Finding of No Significant Impact

for the Issuance of a Long-Term Incidental Eagle Take Permit for the
Contra Costa Water District Phase 2 Los Vaqueros Reservoir Expansion Project

---

California

February 2023

U.S. Fish and Wildlife Service
U.S. Department of Interior
2800 Cottage Way, Suite W-2606, Sacramento, CA 95825
Contact: Tracy Borneman | tracy_borneman@fws.gov

Introduction

The U.S. Fish and Wildlife Service (Service) received an application from Contra Costa Water District (Applicant) requesting eagle take coverage under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] § 22.80) for territory loss and incidental disturbance take of golden eagles (*Aquila chrysaetos*) at the Contra Costa Water District Phase 2 Los Vaqueros Reservoir Expansion Project (Project) located in eastern Contra Costa County, California. The Applicant will be enlarging the dam at Los Vaqueros Reservoir (Reservoir) and expanding the reservoir from the current 160-thousand-acre foot (TAF) water surface elevation maximum capacity to a new maximum capacity of 275 TAF. Construction activities related to the Project are anticipated to occur over an approximate 3-year period from 2028 through 2030. Refilling of the Reservoir to 200 TAF is anticipated to occur over five years with an expected completion by 2035 with full inundation to 275 TAF approximated to occur between 2036 and 2040. The Applicant requested a long-term incidental eagle take permit (permit) for the disturbance and loss of breeding productivity of golden eagles during construction activities, as well as golden eagle territory loss due to inundation of the expanded Reservoir. Issuance of a permit by the Service for take that is incidental to otherwise lawful activities under the Eagle Act constitutes a discretionary Federal action that is subject to the National Environmental Policy Act (NEPA; 42 United States Code [U.S.C.] §§ 4321 et seq.).

In accordance with NEPA, we prepared an Environmental Assessment (EA) analyzing the environmental consequences of issuing a permit for the take of golden eagles associated with the Project, as well as alternatives to this proposed action. This EA is incorporated by reference and attached (Attachment 1). The EA assists the Service in ensuring compliance with NEPA and in making a determination as to whether any significant impacts to the environment not previously analyzed under the Service's Programmatic Environmental Impact Statement for the Eagle Rule Revision, December 2016 (PEIS; USFWS 2016) could result from the analyzed actions, which would require preparation of an Environmental Impact Statement (EIS). Determining if effects are significant under NEPA is addressed by regulation 40 CFR § 1501.3(b), and requires analysis of the degree of effects of the action, including short- and long-term considerations and beneficial and adverse effects, as well as considering the affected area and its resources.

The Service's purpose in considering the proposed action of issuing an eagle incidental take permit is to fulfill our authority under the Eagle Act (16 U.S.C. §§ 668–668e) and its regulations (50 CFR § 22). Applicants whose otherwise lawful activities may result in take of eagles can apply for incidental take permits so that their projects may proceed without potential violations of the Eagle Act. The Service may issue permits for eagle take that is associated with, but not the purpose of, an activity. Such permits can be issued by the Service when the take that is authorized is compatible with the Eagle Act preservation standard; it is necessary to protect an interest in a particular locality; and it is associated with, but not the purpose of, the activity; and it cannot be practicably avoided (50 CFR § 22 and 81 Federal Register [FR] 91494).

The need for this federal action is a decision on an eagle incidental take permit application from Contra Costa Water District that is in compliance with all applicable regulatory requirements set forth under the Eagle Act in 50 CFR § 22.

Proposed Action and Alternatives Considered

In the EA, the Service fully analyzed two potential courses of action, summarized below, to respond to the Applicant's request for an incidental eagle take permit.

Proposed Action

The Service proposed to issue a long-term (2023-2040) incidental eagle take permit, with associated conditions, to Contra Costa Water District at the Phase 2 Los Vaqueros Reservoir Expansion Project for disturbance to, and loss of breeding productivity of one golden eagle pair (Buena Vista Territory) over one eagle breeding season, and up to five golden eagle pairs (Walnut/Marsh House, Camino Diablo, Vasco, Los Vaqueros, and Windy Valley Territories) over three eagle breeding seasons, as well as loss of one unspecified golden eagle breeding territory, incidental to Project construction activities and Reservoir inundation ("Proposed Action"). The Service estimated the loss of breeding productivity due to disturbance from Project construction activities to be a maximum total of 9.44 young fledged lost from the golden eagle population. Loss of an occupied golden eagle breeding territory is estimated to result in the loss of 6.49 young fledged from the golden eagle population. The permit would require implementation of measures to avoid and minimize eagle take, monitoring of eagle breeding productivity, and compensatory mitigation to fully offset estimated take.

Alternative 1: No Action

Under the No-Action Alternative, the Service would take no further action on Contra Costa Water District's eagle take permit application.

Public Scoping and Tribal Coordination

Scoping regarding issuance of eagle take permits was performed for the PEIS (USFWS 2016). This Finding of No Significant Impact and attached EA will be made public on the Service's regional webpage.[1]

To notify Tribes regarding potential issuance of the permit, the Service sent letters to 29 federally-recognized tribal governments located within 109 miles (the natal dispersal distance of golden eagles thought to adequately define the local area population of the eagles) of the Project informing them of the received permit application and preparation of the EA and offering the

[1] https://www.fws.gov/library/collections/pacific-southwest-region-nepa-documents-eagle-permits

opportunity for formal consultation regarding potential issuance of the permit. The Service received no response from any of the Tribes contacted.

Selected Alternative

Based on review of the analyses detailed in the EA, the Service selected the Proposed Action of issuing a long-term incidental eagle take permit to Contra Costa Water District for disturbance and loss of productivity of one golden eagle pair over one eagle breeding season, and up to five golden eagle pairs over three eagle breeding seasons, as well as the loss of one golden eagle breeding territory with the requirement to implement avoidance and minimization measures, conduct eagle monitoring, and provide compensatory mitigation to fully offset the estimated take.

Take of golden eagles is predicted to occur under all alternatives, however the Proposed Action incorporates additional measures to avoid and minimize take of eagles, fully offsets the take with required compensatory mitigation, and includes eagle territory and breeding productivity monitoring, which would not occur under the No-Action Alternative.

The Proposed Action is consistent with the purpose and need for this Federal action and is in compliance with all statutory (16 U.S.C. §§ 668) and regulatory requirements (50 CFR § 22.80 and 50 CFR § 13.21), including the criteria codified for permit issuance (50 CFR § 22.80(f)).

Determining Significance

When considering whether the effects of the Proposed Action are significant, regulations of the NEPA require agencies to "analyze the potentially affected environment and degree of the effects of the action" (40 CFR § 1501.3(b)). This includes considering the extent of the potentially affected area (national, regional, or local) and its resources, as appropriate to the specific action. Further considerations for the degree of the effects include both short- and long-term effects, both beneficial and adverse effects, effects on public health and safety, and effects that would violate Federal, State, Tribal, or local law protecting the environment (40 CFR § 1501.3(b)). Below we examine these considerations for the selected Proposed Action.

Potentially Affected Environment

For purposes of analyzing the selected Proposed Action, the appropriate affected environment associated with the Proposed Action is local and regional, because the Proposed Action does not affect statewide or national resource values. Analyses of effects at the local and regional scale are provided in the EA.

Golden eagles are the resource in the affected area most likely to be affected by the Proposed Action of issuance of the requested eagle take permit. The Project may result in potential disturbance and loss of breeding productivity of one golden eagle breeding pair occupying one nesting territory (Buena Vista Territory) over one breeding season, and potential disturbance of five golden eagle breeding pairs occupying five nesting territories (Walnut/Marsh House, Camino Diablo, Vasco, Los Vaqueros, and Windy Valley Territories) for up to three breeding seasons. The Project may also result in the loss of one unspecified golden eagle breeding territory due to Reservoir inundation. However, as discussed in the EA and below, the Applicant will implement conservation measures to minimize the risk to eagles and will offset golden eagle take through compensatory mitigation.

Bald eagles (*Haliaeetus leucocephalus*) are known to occur in the region and have been observed using habitat at the Reservoir, however no bald eagle nests are known to occur within the Watershed and are not expected to be affected by Project construction activities or Reservoir inundation. Bald eagles may benefit from reduced electrocution risk due to the power pole retrofitting to be done as offsetting compensatory mitigation for the authorized golden eagle take.

Migratory birds are not expected to be negatively affected by the Proposed Action of issuing an eagle take permit to the Applicant, however migratory birds may incidentally benefit from reduced electrocution risk due to the power pole retrofitting to be done for the eagle take permit.

Authorizing incidental eagle take is not expected to have effects to species protected by the Endangered Species Act (ESA) at the Project facility. As described in the EA, the Service will evaluate the proposed mitigation site once the location is selected. The Service anticipates that adverse effects to species listed under the ESA would be avoidable, however if there is potential for impacts to species listed under the ESA, we would conduct an additional NEPA analysis.

Eagles and their feathers are revered and considered sacred in many Native American traditions. Issuing a permit for disturbance take of eagles, is not expected to interfere with cultural practices and ceremonies related to eagles or to affect Native Americans' ability to obtain or use eagle feathers. Moreover, the Service requests any eagle feathers that are found be sent to our repository and, if in good condition, will be made available for these practices. Therefore, we do not anticipate any adverse effect on cultural resources from the Proposed Action.

Degree of the Effects

1) Both short- and long-term effects.

> Issuance of an eagle take permit for the Project does not set precedent for, or automatically apply, to other eagle take permit applications the Service is reviewing or could review in the future. Each permit request will be evaluated on a case-by-case basis. Therefore, the Proposed Action does not establish precedents for future actions or represent a decision in principle about a future action. Moreover, this Project will not limit the Service's discretion when processing future eagle take permit applications under the Eagle Act's permitting regulations.

The analyses in the EA considered effects to golden eagles at varying temporal scales and considered effects to both local and regional golden eagle populations.

Short-Term Effects. Under the Proposed Action, issuance of an eagle take permit would authorize disturbance and loss of breeding productivity of one golden eagle breeding pair occupying one nesting territory (Buena Vista Territory) over one breeding season and disturbance of five golden eagle breeding pairs occupying five nesting territories (Walnut/Marsh House, Camino Diablo, Vasco, Los Vaqueros, and Windy Valley Territories) for up to three breeding seasons. However, as described in the EA, the Applicant will implement measures to minimize disturbance to the eagles and decrease the chance of take and will fully offset the estimated take with compensatory mitigation.

Long-Term Effects. The Project will cause temporary and permanent removal of golden eagle breeding and foraging habitat. The largest impact on habitat will be caused by inundation of the Reservoir to bring capacity up to 275 TAF. A total of 598 acres will be permanently lost due to Reservoir expansion and Project changes to the landscape. The Proposed Action will have a direct impact on the golden eagle breeding pairs within the Watershed by permanently removing habitat from the landscape, which also effectively removes habitat for subsequent breeding or foraging use by the eagles. This loss of habitat will likely increase competition between golden eagle breeding pairs for foraging and breeding habitat, and abandonment of a breeding territory, or compression of the number of eagle territories the decreased habitat can support, may result. The Service estimates that one golden eagle breeding territory will be lost due to the Project. However, as described in the EA, the Applicant will offset this take with compensatory mitigation.

Analyses provided in the EA also indicate that current authorized take in the local area population (LAP) is below the five percent sustainable take benchmark determined by the Service to maintain the LAP. However, unauthorized take of eagles in the LAP is very likely exceeding the 10% threshold thought to be sustainable for golden eagle populations. To offset potential LAP cumulative effects, the Applicant would provide additional mitigation.

As the estimated take of golden eagles by this Project, and the potential for the take to compound with other sources of eagle take and affect larger eagle populations, is either below Service-determined sustainable benchmarks or will be addressed and fully offset by mitigation measures provided by the Applicant, the authorized take would cause no significant adverse effects on local or regional golden eagle populations.

The analyses in the Service's PEIS on issuing incidental eagle take permits provides information and greater certainty in understanding the risks and effects to eagles of issuing incidental eagle take permits now and into the future. Furthermore, surveying and monitoring of eagles that would be required under the Proposed Action provides information and increased certainty in our future assessments of risk to eagles from similar projects and human activities.

2) Both beneficial and adverse effects.

Beneficial Effects. As described in the EA, the Proposed Action includes power pole retrofitting as mitigation for take of eagles. Such retrofits are anticipated to protect eagles from electrocution. As the number of retrofits to be done for mitigation is calculated at a 1.2 to 1 ratio, these avoided eagle electrocutions will more than offset Project-related take of eagles, thereby benefiting the eagle population as a whole. Pole retrofits are also expected to benefit bald eagles and other raptors that may be susceptible to electrocution. Required monitoring of eagle breeding productivity will also be beneficial as it will support the Service's understanding of impacts from similar projects and human activities in the vicinity of nesting golden eagles. Furthermore, issuance of an incidental eagle take permit will allow the Applicant to operate in compliance with the Eagle Act.

Adverse Effects. As described in the EA, under the Proposed Action the Applicant would implement conservation measures to minimize the risk to eagles. However, loss of breeding productivity of one golden eagle breeding pair occupying the Buena Vista Territory over one breeding season, and potential disturbance of five golden eagle breeding pairs occupying the Walnut/Marsh House, Camino Diablo, Vasco, Los Vaqueros, and Windy Valley Territories for up to three breeding seasons may occur due to disturbance from Project activities. In addition, loss of one unspecified golden eagle breeding territory may occur due to Project construction activities and Reservoir inundation. The Applicant will offset this eagle take through compensatory mitigation. To address potential cumulative effects in the LAP, the Applicant would provide additional mitigation. This will ensure that the impacts of issuing an eagle take permit on the local and regional golden eagle populations will not be significant.

3) Effects on public health or safety.

The Proposed Action would include mitigating eagle take by retrofitting power poles to prevent eagle electrocutions. As eagle and other raptor electrocutions on power poles can start fires, decreasing eagle and other raptor electrocutions could benefit human safety by reducing fire risk.

4) Effects that would violate Federal, State, Tribal, or local law protecting the environment.

The Proposed Action, issuance of an incidental take permit under the Eagle Act, will not violate any federal, state, tribal, or local law.

Finding of No Significant Impact

The Service's Migratory Bird Program concludes from the analysis conducted in the EA and the information provided above that the Proposed Action would not trigger significant impacts on the environment based on considerations and criteria established by regulations, policy, and analysis. Analyses of impacts were conducted at the project, local, and regional scales, and the degree of effects were assessed. The selected Proposed Action is unlikely to have significant impacts on eagles because all reasonably foreseeable take of eagles is mitigated and the Proposed Action meets the Eagle Act's preservation standard (16 U.S.C. §§ 668a, 50 CFR § 22.6) and all regulatory requirements (50 CFR § 22.80). Based on the findings discussed herein, we conclude that the Proposed Action will have no significant impact on the environment and is not a major Federal action significantly affecting the quality of the human environment pursuant to Section 102(2)(C) of NEPA (42 U.S.C. 4332(2)(C)). Therefore, we are not required to prepare an EIS to further analyze possible effects, and our environmental review under NEPA is concluded with this finding of no significant impact (40 CFR 1501.3, 43 CFR 46.325).

Daniel Blake
Chief, Migratory Bird Program
Pacific Southwest Region
U.S. Fish and Wildlife Service

References

16 United States Code (U.S.C.) § 668. Title 16 - Conservation; Chapter 5a - Protection and Conservation of Wildlife; Subchapter II - Protection of Bald and Golden Eagles; Section (§) 668 - Bald and Golden Eagles. Available online: http://uscode.house.gov

40 Code of Federal Regulations (CFR) § 1501.3. Title 40 - Protection of Environment; Chapter V - Council on Environmental Quality; Subchapter A – National Environmental Policy Act Emplementing Regulations; Part 1501 – NEPA and Agency Planning; Section (§) 1501.3 – Determine the appropriate level of NEPA review. Available online: https://www.ecfr.gov

42 United States Code (U.S.C.) §§ 4321 et seq. Title 42 - the Public Health and Welfare; Chapter 55 - National Environmental Policy; Subchapters I (Policies and Goals) and II (Council on Environmental Quality); Sections (§§) 4321 et seq. Available online: http://uscode.house.gov

42 United States Code (U.S.C.) §§ 4332. Title 42 - the Public Health and Welfare; Chapter 55 - National Environmental Policy; Subchapter I - Policies and Goals; Section (§) 4332 – Cooperation of agencies; reports; availability of information; recommendations; international and national coordination of efforts. Available online: http://uscode.house.gov

43 Code of Federal Regulations (CFR) § 46.325. Title 43 – Public Lands: Interior; Subtitle A – Office of the Secretary of the Interior; Part 46 – Implementation of the National Environmental Policy Act of 1969; Section (§) 46.325 – Conclusion of the environmental assessment process. Available online: http://uscode.house.gov

50 Code of Federal Regulations (CFR) § 13.21. Title 50 - Wildlife and Fisheries; Chapter I - United States Fish and Wildlife Service, Department of the Interior; Subchapter B - Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants; Part 13 - General Permit Procedures; Section (§) 13.21 – Issuance of permits. Available online: https://www.ecfr.gov

50 Code of Federal Regulations (CFR) § 22. Title 50 - Wildlife and Fisheries; Chapter I - United States Fish and Wildlife Service, Department of the Interior; Subchapter B - Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants; Part 22 - Eagle Permits. Available online: https://www.ecfr.gov

81 Federal Register (FR) 91494. 2016. Eagle Permits; Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests. Vol. 81, No. 242. December 16, 2016. pp 91494-91554. Available online: https://www.federalregister.gov/

US Fish and Wildlife Service (USFWS). 2016. Programmatic Environmental Impact Statement for the Eagle Rule Revision. December 2016. Available online: https://www.fws.gov/migratorybirds/pdf/management/FINAL-PEIS-Permits-to-Incidentally-Take-Eagles.pdf

Attachment 1

Environmental Assessment for the Issuance of a Long-Term Incidental Eagle Take Permit for the Contra Costa Water District Phase 2 Los Vaqueros Reservoir Expansion Project

Environmental Assessment

for the Issuance of a Long-Term Incidental Eagle Take Permit for the
Contra Costa Water District Phase 2 Los Vaqueros Reservoir Expansion Project

---

California

February 2023

U.S. Fish and Wildlife Service
U.S. Department of the Interior
2800 Cottage Way, Suite W-2606, Sacramento, CA 95825
Contact: Tracy Borneman | tracy_borneman@fws.gov

Contents

Abbreviations

ADA	Americans with Disabilities Act
CCWD	Contra Costa Water District
CEC	California Energy Commission
CFR	Code of Federal Regulations
Dam	Los Vaqueros Dam
EA	Environmental Assessment
Eagle Act	Bald and Golden Eagle Protection Act
EMU	Eagle Management Unit
ESA	Endangered Species Act
FR	Federal Register
HMU	Habitat Management Unit
LAP	Local Area Population
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
PEIS	Programmatic Environmental Impact Statement for the Eagle Rule Revision
Reclamation	Bureau of Reclamation
Reservoir	Los Vaqueros Reservoir
Project	Phase 2 Los Vaqueros Reservoir Expansion
REA	Resource Equivalency Analysis
Service	United States Fish and Wildlife Service
TAF	Thousand Acre Feet
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service

Introduction

This Environmental Assessment (EA) analyzes the environmental consequences, pursuant to the National Environmental Policy Act (NEPA; 42 United States Code [U.S.C.] §§ 4321 et seq.), of the U.S. Fish and Wildlife Service (Service) issuing an incidental eagle take permit (Permit) for the take of golden eagles (*Aquila chrysaetos*) associated with the Phase 2 Los Vaqueros Reservoir Expansion (Project). The applicant for the Permit, the Contra Costa Water District (CCWD, Applicant), is requesting eagle take coverage under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [CFR] § 22.80) for take by disturbance of breeding golden eagle pairs and territory loss from construction activities and inundation of the Los Vaqueros Reservoir (Reservoir) above the 160 thousand acre foot (TAF) water surface elevation within the Administrative Boundary of the Watershed.

