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CHAPTER 8. COSTS AND FUNDING SOURCES

[Note to Reviewer: This chapter describes funding sources and cost estimates for NHP implementation based on prior direction of the JPA staff for conservation targets, mitigation requirements, and other elements of the Conservation Strategy, and has not yet been subject to important public, agency, and JPA/member agency review and negotiation.]

8.1 INTRODUCTION

The Endangered Species Act (ESA) requires that habitat conservation plans specify “the funding that will be available to implement” actions that minimize and mitigate impacts on covered species.¹ The Natural Community Conservation Planning Act (NCCPA) requires that Natural Community Conservation Plans (NCCPs) contain “provisions that ensure adequate funding to carry out the conservation actions identified in the plan.”² In compliance with ESA and NCCPA, this chapter identifies the Yolo Natural Heritage Program (NHP) costs and the sources of funding that will be relied upon for implementation of the NHP Conservation Strategy (Chapter 5), the mechanisms that will be used to secure such funds, and the basis for the assurances provided by the Permit Applicants that adequate funding will be available to support the implementation of the NHP. Cost estimates and funding sources for implementation of the Local Conservation Strategy are not provided. To comply with the NCCPA, the Permit Applicants are committed to the implementation of the NHP Conservation Strategy in its entirety, including actions to mitigate impacts and actions to contribute to the conservation of natural communities and covered species. The NHP includes greater conservation for covered species than is required by the federal ESA for mitigation. This chapter identifies the anticipated division of sources of funding among the Permittees and federal, state, and other sources. The Permit Applicants are committed to acquiring the funding necessary to implement the NHP.

NHP implementation costs are separated between the “mitigation component” and the “conservation component” of the NHP.

- **Mitigation Component of Costs:** The mitigation component of costs includes the costs to implement mitigation measures that address the impacts of NHP covered activities (see Chapter 3, Covered Activities). These costs include administration, land maintenance and management, monitoring, and adaptive management activities necessary to implement the mitigation measures.

- **Conservation Component of Costs:** The conservation component of costs includes the costs of all actions under the Conservation Strategy that are implemented to conserve and manage natural communities and covered species in the Plan Area above and beyond the mitigation measures.

² California Fish and Game Code §2820(a)(10).
Funding sources are separated between the “local share” and the “federal/state share” of plan implementation.

- **Local Share of Funding:** The Local Share of implementation funding sources addresses all of the mitigation component of NHP costs and a portion of the land acquisition and plan administration under the conservation component of the NHP. The Local Share funding will be derived from mitigation fees assessed as individual projects are implemented in the Plan Area and additional moneys sought from various sources to fund a portion of the conservation component. Local Share funding sources are detailed in Section 8.2.1, *Local Share Funding Sources*.

- **Federal/State Share of Funding:** The Federal/State Share of implementation funding sources addresses the costs of all remaining actions to implement the conservation component of the NHP not funded through the Local Share. Federal/State Share funding will be derived from various federal, state, and private sources. Federal/State Share funding sources are detailed in Section 8.2.2, *Federal/State Share Funding Sources*.

The calculation of mitigation and conservation components of costs serves as a tool for determining the funding responsibilities between the Local Share and the Federal/State Share. The Local Share funding ensures that the effects on biological resources of the Permittees’ actions and the actions the Permittees authorize others to conduct (i.e., the covered activities) are minimized and mitigated and also ensures a contribution to conservation of natural communities and species. Funding of additional contributions to the conservation of natural communities and covered species under the NHP will come from the Federal/State Share of funding. The Implementing Entity is responsible for securing both the Local Share (including the collection of mitigation fees from project proponents) and Federal/State Share funding (see Section 8.2.3, *Funding Assurances*) through various public and private funding opportunities as described in Section 8.2.1, *Local Share Funding Sources* and Section 8.2.2, *Federal/State Share Funding Sources*.

