.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

- The CF Initiative would modify the County General Plan Priority Habitat Area, i.e., the High Value Vernal Pool Conservation Area and Resource Conservation Overlay (Figure 5) to eliminate these designations within the New Community boundary. The Initiative's proposed changes to Priority Conservation Areas and Resource Conservation Overlay do not provide any analysis or justification for the deletion of these designations within the New Community boundary.

Conclusion - Significant and unavoidable.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

- Increase the difficulty and costs to HCP Plan Participants to implement the Solano HCP goals, objectives, and conservation commitments for Covered Species associated with the

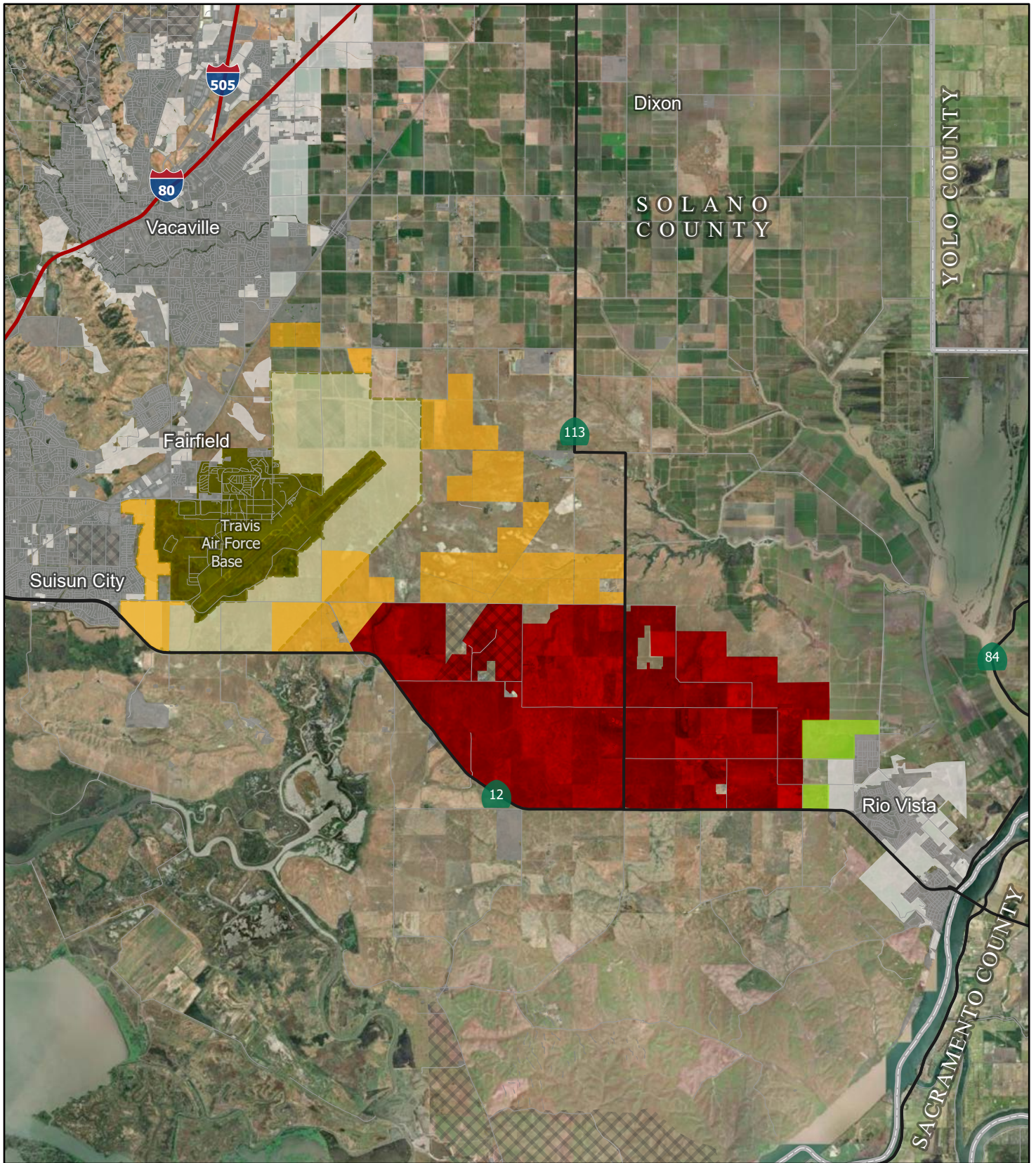
Valley Floor Grassland and Vernal Pool Natural Community. The Natural Community supports 21 of the 39 HCP Covered Species (54 percent) which represents 57 percent of the projected HCP reserve system.

- The total projected need for mitigation acreage for effects to valley floor and vernal pool grassland and associated species exceeds the total amount of unprotected lands in this natural community in the County. The species most affected by this are the target species for which the HCP was originally committed to protect under the 1999 Solano Project Water Contract.
- Based on this assessment CF will not be able to self-mitigate on their current land holdings and will require additional conservation acreage to offset effects of the large-scale CF project. This will exacerbate the competition for conservation lands and could endanger timely and cost-effective mitigation of HCP projects for the 13 Plan Participants and many private development applicants. The shortfalls in available mitigation and ability to mitigate for projects covered by the HCP will be further complicated by CF directly competing for conservation acreage. Withdrawing these landholdings from available lands for HCP conservation is expected to negatively affect Natural Community preservation and the implementation of Covered Species conservation.
- Mitigation for anticipated effects from planned development Covered Activities within the HCP Plan Area will be challenged by a diminished availability of suitable land. This will primarily affect the ability and costs to mitigate future development in portions of Fairfield and Vacaville and all of Suisun City and Rio Vista under the HCP (see Figure 10 for potentially affected Planned Development properties assessed in the current HCP Draft). Mitigation required for other infrastructure projects by agencies such as Caltrans and Department of Water Resources will also be affected in a similar manner.
- The future of HCP mitigation for development within County's current urban centered growth boundaries will be characterized by:
 - Increased competition for suitable conservation acreage, especially for vernal pool resources, and Vernal Pool Conservation Areas with high preservation and restoration potential.
 - Increased land prices. CF have recently driven up land prices in Solano County by offering more than 200% of appraised value in many cases. If mitigation land prices increase for HCP Plan Participants and other applicants, then the current pricing models that drive the HCP cost and budgets may not be appropriate in the future. This may result in funding shortfalls and the potential of permit revocation or costly Plan amendments.
 - Difficulty to achieve the spatial distribution of conservation lands to fulfill corridor and linkage goals of the HCP, especially from the Jepson Prairie Region to the Potrero Hills (Figures 1 through 3, and 9).