Issuance of an eagle incidental take permit by the Service for take that is incidental to otherwise lawful activities under the Eagle Act constitutes a discretionary federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with NEPA and in making a determination as to whether any "significant" impacts to the environment not previously analyzed under the Service's Programmatic Environmental Impact Statement for the Eagle Rule Revision, December 2016 (PEIS; USFWS 2016a) could result from the analyzed actions, which would require preparation of an Environmental Impact Statement. This EA evaluates the effects of the Service's proposed action to issue an eagle incidental take permit to the Applicant, as well as alternatives to this action.

The Eagle Act authorizes the Service to issue eagle take permits only when the take is compatible with the preservation of each eagle species (known as the Eagle Act's "preservation standard"), which is defined in regulations as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species" (50 CFR § 22.6).

The Applicant applied for an incidental eagle take permit for take by disturbance and loss of breeding productivity of golden eagle breeding pairs and territory loss resulting from Project construction activities and inundation of the Reservoir.

This EA evaluates whether issuance of the Permit will have significant impacts on the potentially affected environment, beyond those previously analyzed in the PEIS. Determining if effects are significant under NEPA is addressed by regulation 40 CFR § 1501.3(b) and requires analysis of the degree of effects of the action, including short- and long-term considerations and beneficial and adverse effects, as well as considering the affected area and its resources.

This proposal conforms with, and carries out, the management approach analyzed in, and adopted subsequent to, the Service's PEIS. Accordingly, this EA tiers from the PEIS. Project- specific information not considered in the PEIS will be considered in this EA as described below.

Purpose and Need

The Service's purpose in considering the proposed action is to fulfill our authority under the Eagle Act (16 U.S.C. §§ 668–668e) and its regulations (50 CFR § 22). Applicants whose otherwise lawful activities may result in take of eagles can apply for eagle incidental take permits so that their projects may proceed without potential violations of the Eagle Act. The Service may issue eagle take permits for eagle take that is associated with, but not the purpose of, an activity. Such permits can be issued by the Service when the take that is authorized is compatible with the Eagle Act preservation standard; it is necessary to protect an interest in a particular locality; it is associated with, but not the purpose of, the activity; and it cannot be practicably avoided (50 CFR § 22 and 81 Federal Register [FR] 91494).

The need for this federal action is a decision on an eagle incidental take permit application submitted by the CCWD that is in compliance with all applicable regulatory requirements set forth under the Eagle Act in 50 CFR § 22.

Authorities

Service authorities are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. This analysis is based on the Eagle Act (16 U.S.C. §§ 668–668e) and its regulations (50 CFR § 22). The PEIS has a full list of authorities that apply to this action (USFWS 2016a: Section 1.6, pages 7-12), which are incorporated by reference here.

Background

Reservoir Overview and History

The Los Vaqueros Reservoir is an off-stream reservoir located in eastern Contra Costa County, California, south of Oakley, west of Clifton Court Forebay, north of Interstate 580, and east of Morgan Territory Regional Park (Figure 1). The Reservoir is situated within the steep to rolling hills of the Eastern Diablo Mountain Range, and a portion of the southern Sacramento-San Joaquin Delta. The Reservoir and surrounding approximately 20,000 acres, the perimeter of which is referred to as the administrative boundary of the Los Vaqueros Watershed (Watershed), is owned, operated, and maintained by CCWD (Figure 2). The original Reservoir was constructed between 1998 and 1999 with a capacity of 100 TAF. Reservoir construction inundated roughly 1,500 acres of grassland and oak (Quercus spp.) savanna and woodland habitats in the Watershed that are used by golden eagles for breeding and foraging. In 2011, the Phase 1 Los Vaqueros Reservoir Expansion was initiated and increased storage capacity from 100 TAF to 160 TAF inundating an additional 410 acres of land. Watershed lands are managed by CCWD for water quality, conservation and recovery of special-status species and their habitats, and recreational activities.

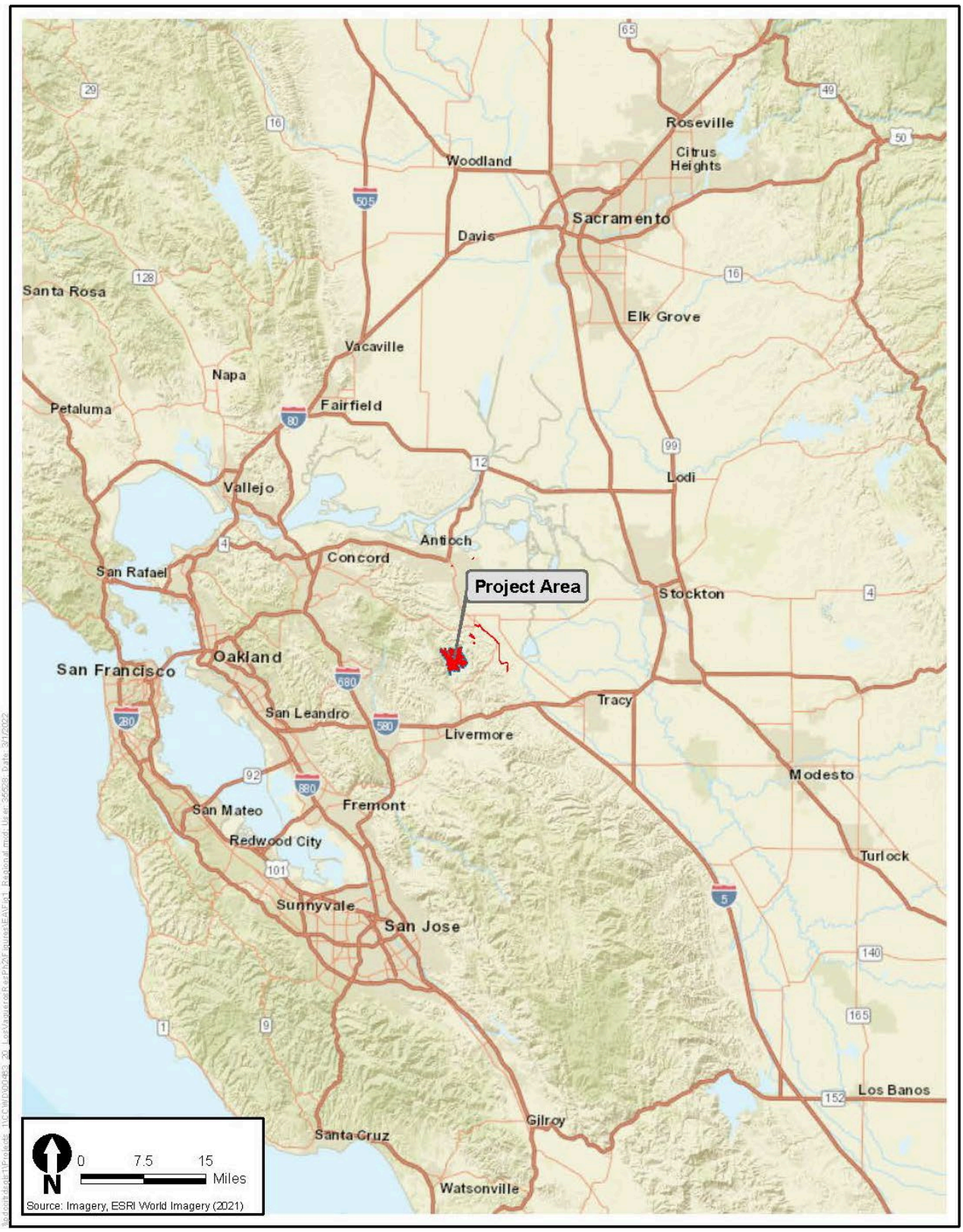

Figure 1. Location and vicinity map of the Los Vaqueros Reservoir Expansion Phase 2 Project

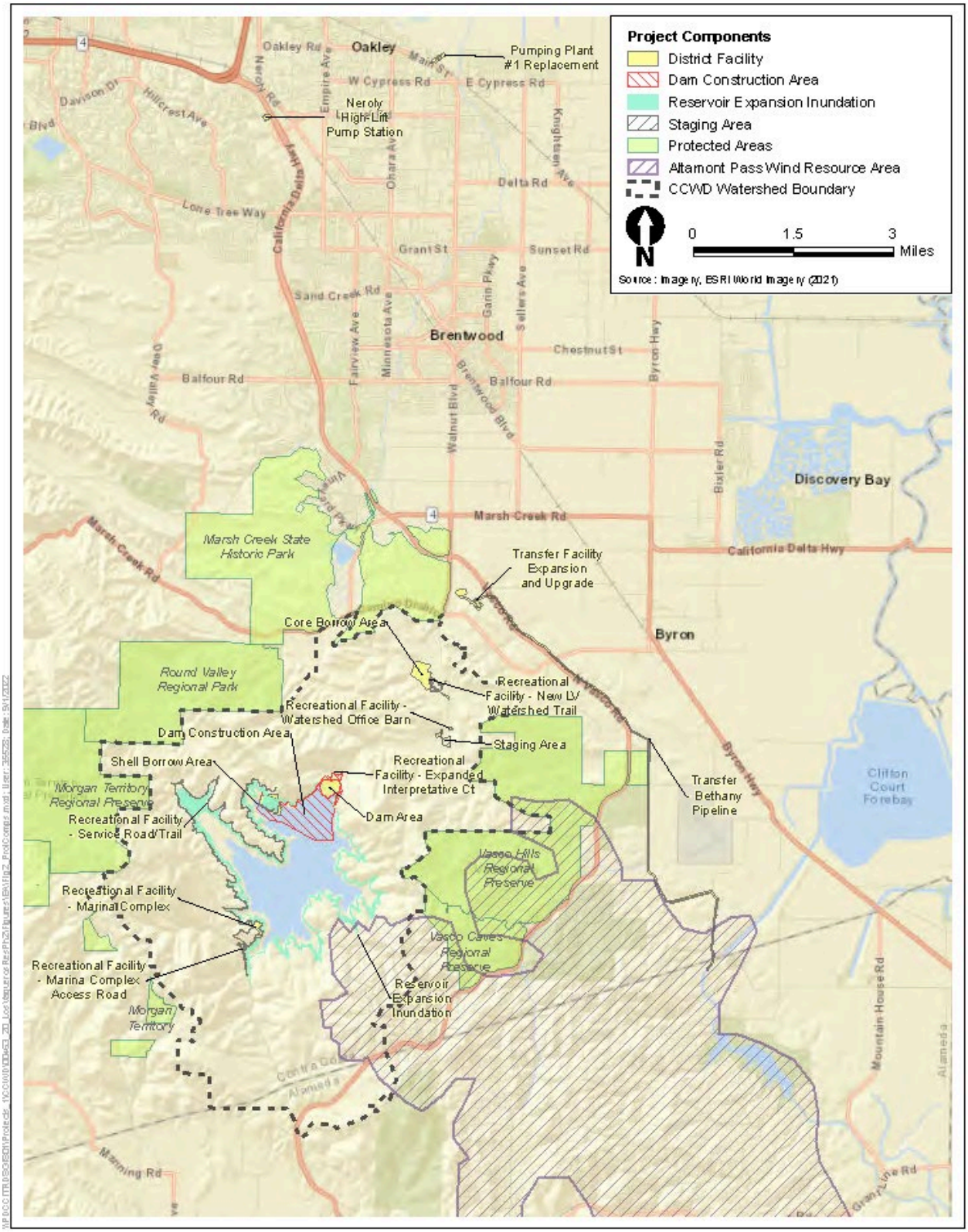

Figure 2. Contra Costa Water District Watershed Boundary, protected areas, and Phase 2 Los Vaqueros Reservoir Expansion Project components

Historic Golden Eagle Activity

Golden eagles breed and forage in the oak woodland and grassland areas in which the Reservoir is located. Initial Reservoir construction from 1998 to 1999 inundated roughly 1,500 acres of golden eagle breeding and foraging habitat in the Watershed. Correspondingly, breeding golden eagles using the Watershed have been monitored over a 28-year period by the Predatory Bird Research Group, CCWD staff, and consultants. Since the late 1980s, the breeding ecology, home-range dynamics, and habitat use of golden eagles have been well studied in this area of central California, especially in relation to evaluating impacts associated with the Altamont Pass Wind Resource Area. Over this duration of monitoring, the home ranges of breeding golden eagles have occupied essentially the entire Watershed. In addition, the Watershed provides foraging and roosting habitat for nonbreeding juveniles, subadults, and adults. Over the past 28 years, a minimum of 38 individual golden eagle nests have been documented in the Watershed, with frequent turnover of individual nests used from year to year. Monitoring has shown that golden eagles occupy 12 territories in the Project area and the surrounding vicinity.

Six territories are located inside the Watershed and may be affected by proposed Project activities. These territories are the Walnut/Marsh House, Camino Diablo, Los Vaqueros, Vasco, Howden, and Windy Valley (Figure 3). There is one territory outside the Watershed, the Buena Vista territory, where project activities could affect golden eagles (Figure 3). For descriptions of each of these territories, please refer to the Affected Environment section of this document.

CCWD Conservation History

To assess the impacts of the original Reservoir construction on golden eagles, CCWD developed a plan to monitor breeding activity and success in 1993 (CCWD 1993). Annual monitoring has occurred since 1994, and a Golden Eagle Protection Plan was prepared in 2011 to further guide management activities in the Watershed following expansion of the Reservoir (ESA 2011). Annual reports summarizing golden eagle breeding activity, success, and productivity in the Watershed, relevant management practices, and conservation recommendations have been prepared each year since 1998.

CCWD currently has measures in place to protect nesting golden eagles from disturbance within the Watershed. CCWD excludes public access to some recreational trails during the breeding season and reschedules or delays certain activities in buffer areas surrounding nests where breeding activity is occurring. CCWD's Golden Eagle Protection Plan (ESA 2011) includes suspending routine operations and closing recreational trails within 0.5 miles of nesting golden eagles each year. During the breeding season, pedestrian access along roads and trails is restricted to emergency use and golden eagle nest monitoring.

Vehicular (on- and off-road) and trail access is allowed in nest-buffer areas only for fire prevention, livestock management, and short-duration aboveground pipe inspections by third-party easement holders. With the exception of short-duration activities generally occurring outside line-of-sight from golden eagle nests, no biological monitoring other than golden eagle specific monitoring (e.g., amphibian pond surveys) occurs within nest-protection buffers. Trail closures are posted on the CCWD website, signage is provided at trailheads in the Watershed, and flyers are posted at the

north and south gates and at the Marina. Access restrictions are lifted following nest failure or approximately 10 days after all young have fledged from a nest. The Golden Eagle Protection Plan also recommends that CCWD work with its staff, easement holders, and the grazing lessee to minimize operational disturbances in the Watershed and to design recreational facilities with native vegetation and natural topography that provide visual and aural buffers between the facilities and breeding areas, to the extent possible.

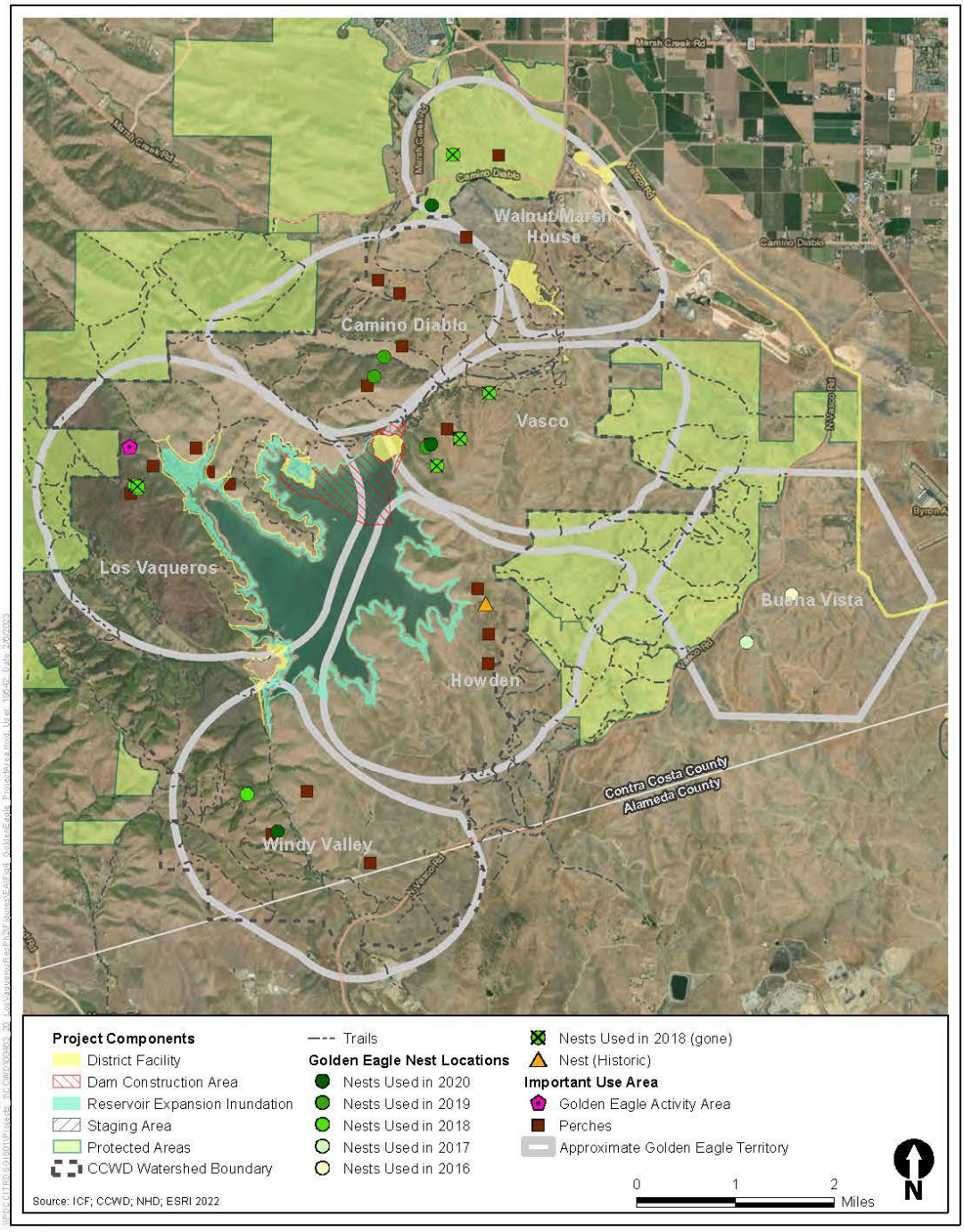

Figure 3. Golden eagle territories and nests potentially affected by the Phase 2 Los Vaqueros Reservoir Expansion Project.

