

Caltrans District 3 Yolo 80 Corridor Improvements Project



Nesting Swainson's Hawk Protocol Survey Report

Caltrans District 3 Yolo 80 Corridor Improvements Project
Sacramento, Yolo, and Solano Counties, California
Sol PM 39.7 / Yolo-80 PM M1.350 / Sac-50 PM L0.617
EA: 03-3H900 / EFIS: 0318000085

August 2021



Caltrans District 3 Yolo 80 Corridor Improvements Project

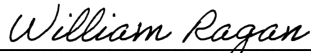
Nesting Swainson's Hawk Protocol Survey Report

Sacramento, Yolo, and Solano Counties, California
Sol PM 39.7 / Yolo-80 PM M1.350 / Sac-50 PM L0.617
EA: 03-3H900 / EFIS: 0318000085

STATE OF CALIFORNIA
Department of Transportation

Prepared By:  Date: 08/09/2021

Chariss Femino, Biologist
(530) 254-4631
Stantec Consulting Services Inc.
2595 Ceanothus Avenue, Suite 182, Chico, CA 95973

Reviewed By:  Date: 10/14/2021

William Ragan, Environmental Planner/Natural Sciences
(530) 812-6888
Caltrans District 3, Marysville, California

Recommended For
Approval By:  Date: 10/14/2021

Gregory Saiyo, Associate Environmental Planner/Natural Sciences
(530) 845-3397
Caltrans District 3, Marysville, California

Approved By:  Date: 10/14/21

Julia K Green, Senior Environmental Planner
(530) 933-9323
Caltrans District 3, Marysville, California

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Masum Patwary, Environmental Planning, 703 B Street Marysville, CA 95901; (530) 812-7634 (Voice) or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

Table of Contents

Acronyms and Abbreviations	ii
Chapter 1. Introduction	1
Chapter 2. Background Information	1
Chapter 3. Methodology	2
3.1. Background Research.....	2
3.2. Field Surveys	2
Chapter 4. Results.....	4
4.1. Swainson's Hawk.....	4
4.2. Other Raptors	5
Chapter 5. Conclusion	5
Chapter 6. References	6

Tables

Table 1. Swainson's Hawk Protocol Survey Details	3
--	---

Appendices

Appendix A	Figures
Appendix B	California Natural Diversity Database Occurrence Details
Appendix C	Representative Photographs

Acronyms and Abbreviations

Caltrans	California Department of Transportation
CNDDDB	California Natural Diversity Database
ESL	environmental study limits
I-80	Interstate 80
project	03-3H900 Yolo 80 Corridor Improvements Project
Protocol	Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley
Stantec	Stantec Consulting Services Inc.
SWHA	Swainson's hawk
US-50	United States Route 50

Chapter 1. Introduction

This report presents the methods, results, and conclusions of the protocol level survey for nesting Swainson's hawk (SWHA) (*Buteo swainsoni*) within the 03-3H900 Yolo 80 Corridor Improvements Project's (project) environmental study limits (ESL), which encompasses all currently proposed project components and disturbance areas (e.g., road widening, paving, staging/laydown areas). The study area for the purposes of the SWHA protocol level survey consists of a 0.5-mile buffer around the ESL. The findings of this report will be used to inform the analysis and determinations made in the Natural Environment Study and environmental documents for the project.

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 U.S. Route 50 (US-50) from Kidwell Road near the eastern Solano County boundary (near the City of Dixon), through Yolo County, 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 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.

Chapter 2. Background Information

SWHA is listed as threatened under the California Endangered Species Act. SWHA typically nests in stands with few trees in juniper-sage flats, riparian areas, oak savannah, and open agricultural habitats. They require nearby open fields for foraging, including livestock pastures, grasslands, alfalfa, and grain fields. According to a study performed by Estep (2009) regarding the suitability of vegetation structure on SWHA foraging habitat, different habitats offer either high, moderate, or low suitability for SWHA foraging. Their preferred prey items are voles (*Microtus* sp.), pocket gophers (*Thomomys bottae*), birds, and insects such as grasshoppers (*Caelifera* sp.) (Estep 1989). SWHAs are migratory and typically begin arriving in their breeding territory in the Central Valley in early March to April and immediately begin reconstructing previously used nests or constructing new ones (Estep 2009). They typically begin their southerly migration in early August to mid-September (Estep 2009). The study area occurs within the current range (updated in 2011) of SWHA.

Chapter 3. Methodology

3.1. Background Research

Prior to conducting fieldwork, Stantec Consulting Services Inc. (Stantec) biologists performed a database search of the California Natural Diversity Database (CNDDDB) to determine the location of reported SWHA nests in the vicinity of the project area (California Department of Fish and Wildlife 2021). The CNDDDB recorded 48 separate occurrences of SWHA within 0.5-mile of the ESL between 1988 and 2016 (Appendix A, Figure 2). Details of the CNDDDB occurrences are provided in Appendix B.

3.2. Field Surveys

Protocol level surveys for SWHA were performed according to the methodology described in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Protocol) (Swainson's Hawk Technical Advisory Committee 2000). The Protocol requires surveys be completed over the course of the five survey periods during the following timeframes:

- One survey between January and March 20 during Period I
- Three surveys between March 20 and April 5 during Period II
- Three surveys between April 5 and April 20 during Period III
- No surveys between April 20 and June 10 during Period IV
- Three surveys between June 10 and July 30 during Period V

Stantec biologists conducted protocol level surveys to identify potential nests that could be utilized by SWHA and other nesting raptors along the entire project area alignment. The study area consisted of the ESL and a survey buffer of 0.5-mile (16,022 total acres) around the ESL, which was established to survey for potential SWHA nests. Table 1 provides information pertaining the survey efforts conducted during each of the survey periods.

All surveys were performed by driving along public roads within the study area and walking to observe nests when unable to access with a vehicle. Observations were made using binoculars and spotting scopes. The following information was recorded (depending on access and visibility) using a mapping grade global positioning system:

- SWHA observations and behavior
- Active raptor nests within the study area
- Inactive raptor-sized nests within the study area
- Change in nest status between surveys

Table 1. Swainson's Hawk Protocol Survey Details

2021 Protocol Period and Survey Window	Dates Surveys Performed	Names of Surveyors	Time	Weather
I. January-March 20 All Day	January 12, 2021	Chariss Femino, Brendan Cohen, Jacqueline Phipps, Scott Elder	0730-1630	43° to 54° F Slightly overcast
	February 17, 2021	Jacqueline Phipps	0700-1100	54° to 63° F Slightly overcast
II. March 20-April 5 Sunrise to 1000 1600 to Sunset	March 22-23, 2021	Chariss Femino, Brendan Cohen, Jacqueline Phipps, Scott Elder	0700-1000	42° to 50° F Clear
	March 24-25, 2021	Chariss Femino, Brendan Cohen, Jacqueline Phipps, Scott Elder	0700-1000	47° to 55° F Windy
	March 26 and 29, 2021	Chariss Femino, Brendan Cohen, Meghan Oats, Scott Elder	0700-1000	43° to 58° F Clear
III. April 5-April 20 Sunrise to 1200 1630 to Sunset	April 5-6, 2021	Chariss Femino, Brendan Cohen, Jacqueline Phipps, Scott Elder	0700-1200	44° to 60° F Overcast
	April 7-8, 2021	Chariss Femino, Brendan Cohen, Jacqueline Phipps, Jared Elia, Scott Elder	0700-1200	39° to 62° F Clear
	April 9 and 12, 2021	Chariss Femino, Brendan Cohen, Jacqueline Phipps, Jared Elia, Scott Elder	0700-1200	44° to 62° F Clear
IV. April 21-June 10	<i>Per Protocol, no surveys conducted during this Period.</i>			
V. June 10-July 30 Sunrise to 1200 1600 to Sunset	July 7, 2021	Chariss Femino, Brendan Cohen, Meghan Oats, Scott Elder	0630-1200	54° to 79° F Clear
	July 8, 2021	Chariss Femino, Brendan Cohen, Meghan Oats, Scott Elder	0630-1200	55° to 86° F Clear
	July 9, 2021	Chariss Femino, Brendan Cohen, Meghan Oats, Scott Elder	0630-1200	64° to 96° F Clear

Chapter 4. Results

A total of 95 potentially suitable SWHA nests were identified during the Period I survey. Between surveys in Periods I and II, several nests were blown down in a large windstorm. Considering SWHA typically return to the same nest tree year after year, these nests are shown as “Nest No Longer Present” on Figures 3-1 and 3-2 in Appendix A. As observed during subsequent surveys, more nests were constructed, and by the end of Period III a total of 132 nests were identified. Of the 132 nests, 24 were determined to be active SWHA nests, 14 were other active raptor nests, six were active non-raptor nests, and 88 were inactive and marked as potential nests for future nesting seasons. Nest locations and observations made within Periods I and II surveys are shown in Appendix A, Figure 3-1. Active nests identified and observations made within the Period III survey are shown in Appendix A, Figure 3-2. Representative photographs are located in Appendix C.

4.1. Swainson’s Hawk

During Period I surveys, on January 12 and February 17, 2021, seven observations of overwintering SWHAs were made within the vicinity of Davis. During the Period II surveys in March 2021, a total of 49 SWHA observations were made throughout the study area. The most common observations were of SWHA perched, soaring, and exhibiting territorial behavior. During Period III surveys in April 2021, a total of 145 SWHA observations were made throughout the study area. The most common observations during this period were of SWHA carrying nest materials, courtship behaviors, territorial behaviors, soaring, perched, vocalizing, and copulating.

During Period III, 24 active SWHA nests were observed throughout the study area (Appendix A, Figure 3-2). Nests were marked as active during this period when SWHA were observed carrying nest material to the nest and/or perched or copulating adjacent to the nest. Several nests (N074, N083, and N088) are located within or immediately adjacent to the ESL. Although most nests are located within the Yolo Bypass in riparian areas and areas adjacent to agricultural lands, several nests are located within urban areas such as the cities of Sacramento (N017) and Davis (N083, N087, N088, and N093).

Of the 24 active SWHA nests observed in Period III, the fledgling success was not able to be determined at 12 of the nests. Some nests were not observed due to visibility (i.e. denser tree canopy). Some nests (N012, N049, N083, N087, N090, and N108) had no SWHA activity which could be the result of nest failure or birds building nests at multiple locations. One nest (N065) had adults present but no fledglings on or in the vicinity of the nest. The fledgling success of this nest is unknown and the presence of adults exhibiting territorial behavior in the vicinity of a nest with no fledglings may be due to inexperienced pairs. During the Period V survey, a total of 13 SWHA fledglings were observed at 12 nests (Appendix A, Figure 3-3). All 12 nests had one fledgling present, with the exception of N74, where two fledglings were present. During the time of the survey, all fledglings were still in the nests, with the exception of N059 where the fledgling was observed flying short distances. During the Period V survey, a total of 52 SWHA observations were made throughout the study area.

4.2. Other Raptors

Ten red-tailed hawk (*Buteo jamaicensis*) nests (N032, N044, N064, N067, N071, N078, N082, N089, N099, and N114), one red-shouldered hawk (*Buteo lineatus*) nest (N103), two great horned owl (*Bubo virginianus*) nests (N060 and N070), and one osprey (*Pandion haliaetus*) nest (N013) were documented within the study area during surveys completed in Periods II and III. In addition, observations of other special-status avian species including northern harrier, (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), and bald eagle (*Haliaeetus leucocephalus*) were noted given the special status of all three species. No white-tailed kite, northern harrier, or bald eagle nests were observed within the study area.

Chapter 5. Conclusion

With the abundance of nest trees and foraging habitat within the study area, SWHA have a high potential to nest throughout the study area in the future. They could potentially utilize active and potential nests observed during the Protocol survey or build new nests in suitable nest trees.

Chapter 6. References

- California Department of Fish and Wildlife. 2021. California natural diversity database - RareFind 5 for commercial subscribers. Available online at <https://nrm.dfg.ca.gov/cnddb> (accessed January 16, 2021).
- Estep, James A. 1989. Biology, Movements and Habitat Relationships of the Swainson's Hawk in the Central Valley of California, 1986-1987. California Department of Fish and Game, Wildlife Management Division, Nongame Bird and Mammal Section. 52pp.
- . 2009. The influence of vegetation structure on Swainson's hawk (*Buteo swainsoni*) foraging habitat suitability in Yolo County, California. Prepared for the Yolo Natural Heritage Program. Woodland, CA.
- Swainson's Hawk Technical Advisory Committee. 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.

Appendix A Figures

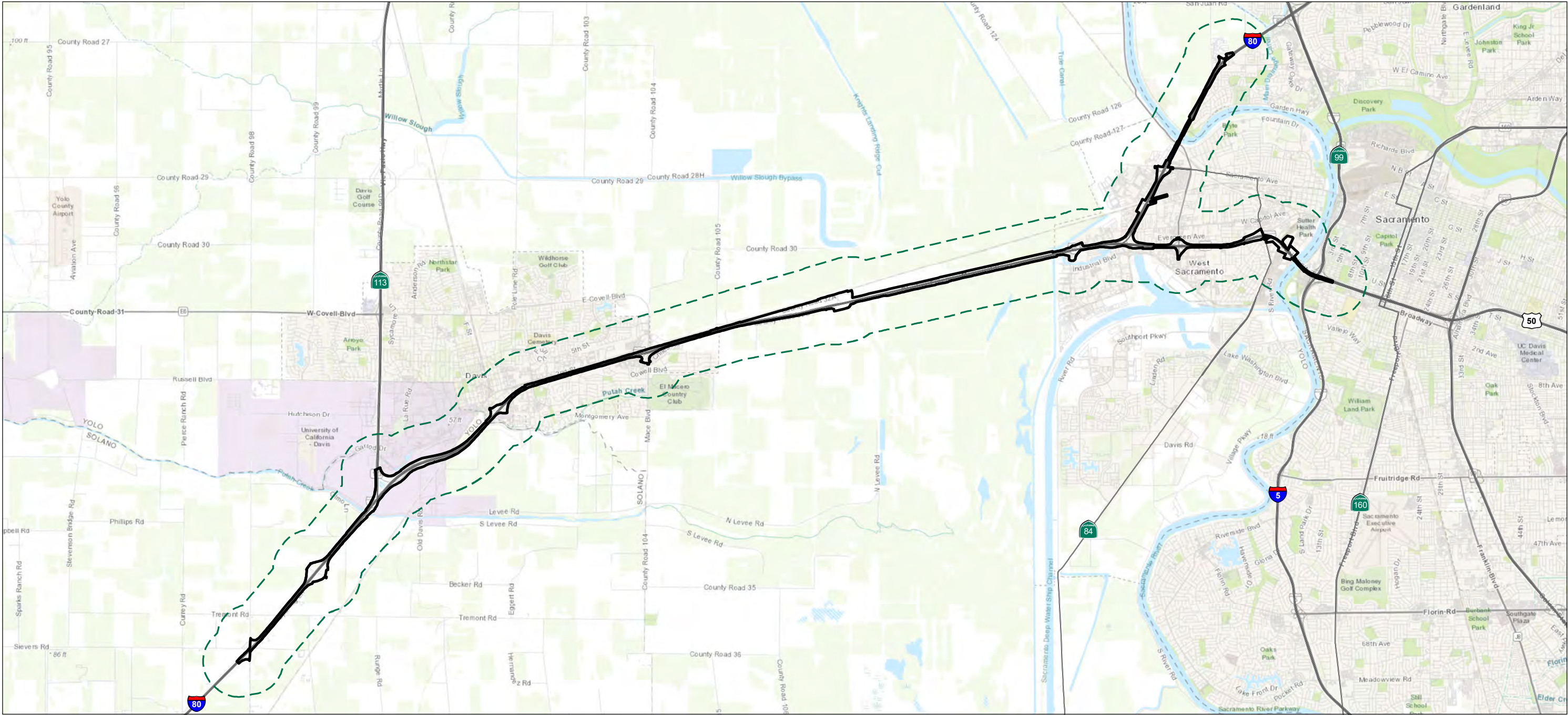
Figure 1. Project Location



Figure 2. CNDDDB Occurrences

Figure 3-1. SWHA Survey Results Periods I and II

Figure 3-2. SWHA Survey Results Period III

Figure 3-3. SWHA Survey Results Period V



 Environmental Study Limits (ESL) (1,137.219 acres)
 Study Area (16,021.882 acres)

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

Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2021
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

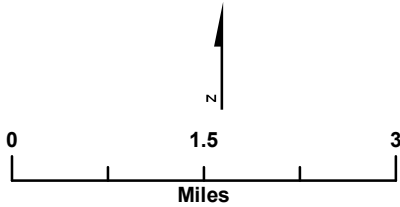
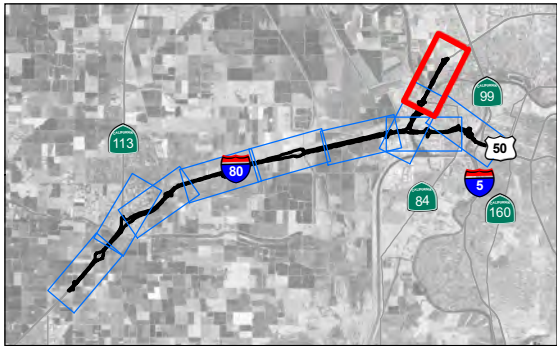
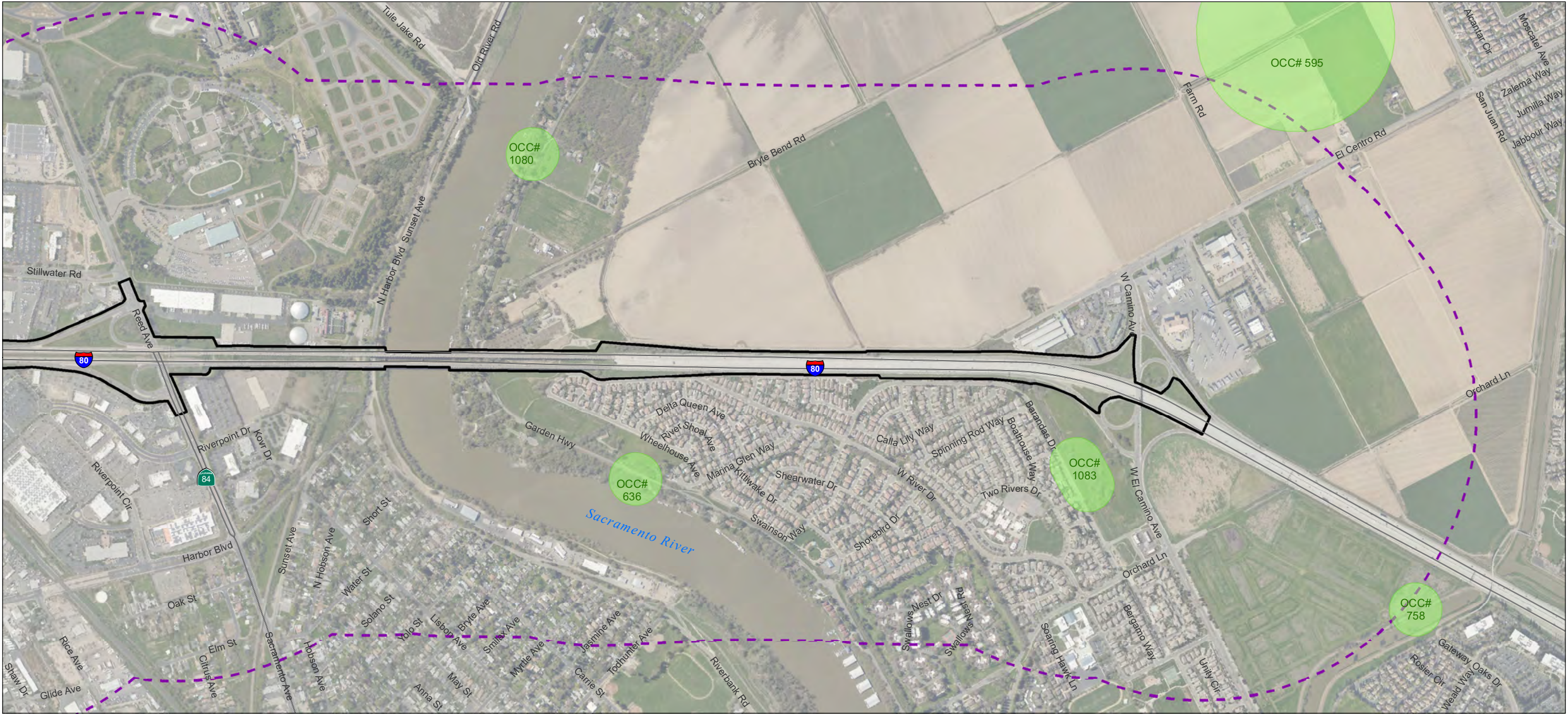


Figure 1
Project Location
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
 2. Data Sources: CalTrans, Stantec, 2020
 3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SSHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

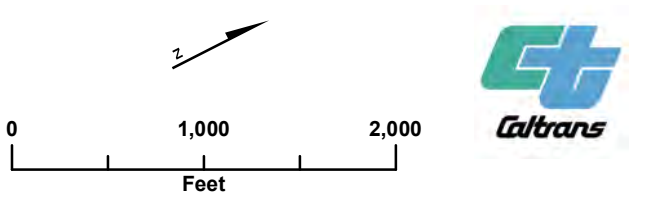
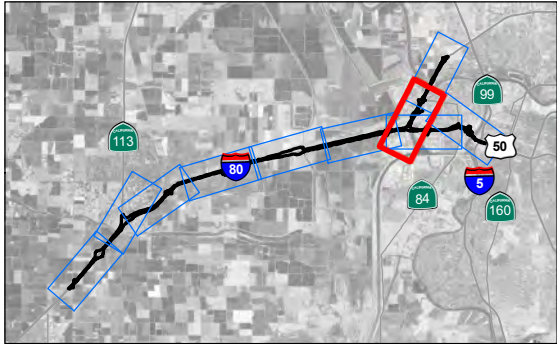


Figure 2
CNDDDB Occurrences
 Yolo 80 Corridor Improvements Project
 SSHA Survey Report

*Sacramento, Solano, and
 Yolo Counties, California*



Notes
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
 2. Data Sources: CalTrans, Stantec, 2020
 3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SWHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