Section 8.3, *Estimate of Implementation Costs*, outlines the approach used to estimate the costs associated with implementation of the NHP over its proposed 50-year permit duration and ongoing costs beyond the permit term. Implementation costs are estimated for each of the NHP’s primary components, such as conservation measures, monitoring, and administration. Implementation costs are divided into the mitigation and conservation components based on the primary purpose of NHP conservation actions, i.e., mitigation of impacts resulting from covered activities or contribution to conservation of covered species in the Plan Area. The cost estimates are used as the basis for determining the funding needs. The estimated costs for implementation of the mitigation component of the NHP is $175.5 million with full implementation of all covered activities and the estimated costs for implementation of the conservation component of the NHP over the 50 year term is $329.2 million, or about $6.6 million per year (see Section 8.3, *Estimate of Implementation Costs*, and Appendix H, *Cost Supporting Materials*). Any cost estimate for a program addressing lands across an entire county, covering a wide range of
actions, and spanning 50 years depends on a large number of assumptions. Hence, the costs
two provided here are estimates only for use in the authorization of the NHP and initiating NHP
implementation. Actual costs, fees, and available funding sources will be tracked and adjusted
throughout NHP implementation. Details on methods used and results for implementation cost
calculations are provided in Appendix H, Cost Supporting Materials.

8.2 FUNDING SOURCES AND ASSURANCES

8.2.1 Local Share Funding Sources

This section describes the Local Share sources of funding. Local Share funding will be used to
implement the entire mitigation component of the NHP and a portion of the conservation
component of the NHP. The Local Share funding will be derived from impact fees assessed on
individual projects implemented in the Plan Area as described in Section 8.2.1.1, Mitigation
Component of Local Share Funding and additional moneys sought from various sources to fund
a portion of the NHP conservation component described in Section 8.2.1.2, Conservation
Component of Local Share Funding.

8.2.1.1 Mitigation Component of Local Share Funding

This section describes the Local Share sources of funding to implement the component of the
NHP that represents the share of total NHP costs for the mitigation of impacts from covered
activities (see Chapter 3, Covered Activities) on covered species and natural communities. The
Implementing Entity will use these funds to protect existing natural communities and species
habitat and to restore natural communities, species habitat, and species occurrences as mitigation
for impacts on natural communities and species as described in Chapter 5, Conservation Strategy
(see Tables 5-12 and 5-13). The description of the implementation costs (Section 8.3, Estimate
of Implementation Costs, and Appendix H, Cost Supporting Materials) provides the details and
rationale for the breakdown of NHP Conservation Strategy component costs between mitigation
and conservation components.

The funding for mitigation relies on development-based mitigation fees. As covered activities
are proposed and approved in the Plan Area, project proponents (public and private) will be
required by the Implementing Entity and Permittees to pay a mitigation fee for covered activities
that remove natural communities, remove covered species habitat, or impact species occurrences
(e.g., to construct residential, commercial, industrial, and other structures; construct, improve,
and maintain transportation infrastructure; and to install and maintain other infrastructure such as
sewer and utility lines). Mitigation fee funds will be used to acquire lands identified for habitat
protection and restoration and to implement applicable conservation measures and monitoring

---

3 Habitat removal is defined as habitat that is physically removed (e.g., graded, paved over) or is isolated by the project from
other areas of habitat such that the remaining land no longer functions as habitat for covered and other native species. The
process for determining the extent of habitat that will be removed by a proposed project for the purpose of determining
mitigation fees is described in Section 7.5, Implementation Process.
for the purpose of mitigation. Under the NHP, payment of the mitigation fees by project applicants provides for part of their compliance with the NHP and their authorization to use the Permits. The mitigation fees do not include the cost of implementing the applicable NHP avoidance and minimization measures (including field surveys for specific habitats, covered species) described in Section 5.4.4, Avoidance and Minimization Measures, that are the responsibility of, and the costs are borne by, project proponents.