Current Reservoir Expansion (Phase 2 Expansion)

The Bureau of Reclamation (Reclamation) and CCWD are currently evaluating the Phase 2 Los Vaqueros Reservoir Expansion (Project), which proposes to expand storage capacity of the existing Reservoir from 160 TAF to 275 TAF. The Project aims to (1) improve regional water supply reliability by increasing water deliveries to Local Agency Partners, (2) provide ecosystem improvements by delivering additional water supply to the Refuge Water Supply Program to meet Refuge water needs, (3) improve delivered water quality for Local Agency Partners, and (4) improve regional water operations by integrating with other water systems.

The Project includes expansion of the Reservoir from 160 TAF to 275 TAF storage capacity by modifying the existing Los Vaqueros Dam (Dam); and modifying, relocating, or installing new recreational facilities and trails within the Watershed (Figure 2). The Project will also add a new pipeline, replace and add new pumping facilities, and expand the existing Transfer Facility located outside of the Watershed. A portion of the pipeline will extend into Alameda County, CA.

The focus of this document is on activities associated with Project components that will occur within or adjacent to estimated golden eagle territory extents and have the potential to cause effects to golden eagles. These proposed Project components include the following:

- **Reservoir Expansion** - Includes construction activities associated with modifying the Dam, the Dam Construction Area (located within the footprint of the existing reservoir), the Shell Borrow Area, the Core Borrow Area, the Staging Area, and the Access/Haul Routes and associated Traffic Generating Activities. Construction activities are anticipated to occur over an approximate 3-year period from 2028 through 2030.
- **Reservoir Inundation** - Includes inundation from the 160 TAF surface water elevation to 275 TAF surface water elevation. This is the additional Reservoir area that will be filled after completion of the modified Dam and refilling above the existing 160 TAF surface water elevation. Refilling of the Reservoir to 200 TAF is anticipated to occur over five years with an expected completion by 2035. Based on best available information, full inundation to 275 TAF could occur in 2036 to 2040.
- **Recreation Facilities** - Includes construction activities associated with replacing the Marina Complex and its service road (relocation of inundated portions of Los Vaqueros Road), relocated Fishing Piers, relocated Service Road/Hiking Trail, Expanded Interpretative Center, Los Vaqueros Watershed Office Barn, and the new Los Vaqueros Watershed Trail. Construction activities are anticipated to occur over a 2-year 9-month period from 2028 through 2030.
- **Conveyance Facilities** - Transfer Facility Expansion and Upgrade and Transfer – Bethany Pipeline construction activities are anticipated to occur over a more than 3-year period from early 2024 through 2026.

The following sections describe these proposed Project activities in further detail.

Reservoir Expansion

Expansion of the Reservoir will require complete Reservoir drawdown (including the dead pool) and a 55-foot raise of the Dam. An upstream 10-foot-high cofferdam will be constructed on the Reservoir floor to allow for water to be moved from the dead pool of the Dam to a natural depression behind the cofferdam. This area will remain inundated with water and allowed to evaporate over the Dam construction period. The cofferdam will be removed once construction is complete. Additionally, expansion involves construction of appurtenant facilities including extension of the existing spillway, modification of inlet/outlet works, and replacing the current Reservoir oxygenation system. Construction activities are anticipated to occur over an approximate 3-year period from 2028 through 2030 (Figure 4).

Dam Construction Area

Construction on the Dam will occur in the Dam Construction Area and will consist of raising the existing Dam 55 feet to 577 feet in elevation by removing the top 50 feet of the existing Dam and building on top of the Dam and the upstream shell (Figure 2). The Dam crest will be expanded from 28.5 feet to 30 feet wide and increased from 1,295 feet to 1,650 feet long. The existing vertical central core and the filter/drainage system will be raised. The dam axis will move approximately 45 feet upstream.

Like the existing Dam, the raised Dam will be a central core earthfill embankment. The new embankment fill will add approximately 4.8 million cubic yards to the current Dam volume of 3.6 million cubic yards for a total of 8.4 million cubic yards of embankment fill. New/modified fencing will be required on the left abutment of the Dam to prevent access from recreational users of an existing nearby hiking trail. Appurtenant facilities include spillway, inlet/outlet works, and Reservoir oxygenation system. Dam construction will not be halted once it has been initiated.

Core Borrow Area

The Core Borrow Area is located approximately 2.5 miles downstream of the Dam (Figure 2). The clay for the central core of the Dam will be excavated over an approximate 3-month period from the alluvial clay deposits naturally occurring in the valley floor. The Core Borrow Area will be approximately 49.36 acres, which includes a new approximately 0.3-mile haul route from Walnut Boulevard. The depth of the borrow area excavation will be up to approximately 8 feet. Topsoil will be removed from the Core Borrow Area, the underlying clay extracted, and the topsoil replaced. This area will be contoured and revegetated once borrow activities are completed.

Shell Borrow Area

The upstream dam shell will be constructed of claystone and/or sandstone obtained from the Shell Borrow Area which will be located on the southwestern perimeter of a knoll on the northern end of the Reservoir (Figure 2). Within the Dam Construction Area, a direct haul route across the Reservoir floor will be constructed between the Dam and the Shell Borrow Area. The Shell Borrow

Area, providing approximately 4 million cubic yards of material, will be 18.20 acres. This area will be inundated once the expanded Reservoir is filled.

Staging Area

The raised portion of the Dam will be constructed in large part from local materials quarried from nearby borrow areas; however, certain materials such as sand, gravel, cement, rock, pipeline, and mechanical equipment (e.g., valves, electrical equipment, etc.), will need to be imported via Walnut Boulevard and stockpiled at the Staging Area near the Dam in sufficient quantity to maintain an adequate flow of materials. All materials will be tested to determine the presence of hazardous, corrosive, or other substances that could affect use of the materials, environmental exposure, or disposal options consistent with construction specifications. Some of these materials will be stockpiled at an approximately 12.37-acre area west of the Watershed Office (Figure 2). This area will also be used for construction mobilization (i.e., construction trailers, parking, etc.). Once construction is completed, the Staging Area will be contoured if necessary and revegetated.

Access/Haul Routes and Associated Traffic Generating Activities

Construction traffic will utilize Walnut Boulevard to provide construction access, mobilization of equipment, and hauling of materials from the Core Borrow Area to the Dam, and from outside the Watershed to the Staging Area and then to the Dam. Additionally, hauling will occur between the Shell Borrow Area and Dam within the Dam Construction Area. Hauling from the Core Borrow Area to the Dam Construction Area will occur over approximately a three-month period and from the Shell Borrow Area and Dam over a one-to-two-year period of one or two shifts typically extending between 6 a.m. and 10 p.m. Other hauled materials will be brought directly to the Dam or Staging Area.

There will also be construction traffic use of Vasco Road, Los Vaqueros Road, and previously inundated Old Vasco Road across the reservoir floor to support delivery of large equipment and supplies, as required, to the Dam Construction Area. Vasco Road is a major public roadway, therefore construction traffic is not expected to alter baseline traffic conditions on the road with regards to potential disturbance of eagles.

There is also potential that to support Dam construction, equipment may use Los Vaqueros Road to the Marina Complex and then north via the Service Road/Hiking Trail located on the west side of the Reservoir or northeast to access the Dam Construction Area and Shell Borrow Area. Los Vaqueros Road will also need to be used for equipment and material transport for construction of the new Marina Complex and relocated Service Road/Hiking Trail.

Construction traffic will be variable for 2.5 years associated with construction activities from 2028 through 2030. The intensity of use of the Access/Haul Routes will depend on the construction phase and needs.

Reservoir Inundation

After construction of the Dam advances to a point where the Reservoir could begin to be refilled, the initial refill to 200 TAF will begin. Assuming wet, normal, or slightly dry years, it will take up to five years to refill the Reservoir to 200 TAF, with an expected completion by 2035 (Figure 4). Further inundation of the Reservoir to 275 TAF will be dependent on hydrologic conditions (dry vs. wet years) and Delta water quality (salinity) during refilling, as well as filling opportunities. Significantly dry years could delay full inundation of the Reservoir and may result in inundation to the full capacity of 275 TAF for only brief periods. Based on best available information, full inundation of the Reservoir could occur, albeit briefly, in 2036 to 2040. During the refilling period, recreation activities will be reopened in phases in response to the increasing water levels.

Recreation Facilities

Construction of recreation facilities is anticipated to collectively occur from 2028 to 2030 (Figure 4). It is anticipated that concurrent activities associated with the Marina Complex, Fishing Piers, Los Vaqueros Watershed Office Barn, Expanded Interpretive Center, new Los Vaqueros Watershed Trail, and Service Road/Hiking Trail will range in timeline from approximately 6 months to 1.75 years.

Marina Complex

A new 12-acre Americans with Disabilities Act (ADA) compliant Marina Complex will replace the existing Marina Complex upslope of the existing facilities at the southern end of the Reservoir. Based on the conceptual design, the facilities could include an amphitheater, restrooms, picnic areas, a fishing pier, access to boat docks and a boat ramp, and parking. The new Marina Complex will also require relocation of the northern portion of Los Vaqueros Road due to inundation of this portion of the road and needed access to the new Marina Complex location.

Fishing Piers

Two existing fishing piers will be relocated upslope of existing locations requiring approximately 50- to 100-foot spur trails in Peninsula Cove contiguous with the Shell Borrow Area and along the western shoreline north of the Marina Complex.

Los Vaqueros Watershed Office Barn

The existing barn near the Watershed Office will be either seismically upgraded and stabilized then repurposed for public interpretation, left in place, or demolished (without expanding the existing footprint). If repurposed for public interpretation, based on conceptual design, a new conservation and native plant demonstration garden of up to approximately 100 feet by 130 feet in area, 10 new parking stalls, and an expanded parking area of up to approximately 60 feet by 80 feet to

accommodate school buses will be added. Up to five new small picnic areas would be located adjacent to the new parking stalls, and a new vault toilet building will be added to the area.

Expanded Interpretive Center

The existing Los Vaqueros Interpretive Center will be upgraded and enlarged approximately 0.11 acres within the existing developed location just north of the Dam. No more than one acre of earth disturbance would be required.

New Los Vaqueros Watershed Trail

A new 8-foot wide by 0.5-mile-long ADA accessible interpretive trail, the new Los Vaqueros Watershed Trail, will be built surrounding the existing Mortero Wetland Complex. The trail will be incorporated with approximately 0.4 mile of existing gravel road/trail and bridge over Kellogg Creek, which will be upgraded to be ADA compliant.

Service Road/Hiking Trail

Approximately 14 miles of a 20-foot-wide Service Road/Hiking Trail will be relocated upslope to replace inundated portions of the existing Service Road/Hiking Trail. The Service Road/Hiking Trail generally parallels the western side of the Reservoir. There is potential that portions of the Service Road/Hiking Trail may be used as an access route for construction equipment.

Conveyance Facilities

Activities associated with conveyance facilities include installation of the Transfer – Bethany Pipeline, as well as expansion and upgrade of the existing Transfer Facility. These Conveyance Facilities construction activities are anticipated to occur over a more than 3-year period from early 2024 through 2026 (Figure 4).

Transfer - Bethany Pipeline

The Transfer - Bethany Pipeline will be installed via open trench methodology and include a new 12-foot-wide gravel access road, and necessary blow-off valves and air valves installed at low points and high points along the alignment. The construction labor force will consist of as many as 50 workers. Equipment operations will occur over one or two 8-hour shifts, typically extending between 6 a.m. and 10 p.m. It is anticipated the portion of the Transfer - Bethany Pipeline that overlaps a golden eagle territory outside the Watershed will be constructed over an 8-month period.

Transfer Facility Expansion and Upgrade

The capacity of the Transfer Facility will be increased to move water to the expanded Reservoir. Expansion of the Transfer Facility will involve construction of a new 300-cubic-feet-per-second capacity pump station (i.e., six new 50-cubic-feet-per-second pumps) and an additional 10-million-gallon steel or concrete storage tank to provide a total of 14 million gallons of storage immediately adjacent to the existing Transfer Pump Station. The new 10-million-gallon tank would be constructed within the existing Transfer Facility, as either a circular or rectangular tank, and will be approximately 30 feet tall. Approximately 100,000 cubic yards of material will need to be excavated for the new steel storage tank at the Transfer Facility. Excavated soils will be stored and reused on-site; no off hauling is anticipated.

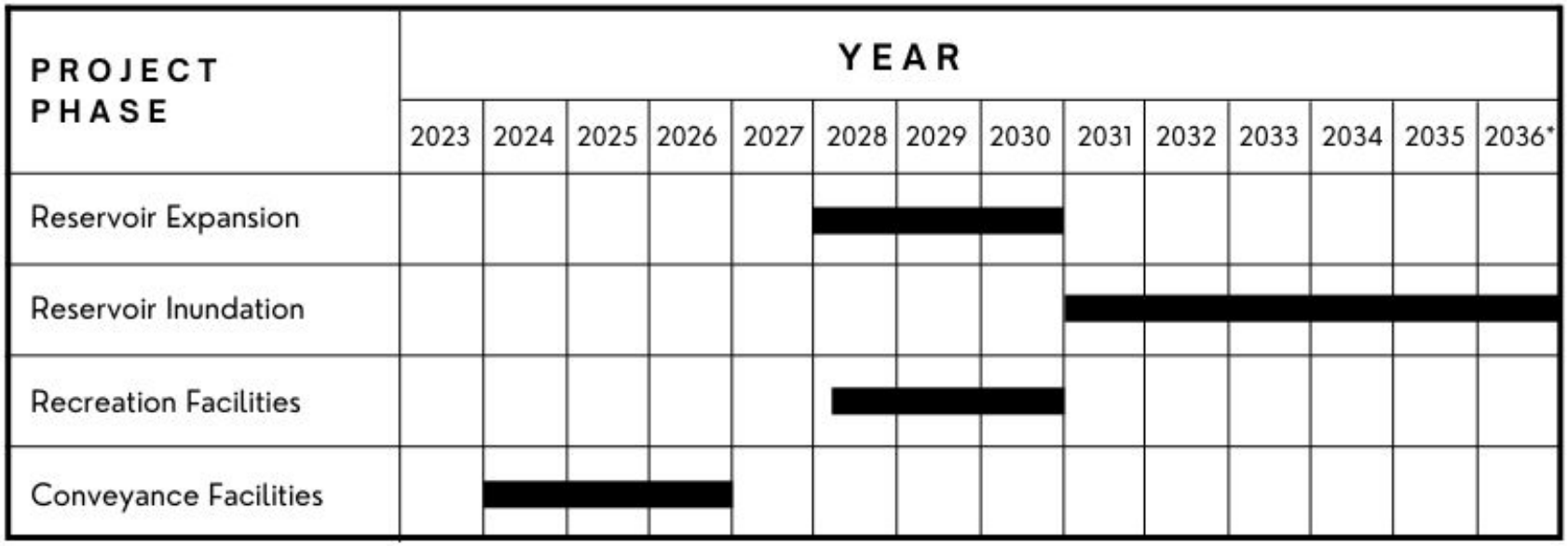

Figure 4. Proposed construction schedule for the Phase 2 Los Vaqueros Watershed Expansion Project

Scoping, Consultation and Coordination

This EA incorporates by reference the scoping performed for the PEIS (USFWS 2016a: Chapter 6, page 175). This EA will be made public on the Service's website[1].

Coordination with Tribal Governments

Tribal participation is an integral part of the NEPA and the National Historic Preservation Act (NHPA) process, as well as a key component of the Service's decision whether to issue an eagle take permit. Cultural and religious concerns regarding eagles were analyzed in the PEIS, and tribal consultation already conducted for the PEIS is incorporated by reference into this EA. The PEIS identified tribal coordination as an important issue for subsequent analysis, given the cultural importance of eagles to the tribes. In accordance with Executive Order 13175, Consultation and Coordination with Tribal Governments (65 FR 67249), the NHPA Section 106 (36 CFR § 800) and the Service's Native American Policy, the Service consults with Native American tribal governments whenever our actions taken under the authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance with American Indian Religious Freedom Act.

To notify Tribes regarding potential issuance of the requested Permit, in June 2022, the Service sent letters to 29 federally-recognized tribal governments located within 109 miles (the natal dispersal distance of golden eagles, thought to adequately define the local area population of the eagles) of the Project informing them of the received Permit application and preparation of this EA and offering the opportunity for formal consultation regarding potential issuance of the permit. The Service received no response from any of the Tribes contacted.

Proposed Action and Alternatives

Proposed Action

We propose to issue a long-term (2023-2040) incidental eagle take permit, with associated conditions, to CCWD for disturbance to and loss of breeding productivity of the golden eagle breeding pairs occupying the Camino Diablo, Los Vaqueros, Vasco, Windy Valley, Walnut/Marsh House, and Buena Vista golden eagle territories, as well as loss of one unspecified golden eagle breeding territory, incidental to Project construction activities and Reservoir inundation described above. Territory loss could occur within or outside of the Watershed due to golden eagles shifting territories. Further information on the golden eagle breeding territories is provided in the Affected Environment section of this document.

[1] https://www.fws.gov/library/collections/pacific-southwest-region-nepa-documents-eagle-permits

The Service has predicted the maximum take likely to occur from Project activities and Reservoir inundation is as follows:

- Loss of one golden eagle breeding territory in the vicinity of the expanded Reservoir and surrounding area due to permanent habitat loss from Project construction and Reservoir inundation.
- Potential disturbance and loss of golden eagle breeding productivity over three breeding seasons in the Walnut/Marsh House Territory where a 1.0-mile buffer may not be able to be maintained from Core Borrow Area and the new Los Vaqueros Watershed Trail construction activities, as well as use of Walnut Boulevard as an Access/Haul Route.
- Potential disturbance and loss of golden eagle breeding productivity over up to three breeding seasons in the Camino Diablo Territory where a 1.0-mile no-disturbance buffer from Dam and Expanded Interpretive Center construction activities or construction activities associated with the Service Road/Hiking trail may not be able to be maintained.
- Potential disturbance and loss of golden eagle breeding productivity over up to three breeding seasons in the Vasco Territory where a 1.0-mile buffer may not be able to be maintained during Dam construction activities.
- Potential disturbance and loss of golden eagle breeding productivity over up to three breeding seasons in the Los Vaqueros Territory where a 1.0-mile no-disturbance buffer may not be able to be maintained from the Service Road/Hiking Trail relocation activities or Service Road/Hiking Trail use during mobilization of equipment to support Dam construction activities.
- Potential disturbance and loss of golden eagle breeding productivity over up to three breeding seasons in the Windy Valley Territory where a 1.0-mile no-disturbance buffer may not be able to be maintained from construction of the new Marina Complex access road (relocation of inundated portions of Los Vaqueros Road), as well as Access/Haul Route use of Los Vaqueros Road and the Service Road/Hiking Trail.
- Potential disturbance and loss of golden eagle breeding productivity over one breeding season in the Buena Vista Territory where a 1.0-mile no-disturbance buffer may not be able to be maintained from some Transfer-Bethany Pipeline construction activities.

Disturbance to breeding eagles is assumed to prevent eagles from successfully nesting and raising young. To estimate this loss of breeding productivity, the Service uses an estimate of 0.59 young fledged per each golden eagle breeding pair occupying a nesting territory each year (USFWS 2016b). Therefore, for potential disturbance of one breeding pair over one breeding season, and of five breeding pairs over three breeding seasons, a maximum total of 9.44 young fledged (0.59 young fledged * (1 pair * 1 season + 5 pairs * 3 seasons)) may be lost from the golden eagle population.