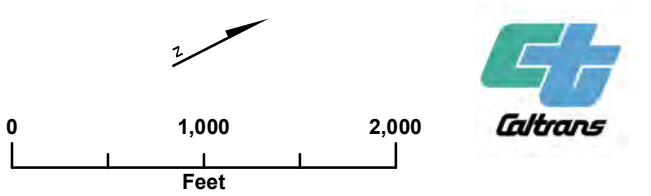
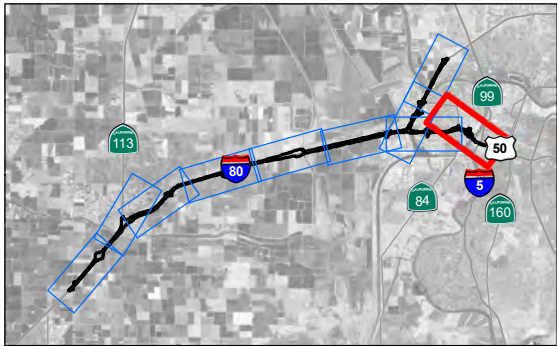
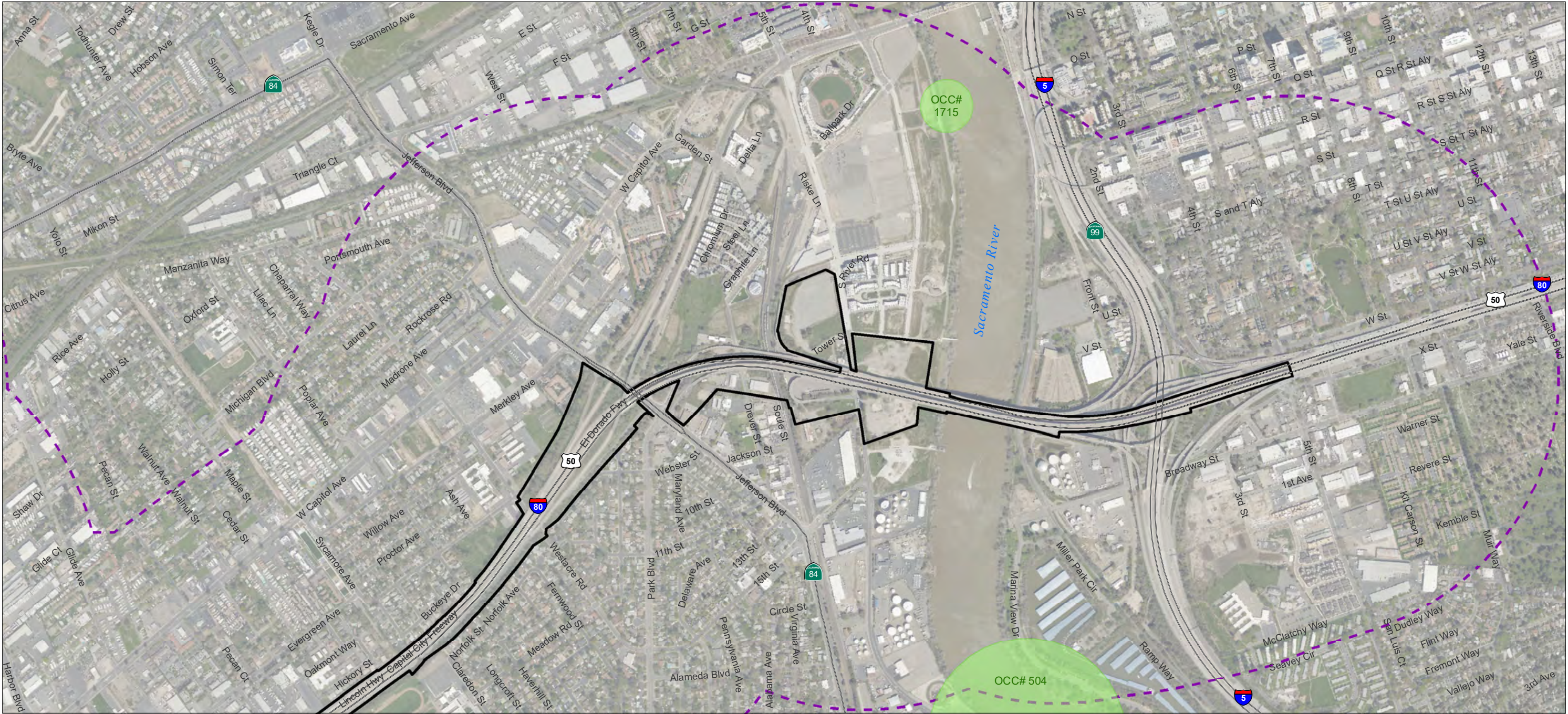


Figure 2
CNDDB Occurrences
 Yolo 80 Corridor Improvements Project
 SWHA Survey Report

*Sacramento, Solano, and
 Yolo Counties, California*

Sheet 2 of 10



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SSHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

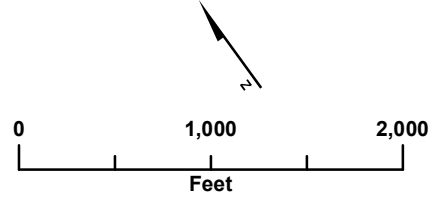
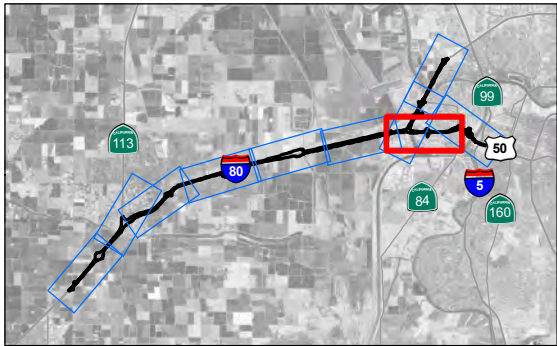
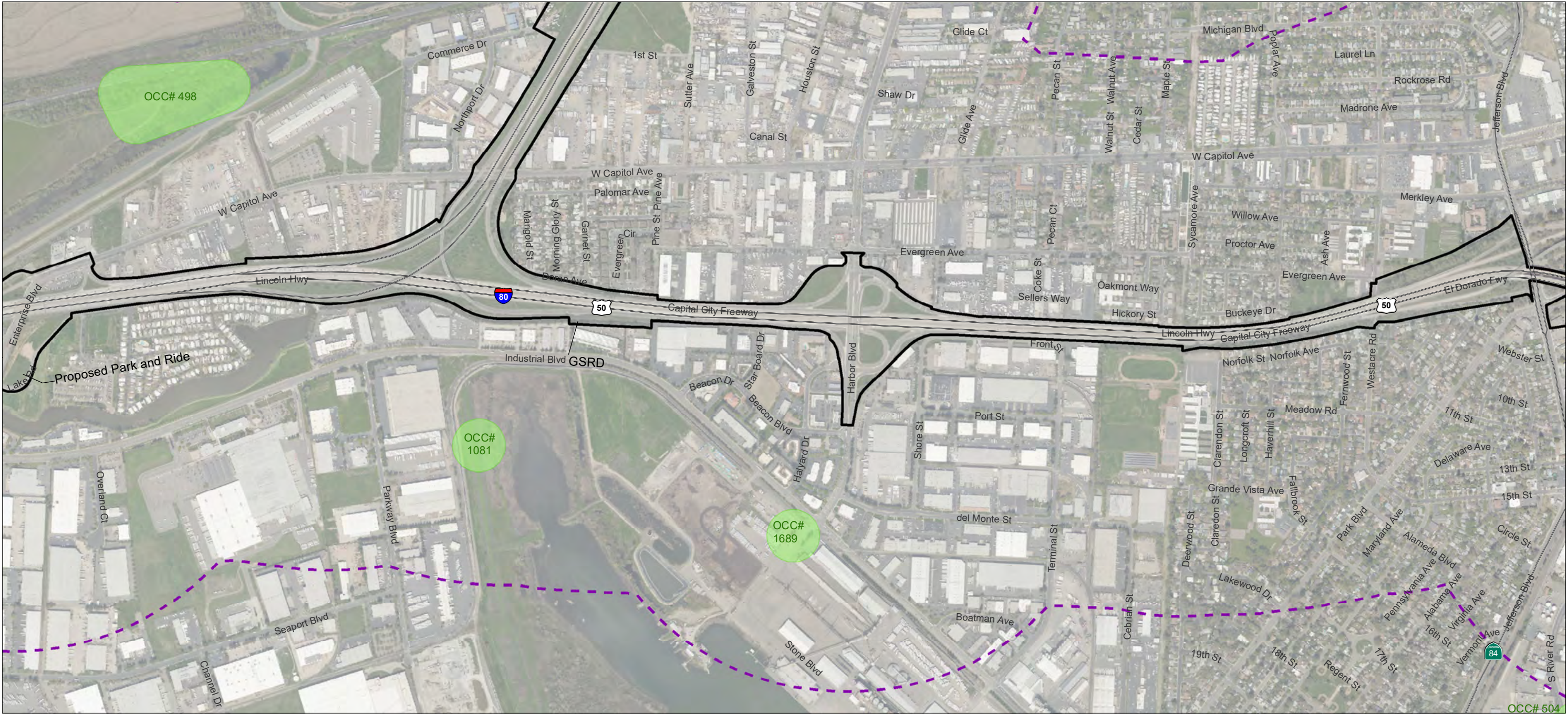


Figure 2
CNDDDB Occurrences
Yolo 80 Corridor Improvements Project
SSHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*
Sheet 3 of 10



Notes
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
 2. Data Sources: CalTrans, Stantec, 2020
 3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SSHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

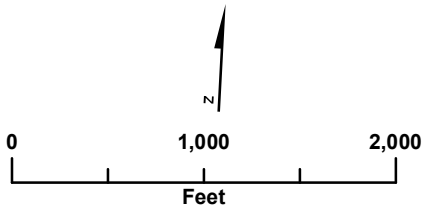
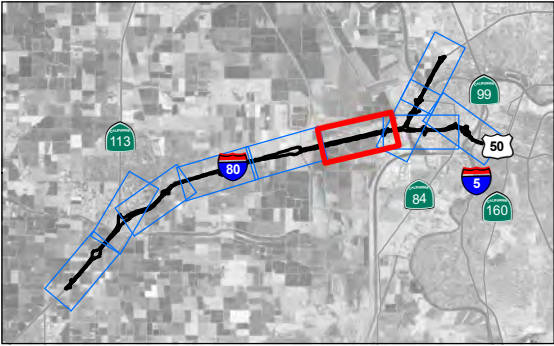


Figure 2
CNDDB Occurrences
 Yolo 80 Corridor Improvements Project
 SSHA Survey Report

*Sacramento, Solano, and
 Yolo Counties, California*

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_012_SWHA_CNDDDB_Mapbook.mxd Revised: 2021-08-04 By: stroedison



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SSHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

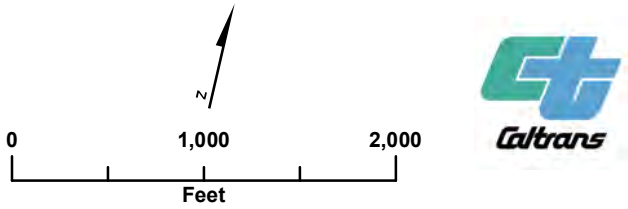
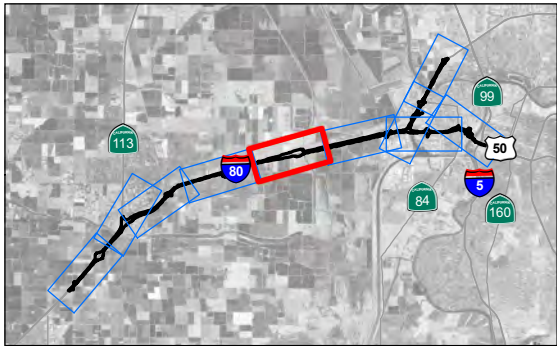
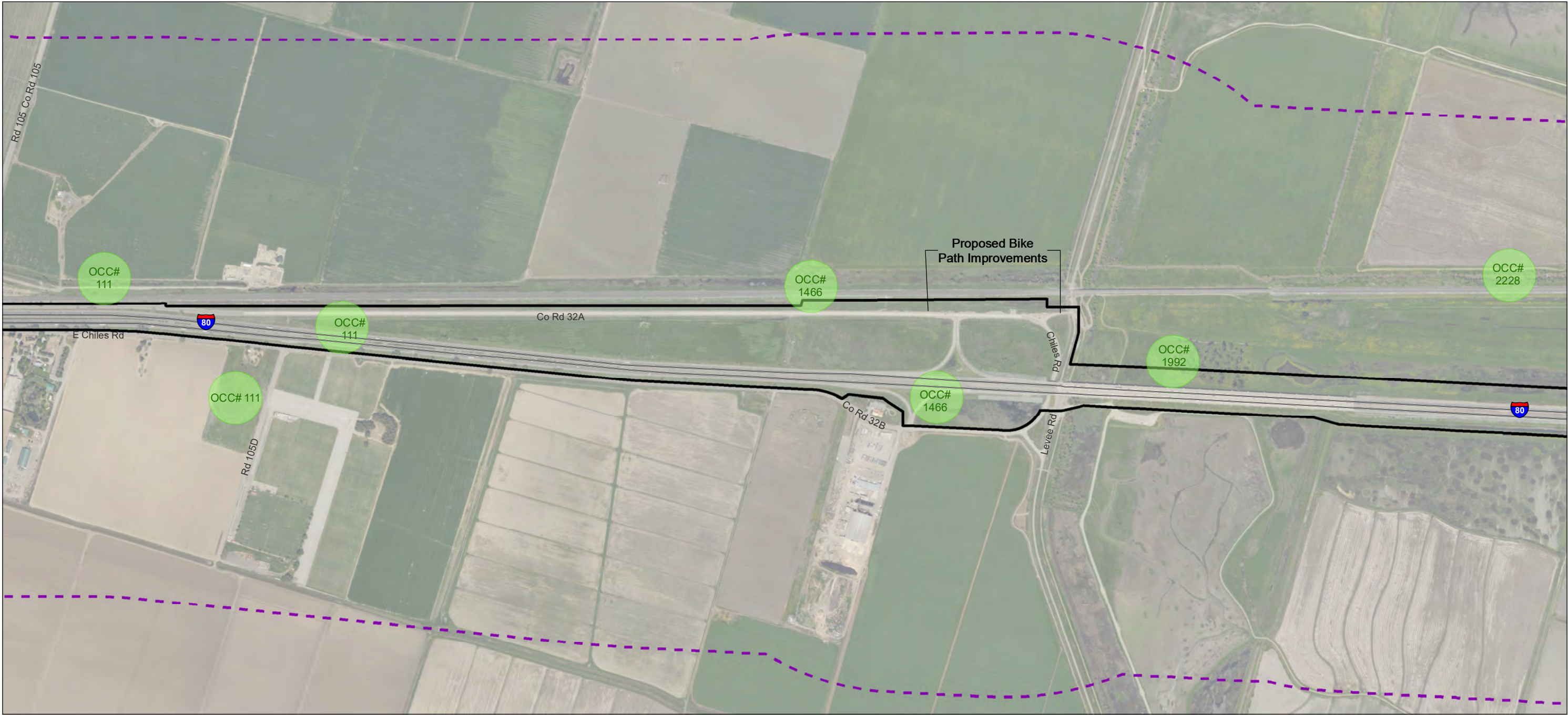


Figure 2
CNDDDB Occurrences
Yolo 80 Corridor Improvements Project
SSHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*
Sheet 5 of 10

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_012_SWHA_CNDDDB_Mapbook.mxd Revised: 2021-08-04 By: stroedison



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SWHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

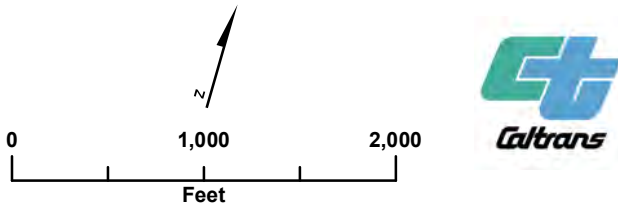
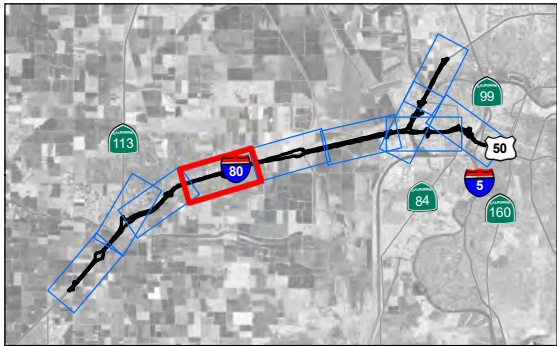


Figure 2
CNDDDB Occurrences
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*
Sheet 6 of 10



Notes
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
 2. Data Sources: CalTrans, Stantec, 2020
 3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SSHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

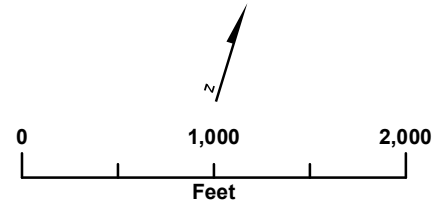
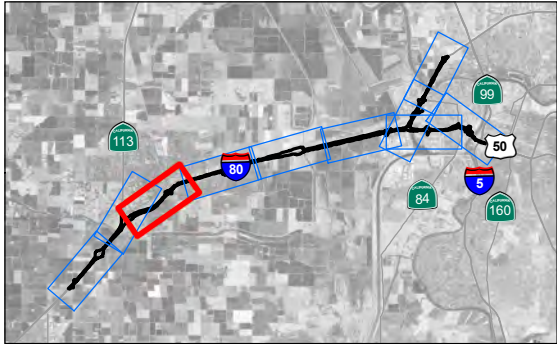
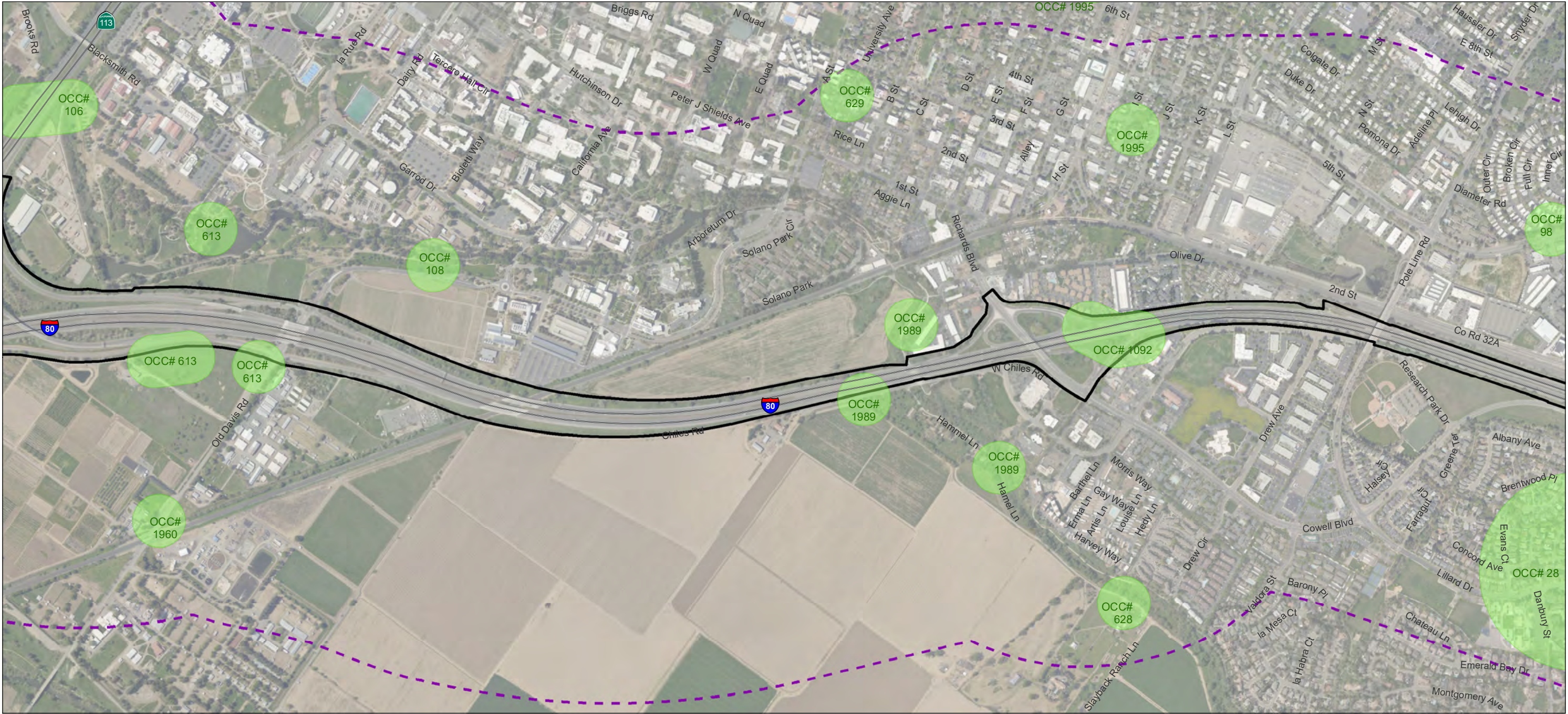


Figure 2
CNDDDB Occurrences
 Yolo 80 Corridor Improvements Project
 SSHA Survey Report

*Sacramento, Solano, and
 Yolo Counties, California*



- SWHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

Notes
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
 2. Data Sources: CalTrans, Stantec, 2020
 3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

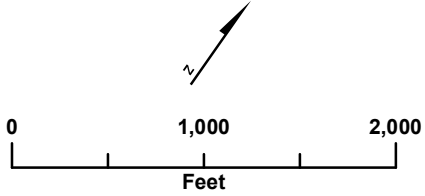
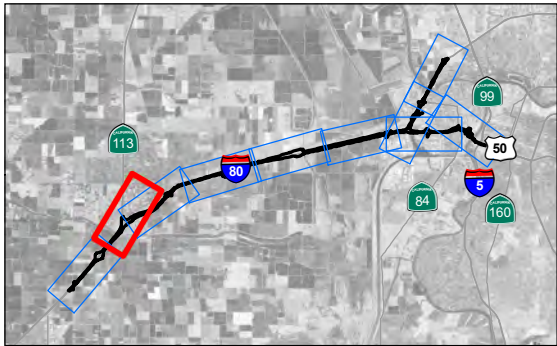
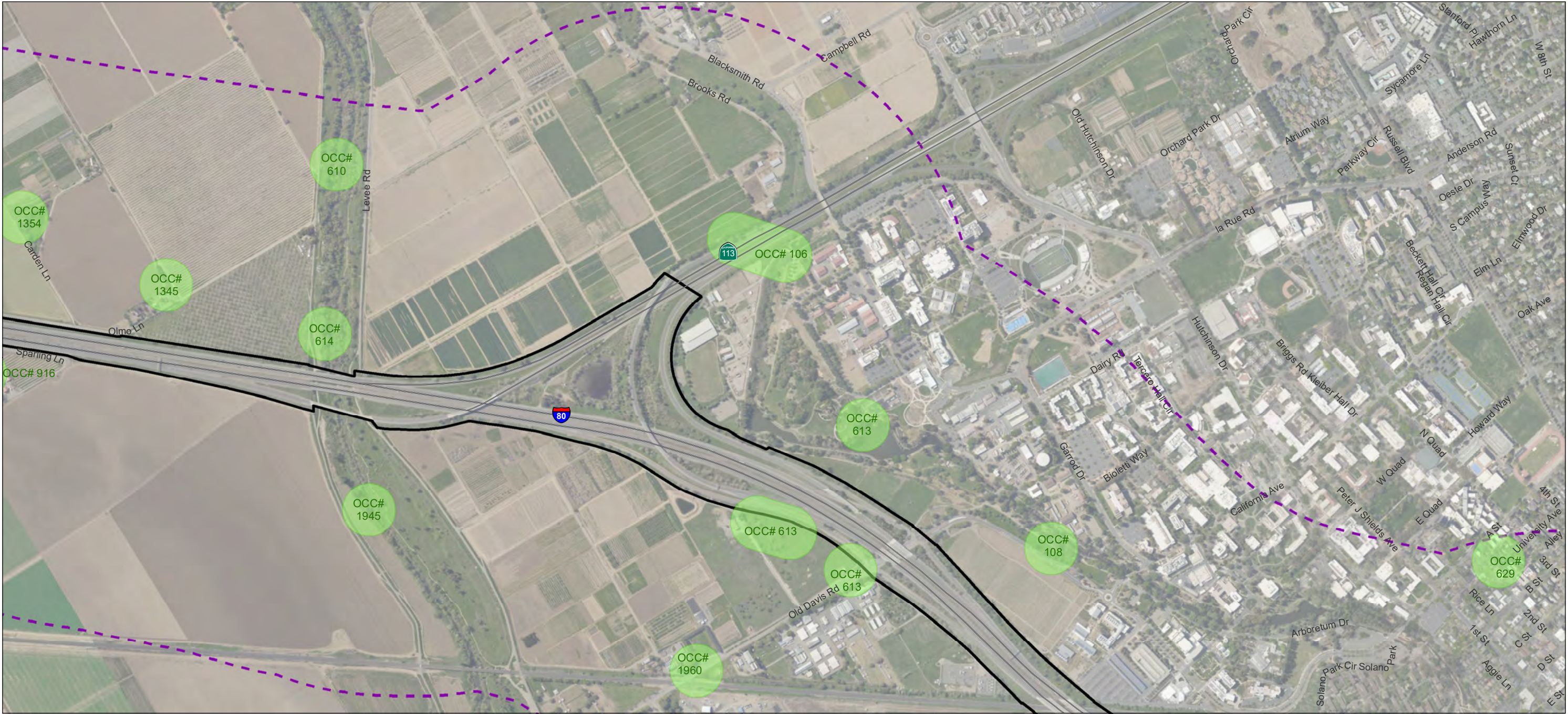