The NHP includes a “Base Mitigation Fee (Base Fee),” a “Valley Foothill Riparian Restoration Mitigation Fee” (Riparian Fee), a “Fresh Emergent Wetland Restoration Mitigation Fee” (Emergent Wetland Fee), a “Covered Plant and Vernal Pool Shrimp Species Occurrence Replacement Mitigation Fee” (Plant and Shrimp Fee), and a “Channel and Levee Maintenance Fee” (Channel and Levee Fee). The Base Fee is applied to all natural community and species habitat acres removed by proposed projects (see Section 8.2.1.1.2, Calculation of Fees for Individual Projects). The Base Fee will be used to pay for land acquisition costs, costs for management of lands, administrative costs, monitoring costs, costs for implementation of responses to changed circumstances, and endowment costs necessary to satisfy the mitigation requirements of the NHP.

The Riparian, Plant and Shrimp, and Emergent Wetland Fees apply to the specific amounts of riparian, covered plant and vernal pool shrimp species occurrences, and emergent wetland removed by covered activities. The Riparian Fee, Plant and Shrimp Fee, and Emergent Wetland Fee cover habitat restoration and species occurrence establishment implementation costs, environmental compliance costs of restoration projects, restoration establishment-stage monitoring, and costs for responses to changed circumstances related to habitat restoration and establishment of species occurrences. The Riparian Fee, Plant and Shrimp Fee, and Emergent Wetland Fee are additive to the Base Fee (i.e., charged in addition to the Base fee) and are applied only to projects that will remove riparian and fresh emergent wetland natural communities, and covered plant and vernal pool shrimp species occurrences.

The Channel and Levee Fee will be paid annually by flood control, water and irrigation, and reclamation districts that opt in to the NHP to address the Implementing Entity’s costs for

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4 The Implementing Entity may opt to use mitigation fees to purchase credits at an existing private or public mitigation bank rather than implementing the mitigation actions directly.
5 The mitigation fees only provide for implementation of conservation measures, monitoring, adaptive management, changed circumstances, and NHP administration. Project proponents are responsible for costs of implementing avoidance and minimization measures.
6 NHP changed circumstances are described in Section 7.10.4, Changed Circumstances. The Base Fee addresses only changed circumstances responses that are not related to habitat restoration (e.g., changes that result in the loss of existing habitat, including already established restored habitat, protected under the NHP). Changed circumstances responses that are related to habitat restoration are paid for through the Vernal Pool, Emergent Wetland, and Riparian Fees.
7 The Riparian Fee applies only to the following riparian vegetation types: cottonwood-valley oak-willow (ash-sycamore), mixed cottonwood-willow, mixed willow, riparian scrub, riparian woodland/forest, valley oak, white alder (mixed willow). The Riparian Fee does not apply to the following riparian vegetation types: blackberry super alliance, coyote brush, giant reed series, tamarisk alliance. These riparian vegetation types are defined in Section 2.4.3.4, Riparian and Wetlands Natural Community.
8 See Appendix H, Cost Supporting Materials, for a description of the costs of these actions and cost assumptions.
managing the federal and State Permits for incidental take of covered species that occur in water conveyance channels and on levee banks that results from regular maintenance activities.

The Implementing Entity will set and adjust all mitigation fees.

8.2.1.1.1 Determination of Mitigation Fees

[Note to Reviewer: There may be existing programs in the Plan Area that have existing authorized mitigation procedures for natural communities (e.g., aggregate mining activities and levee programs) that may be exempted from the mitigation fee requirements if their mitigation procedures are incorporated into the NHP. Such exemptions will be addressed, as appropriate, in a future draft of the NHP.]

The primary NHP mitigation fee is the Base Fee. This fee covers the costs of implementing required mitigation for habitat impacts attributable to new development in the Plan Area, except for habitat restoration and species occurrence establishment-related mitigation actions (i.e., riparian, plant and shrimp species occurrences, and fresh emergent wetland) (Table 8-1). The initial per acre Base Fee was calculated by dividing the total estimated mitigation costs, excluding habitat restoration and species occurrence establishment costs, by the total number of acres of habitat estimated to be removed as a result of implementation of all the covered activities. The NHP Base Fee per acre of impact is provided in Table 8-1.

