

MEMORANDUM

DATE: October 31, 2023

To: Chris Lee, SCWA

FROM: Steve Kohlmann, Steve Foreman, and Bethany Dengler-Germain

SUBJECT: California Forever – Natural Resources and Conservation Issues

Over the past several years, a group of investors called Flannery Associates aka “California Forever” (CF) have purchased over 54,000 acres (ac) in eastern Solano County, between Fairfield/Suisun City and Rio Vista. CF owns about half of the properties in this area. The declared goal of CF is to build a new city/community. According to their website (www.californiaforever.com), the project would “include a variety of land uses: a new community, but also solar farms and open space, including both agriculture and habitat conservation.” While the location, size, and other information on the new city is not available at this time, the establishment of a new city on CF-owned and controlled lands would result in significant environmental considerations and, in addition to County approvals, will require multiple state and federal permits. LSA expects permits will be required from:

- California Department of Fish and Wildlife (CDFW) – Section 2081 Incidental Take Permit and Section 1600 Lake and Streambed Alteration Agreement.
- 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.
- State of California Water Resources Control Board - Clean Water Act Section 401 certification and/or Waste Discharge Requirements under the Porter Cologne Act.
- Central Valley Flood Protection Board.

The following analysis examines the implications of this proposed project for conservation and mitigation in the Solano Habitat Conservation Plan (HCP).

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 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.
 - 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.

EFFECTS OF CALIFORNIA FOREVER LAND HOLDINGS ON HCP MITIGATION

Currently, CF owns more than 54,000 ac within the eastern portion of Solano County in the Plan Area (Figure 1). All figures are provided at the end of this memo. Our understanding is CF is in the process of acquiring additional important conservation lands. After removing mapped existing development, CF owns approximately 53,400 ac of undeveloped lands in the Plan Area that provide essential habitat for several Covered Species in the HCP. Assuming that CF-owned lands will not be available for HCP mitigation purposes (and that CF will not be a Plan Participant), the extensive CF project will negatively affect the HCP's ability to meet its mitigation and conservation commitments by directly competing for conservation acreage with the HCP. Withdrawing these landholdings from available lands for HCP conservation is expected to negatively affect Natural Community preservation and the implementation of Covered Species conservation.

Natural Communities

The majority of the CF lands are valley floor grassland and vernal pool grassland vegetation/cover types as described below, a substantial percentage of mapped freshwater marsh habitat in the Plan Area, and a small amount of agricultural lands (e.g., irrigated pasture) and various other habitat types (e.g., scrub, riparian, and coastal and Delta marshes). To analyze how CF-owned lands will limit available acreage within certain vegetation/cover types needed for HCP mitigation on remaining unprotected land, acreage in the following categories were disregarded in the Plan Area: existing development, planned development, Travis Air Force Base, protected lands, and Residential, Commercial, and current Solano County Industrial designation areas (Figure 1). These categories were eliminated from the analysis because they do not offer future opportunities for HCP-related mitigation and/or conservation. The results are summarized below, showing how CF-owned lands significantly affect the remaining unprotected lands for both vegetation/cover types within the Valley Floor Grassland and Vernal Pool Natural Community and to the freshwater marsh cover type.

- CF owns **48%** of the unprotected valley floor grassland cover type (26,545 ac out of 55,241 ac), which leaves 28,696 ac remaining after excluding CF-owned land for potential mitigation.
- CF owns **42%** of the unprotected vernal pool grassland cover type (9,093 ac out of 21,773 ac), which leaves 12,680 ac remaining after excluding CF-owned land for potential mitigation.
- CF owns **60%** of the unprotected freshwater marsh cover type (276 ac out of 462 ac), which leaves 186 ac for potential mitigation.
- CF owns **6%** of the unprotected agricultural cover type (10,106 ac out of 163,239 ac), which leaves 153,133 ac.
- Other vegetation/cover types and Natural Communities besides the agricultural cover type are still abundantly available for HCP mitigation and conservation after subtracting CF-owned lands due to the small percentages CF owns in the Plan Area (e.g., open water, coastal marsh).

While substantial acreages of unprotected lands are not currently owned by CF, significant portions of the remaining “available” unprotected lands are not suitable for HCP conservation purposes because of potential conflicts with other existing land uses such as wind turbine development, or the land may not contain necessary habitat components to meet reserve design criteria specified in the HCP as discussed below.

Valley Floor Grassland and Vernal Pool Natural Community

CF land acquisition has significantly reduced the remaining unprotected acreage of vernal pools and seasonal wetlands that are available for HCP mitigation. CF owns almost half of the unprotected valley floor grassland and vernal pool grassland vegetation/cover types, resulting in a significant reduction of available mitigation lands. The Valley Floor Grassland and Vernal Pool Natural Community includes High, Medium, and Low Value Conservation Areas and both cover types (Tables A and B). This Natural Community is anticipated to contribute 12,050 ac to the Reserve System at full development buildout (per Objective VPG 1.1), which will be more challenging to meet given the limited extent of remaining unprotected land. Table A compares acreages of unprotected lands within the Plan Area, within CF-owned lands, and after CF-owned lands have been removed for affected High, Medium, and Low Valley Floor Grassland and Vernal Pool Conservation Areas. This table also shows the percentage of remaining unprotected lands by Conservation Area.

As shown in Table A and Figure 2, the percentages of remaining unprotected lands vary by Subarea and some large High and Medium Value Vernal Pool Subareas are drastically affected by CF-owned lands, especially High Value Subareas 1A, 1C, 1F, and Medium Value Subareas 2E and 2I. Of the 14,987 ac of unprotected lands in the four High Value Vernal Pool Subareas that overlap with CF parcels, CF owns 7,790 ac, or 52%, leaving 7,197 ac (48% remaining) to implement HCP conservation measures and mitigation for high quality vernal pool habitat. Of the 56,755 ac of unprotected lands in the two Medium Value Vernal Pool Subareas that overlap with CF parcels, CF owns 34,309 ac, or 60%, with 22,446 ac (40%) remaining. All percentages in Table A for remaining available mitigation land excluding CF-owned Lands are now less than 50% for High and Medium Value Subareas except for Medium Value Subarea 1I. Low Value Subareas are not that affected by CF-owned lands.

Table A: Acreages and Percentages of Remaining Unprotected Valley Floor Grassland and Vernal Pool Conservation Areas Excluding CF-owned Lands

Type of Vernal Pool Conservation Area and Applicable Subareas	Unprotected Acres in Plan Area ¹	Unprotected Acres on CF-Owned Lands ²	Unprotected Acres Remaining Excluding CF-Owned Lands ³	Unprotected Percent Remaining Excluding CF-Owned Lands ³
High Value Subarea 1A	10,678	5,386	5,292	50%
High Value Subarea 1C	603	378	225	37%
High Value Subarea 1F	3,566	1,990	1,576	44%
High Value Subarea 1I	141	36	104	74%

Table A: Acreages and Percentages of Remaining Unprotected Valley Floor Grassland and Vernal Pool Conservation Areas Excluding CF-owned Lands

Type of Vernal Pool Conservation Area and Applicable Subareas	Unprotected Acres in Plan Area ¹	Unprotected Acres on CF-Owned Lands ²	Unprotected Acres Remaining Excluding CF-Owned Lands ³	Unprotected Percent Remaining Excluding CF-Owned Lands ³
Medium Value Subarea 2E	331	282	49	15%
Medium Value Subarea 2I	56,424	34,026	22,397	40%
Low Value Subarea	1,422	4	1,418	99%
Total Acreages	73,165	42,102	31,061	NA

¹ Excluding existing and planned development, HCP protected lands, and Travis Air Force Base acreages, and Residential, Commercial, and Industrial Designation Areas to calculate unprotected acreage in Plan Area.

² Acres of CF-owned lands excluding same categories as first footnote.

³ Same categories in first footnote and CF-owned parcels are subtracted to calculate the remaining unprotected lands acreages and percents in the Plan Area available for mitigation.

Table B shows the remaining unprotected lands in the Valley Floor Grassland and Vernal Pool Natural Community that will be the most important to the HCP mitigation commitments for the Reserve System. These include Vernal Pool Conservation Areas by categories representing their (a) high preservation potential, (b) high preservation and restoration potential, and (c) Contra Costa Goldfields Potential Reserve Areas that is equivalent to modeled species habitat (Figure 3). All three categories in Table B have reductions in unprotected land available for mitigation once CF-owned parcels are excluded, but the reduction is more significant for the two Vernal Pool Conservation Area categories with 55% and 57% of remaining mitigation available than for the Contra Costa Goldfields Potential Reserve Areas (71% remaining).

