Caltrans District 3

Yolo 80 Corridor Improvement Project

Tricolored Blackbird Nesting Habitat Assessment

Sacramento, Yolo, and Solano Counties, California

04-SOL-80-PM 40.7/R44.7; 03-YOL-80-PM 0.00/R11.72; 03-YOL-50-PM 0.00/3.12; 03-SAC-50-PM 0.00/L0.617; 03-SAC-80-PM M0.00/M1.36

EA: 03-3H900 / EFIS: 0318000085

August 2022

Caltrans

CALIFORNIA DEPARTMENT OF TRANSPORTATION

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August 2022

STATE OF CALIFORNIA
Department of Transportation

Prepared By: _____ Date 08/19/2022

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LIST OF ABBREVIATED TERMS

BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
ESL	Environmental Study Limits
I-80	Interstate 80
NES	Natural Environment Study
Project	03-3H900 Yolo 80 Corridor Improvement Project
TCBB	Tricolored blackbird
US-50	United States Route 50 (US-50)

Chapter 1 Introduction

The California Department of Transportation (Caltrans) proposes to construct improvements consisting of managed lanes, pedestrian/bicycle facilities, and Intelligent Transportation System elements along Interstate 80 (I-80) and United States Route 50 (US-50) from Kidwell Road near the eastern Solano County boundary (near Dixon), through Yolo County, and to West El Camino Avenue on I-80 and Interstate 5 on US-50 in Sacramento County (Appendix A, Figure 1). Caltrans is both the lead agency under the National Environmental Policy Act (as assigned by the Federal Highway Administration) and the California Environmental Quality Act for the 03-3H900 Yolo 80 Corridor Improvement Project (project). The purpose of this project is to improve multimodal mobility on the I-80 and US-50 corridors in Solano, Yolo, and Sacramento Counties. The project would decrease congestion through the corridor and the effects that congestion has on transit and freight. It would improve transit headway times, reliability, access, and viability through the corridor. The project would also increase people throughput by increasing transit, bicycle and pedestrian, and carpool use. Furthermore, the project would address non-recurrent congestion caused by incidents, including collisions, by improving incident detection, verification, response, and clearing.

For projects with the potential to impact biological resources, Caltrans' standard procedure is to prepare a Natural Environment Study (NES) to describe the project's existing biological environment and how project alternatives may affect that environment. The NES summarizes technical documents such as focused species studies, wetland assessments, and biological assessments related to biological resources in the project's biological study area (BSA). Hence, this habitat assessment has been prepared to support the NES for the Project.

Tricolored blackbird (TCBB) (*Agelaius tricolor*) has been identified as a species that could occur in/near the project. As such, this habitat assessment addresses the methods, results, and conclusions associated with surveys for potential tricolored blackbird nesting habitat within the project's environmental study limits (ESL) and a 500-foot buffer, which for the purposes of the survey and this habitat assessment is considered the BSA. The 500-foot buffer was chosen as the greatest distance at which indirect impacts to nesting tricolored blackbirds could occur.

Chapter 2 Background Information

TCBB was listed as threatened under the California Endangered Species Act on April 19, 2018, by the California Fish and Game Commission (California Fish and Game Commission 2018). The primary threats to this species are colonial breeding and small population size, habitat loss, overexploitation, predation, contaminants, extreme weather events, drought, water availability, and climate change (California Department of Fish and Wildlife [CDFW] 2018).

TCBB are members of the Icteridae family, which includes blackbirds, orioles, cowbirds, grackles, and meadowlarks. TCBB are sexually dimorphic, with breeding male's plumage being all black except for a red patch on the wing with a white border along the bottom and females being dark brown and streaked ventrally with dark brown streaks merging to form a solid dark brown belly (CDFW 2018).

TCBB nests in large colonies and exhibit unique breeding behavior which includes a combination of colonial, nomadic, and itinerant (U.S. Fish and Wildlife Service 2019). The breeding season in the Central Valley extends from mid-March through early August. Nests are built in a variety of nesting substrates including wetland vegetation (cattails [*Typha* sp.], bulrush [*Schoenoplectus* sp.]), Himalayan blackberry (*Rubus armeniacus*) patches, thistles (milk thistle [*Silybum marianum*], bull thistle [*Cirsium vulgare*]), stinging nettle (*Urtica* sp.), or agricultural grain fields (triticale). The TCBB diet is dependent on breeding versus non-breeding, with plant material (seeds, etc.) being the primary non-breeding food source and high protein insect prey during the breeding season (CDFW 2018).

TCBB require a water source and foraging habitat in the vicinity of their nesting habitat. Suitable water sources include wetlands, streams, ponds, reservoirs, and agricultural canals or ditches. These water sources must be within approximately 1,000 feet for the nesting colony to survive and be successful. TCBB forage away from the nesting colony and require large amounts of foraging habitat with abundant insect prey located within a couple miles of the nesting colony. Foraging habitat includes grasslands, low-density shrublands, pastures, dry seasonal pools, and agricultural crops such as alfalfa and rice (CDFW 2018). TCBB remain year-round in the Central Valley where the project is located.

Chapter 3 Methodology

3.1 Background Research

Jenerro Lockhart and Michael Bumgardner (Alluvion Biological Consulting) conducted a preliminary review of land cover types within the BSA using current satellite imagery from Google Maps (imagery from January 29, 2020). This first effort was to identify and delineate the existing land cover types within the BSA as one of the following:

- Urban/Developed,
- Agriculture,
- Unsuitable Habitat Fragment, or
- Potentially Suitable Habitat.

Urban land cover (*Urban/Developed*) was identified as any land developed for urban uses (e.g., residential, commercial, neighborhood park, and industrial uses). We subsequently delineated lands that showed evidence of agricultural uses (*Agriculture*) that would be inconsistent with use as a substrate for nesting tricolored blackbirds (e.g., rice fields [*Oryza* spp.], row crops, and orchards). Note that agricultural uses for grain, hay, or cover crops (i.e., crops that are like annual grassland) were not included in *Agriculture* since they are land cover types within which nesting tricolored blackbirds have been found. These latter suitable agricultural lands (*Potentially Suitable Habitat*) also include alfalfa, but not because alfalfa has or can be used as nesting habitat by the species. Lands planted in alfalfa are included in *Potentially Suitable Habitat* because they could be planted to suitable field crops (e.g., grain, hay, or cover crops) in the future, potentially at a time when project activities occur. Other *Potentially Suitable Habitat* that has been delineated includes natural or semi-natural lands (e.g., grassland, ruderal/grassland, willow scrub [*Salix* spp.], and emergent marsh) on larger parcels (generally greater than approximately 20 acres) that border other open lands (*Potentially Suitable Habitat* or *Agriculture*). Lastly, *Unsuitable Habitat Fragments* were mapped as land cover type polygons that, at a minimum, meet one of the following descriptions:

- undeveloped or mostly undeveloped land supporting grassland or other natural vegetation "landlocked" by *Urban/Developed* lands,

- managed grassland or other natural vegetation located in highway interchange "clover leaves,"
- narrow linear strips of grassland or other natural vegetation bordering highway or railroad, or
- lands supporting mostly tall woody vegetation.

The above land cover types are not considered suitable as nesting habitat for tricolored blackbird given that they do not provide the following habitat characteristics that are required by the species:

- a vegetative nesting substrate that is either flooded, spinous, or otherwise difficult to access by mammalian predators,
- easy access to open water (generally within 500 meters/1640 feet of the colony), and
- presence of suitable habitat for foraging (e.g., irrigated pasture, dry rangeland, and dairy operations providing successive harvest and flooding conditions, mostly within 1.5 kilometers/0.93 miles of the colony but occasionally up to 6 kilometers/3.7 miles).

Stantec biologists performed a database search of the California Natural Diversity Database (CNDDB) to determine the location of reported TCBB occurrences in the vicinity of the study area. The CNDDB search included the following U.S. Geological Survey 7.5-minute quadrangle maps *Dixon, Merritt, Davis,* and *Sacramento West*. The CNDDB recorded three separate occurrences of TCBB within the study area between 1932 and 2015; however, all three occurrences are possibly extirpated (CDFW 2022). Details of the occurrences are provided in Table 1.