- Increasing costs for establishing conservation lands as lower quality areas requiring significant restoration and likely species establishment/translocation will be necessary to achieve conservation objectives.
- Increased costs to purchase credits from existing and new conservation and mitigation banks, which will increase the cost for Plan Participants to obtain credits. This will tend to affect smaller projects with limited mitigation acreage requirements.
- Rising costs are anticipated for Plan Participants who have to mitigate for multiple species and Natural Communities within the affected areas due to fewer options (e.g., Swainson's hawk and burrowing owl foraging habitat).
- As noted above, these effects will be most pronounced on and could greatly diminish or preclude future development in Suisun City, Rio Vista, and portions of Vacaville and Fairfield (Figure 10).

Conclusion - Significant and unavoidable.

Attachment: Figures



LSA

- Proposed New Community Boundary
- Proposed Travis Reserve Expansion
- Proposed Rio Vista Parkland Parcels
- Travis Air Force Base
- Current Travis Reserve Boundary
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations
- Proposed New Community Boundary

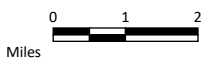
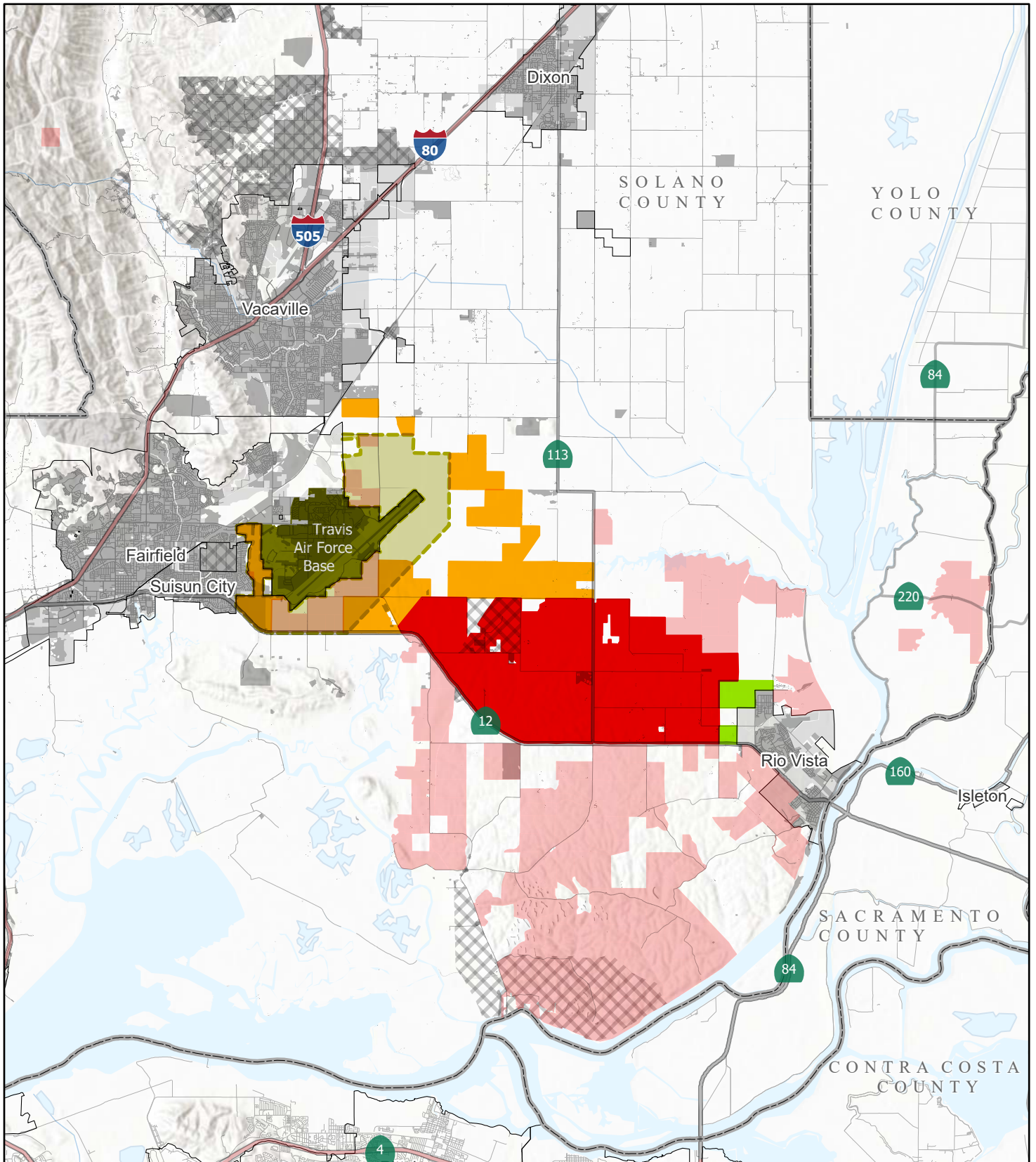


FIGURE 1

California Forever Initiative Assessment
California Forever Initiative Components