Table B: Unprotected Land Remaining in Valley Floor Grassland and Vernal Pool Natural Community with Preservation and Restoration Potential Excluding CF-Owned Lands

Important Categories in the Reserve System for Mitigation	Unprotected Land Acreage Remaining ¹	Percent of Unprotected Lands Remaining for Mitigation ¹
Vernal Pool Conservation Areas with High Preservation Potential	1,527	57%
Vernal Pool Conservation Areas with High Preservation and Restoration Potential	25,227	55%
Contra Costa Goldfields Potential Reserve Areas	7,098	71%
Total acreage	33,852	

¹ Excluding existing and planned development, HCP protected lands, and Travis Air Force Base acreages, CF-owned lands, and Residential, Commercial, and Industrial Designation Areas to calculate remaining unprotected lands acreages and percents in the Plan Area available for mitigation.

The substantial reductions in available mitigation land once CF-owned parcels are excluded for the Vernal Pool Conservation Area categories in Table B are very important given these crucial areas have been identified as important for development of the HCP Reserve System. This mitigation is for the Valley Floor Grassland and Vernal Pool Natural Community and numerous associated Covered Species including CTS, vernal pool crustaceans and plants, Swainson's hawk, and burrowing owl (Figures 4 and 5). Of the 26,754 ac of combined remaining available mitigation land for Vernal Pool Conservation Areas with (a) high preservation potential, and (b) high preservation and restoration potential in Table B, 16,891 ac (63%) remain for mitigation. This analysis excludes the Montezuma Hills Wind Turbine Area which is not suitable for Swainson's hawk and burrowing owl mitigation (Figures 5 and 9). Plan Participants and applicants who need mitigation land for multiple overlapping Covered Species, especially CTS, Swainson's hawk, and burrowing owl that have stringent species-specific mitigation requirements thus may face additional challenges in meeting their mitigation needs (see Table D and the summary discussion below for details).

CF owns 2,831 ac of unprotected lands out of 9,928 ac in the Contra Costa Goldfield Potential Reserve Areas, which include Core Population Areas and species potential habitat (Figure 6). CF's purchase of lands within these valuable Potential Reserve Areas results in 7,098 ac of unprotected lands remaining (71%). CF also owns 20,544 ac of unprotected lands out of 41,997 ac in the Jepson Prairie Vernal Pool Recovery Plan Core Area, with 21,453 ac unprotected lands remaining (51%).

Covered Species

In addition to CF-owned lands negatively affecting available mitigation for vegetation/cover types and Natural Communities, there also will be a negative effect on the HCP's ability to meet its Covered Species commitments. This is because certain mitigation and conservation requirements are tied to the presence of high quality resources within areas such as the Valley Floor Grassland and Vernal Pool and Riparian, Stream, and Freshwater Marsh Natural Communities (Tables A through D and Figures 4 through 7). Table C summarizes how much remaining unprotected land is available for HCP mitigation for either (a) modeled Covered Species habitats with specific HCP mitigation commitments, or (b) applicable species critical habitat and/or Conservation Areas in the Plan Area excluding CF-owned parcels and other categories described in the table's footnotes.

Table C: Acreage and Percentages for Remaining Covered Species Habitat, Critical Habitat, and Conservation Areas Excluding CF-owned Lands

Common Name/ Description	Description and Unprotected Acres in Plan Area ¹	Unprotected Acres on CF- Owned Lands ²	Acres Unprotected Remaining Excluding CF- Owned Lands ³	Percent Unprotected Remaining Excluding CF- Owned Lands ³
California Tiger Salamander	California Tiger Salamander known range: 23,242	7,233	16,010	69%
California Tiger Salamander	California Tiger Salamander potential range: 62,581	34,040	28,541	46%
California Tiger Salamander Critical Habitat	California Tiger Salamander Final Critical Habitat (USFWS 2005): 2,557	1,170	1,388	54%
Conservancy Fairy Shrimp Critical Habitat	Conservancy Fairy Shrimp Final Critical Habitat (USFWS 2006): 4,138	2,036	2,102	51%
Contra Costa Goldfields	Contra Costa Goldfields Core Population Areas: 5,630	2,550	3,081	55%
Contra Costa Goldfields	Contra Costa Goldfields Potential Habitat: 4,295	281	4,013	93%
Contra Costa Goldfields Critical Habitat	Contra Costa Goldfields Critical Habitat (USFWS 2006): 4,138	2,036	2,102	51%
Delta Green Ground Beetle	Modeled habitat (portion of Valley Floor Grassland and Vernal Pool Natural Community): 5,494	3,150	2,344	43%
Monarch Butterfly	Modeled habitat in all Natural Communities excluding open water: 348,087	46,916	301,174	87%
Giant Garter Snake	Giant Garter Snake Conservation Area which includes Riparian, Stream, and Freshwater Marsh and Irrigated Agriculture Natural Communities: 54,072	6,689	47,383	88%
Swainson's Hawk and Burrowing Owl Modeled Habitat Excluding Montezuma Hills Wind Turbine Area	Valley Floor Grassland and Vernal Pool, Inner Coast Range, Irrigated Agriculture, and Coastal Marsh Natural Communities: 347,653	46,915	278,925 ⁴	80% ⁴
Swainson's Hawk and Burrowing Owl	Valley Floor Grassland and Vernal Pool Conservation Area: 77,322	35,640	24,677 ⁴	32% ⁴
Swainson's Hawk and Burrowing Owl	Irrigated Agriculture Conservation Area: 163,379	10,106	152,271 ⁴	93% ⁴
San Joaquin Valley Orcutt Grass	Modeled habitat (portion of Valley Floor Grassland and Vernal Pool Natural Community): 5,494	3,149	2,344	43%

Table C: Acreage and Percentages for Remaining Covered Species Habitat, Critical Habitat, and Conservation Areas Excluding CF-owned Lands

Common Name/ Description	Description and Unprotected Acres in Plan Area ¹	Unprotected Acres on CF- Owned Lands ²	Acres Unprotected Remaining Excluding CF- Owned Lands ³	Percent Unprotected Remaining Excluding CF- Owned Lands ³
Solano Grass	Modeled habitat (portion of Valley Floor Grassland and Vernal Pool Natural Community)	3,149	2,344	43%
Vernal Pool Fairy Shrimp	Vernal Pool Fairy Shrimp Final Critical Habitat (USFWS 2006): 8,515	2,036	6,479	76%
Vernal Pool Tadpole Shrimp	Vernal Pool Tadpole Shrimp Final Critical Habitat (USFWS 2006): 8,533	2,035	6,498	76%

USFWS= United States Fish and Wildlife Service

¹ Excluding existing and planned development, HCP protected lands, and Travis Air Force Base acreages, and Residential, Commercial, and Industrial Designation Areas to calculate unprotected acreage in Plan Area.

² Acres of CF-owned lands excluding same categories as first footnote.

³ Same categories in first footnote and CF-owned lands are subtracted to calculate the remaining unprotected acreages and percent for Swainson's hawk and burrowing owl also excluding the Montezuma Hills Wind Turbine Area since this area is not suitable mitigation habitat in the southeastern portion of the Plan Area.

The acreage of CF-owned parcels in High and Medium Value Conservation Areas specifically is a significant issue for the HCP because that is where species-specific mitigation (e.g., CTS breeding and movement habitat and Swainson's hawk and burrowing owl foraging habitat requirements) are targeted as priority areas for conservation (Figures 2, 4, and 5). Based on these results, it will be more difficult for Plan Participants and applicants to establish reserves necessary to fulfill HCP mitigation requirements for this Natural Community and for certain Covered Species; see Table C below. A substantial amount of this high-value habitat overlaps with mitigation needs for CTS and Contra Costa goldfields (Figures 4 and 6).

Swainson's Hawk and Burrowing Owl Valley Floor Grassland and Vernal Pool Conservation Area and Potential Reserve Area: CF-owned lands have the greatest effect on availability of mitigation lands for these two species in this crucial Conservation Area and corresponding Potential Reserve Area described below and in Table C. CF owns 35,640 ac of 77,322 ac unprotected lands within this Conservation Area, resulting in a 69% reduction in available unprotected lands for mitigation. The remaining acreage excludes wind turbines in the southeast Montezuma Hills portion of the Plan Area because the wind turbine areas are considered unsuitable for Swainson's Hawk conservation (Figure 5).

Most mitigation for vernal pool systems and CTS are projected in the HCP to involve overlapping Swainson's hawk and burrowing owl foraging habitat. However, the remaining vernal pool grasslands that are also suitable for Swainson's hawk and burrowing owl habitat mitigation will be restricted by the proximity to windfarms. As indicated above, the Montezuma Hills Wind Turbine

Area shown on Figure 5 further restricts the availability of acreage for combined vernal pool, CTS, Swainson's hawk, and burrowing owl mitigation. Where overlapping credit areas cannot be found due to these restrictions, Plan Participants will incur additional costs by the need to secure mitigation for Swainson's hawk and burrowing owl foraging habitat elsewhere in the Plan Area.