Table 1. Tricolored Blackbird CNDDB Occurrence Details

CNDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
488	May 24, 1932	City of Davis, just north of I-80.	Habitat generally described as thistle field.	About 28,000 nests recorded by J. Neff on May 24, 1932. Colony may have been extirpated.
486	June 4, 1934	About 1.9 miles west of I-80 & business 80 freeway intersection, 7 miles east of Davis, Yolo Bypass Wildlife Area.	Habitat composed of cattail marsh and thistles/mustard along levee.	About 5,000 nests observed on May 21, 1932. About 2,000 nests observed on June 4, 1934. Colony described as being extirpated according to Beedy (1991).
162	April 18, 2015	Vicinity of Sacramento deep water ship channel and Port of Sacramento, just south of I-80 and business 80 freeway, west of Sacramento.	Nesting in mustard and star thistle in 1971. Foraging in sandbar willow stands in 2014. General habitat was mustard, thistle, willow, and grass. Breeding colony observed between 1969-74 by R. Dehaven; possibly referring to 1971 detection.	1,500 observed on April 5, 1971; nests located in 5ft thistle. 0 observed in 1992. 750-2,000 observed on April 17, 2005; breeding unknown. 0 observed on April 17, 2011. Foraging flock of 80 birds observed on April 20, 2014. 0 observed on April 17 and 18, 2015.

3.2 Field Surveys

Each of the land cover type polygons were initially mapped in Google Maps to facilitate use on hand-held devices in the field. Upon completing the preliminary review of land cover types within the BSA, a field survey was conducted to "ground truth" the type and boundaries of all delineated land cover type polygons. The initial field survey was conducted by biological staff from Alluvion Biological Consulting on January 5 and 7, 2021. Subsequent surveys of additional BSA segments (following minor changes to the ESL) were performed by biological staff from Stantec Consulting Services Inc. (Stantec) on July 7, 2022. Changes to the originally mapped polygons in Google Maps were made as necessary in the field to better reflect the observed conditions and suitability as potential nesting habitat for tricolored blackbird. Upon completing "ground truthing" the kmz files associated with Google Maps were transferred to Google Earth given that the latter software allows for more precise mapping.

Chapter 4 Results

The results of the mapping and field survey of the land cover type polygons show that there is potential nesting habitat for tricolored blackbird colonies within the BSA, mostly between the east end of the Yolo Bypass and City of Davis city limits, though there is also a small amount of potentially suitable nesting habitat in and west of Davis (Appendix A, Figure 2). The total acreage of each land cover type within the BSA was determined using the open-source software QGIS3 and is provided in Table 2.

Table 2. Acreage of Land Cover Types

Land Cover Type	Acreage
Urban/Developed	2,011.9
Unsuitable Agriculture	920.3
Unsuitable Habitat Fragment	589.0
Potentially Suitable Habitat	498.7

One area that requires further explanation is the Kidwell Road/I-80 interchange (Appendix A, Figure 2). The northwest and southeast portions of this "clover leaf" support large, dense stands of willow scrub that structurally are like other areas that have supported nesting by tricolored blackbird. Furthermore, these stands show evidence that they are occasionally flooded. That this habitat occurs in a highway interchange lessens the likelihood that it would be used by tricolored blackbirds but does not preclude it from being used. Therefore, these two areas are included in *Potentially Suitable Habitat*.

Chapter 5 Conclusions

Given that there are areas of *Potentially Suitable Habitat* within the BSA that could be utilized for nesting by tricolored blackbird colonies, it is recommended that pre-construction surveys be conducted prior to any ground-disturbing activities within 500 feet of mapped *Potentially Suitable Habitat*. Such surveys should be conducted in mid-March, mid-April, mid-May, and mid-June given that the dates of nesting in northern California are not consistent from year to year and the species may nest twice in the same nesting season at the same or different locations. The recommendation of a survey every 30 days during the nesting season is based on the potential length of the nesting season in the Sacramento Valley (i.e., mid-March to mid-July) and total time required for incubation and fledging (i.e., 21 to 25 days). Note that the full complement of four survey visits can be reduced accordingly if work starts after mid-March and surveys can be avoided entirely if work starts between August 1 and March 1 (outside the nesting season).

Chapter 6 References

California Department of Fish and Wildlife (CDFW). 2018. A Status Review Of The Tricolored Blackbird (*Agelaius tricolor*) In California. State Of California, Natural Resources Agency, Department of Fish And Wildlife. Available online at https://wildlife.ca.gov/Conservation/CESA/One-Year-Reviews. Accessed August 12, 2022.

CDFW. 2022. California Natural Diversity Database – RareFind 5 for commercial subscribers. Available online at https://nrm.dfg.ca.gov/cnddb. Accessed August 12, 2022.

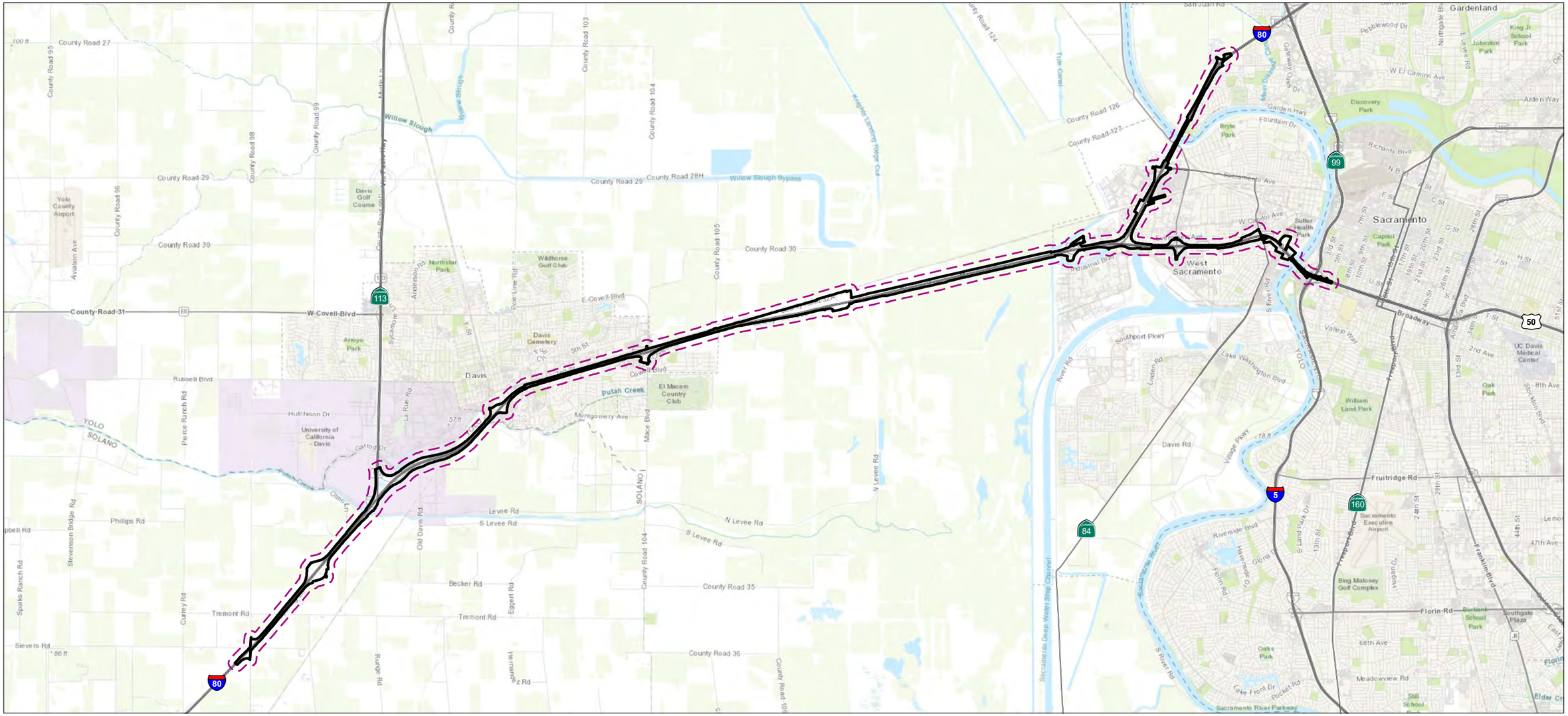
California Fish and Game Commission. 2018. Notice of Findings for Tricolored Blackbird (*Agelaius tricolor*). Available online at https://fgc.ca.gov/CESA#tcbb2015. Accessed August 12, 2022.