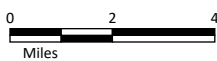
SOURCE: ParcelQuest, Solano County Water Agency, LSA, CCED (2023), CPAD (2023), Esri Terrain Basemap
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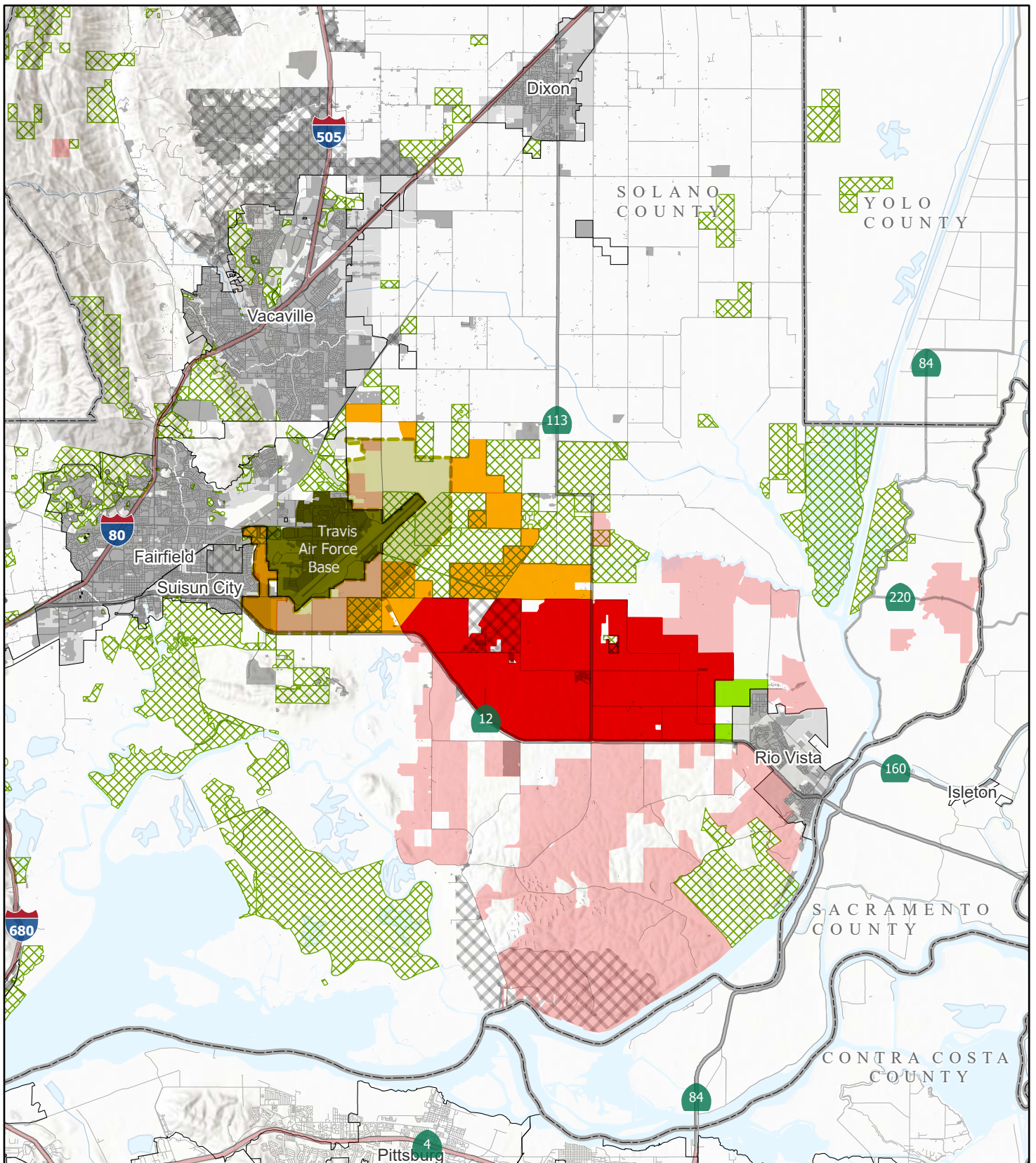
LSA

- Proposed New Community Boundary
- Current Travis Reserve Boundary
- Parcel Owned by California Forever
- Proposed Travis Reserve Expansion
- Proposed Rio Vista Parkland Parcels
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations

FIGURE 2



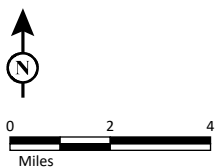
California Forever Initiative Assessment
California Forever Parcel Ownership