The Riparian, Plant and Shrimp, and Emergent Wetland Fees will be applied, in addition to the Base Fee, to projects that remove riparian and fresh emergent wetland natural communities and covered plant and vernal pool shrimp species occurrences. These fees are calculated based on the amount of each resource required for mitigation on a per-acre-removed basis. The Riparian, Plant and Shrimp, and Emergent Wetland Fees are applied to pay for costs that are incurred to restore riparian and emergent wetland natural communities and to establish replacement occurrences of covered plant and vernal pool shrimp species impacted by the covered activities. These fees fund habitat restoration actions that are in addition to the protection of existing habitat for mitigation that is funded through the Base Fee.

The Riparian Fee was calculated based on the estimated per acre cost for restoration of riparian habitat plus the estimated per acre cost for environmental compliance for restoration projects. Restoration costs include costs associated with design, installation, three years of maintenance, and five years of performance monitoring and were estimated at $56,500/acre (see Section H.2.4.1, Valley Foothill Riparian and Valley Oak Woodland Restoration Costs). Environmental compliance costs were estimated at $115,000 per 30-acre project, which is $3,833.33/acre (see Section H.3, Environmental Compliance Costs). The total per acre Riparian Fee is $56,500 plus $3,833.33, for a total of $60,334 (rounded up to nearest dollar).

The Emergent Wetland Fee was calculated based on the estimated per acre cost for restoration of emergent wetland habitat. Restoration costs include costs associated with design, installation, three years of maintenance, and five years of performance monitoring. Restoration costs include
costs associated with design, installation, three years of maintenance, and five years of
performance monitoring and were estimated at $48,200/acre (see Section H.2.4.2, Fresh
Emergent Wetland and Giant Garter Snake Habitat Restoration Costs). Environmental
compliance costs were estimated at $115,000 per 30-acre project, which is $3,833.33/acre (see
Section H.3, Environmental Compliance Costs). The total per acre Emergent Wetland Fee is
$48,200 plus $3,833.33, for a total of $52,034 (rounded up to nearest dollar).

The Plant and Shrimp Fee was calculated based on the estimated cost for restoration of habitat
and establishment of new occurrences of these species. Covered plant species and shrimp
species habitat restoration or enhancement and occurrence establishment costs include costs
associated with design, installation, three years of maintenance, and five years of performance
monitoring and were estimated at $44,500 (see Section H.2.6, CM6: Restore Covered Plant and
Vernal Pool Shrimp Species Habitat and Establish Occurrences). Environmental compliance
costs were estimated at $115,000 per 30-acre project, which is $3,833.33/acre (see Section H.3,
Environmental Compliance Costs). The total per acre Plant and Shrimp Fee is $44,500 plus
$3,833.33, for a total of $48,334 (rounded up to nearest dollar).

The Channel and Levee Fee for flood control, water, irrigation, and reclamation districts that opt
in to the NHP was calculated based on Implementing Entity staff time necessary to process
certificates of inclusion and manage annual reporting for the federal and State Permits for
maintenance activities in water conveyance channels and on levee banks. The Channel and
Levee fee is set at $1,500 per year for each entity that opts in to the NHP. Additional description
of the use of this fee and the fee calculation methods are provided in Section 8.2.1.1.4, Channel
and Levee Maintenance Fee).

The Base, Riparian, Plant and Shrimp, Emergent Wetland, and Channel and Levee Fees are
provided in Table 8-1.