Swainson's Hawk and Burrowing Owl Irrigated Agriculture and Inner Coast Range Conservation Areas and Potential Reserve Areas: CF land purchases to date have limited effects on conservation commitments within these two Conservation Areas, with approximately 93% of available mitigation land remaining in the Irrigated Agriculture Conservation Area and 100% remaining in the Inner Coast Range Conservation Area.

CTS Known Range: The known range where CTS breeding occurrences have been verified in Solano County (plus a 1.3-mile buffer) (Figure 4) includes 23,242 ac of currently unprotected lands with thousands more acres already protected under conservation easements (Figure 1). Of the unprotected acres, CF own 7,233 ac, leaving 16,010 ac, or 69% of the known CTS range available for mitigation. While this acreage is potentially adequate to meet HCP conservation objectives for this species, the availability of preserve lands will depend on the available lands meeting HCP reserve design requirements and having willing sellers.

CTS Potential Range: CF owns 34,040 ac out of 62,581 ac of unprotected lands in the CTS potential range, resulting in 28,541 ac (46%) of the remaining land available for HCP mitigation (Figure 4). This is a significant issue given how many specific HCP mitigation measures apply to preserving breeding and upland CTS habitat (Table C). In general, CTS are expected to be present in lower population levels in the potential range as a result of more limited and diffuse breeding habitat and other land uses that affect CTS habitat quality. A large portion of the remaining acreage will likely require significant additional restoration efforts and possible translocation of CTS to meet Reserve System criteria and to support successful populations in these potential range areas. In addition, CF now owns 1,170 ac out of the 2,557 ac of unprotected lands in CTS designated critical habitat in the Plan Area, resulting in 1,388 ac¹ (54%) of remaining land available for mitigation.

Contra Costa Goldfields: The identified HCP Contra Costa Goldfields Core Population Areas contain the most known occupied species habitat in the Plan Area (Figure 6). Conservation Measure VPG 2.1.1 in the HCP aims to preserve 90 percent of modeled wetland species habitat and associated surrounding matrix of uplands and seasonal wetlands. This includes 1,880 ac within Core Population Areas and an additional 1,240 ac of potential habitat that must be preserved during the 30-year permit term (Table C). CF owns 45% of the Contra Costa Goldfields Core Population Areas (2,550 ac out of 5,630 ac), which largely reduces the remaining available HCP species-specific mitigation land including where new Contra Costa goldfields populations will need to be established and high quality modeled species habitat preserved. The available unprotected lands excluding CF land acquisition in the Contra Costa Goldfields Core Population Areas is 3,081 ac (55%). In contrast, CF owns very little of Contra Costa goldfields potential habitat (281 ac out of 4,295 ac), so that leaves 93% of remaining unprotected lands available for mitigation. However, potential habitat areas may

¹ LSA's understanding is California Forever is in the process of acquiring most if not all of this remaining critical habitat acreage.

require significant wetland restoration or enhancement to support expanded Contra Costa goldfields populations which would conflict with and may be precluded by requirements in the Travis Air Force Base Land Use Compatibility Plan.²

Delta Green Ground Beetle: CF owns 3,150 ac of 5,494 ac of unprotected lands in species modeled habitat. This results in 2,344 ac (43%) of unprotected remaining land available for mitigation excluding CF-owned lands, which will make achieving the species-specific mitigation challenging (Table D). This mitigation includes Conservation Measure VPG 2.1.11, which involves the Reserve System contributing to the preservation of 2,500 ac of modeled delta green ground beetle habitat, primarily in High Value Vernal Pool Conservation Areas. This species is only known from a restricted geographical portion of the Greater Jepson Prairie ecosystem where its documented core habitat is limited to the presence of playa pools on Pescadero soils.

Giant Garter Snake Conservation Area: CF owns 6,689 ac of 54,702 ac of unprotected lands in the Giant Garter Snake Conservation Area (Table C; Figure 7). These acres are located primarily southeast of Jepson Prairie along Lindsey Slough and near Rio Vista. This area has high potential for giant garter snake mitigation and habitat restoration. This results in 47,383 ac of unprotected acres remaining and available for HCP mitigation (88%), but not all that area has as much habitat quality and restoration potential as the CF-owned parcels.

Freshwater Marsh Cover Type

CF-owned lands also reduce the acreage of unprotected freshwater marsh available for HCP mitigation by 60% (Figure 8). However, this should not significantly affect the HCP's ability to preserve and manage 36 ac of freshwater marsh, pond, and seasonal wetland habitat within Priority Watersheds and Drainages per Conservation Measure RSM 1.1.1 (Table D).

Corridors and Linkages

It is also important to note that there are no large gaps in the CF-owned parcels, where conservation of designated important corridors and habitat linkages could be protected. Preserving and improving corridors and habitat linkages are very important for Covered Species and habitat types as discussed in the HCP, especially species whose ranges and high quality habitat have already been extensively reduced due to surrounding development, freeways, and human influence. Achieving the HCP Avoidance and Minimization Measure VPG DES 6 Corridors, which require applicants with development projects in certain High and Medium Value Subareas to preserve and/or establish corridors linking vernal pool complexes and reserves, is expected to be challenging. The majority of the CF-owned lands will make it more difficult to achieve the corridor requirement from High Value Subarea 1A Jepson Prairie to the Potrero Hills in High Value Subarea 1F and Medium Value Subarea 2F (Figure 2) and the State identified missing link Montezuma Hills/Delta to Coast Range³ corridor.

² ESA. 2015. Travis Air Force Base Land Use Compatibility Plan. Prepared for County of Solano, Department of Resource Management. Fairfield, California.

³ Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected

SUMMARY

Mitigation for anticipated effects from planned development Covered Activities within the Plan Area will be challenged by a diminished availability of suitable land. This will primarily affect the ability and costs to mitigate future development portions of Fairfield and Vacaville and all of Suisun City and Rio Vista under the HCP. It is not clear if the CF project can self-mitigate on their current land holdings. If they 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 applicants. Table D summarizes the HCP mitigation acreage commitments in comparison to the remaining unprotected lands acreages and percents after CF-owned lands and the specified categories are removed. Note: There are additional occupancy commitments in Chapter 5.0 of the HCP not included here.

**Table D: Summary of Whether the HCP Can Achieve Mitigation Requirements
Excluding CF-owned Lands**

Natural Community and Covered Species	HCP Habitat Mitigation Requirements	Remaining Unprotected Lands for Mitigation Excluding CF-owned Lands ²	Percentage of Remaining Unprotected Lands for Mitigation Excluding CF-owned Lands ²	Can HCP Mitigation Commitments Be Met
Valley Floor Grassland and Vernal Pool Natural Community ¹	12,050 acres	41,682 acres	54%	Yes but more challenging now
Irrigated Agriculture Natural Community ¹	5,480 acres	153,272 acres	94%	Yes
Inner Coast Range Habitat for Associated Covered Species ¹	3,100 acres	55,116 acres	100%	Yes
Riparian, Stream, and Freshwater Marsh Natural Community	50 acres riparian and 36 acres freshwater marsh, pond, and seasonal wetland	Riparian: 2,770 acres Freshwater marsh: 165 acres	Riparian: 98% Freshwater marsh: 36%	Yes, but much less freshwater marsh available could potentially affect associated species
Coastal Marsh Natural Community	80 acres coastal salt and/or brackish marsh	39,619 acres	91%	Yes
Restored and Preserved Vernal Pool and Aquatic Habitats (Portion of Vernal Grassland Pool Cover Type)	200 acres restored and 800 acres preserved	12,680 acres	58%	Maybe, depending on potential limitations based on the Travis Air Force Base Land Use Compatibility Plan
California Tiger Salamander Upland and	9,690 acres	44,551 acres	52%	Yes, but more challenging with the majority of the

California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

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Natural Community and Covered Species	HCP Habitat Mitigation Requirements	Remaining Unprotected Lands for Mitigation Excluding CF-owned Lands ²	Percentage of Remaining Unprotected Lands for Mitigation Excluding CF-owned Lands ²	Can HCP Mitigation Commitments Be Met
Movement Habitat (Modeled Habitat) ³				remaining high quality habitat within known breeding populations controlled by CF
Contra Costa Goldfields Modeled Habitat Preservation	3,120 acres (1,880 ac in Core Population Areas and 1,240 acres in Potential Habitat)	7,078 acres	71%	Yes for potential habitat but more challenging for Core Population Areas
Contra Costa Goldfields Population Establishment	60 acres in Core Population Areas	3,081 acres	55%	Yes but will be challenging
Delta Green Ground Beetle Habitat Preservation (HCP Contributing)	2,500 acres	2,344 acres	43%	No due to very limited distribution
Giant Garter Snake Modeled Habitat (Aquatic and Upland)	200 acres	47,383 acres	88%	Yes
Swainson's Hawk and Burrowing Owl Valley Floor Grassland and Vernal Pool Potential Reserve Area ⁴	12,050 acres	14,256 acres	18%	Very challenging and not certain
Swainson's Hawk and Burrowing Owl Irrigated Agriculture Potential Reserve Area ⁴	5,480 acres	125,923 acres	77%	Yes

¹ Covered Species targeted to benefit from this preservation are Swainson's hawks, burrowing owls, California tiger salamanders, foothill yellow-legged frogs, California red-legged frogs, Callippe silverspot butterflies, and monarch butterflies.