Figure 2
CNDDDB Occurrences
 Yolo 80 Corridor Improvements Project
 SWHA Survey Report

*Sacramento, Solano, and
 Yolo Counties, California*



Notes
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
 2. Data Sources: CalTrans, Stantec, 2020
 3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SSHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

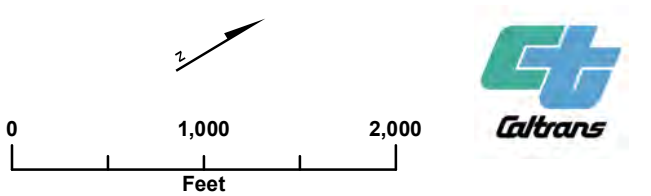
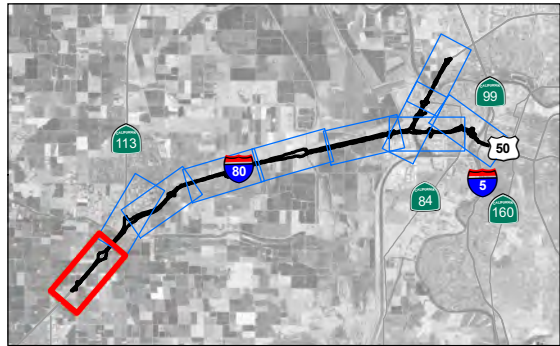
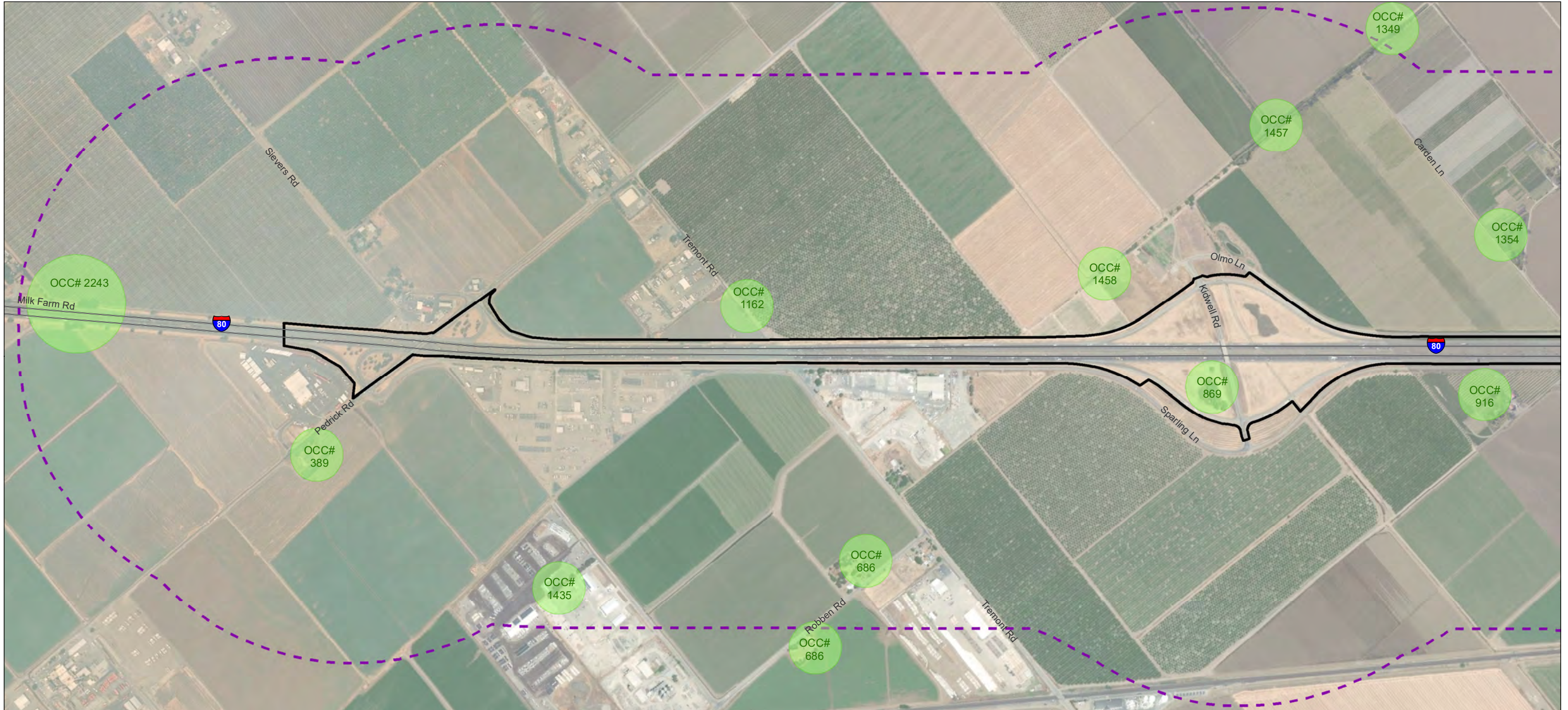


Figure 2
CNDDDB Occurrences
 Yolo 80 Corridor Improvements Project
 SSHA Survey Report
 Sacramento, Solano, and
 Yolo Counties, California
 Sheet 9 of 10

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_012_SWHA_CNDDDB_Mapbook.mxd Revised: 2021-08-04 By: stroedison



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- SWHA Occurrences in CNDDDB
- Study Area (16,021.882 acres)
- Environmental Study Limits (ESL) (1,137.219 acres)

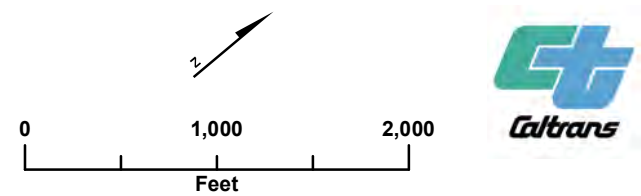
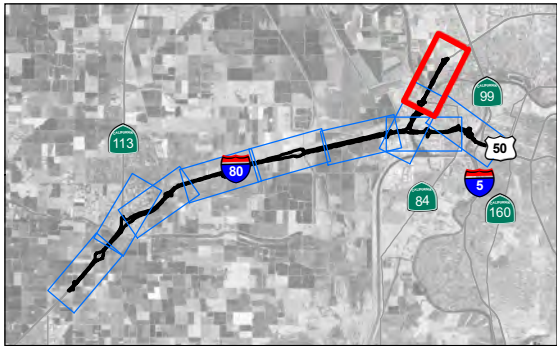
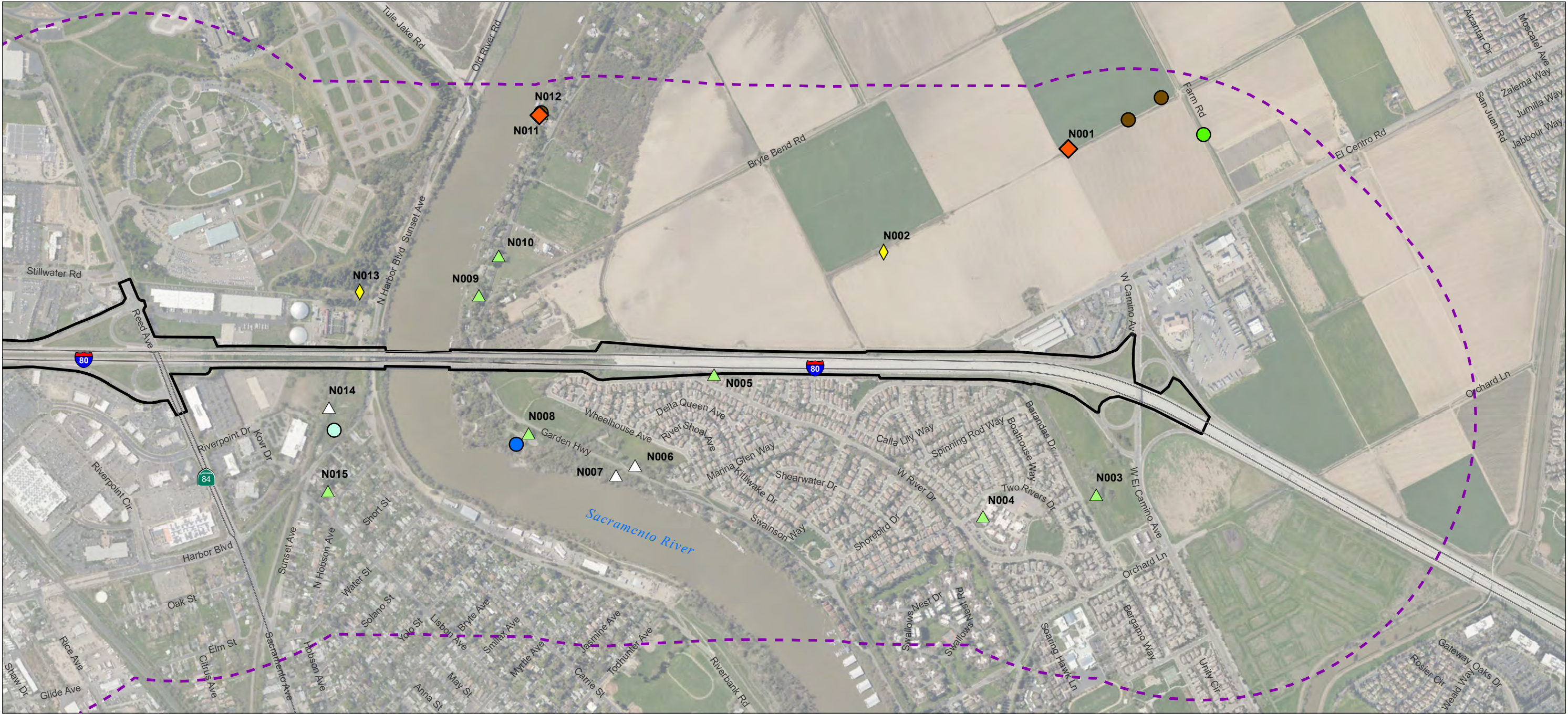


Figure 2
CNDDDB Occurrences
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*
Sheet 10 of 10



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

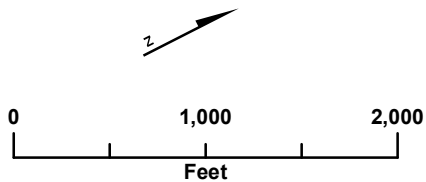
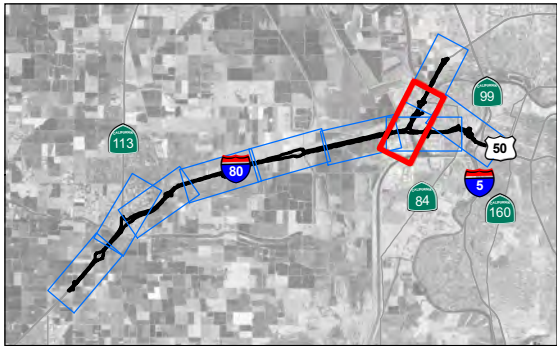
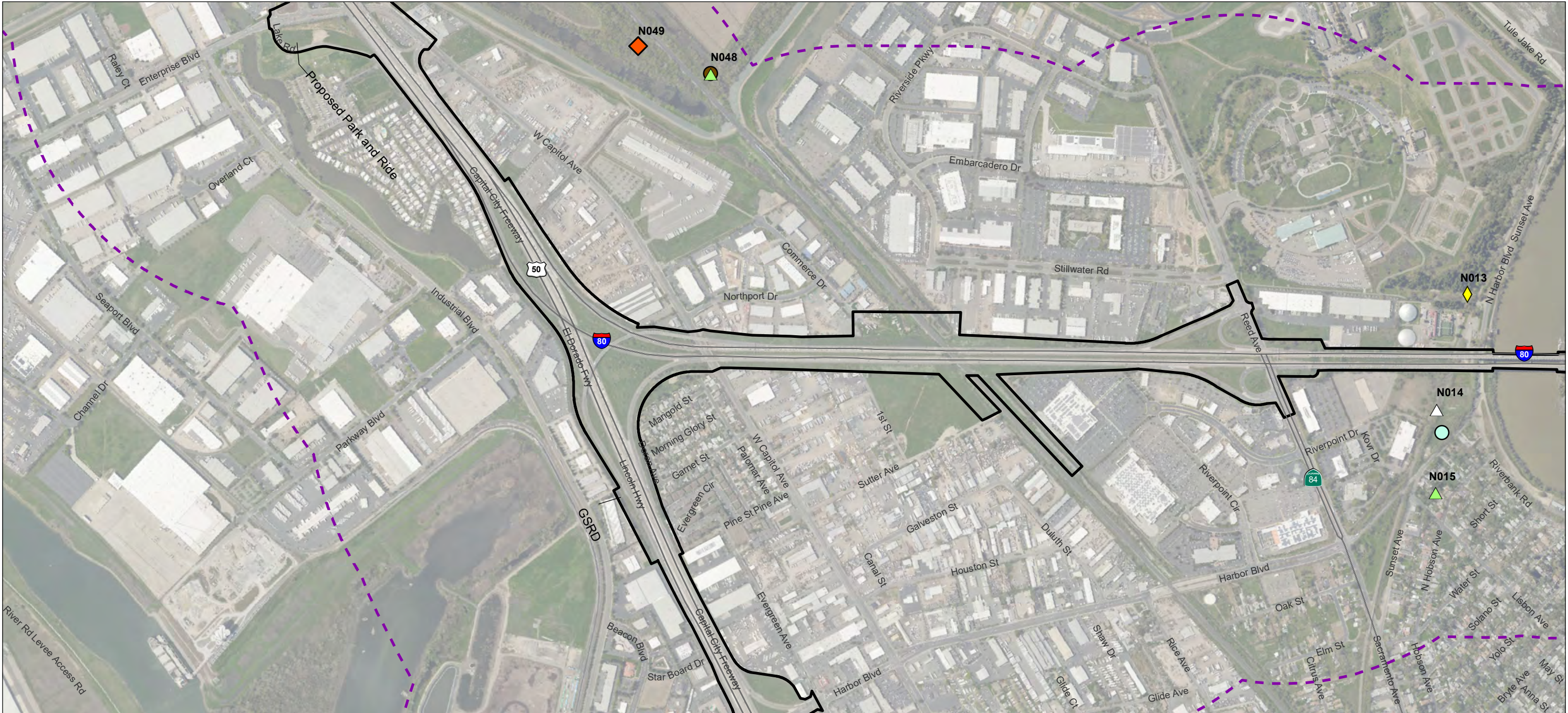


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor Active Nest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

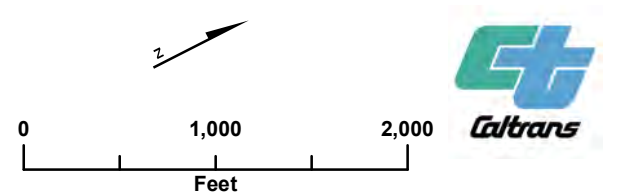
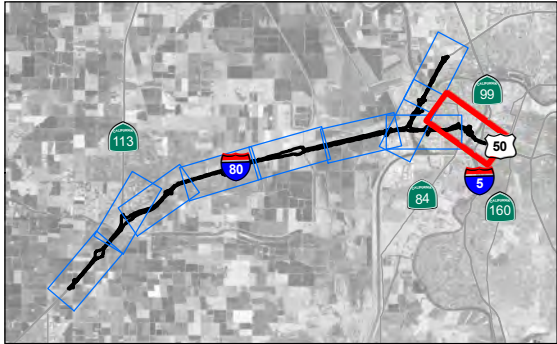


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

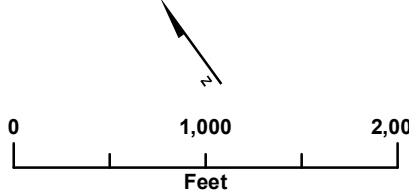
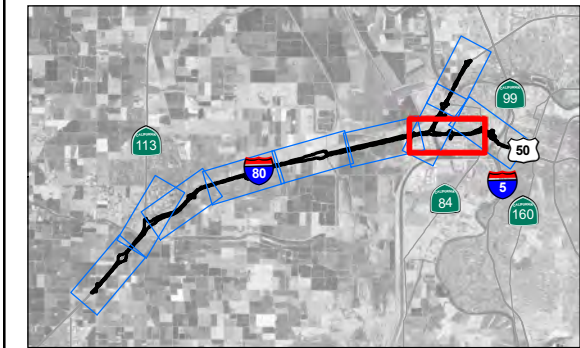
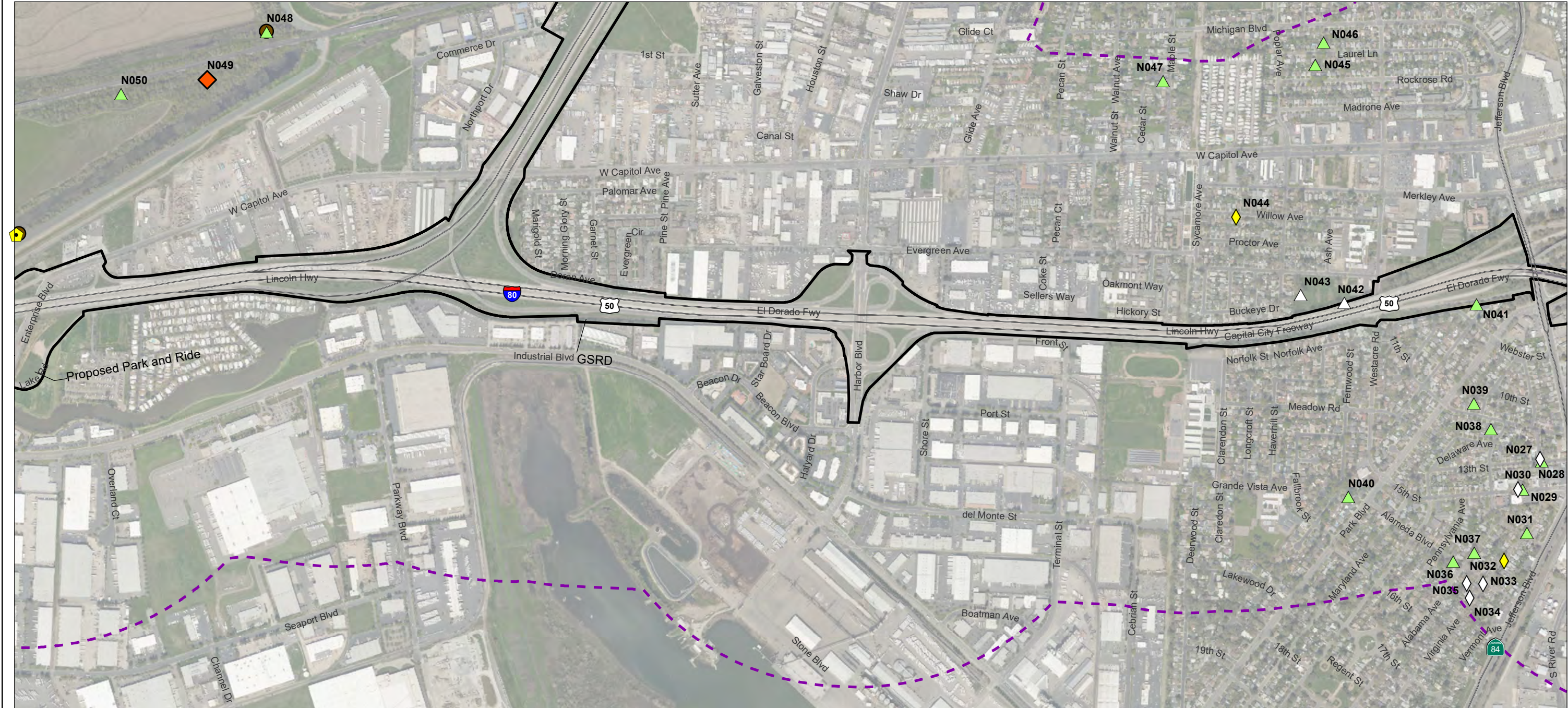


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

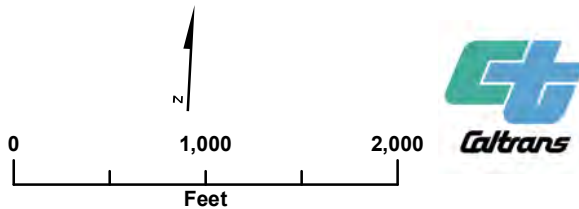
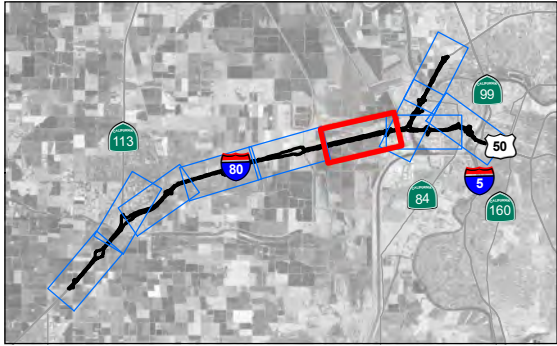


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_014_SWHA_Survey\PL_III_Results_Mapbook.mxd Revised: 2021-08-04 By: stroedson



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

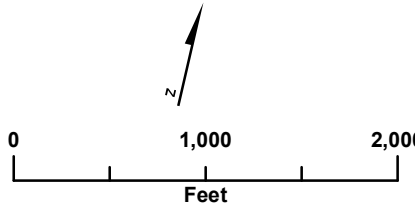
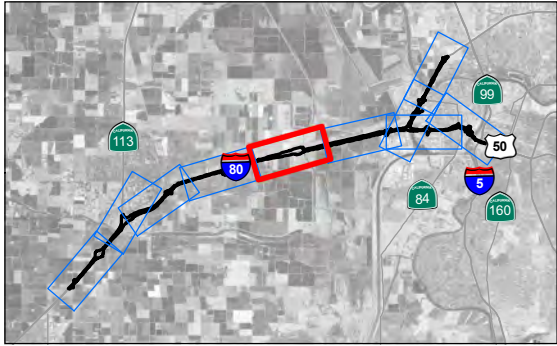


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

V:\1857\Active\1857\33020\03_data\gis_cad\gis\1857\33020_014_SWHA_Survey\PL_III_Results_Mapbook.mxd Revised: 2021-08-04 By: stroedson



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

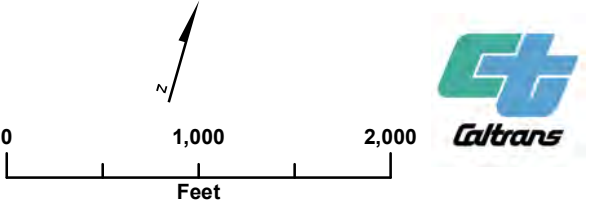
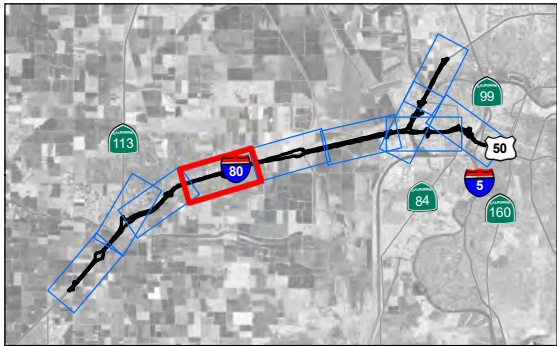