<table>
<thead>
<tr>
<th>Mitigation Fee Name</th>
<th>Mitigation Cost¹</th>
<th>Basis Acres²</th>
<th>Fee Per Impact Acre (unless otherwise noted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Fee</td>
<td>$144,872,149</td>
<td>17,820</td>
<td>$8,130</td>
</tr>
<tr>
<td>Riparian Fee</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>$60,334</td>
</tr>
<tr>
<td>Emergent Wetland Fee</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>$52,034</td>
</tr>
<tr>
<td>Plant and Shrimp Fee</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>$48,334</td>
</tr>
<tr>
<td>Channel and Levee Fee</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>$1,500 annual fee</td>
</tr>
</tbody>
</table>

¹ Base Fee mitigation costs are calculated as the total cost of all NHP mitigation ($175,485,000 in Table 8-5) minus the costs for restoration (see Appendix H, Section H.2.4, CM4: Restore Natural Communities and Habitat) of riparian habitat ($18,419,000), restoration of fresh emergent wetlands ($10,122,000), and the costs for environmental compliance for those restoration projects ($2,071,450). Note that total restoration costs of covered plant and shrimp species habitat and occurrences are not shown because they will be calculated on a per-acre basis of impact. The area of impact will be determined prior to project implementation.

² Base Fee basis acres are the sum total of all acres of impacts on natural communities and agricultural habitat allowable under the NHP, both spatially defined and spatially undefined in the impact analysis (see Table 4-7 column total for “Combined acreages of permanent development activities”).

³ Riparian, Emergent Wetland, and Plant and Shrimp Fees are calculated based on the estimated per acre cost for restoration plus...
the estimated per acre cost for environmental compliance for restoration projects.

8.2.1.1.2 Calculation of Fees for Individual Projects

Table 8-2, Mitigation Fees Required by Affected Land Cover Type provides a summary of fees required for project impacts on different land cover types (including natural communities, habitat, and agricultural types). The Base Fee must be paid for the entire area of the proposed project site that supports NHP natural communities and covered species habitat (including agricultural lands that support covered species habitat). Certain NHP land cover types are not considered covered species habitat or natural communities and therefore not required to pay the Base Fee (see Table 8-2). The Riparian, Emergent Wetland, and Plant and Shrimp Fees are required for impacts on land cover types specified in Table 8-2.