U.S. Fish and Wildlife Service. 2019. Species Status Assessment for the Tricolored Blackbird (*Agelaius tricolor*) Version 1.1. U.S. Fish and Wildlife Service, Region 8, Sacramento California. Available online at https://ecos.fws.gov/ecp/species/3910. Accessed August 17, 2022.

Appendix A Figures

Figure 1: Project Environmental Study Limits and Biological Study Area

Figure 2: Tricolored Blackbird Survey Results



Environmental Study Limits (ESL) (1,147.38 acres)

Study Area (4,019.86 acres)

USGS 7.5' 1:24,000 Quadrangles:
Davis (1992), Dixon (1981), Merritt (1992),
and Sacramento West (1992)

N

0 1.5 3

Miles

Notes

1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Figure 1
Project ESL and BSA
Yolo 80 Corridor Improvement Project
TCBB Survey Report

Sacramento, Solano, and
Yolo Counties, California

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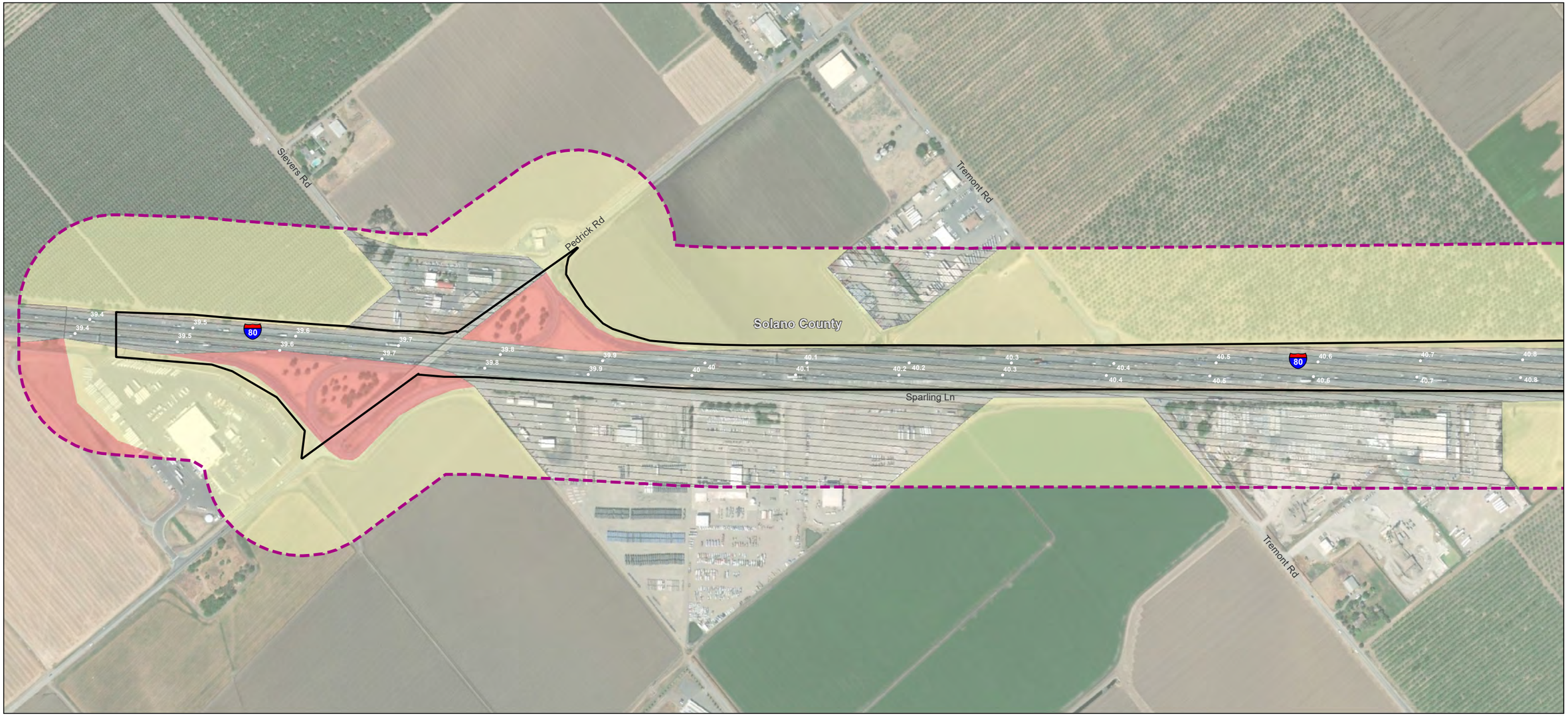

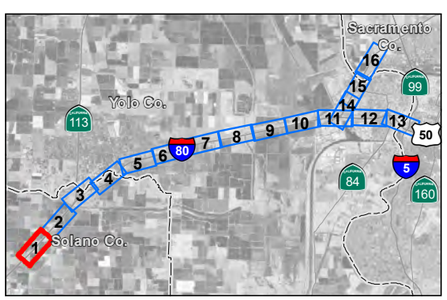

Environmental Study Limits (1,047.38 acres)

Post Mile

Study Area (4,019.86 acres)

Tricolored Blackbird CDNNB Occurrence

Tricolored Blackbird Habitat

- Potential Suitable Habitat
- Unsuitable Agriculture
- Unsuitable Habitat Fragment
- Urban/Developed

N

0 1,000

Feet

Caltrans

Notes

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3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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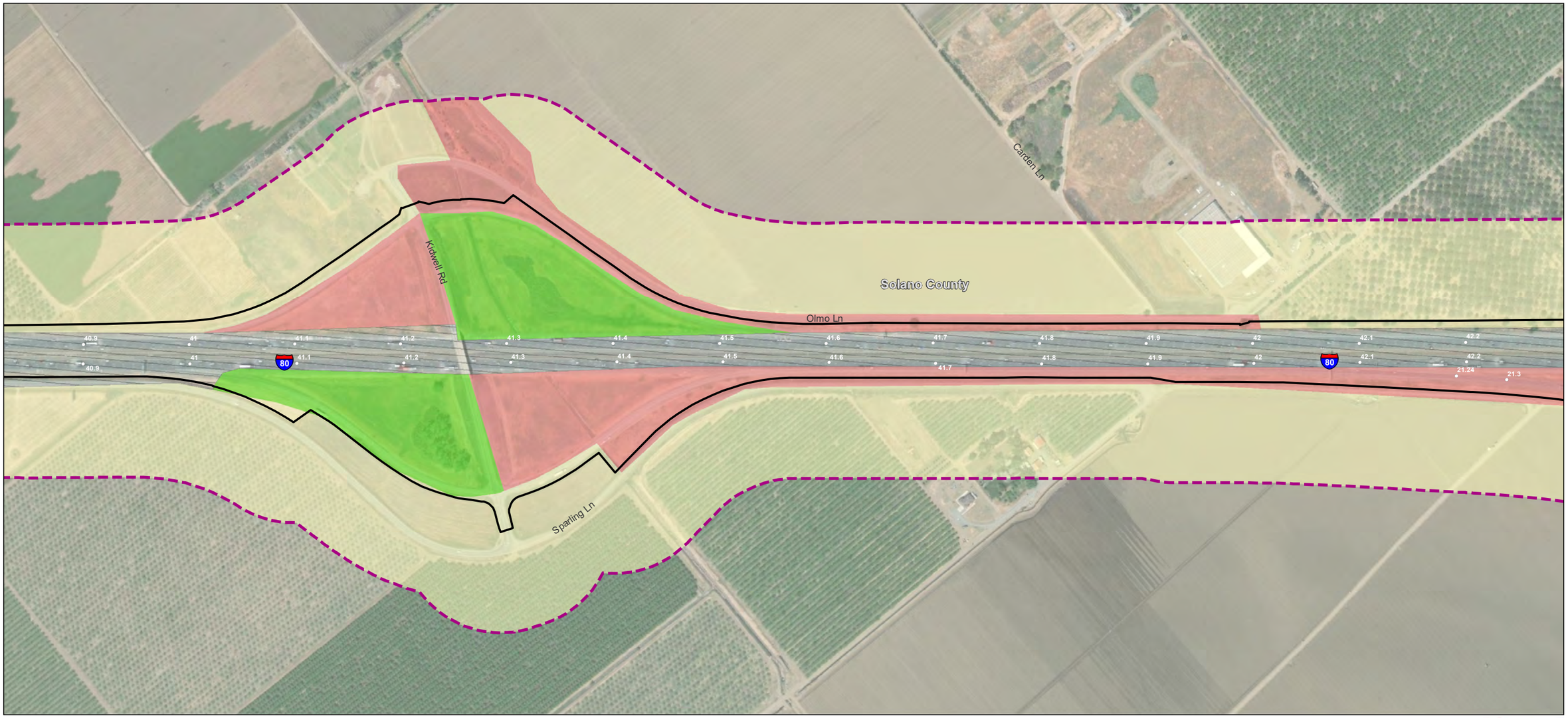
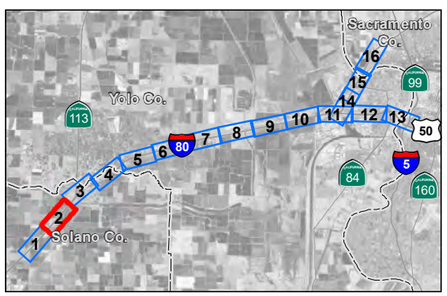
Yolo 80 Corridor Improvement Project
EA 03-3H900
Solano, Yolo, and Sacramento Counties, California