² Excluding existing and planned development, HCP protected lands, Travis Air Force Base, and CF-owned land acreages, and Residential, Commercial, and Industrial Designation Areas to calculate remaining unprotected acreage and percent of mitigation land.

³ Aside from mitigation for California tiger salamander modeled habitat, the HCP will preserve a minimum of 14 acres of occupied habitat and create a minimum of 9 acres of breeding habitat. CF-owned lands do not appear to limit the ability to implement these mitigation measures at this time.

⁴ Swainson's hawk and burrowing owl Potential Reserve Areas (Figure 5) exclude the Montezuma Hills Wind Turbine Area because of potential for collision mortality associated with wind turbines.

Table D shows most mitigation categories can still technically be met and CF does not currently have a monopoly on a single conservation acreage type. However, mitigation will be most challenging for the Valley Floor Grassland and Vernal Pool Natural Community and specific species mitigation for Swainson's hawks, burrowing owls, CTS, Contra Costa goldfields, delta green ground beetle, as well

as federally and state listed plants including Solano grass and San Joaquin Valley Orcutt grass (Table C). In addition, CF owning 60% of the freshwater marsh cover type in the Plan Area is a substantial percentage and includes some of the most suited lands for mitigation.

Figure 9 illustrates the remaining available mitigation lands within Vernal Pool Conservation Areas with (a) high preservation potential, and (b) high preservation and restoration potential and shows that several of the remaining potential reserve area parcels are fragmented and of more limited conservation value depending on land use plans on surrounding CF-owned lands. CF-owned parcels, the Montezuma Hills Wind Turbine Area, and other categories (see the second footnote of Table C) are excluded in this analysis. Plan Participants and applicants that need sufficient acreage of overlap mitigation land including CTS, Swainson's hawks, and burrowing owls in the Plan Area will face challenges to meet all applicable species-specific and Natural Community mitigation requirements.

The remaining mitigation area is reduced to 12,914 ac from 26,754 ac of combined remaining available mitigation land for Vernal Pool Conservation Areas with (a) high preservation potential, and (b) high preservation and restoration potential from Table B. With the exclusions described above taken into consideration, the remaining overlap mitigation land of 12,914 ac is 48% of what was originally targeted by the HCP as high quality preservation and restoration areas (Figure 9). This reduction by more than half of the available mitigation land will likely not leave enough mitigation acreage available for all Plan Participants and applicants, especially large projects with multiple mitigation needs. Plan Participants and applicants will also face challenges to secure enough mitigation that meet foraging habitat mitigation requirement within the Swainson's Hawk Potential Reserve Area for both Swainson's hawks and burrowing owls. With 14,256 ac of remaining available mitigation lands left as shown in Table D finding 12,050 acres of suitable mitigation land will be difficult.

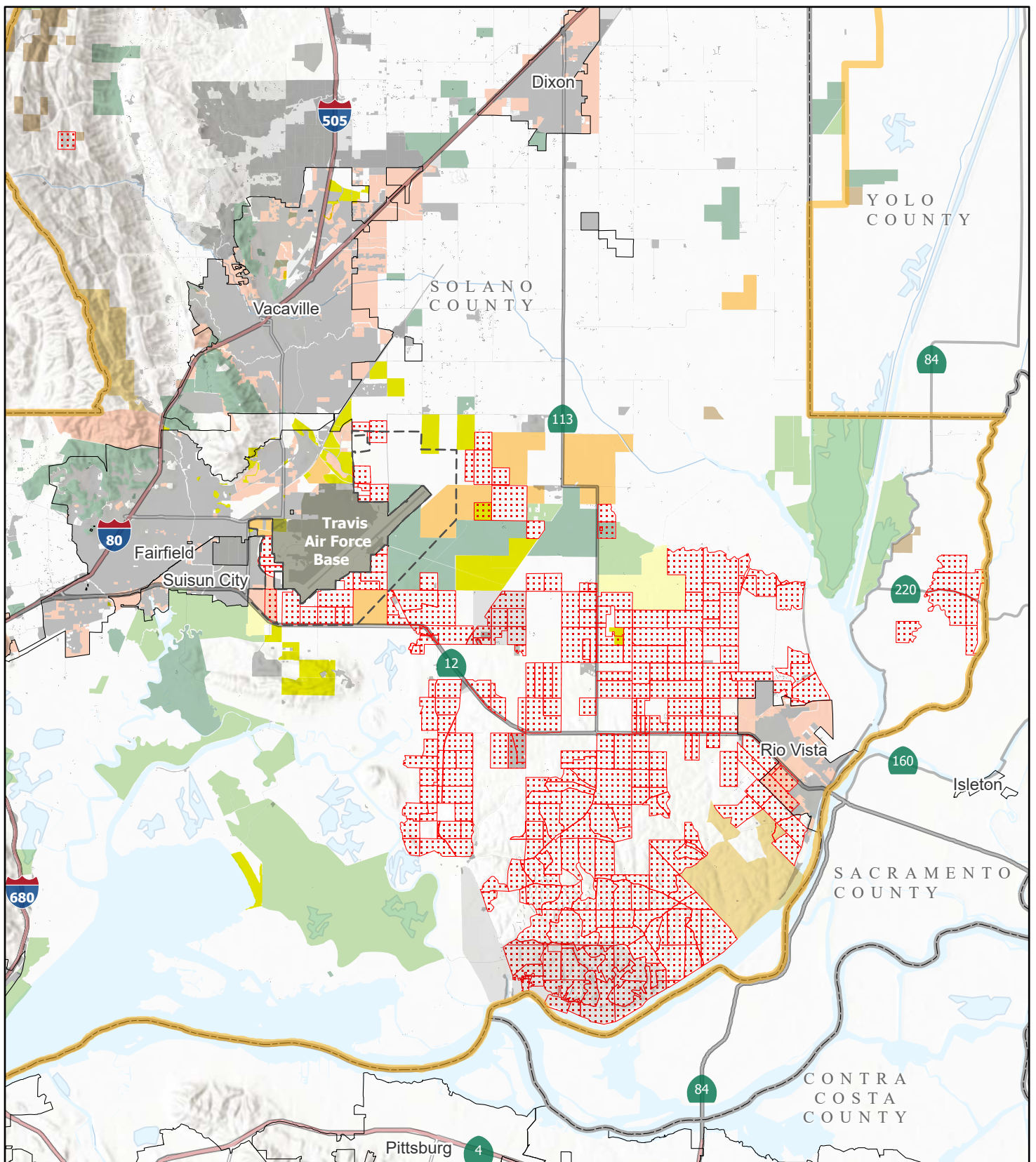
The future of HCP mitigation in Solano County will be characterized by:

- Increased competition for suitable conservation acreage, especially for vernal pool resources, and Vernal Pool Conservation Areas with high preservation and restoration potential (Tables Z and 2).
- 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.
- 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).
- Increasing costs for establishing conservation lands as lower quality areas requiring significant restoration and likely species establishment will be necessary to achieve conservation objectives.

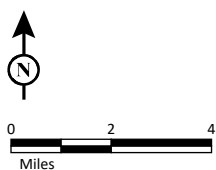
- Increased costs to purchase credits from existing and new conservation and mitigation banks, which will increase the cost for Plan Participants to obtain credits. This will tend to affect smaller projects with more limited mitigation acreage requirements.
- Rising costs are anticipated for Plan Participants who have to mitigate for multiple species and Natural Communities within the affected areas with fewer options (e.g., Swainson's hawk and burrowing owl foraging habitat).







As noted above, these effects will be most pronounced on future development in Suisun City, Rio Vista, and portions of Vacaville and Fairfield.