Table 8-2. Mitigation Fees Required by Affected Land Cover Type

<table>
<thead>
<tr>
<th>Natural Community/Habitat/Agricultural Type Affected</th>
<th>Base Fee Required?</th>
<th>Additional Fees Required?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Grassland</td>
<td>Yes</td>
<td>No, but see comment</td>
<td>If covered plant or vernal pool species occurrences are present, then Plant and Shrimp Fee applies.</td>
</tr>
<tr>
<td>Serpentine</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Chamise Alliance</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Mixed Chaparral</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Blue Oak-Foothill Pine</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Blue Oak Woodland</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Closed-Cone Pine-Cypress</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Eucalyptus</td>
<td>No</td>
<td>No</td>
<td>Other stands of non-native trees also do not require fee payment.</td>
</tr>
<tr>
<td>Juniper</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Montane Hardwood</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Valley Oak Woodland</td>
<td>Yes</td>
<td>Riparian Fee – see comment</td>
<td>No removal of valley oak woodland is anticipated in the NHP, but should impacts be proposed, the Base and Riparian Fees could be used to provide for mitigation.</td>
</tr>
<tr>
<td>Alkali Sink</td>
<td>Yes</td>
<td>No – but see comment (possible Plant and Shrimp Fee)</td>
<td>No impacts allowed on intact alkali sink habitat at Woodland Regional Park, Woodland Park, and Spring Lake Alkali Sink properties (Figure 5-6). If covered plant or shrimp species are present, then Plant and Shrimp Fee would be applied.</td>
</tr>
<tr>
<td>Fresh Emergent Wetland</td>
<td>Yes</td>
<td>Emergent Wetland Fee</td>
<td>No fee is required for impacts on fresh emergent wetland at wastewater treatment facility treatment ponds.</td>
</tr>
<tr>
<td>Valley Foothill Riparian</td>
<td>Yes</td>
<td>Riparian Fee</td>
<td>The Riparian Fee applies only to the following riparian vegetation types: cottonwood-valley oak-willow (ash-sycamore), valley oak, mixed cottonwood-willow, mixed willow, riparian scrub, riparian woodland/forest, valley oak alliance, white alder (mixed willow).</td>
</tr>
<tr>
<td>Natural Community/Habitat/Agricultural Type Affected</td>
<td>Base Fee Required?</td>
<td>Additional Fees Required?</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>--------------------</td>
<td>---------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Vernal Pool Complex</td>
<td>Yes</td>
<td>Plant and Shrimp Fee</td>
<td>No impacts allowed on intact vernal pool complex at Grasslands Park, Davis Communications Facility, and DFW Tule Ranch Preserve.</td>
</tr>
<tr>
<td>Open Water</td>
<td>Yes</td>
<td>No</td>
<td>Ponds are included in the total acreage of the matrix community within which they occur (e.g., annual grassland) and Base Fee is required.</td>
</tr>
<tr>
<td>Citrus/Subtropical</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Deciduous Fruits/Nuts</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Field Crops</td>
<td>Yes, but see comment</td>
<td>No, but see comment</td>
<td>If covered plant or vernal pool species occurrences are present, then Plant and Shrimp Fee applies.</td>
</tr>
<tr>
<td>Grain/Hay Crops</td>
<td>Yes, but see comment</td>
<td>No, but see comment</td>
<td>If covered plant or vernal pool species occurrences are present, then Plant and Shrimp Fee applies.</td>
</tr>
<tr>
<td>Rice</td>
<td>Yes</td>
<td>No</td>
<td>Where fresh emergent wetlands are present in rice lands, see fresh emergent wetland habitat fee requirements.</td>
</tr>
<tr>
<td>Semiagricultural/ Incidental to Agriculture</td>
<td>Yes, but see comment</td>
<td>No, but see comment</td>
<td>Base Fee is not required for livestock feedlots, poultry farms, or other developed parts of agricultural lands. Base Fee is required for all other miscellaneous semi-agricultural features such as small roads, ditches, and non-planted areas of cropped fields. If covered plant or vernal pool species occurrences are present, then Plant and Shrimp Fee applies.</td>
</tr>
<tr>
<td>Truck/Nursery/Berry Crops</td>
<td>Yes, but see comment</td>
<td>No, but see comment</td>
<td>If covered plant or vernal pool species occurrences are present, then Plant and Shrimp Fee applies.</td>
</tr>
<tr>
<td>Vineyard</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Barren</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

The Riparian Fee must be paid for the total acreage at a project site of specific vegetation types within the valley foothill riparian classification that is directly and permanently affected by the proposed project. The Riparian Fee applies only to the following riparian vegetation types: cottonwood-valley oak-willow (ash-sycamore), mixed cottonwood-willow, mixed willow, riparian scrub, riparian woodland/forest, valley oak, white alder (mixed willow). The Riparian Fee does not apply to the following riparian vegetation types: blackberry super alliance, coyote brush, giant reed series, tamarisk alliance. These riparian vegetation types are defined in Section 2.4.3.4.3, Valley Foothill Riparian. The affected acreage of valley foothill riparian will be based on the overlap between the proposed development and the location of valley foothill riparian. If impacts on valley foothill riparian are avoided through project design and the avoided riparian habitat meets the criteria for inclusion in the NHP conservation lands system, then this fee is not required. Avoidance and minimization measures related to riparian habitat are described in Section 5.4.4, Avoidance and Minimization Measures.
The Emergent Wetland Fee must be paid for the total acreage of all fresh emergent wetlands directly and permanently affected by the proposed project with the exception of fresh emergent wetland that may be removed to maintain or redevelop the ponds at the City of Davis Wastewater Treatment Plant. Fresh emergent wetland vegetation types are defined in Section 2.4.3.4.2, Fresh Emergent Wetland. If fresh emergent wetland impacts are avoided through project design, and the avoided wetland habitat meets the criteria for inclusion in the NHP conservation lands system, then this fee is not required. Avoidance and minimization measures related to wetlands habitat are described in Section 5.4.4, Avoidance and Minimization Measures.