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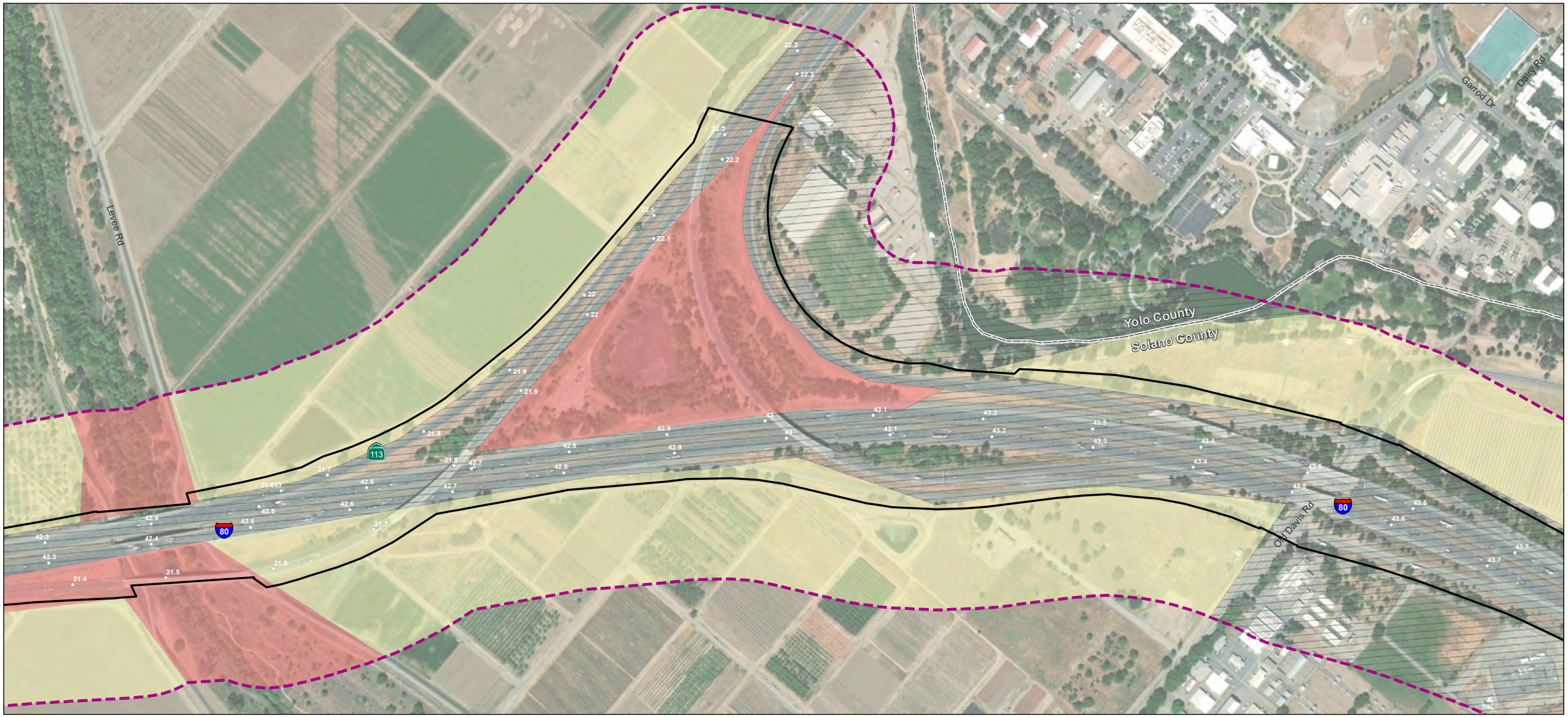
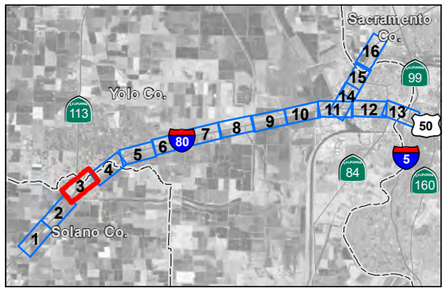
EA 03-3H900

Solano, Yolo, and Sacramento Counties, California





Environmental Study Limits (1,047.38 acres)
Post Mile
County Line

Study Area (4,019.86 acres)
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0 1,000
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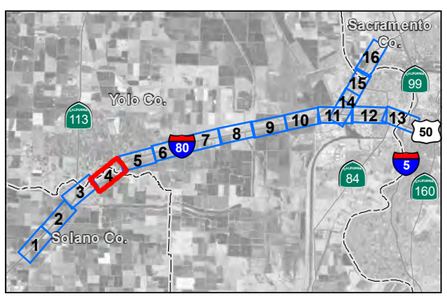

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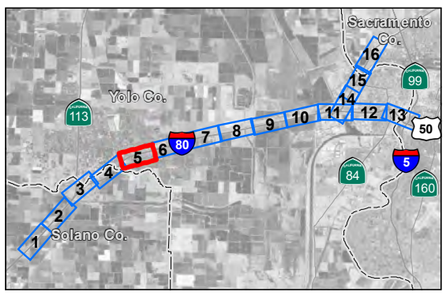