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

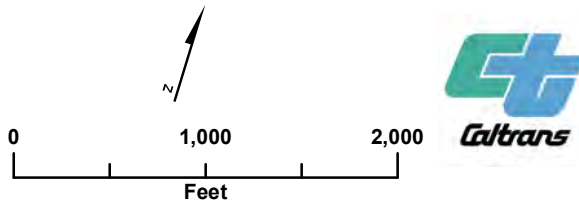
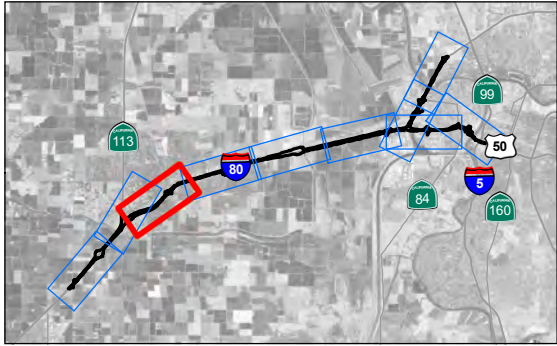
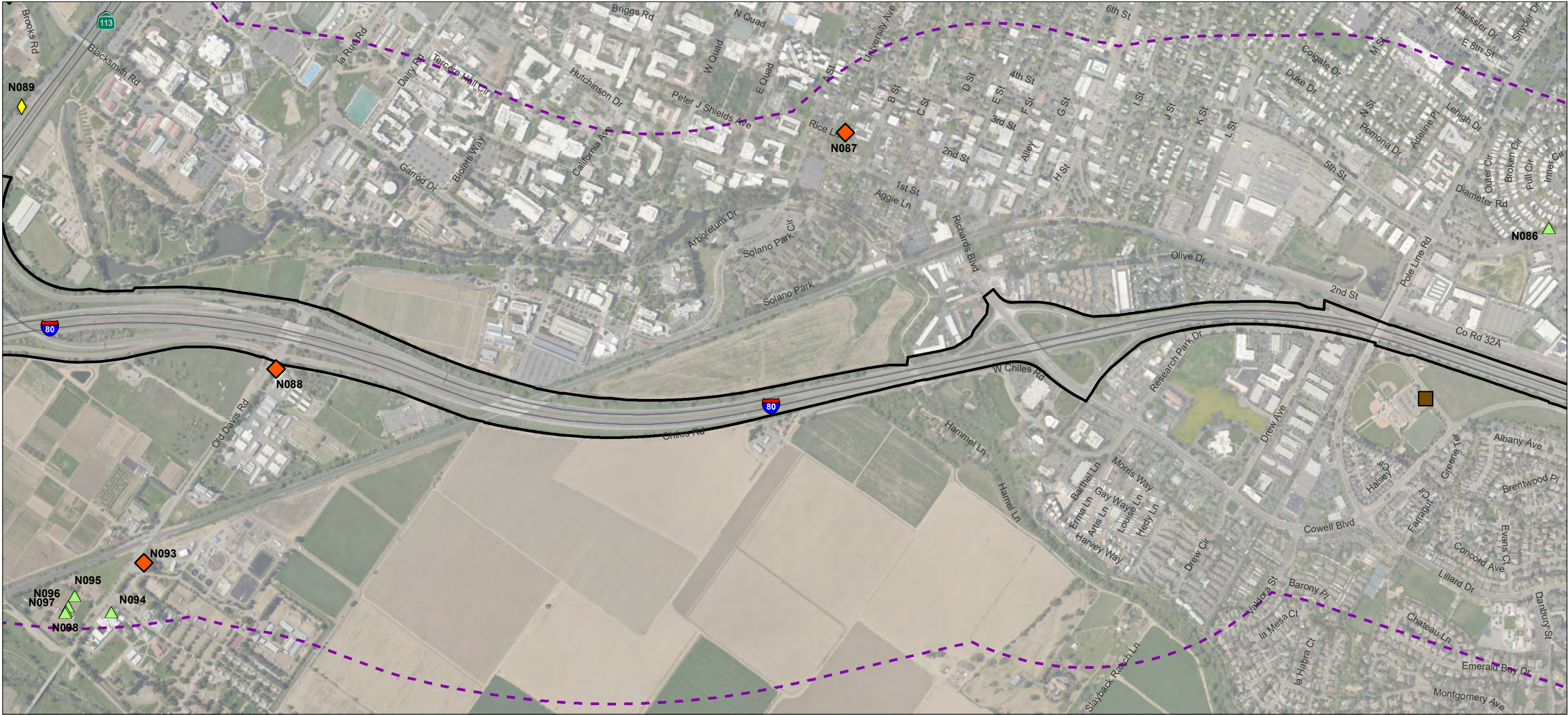


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

V:\1857\active\1857\33020\03_data\gis_cad\gis\1857\33020_014_SWHA_Survey\PL\II_Results_Mapbook.mxd Revised: 2021-08-04 By: stroedson



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

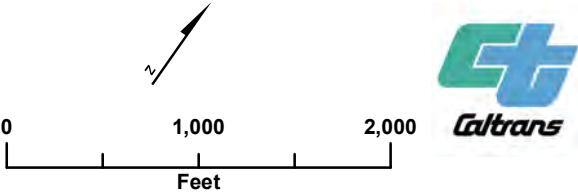
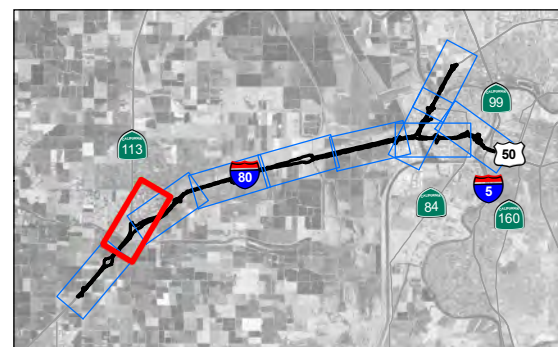
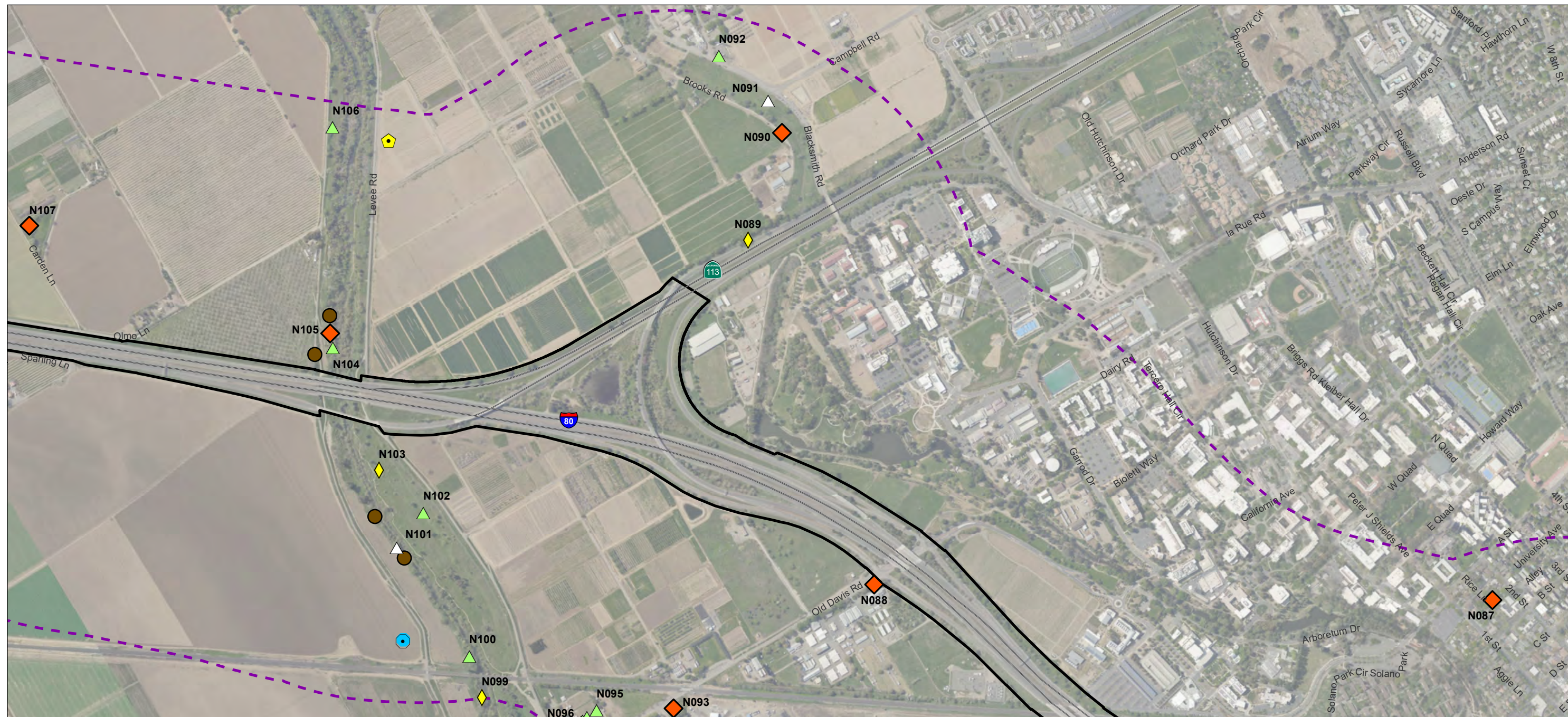


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report



*Sacramento, Solano, and
Yolo Counties, California*



Notes








1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



SWHA Observed, Survey Period I

-  Foraging
 Perched

SWHA Observed, Survey Period II

-  Carrying nest materials
-  Copulation
-  Foraging
-  Perched
-  Soaring
-  Territorial behavior
-  Vocalizing

-  Northern Harrier Observed, Survey Period II
-  White Tailed Kite Observed, Survey Period II
-  SWHA Active Nest
-  Other Raptor Active Nest
-  Non Raptor Active Nest
-  Potential Nest
-  Nest No Longer Present

-  Study Area (16,021.882 acres)
 Environmental Study Limits (1,137.219 acres)

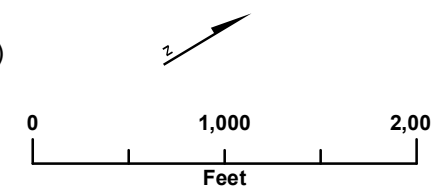
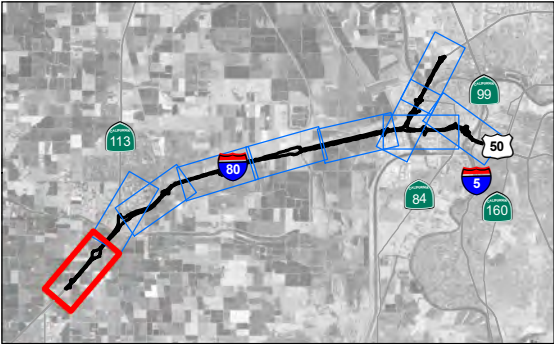
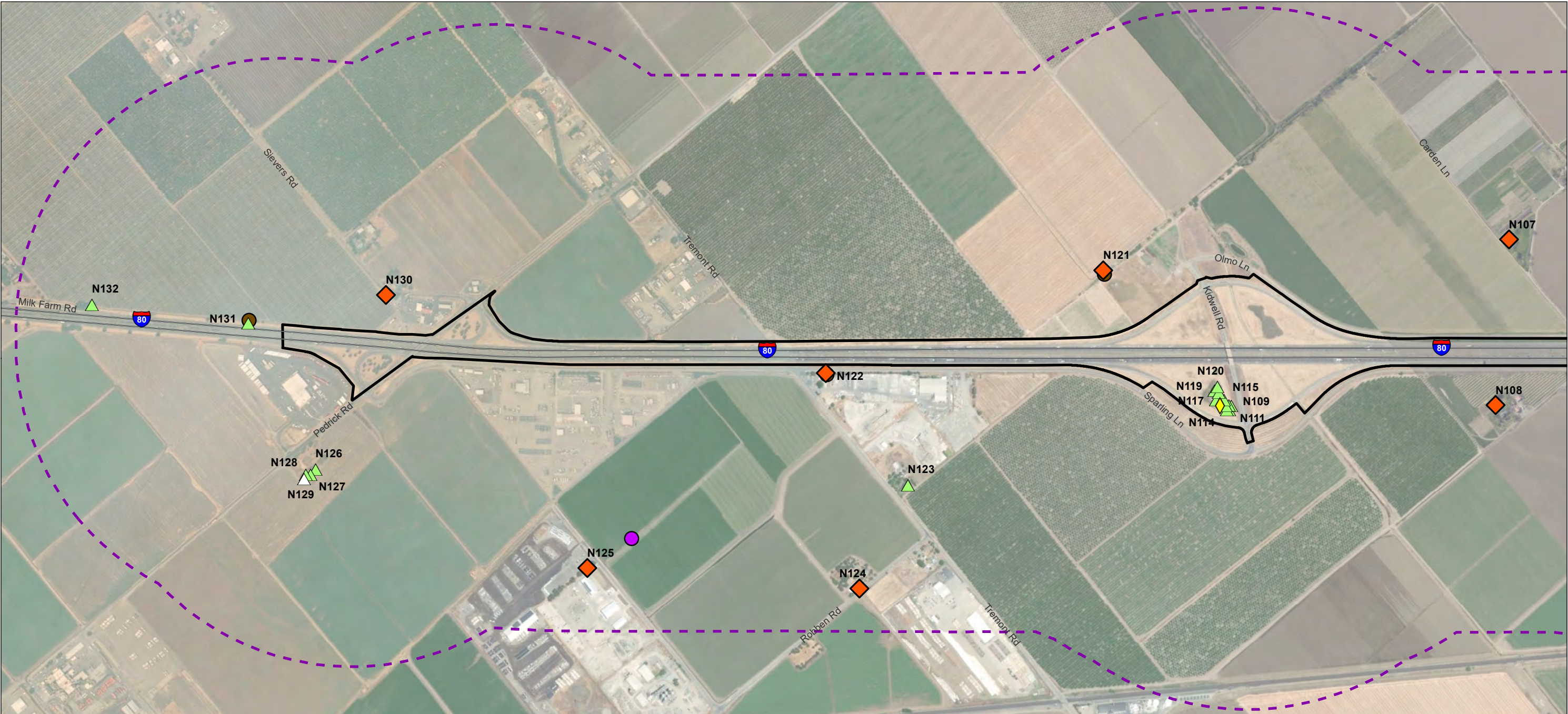


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_014_SWHA_Survey\PL_III_Results_Mapbook.mxd Revised: 2021-08-04 By: stroedson



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period I

- Foraging
- Perched

SWHA Observed, Survey Period II

- Carrying nest materials
- Copulation
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Northern Harrier Observed, Survey Period II
- White Tailed Kite Observed, Survey Period II
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

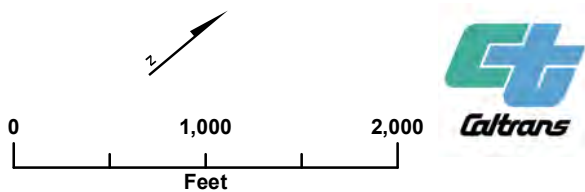
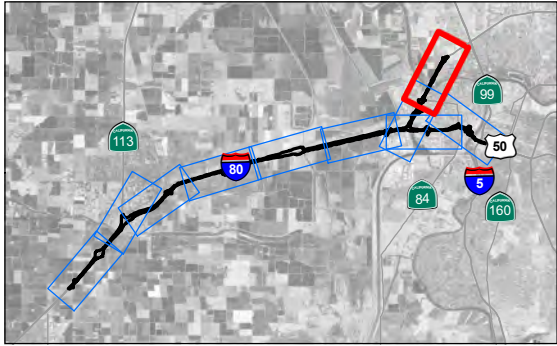
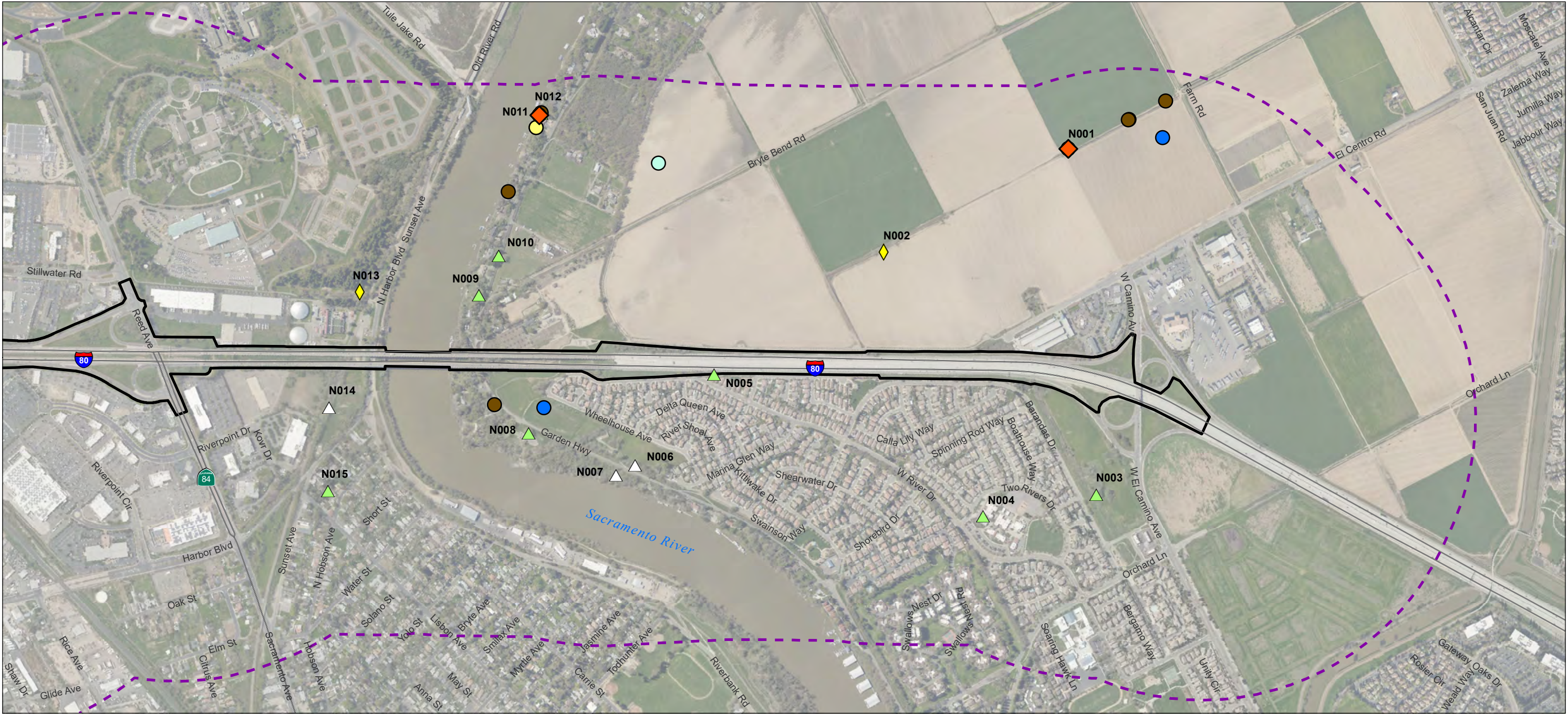


Figure 3-1
SWHA Survey Results Periods I and II
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

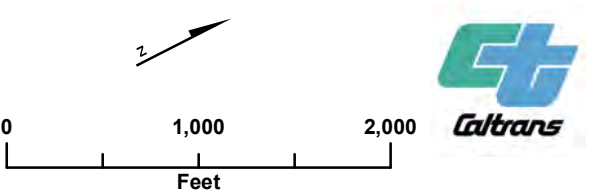
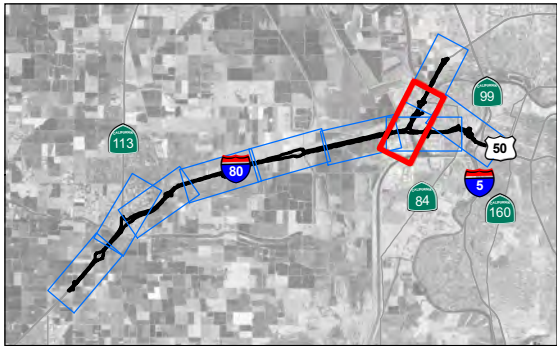


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- ◆ SWHA Active Nest
- ◆ Other Raptor Active Nest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

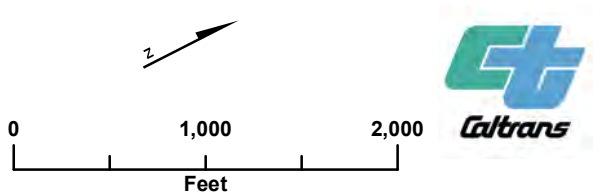
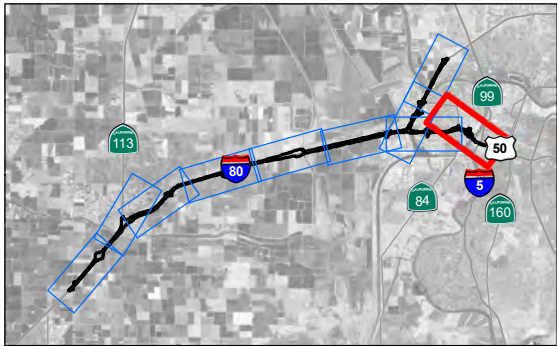


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

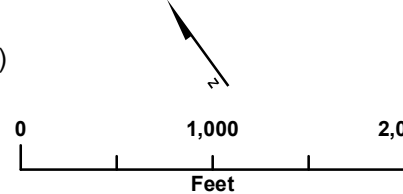
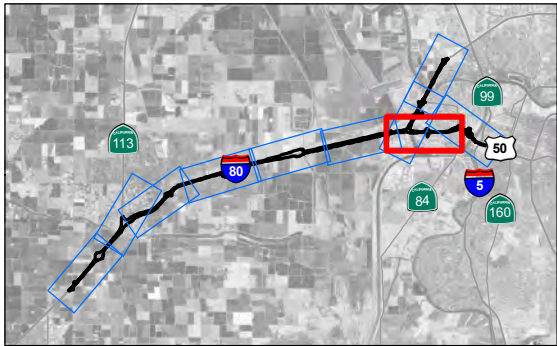
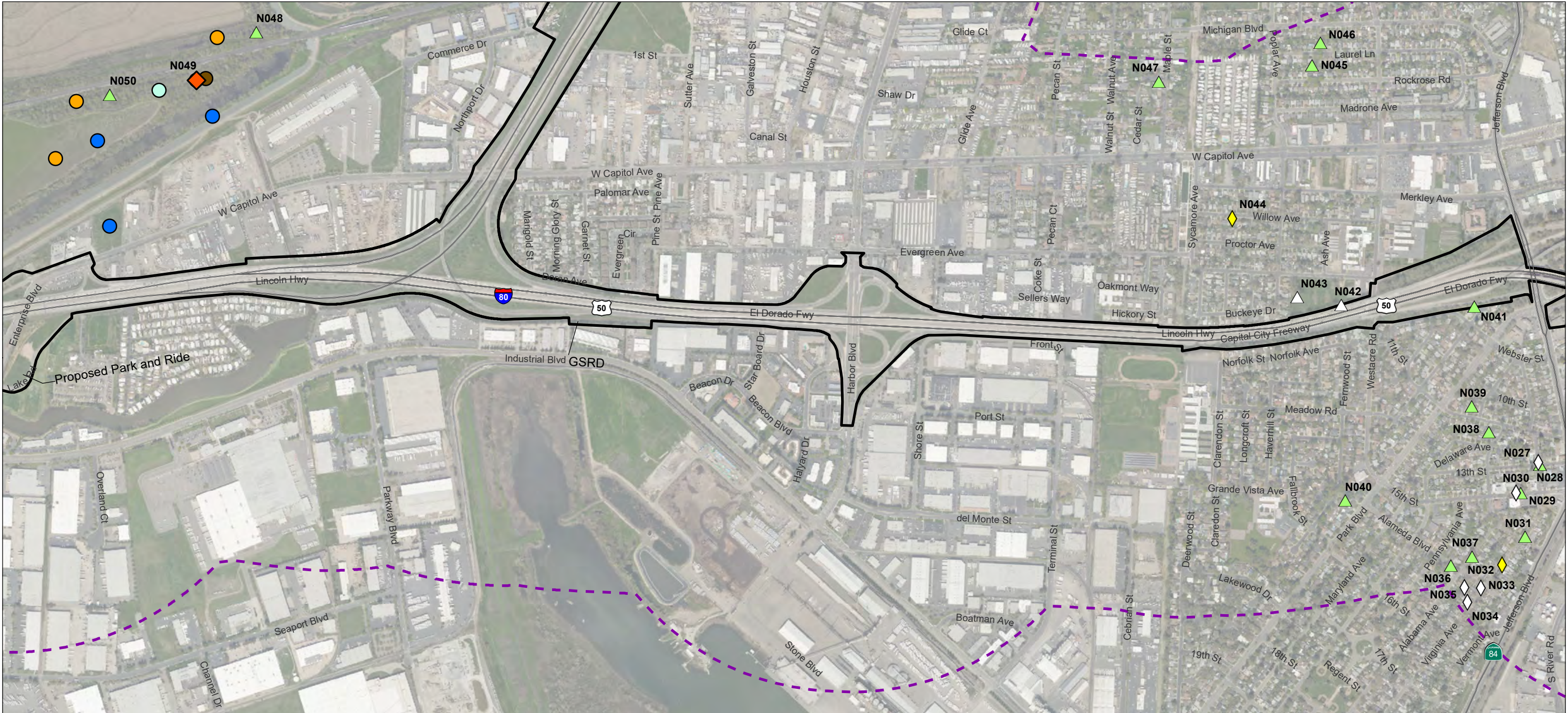