Loss of an occupied golden eagle breeding territory results in the recurring loss of annual productivity (i.e., number of young fledged each year) from that territory. The Service calculates this annual loss of productivity using an estimate of 0.59 young fledged each year over a period of years equal to the golden eagle generation time (defined as the average age of breeding golden

eagles), which was determined to be 11 years (USFWS 2016a, USFWS 2016b). Therefore, loss of one golden eagle breeding territory is estimated to result in the loss of 6.49 young fledged from the golden eagle population.

Project activities and Reservoir inundation will not require the take or removal of any eagle nests, therefore CCWD did not request take of eagle nests. In addition, CCWD is not requesting take coverage of operations and maintenance activities because those activities will continue in fundamentally the same manner as they are currently at the Reservoir, and CCWD successfully implements measures described in its 2011 Golden Eagle Protection Plan to avoid eagle take during operations and maintenance activities at the Reservoir.

The Proposed Action would require measures to avoid and minimize eagle take to the maximum extent practicable, third-party monitoring of the golden eagle breeding pairs authorized for take and territory occupancy of all territories within the Watershed, and compensatory mitigation to offset estimated take of golden eagles, as summarized below and discussed in greater detail in the Environmental Consequences section of this document.

***Avoidance and Minimization Measures*:** The Service would require the following avoidance and minimization measures as terms of the permit:

- To the maximum extent practicable, Project construction activities would be conducted outside of the eagle breeding season (1 January through 31 August).
- For Project activities conducted during the eagle breeding season, to the maximum extent practicable, CCWD would implement one-mile no-disturbance buffers around nests during Project activities.
- If work must be done within one mile of nesting eagles, to the maximum extent practicable, CCWD would conduct construction activities within one mile of nesting eagles at the greatest distance possible from the nest, reducing Project activity noise as much as possible within one mile of nesting eagles, avoiding conducting construction activities within one mile of nesting eagles during severe weather such as heavy rain, severe thunderstorms, high winds, and/or extreme temperatures (high or low), and conducting construction activities within one mile of nesting eagles during daylight hours.
- If work must be conducted at night, CCWD would assure lighting for any unavoidable nighttime work is oriented towards the ground and shining away from eagle nests and is shielded as much as possible.
- CCWD would also train work crews about nesting eagles and eagle protection measures, which will be included as part of CCWD mandatory biological resources awareness training for all project personnel.

***Compensatory Mitigation*:** The Applicant would fully offset loss of productivity of up to five golden eagle pairs over three eagle breeding seasons and one golden eagle pair over one eagle breeding season, as well as lost productivity calculated for the loss of one golden eagle breeding territory. Compensatory mitigation would be provided at a 1.2 to 1 ratio, as required in the Eagle

Act regulations (81 FR 91494). Cumulative effects would be mitigated in one or more of the following ways: The Applicant may 1) pay for retrofitting of power poles at an increased mitigation ratio of 2 to 1, making reasonable attempt for a subset of those retrofits to occur in the LAP; 2) purchase lands within the LAP that the Applicant will improve or restore to additional golden eagle habitat and protect these lands in perpetuity; or 3) contribute to one or more scientific research studies that provide information to benefit golden eagle populations within the LAP.

***Surveying and Monitoring*:** The Applicant would continue to voluntarily implement the surveying and monitoring measures as described in their Golden Eagle Protection Plan (ESA 2011). Under the Proposed Action, for the full duration of the Permit, the Applicant would be required each year during the eagle breeding season (1 January – 31 August) to survey for, and monitor, occupancy and approximate boundaries of all golden eagle territories within the Watershed, as well as nesting status and outcome of any golden eagle nests located within the Watershed or within one mile of Project activities.

Criteria for issuance of an eagle take permit are codified in 50 CFR § 22.80(f). The CCWD's application for an incidental eagle take permit meets all the regulatory issuance criteria and required determinations (50 CFR § 13.21 and 50 CFR § 22.80) for eagle take permits.

Alternative 1: No Action

Under the No-Action Alternative, the Service would take no further action on CCWD's eagle take permit application. However, per regulations (50 CFR § 13.21), the Service must take action on the Permit application, determining whether to deny or issue the Permit. We consider this alternative because Service policy requires evaluation of a No-Action Alternative, and it provides a clear comparison of any potential effects to the human environment from the Proposed Action.

The No-Action Alternative in this context analyzes predictable outcomes of the Service not issuing the requested Permit. Under the No-Action Alternative, the Project would likely be constructed without an eagle take permit being issued. Thus, for purposes of analyzing the No-Action Alternative, we assume that the Applicant will implement all measures required by other agencies and jurisdictions to conduct the activity at this site, but the conservation measures proposed under this requested Permit would not be required. The Project proponent may choose to implement some, none, or all of those conservation measures. Under this alternative, we assume that the Applicant will take some reasonable steps to avoid taking eagles, but the Project proponent will not be protected from enforcement for violating the Eagle Act should take of an eagle occur, and any eagle take that occurs would not be offset by compensatory mitigation.

Other Alternatives Considered but Not Evaluated in this Environmental Assessment

The Service considered other alternatives but concluded that these alternatives did not meet the purpose and need underlying the action because they were not consistent with the Eagle Act and its regulations or did not adequately address the risk of take at the Project. Therefore, the Service did not assess the potential environmental impacts of those alternatives. Below is a summary of the alternatives considered but eliminated from further review.

Proposed Action with Loss of an Additional Golden Eagle Breeding Territory Alternative

Along with the take considered in the Proposed Action, the Service and the Applicant considered the potential for the increased inundation area of the enlarged Reservoir to cause the loss of an additional golden eagle breeding territory. Under this alternative, the Service would issue a long-term incidental eagle take permit for disturbance take and loss of breeding productivity, as well as territory loss, just as in the Proposed Action. However, under this alternative the permit would also authorize incidental take for the loss of one additional golden eagle territory (for a total loss of two golden eagle territories) due to permanent habitat loss and increased competition between golden eagle breeding pairs for foraging and breeding habitat, potentially resulting in abandonment of golden eagle breeding territories. At this time, we are not able to reasonably predict in which eagle territory or territories take would occur as habitat loss can lead to increased competition and antagonistic interactions between eagle pairs and significant shifting and shuffling of territory boundaries and occupancy Just as with the Proposed Action, under Alternative 2, any and all predicted disturbance take or territory loss would be fully offset with required compensatory mitigation at a ratio of 1.2 to 1, by retrofits of power poles at high risk for electrocution of eagles within the Eagle Management Unit (EMU). However, the amount of habitat lost to inundation does not seem likely to be substantial enough to cause the loss of more than one eagle territory. Approximately 593 acres will be permanently flooded within the Watershed, which accounts for approximately 3% of the 20,000-acre area. Therefore, this alternative was eliminated from further consideration.

Deny Permit Alternative

Under this alternative, the Service would deny the Permit application because the Applicant falls under one of the disqualifying factors and circumstances denoted in 50 CFR § 13.21, the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 CFR § 22.80.

Our permit issuance regulations at 50 CFR § 13.21(b) set forth a variety of circumstances that disqualify an applicant from obtaining a permit. None of the disqualifying factors or circumstances denoted in 50 CFR § 13.21 apply to the Applicant. We next considered whether the Applicant meets all issuance criteria for the type of permit being issued. For eagle incidental take permits, those issuance criteria are found in 50 CFR § 22.80(f). The Applicant's application

meets all the regulatory issuance criteria and required determinations (50 CFR § 22.80) for eagle take permits.

When an applicant for an eagle incidental take permit is not disqualified under 50 CFR 13.21 and meets all the issuance criteria of 50 CFR § 22.80, denial of the permit is not a reasonable option. Therefore, this alternative—denial of the Permit—was eliminated from further consideration.

Affected Environment

This section describes the current status of the environmental resources and values that may be affected by the Proposed Action and alternatives.

Golden Eagle

Golden eagle habitat in central California consists mainly of open grasslands and oak savanna interspersed with oak and shrub woodlands. The eagles in this area predominately nest in trees, utilizing nearby open areas for foraging on ground squirrels and jackrabbits. The project vicinity is situated within the steep to rolling hills of the eastern Diablo Mountain Range and a portion of the southern Sacramento-San Joaquin Delta. In the Watershed, the density of golden eagle breeding areas is higher in oak savanna than in areas with scrub, chaparral, or oak woodland, and the southeastern portion of the Watershed contains few trees suitable for nesting, as well as 14 wind turbines.

CCWD has conducted and documented annual monitoring within the Watershed since 1994. Over the past 28 years, a minimum of 38 individual golden eagle nests have been documented within the Watershed, with frequent turnover of individual nests used from year to year. For the past five breeding seasons, five breeding pairs have occupied known nesting areas in the Watershed. In 2016, a sixth breeding pair that previously nested within the northeastern portion of the Watershed, shifted north just outside the Watershed to nest. This pair was again observed in 2021 working on a new nest in the Watershed. The home range and nesting area of a seventh breeding pair also overlapped the southwestern portion of the Watershed before 2011, however in recent years this pair moved north to nest outside of the Watershed. Only one pair, the Windy Valley pair, of the six golden eagle pairs nesting within the Watershed in 2021 laid eggs, however this pair did not successfully fledge chicks. Therefore in 2021, and for the third time since 2015, no golden eagle young were fledged from within the Watershed.

As of 2021, golden eagles are known to occupy six territories within the Watershed where main Project activities and inundation of the Reservoir will occur. An additional territory outside of the Watershed, the Buena Vista Territory, may also be affected by Project work conducted on the Transfer-Bethany Pipeline. Descriptions of these seven territories and associated golden eagle activity are provided below, as well as a summary of the occupancy history and nest status for each territory over the past six years (Table 1).

Walnut/Marsh House Territory

The Walnut/Marsh House Territory is located in the northern portion of the Watershed and has been occupied by golden eagles since 2004 (Harvey 2020) (Figure 5). Over the past 28 years, seven nests have been identified within, and eight young successfully fledged from, the territory. The breeding pair associated with this territory has successfully fledged young twice in the last six years (Harvey 2021). In 2016, the pair's core nesting area shifted to an area of the territory located outside of the Watershed. From mid-February through March 2021 the breeding pair within the territory began refurbishing an existing red-tailed hawk nest into a new golden eagle nest (Nest 38). However, in early April 2021, the pair moved back to the area of their territory located outside of the Watershed in the vicinity of Nest 36, the nest which the pair used in 2020. In April 2021, a new nest, Nest 40, was also discovered. Their overall home range continues to overlap the northern Watershed.

While territories may vary in size from year to year, the Walnut/Marsh House Territory is estimated to total approximately 2,621 acres and encompasses grassland areas with scattered oaks on both sides of Walnut Avenue from Marsh Creek Road at the northern Watershed entrance south to the CCWD headquarters, including Walnut Flats and Long Valley on the west side of the road and the Silver Hills on the east side.

Existing human activities within the Watershed in the Walnut/Marsh House Territory include recreational uses, such as hiking and equestrian trail use; cattle grazing; equestrian, ranching, and farming agricultural uses; public roadway uses along Walnut Boulevard, Marsh Creek Road, and Camino Diablo; Watershed operations and maintenance along Walnut Boulevard, at various ponds, and along hiking trails; and existing CCWD facility use.

Camino Diablo Territory

The Camino Diablo Territory is located north of the Reservoir and is estimated to total approximately 2,586 acres (Figure 6). A golden eagle breeding pair has occupied this territory since at least 1994, attempted to breed every year except in 1995, and successfully fledged young in 17 of 27 years including three times in the last five years (Harvey 2020). The pair has used a single nest, Nest 20, in 11 of the past 14 years and fledged a total of 14 young from that nest. Currently, the territory contains two known and extant nests. Over the past 28 years, the Camino Diablo Territory has produced more fledglings (29) than any other territory in the Watershed.

Existing human activities within the Camino Diablo Territory include recreational activities, such as hiking and equestrian trail use; cattle grazing; and Watershed operations and maintenance at various ponds and along hiking trails.

Vasco Territory

The Vasco Territory is estimated to total approximately 2,841 acres and is located northeast of the Reservoir in the Kellogg Creek and Buckeye Canyon area on the South side of Walnut Boulevard east of the Dam (Figure 7). A pair has occupied this territory since at least 1994 and successfully fledged young three times in the last five years (Harvey 2021). Breeding attempts

occurred in the territory during 21 of the past 28 years, and 17 of those attempts produced young. In the past 21 years the eagles occupying this territory have laid eggs in eight different nests, but only one nest structure currently remains in the territory, Nest 37. All others have deteriorated primarily due to high winds. With the death of the Vasco Territory female in 2020 (Harvey 2020), the Vasco male initiated courtship with a new subadult female in 2021 with which he displayed and defended the territory and refurbished an existing nest (Nest 37). The pair did not produce young in 2021, however.

Existing human activities within the Vasco Territory include Dam operation and maintenance; use of the Watershed Office; recreational activities including use of hiking trails, the Kellogg Creek Recreation Area, and the Interpretive Center; public roadway use along Walnut Boulevard; Watershed operations and maintenance along Walnut Boulevard, at various ponds, and along hiking trails; and cattle grazing.

Los Vaqueros Territory

The Los Vaqueros Territory is estimated to total approximately 4,880 acres and encompasses the northwestern portion of the Reservoir (Figure 8). A pair has occupied this territory since 1994 and has successfully fledged young once in the last five years (Harvey 2020). Only 10 or 11 breeding attempts have occurred in the territory since 1994. The uncertainty regarding the number of breeding attempts is due to dense vegetation inhibiting direct viewing of most nests in this territory. Nesting in this territory has not been observed since 2018 and most of the nests have fallen or been destroyed by natural causes and are no longer present. While no nesting attempts have occurred since 2018, eagles have still been observed occupying the territory, and therefore there is still the potential for future nesting in this territory.

Since 2004, all nests have been located in the densely forested and scrub-dominated landscape in the northwestern section of the territory (Harvey 2020). The pair hunts over grasslands and oak savanna, and in mixed oak and chaparral habitat. Dense vegetation inhibits direct viewing of most nests in this territory. On August 16, 2020, a series of brush fires ignited by lightning burned through most of the Los Vaqueros golden eagle breeding territory. Surveys of the territory determined it unlikely that any former nest structures remained within the burned area. However, an eagle pair was observed to be occupying the Los Vaqueros Territory, with no known nesting attempts, in 2021.

Existing human activities within the Los Vaqueros territory include recreational activities, such as hiking and equestrian trail use and boating/fishing, as well as Watershed operations and maintenance along the service road, hiking trails, and at various ponds.

Howden Territory

The Howden Territory is located east of the Reservoir within the southeast-central portion of the Watershed and overlaps the Altamont Pass Wind Resource Area (Figure 9). The territory is estimated to total approximately 3,806 acres comprising open grassland with scattered, localized patches of oaks. A golden eagle breeding pair has occupied this territory since 1998 but no breeding attempt has occurred since 2009. (Harvey 2020). There is only one known eagle nest,

Nest 14, in the territory. Although no breeding attempts have been made in the nest since 2009, the pair rebuilt the nest in 2019 and 2021.

Existing human activities within the Howden Territory include Watershed operations and maintenance at various ponds; recreation activities such as boating/fishing on the Reservoir (there is no shore access or land recreation within this territory); cattle grazing; and operations and maintenance activities of wind facility staff, as well as spinning wind turbines, within the Altamont Pass Wind Resource Area.

Windy Valley Territory

The Windy Valley Territory encompasses a large portion of the grassland/oak savanna landscape in the southwestern Watershed and is estimated to total approximately 3,642 acres (Figure 10). The estimated eastern territory boundary overlaps slightly with the Altamont Pass Wind Resource Area. A pair has occupied this territory since 2004, but not did not breed until 2009. The pair has successfully fledged young 10 times from two different nests, including three times in the last five years (Harvey 2020). In 2021, the pair was initially active at one nest, Nest 21, but ultimately laid eggs in a different nest, Nest 33. The Windy Valley pair initiated the only golden eagle breeding attempt in the Watershed in 2021, however this attempt was not successful in fledging chicks.

Existing human activities within the Windy Valley Territory include public roadway use along Los Vaqueros Road; Watershed operation and maintenance activities along Los Vaqueros Road, at various ponds, and along hiking trails; use of an access road for the Altamont Pass Wind Resource Area; and recreational activities including hiking trail use and boating/fishing.

Buena Vista Territory

The Buena Vista Territory, with territory boundaries approximated roughly by a 3,422 acre hexagon, is located east of the Watershed (Wiens and Kolar 2021; Figure 11). A pair has occupied this territory since 2014 and has only successfully fledged young once in the last five years. Both known nests of this golden eagle pair are located east of Vasco Road and southwest of the Transfer – Bethany Pipeline (Harvey 2021). This territory is located outside the Watershed, so is not monitored by CCWD, but is surveyed by the United States Geological Survey (USGS) in conjunction with the East Bay Regional Park District.

Existing human activities within the Buena Vista Territory include public roadway use along Vasco Road and Armstrong Road; recreational activities such as hiking trail use; cattle and sheep grazing; air traffic from nearby Bryon Airport; and operations and maintenance activities of wind facility staff within the Altamont Pass Wind Resource Area.