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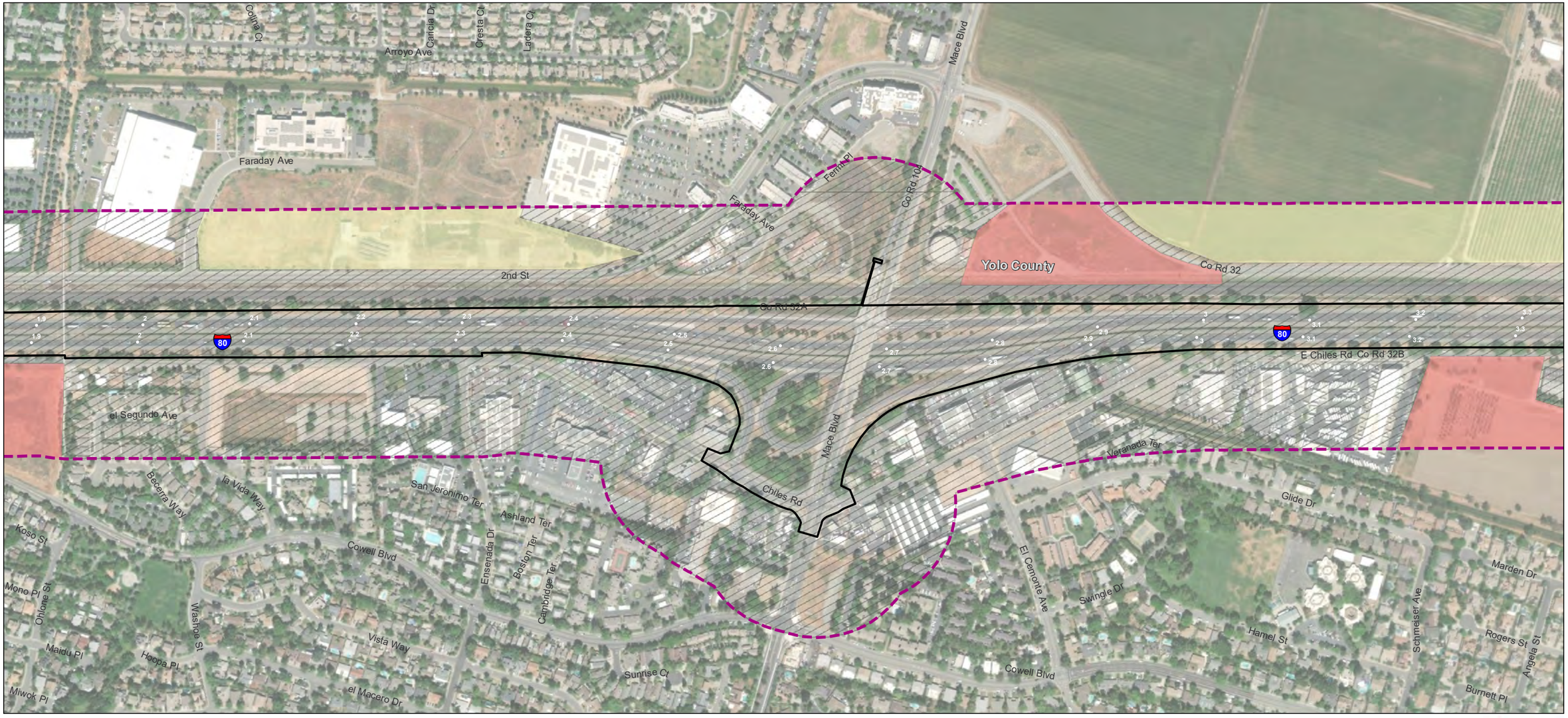

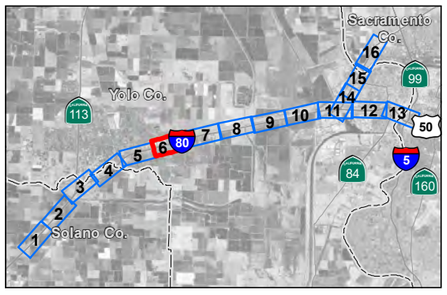

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Yolo 80 Corridor Improvement Project

EA 03-3H900

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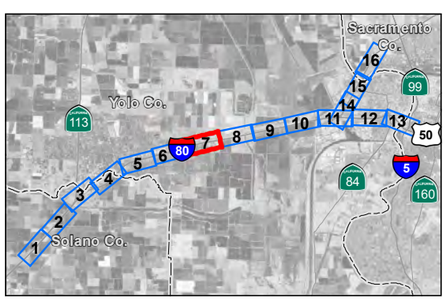

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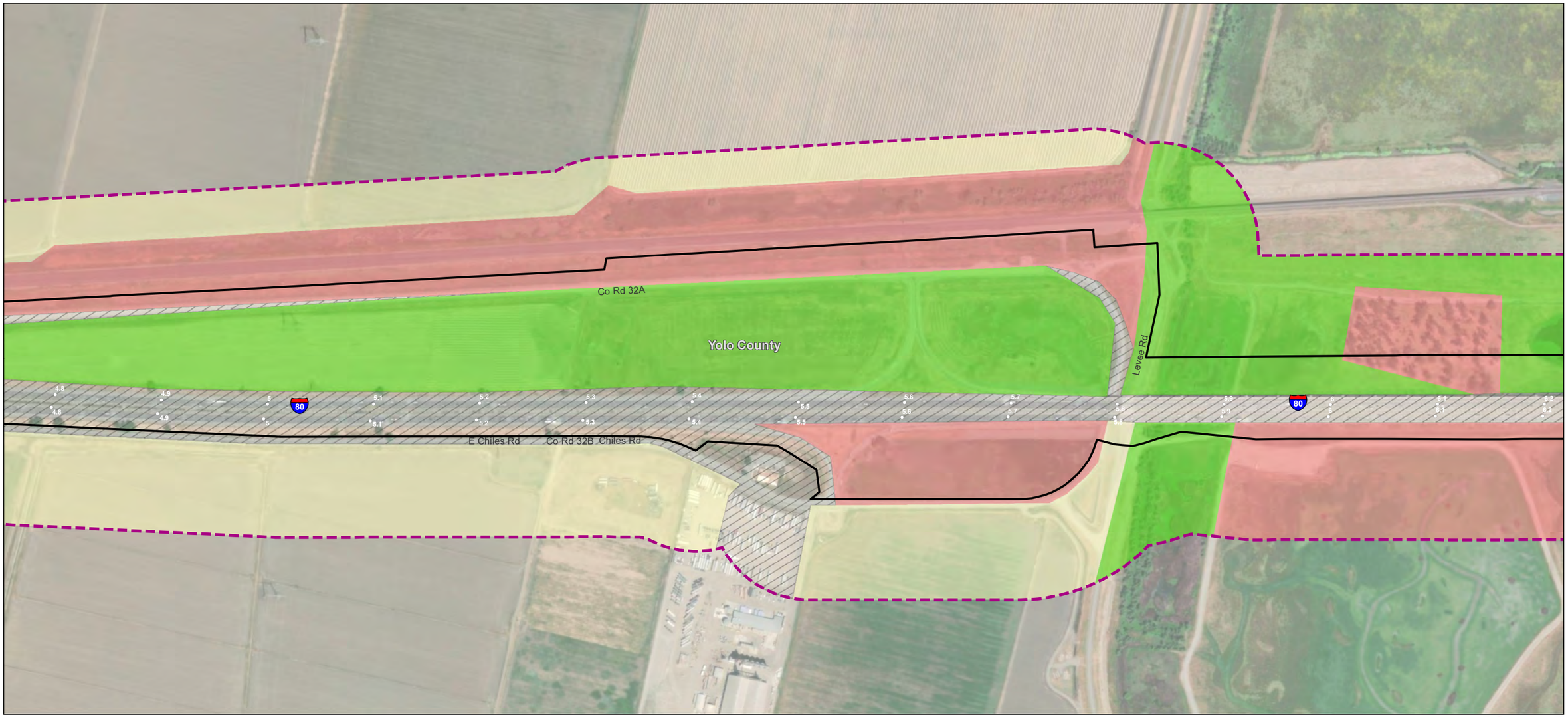