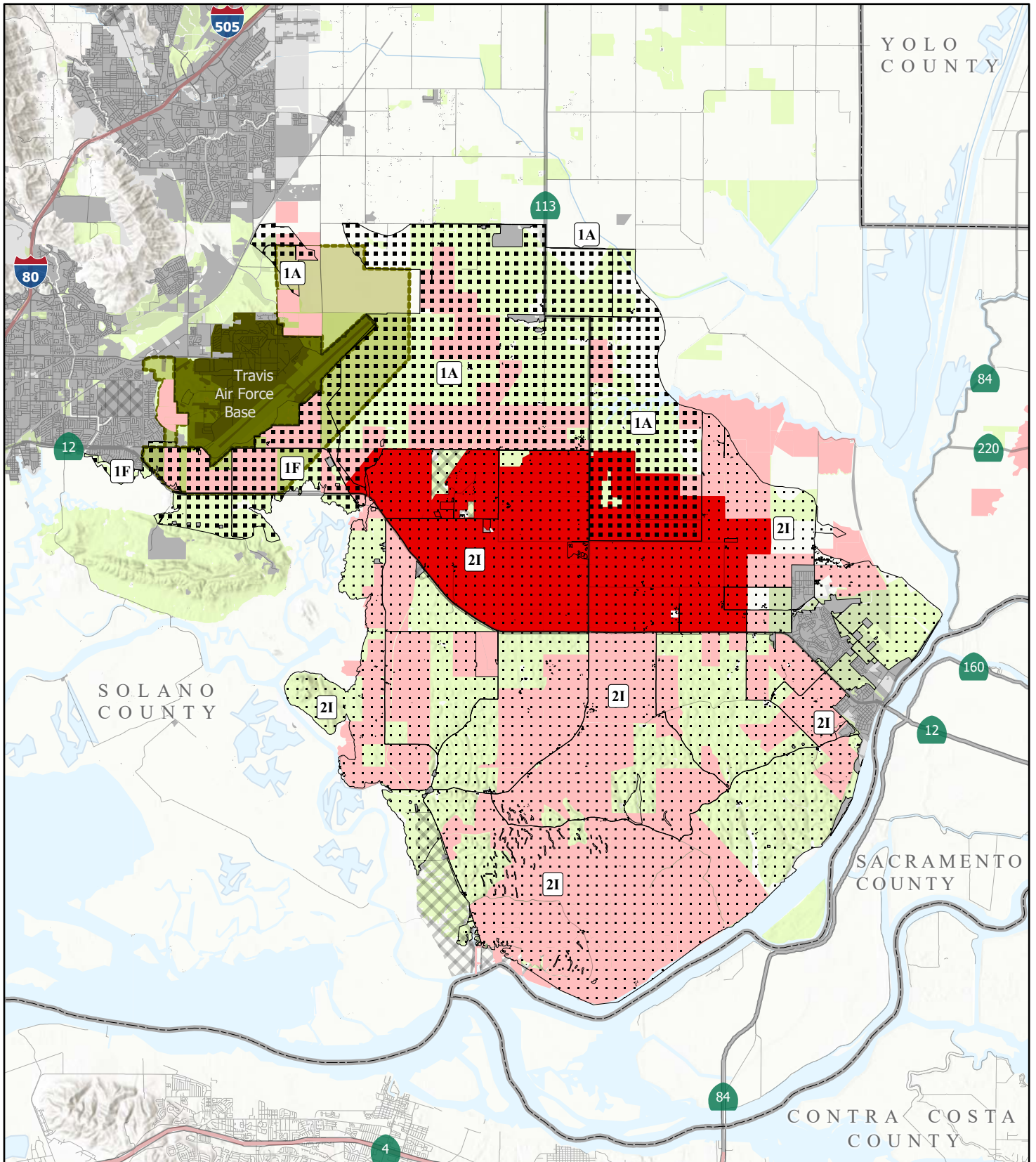
LSA

- | | |
|--|--|
| Proposed New Community Boundary | Current Travis Reserve Boundary |
| Parcel Owned by California Forever | Existing Development |
| Proposed Travis Reserve Expansion | Planned Development |
| Proposed Rio Vista Parkland Parcels | Residential, Commercial and Industrial Designations |
| Protected Lands | |

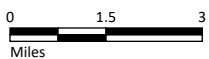
FIGURE 3



California Forever Initiative Assessment
Existing Protected Lands



LSA



- | | |
|---|---|
| Proposed New Community Boundary | Existing Development |
| Parcel Owned by California Forever | Planned Development |
| High Value Conservation Area | Residential, Commercial and Industrial Designations |
| Medium Value Conservation Area | |
| Valley Floor Grassland and Vernal Pool Natural Community | |

FIGURE 4

California Forever Initiative Assessment

Vernal Pool and Valley Floor Grassland Conservation Areas

SOURCE: ParcelQuest, Solano County Water Agency, LSA, CCED (2023), Esri Terrain Basemap

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Located on lands with lowest ecological values in Solano County

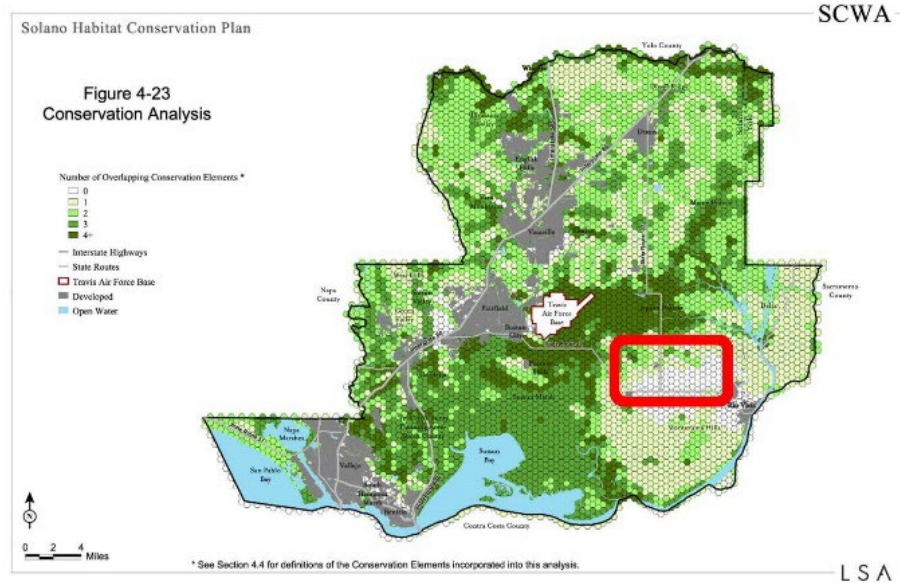


Figure 5: Rarity weighted Richness Index Map of the Solano HCP (Figure 4-23) as shown by J. Sramek on February 9, 2024, Presentation Graphic.