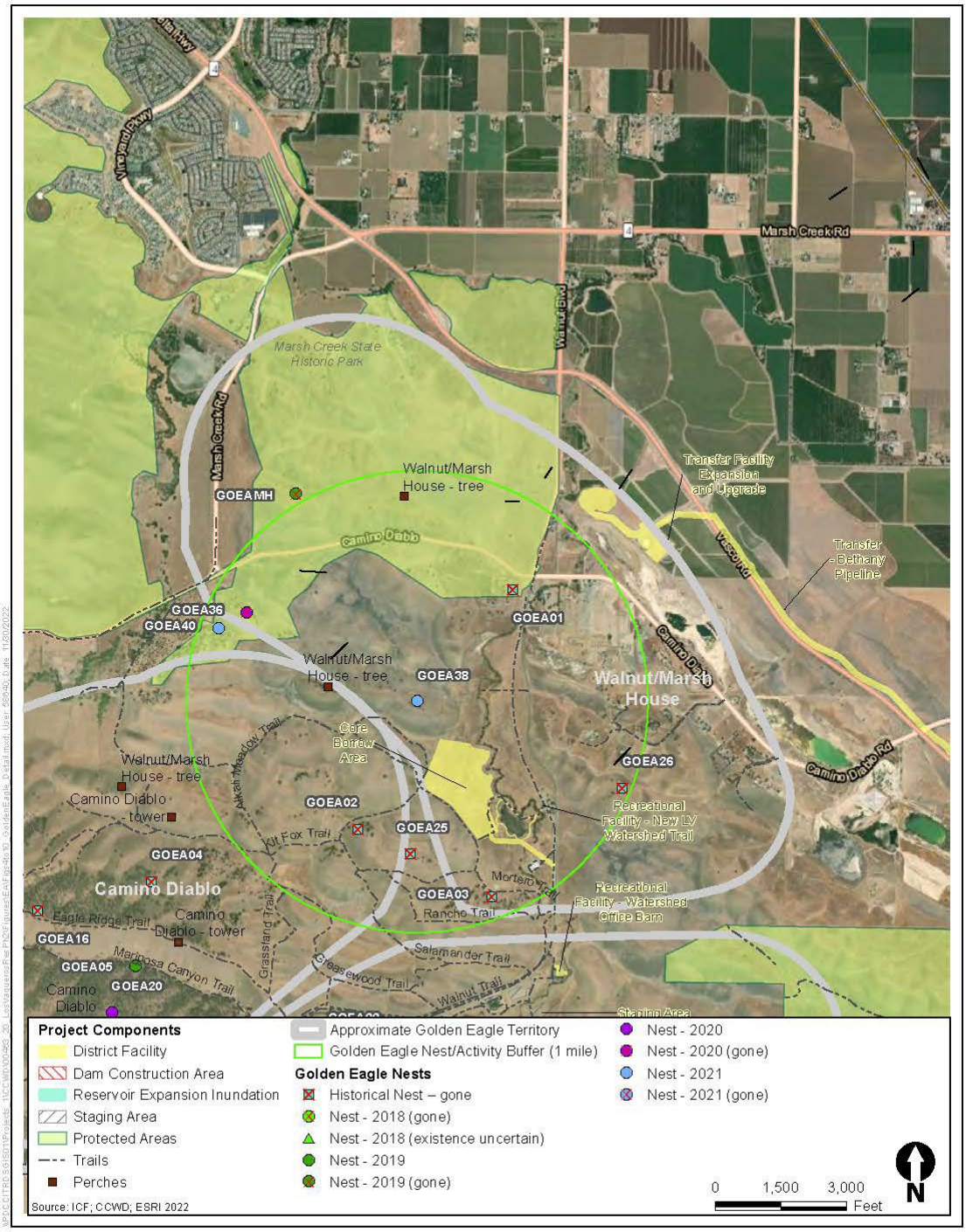

Figure 5. Walnut March/House Territory Details

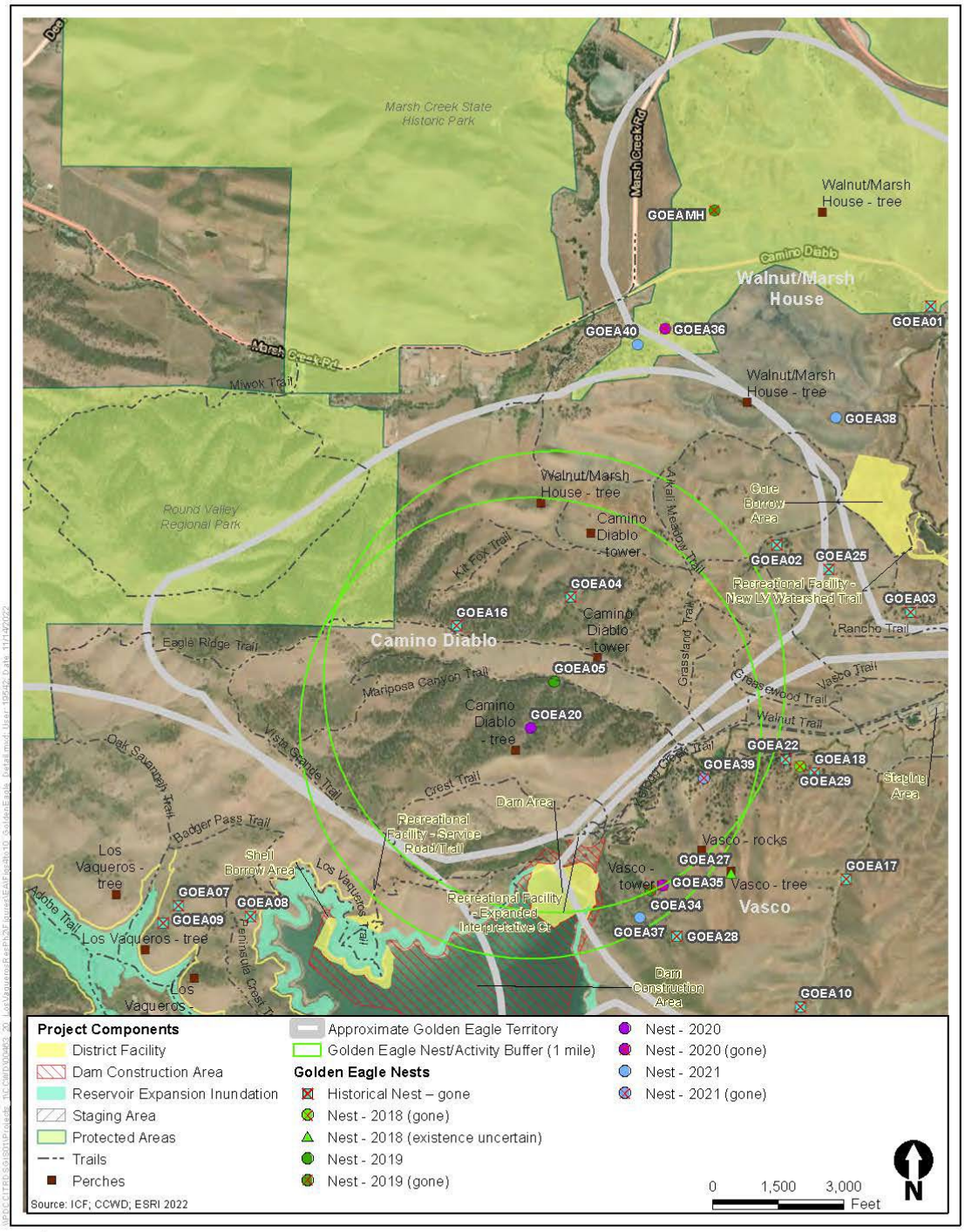

Figure 6. Camino Diablo Territory Details

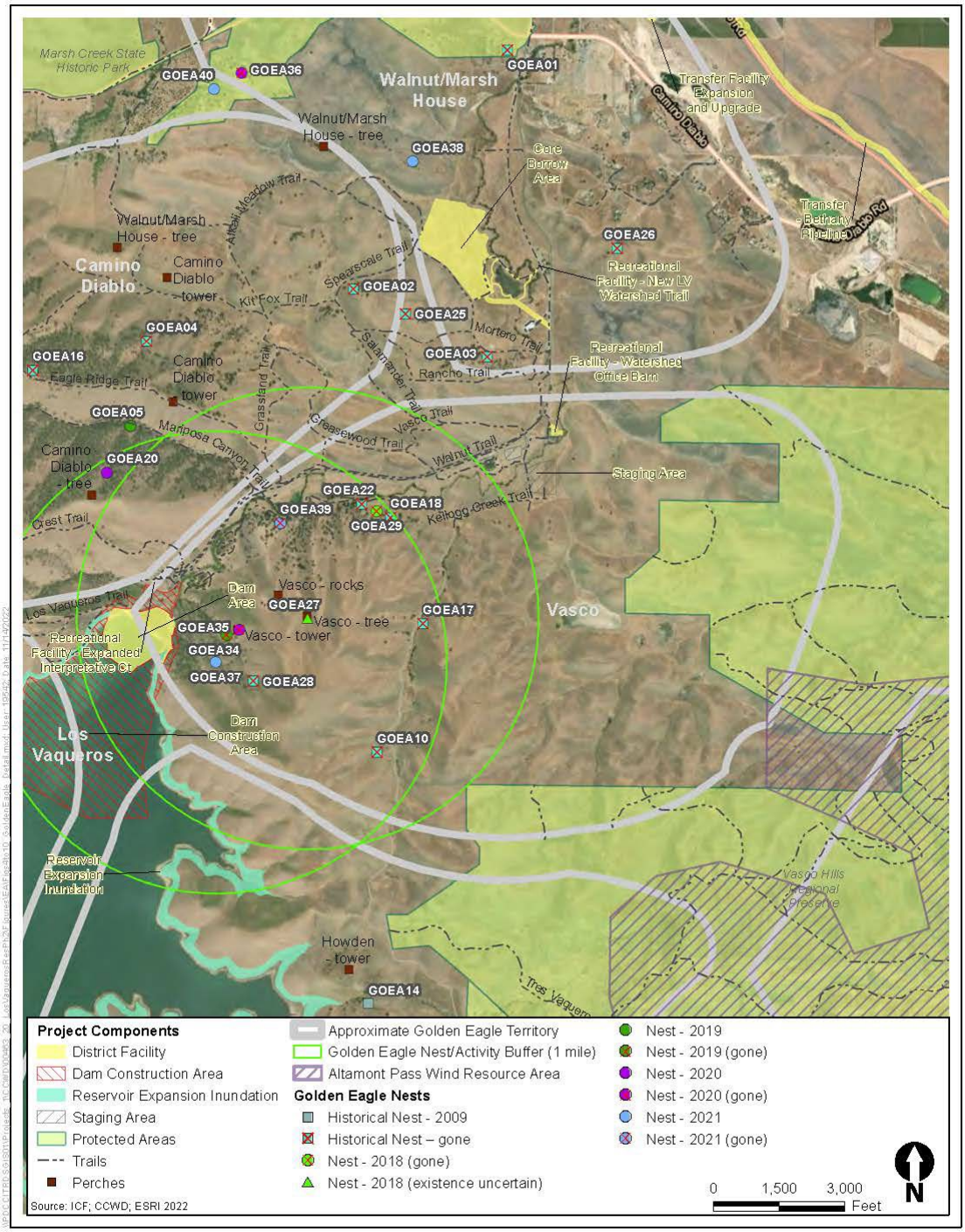

Figure 7. Vasco Territory Details

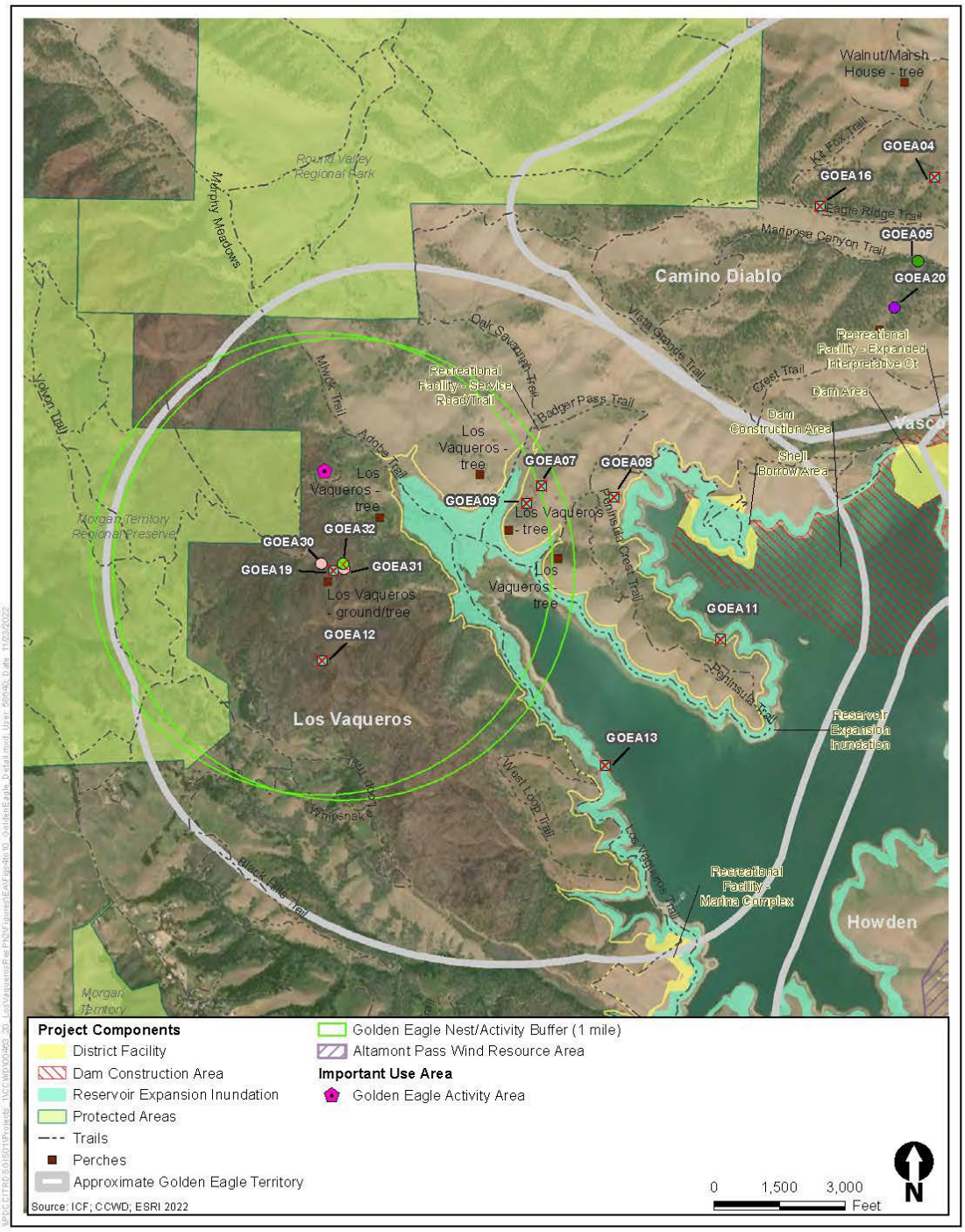

Figure 8. Los Vaqueros Territory Details

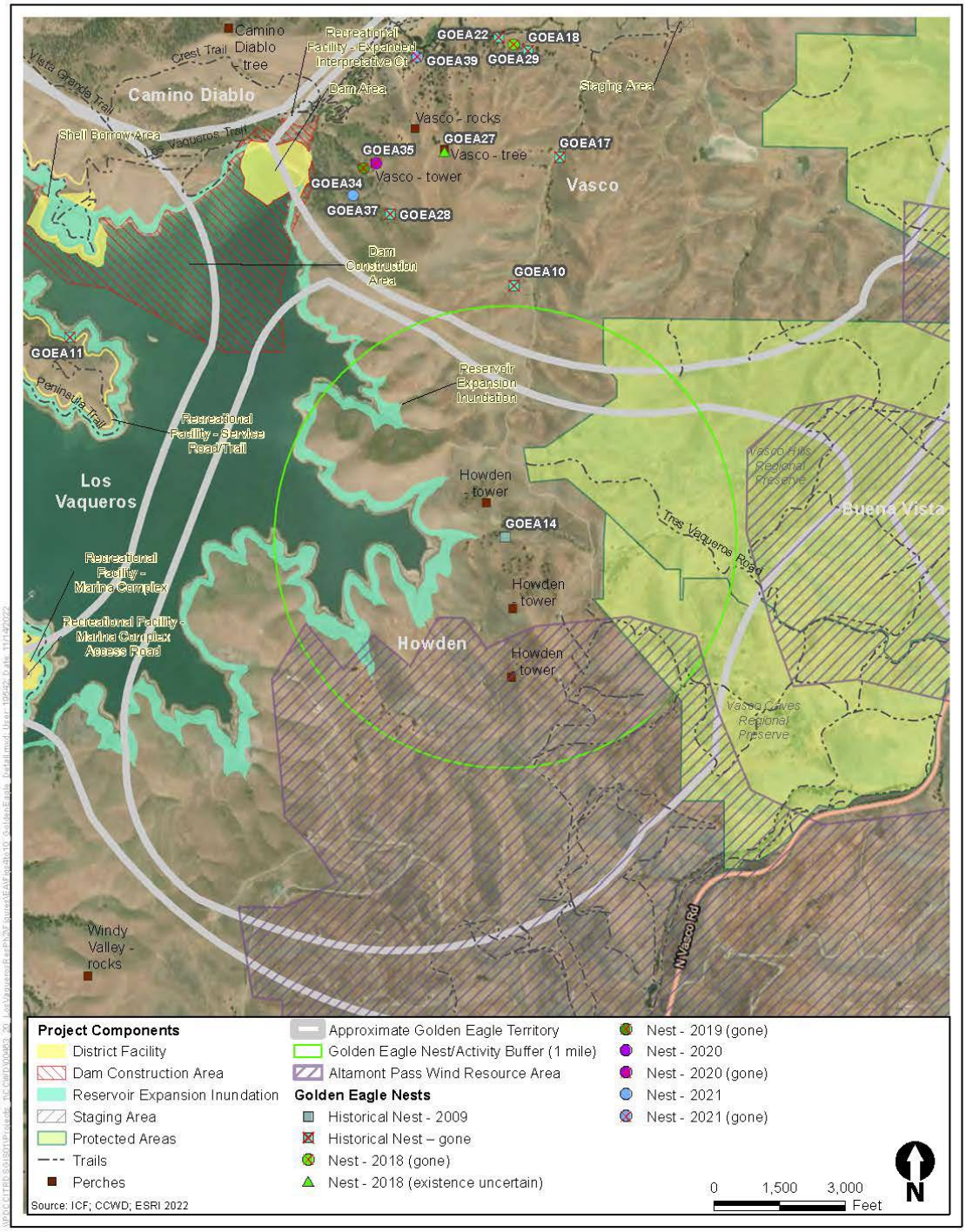

Figure 9. Howden Territory Details

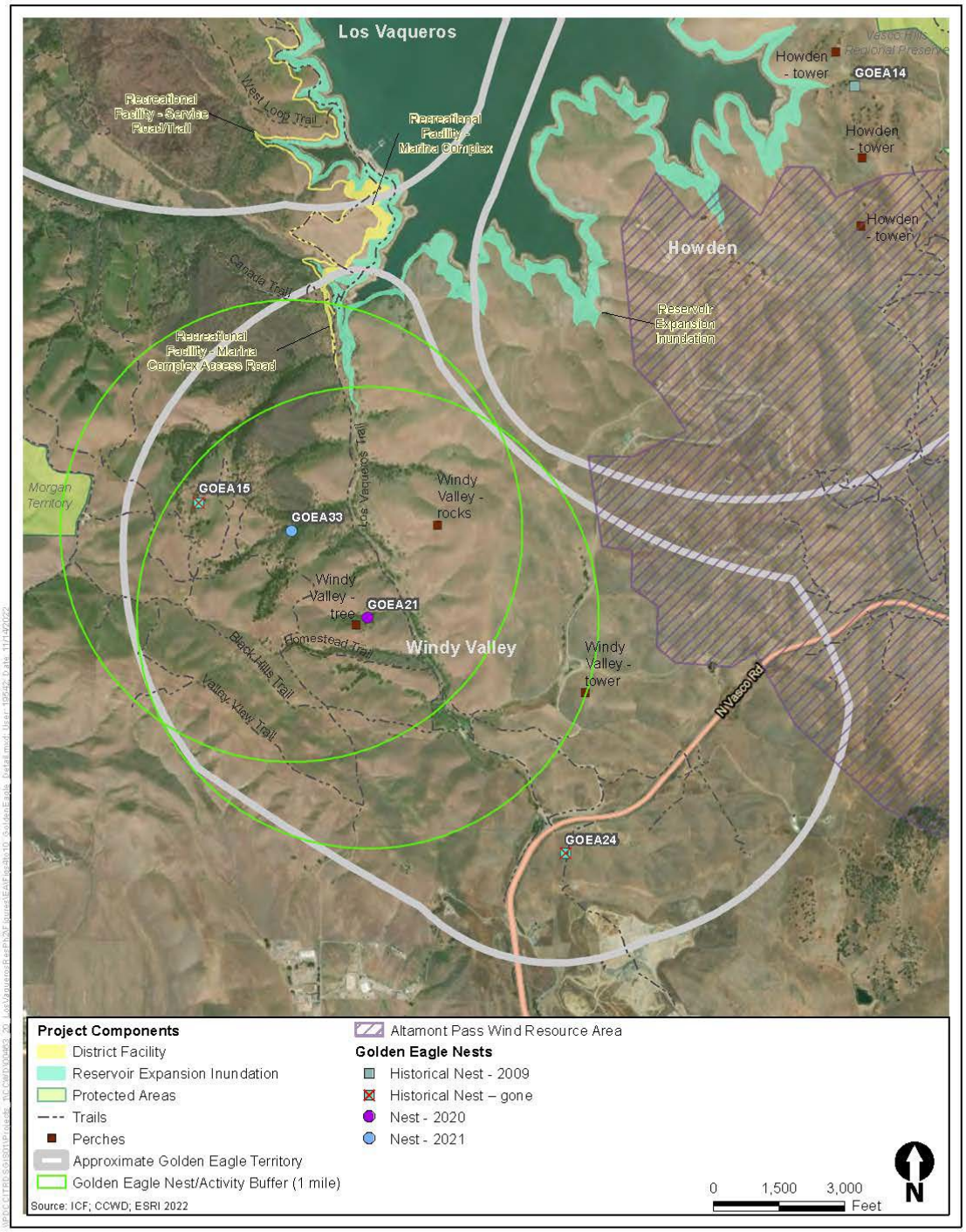

Figure 10. Windy Valley Territory Details

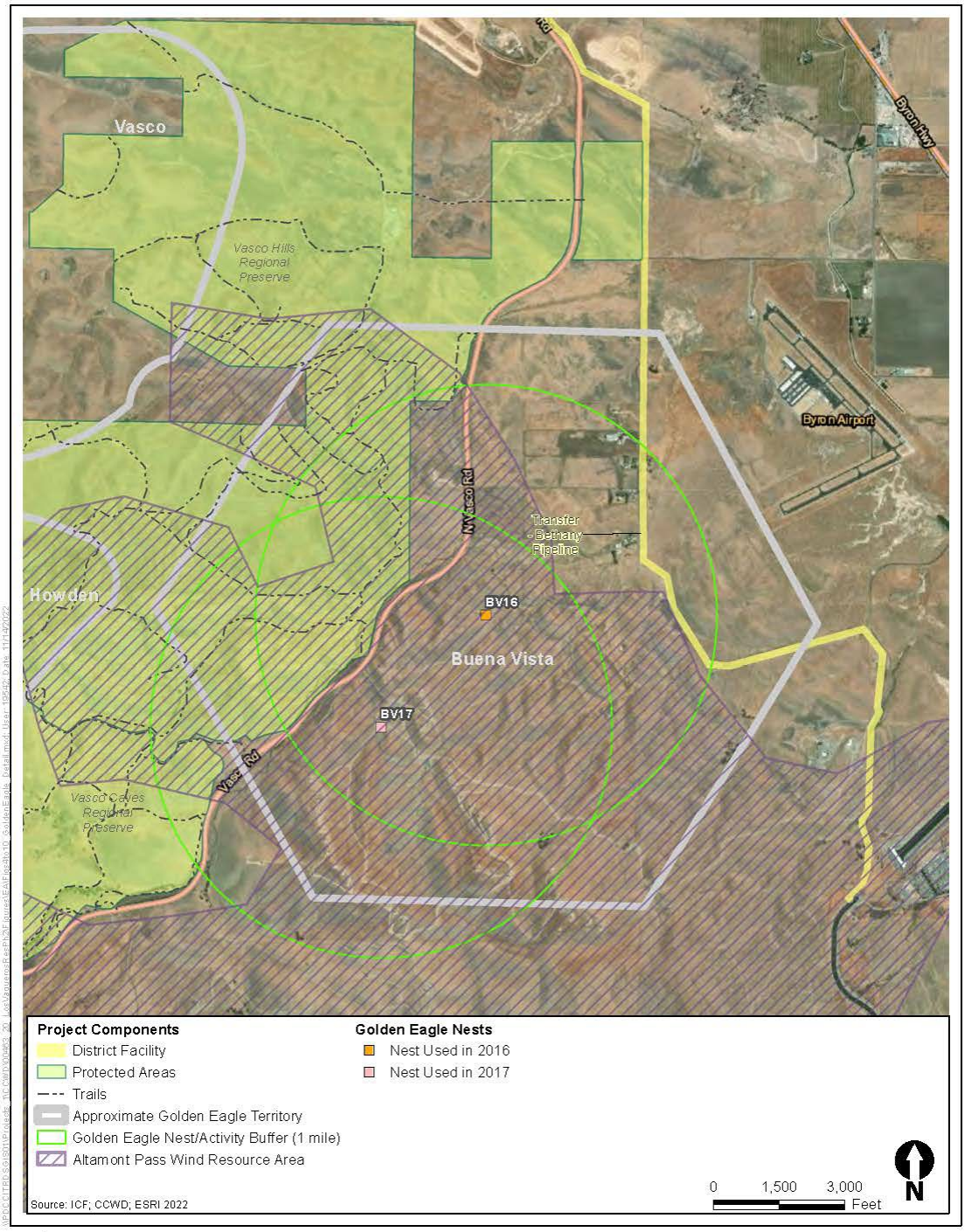

Figure 11. Buena Vista Territory Details

Table 1. Recent history of occupancy and nest success of golden eagle territories in the vicinity of Los Vaqueros Reservoir

Territory	2016	2017	2018	2019	2020	2021
Walnut/Marsh House	Occupied: Nest MH1 failed	Occupied: Nest MH1 fledged 1 eaglet	Occupied: no breeding attempt	Occupied: no breeding attempt	Occupied: Nest 36 fledged 1 eaglet	Occupied: Nest 38 refurbished; Nest 40, no breeding attempt
Camino Diablo	Occupied: Nest 20 fledged 2 eaglets	Occupied: Nest 20 failed	Occupied: Nest 20 fledged 1 eaglet	Occupied: Nest 5 failed	Occupied: Nest 20 fledged 1 eaglet	Occupied: no breeding attempt
Los Vaqueros	Occupied: no breeding attempt	Occupied: Nest 30 built; Nest 31 failed	Occupied: Nest 32 fledged 1 eaglet	Occupied: no breeding attempt	Occupied: no breeding attempt	Occupied: no breeding attempt
Vasco	Occupied: Nest 28 fledged 1 eaglet	Occupied: Nest 29, no breeding attempt	Occupied: Nest 29 fledged 1 eaglet; Nest 27 built	Occupied: Nest 29 built; Nest 34 failed	Occupied: Nest 35 fledged 2 eaglets	Occupied: Nest 37 built
Howden	Occupied: no breeding attempt	Occupied: no breeding attempt	Occupied: no breeding attempt	Occupied: no breeding attempt	Occupied: no breeding attempt	Occupied: no breeding attempt
Windy Valley	Occupied: Nest 21 fledged 1 eaglet	Occupied: one or more eaglets died Nest 21	Occupied: Nest 33 fledged 2 eaglets	Occupied: Nest 33 failed	Occupied: Nest 21 fledged 1 eaglet	Occupied: Nest 21 failed
Buena Vista	Occupied: BV16 fledged unknown number eaglets	Occupied: BV17, no breeding attempt	Unoccupied	Occupied: no breeding attempt	Occupied: no breeding attempt	Unoccupied

Source: ESA 2021; Harvey 2021

Bald Eagles

Bald eagles (Haliaeetus leucocephalus) are known to occur in the region and have been observed using habitat at the Reservoir, however no bald eagle nests are known to occur within the Watershed and are not expected to be affected by Project construction activities or Reservoir inundation.

Migratory Birds

Effects to migratory birds from issuing eagle take permits have been analyzed in the PEIS, and those analyses are incorporated by reference here.

Species Listed under the Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires Federal agencies to consult to "ensure that any action authorized, funded, or carried out" by them "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat" (16 U.S.C. § 1536(a)(2)). The Service's decision regarding the requested Permit will not alter the physical footprint of the Project and therefore will not alter the Project impacts to federally threatened and endangered species in the Project area.

Cultural and Socio-economic Interests

Bald and golden eagles are important symbols of U.S. history and sacred to many Native American cultures. Some Native American cultures utilize eagles, eagle feathers, and other eagle parts for religious practices and cultural ceremonies. Outside of rituals and practices, wild eagles as live beings are deeply important to many tribes (Lawrence 1990, as cited by USFWS 2016a). Numerous tribes confirmed the importance of wild eagles during scoping and tribal consultation for the PEIS. The Proposed Action or considered alternatives would not impact cultural or socioeconomic interests beyond the impacts already discussed in the PEIS. Therefore, cultural and socioeconomic interests will not be further analyzed in the EA.

Climate Change

Climate change was considered in the PEIS and is incorporated by reference here.

Environmental Consequences

This section summarizes the effects on the environment of implementing the Proposed Action or alternatives to the action. The discussion of overall effects to the environment of the eagle incidental take permit program is provided in the PEIS and is incorporated by reference here.

This section of this EA analyzes only the effects that were not analyzed in the PEIS that may result from the issuance of an eagle incidental take permit for this specific project.

Proposed Action

Golden Eagles

Effects

In determining the significance of effects of the Project on eagles, we confirmed that the Proposed Action does not deviate from the analysis provided in the PEIS and the Service's 2016 report, *Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update* (USFWS 2016b). We also assessed Project-specific effects to eagles that were not covered in the PEIS analyses. These effects may occur at the project scale, at the local-area eagle population scale, and at the regional EMU scale.

As detailed below, the Service anticipates that six of the seven golden eagle territories described above in the *Affected Environment* section have the potential to be affected by Project activities. Project activities may cause disturbance to and loss of breeding productivity of the golden eagle pairs occupying the territories. Golden eagle pairs using nests located within one mile of Project activities have an increased likelihood of disturbance from the activities. Human activity and noise near an eagle nest may decrease foraging opportunities and efficiency, decrease the potential for territory occupancy, result in nest abandonment, or affect the likelihood of the eagles to successfully incubate or fledge young (Rosenfield et al. 2007, Scott 1985). Inundation of the Reservoir to the new expanded storage capacity of 275 TAF will also cause some permanent loss of habitat within the eagle territories, which could cause loss of an eagle territory.

To analyze potential effects and the likelihood that disturbance take of the eagles or territory loss may occur we overlaid the areas associated with each Project component with the approximated eagle territory boundaries and all known nests within the territories. Project activities within territories or within one mile of known nests were analyzed on a territory-by-territory basis to determine the potential impacts to territories, known nests, and important use areas. When considering the potential for effects to eagles from Project components, we also took into account the possibility for golden eagle pairs to build nests in new locations that may be both closer or farther away from Project activities, as well as the knowledge that eagle territory boundaries can be dynamic over time, with shifts in territory arrangement possible. Disturbance take authorization would only be necessary when breeding eagles have an in-use nest (see 50 CFR § 22.6 for "in-use nest" definition) within one mile of Project activities, as nesting eagles within this distance have increased likelihood of disturbance. As the exact Project schedule has not yet been finalized, Project

components that may disturb eagles in a given territory, and which were assumed to occur in different years, may occur within the same year, possibly reducing the amount of potential disturbance take. The Proposed Action therefore includes conservative estimates for quantifying and authorizing potential take with the maximum amount of take that may occur in each eagle territory being analyzed (Table 2).

Table 2. Summary of the anticipated disturbance take of golden eagle territories in the vicinity of Los Vaqueros Reservoir Expansion Project, Phase 2 activities. Reservoir inundation is not expected to result in disturbance take of nests, so is not included. (Source: ESA 2011)

Territory	Potential Disturbance Take from Reservoir Expansion Activities?	Potential Disturbance Take from Conveyance Facilities Modification/Construction Activities?	Disturbance Take from Recreation Facilities Modifications/Construction Activities?	Maximum Potential Years of Nest Disturbance
Walnut/Marsh House	Yes. One existing nest within one mile of Core Borrow Area and Walnut Boulevard.	No. No nests within one mile of these Project components.	Yes. One nest within one mile of the new Los Vaqueros Watershed Trail	3
Camino Diablo	Yes. Two existing nests within one mile Dam Construction Area.	No. No nests within one mile of these Project components.	Yes. One nest within one mile of the Service Road/Hiking Trail. Two nests within one mile of the Expanded Interpretative Center.	3
Vasco	Yes. One existing nest within one mile of Dam Construction Area, and Walnut Boulevard.	No. No nests within one mile of these Project components.	Yes. One nest within one mile of the Expanded Interpretative Center.	3
Los Vaqueros	Yes. Two nests within one mile of Service Road/Hiking Trail.	No. No nests within one mile of these Project components.	Yes. Two nests within one mile of Service Road/Hiking Trail.	3
Howden	No. No nests within one mile of these Project components.	No. No nests within one mile of these Project components.	No. No nests within one mile of these Project components.	None