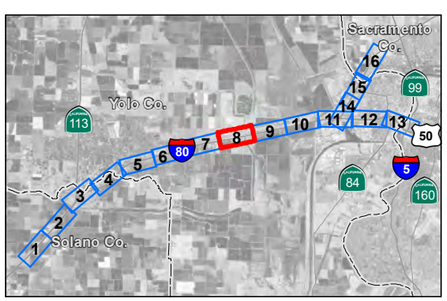

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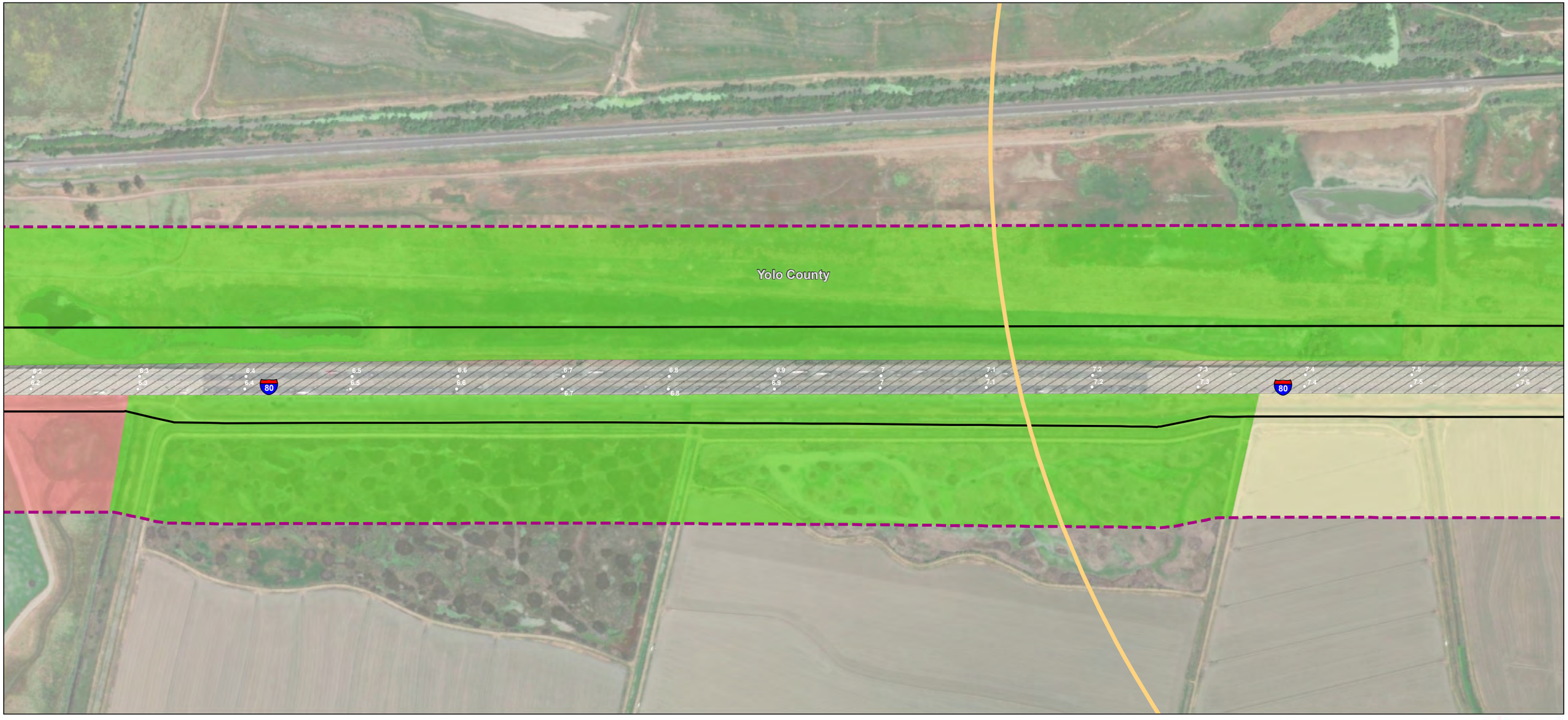

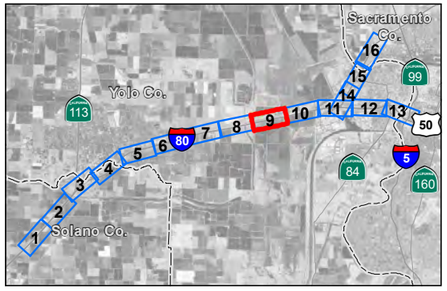

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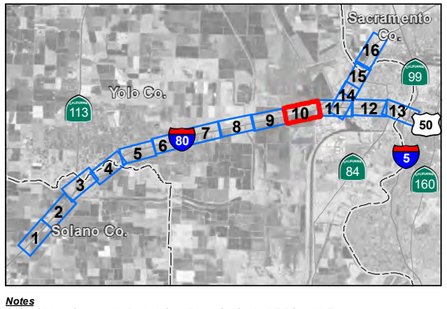
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 2
Tricolored Blackbird Survey Results

Yolo 80 Corridor Improvement Project
EA 03-3H900
Solano, Yolo, and Sacramento Counties, California



Environmental Study Limits (1,047.38 acres)

Post Mile

Study Area (4,019.86 acres)

Tricolored Blackbird CDNNB Occurrence

Tricolored Blackbird Habitat

- Potential Suitable Habitat
- Unsuitable Agriculture
- Unsuitable Habitat Fragment
- Urban/Developed

N

0 1,000

Feet

Notes

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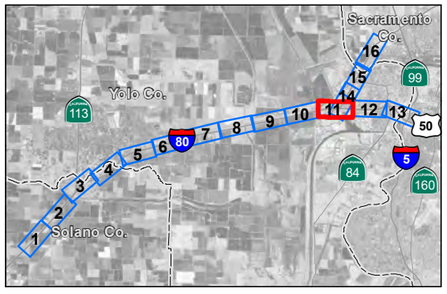
EA 03-3H900
Solano, Yolo, and Sacramento Counties, California



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Post Mile

Study Area (4,019.86 acres)

Tricolored Blackbird CDNNB Occurrence

Tricolored Blackbird Habitat

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0 1,000 Feet

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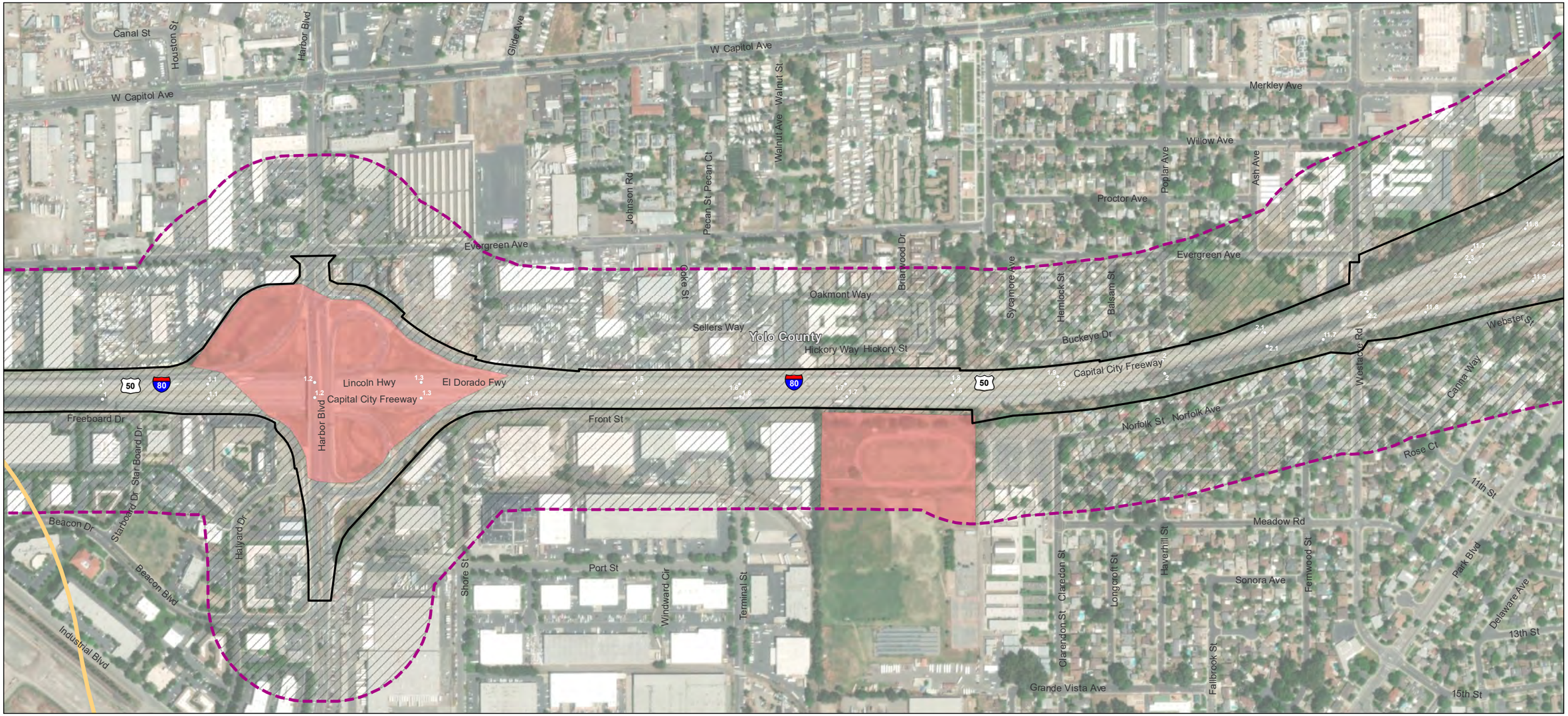
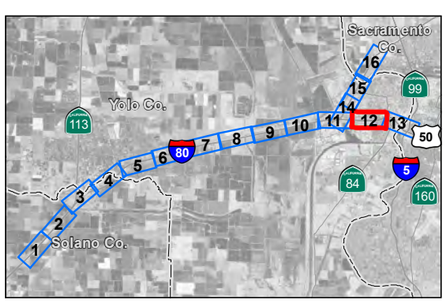
Yolo 80 Corridor Improvement Project
EA 03-3H900
Solano, Yolo, and Sacramento Counties, California