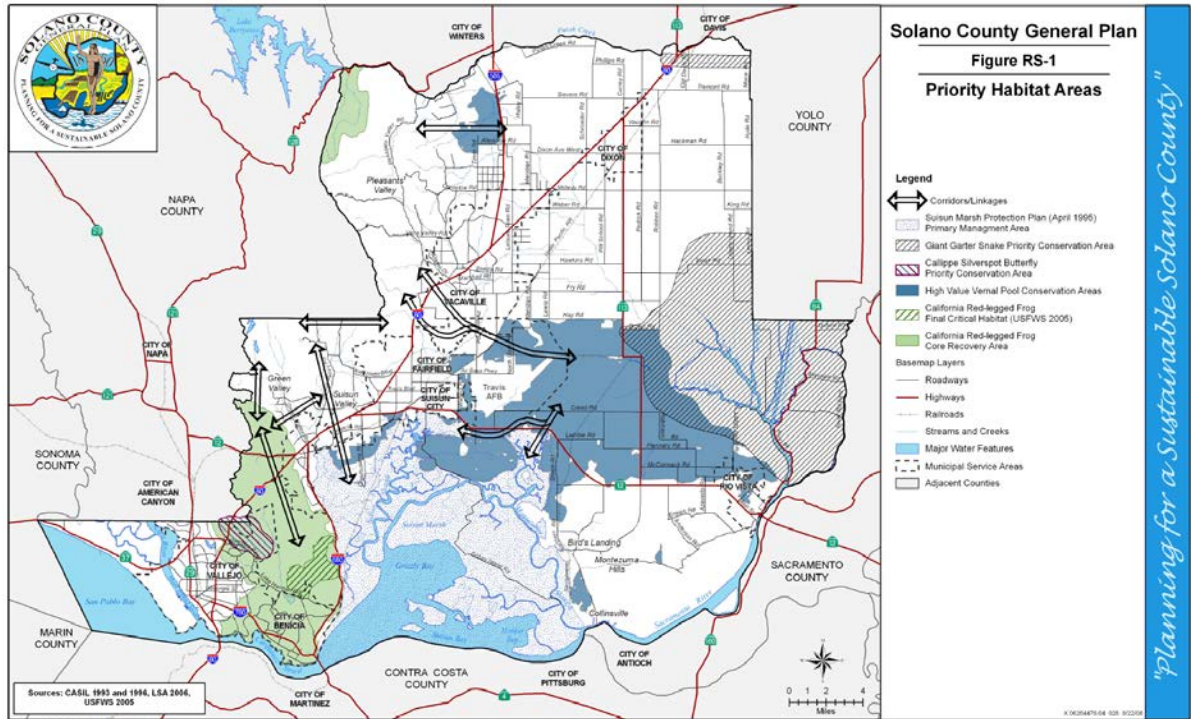


Figure RS-1 Priority Habitat Areas

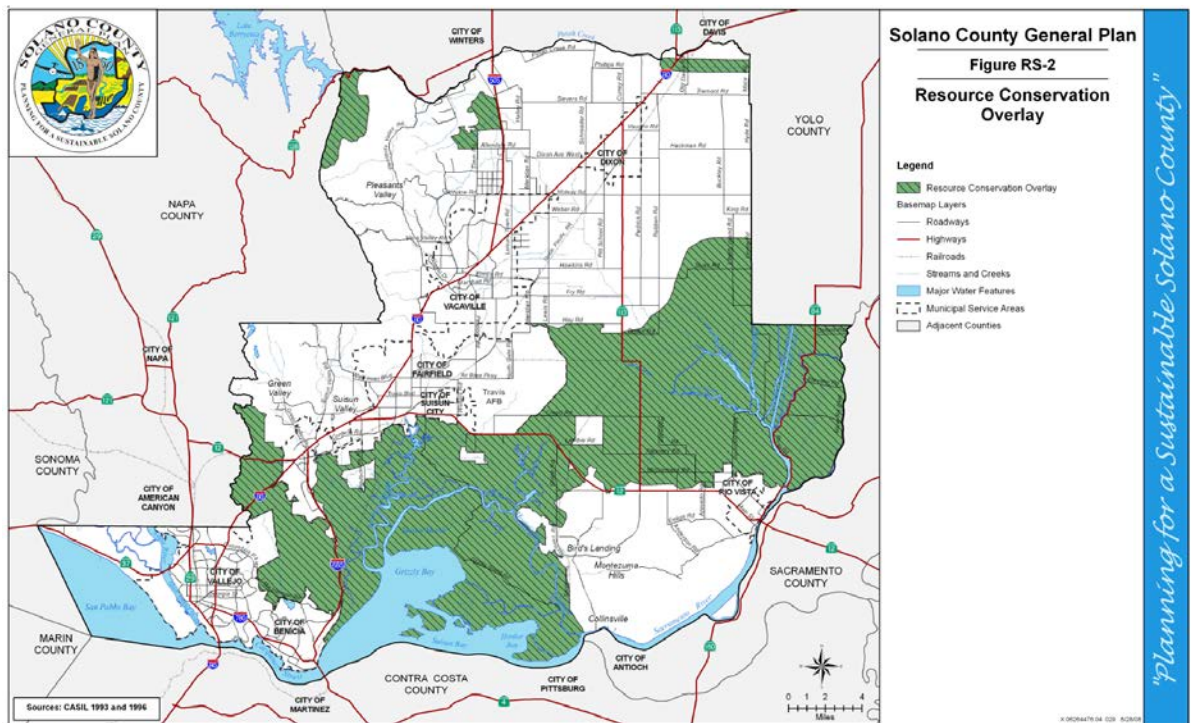


Figure RS-2 Resource Conservation Overlay

Figure 6: Priority Habitat Areas and Resource Conservation Overlays, Solano County General Plan