Attachment: Figure 1: Protected Lands
 Figure 2: High and Medium Value Vernal Pool Conservation Areas
 Figure 3: Potential Conservation Lands
 Figure 4: California Tiger Salamander Habitat
 Figure 5: Swainson's Hawk, Burrowing Owl, and Montezuma Hills Wind Turbine Area
 Figure 6: Contra Costa Goldfields Habitat
 Figure 7: Giant Garter Snake Conservation Area
 Figure 8: Freshwater Marsh
 Figure 9: Remaining Potential Conservation Lands Excluding CF Parcels and
 Montezuma Hills Wind Turbine Area



LSA



-  Solano HCP Boundary
-  California Forever Parcel
-  Existing Development
-  Planned Development
-  Residential, Commercial and Industrial Designations
-  Travis Reserve Boundary








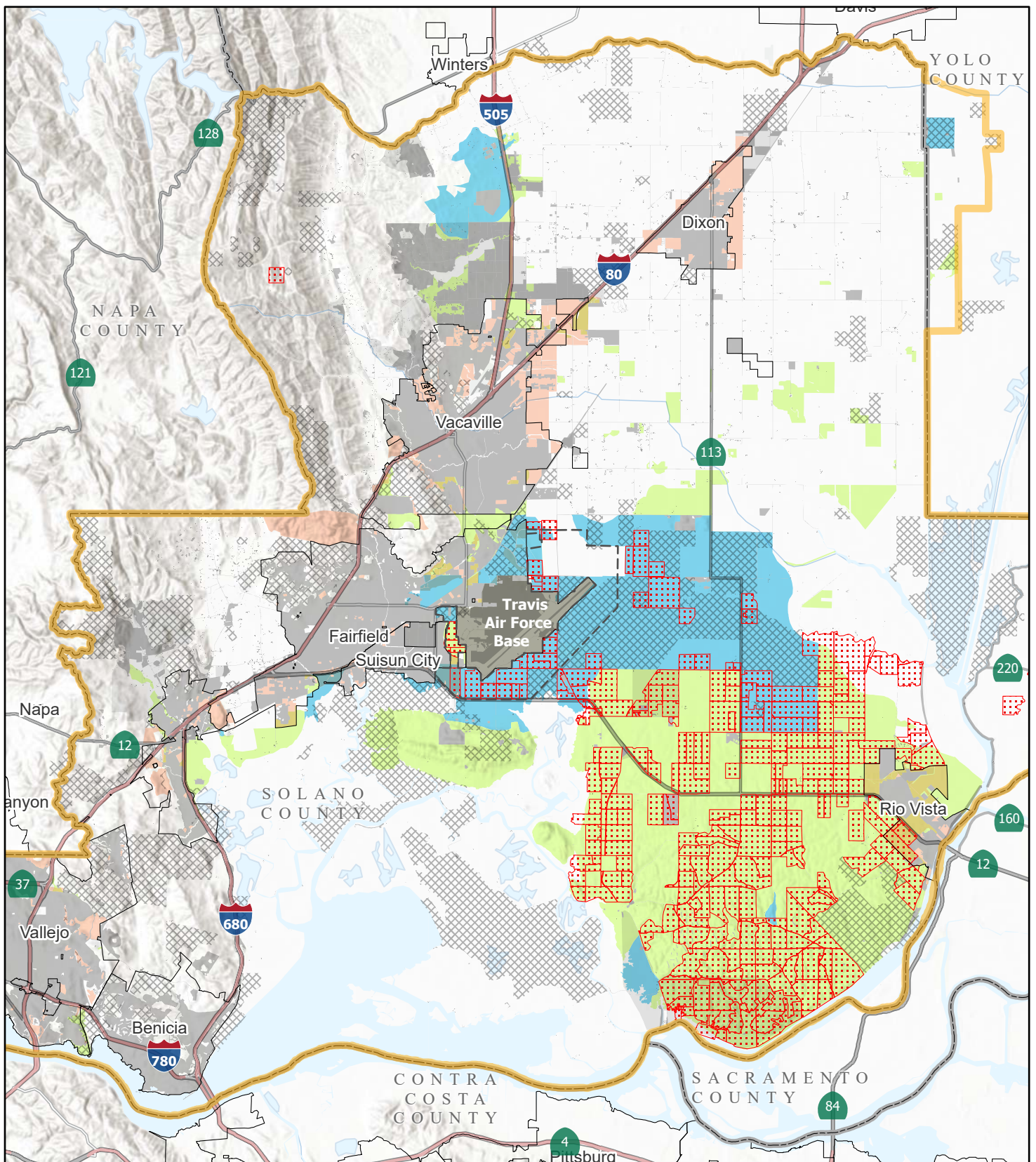
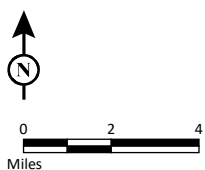
-  Conservation/Mitigation Bank
-  Permittee-Responsible Mitigation Projects
-  Potential Mitigation Lands
-  Private Agricultural Lands and Conservation Easements
-  City/County/NGO Open Space Lands
-  State Lands
-  Federal Lands

FIGURE 1

California Forever Memo
Protected Lands



LSA



- Solano HCP Boundary
- California Forever Parcel
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations

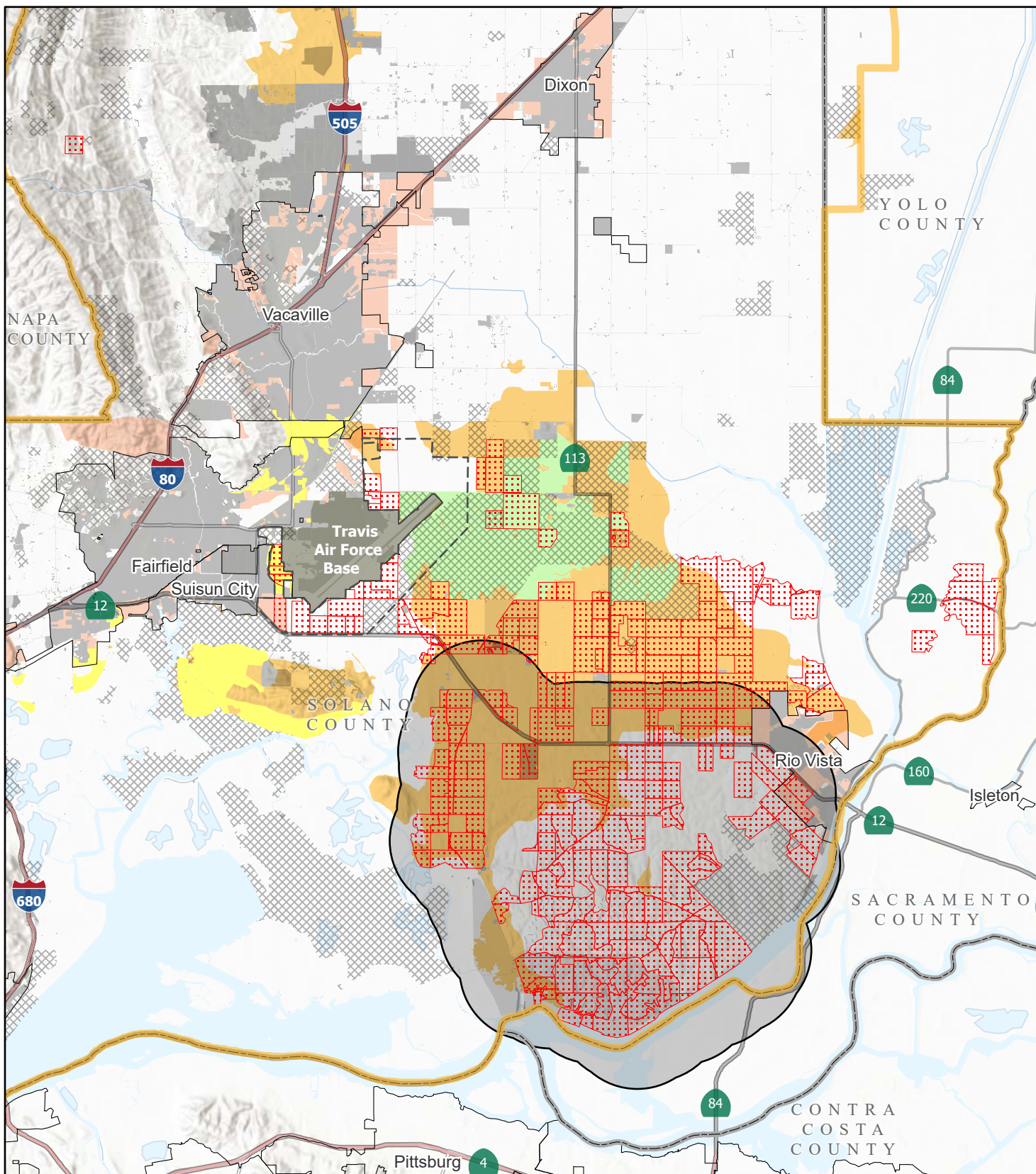
- Travis Reserve Boundary
- Protected Lands
- High Value Vernal Pool Conservation Area
- Medium Value Vernal Pool Conservation Area

FIGURE 2

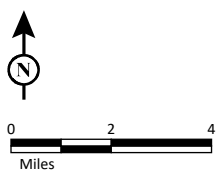
California Forever HCP Memo
High and Medium Value Vernal Pool Conservation Areas