For transportation and utility infrastructure projects, the Base Fee will be paid for all acres of natural communities and covered species habitat within the entire width of the project, including the area of project direct footprint development and adjacent lands on which temporary impacts occur or vegetation will be maintained (e.g., mowing, herbicides, vegetation trimming). The Emergent Wetland Fee and Riparian Fee will be paid for all acres of respective applicable wetland and riparian vegetation types within the direct footprint and the temporary/maintenance areas of transportation and utility projects.

8.2.1.1.3 Avoidance of Resources to Reduce Fee

Project proponents may make dedications of land supporting covered species habitat and natural communities to reduce their impact fee payments at the discretion of the Implementing Entity. Lands that meet the criteria for NHP conservation lands and are dedicated in fee title or conservation easement to the Implementing Entity, or another appropriate land management entity approved by the Implementing Entity, may be provided by project proponents and are not included in the calculation for the Base Fee, Riparian Fee, Emergent Wetland Fee, or Plant and Shrimp Fee.

8.2.1.1.4 Channel and Levee Maintenance Fee (Channel and Levee Fee)

The Channel and Levee Maintenance Fee (Channel and Levee Fee) is an annual fee (not an acreage-base fee as are the other impact fees) that allows specific entities engaged in channel and levee maintenance activities that opt to enroll in the NHP to receive certificates of inclusion under the NHP as long as they follow the applicable NHP Conservation Strategy requirements.

Local water, flood control, irrigation, drainage, and reclamation districts may voluntarily enroll their operations and maintenance activities into the NHP Permits through certificates of inclusion with the Implementing Entity. Covered operations and maintenance activities for such districts are described in Section 3.3.3, Flood Control and Water Conveyance Infrastructure O&M Activities. New capital development projects by these districts as described in covered activities Section 3.2.2.5, Flood Control and Water Conservation Improvements, must pay the same individual project impact fees as any other individual project proponent as described in Section 8.2.1.1.2, Calculation of Fees for Individual Projects. Examples of agencies that may take advantage of this Channel and Levee Fee are the Yolo County Flood Control & Water
Conservation District, Dunnigan Water District, Knight’s Landing Ridge Drainage District, Yolo-Zamora Water District, and reclamation districts in the Plan Area. Water and flood control districts in the Plan Area are identified in Figure 3-5 and reclamation districts in the Plan Area are identified in Figure 3-7.

The Channel and Levee Fee must be paid annually by each entity engaged in channel and levee maintenance activities that has opted into the NHP. The Channel and Levee Fee supports the Implementing Entity’s administration of the Permits compliance on behalf of the districts that enroll in the NHP. The Channel and Levee Fee is based on the Implementing Entity’s estimated administration and management costs for enrolling and maintaining records for each district that opts into the NHP. Based on the assumption that the NHP Executive Director would require 10 hours (0.05 FTE at $180,000 cost (salary and benefits)) and the NHP Administrative Assistant would require 20 hours (0.01 FTE at $60,000 cost (salary and benefits)) each year to establish the certificate of inclusion and manage the annual reporting, the initial Channel and Levee Fee for each district that enrolls will be $1,500 per year.

### 8.2.1.1.5 Mitigation Fee Adjustment Process

The dynamic nature of the costs associated with implementation of regional habitat conservation plans (HCPs) and natural community conservation plans (NCCPs) over long timeframes—including land acquisition costs, habitat restoration costs, and management, monitoring, and administration costs—requires a flexible approach to funding (and mitigation fee adjustment) through time. To avoid mitigation fees becoming outdated, a process of regular fee adjustment is critical. The mitigation fee adjustment process will involve two primary updating mechanisms that the Implementing Entity will use for adjusting fee levels:

1. **Automatic Fee Increases through Cost Index** – An automated increase through the specified cost index will be applied in all years, except those for which a detailed cost/fee review is conducted.

2. **Periodic Detailed Cost/Fee Review** – At specified intervals (Years 3 and 6, and every four years thereafter for the 50-year term of the Permits, though the timing may be adjusted by the Implementing Entity), a thorough evaluation of NHP implementation costs will be conducted and used to recalculate the mitigation fee levels required to cover mitigation costs.