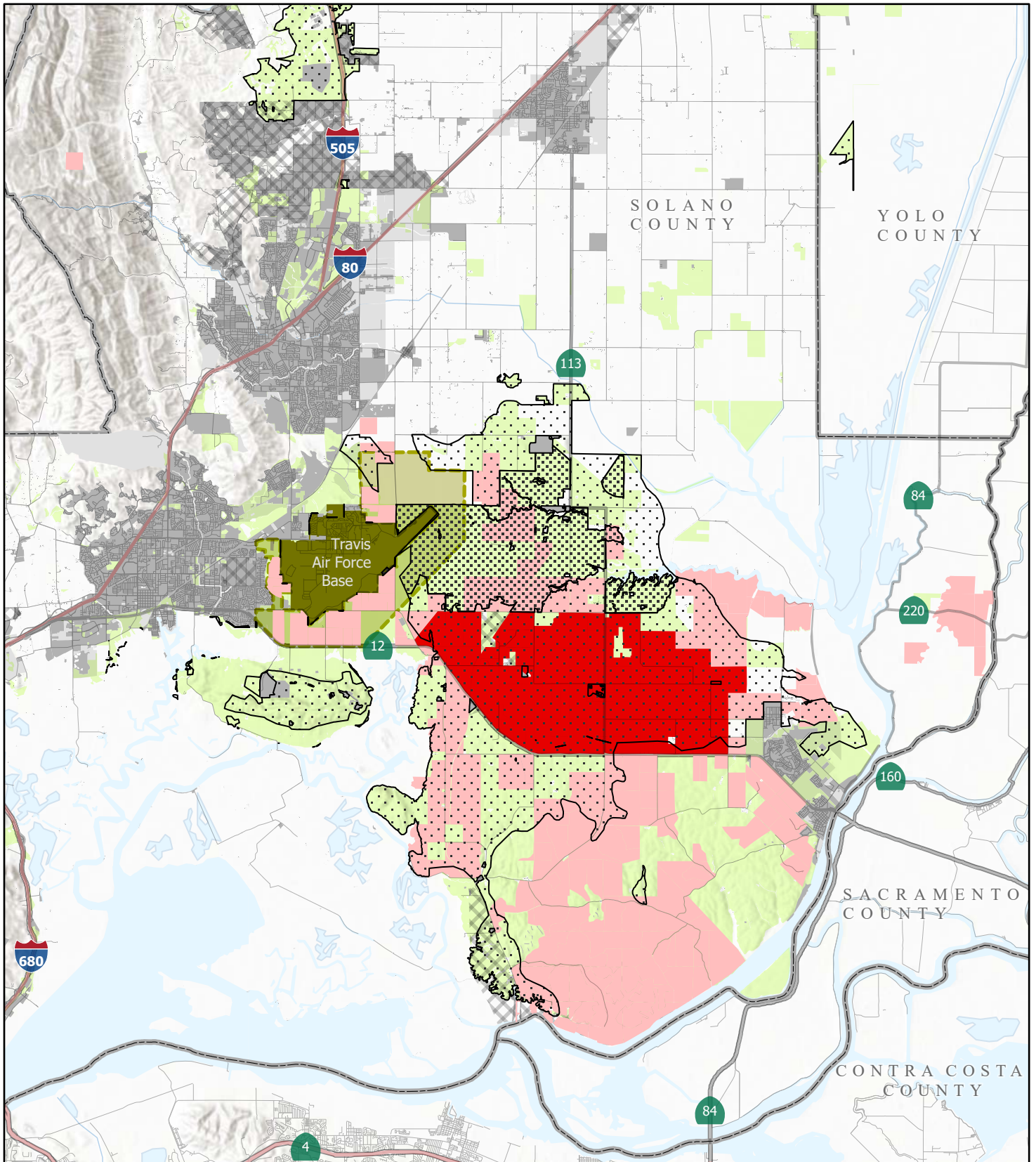


FIGURE 7

LSA

- Proposed New Community Boundary
- Parcel Owned by California Forever
- Areas with High Preservation Potential
- Areas with High Preservation and Restoration Potential
- Valley Floor Grassland and Vernal Pool Natural Community
- Current Travis Reserve Boundary
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations

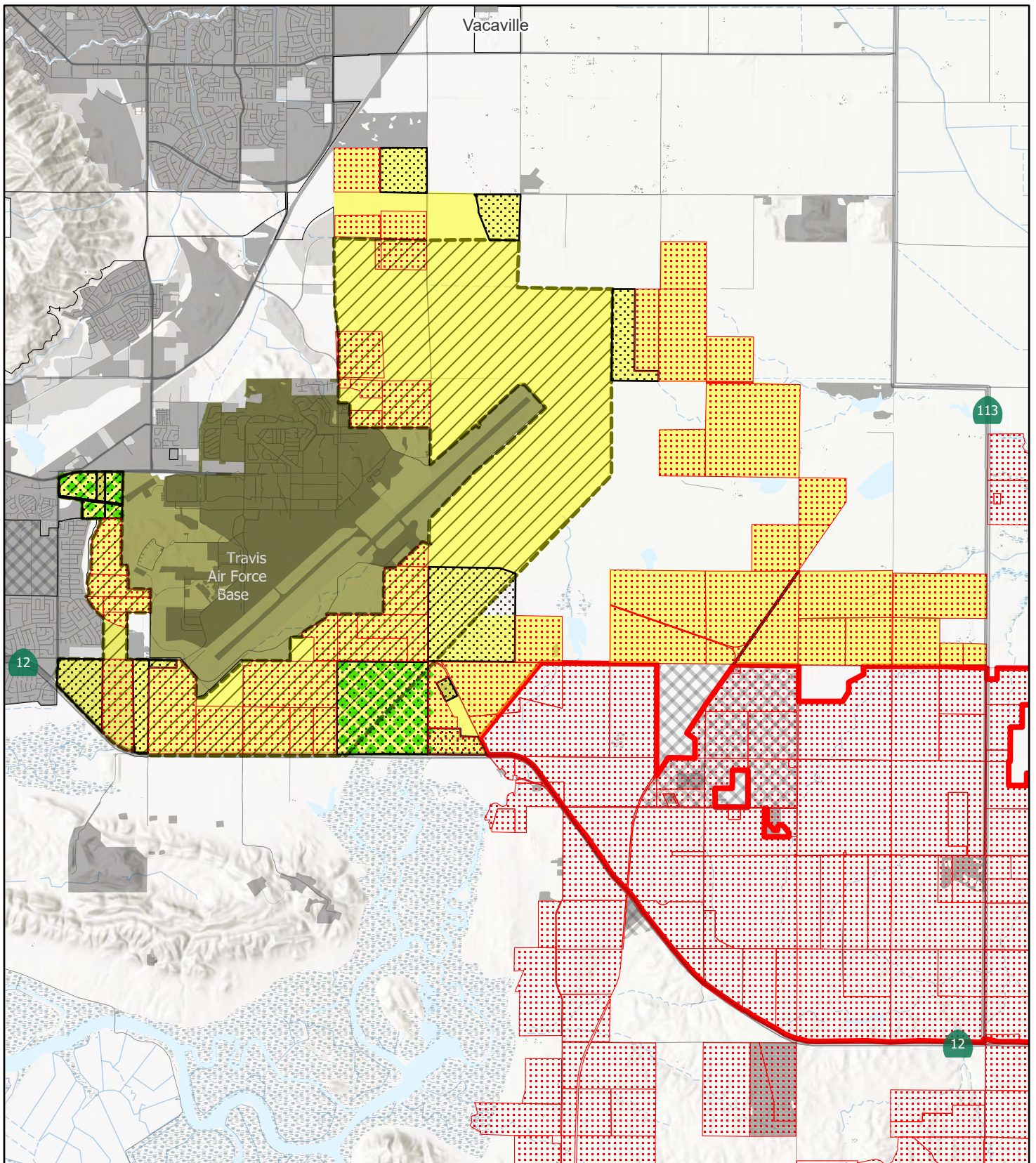


California Forever Initiative Assessment

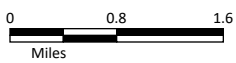
Potential Preservation and Restoration Lands

SOURCE: ParcelQuest, Solano County Water Agency, LSA, CCED (2023), Esri Terrain Basemap

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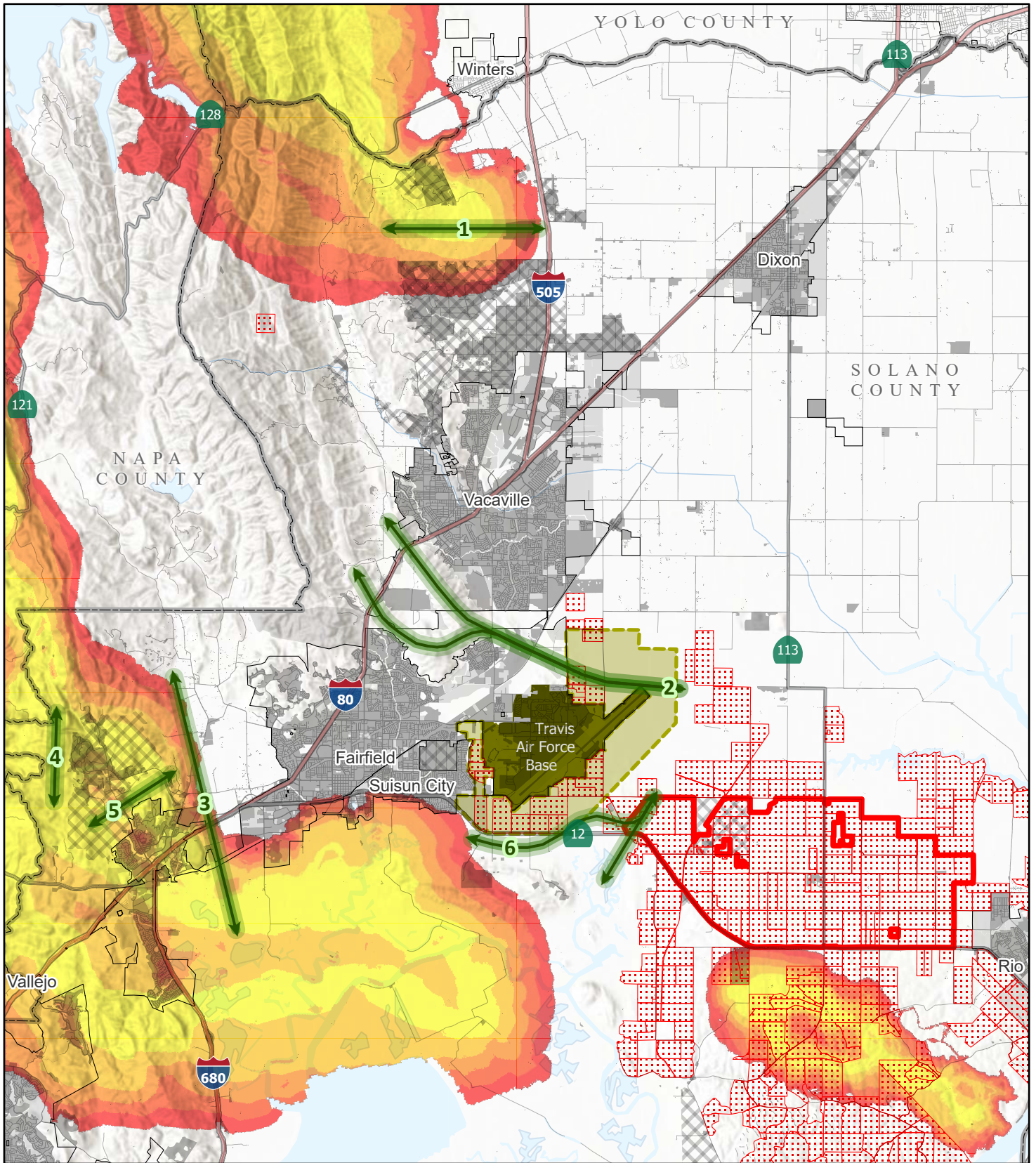