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

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LSA



- Solano HCP Boundary
- California Forever Parcel
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations
- Travis Reserve Boundary

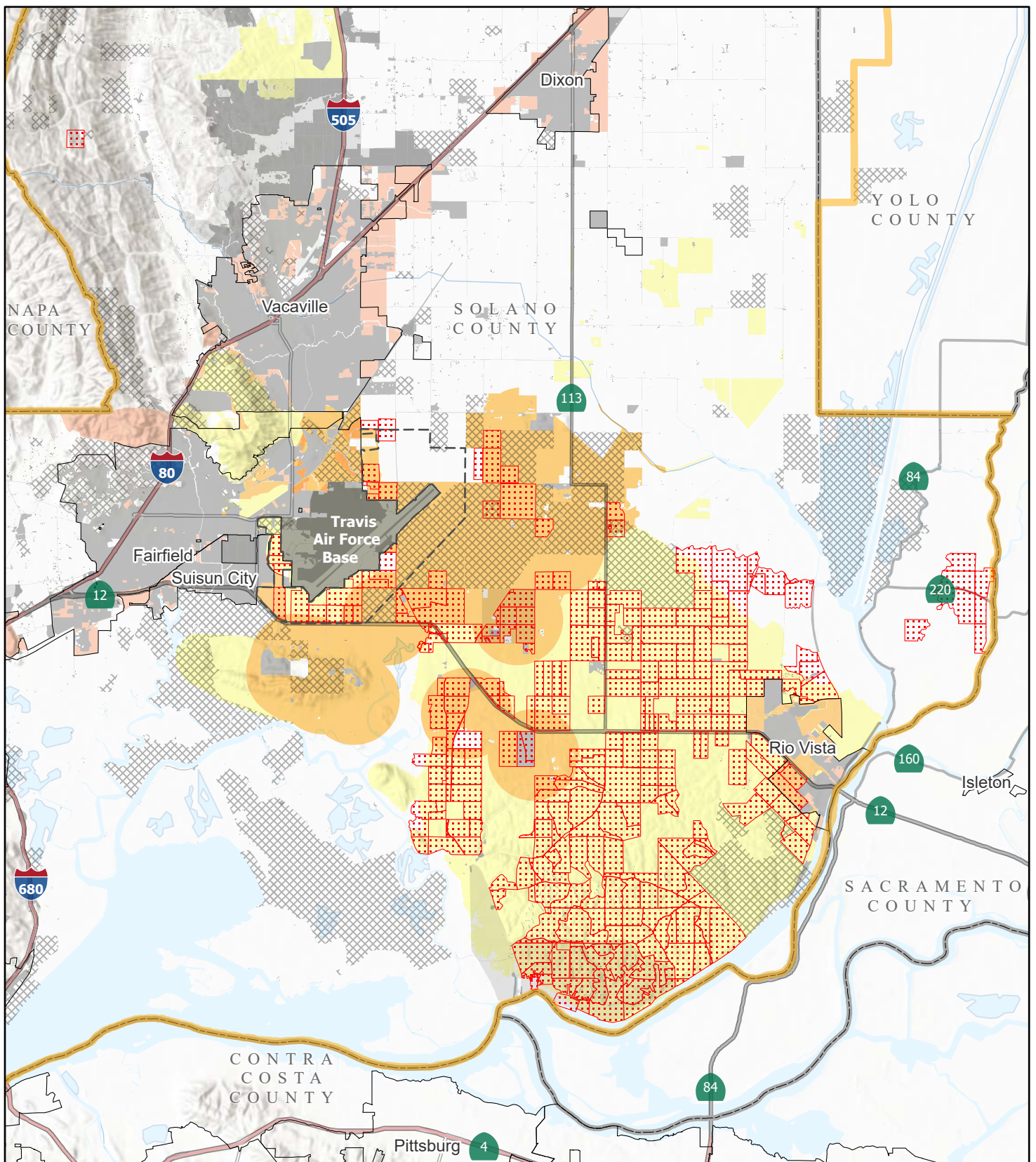
- Protected Lands
- Potential Vernal Pool Conservation Lands
- Areas with High Preservation and Restoration Potential
- Areas with High Preservation Potential
- Contra Costa Goldfield Potential Reserve Area
- Montezuma Hills Wind Turbine Area

FIGURE 3

California Forever HCP Memo
Potential Conservation Lands

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

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|---|---|
| Solano HCP Boundary | Travis Reserve Boundary |
| California Forever Parcel | Protected Lands |
| Existing Development | California Tiger Salamander Known Range |
| Planned Development | California Tiger Salamander Potential Range |
| Residential, Commercial and Industrial Designations | |

FIGURE 4

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

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California Forever HCP Memo
California Tiger Salamander Habitat

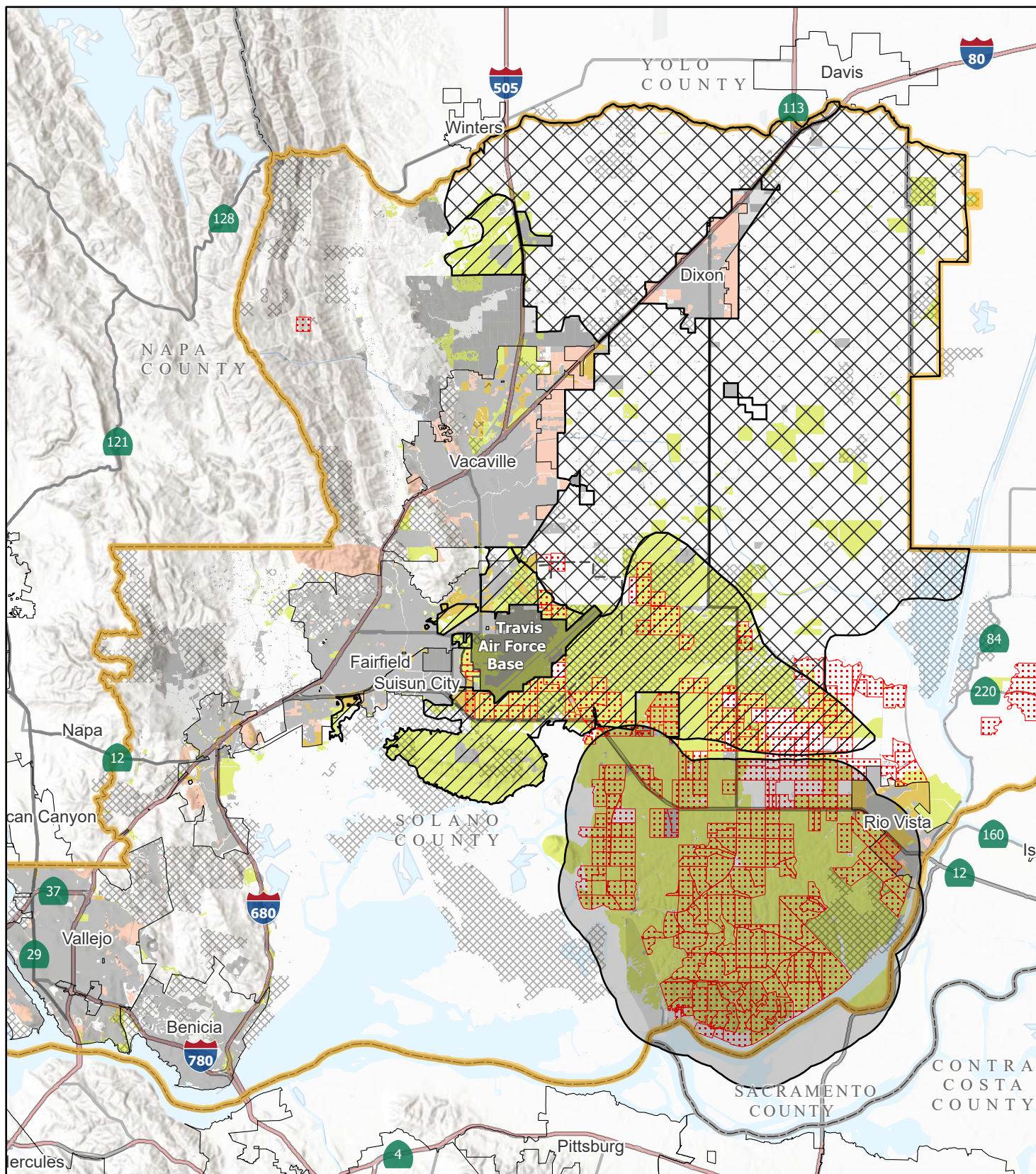
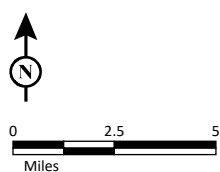