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- ◆ SWHA Active Nest
- ◆ Other Raptor ActiveNest
- ◇ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

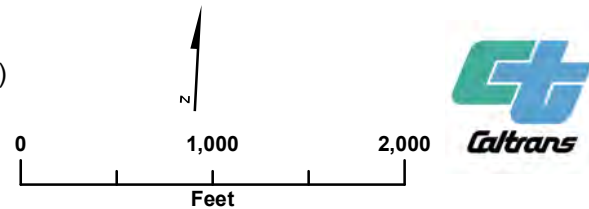
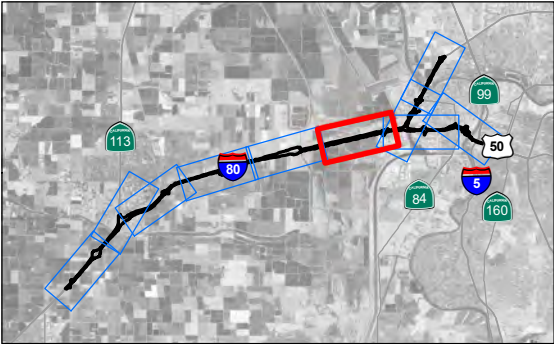
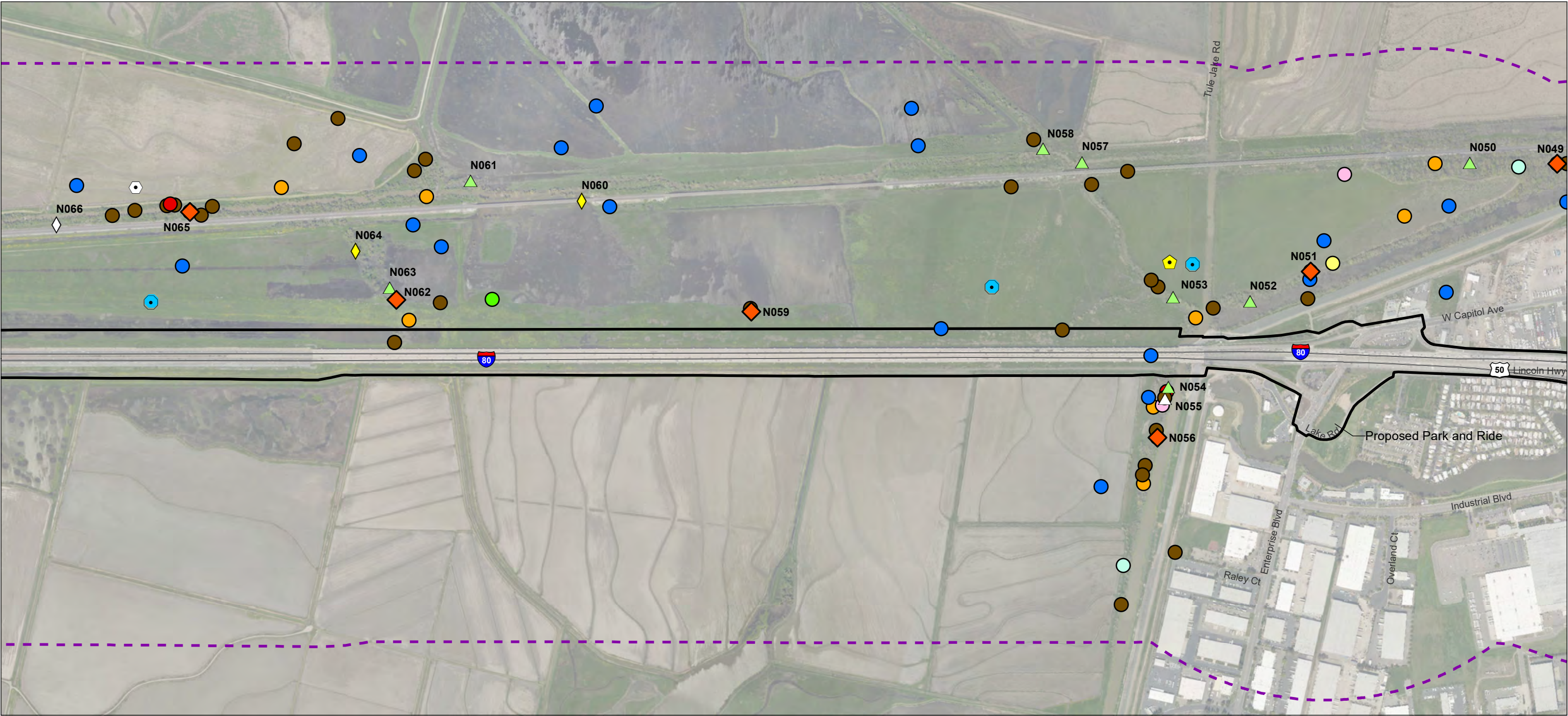


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_013_SWHA_Survey\PIIL_Results_Mapbook.mxd Revised: 2021-08-04 By: stroedson



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◉ Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- ◆ SWHA Active Nest
- ◆ Other Raptor ActiveNest
- ◇ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

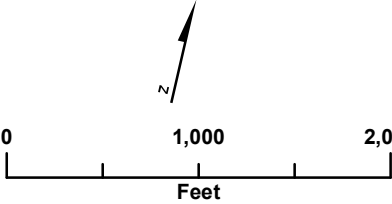
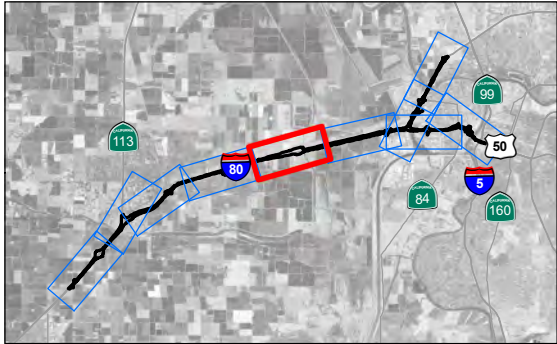


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◊ Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- ◆ SWHA Active Nest
- ◆ Other Raptor ActiveNest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

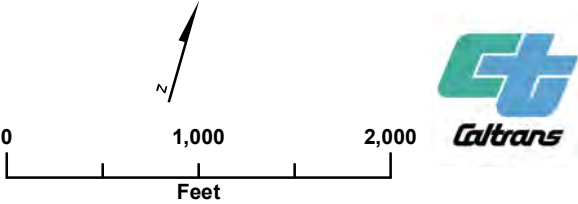
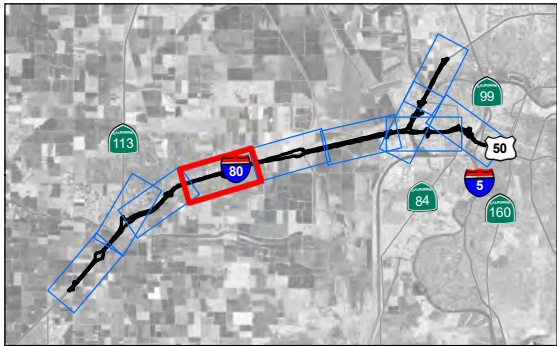
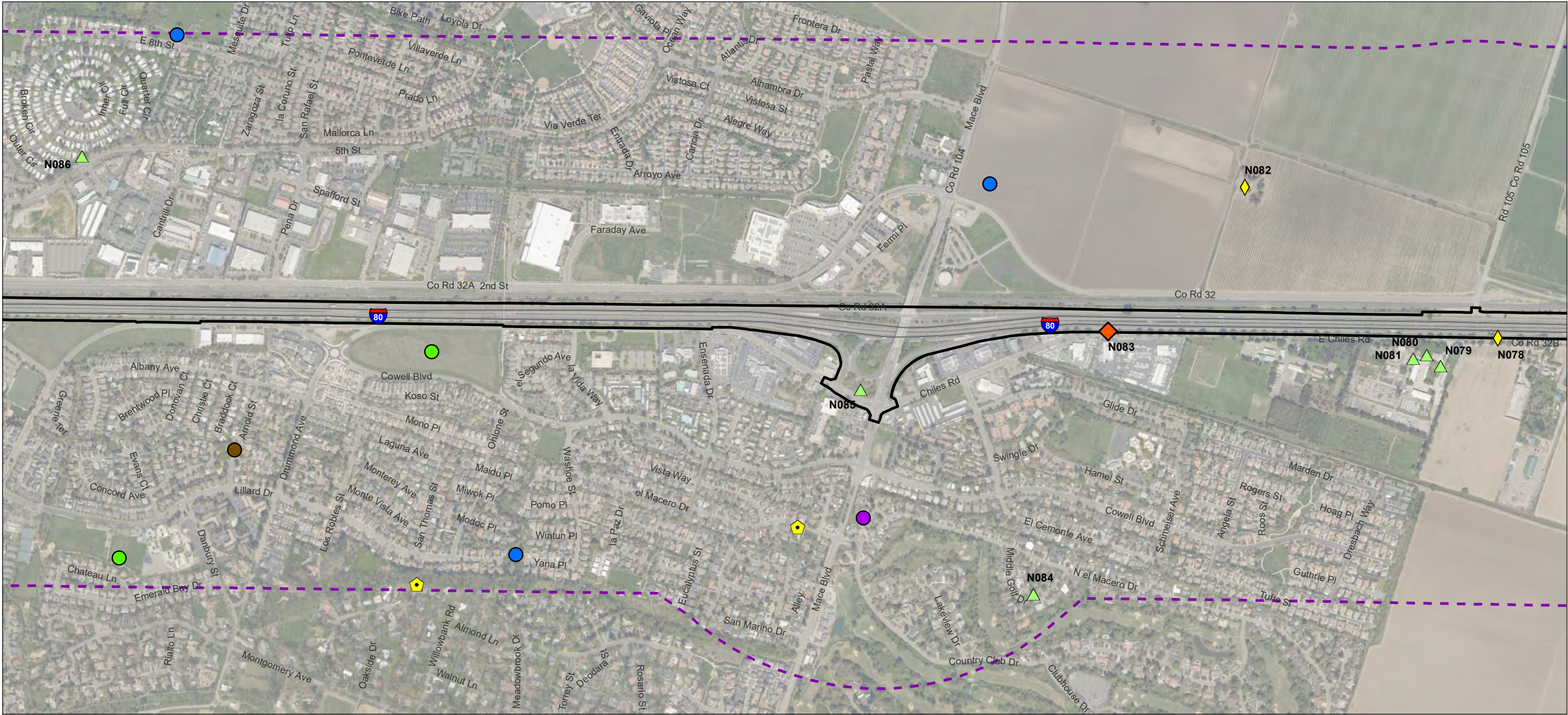


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- SWHA Active Nest
- Other Raptor ActiveNest
- Non Raptor Active Nest
- Potential Nest
- Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

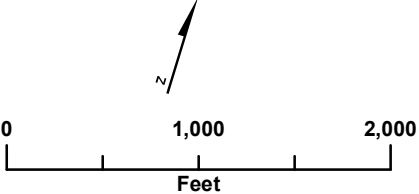
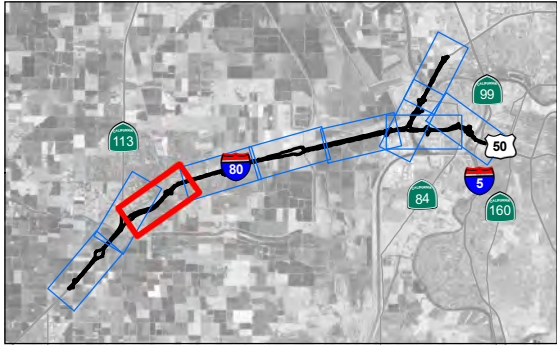
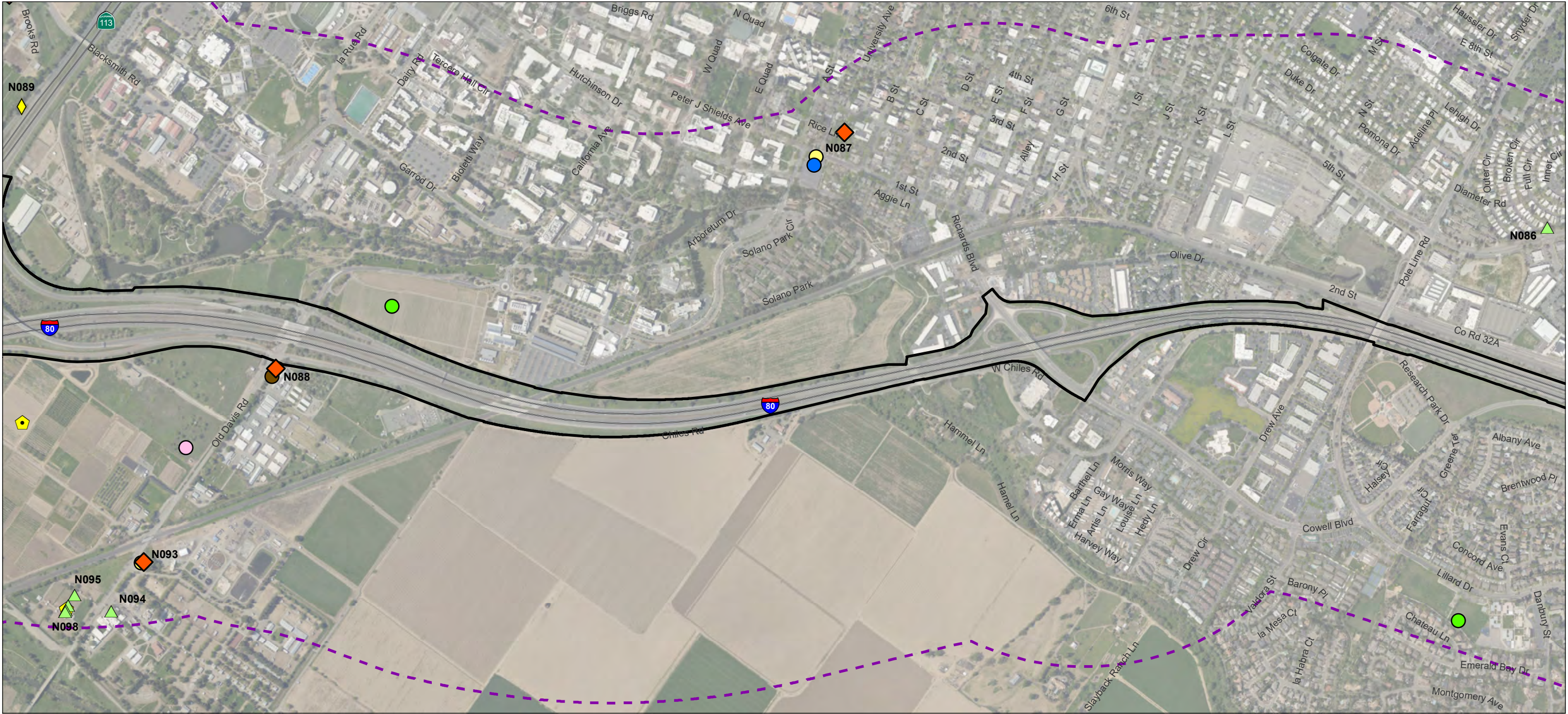


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- ◆ SWHA Active Nest
- ◆ Other Raptor ActiveNest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

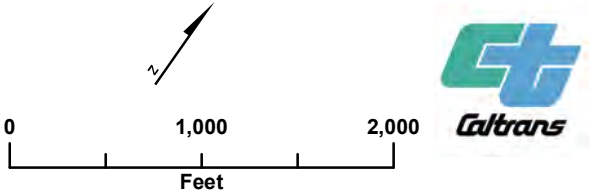
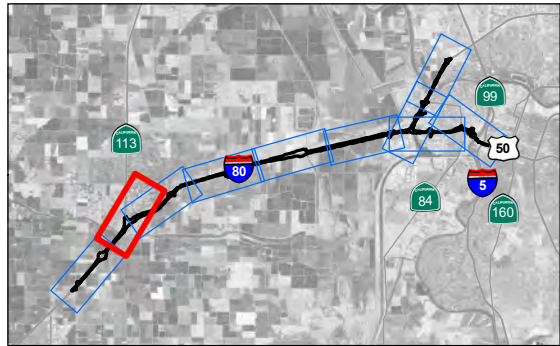


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

Sacramento, Solano, and Yolo Counties, California
Sheet 8 of 10

V:\1857\active\1857\33020\03_data\gis_cad\gis\1857\33020_013_SWHA_Survey\P11_L_Results_Mapbook.mxd Revised: 2021-08-04 By: stroedson



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- ◆ SWHA Active Nest
- ◆ Other Raptor Active Nest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

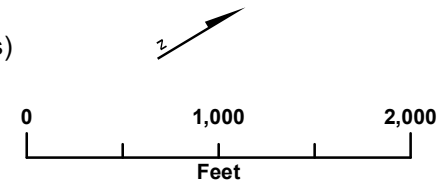
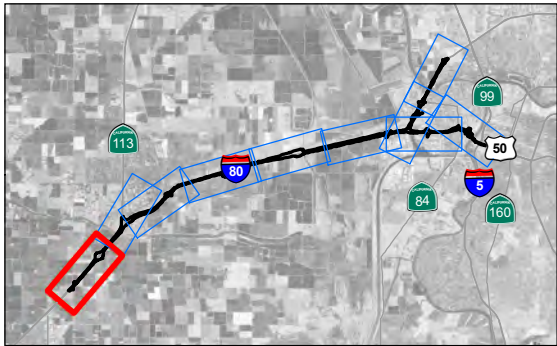


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_013_SWHA_Survey\P11_L_Results_Mapbook.mxd Revised: 2021-08-04 By: stroedson



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period III

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◊ Bald Eagle Observed, Survey Period III
- Northern Harrier Observed, Survey Period III
- White Tailed Kite Observed, Survey Period III
- ◆ SWHA Active Nest
- ◆ Other Raptor ActiveNest
- ◇ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

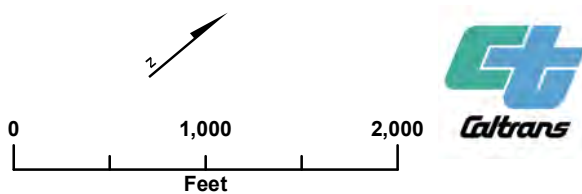
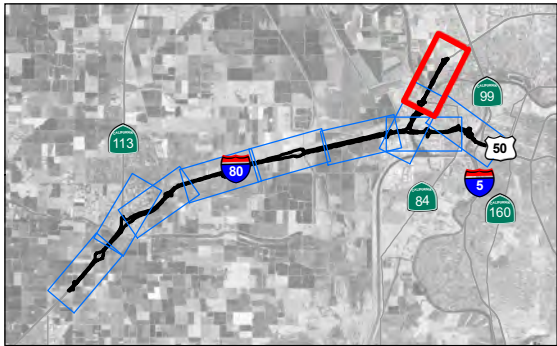
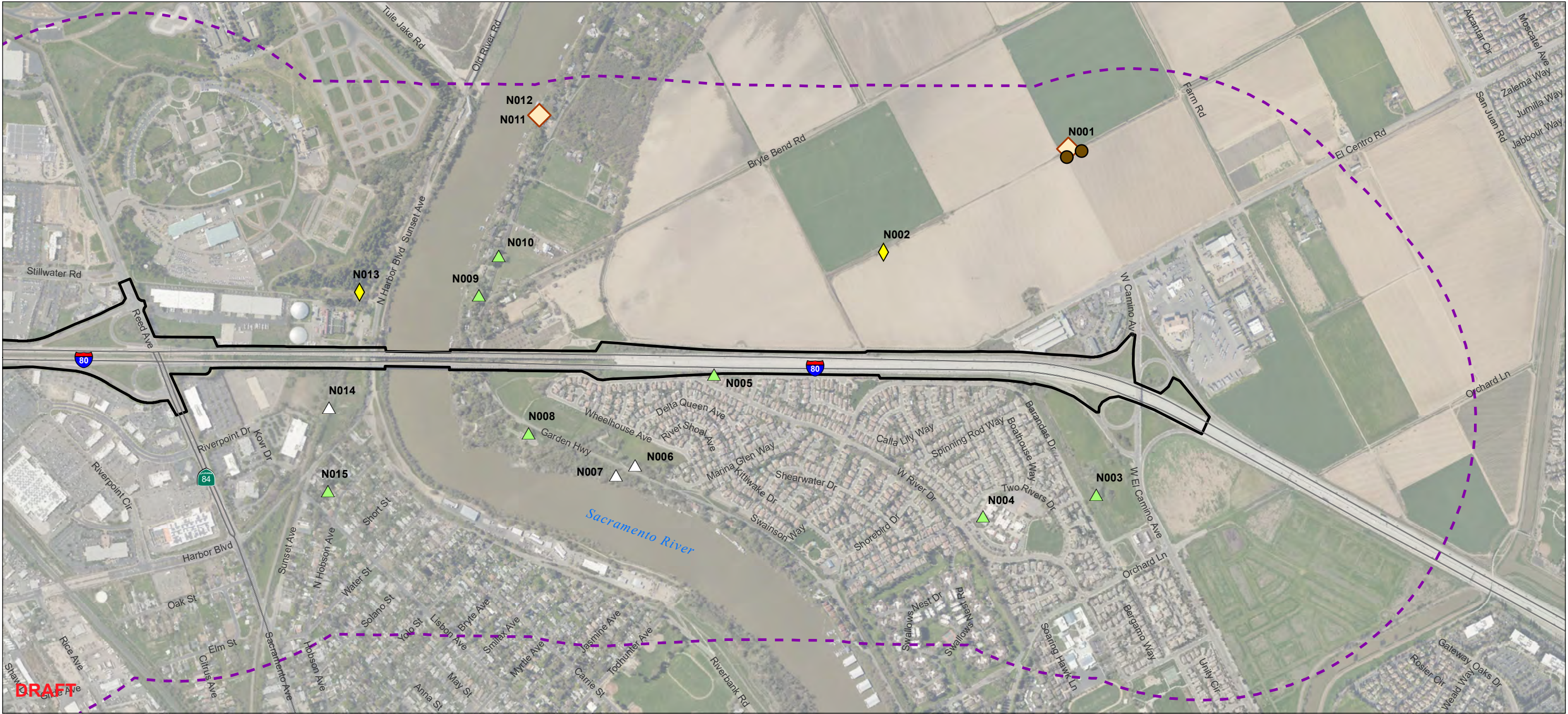