Windy Valley	Yes. Two existing nests within one mile of Los Vaqueros Road.	No. No nests within one mile of these Project components.	Yes. One nest within one mile of the Marina Complex access road.	3
Buena Vista	No. No nests within one mile of these Project components.	Yes. One nest within one mile of the Transfer-Bethany pipeline.	No. No nests within one mile of these Project components.	1

Walnut/Marsh House Territory

Within the Walnut/Marsh House Territory there are currently two nest sites, Nests 38 and 40 (Figure 5). Nest 38 is the only nest currently located within the Watershed, as this pair has focused its nesting activity outside of the watershed for the past several years.

Project activities within the territory will include the Transfer Facility Expansion and Upgrade, use of the Core Borrow Area, construction of the new Los Vaqueros Watershed Trail, and construction and use of new Access/Haul Routes from Walnut Boulevard to the Core Borrow Area (Figure 5).

Nest 38 is located less than one mile from the Core Borrow Area and proposed location of the new Los Vaqueros Watershed Trail. Nest 38 is also located less than one mile from Walnut Boulevard, which will be used for transporting equipment from outside the Watershed to the Staging Area and then to the Dam Construction Area, as well as for hauling of materials from the Core Borrow Area to the Dam Construction Area. Therefore, there is potential for the eagle pair to be disturbed by these activities if they use Nest 38 during the three years these construction activities may occur.

Although 3.94 acres of expansion and upgrade activities at the Transfer Facility will be located within this territory's approximated boundaries, these activities will be located greater than one mile from any known nests. Therefore, no disturbance is expected to the breeding pair within this territory from the Transfer Facility Expansion and Upgrade activities.

Some Project activities within the territory will temporarily or permanently reduce available foraging habitat within the territory. Clay for the central core of the Dam will be excavated at the Core Borrow Area over an approximate 3-month period and will temporarily disturb approximately 57 acres including an approximately 0.3-mile new haul route from Walnut Boulevard. Following completion of excavation activities, topsoil will be replaced, and the impacted grassland areas will be recontoured and revegetated back to usable foraging habitat for golden eagles. All 0.86 acres of the new Los Vaqueros Watershed Trail will be located in the Walnut/Marsh House Territory. Recreational use of this new trail could cause future disturbance to eagles, however CCWD will implement nest protection measures such as restricting public access on trails during the nesting season and maintain disturbance buffers from any in-use nest.

The approximated Walnut/Marsh House Territory does not overlap the current Reservoir footprint nor the expanded Reservoir footprint, so the eagle breeding pair occupying this territory will not experience direct loss of habitat from Reservoir Inundation.

Ultimately, 4.80 acres (less than one percent) of the approximated 2,621-acre Walnut/Marsh House Territory will be permanently impacted. This small loss of habitat within the territory would not likely have a direct negative impact on the breeding pair, however overall habitat loss to all eagles in the vicinity of the Reservoir may lead to increased competition and antagonistic interactions between eagle pairs within and outside of the Watershed and significant shifting and shuffling of territory boundaries and occupancy may occur.

Camino Diablo Territory

Within the Camino Diablo Territory there are currently two nests, Nests 5 and 20 (Figure 6).

No Project activities are proposed within the territory boundaries, however both Nests 5 and 20 are located within one mile of the Dam Construction Area and the proposed expansion of the Interpretive Center. Nest 20 is also less than one mile from the Service Road/Hiking Trail. Therefore, there is potential for the eagle pair to be disturbed by activities related to these Project components if they use either Nest 5 or 20 during the three years these construction activities may occur. Both known nests are located on the opposite side of a ridgeline and within a drainage providing a visual and noise buffer from construction activities, which could help reduce potential disturbance to the eagle pair. However, construction activities could still result in disturbance to the nests.

The approximated Camino Diablo Territory does not overlap the current Reservoir footprint nor the expanded Reservoir footprint, so the eagle breeding pair occupying this territory is not expected to experience direct loss of habitat from Reservoir Inundation. However, overall habitat loss to all eagles in the vicinity of the Reservoir may lead to increased competition and antagonistic interactions between eagle pairs within and outside of the Watershed and significant shifting and shuffling of territory boundaries and occupancy may occur.

Vasco Territory

Currently there is one nesting site within the Vasco Territory, Nest 37 (Figure 7). All previous nesting sites have been destroyed, presumably due to high winds. During the 2021 monitoring season, biologists confirmed that the eagle pair began constructing Nest 37; however, it was not used.

Project activities within the territory include use of the Dam Construction Area, Staging Area, Access/Haul Routes (Walnut Boulevard), and potential upgrade or demolition of the Los Vaqueros Watershed Office Barn.

Nest 37 is located within one mile of the Dam Construction Area, Expanded Interpretive Center, and Walnut Boulevard. Walnut Boulevard will be used for transporting equipment from outside the Watershed to the Staging Area and then to the Dam Construction Area, as well as for hauling of materials from the Core Borrow Area to the Dam Construction Area. Therefore, there is potential for the eagle pair in this territory to be disturbed by these activities if they use Nest 37 during the three years these construction activities may occur.

Although the Los Vaqueros Watershed Office Barn and the Staging Area will be located within this territory's approximated boundaries, activities associated with these Project components will be located greater than one mile from Nest 37. Therefore, no disturbance is expected to the breeding pair within this territory from activities associated with the Los Vaqueros Watershed Office Barn or the Staging Area.

Some Project activities within the territory will temporarily or permanently reduce available foraging habitat. Use of the Project's Staging Area will temporarily disturb 13 acres and use of the Dam Construction Area will temporarily disturb 11 acres. The final Dam structure will cover

approximately 12 acres of the current territory. Inundation of the Reservoir to the expanded storage capacity of 275 TAF will permanently flood 0.7 acres, and the Watershed Office Barn will continue to cover 1.1 acres. Altogether, the Project will permanently impact less than one percent of the 2,841-acre Vasco Territory. This small loss of habitat within the territory would not likely have a direct negative impact on the breeding pair, however overall habitat loss to all eagles in the vicinity of the Reservoir may lead to increased competition and antagonistic interactions between eagle pairs within and outside of the Watershed and significant shifting and shuffling of territory boundaries and occupancy may occur.

Los Vaqueros Territory

Within the Los Vaqueros Territory there are three known historic nests, Nests 30, 31, and 32. The status of Nests 30 and 31 is currently uncertain (Figure 8). Nest 30 was started in 2017 but has never been used, while Nest 31 was last used in 2017. Nest 32 was last used in 2018 but has since been destroyed. While no nesting attempts have occurred since 2018, golden eagles have still been observed using the territory, and it is still considered an occupied territory with potential for nesting.

Project activities proposed within the Los Vaqueros Territory include use of the Shell Borrow Area, use of the Dam Construction Area, construction of the new Marina Complex, relocation of the Fishing Piers, and use and relocation of the Service Road/Hiking Trail.

Nests 30 and 31 are located more than one mile from the Shell Borrow Area, Dam Construction Area, the proposed new Marina Complex, and the proposed Fishing Pier relocations. Therefore, no disturbance to the breeding pair within this territory is expected from these activities. However, both nests are located less than one mile from the Service Road/Hiking Trail, which may be used as an access route for construction equipment and will be reconstructed in a new location outside of the expanded reservoir footprint. Therefore, there is potential for the eagle pair to be disturbed if they use Nest 30 or 31 during the three years these construction activities may occur. Once relocated, recreational use of this trail could cause future disturbance to eagles, however CCWD will implement nest protection measures such as buffers and trail closures, as necessary.