FIGURE 5

LSA



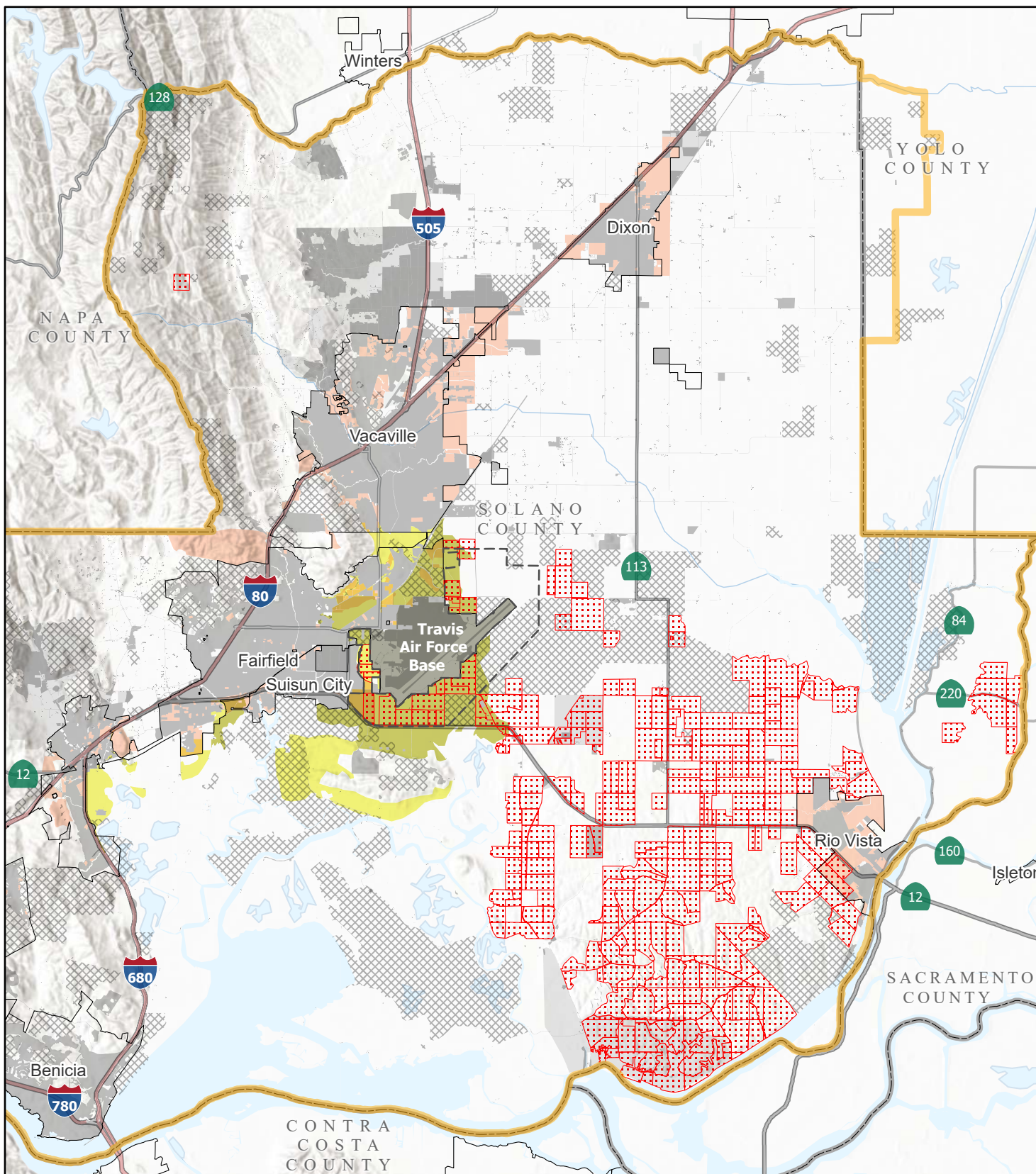
- Solano HCP Boundary
- California Forever Parcel
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations
- Travis Reserve Boundary

- Protected Lands
- Swainson's Hawk and Burrowing Owl Valley Floor Grassland/Vernal Pool Conservation Area
- Swainson's Hawk Irrigated Agriculture Potential Reserve Area
- Swainson's Hawk Valley Floor Grassland/Vernal Pool Potential Reserve Area
- Montezuma Hills Wind Turbine Area

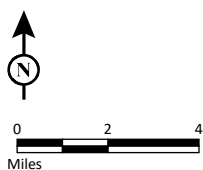
SOURCE: ParcelQuest, Solano County Water Agency, LSA, Esri Terrain Basemap

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California Forever HCP Memo
Swainson's Hawk, Burrowing Owl,
and Montezuma Hills Wind Turbine Area



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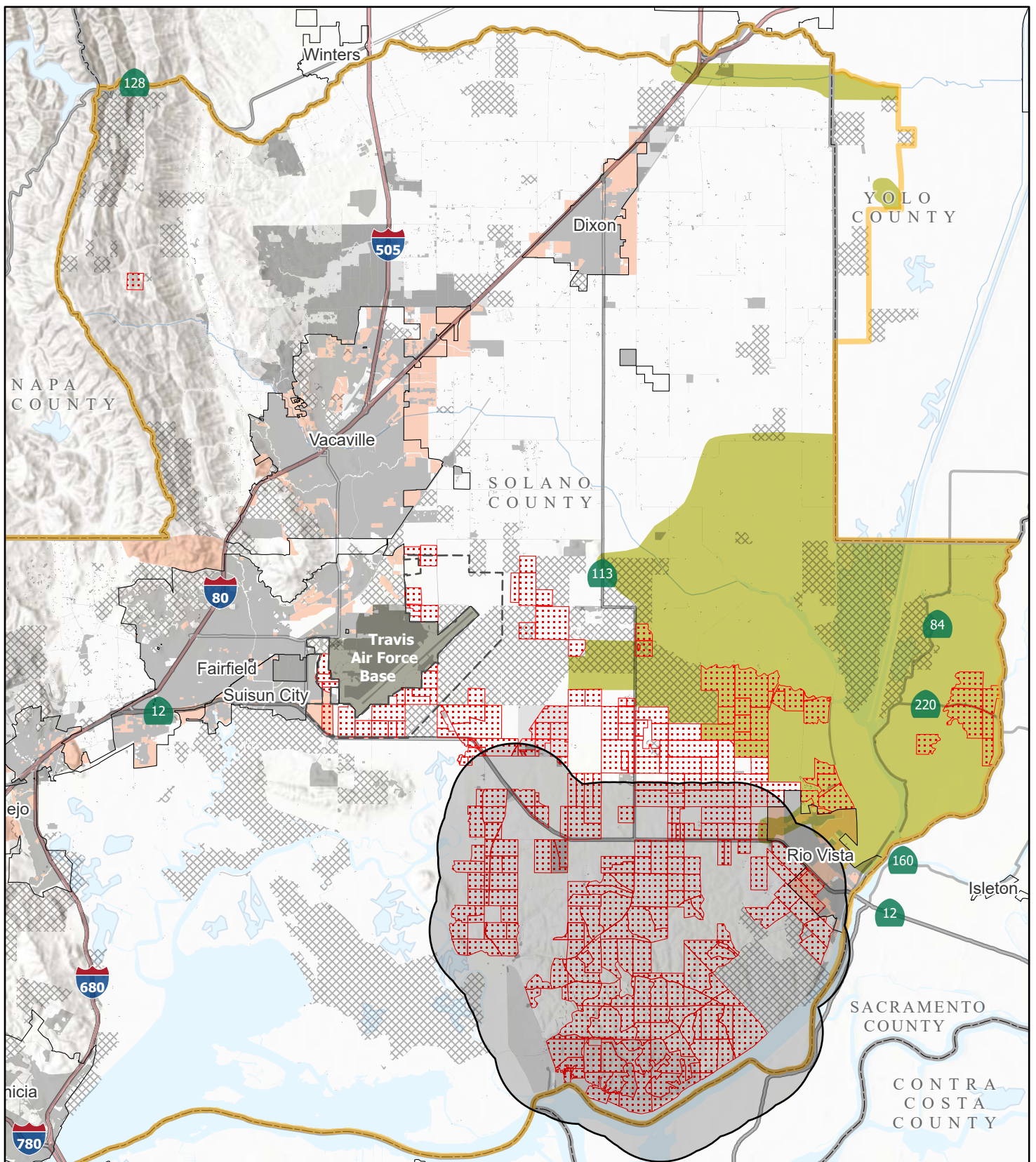
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|---|--|
| Solano HCP Boundary | Travis Reserve Boundary |
| California Forever Parcel | Protected Lands |
| Existing Development | Contra Costa Goldfields Core Population Area |
| Planned Development | Contra Costa Goldfields Potential Habitat |
| Residential, Commercial and Industrial Designations | |