Figure 3-2
SWHA Survey Results Period III
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SWHA Active Nest, 1 Fledgling
- ◆ SWHA Active Nest, 2 Fledglings
- ◆ SWHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

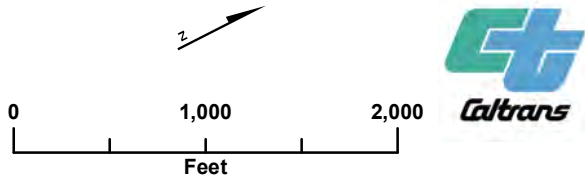
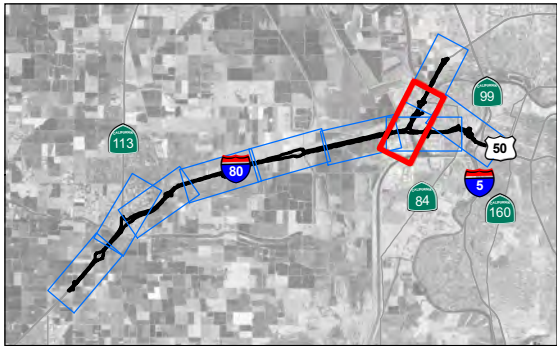


Figure 3-3
SWHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SWHA Active Nest, 1 Fledgling
- ◆ SWHA Active Nest, 2 Fledglings
- ◆ SWHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◇ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

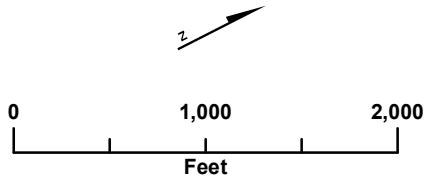
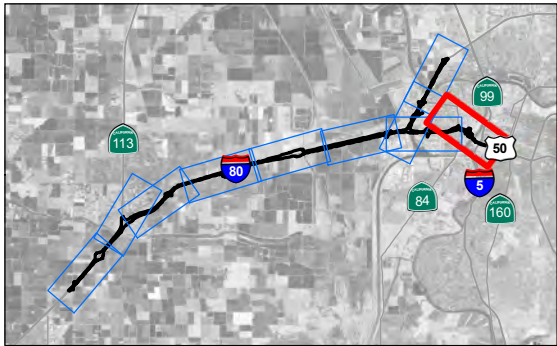
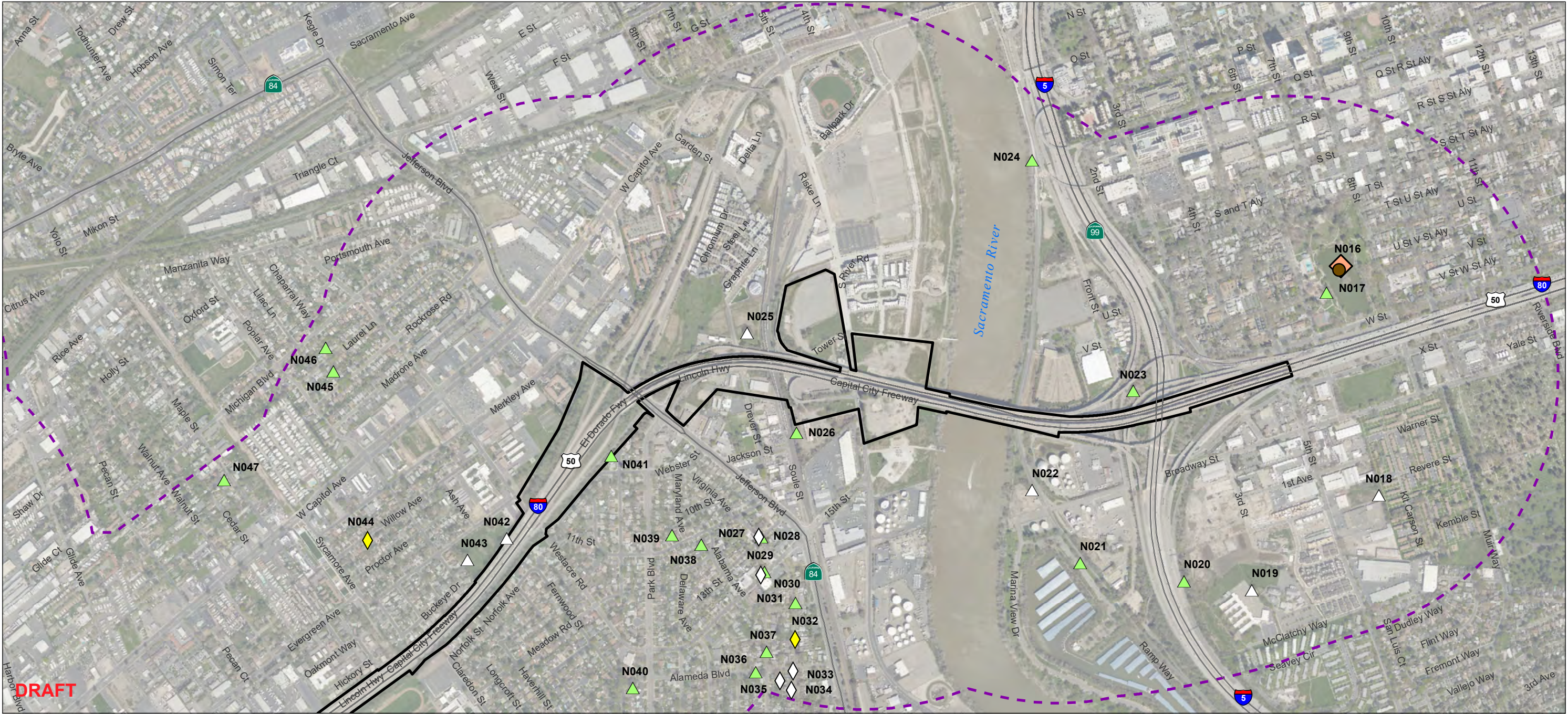


Figure 3-3
SWHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SWHA Active Nest, 1 Fledgling
- ◆ SWHA Active Nest, 2 Fledglings
- ◆ SWHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

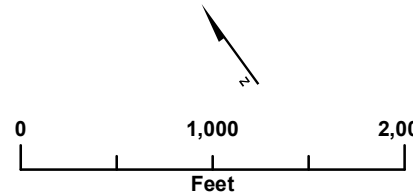
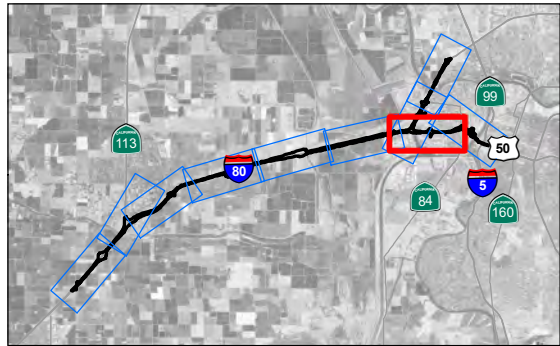
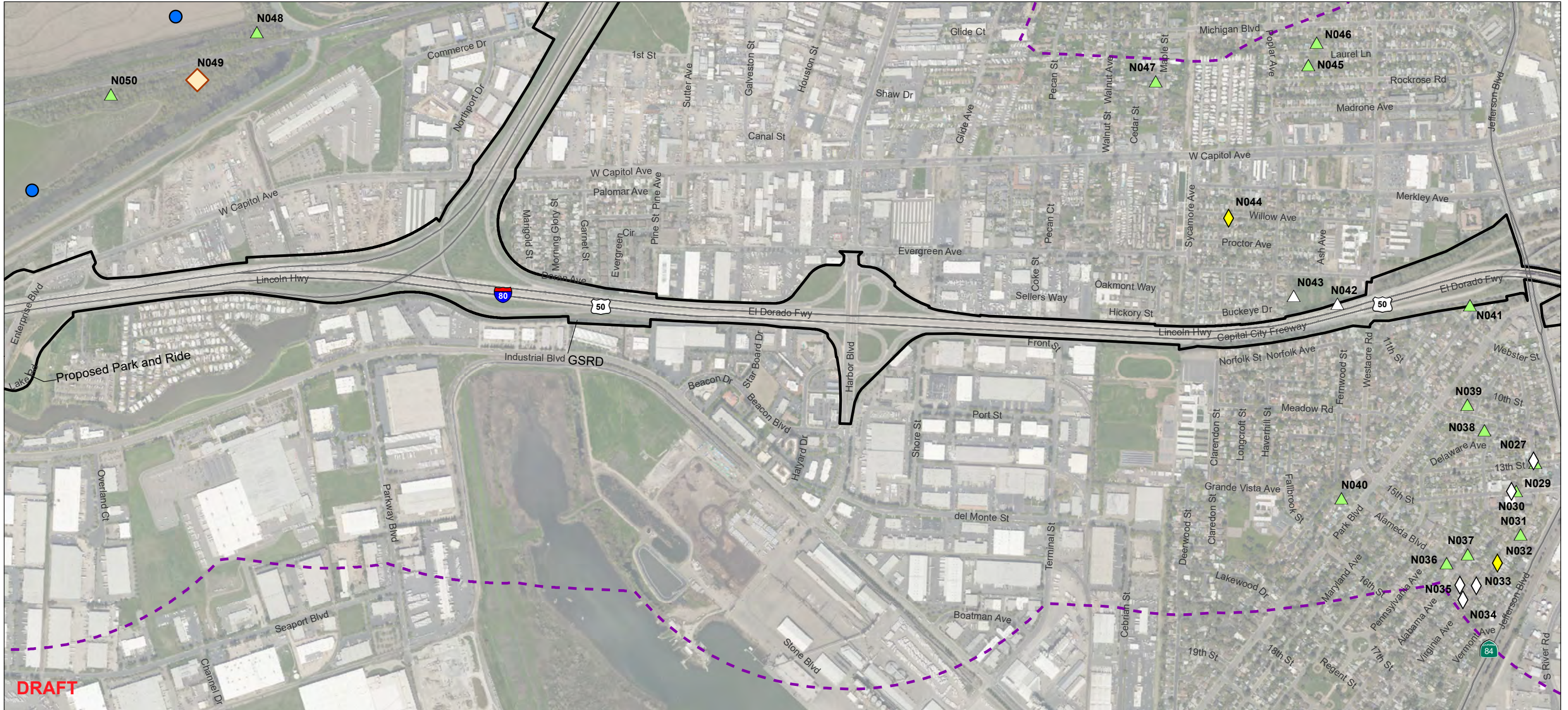


Figure 3-3
SWHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_030_SWHA_SurveyPIV_Results_Mapbook.mxd Revised: 2021-08-03 By: stroedison



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SWHA Active Nest, 1 Fledgling
- ◆ SWHA Active Nest, 2 Fledglings
- ◆ SWHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

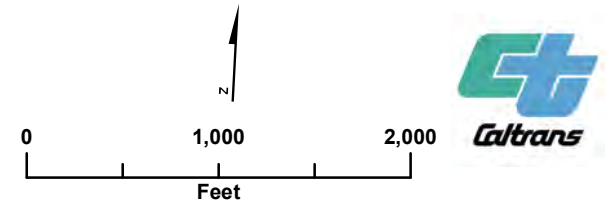
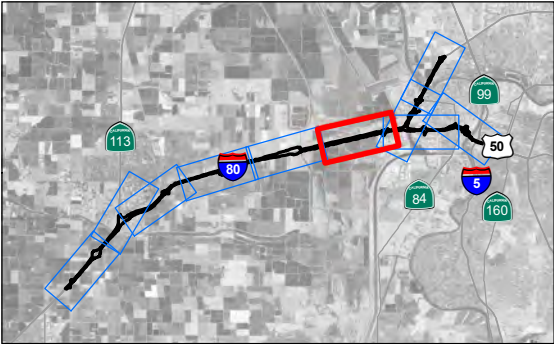


Figure 3-3
SWHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_030_SWHA_SurveyPIV_Results_Mapbook.mxd Revised: 2021-08-03 By: stroedison



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SWHA Active Nest, 1 Fledgling
- ◆ SWHA Active Nest, 2 Fledglings
- ◆ SWHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

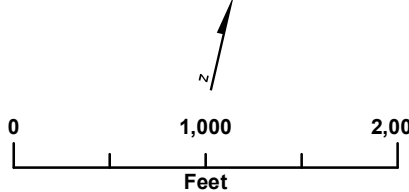
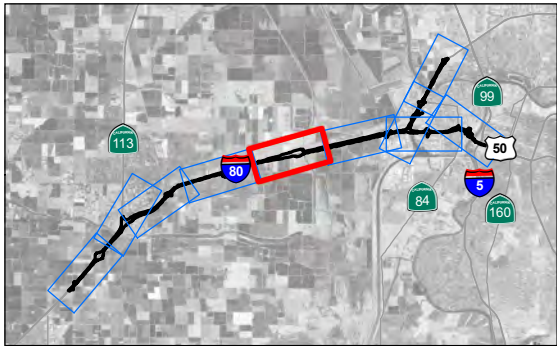


Figure 3-3
SWHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

V:\1857\Active\185733020\03_data\gis_cad\gis\185733020_030_SWHA_SurveyPIV_Results_Mapbook.mxd Revised: 2021-08-03 By: stroedison



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SWHA Active Nest, 1 Fledgling
- ◆ SWHA Active Nest, 2 Fledglings
- ◆ SWHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◇ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

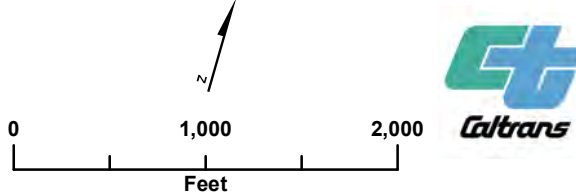
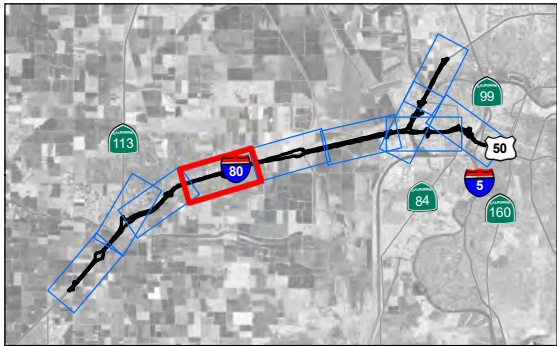
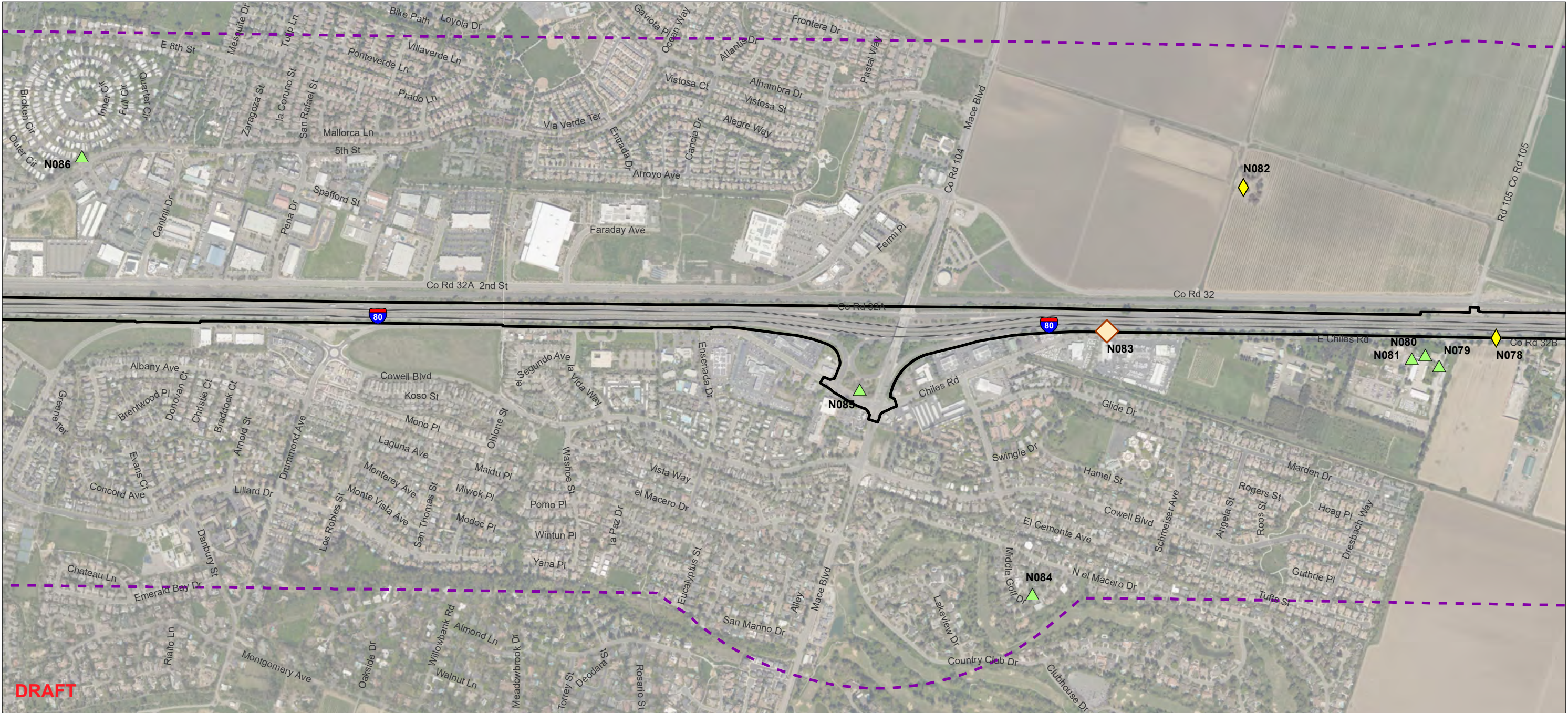


Figure 3-3
SWHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SSHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SSHA Active Nest, 1 Fledgling
- ◆ SSHA Active Nest, 2 Fledglings
- ◆ SSHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◇ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

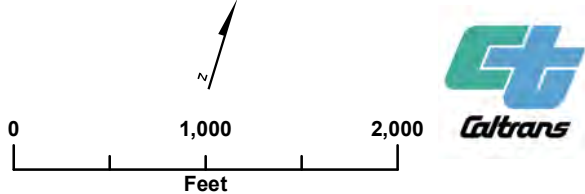
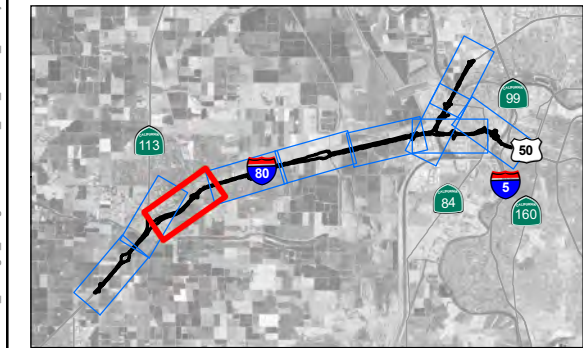
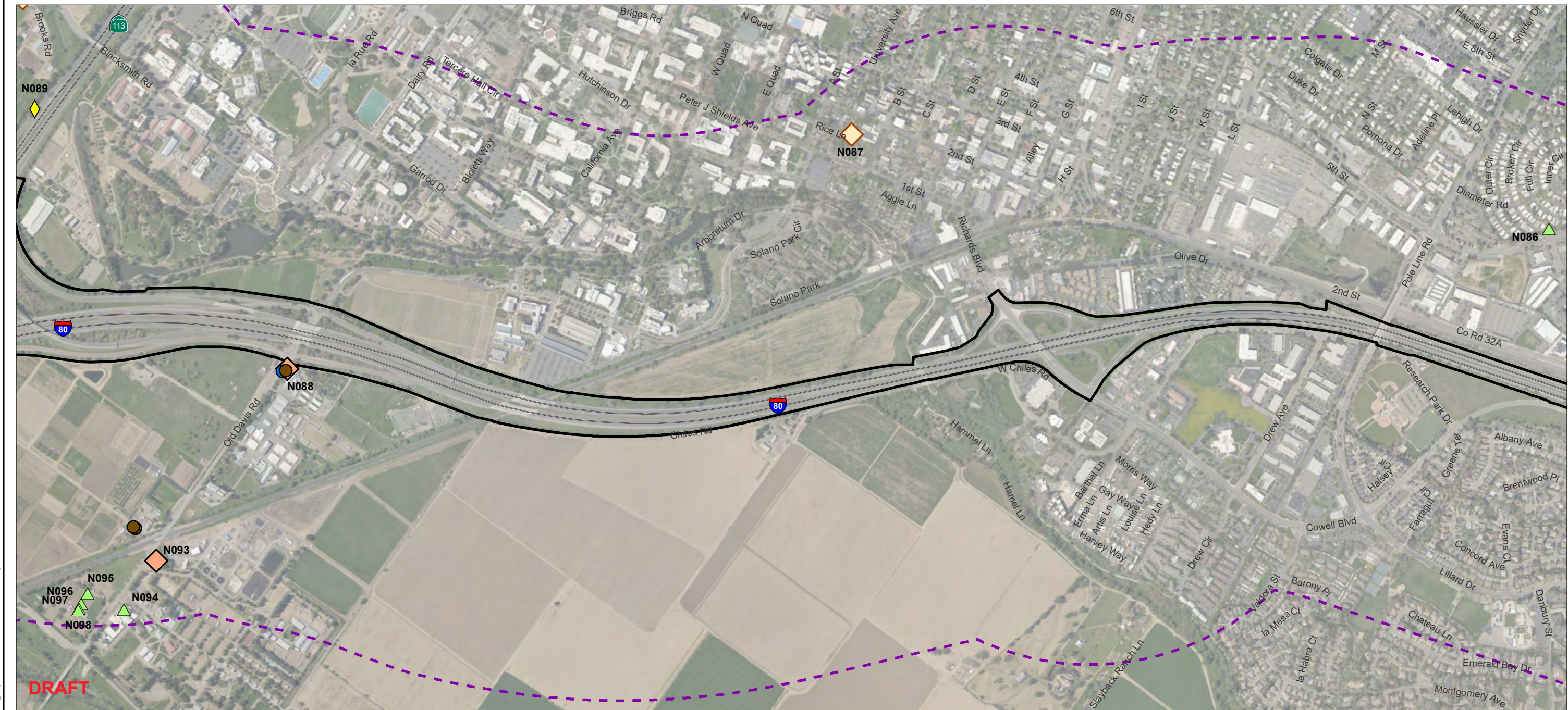


Figure 3-3
SSHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SSHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*



Notes
 1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
 2. Data Sources: CalTrans, Stantec, 2020
 3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SSHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SSHA Active Nest, 1 Fledgling
- ◆ SSHA Active Nest, 2 Fledglings
- ◆ SSHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◆ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

Survey Period I: January 12 and February 17
 Survey Period II: March 22-26 and 29
 Survey Period III: April 5-9 and 12
 Survey Period IV: No Surveys
 Survey Period V: July 7-9