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Tricolored Blackbird Habitat

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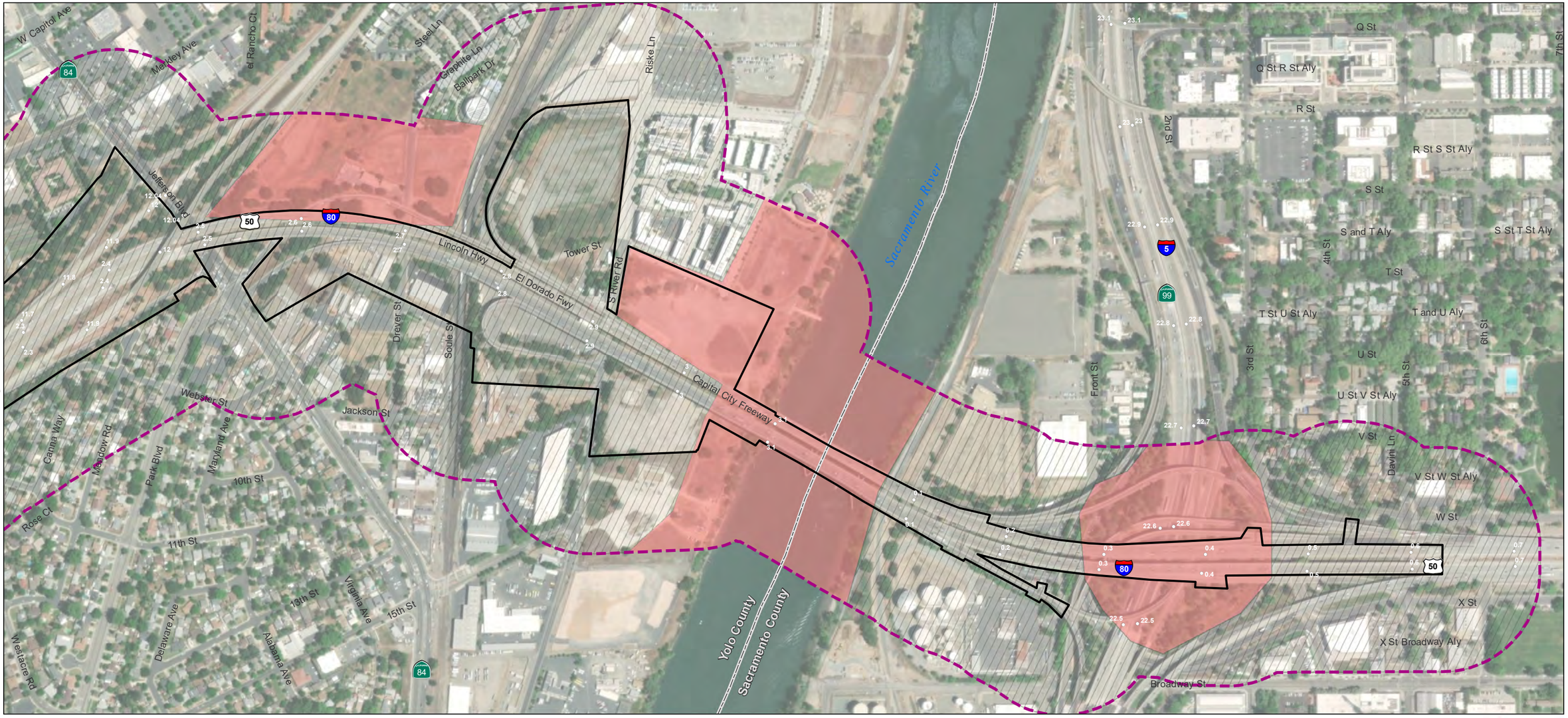
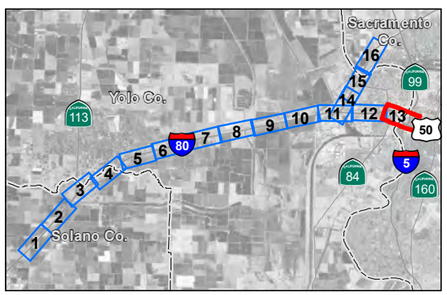
Yolo 80 Corridor Improvement Project
EA 03-3H900
Solano, Yolo, and Sacramento Counties, California





Environmental Study Limits (1,047.38 acres)
Post Mile
County Line

Study Area (4,019.86 acres)
Tricolored Blackbird CDNNB Occurrence

Tricolored Blackbird Habitat
Potential Suitable Habitat
Unsuitable Agriculture
Unsuitable Habitat Fragment
Urban/Developed

0 1,000
Feet

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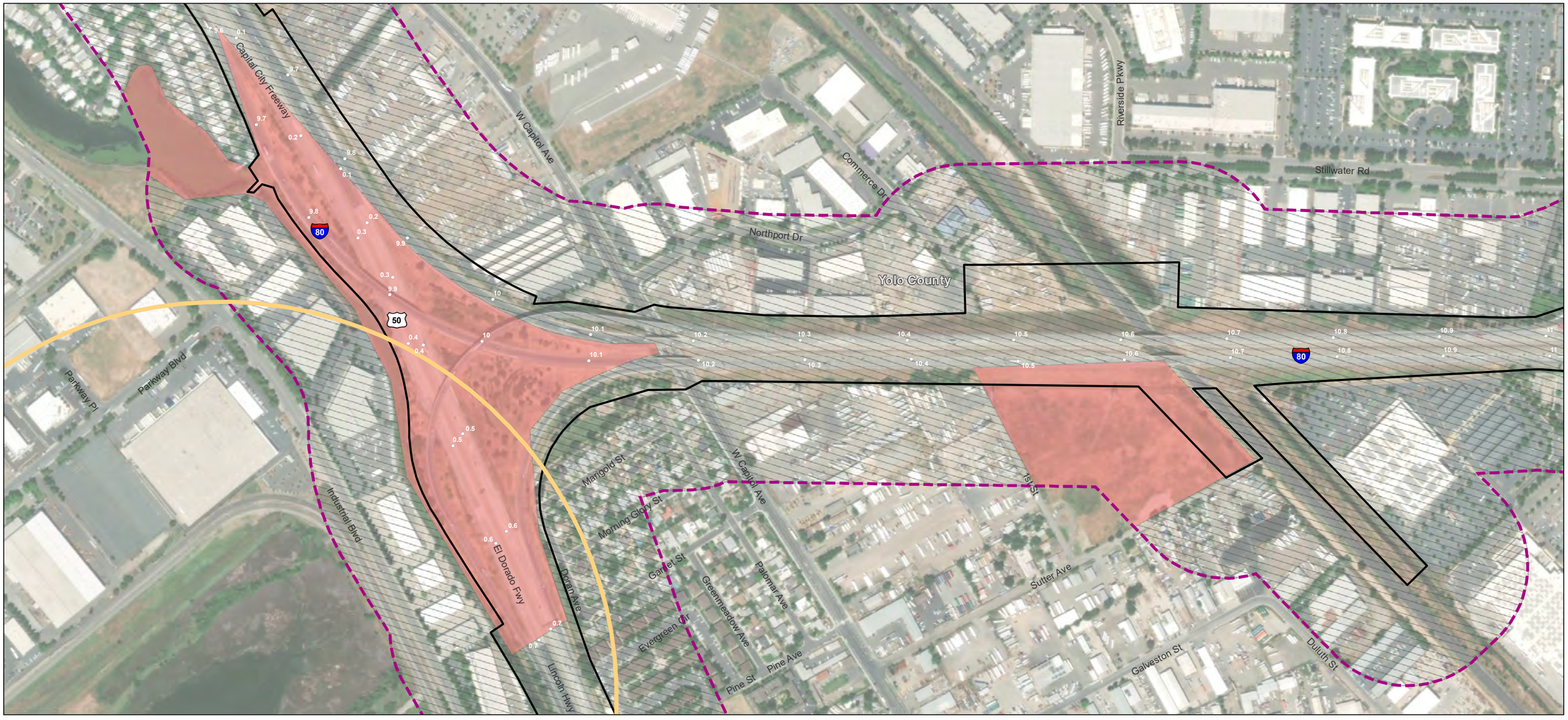
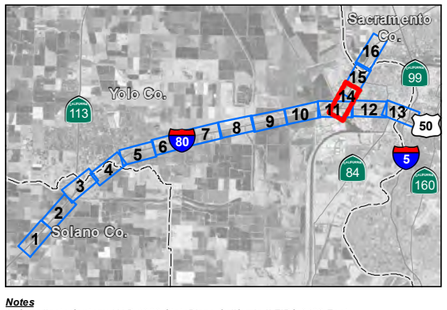
Yolo 80 Corridor Improvement Project
EA 03-3H900
Solano, Yolo, and Sacramento Counties, California