FIGURE 6

California Forever HCP Memo
Contra Costa Goldfields Habitat

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

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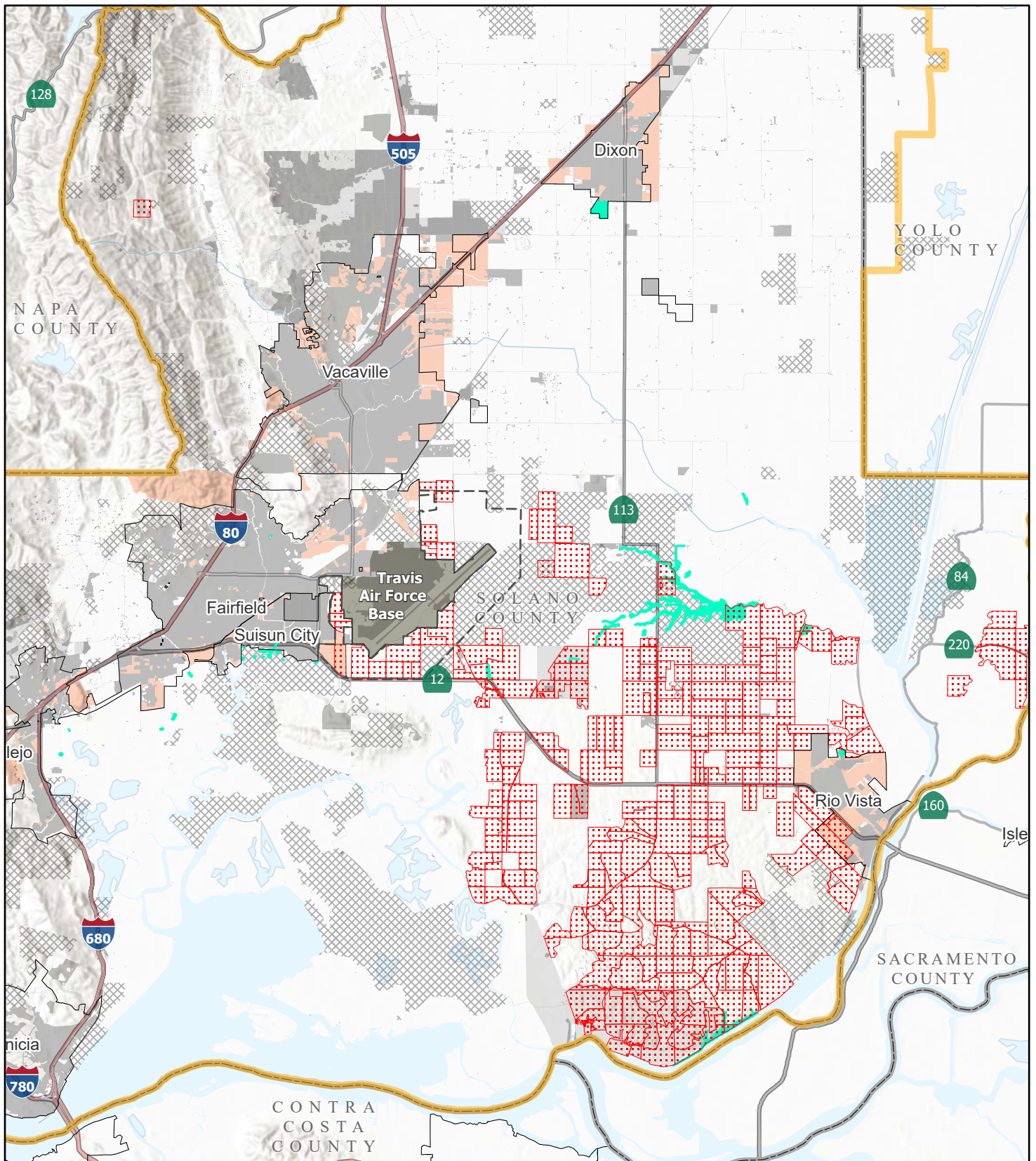
- | | |
|---|--------------------------------------|
| Solano HCP Boundary | Travis Reserve Boundary |
| California Forever Parcel | Protected Lands |
| Existing Development | Giant Garter Snake Conservation Area |
| Planned Development | Montezuma Hills Wind Turbine Area |
| Residential, Commercial and Industrial Designations | |

FIGURE 7

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

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California Forever HCP Memo
Giant Garter Snake Conservation Area



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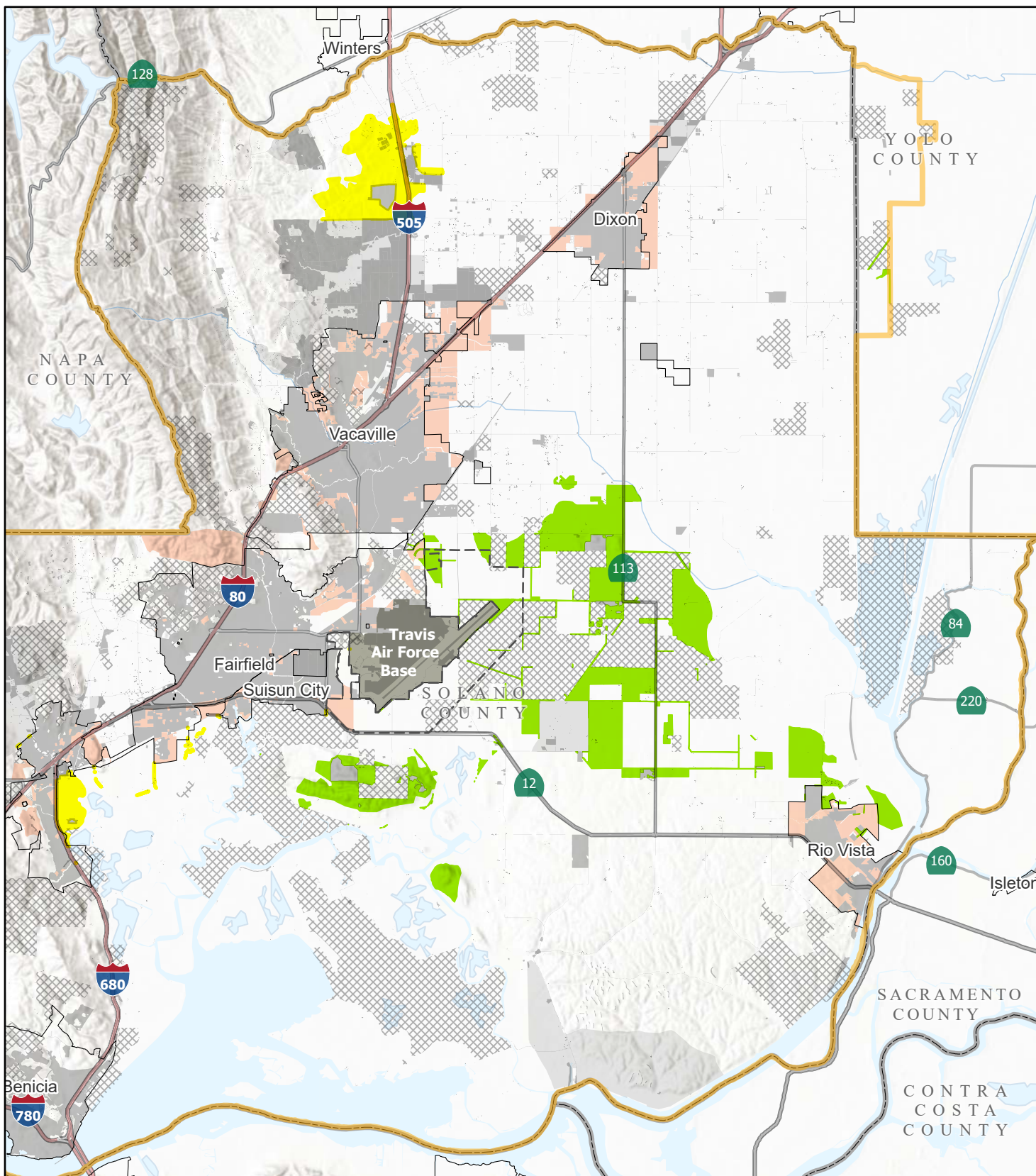
- SHCP Boundary
- California Forever Parcel
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations
- Travis Reserve Boundary
- Protected Lands
- Freshwater Marsh

FIGURE 8

California Forever HCP Memo
Freshwater Marsh

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

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LSA



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- Solano HCP Boundary
- Existing Development
- Planned Development
- Residential, Commercial and Industrial Designations
- Travis Reserve Boundary

- Protected Lands
- Conservation Areas with High Preservation and Restoration Potential for Species Including CTS
- Conservation Areas with High Preservation and Restoration Potential for Species Other than CTS

FIGURE 9

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

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California Forever HCP Memo
**Remaining Potential Conservation Lands Excluding
 CF Parcels and Montezuma Hills Wind Turbine Area**