- Current Travis Reserve Boundary
- Proposed Travis Reserve Expansion Area
- Existing Conservation Easement within Proposed Travis Reserve Expansion Area
- Parcel Owned by California Forever
- Parcels Not Owned by California Forever
- Included in Proposed Travis Reserve Expansion Area
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations

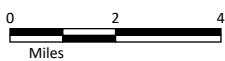
FIGURE 8

California Forever Initiative Assessment
Proposed Travis Reserve Expansion

SOURCE: ParcelQuest, Solano County Water Agency, LSA, CCED (2023), CPAD (2023), Esri Terrain Basemap
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LSA



- Proposed New Community Boundary
- Parcel Owned by California Forever
- Current Travis Reserve Boundary
- Key Corridors and Linkages

- Essential Connectivity Areas
- More Permeable
 -
 - Less Permeable

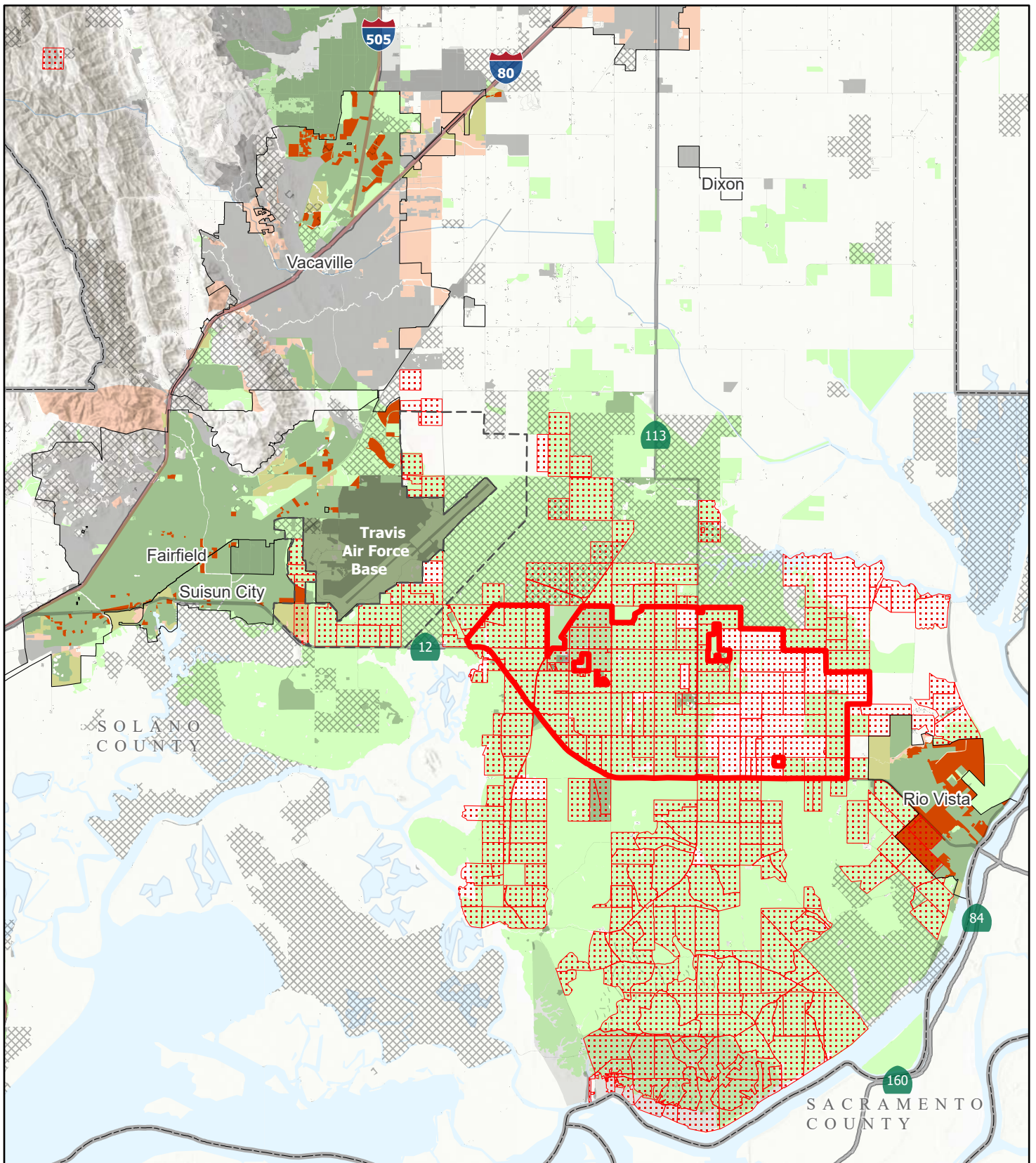
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations

FIGURE 9

California Forever Initiative Assessment
Key Corridors and Essential Connectivity Areas

SOURCE: ParcelQuest, Solano County Water Agency, LSA, CCED (2023), CPAD (2023), Esri Terrain Basemap, CDFW (03/2020).

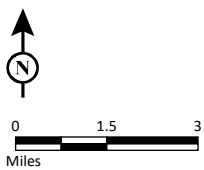
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LSA

- Proposed New Community Boundary
- California Forever Parcel
- Planned Development within the Valley Floor Grassland/Vernal Pool Natural Community
- Other Planned Development
- Existing Development

- Residential, Commercial and Industrial Designations
- Valley Floor Grassland/Vernal Pool Natural Community
- Protected Lands



SOURCE: ParcelQuest, Solano County Water Agency, LSA, Esri Terrain Basemap

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FIGURE 10
California Forever HCP Memo
 Planned Development in the Valley Floor Grassland/
 Vernal Pool Natural Community