Some Project activities will temporarily reduce available foraging habitat within the territory. The new Service Road/Hiking Trail will temporarily impact 10 acres and permanently impact 25 acres in the territory. Following completion of the Dam, inundation of the Reservoir to the expanded storage capacity of 275 TAF will flood and permanently impact 309 acres within the territory. Overall, 14 total acres of the territory will be temporarily impacted, and 342 total acres will be permanently impacted by Project activities. Permanent impacts will occur within 6.9% of the total territory area (4,880 acres). Overall, habitat loss to all eagles in the vicinity of the Reservoir may lead to increased competition and antagonistic interactions between eagle pairs within and outside of the Watershed and significant shifting and shuffling of territory boundaries and occupancy may occur.

Howden Territory

There is one historic nest within the Howden Territory, Nest 14, which was last used in 2009 (Figure 9), but was refurbished by eagles in 2019 and 2021.

Project activities proposed within the territory include use of the Dam Construction Area and the Access/Haul Routes associated with the Old Vasco Road. Neither of these Project activities occur within one mile of Nest 14. Due to the lack of nests within one mile of any Project activities, no disturbance is expected to the breeding pair within this territory during construction.

Some Project activities will permanently reduce available foraging habitat within the territory. Reservoir inundation to the expanded storage capacity of 275 TAF will permanently flood 211 acres (5.5%) of the 3,806-acre Howden Territory. The Overall habitat loss to all eagles in the vicinity of the Reservoir may lead to increased competition and antagonistic interactions between eagle pairs within and outside of the Watershed and significant shifting and shuffling of territory boundaries and occupancy may occur.

Windy Valley Territory

There are two existing nests within the Windy Valley Territory, Nest 21 and Nest 33 (Figure 10). Nest 21 was last used in 2020, while Nest 33 was used in 2021.

Project activities proposed within the Windy Valley Territory include construction of the new Marina Complex access road (relocation of inundated portions of Los Vaqueros Road), as well as Access/Haul Route use of Los Vaqueros Road to support Dam construction, Marina Complex construction, and Service Road/Hiking Trail relocation activities. The intensity of use of the Access/Haul Routes will depend on the construction phase and needs.

Nests 21 and 33 are located within one mile of the existing Los Vaqueros Road. Nest 33 is also located within one mile of the proposed location of the new Marina Complex access road. Nest 33 is located in a densely vegetated, steep drainage in an oak tree such that there will be no line-of-sight to construction activities. However, both nests are located less than one mile from Project activities. Therefore, there is potential for the eagle pair in this territory to be disturbed by these activities if they use Nest 21 or Nest 33 during the three years these construction activities may occur.

Some Project activities will temporarily or permanently reduce available foraging habitat within the territory. Construction of the Marina Complex Access Road will temporarily disturb 2.3 acres within the territory, with the final permanent disturbance being 1.43 acres. Inundation of the Reservoir to the expanded storage capacity of 275 TAF will permanently flood 23 acres (less than one percent) of the 3,641-acre Windy Valley Territory. This small loss of habitat within the territory would not likely have a direct negative impact on the breeding pair, however overall habitat loss to all eagles in the vicinity of the Reservoir may lead to increased competition and antagonistic interactions between eagle pairs within and outside of the Watershed and significant shifting and shuffling of territory boundaries and occupancy may occur.

Buena Vista Territory

There are two nests, Nest BV16 and Nest BV17, currently known to exist within the Buena Vista Territory (Figure 11).

Project activities within this territory will include construction of the Transfer-Bethany Pipeline. Armstrong Road will be used for construction access.

Nest BV17 is over one mile from the Transfer-Bethany Pipeline, but Nest BV16 is located approximately 0.71 mile from the Transfer-Bethany Pipeline. Therefore, there is potential for the eagle pair to be disturbed by these activities if they use Nest BV16 during the year these construction activities may occur.

Some Project activities will temporarily or permanently reduce available foraging habitat within the territory. Construction of the Project's Transfer-Bethany Pipeline will temporarily disturb 30 acres of the territory and permanently disturb 2.9 acres (less than one percent) of the total 3,422-acre territory area. This small loss of habitat within the territory would not likely have a direct negative impact on the breeding pair, however overall habitat loss to all eagles in the vicinity of the Reservoir may lead to increased competition and antagonistic interactions between eagle pairs within and outside of the Watershed and significant shifting and shuffling of territory boundaries and occupancy may occur.

Territory loss

Reservoir expansion activities within the Watershed will cause temporary and permanent removal of golden eagle breeding and foraging habitat. The largest impact on habitat will be caused by Inundation of the Reservoir to bring capacity up to 275 TAF. A total of 598 acres will be permanently lost due to Reservoir expansion and Project changes to the landscape. The Proposed Action will have a direct impact on the golden eagle breeding pairs within the Watershed by permanently removing habitat from the landscape, thereby removing habitat for subsequent breeding or foraging use by the eagles. This loss of habitat will likely increase competition between golden eagle breeding pairs for foraging and breeding habitat, and abandonment of a breeding territory, or compression of the number of eagle territories the decreased habitat can support, may result. We estimate that one golden eagle breeding territory will be lost due to the Project. We are not able to reasonably predict which eagle territory might be lost as habitat loss can lead to increased competition and antagonistic interactions between eagle pairs with significant shifting and shuffling of territory boundaries. This increased competition and changing of territory boundaries and occupancy may occur within the Watershed or potentially extend to outside of the Watershed to adjacent eagle territories.

Estimated Take Calculation

To estimate potential loss of breeding productivity during Project activities, the Service uses an estimate of 0.59 young fledged per each golden eagle breeding pair occupying a nesting territory each year (USFWS 2016b). When a golden eagle breeding pair is disturbed, the Service assumes this 0.59 annual nesting-territory productivity is lost. Therefore, for potential disturbance of one golden eagle breeding pair occupying one nesting territory (Buena Vista Territory) over one breeding season, and potential disturbance of five golden eagle breeding pairs occupying five nesting territories (Walnut/Marsh House, Camino Diablo, Vasco, Los Vaqueros, and Windy Valley Territories) for up to three breeding seasons, we estimate a maximum total of 9.44 young fledged would be assumed to be lost from the golden eagle population due to disturbance. However, disturbance take authorization would only be necessary when breeding eagles have an in-use nest within one mile of Project activities. Therefore, disturbance take authorization may not be necessary for every territory in every year, and the maximum estimated take may not occur.

Loss of an occupied golden eagle breeding territory results in the recurring loss of annual productivity (i.e., number of young fledged each year) from that territory. The Service calculates this annual loss of productivity using an estimate of 0.59 young fledged each year over a period of years equal to the golden eagle generation time (defined as the average age of breeding golden eagles), which was determined to be 11 years (USFWS 2016a, USFWS 2016b). Therefore, loss of one golden eagle breeding territory is estimated to result in the loss of 6.49 young fledged from the golden eagle population.

Avoidance and Minimization Measures

The Proposed Action incorporates measures to minimize and avoid eagle take to the maximum degree practicable, as required by regulation (50 CFR § 22.80). The Applicant would implement the following avoidance and minimization measures: To the maximum extent practicable, conducting Project construction activities outside of the eagle breeding season (1 January through 31 August). For Project activities conducted during the eagle breeding season, to the maximum extent practicable, CCWD would implement one-mile no-disturbance buffers around nests during Project activities. If work must be done within one mile of nesting eagles, to the maximum extent practicable, CCWD would conduct construction activities within one mile of nesting eagles at the greatest distance possible from the nest, reducing Project activity noise as much as possible within one mile of nesting eagles, avoiding conducting construction activities within one mile of nesting eagles during severe weather such as heavy rain, severe thunderstorms, high winds, and/or extreme temperatures (high or low), and conducting construction activities within one mile of nesting eagles during daylight hours. If work must be conducted at night, CCWD would assure lighting for any unavoidable nighttime work is oriented towards the ground and shining away from eagle nests and is shielded as much as possible. CCWD would also train work crews about nesting eagles and eagle protection measures, which may be included as part of CCWD mandatory biological resources awareness training for all project personnel.

Compensatory Mitigation

Along with implementing minimization and avoidance measures, the Applicant would provide compensatory mitigation to offset the estimated take at a 1.2 to 1 ratio, as required in the Eagle Act regulations (81 FR 91494), by paying for retrofitting of electric power poles that are an electrocution risk to eagles. The 1.2 to 1 ratio for compensatory mitigation achieves a net benefit to golden eagle populations, ensuring that regional eagle populations are maintained consistent with the preservation standard of the Eagle Act despite indications of declines in golden eagle populations (USFWS 2016a).

CCWD will provide compensatory mitigation for disturbance take on an annual basis, with mitigation for the first year's loss of productivity paid or initiated prior to the commencement of the Project activities described above that will potentially cause disturbance to eagles. Mitigation for subsequent years of potential take will be provided before the start of each eagle breeding season (1 January). If disturbance take authorization is needed for all six golden eagle territories in a year, compensatory mitigation would need to be provided for a maximum of 3.54 (0.59 x 6 territories) young fledged assumed to be lost. If mitigation is paid but the Service determines that eagles successfully breed that year and productivity is not lost, the unneeded mitigation paid to offset take

that did not occur will be applied to future years of estimated take authorized to the Applicant under this or future permits.

CCWD will also provide compensatory mitigation for the loss of one golden eagle territory, estimated to equal 6.49 young fledged lost from the golden eagle population. This mitigation may be provided at any point after permit issuance but must be paid or initiated prior to the start of the eagle breeding season during which Reservoir Inundation will begin.

The retrofitting of high-risk electric utility power poles can be used to offset authorized take of golden eagles, as electrocution from power poles is known to be a major cause of eagle mortality. Power poles can be retrofitted by verified methods (such as insulating or covering electrical components or modifying pole elements to increase the distance between electrical components) to reduce the risk of electrocution to eagles, with the maintenance and efficacy of retrofits confirmed through post-installation inspections and monitoring. The effect of retrofitting power poles has been quantified "per eagle", allowing use of a Resource Equivalency Analysis (REA) to calculate the number of power pole retrofits needed to offset the authorized take of golden eagles (USFWS 2013).

The Service ran the REA to determine the number of power poles that would need to be retrofit to offset the loss of one territory and disturbance take and loss of productivity to the six golden eagle breeding pairs (Walnut/Marsh House, Camino Diablo, Los Vaqueros, Vasco, Windy Valley, and Buena Vista) from Project activities. Incorporating the 1.2 to 1 compensatory mitigation ratio required under the Eagle Act regulations, the Applicant would need to retrofit approximately 75-225[2] power poles to offset the take of 6.49 golden eagles due to territory loss. To offset the maximum predicted loss of productivity due to disturbance take, the Applicant would need to retrofit approximately 138-367[2] power poles to offset 9.44 young fledged lost at a 1.2 to 1 ratio. To complete the required compensatory mitigation, the Applicant would either work directly with a utility company to complete the required power pole retrofits, with Service approval of the developed plan, or would work with an in-lieu fee program to purchase credits to fulfill the required retrofits to be completed.

Along with the benefit to eagles of reducing mortalities by electrocution, retrofitting of power poles to prevent bird electrocutions also increases public safety by reducing the risk of wildfires. Bird electrocution events may ignite fires in the vegetation surrounding and below the site of electrocution, so decreasing electrocution risk also reduces the risk of fire.

Eagle Act regulations require compensatory mitigation to be sited in the same EMU in which the take occurs (50 CFR § 22.80(c)(1)(iii)(B)). The Project is located in the Pacific Flyway EMU for golden eagles. The Applicant or the in-lieu fee program manager would coordinate with electric utility companies within the Pacific Flyway to determine locations of power poles that are appropriate for retrofitting to prevent eagle electrocutions. The retrofits conducted as compensatory mitigation for this Permit would not be duplicative of the utility company's other obligations to retrofit power poles, including addressing their own responsibilities to rectify eagle take caused by electrocutions and line collisions from their infrastructure.

[2] The final number of poles needed to be retrofitted to offset the take will depend on several factors, including the type and expected longevity of each retrofit once the actual poles have been identified.

Under the Proposed Action, the Applicant would provide compensatory mitigation to fully offset the loss of breeding productivity of, at maximum, four golden eagle pair(s) (Camino Diablo, Los Vaqueros, Vasco, Windy Valley) over three eagle breeding seasons and one golden eagle pair (Buena Vista) over one breeding season at a 1.2 to 1 ratio. In addition, the 1.2 to 1 ratio also provides an additional net benefit to golden eagle populations. As the estimated take of golden eagles by Project activities would be fully offset by compensatory mitigation provided by the Applicant, project scale effects of issuance of the requested incidental eagle take Permit on golden eagle populations would not be significant and are therefore compatible with the preservation of golden eagles.

Cumulative Effects

The Service also assessed situations where the golden eagle take proposed under the Proposed Action combined with take from other present or foreseeable future actions and sources may be approaching levels that are biologically problematic. Along with effects to eagles at the Project scale described in the preceding paragraphs, to ensure that eagle populations at the local scale are not depleted by combined take in the local area, the Service analyzed the amount of annual eagle take that can be authorized while still maintaining local area populations of eagles (USFWS 2016a). The local-area population (LAP) scale is defined for eagles as the median natal dispersal distance for the given species, which for golden eagles is a 109-mile radius (USFWS 2016a).

The Service's analysis found that to maintain local area eagle populations, all annual authorized take within a LAP must not exceed five percent of the LAP unless the Service can demonstrate why allowing take to exceed that limit is still compatible with the preservation of eagles. The Service must also assess any available data, as well as the best available science, to determine if there is any indication that unauthorized take (take that has not been permitted by the Service) in the LAP may exceed ten percent, as this is roughly the average background level of unpermitted take in local area populations of golden eagles throughout their United States range (USFWS 2016a). The eagle incidental take permit regulations require the Service to conduct an individual LAP analysis for each permit application as part of our application review (50 CFR § 22.80(e)). We, therefore, considered effects to the eagle LAP surrounding the Project to evaluate whether the take to be authorized under this Permit, together with other sources of permitted take and unpermitted human-caused eagle mortality, may be incompatible with the persistence of this LAP. We conducted our LAP effects analysis as described in the Service's Eagle Conservation Plan Guidance (USFWS 2013), incorporating data provided by the Applicant, our data on other eagle take authorized and permitted by the Service, other reliably documented unauthorized eagle mortalities. Our assessment of potential cumulative effects also included reviewing peer-reviewed published research and reports of current and reasonably foreseeable future actions affecting golden eagle populations within the LAP.

Results from our LAP cumulative effects analysis for the Proposed Action are summarized in Appendix A. The LAP is estimated to be 212 golden eagles. The five percent benchmark for sustainable authorized take of the LAP is 10.59 golden eagles per year. Current authorized take in the LAP, which includes permitted take at three other projects and the take proposed for authorization under this Permit, is 6.94 golden eagles or 3.28% per year. This is below the five percent sustainable take benchmark determined by the Service to maintain the local area population of golden eagles. The LAP cumulative effects analysis also does not indicate that unauthorized take

may exceed ten percent of the LAP. A summary of available data of unauthorized take is provided in Appendix A and suggests that unauthorized take of eagles in the LAP may be around 8.5% per year.

However, along with the data analyzed in the LAP cumulative effects analysis, the Service is aware of additional sources of potential effects to golden eagle populations within the LAP that the analysis did not capture. A number of wind facilities within the LAP are operational and likely to take eagles, but do not yet have authorization for eagle take under an incidental eagle take permit. Some of the take of eagles at these facilities is known to the Service and is included in the information analyzed as unauthorized eagle take in the LAP cumulative effects analysis described above, however the Service is also aware of additional, unquantified unpermitted take at these facilities. As noted above, our range-wide analysis of golden eagle populations indicates that, on average, 10% of the range-wide population is lost each year from unauthorized human-caused mortality (Service 2016b). However, Hunt et al. (2017) conservatively concluded that in the vicinity of Altamont Pass Wind Resource Area, at least 67% (59 out of 88) of the fatalities of the eagles tracked in the study over six years (257 radio-tagged eagles tracked from 1994-2000) were human-caused, and more specifically, 40.9% (36 out of 88) of the eagle deaths were caused by wind turbine blade strikes. Research has also provided evidence of a high rate of golden eagle breeding pair member turnover and an increase in subadult members of golden eagle breeding pairs in the vicinity of Altamont Pass Wind Resource Area, a concerning trend thought to indicate low survivorship and an unstable population with potential for population decline (Hunt et al. 1998, Hunt and Hunt 2006, Hunt et al. 2017, Kolar and Wiens 2017, Wiens et al. 2018, Wiens and Kolar 2021, USGS unpublished data and personal communication). The expanded reservoir footprint also removes eagle habitat within the Howden Territory located outside of the Altamont Pass Wind Resource Area, potentially increasing the likelihood that eagles in this territory will spend more time in the hazardous area created by spinning wind turbines, which could increase risk of take from the turbines. Along with the Altamont Pass Wind Resource Area, the LAP also contains the Montezuma Hills/Solano Wind Resource Area and the Pacheco Wind Resource Area, which also pose a risk to eagles.

Compilation of all the analyses and peer-reviewed published information for unpermitted take in the LAP indicate unauthorized take of eagles in the LAP is very likely exceeding the 10% threshold thought to be sustainable for golden eagle populations.

Contra Costa County recently completed an Environmental Impact Report for Byron Airport Development Program (Contra Costa County 2022). The County is considering updating/amending the County's General Plan and the Airport Land Use Plan and re-zoning to allow for future development of Byron Airport. Byron Airport is approximately five miles east of Los Vaqueros Reservoir. The airport is also approximately two miles from one of the known nest locations, Nest BV16, of the Buena Vista Territory golden eagle pair (Figure 11). Golden eagles were also seen during site surveys for environmental assessments of the Byron Airport Development Program (Contra Costa County 2022). Future development of the airport could cause loss of some golden eagle habitat and potential disturbance to golden eagles, contributing to cumulative effects in the golden eagle LAP.

To address these potential cumulative effects in the LAP, the Applicant would provide additional mitigation. This mitigation may be provided at any point after permit issuance but must be paid or initiated prior to the start of the eagle breeding season during which Project activities that will

impact eagles will begin. As these Project activities that may impact eagles may not begin for some years after permit issuance, the Applicant has not yet determined the exact form of the mitigation. This mitigation would, however, be completed in one or more of the following ways.:

- The Applicant may pay for retrofitting of power poles at an increased mitigation ratio of 2 to 1, making reasonable attempt for a subset of those retrofits to occur in the LAP.

- The Applicant may expand conserved lands suitable for golden eagles to accommodate for eagle habitat lost due to Reservoir Inundation and Project development by providing lands within the LAP that are in close proximity to current occupied golden eagle habitat; the Applicant will improve or restore these lands as golden eagle habitat (e.g., purchasing old agriculture land and restoring these to grassland habitat that's maintained to sustain ground squirrels and other golden eagle prey) and protect them in perpetuity with continued management for golden eagles. The Project will permanently impact a total of 598 acres of golden eagle habitat. At minimum, the Applicant would improve or restore comparable acreage within the LAP in a way that would benefit the local golden eagle population.