Environmental Study Limits (1,047.38 acres)

Post Mile

Study Area (4,019.86 acres)

Tricolored Blackbird CDNNB Occurrence

Tricolored Blackbird Habitat

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- Unsuitable Habitat Fragment
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N

0 1,000

Feet

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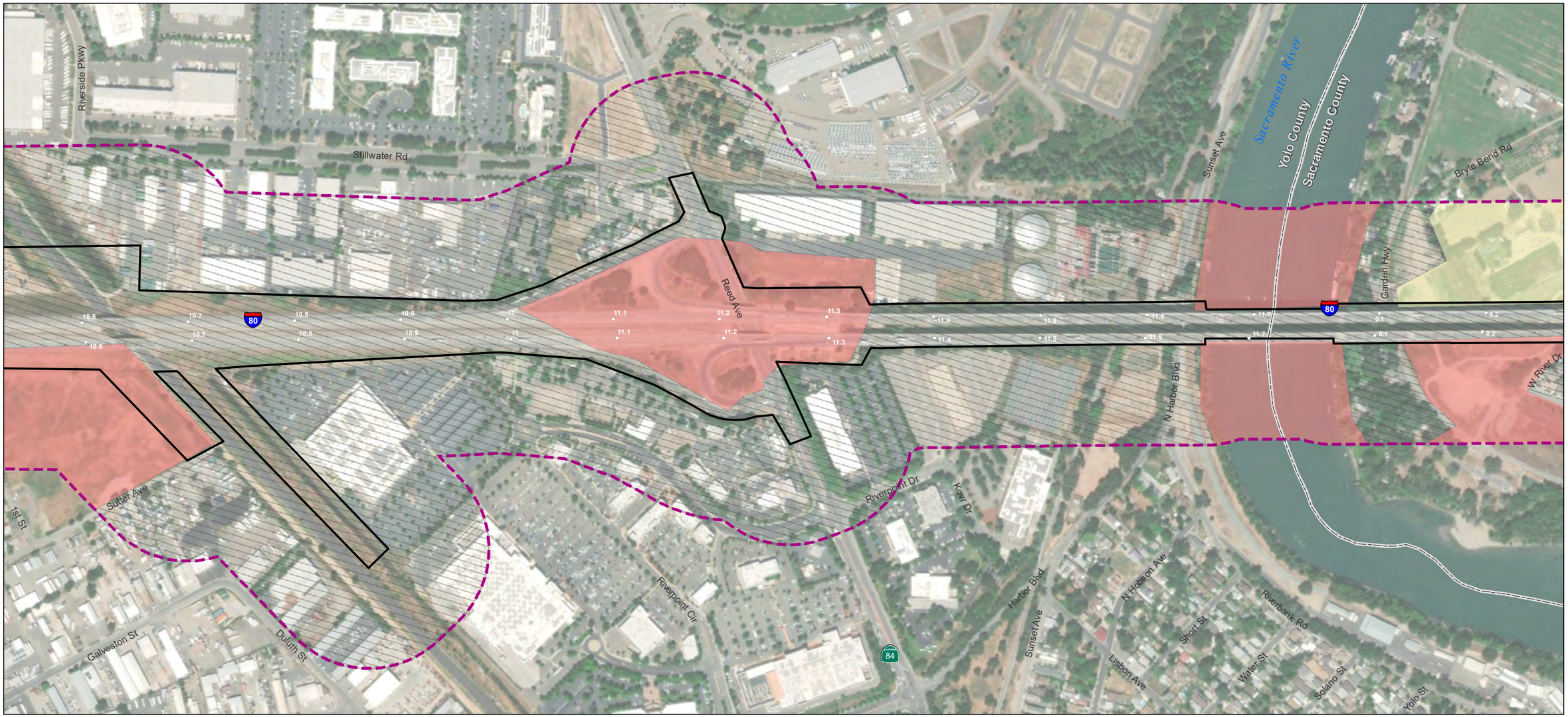
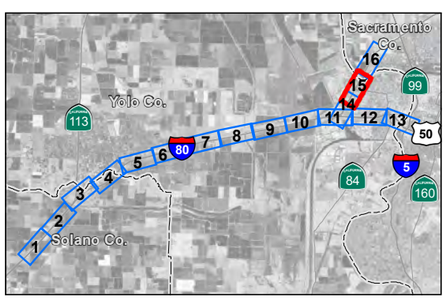
Yolo 80 Corridor Improvement Project
EA 03-3H900
Solano, Yolo, and Sacramento Counties, California





Environmental Study Limits (1,047.38 acres)
Post Mile
County Line

Study Area (4,019.86 acres)
Tricolored Blackbird CDNNB Occurrence

Tricolored Blackbird Habitat
Potential Suitable Habitat
Unsuitable Agriculture
Unsuitable Habitat Fragment
Urban/Developed

N

0 1,000
Feet

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EA 03-3H900
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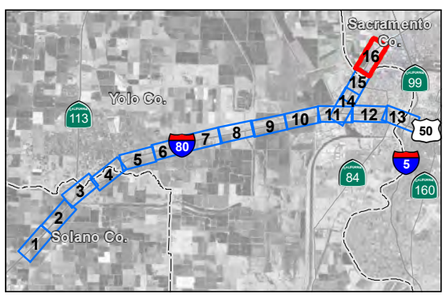

Environmental Study Limits (1,047.38 acres)
Post Mile
County Line

Study Area (4,019.86 acres)
Tricolored Blackbird CDNNB Occurrence

Tricolored Blackbird Habitat
Potential Suitable Habitat
Unsuitable Agriculture
Unsuitable Habitat Fragment
Urban/Developed

N

0 1,000
Feet

Caltrans

Notes
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Tricolored Blackbird Survey Results
Yolo 80 Corridor Improvement Project
EA 03-3H900
Solano, Yolo, and Sacramento Counties, California

Appendix B Representative Photos of Land Cover Types

Figure 1. Urban/Developed land cover type.

Figure 2. Urban/Developed land cover type.

Figure 3. Unsuitable agriculture land cover type.

Figure 4. Unsuitable agriculture land cover type.

Figure 5. Unsuitable habitat fragment land cover type.

Figure 6. Unsuitable habitat fragment land cover type.

Figure 7. Potentially suitable habitat land cover type.

Figure 8. Potentially suitable habitat land cover type.