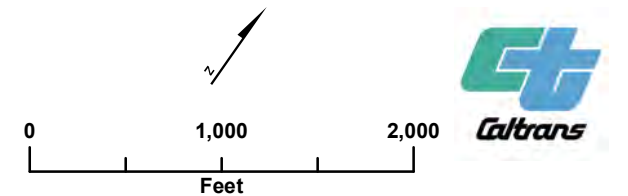
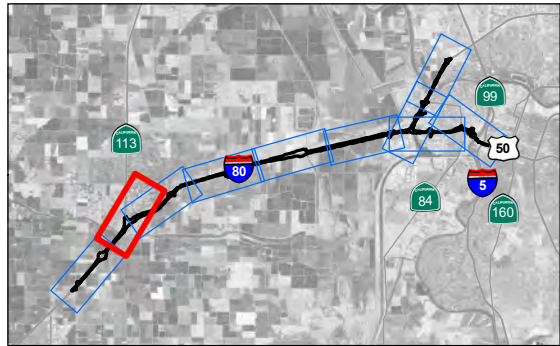


Figure 3-3
SSHA Survey Results Period V
 Yolo 80 Corridor Improvements Project
 SSHA Survey Report

*Sacramento, Solano, and
 Yolo Counties, California*

V:\1857\active\1857\33020\03_data\gis_cad\gis\1857\33020_030_SWHA_SurveyPIV_Results_Mapbook.mxd Revised: 2021-08-03 By: stroedison



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◆ SWHA Active Nest, 1 Fledgling
- ◆ SWHA Active Nest, 2 Fledglings
- ◆ SWHA Active Nest, Success Unknown
- ◆ Other Raptor ActiveNest
- ◇ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

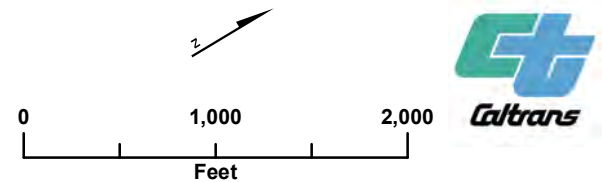
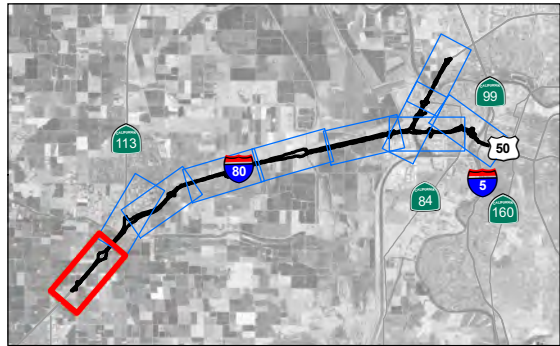
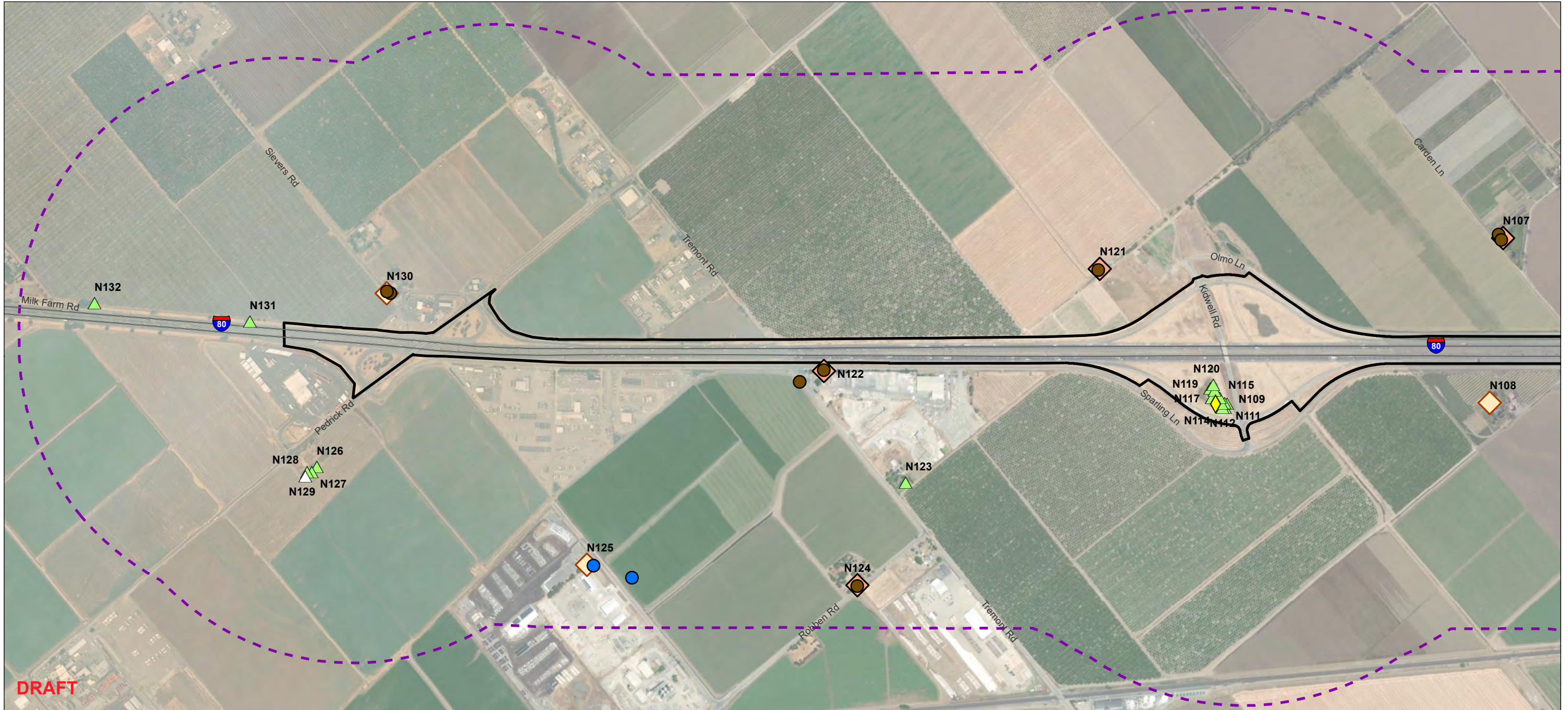


Figure 3-3
SWHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

Survey Period I: January 12 and February 17
Survey Period II: March 22-26 and 29
Survey Period III: April 5-9 and 12
Survey Period IV: No Surveys
Survey Period V: July 7-9

V:\1857\active\185733020\03_data\gis_cad\gis\185733020_030_SWHA_SurveyPIV_Results_Mapbook.mxd Revised: 2021-08-03 By: stroedison



Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: CalTrans, Stantec, 2020
3. Background: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SWHA Observed, Survey Period V

- Agitated
- Carrying nest materials
- Copulation
- Courtship behavior
- Foraging
- Perched
- Soaring
- Territorial behavior
- Vocalizing

- ◊ SWHA Active Nest, 1 Fledgling
- ◊ SWHA Active Nest, 2 Fledglings
- ◊ SWHA Active Nest, Success Unknown
- ◊ Other Raptor ActiveNest
- ◊ Non Raptor Active Nest
- ▲ Potential Nest
- △ Nest No Longer Present

- Study Area (16,021.882 acres)
- Environmental Study Limits (1,137.219 acres)

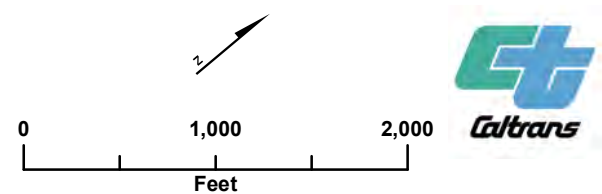


Figure 3-3
SWHA Survey Results Period V
Yolo 80 Corridor Improvements Project
SWHA Survey Report

*Sacramento, Solano, and
Yolo Counties, California*

Appendix B California Natural Diversity Database Occurrence Details

Caltrans District 3 Yolo 80 Corridor Improvements Project

Nesting Swainson's Hawk Protocol Survey Report

Appendix B

Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
28	1988	About 0.2 mile south of I-80, between Cowell Boulevard and Drummond Street in Davis.	In 1979 and 1982, nest trees are farmyard oaks. In 1988, nest tree is a valley oak. Surrounded by farmland. Area has been developed into urban residential: nesting and foraging habitat lost to the north.	Nesting observed in 1979 and 1982, unsuccessful (birds found dead in 1979). Incidental observations in 1980 and 1984. Nesting observed in 1988, success unknown. Foraging SWHA observed in 1991.
108	1992	North side of Old Davis Road, 300 feet west of the campus information booth at U.C. Davis.	Nest tree is a conifer.	One adult observed soaring in this area in 1981, but no nest was found. Nesting was observed during England's 1990-92 survey and again in 1992 by Estep.
595	1992	0.25-mile west of El Centro Road and 0.25-mile south of San Juan Road, 2 miles north of Bryte.	Nest tree was a cottonwood, located along a small drainage canal.	1 young fledged in 1992.
409	1994	At the Swinge homestead site, 0.25 mile north of I-80, 0.5 mile east of Mace Road, east of Davis.	Nest tree was a eucalyptus tree surrounded by farmhouses.	2 adults observed nesting in 1987, success unknown. 2 adults observed nesting in 1988, success unknown. Site inactive in 1994.
504	1994	Sacramento River, 0.3 mile west of Jefferson Boulevard at 19th St, just N of the Barge Canal, West Sacramento.	In 1990 nest tree was a medium sized cottonwood. Surrounding foraging habitat consisted of fallow fields and row crops, although the immediate area appears to be industrial.	Two adults fledged one young in 1990. No nest or hawks seen in 1993. 1 fledged in 1994.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
636	1994	Sacramento River, along Garden Highway, just downstream from the Pioneer Bridge (I-80), Sacramento.	In 1985 surrounding habitat was riparian, agricultural, and orchards. Aerial photos show that since 1998, residential development has eliminated adjacent foraging habitat east of I-80.	One Swainson's hawk observed near the I-80 bridge in 1985. Nest with pair and 2 young observed in 1992. 2 adults and 1 juvenile observed at the nest in 1993. Active nest failed before hatching in May 1994.
1080	April 26, 1999	0.4 mile upstream from the I-80 bridge over the Sacramento River, Sacramento.	In 1999 habitat consisted of a riparian corridor along the Sacramento River.	Nesting pair observed on June 10, 1987. 2 adults observed nesting on April 26, 1999, outcome unknown.
1081	June 28, 1999	0.2 mile south of Industrial Boulevard, on the west bank of the deep water channel turning basin, West Sacramento.	Nest tree unknown. Surrounding foraging habitat consists of a small plot of non-native grassland adjacent to industrial centers.	2 adults and 1 juvenile observed at the nest site on June 28, 1999.
389	2000	0.25 mile south of the junction of Pedrick Road and I-80, 2.75 NNE of Dixon.	In 1992 nest tree was an almond tree on the north side of a farm residence area. Surrounding habitat was irrigated agriculture, including alfalfa and other crops.	Nesting observed on May 19, 1992. Both birds were intermediate phase in coloration. Surveyor stated that trees and buildings at this farmstead were removed prior to the 2000 breeding season. Aerial photos from 2012 show new trees in area.
758	May 25, 2000	West edge of Natomas main drain, between Orchard Lane and I-5, NW of Sacramento.	In 1994 nest tree was a willow growing on the east edge of the Main Drain. In 2000 nest tree was a black walnut; nest was overgrown by grapevines and was barely visible.	Active nest with 2 juveniles and 2 adults attending observed on June 3, 1994. Nest in a new tree with an incubating adult and an attending adult observed May 25, 2000.
628	May 28, 2003	Putah Creek, about 0.5 mile east of I-80, SE of Davis.	In 1992 nesting habitat was riparian with surrounding foraging habitat consisting of agricultural fields. In 1994 two nests were in the vicinity, both in valley oaks. In 2003 nest tree was a 60-foot tree coded as "other exotic".	One adult observed nesting during England's 1990-92 survey. 2 nests and 3 young observed in 1994, banded pair at one nest. Nest with 1 feathered young observed on May 28, 2003.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
1083	June 9, 2004	Just southeast of the I-80/West El Camino cloverleaf, Sacramento.	In 2000/2001 nest tree was a cottonwood near the remains of an old homestead. In 2004 nest tree was a (dead) valley oak surrounded by commercial/highway to the NW and residential to the NE, SE, and SW.	2 foraging SWHA observed in 1993. 2 adults and 1 juvenile observed at nest June 25, 2000. Female was trapped and PTT tagged. 2 adults and 1 juvenile (young banded) observed at nest on June 23, 2001. 2 partially feathered young observed in the nest on June 9, 2004.
2229	June 21, 2004	Yolo Bypass WA along railroad track, about 1.4 miles ENE of I-80 at Chiles Road and 1.75 miles W of I-80 at Enterprise Boulevard.	In 2002 nest tree was a 50-foot willow with cropland to north and riparian to the south. In 2003 nest tree was a 40-foot cottonwood surrounded by fallow land. In 2004 nest tree was a 30-foot willow with cropland north and fallow land south.	1 downy young observed in nest on June 24, 2002. 1 downy young observed on May 29, 2003. Nest was monitored by biological consultants during railroad trestle construction. In 2004 birds "jumpy," flushed from nest May 13. 1 downy young observed in nest on June 21.
1259	June 8, 2005	Along I-80 freeway shoulder, east of Cousteau Place, Davis.	Nest tree was an oak. Area to the north undergoing light industrial development. Surrounded in all directions by commercial or highway.	Nest monitored April 28-July 29, 2002, 2 fledged. Active nest site in 2003, outcome unknown. Unoccupied in 2004 and 2005.
1162	July 18, 2005	North side of Tremont Road, just west of the Tremont Road dead end, west of I-80, 3 miles NNE of Dixon.	Nest tree was a solitary black walnut. Surrounding foraging habitat consisted of alfalfa to the north, ruderal to the south, freeway to the east, and USGS to the SW.	Nest monitored June 16-August 2, 2001. Nest not seen after June 2001. Nest monitored April 28-July 24, 2002, possible nest, no chicks. Nest site was monitored April 24-July 22, 2004, possible nest. Nest monitored April 14-July 18, 2005: 2 fledged.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
686	July 21, 2005	Along Roben Road, about 0.25-mile south of Tremont Road, 3.5 miles NE of Dixon.	NW site, 1996 and 2005 nests in black locust. In 2001, 2002, and 2004, nests in black walnut. Surrounded by tomatoes to north and west, farmstead to the east, and ruderal to the east across the road. SE site, nest in locust in ruderal farmyard surrounded by agriculture.	NW site, 2 fledged in 1996. NW site, nest with 2 young in 2000. NW site, 2 fledged 2001 (landowners reported nesting in years prior). Adults present/no nest 2002. Used by great horned owl in 2004. 2 fledged in 2005. SE site, 1 fledged in 2004. Single SWHA sighting in 2005.
1435	July 21, 2005	0.35 mile west of Robben Road, north of the railroad tracks, 3 miles NE of Dixon.	Nest tree is a blue gum (Eucalyptus). Surrounded by alfalfa to the west and south and cultivated land to the north.	Nest monitored June 21-July 21, 2005, 1 fledged.
629	July 24, 2005	Second Street and University Ave, Davis.	Nest tree was an elm. Surrounded by residential and some commercial.	1 adult observed during England's 1990-92 survey. Nest monitored July 7-24, 2005, 1 fledged.
1349	August 1, 2005	Kidwell Ranch, 0.3 mile east of ranch headquarters, 1.3 miles SW of I-80 and Hwy 113 junction, SW of Davis.	Nest tree was a black walnut. Surrounded by alfalfa to the east and cultivated land to the west.	Nest monitored April 10-July 15, 2004. 1 young fledged. Nest site monitored April 25-August 1, 2005, adult frequently present, plausible nest, no chicks detected.
1354	August 1, 2005	Kidwell Ranch, 0.7 mile east of ranch headquarters, 1 mile SW of I-80 and Hwy 113 junction, SW of Davis.	Nest tree was a willow. Surrounded by cultivated land to the north and alfalfa to the south.	Nest monitored June 1-August 2, 2004, 2 fledged. Nest monitored March 11-August 1, 2005, 2 fledged.
1457	August 12, 2005	1.1 miles SW of the I-80 crossing over the South Fork of Putah Creek, SW of Davis.	Nest tree is a black walnut. Surrounded by alfalfa to the east and west.	Site suspected, but not confirmed, as a nest site in 2004. Nest(s) monitored April 25-August 12, 2005. First nest had an adult on nest on May 12 but deserted by June 3, 2005. Second nest fledged 1.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
1458	August 12, 2005	Just west of the I-80/Kidwell exit, SW of Davis.	Nest tree was a mutilated black walnut.	Adults observed perching on this tree for several years but interpreted this as a hunting perch. Nest monitored May 12-August 12, 2005, 1 fledged.
916	August 14, 2005	Sparling Road (I-80 frontage road), 0.5 mile NE of the Kidwell Exit, SW Davis	Nest trees were black walnuts on a farmyard containing numerous large deciduous trees. Surrounded by alfalfa to the SW, a farmstead to the east, and cultivated land in all other directions.	Nest building observed in 2000, 0 fledged. 1 fledged in 2001. 1 fledged in 2004. 1 fledged in 2005.
1345	September 9, 2005	At the end of Olmo Road, 1.5 miles SW of U.C. Davis.	Nest tree was a black walnut. Cultivated land to the west.	Nest monitored April 10-August 15, 2004, 1 young fledged. Nest monitored March 31-September 9, 2005, 2 fledged.
2243	August 8, 2006	Westbound I-80 at Milk Farm Road exit, just NE of Hess Lane and about 1.3 miles NE of Dixon.	Nest trees were a mixed cluster of deciduous trees next to freeway.	Suspected nest, but not confirmed in 2005. SWHA sitting on nest observed April 14, 2006. Nest monitored through August 8, outcome unknown/not reported.
410	2007	El Macero Golf Course, from Redbud Drive at Mace Boulevard NE to Middle Golf Drive, east of Davis.	In 1988 nest in golf course cottonwood. In 1993 nest in riparian strip. In 1994 in golf course conifer. In 2002 nest in pine. In 2003 nests in cedar (abandoned) and locust; nest in "other exotic" tree (abandoned). In 2007 nest in cottonwood.	2 adults observed nesting in 1988. Active nest 1993, white-tailed kite nested nearby. 2 nests produced 5 young in 1994. 2 fledged in 2002. 0 fledged in 2003. Possibly inactive 2004-05 (inadequate observation). Active nest in 2007.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
711	2007	Mace Ranch Park in Davis; south of Loyola Drive at Alhambra Boulevard and about 0.8 mile NW of I-80 at Mace Boulevard.	In 1996-97/2003/2005 nest tree was large, lone valley oak. 2001-2002 nest tree was black walnut. 2004 in casuarina. In 2007 nest tree was a valley oak. Prior to 2005, site consisted of fields and star thistle. School and Mace Ranch were built, parking lot repaved 2004-05.	Nesting observed July 1, 1996. Active nest 1997. Lone oak used as hunting perch only 1998-2002. 2 fledged in 2001. 1 fledged in 2002 and 2003. 2 fledged in 2004. 3 fledged in 2005. Active nest observed during 2007 survey, success unknown.
1989	2007	Vicinity of North Fork Putah Creek at I-80 crossing in Davis.	In 1986 creekside nest tree was an oak. In 1994 creekside nest was a valley oak, nest further south on Chiles Rd. in a walnut. In 2003 nest tree was a 40-foot black walnut in corner of private property. In 2007 a west nest was located in riparian cottonwood and an east nest was in riparian valley oak.	Nest with 1 young observed in 1986. Nesting pair in 1987. Foraging SWHA observed 1988 and 1992. 2 active nests, each with 2 young in 1994. Nest with 1 young observed on May 29, 2003. West nest active in 2007, success unknown. 2 young observed in east nest in 2007.
106	2007	Along Putah Creek on either side of Hwy 113, just north of I-80 junction, at U.C. Davis.	In 1994 nest in valley oak in riparian corridor along Putah Creek and nest in cottonwood on west side of Hwy 113. In 2003 nest tree is a 30-foot cottonwood adjacent to U.C. Davis sheep barn, surrounded by croplands. In 2007 nest tree is same or adjacent cottonwood.	In 1994, 2 active nests, pair with 1 young and pair with 3 young. Nest with 1 downy young observed on June 3, 2003. Active nest observed in 2007, outcome unknown.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
1092	2007	I-80 at Richards Boulevard, Davis.	In 2001-2002 nest tree was a redwood. In 2003 nest tree was a blue oak. In 2004-2005 nest tree was an exotic deciduous tree, surrounded by freeway and urban areas. In 2007 nest tree was a redwood. Birds likely foraging on ag lands south of Putah Creek about 0.4 miles south.	2 fledged in 2001. Active nest observed in 2002, success unknown. Nest with 1 downy young observed May 12, 2003. Site monitored in 2005; adults present, but no nest/chick detected. Active nest observed during 2007 survey, success unknown.
610	2007	South Fork Putah Creek, about 0.3 mile east of confluence with North Fork Putah Creek, about 0.4 mile west of I-80 crossing, SW of Davis.	Nest tree was a cottonwood in riparian habitat. Surrounding agricultural land used for foraging.	Pair observed nesting in 1988. 1 adult observed nesting during England's 1990-92 survey. Inactive in 1994. Nest with 1 young observed during 2007 survey.
1960	2007	Old Davis Road at railroad crossing, about 0.4 mile south of I-80 intersection and 0.4 mile north of South Fork Putah Creek.	Nest tree was a deodar cedar at rural residence.	Active nest observed during 2007 survey, nest success unknown.
1945	2007	Along South Putah Creek about 0.2 mile east of I-80, south of Davis.	In 2003 nest tree is a 40-foot cottonwood with riparian corridor. In 2007 nest tree was the same or adjacent tree.	Nest with 1 partially feathered young observed June 3, 2003. Active nest observed in 2007, success unknown.
2230	2007	On unnamed canal along north side of railroad tracks on northern boundary of Yolo Bypass WA, about 0.7 mile NW of I-80 at Enterprise Boulevard.	Nest in cottonwood surrounded by seasonal wetland, urban land use, and rice fields.	Activity at nest observed during 2007 survey, nesting outcome unconfirmed.
2231	2007	Just east of the Yolo Bypass WA, along Toe Drain, about 0.2 mile NW of I-80 at Enterprise Boulevard. in West Sacramento.	Nest in willow in channelized riparian habitat.	Nest with 2 young observed during 2007 survey.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
1992	2007	North side of I-80, about 2.25 miles ENE of Swingle, Yolo Bypass WA.	In 2004 nest tree was a 50-foot Eucalyptus surrounded by fallow land. In 2007 nest appears to have been in same or adjacent tree, in eucalyptus grove surrounded by seasonal wetland, irrigated cropland, and rice.	Active nest observed on May 13, 2004, success unknown. Nest with 1 young observed during 2007 survey.
1689	June 28, 2007	Just SW of the intersection of Harbor Boulevard and Industrial Boulevard, West Sacramento.	Nest tree is a pine surrounded by an active industrial port and deep-water ship channel. Birds likely forage in the Yolo Bypass.	Adults observed nest building in March 2007, mating and incubating eggs in April 2007. 2 young observed daily after hatching (hatch date around May 25) through June 28, 2007.
2228	June 8, 2009	Yolo Bypass WA, about 0.8 mile ENE of I-80 at Chiles Road, 2.6 miles WSW of I-80 at Enterprise Boulevard. in West Sacramento.	Nest tree was a 30-foot willow with fallow/ruderal land to the south and cropland to the north.	Active nest, incubation observed on June 8, 2009, fledging success unknown.
613	June 18, 2009	Vicinity of I-80 west of Old Davis Road on both sides of the interstate.	In 1990-1992, nest tree in riparian habitat surrounded by agriculture. In 1993 nest tree was an oak. In 1994 nest tree was a conifer. In 2000 the nest tree is an 80-foot redwood surrounded by commercial buildings and a major freeway. In 2007-2009 the nest tree was a cottonwood.	Active nest, 1990-1991. SWHA observed foraging over UCD cropland in 1991-92. 1 fledgling was killed on onramp in 1993. 3 young observed in 1994. 1 fledgling observed July 6, 2000. Nest failed in 2007. Active nest observed 2009, success unknown.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
869	June 18, 2009	Southeast side of the Kidwell exit of I-80 (Kidwell and Sparling), SW of Davis.	Nest trees were cottonwoods within a grove. Surrounding foraging habitat consisted of tomatoes to the east, alfalfa to the south and NE, and cultivated land across I-80.	Nest monitored March 7-July 17, 2000, 2 fledged. Few sightings in 2001-2002. Nest with 1 feathered young observed June 3, 2003. Nest monitored March 5-July 24, 2004, 3 fledged. Nest monitored March 11-September 9, 2005, 1 fledged. Nest with young observed June 18, 2009.
498	March 29, 2010	0.4 mile north of I-80, 0.5 mile NW of the I-80/Hwy 50 junction, West Sacramento.	Multiple nest sites, primarily in large cottonwoods and one valley oak in 2003, within well-developed riparian habitat around the canals and railroad tracks. Adjacent to Yolo Bypass flood control facility, urban development, and cropland to west.	1 SWHA soaring near nest in 1988. Nest with 2 young in 1994. Nest with pair and 3 young in 1999. Nest with pair and 3 young (banded) in 2001. 3-4 nests each with 1 young (at least 1 fledged) in 2003. 2 active nests in 2007. Pair building nest in 2010.
1466	April 24, 2010	Vicinity of Road 32A at I-80 interchange, just west of Yolo Bypass, about 2.75 miles east of Davis.	In 2005 nest tree was at 95% height of a cottonwood. Surrounded by railroad tracks, ruderal, and roads to the south and cultivated land to the north. In 2010 nest was at the top of a 25-foot eucalyptus adjacent to I-80 east onramp.	Nest monitored April 22-August 11, 2005 (north of Road 32A). Incubation observed, but no chick detected. Nest building observed on April 24, 2010 (south of I-80). Nest later located, success unknown.
1715	July 21, 2010	West side of the Sacramento River just south of Tower Bridge (Capitol Mall) and 0.2 mile SE of Raley Field, West Sacramento.	Nest located in riparian cottonwood in urban surroundings. Disturbance from transient campsites under nest, baseball event parking. Unknown where these birds might forage; nearest foraging habitat appears to be over 3 miles away to the NW or north.	Nest with 1 young observed during 2007 survey, fledging success unknown. Sizeable chick with dark body and whitish face in an obvious nest observed in 2008. Nesting pair monitored in 2010; fledged 2 young.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
407	June 21, 2011	North fork Putah Creek, from about 0.3 mile to 0.7 mile west of Mace Boulevard in Davis.	In 1988 nest tree was a eucalyptus surrounded by agriculture/residential. In 1994 nest tree was a valley oak. In 2003 nest tree was a 60-foot cottonwood by the bike bath. In 2007 nest tree in valley oak in urbanized area. In 2001 nest tree was a backyard redwood.	In 1979 adults observed, no nest found. Nesting pair observed in 1988, success unknown. Active nest with 2 young observed in 1994. Nest was abandoned in 2003. Nest with 2 young observed in 2007. Nest with 1 downy young observed on June 21, 2011.
111	July 23, 2013	Along I-80 from just west of County Road 105 to just east of County Road 105D, east of Davis.	1: In 1987-88 nest tree in CalFIRE nursery/equipment yard. In 2000 nest tree is a pine, south side of Chiles Road. In 2003-07 nest tree was a pine. 2: Nest in willow. 3: In 2002-03/07/09, nest tree was a walnut. 4: In 2002 nest tree was a willow on the north of railroad track. 5: In 2005 the nest tree was a Chinese elm, surrounded by cropland.	Flyovers in 1981 and 1987. In 1988, breeding pair. In 2000, active nest. In 2002, 2 nests, at least 1 young. In 2003, 2 nests, 3 young total. In 2004, 2 young. In 2005, 1 fledged. In 2007, 2 nests, at least 2 fledged. In 2009, incubating. In 2011, 1 SWHA. In 2013, 1 fledged.
614	April 8, 2016	South Fork of Putah Creek, just west of I-80, SW of Davis.	Nest trees are cottonwoods in riparian habitat. Surrounding foraging habitat consisted of agricultural fields.	Nesting pair observed in 1988. 1 adult observed nesting in England's 1990-92 survey. Group of 3 observed foraging July 1991. Active territory but no attempt made to nest in 1994. Nest with 1 young observed in 2007. Adult flying with prey observed April 8, 2016.

Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix B. Swainson's hawk California Natural Diversity Database Occurrence Details

CNDDDB Occurrence Number	Date	Location	Ecological Details	Observation Comments
98	June 2016	Davis cemetery and vicinity, from just north of Eighth Street at North Diameter Drive to the north side of Fifth Street at Madson Place, Davis.	In 1987 nest tree was a lone oak. In 1988 nest tree was a walnut behind old homestead east of cemetery. In 2003 and 2007 nest trees were cottonwoods. In 2013 nest tree was a large valley oak. Cemetery includes 10 acres fallow land in residential area. In 2016 nest tree was a sycamore.	3 fledged in 1987. 2 fledged in 1988. Nest with 1 downy young observed May 12, 2003. Nesting pair observed May 4, 2007, nest fate unknown. 1-2 young hatched in 2013, no hawks observed on August 14, success unknown. Nest building and copulation observed in June 2016.
1995	July 3, 2016	NE corner of Sixth Street at F Street and SE corner of Fourth and I Streets in Davis.	In 1994 nest tree was a conifer in residential neighborhood. In 2016 nest tree was a backyard deodar cedar. Residential neighborhood with disturbance from local auto and foot traffic.	Active nest observed in 1994, number of young unknown. Active nest observed in 2016, apparently the young died in the nest and the pair made an abortive attempt at building a second nest at the SE corner of J and Third Streets.

Key:

SWHA = Swainson's hawk

CNDDDB = California Natural Diversity Database

I-5 = Interstate 5, I-80 = Interstate 80, Hwy = Highway

SW = southwest, NW = northwest, SE = southeast, NE = northeast, ENE = east, northeast, WSW = west, southwest

Yolo Bypass WA = Yolo Bypass Wildlife Area

Appendix C Representative Photographs

**Caltrans District 3 Yolo 80 Corridor Improvements Project
Nesting Swainson's Hawk Protocol Survey Report
Appendix C Representative Photographs**



Photograph 1. Potential nest N076 adjacent to I-80. Photograph taken on March 26, 2021.



Photograph 2. Potential nest N100 along Putah Creek south of I-80 and adjacent foraging habitat. Photograph taken on January 12, 2021.



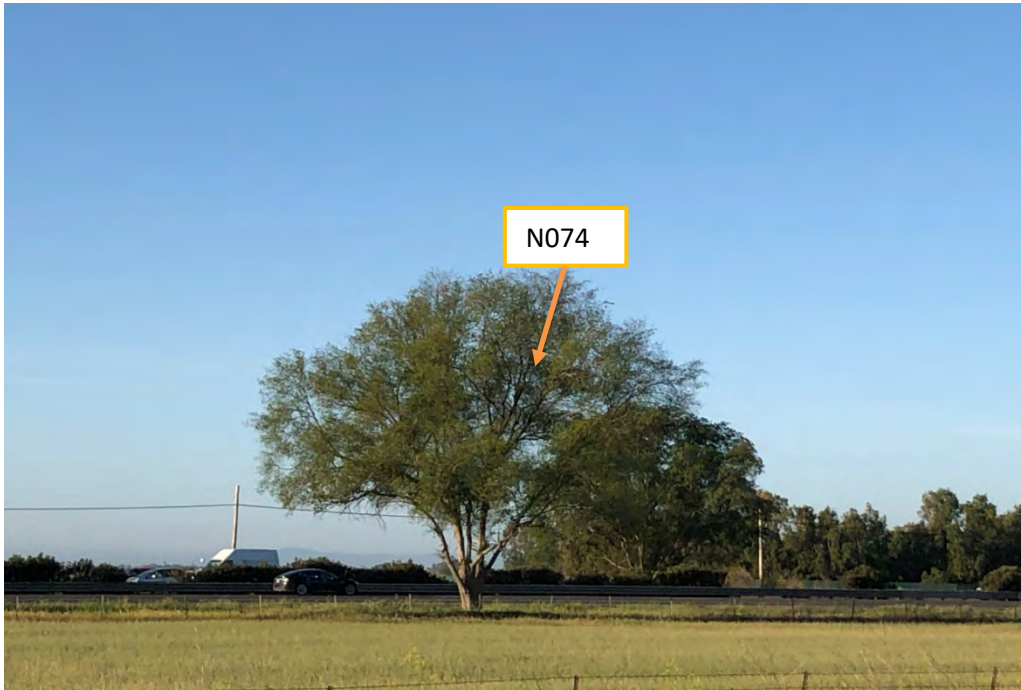
Photograph 3. Location of active Swainson's hawk (SWHA) nest N062 and potential nest N063 in the Yolo Bypass north of I-80. Photograph taken on March 23, 2021.



Photograph 4. Active SWHA nest N062 and potential nest N063 in the Yolo Bypass north of I-80 and adjacent foraging habitat. Photograph taken on March 23, 2021.



Photograph 5. Active SWHA nest N011 and potential nest N012 adjacent to a private residence along Garden Highway and the Sacramento River. Both nests are located on top of mistletoe. Photograph taken on April 5, 2021.



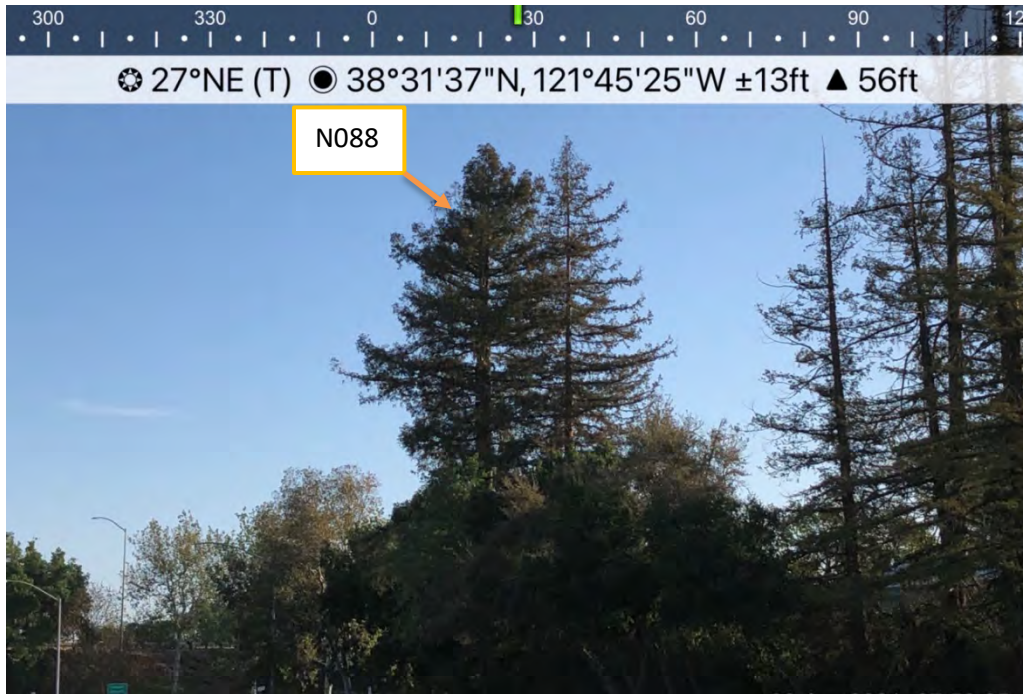
Photograph 6. Active SWHA nest N074 adjacent to I-80 and within the ESL, just west of the Yolo Bypass. Photograph taken on April 5, 2021.



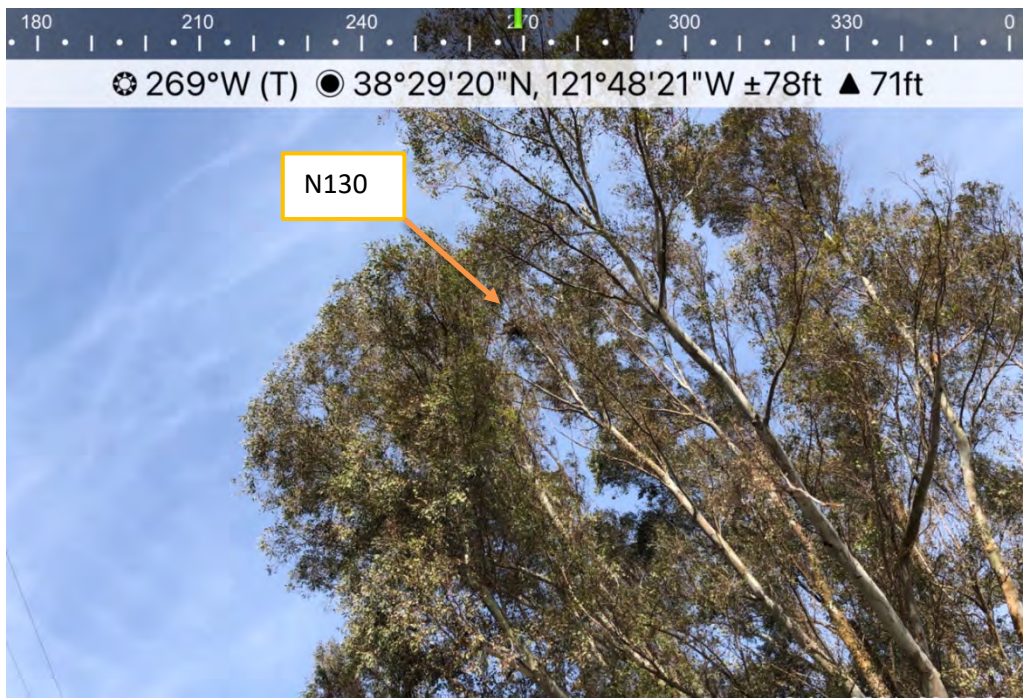
Photograph 7. Active SWHA nest N001 and adjacent foraging habitat north of El Centro Road at the eastern end of the study area. Photograph taken on April 5, 2021.



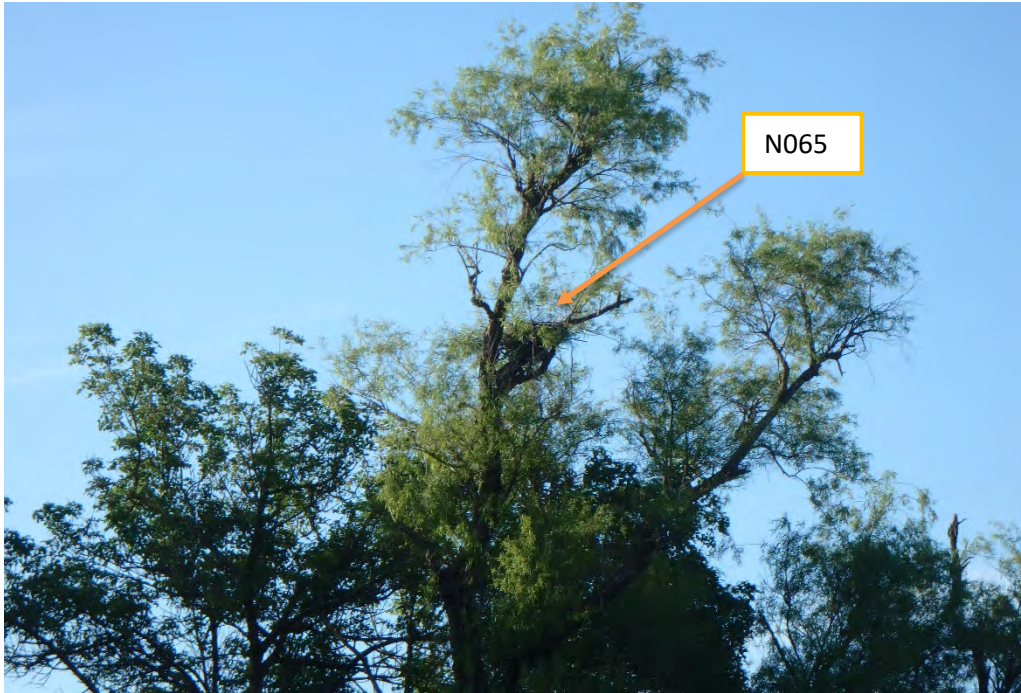
Photograph 8. Active SWHA nest N087 in a residential neighborhood near U.C. Davis. Photograph taken on April 5, 2021.



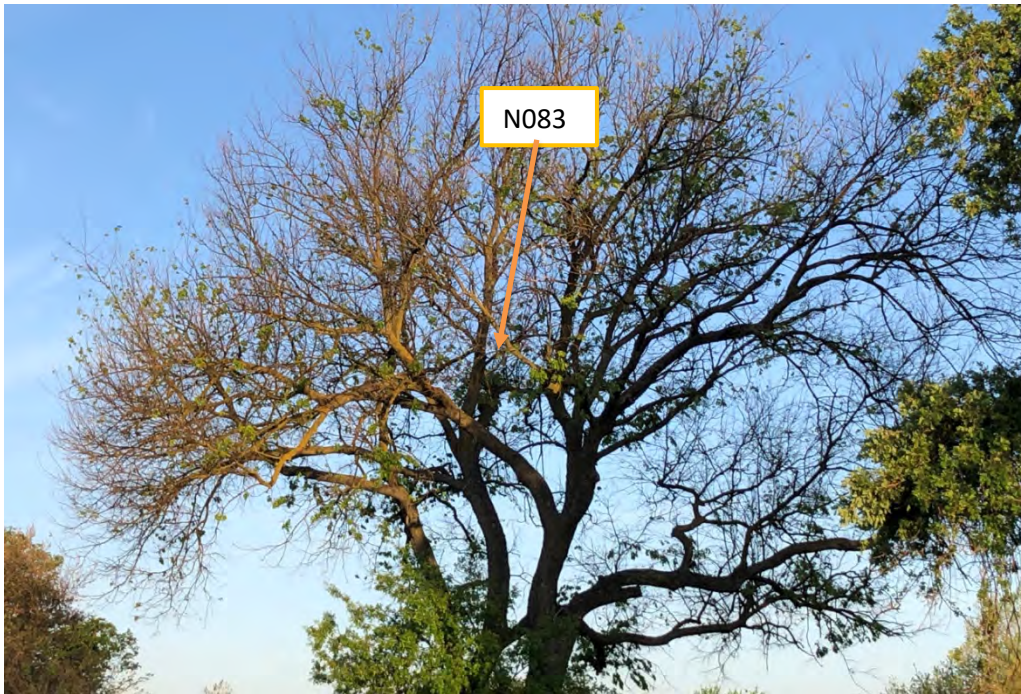
Photograph 9. Active SWHA nest N088 in redwood tree adjacent to Old Davis Road, south of I-80. Photograph taken on April 9, 2021.



Photograph 10. Active SWHA nest N130 in eucalyptus tree north of I-80 at the western end of the study area. Photograph taken on April 12, 2021.



Photograph 11. Active SWHA nest N065 in riparian habitat adjacent to the railroad tracks in the Yolo Bypass. Photograph taken on April 9, 2021.



Photograph 12. Active SWHA nest N083 adjacent to I-80 near Mace Blvd. New nest under construction at time of survey. Photograph taken on April 9, 2021.



Photograph 13. SWHA perched at top of cottonwood tree in the Yolo Bypass. Bird was observed gathering nest material (i.e., sticks) from tree and taking to active nest N068. Photograph taken on April 12, 2021.



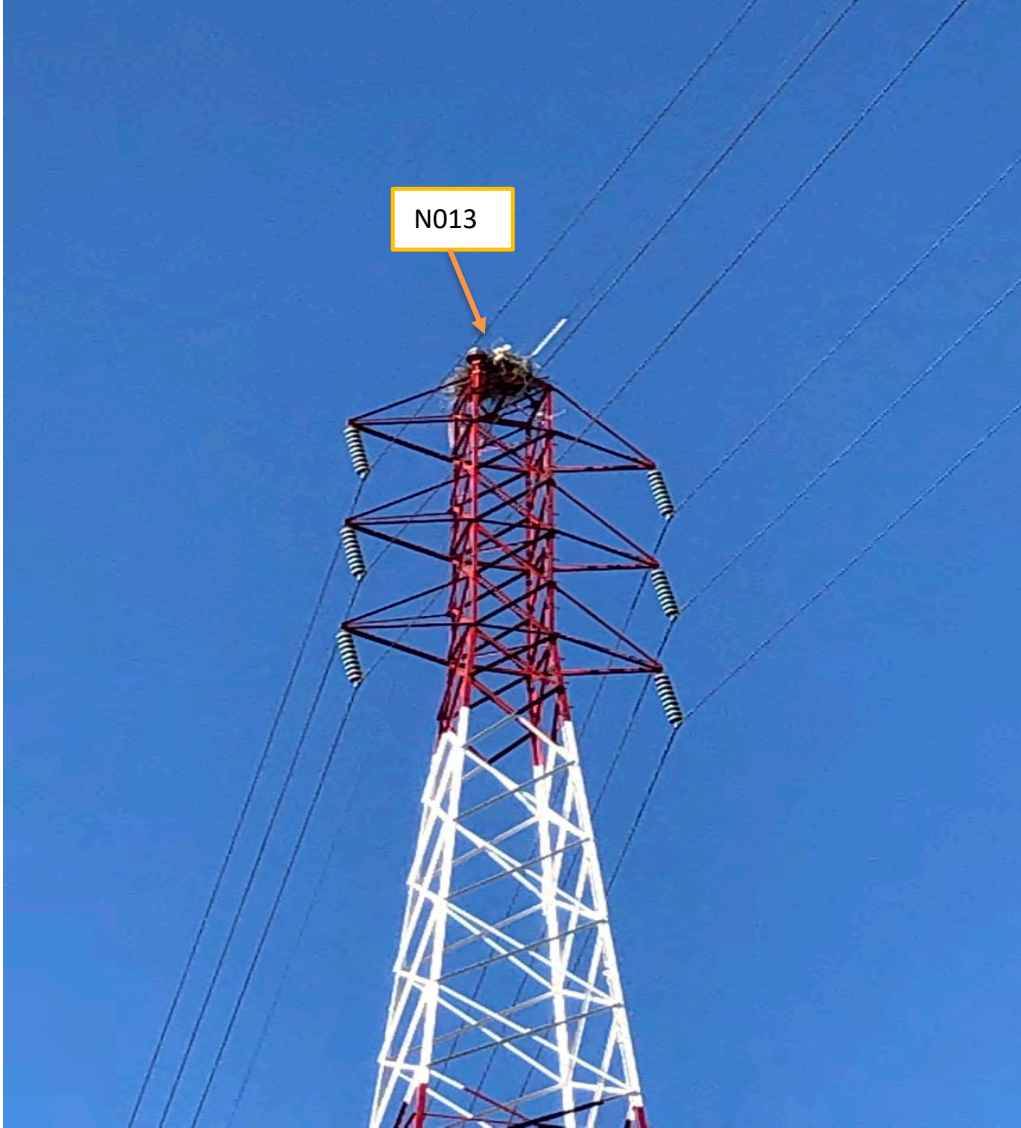
Photograph 14. SWHA pair perched at top of a snag in the Yolo Bypass near active nest N065. Photograph taken on April 12, 2021.



Photograph 15. Active great horned owl nest N060 under train trestle in the Yolo Bypass. Both adults and two chicks were observed. Photograph taken on April 8, 2021.



Photograph 16. Active great horned owl nest N070 on train trestle support in the Yolo Bypass. Adult female was observed on nest, male was observed in willow tree to the north. Photograph taken on April 12, 2021.



Photograph 17. Active osprey nest N013 on transmission tower west of the Sacramento River in West Sacramento. Photograph taken on April 8, 2021.