- The Applicant may contribute to one or more scientific research studies that provide information to benefit golden eagle populations in the LAP. Examples of research the Applicant could contribute to include quantifying the value of treating golden eagle nests for Mexican chicken bugs or other nest parasites. The USFWS considers this a viable option as recent scientific studies found that treating young eagles for the protozoan parasite (*Trichomonas gallinae*) was effective and increased nest site productivity (Kochert et al., 2018). Current and emerging threats of disease and ectoparasites have the potential to negatively affect golden eagle productivity (Dudek and Heath, 2017). The Applicant might also contribute to continuing research on how increasing drought conditions are affecting golden eagle breeding productivity and populations and how to mitigate those effects (Wiens et al 2018). The contribution of funds must, at minimum, provide for a viable and implementable study that will produce rigorous results.

While additional future wind energy development and other activities may further increase eagle take in the LAP during the lifespan of this Permit, the Service cannot reasonably predict the resulting impacts to eagles of such projects when important aspects, such as their size, location, configuration, and lifespan, are currently unknown. There is no reasonable basis to consider such speculative impacts in this EA. As the Applicant would provide mitigation to offset cumulative effects in the LAP, LAP-scale effects of issuance of the requested incidental eagle take Permit on golden eagle populations would not be significant and would therefore be compatible with the preservation of golden eagles.

Finally, take of eagles also has the potential to affect the larger eagle population. Therefore, the Service defined regional EMUs and analyzed the effects of permitting take of golden eagles in combination with ongoing unauthorized sources of human-caused eagle mortality and other present or foreseeable future actions affecting golden eagle populations (USFWS 2016a). As part of the analysis, the Service determined sustainable limits to permitted take within each EMU. The take limit for all golden eagle EMUs was set to zero as golden eagle populations throughout the United States may be declining (USFWS 2016a). Therefore, any authorized take of golden eagles must be offset with compensatory mitigation at a mitigation ratio of 1.2 to 1 (81 FR 91494). The take that would be authorized under the Proposed Action would be offset by the compensatory mitigation

that will be provided by the Applicant, as described above, so will not significantly impact the EMU eagle population. The avoidance and minimization measures that would be required under the Permit, along with monitoring, are designed to further ensure that the Permit is compatible with the preservation of the golden eagle at the regional EMU population scale.

As the estimated take of golden eagles by this Project, and the potential for the take to compound with other sources of eagle take and affect larger eagle populations, is either below Service-determined sustainable benchmarks or will be addressed and offset by mitigation measures provided by the Applicant, the Proposed Action of issuance of the requested incidental eagle take Permit would cause no significant adverse effects on golden eagle populations and is compatible with the preservation of golden eagles.

Monitoring

CCWD has monitored golden eagles in the Watershed since 1999, compiling monitoring information and results into annual reports, and plans to continue to do so into the future. Under the Proposed Action, for the full duration of the Permit or from permit issuance to three years after the reservoir reaches maximum capacity, whichever occurs first, the Applicant would be required each year during the eagle breeding season (1 January – 31 August) to survey for, and monitor, occupancy and approximate boundaries of all golden eagle territories within the Watershed, as well as nesting status and outcome of any golden eagle nests located within the Watershed. The Applicant would also be required to monitor the nesting status and outcome of any golden eagle nests located outside of the Watershed if the nests are within one mile of Project activities during the eagle breeding season(s) those Project activities are occurring. Monitoring results will provide information on eagle breeding activities before, during, and after Project construction activities and Reservoir inundation. Per federal regulations, monitoring would be conducted by a qualified, independent third party, approved by the Service (50 CFR § 22.80(c)(7)(i)).

Adaptive Management

Under the Proposed Action, federal eagle permitting regulations would require the permittee to provide the Service with eagle monitoring information at minimum every five years (50 CFR § 22.80(c)(7)(iii)). Conditions of the Permit would require annual reporting of methods and results of the monitoring described above. The Service would use this information to assure the permittee remained compliant with the Permit, assess if there were any needed adjustments to the Permit, and determine future mitigation payment needs. As the location of eagle nests may shift from year to year and the extent and boundaries of eagle territories may change over the duration of the permit, there is potential for take to occur differently than estimated and described above. The Applicant will conduct annual monitoring of all eagle territories and nests in the Watershed to determine territory occupancy and approximate territory boundaries each year, as well as the current location of nests and the outcome of any nesting attempts. If a new nest in a new location is constructed by an eagle pair already authorized for disturbance and loss of productivity, the Applicant will notify the Service of the new nest and its location within seven days of discovery. If a new nest in a new location is constructed and used by an eagle pair other than those pairs noted in the territories above for which take will be authorized, the Applicant will immediately halt any Project activities within one mile of the nest and implement a one-mile no-disturbance buffer around the nest. If the Applicant cannot maintain the one-mile no-disturbance buffer around the nest for the duration of

Project activities, the Applicant will consult with the Service to determine if an amendment to the permit is necessary.

As the predicted take described above will occur in the future and there is uncertainty in the exact location of eagle nests in years during which Project activities will be occurring, if eagle nest monitoring shows that eagles successfully fledge chicks within territories authorized for take, the mitigation paid for this take that did not ultimately occur will be credited and may be applied to future years of estimated take authorized to the Applicant under this or future permits.

Bald Eagles

Although take of bald eagles is not expected to occur from Project construction activities or Reservoir inundation and take of bald eagles would not be authorized under the Proposed Action, bald eagles in the region may benefit from avoidance and minimization measures established to reduce the risk to golden eagles, as well as from compensatory mitigation actions provided to offset the take of golden eagles. No significant adverse effects are foreseen to bald eagles.

Migratory Birds

Issuance of the eagle take Permit to the Project may provide benefits to migratory birds. Power pole retrofits done as compensatory mitigation for the eagle take Permit may minimize electrocution risk for raptors and other migratory birds, just as with eagles.

Impacts to migratory birds from the issuance of incidental eagle take permits were fully analyzed in the PEIS (USFWS 2016a); no further adverse effects to migratory birds are anticipated from issuance of the eagle take Permit to the Project.

Species Listed under the Endangered Species Act

Section 7 of the ESA requires Federal agencies to consult to "ensure that any action authorized, funded, or carried out" by them "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat" (16 U.S.C. § 1536(a)(2)). The Service's decision regarding the requested Permit will not alter the physical footprint of the Project and therefore will not alter the Project impacts to federally threatened and endangered species in the Project area.

Alternative 1: No Action

Golden Eagles

If, under the No-Action Alternative, the Service took no action on the Applicant's eagle take Permit application, should take of eagles occur, the Applicant would be in violation of the Eagle Act. Under this No-Action Alternative, although all eagle conservation measures required under CCWD's Golden Eagle Protection Plan and by other agencies and jurisdictions should be

implemented at the Project, additional measures required under the Permit would not be implemented to avoid or minimize risk to eagles of the Project activities. Therefore, the risk to eagles is expected to be higher under this alternative as compared to the Proposed Action. Furthermore, none of the impacts to golden eagles described above under the Proposed Action would be offset by compensatory mitigation if no action was taken on the application and an eagle take permit was not issued. Under this No-Action Alternative, impacts of the Project on the eagle population are anticipated to be unmitigated loss of one golden eagle territory, as well as unmitigated loss of productivity from one breeding pair over one breeding season and from five breeding pairs over three breading seasons, equating to 9.44 young fledged assumed to be lost from the golden eagle population.

This alternative does not meet the purpose and need for the action because, by regulation (50 CFR § 13.21), when in receipt of a completed application, the Service must either issue or deny a permit to the applicant. The No-Action Alternative also does not meet the purpose of and need for the action because it would result in the adverse, unmitigated effects to golden eagles described above, effects that are not compatible with the preservation of golden eagles.

Bald Eagles

The Applicant did not apply for take authorization for bald eagles, nor is take of bald eagles expected to occur from Project construction activities or Reservoir inundation. However, the No-Action Alternative would mean benefits that bald eagles might also incur from avoidance and minimization measures established to reduce the risk to golden eagles and compensatory mitigation actions provided to offset the take of golden eagles, would not occur.

Migratory Birds

Any incidental benefits to migratory birds from avoidance, minimization, and mitigations required under the eagle take Permit would not be realized under the No-Action Alternative.

Species Listed under the Endangered Species Act

As the Service would be taking no action under this alternative, there would be no effects to ESA-listed species under this No-Action alternative.

Comparison of Alternatives

The following table compares the effects of the Proposed Action and No-Action Alternative (Table 3).

Table 3. Comparison of the Proposed Action and No-Action Alternative

	Proposed Action	**Alternative 1: No Action**
Eagle Take Levels	Disturbance take and loss of productivity of five golden eagle breeding pair over three breeding seasons and one golden eagle territory over one breeding season, and territory loss of one golden eagle breeding territory.	Disturbance take and loss of productivity of five golden eagle breeding pair over three breeding seasons and one golden eagle territory over one breeding season, and territory loss of one golden eagle breeding territory.
Avoidance and Minimization	The Applicant will implement measures required under the Permit	There would be no requirement to implement Service suggested measures
Compensatory Mitigation	Retrofit power poles to offset the loss of 0.59 golden eagles each year at a 1.2:1 ratio	None
Data Collection/ Monitoring	Monitoring of the golden eagle nests to determine nesting status and success during the year prior to construction and during the three years coinciding with Dam construction.	There would be no requirement to implement Service suggested monitoring
Unmitigated Eagle Take/Effects	None	Disturbance take and loss of productivity of five golden eagle breeding pair over three breeding seasons and one golden eagle territory over one breeding season, and territory loss of one golden eagle breeding territory.
Applicant Liability for Eagle Take	No (if in compliance with Permit)	Yes
Meets Eagle Act Statutory and Regulatory Requirements	Yes	No

List of Preparers

Tracy Borneman, Ecologist, US Fish and Wildlife Service, Migratory Birds Program

Prepared with the assistance of ICF:
Sara Stribley, Wildlife Biologist
Libby Fortin, Environmental Planner

References

16 United States Code (U.S.C.) § 668. Title 16 - Conservation; Chapter 5a - Protection and Conservation of Wildlife; Subchapter II - Protection of Bald and Golden Eagles; Section (§) 668 - Bald and Golden Eagles. Available online: http://uscode.house.gov

16 United States Code (U.S.C.) § 1536. Title 16 – Conservation; Chapter 35 – Endangered Species; Section (§) 1536 – Interagency Cooperation. Available online: http://uscode.house.gov

36 Code of Federal Regulations (CFR) § 800. Title 36 – Parks, Forests, and Public Property; Chapter VIII – Advisory Council on Historic Preservation; Part 800 – Protection of Historic Properties. Available online: https://www.ecfr.gov

40 Code of Federal Regulations (CFR) § 1501.3. Title 40 - Protection of Environment; Chapter V - Council on Environmental Quality; Subchapter A – National Environmental Policy Act Implementing Regulations; Part 1501 – NEPA and Agency Planning; Section (§) 1501.3 – Determine the appropriate level of NEPA review. Available online: https://www.ecfr.gov

42 United States Code (U.S.C.) §§ 4321 et seq. Title 42 - the Public Health and Welfare; Chapter 55 - National Environmental Policy; Subchapters I (Policies and Goals) and II (Council on Environmental Quality); Sections (§§) 4321 et seq. Available online: http://uscode.house.gov

50 Code of Federal Regulations (CFR) § 13.21. Title 50 - Wildlife and Fisheries; Chapter I - United States Fish and Wildlife Service, Department of the Interior; Subchapter B - Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants; Part 13 - General Permit Procedures; Section (§) 13.21 – Issuance of permits. Available online: https://www.ecfr.gov

50 Code of Federal Regulations (CFR) § 22. Title 50 - Wildlife and Fisheries; Chapter I - United States Fish and Wildlife Service, Department of the Interior; Subchapter B - Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and

Importation of Wildlife and Plants; Part 22 - Eagle Permits. Available online: https://www.ecfr.gov

65 Federal Register (FR) 67249. 2000. Executive Order 13175, Consultation and Coordination with Indian Tribal Governments. Vol. 65, No. 218. November 9, 2000. pp 67249-67252. Available online: https://www.federalregister.gov/

81 Federal Register (FR) 91494. 2016. Eagle Permits; Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests. Vol. 81, No. 242. December 16, 2016. pp 91494- 91554. Available online: https://www.federalregister.gov/

Contra Costa County. 2022. Final Environmental Impact Report: Byron Airport Development Program. Available online: https://www.contracosta.ca.gov/5632/Byron-Airport-Development-Program.

Contra Costa Water District (CCWD). 1993. Environmental Commitments and Mitigation Monitoring and Report Plan for the Los Vaqueros Project, Stage 2 Environmental Impact Report/Environmental Impact Statement. Concord, California.

Dudek, Benjamin M. and Heath, Julie A.. (2017). "Correlates of Immune Defenses in Golden Eagle Nestlings". JEZ-A: Ecological and Integrative Physiology, 327(5), 243-253.

Environmental Science Associates (ESA). 2011. Los Vaqueros Reservoir Expansion Project, Golden Eagle Protection Plan. March 2011.

___. 2021. Attachment 1 – Supplemental Information for Federal Fish and Wildlife Permit Application Form: Eagle Take -Associated with but not the Purpose of an Activity. September 2021.

H.T. Harvey & Associates (Harvey). 2020. Los Vaqueros Reservoir Project Annual Golden Eagle Monitoring Report 2020. September 2020.

___. 2021. Los Vaqueros Reservoir Project Annual Golden Eagle Monitoring Report 2021. February 2022.

Hunt, T. 1998. Observations of Golden Eagles in the Los Vaqueros Watershed—1998. Predatory Bird Research Group, Santa Cruz, California.

Hunt, W. G., and T. Hunt. 2006. The Trend of Golden Eagle Territory Occupancy in the Vicinity of the Altamont Pass Wind Resource Area: 2005 Survey. Final Project Report CEC-500-2006-056. Public Interest Energy Research (PIER) Program, California Energy Commission, Sacramento, California.

Hunt, G. W., D. J., Wiens, P. R. Law, M. R. Fuller, T. L. Hunt, and D. E. Driscoll. 2017. Quantifying the demographic cost of human-related mortality to a raptor population. PLos ONE 12(2): e0172232. Doi:10.1371/journal.pone.0172232.

Kolar, P. S., and J. D. Wiens. 2017. Distribution, Nesting Activities, and Age-Class of Territorial Pairs of Golden Eagles at the Altamont Pass Wind Resource Area, California, 2014–16. Open-File Report 2017–1035. U.S. Geological Survey, Reston, Virginia.

Kochert, M.N., Dudek, B.M., Barnes, J.G., Bloom, P.H., Papp, J.M., Gerhold, R.W., Purple, K.E., Jacobson, K.V., Preston, C.R., Vennum, C.R, Watson, J.W., Heath, J.A. 2018. Prevailence and Risk Factors of *Trichomonas Gallinae* and Trichomonosis in Golden Eagle (*Aquila Chrysaetos*) Nestlings in Western North America. Journal of Wildlife Diseases, Vol 54, 755-764.

Lawrence, E. A. 1990. Symbol of a Nation: The Bald Eagle in American Culture. Journal of American Culture 12(1): 63-69. https://doi.org/10.1111/j.1542-734X.1990.130163.x.

Rosenfield, R. N., Grier, J. W., and Fyfe, R. W. 2007. Reducing Management and Research Disturbance. Pages 351–364. in D. M. Bird and K. L. Bildstein. [Eds.]. Raptor Research and Management Techniques. Hancock House Publishers. Blaine, WA. U.S.A.

Scott, T. 1985. "Human Impacts on the Golden Eagle Population of San Diego County from 1928 to 1981." Masters of Science Thesis, San Diego State University, San Diego, California. 98 pp.

US Fish and Wildlife Service (USFWS). 2013. Eagle Conservation Plan Guidance: Module 1 – Land-Based Wind Energy, Version 2. US Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management. April 2013. Executive Summary and frontmatter + 103 pp. Available online: https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf

US Fish and Wildlife Service (USFWS). 2016a. Programmatic Environmental Impact Statement for the Eagle Rule Revision. December 2016. Available online: https://www.fws.gov/migratorybirds/pdf/management/FINAL-PEIS-Permits-to-Incidentally-Take-Eagles.pdf

US Fish and Wildlife Service (USFWS). 2016b. Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update. Division of Migratory Bird Management, Washington D.C., USA. Available online: https://www.fws.gov/migratorybirds/pdf/management/EagleRuleRevisions-StatusReport.pdf

U.S. Geological Survey (USGS). 2021. Personal email communication between Jennifer Johnson, CCWD, and Christine Carino, Volunteer to USGS regarding USGS eagle data within 1mile of the Phase 2 Expansion, March 4, 2021.

Wiens, J. D., P. S. Kolar, W. G. Hunt, T. Hunt., M. R. Fuller, and D. A. Bell. 2018. Spatial patterns in occupancy and reproduction of Golden Eagles during drought: Prospects for

conservation in changing environments. The Condor: Ornithological Applications 120:106–124.

Wiens, J.D., and Kolar, P.S. 2021. Golden eagle population surveys in the vicinity of the Altamont Pass Wind Resource Area, California, 2014–21: U.S. Geological Survey Open-File Report 2021–1107, 18 p., https://doi.org/ 10.3133/ofr20211107.

Appendix A. Results of the golden eagle local area population (LAP) analysis for the Phase 2 Los Vaqueros Reservoir Expansion Project

Focal Project: Los Vaqueros Reservoir

Predicted eagle take (annual)	**3.54**

Local Area Population (LAP) Estimates by Local Area Density Unit (LADU):

Focal Project_Density Unit	Estimated Number of Eagles
LosVaquerosReservoir _COASTAL_CALIFORNIA	203.27
LosVaquerosReservoir_NORTHERN_PACIFIC_RAINFOREST	0.84
LosVaquerosReservoir_SIERRA_NEVADA	7.63
Los Vaqueros Reservoir LAP (total)	**211.74**

1% LAP Benchmark	**2.12**
5% LAP Benchmark	**10.59**

Permitted Projects with Overlapping LAPs:

Project ID	Estimated Annual Take	Percent Overlap With Focal Project	Overlapping Area (SqMi)	Overlapping Take
Project 02735B	2.4	89.06%	25572.99	2.14
Project 23857D	1.18	21.13%	6119.34	0.25
PER0038885	0.59	77.48%	23366.47	0.46
Project 88409D	0.59	93.60%	21525.49	0.55
All Projects (total)	**4.76**			**3.4**

Golden Eagle Known Unpermitted Take Summary	# Eagles from 2013-2022
Unknown	52
Electrocution;Poisoned (pesticide)	2
Other	4
Trauma	6
Collision with wind turbine;Infection	1
Poisoned (lead);Infection	0
Collision with vehicle;Poisoned (lead);Poisoned (pesticide)	1
Collision with wind turbine	59
Collision with wind turbine;Poisoned (pesticide)	2
Other;Trauma	1
Collision with wire	2
Collision with vehicle;Poisoned (pesticide)	1

Poisoned (lead)	10
Electrocution	23
Infection;Trauma	1
Electrocution;Trauma	0
Poisoned (pesticide);Starvation	1
Poisoned (pesticide);Infection;Starvation	2
Collision with vehicle	7
Collision	1
Trauma;Starvation	1
Collision/electrocution	2
Poisoned (pesticide)	1
10-year total	180
10-year annual average	18

LAP Take Results	**Number of Eagles (Annual)**	**Percent of LAP**
Permitted Take		
Total Overlapping Take	3.4	1.61%
Focal Project Predicted Take	3.54	1.67%
Total Permitted Take (Focal Project + Total Overlapping Take)	6.94	3.28%
Unpermitted Take	18	8.5%