This dual approach will be used to adjust funding levels during NHP implementation as described below.

**Automatic Fee Adjustment**

On April 1 of each year following issuance of NHP permits, the Implementing Entity will adjust all mitigation fees based on the change in the Consumer Price Index – West (western United States), published by the Bureau of Labor Statistics, for the prior calendar year (or partial year...
during first year of adoption). The Board of Directors of the Implementing Entity\(^9\) will then approve and adopt the revised fee schedule by July 1 of the same year. This refinement will allow for an annual inflationary or deflationary adjustment of the fees.\(^{10}\)

Automatic fee adjustments will be applied in all years when the periodic detailed cost/fee adjustments are not conducted (see the following section, Period Cost Review and Fee Adjustment). Following periodic cost/fee reviews, the next year’s automatic fee adjustment will be based on the new fee approved in the year of the review.

The Implementing Entity may change the index applied for fee adjustments if alternative indices are identified that better reflect cost changes.

**Periodic Cost Review and Fee Adjustment**

A detailed review of actual implementation costs will be conducted by the Implementing Entity periodically during NHP implementation. Mitigation fee adjustments may be made by the Implementing Entity based on this cost review. The cost/fee review process will include a review of the cost estimates that underpin the current fee schedule (see Section 8.3, Estimate of Implementation Costs and Appendix H, Cost Supporting Materials).

To conduct detailed cost/fee reviews, the Implementing Entity will review its actual cost experience as well as other indicators of cost changes. This review will include the assembly and analysis of data associated with actual land transactions after the start of implementation as well as the actual costs of habitat restoration, management, maintenance, monitoring, and administration. Actual Implementing Entity cost experience may be supplemented with other relevant cost information where appropriate (e.g., other land transactions data). Once the revised cost estimates are completed, the mitigation fees will be recalculated to determine the fee level necessary to cover mitigation costs and ensure sufficient funding is available to meet the NHP’s mitigation obligations. These mitigation fee estimates will then be compared with the current fee level to determine what fee adjustments are required. The Board of the Implementing Entity must approve fee adjustments.

The administrative burden of conducting detailed cost/fee reviews every year along with the limited new information developed over the course of a single year makes annual reviews impractical. Consequently, detailed reviews will be conducted in implementation years 3 and 6 and then every four years thereafter through Year 50. The Implementing Entity will initiate the technical cost/fee review on January 1 of the relevant year with completion of the proposed revised fee schedule expected by April 1. The Board of Directors of the Implementing Entity will then approve and adopt the revised fee schedule by July 1 of the same year.

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\(^9\) The NHP Joint Powers Agency (JPA) Board of Directors.

\(^{10}\) There is no ideal cost index for habitat mitigation costs. An inflationary index provides an interim adjustment process to adjust costs until sufficient new data is available to conduct a detailed cost review.
Between detailed reviews, the Implementing Entity will make annual indexed inflationary adjustments to the fee schedule (see section above, *Automatic Fee Adjustment*). The Implementing Entity may adjust the schedule for detailed reviews if deemed necessary. Changes in the review schedule may be needed in periods of significant cost change, for example when land values are rapidly increasing or decreasing, fee levels may become quickly outdated.

### 8.2.1.2 Conservation Component of Local Share Funding

This section describes the Local Share sources of funding to implement components of the NHP that exceed mitigation requirements and contribute to the conservation of covered species and provide for the conservation of natural communities in the Plan Area. The Implementing Entity will seek funding and use other tools to provide for the acquisition of 10 percent of the conservation lands acreage (5,853 acres out of a total of 58,532 acres – see Tables 5-9 and 7-1) under the conservation component of the NHP.

The Implementing Entity will seek funding for this conservation component of the Local Share Funding from federal, state, local, and private sources, including all of the sources identified in Section 8.2.2, *Federal/State Share Funding Sources* to provide for the protection of natural communities and covered species habitat. Lands acquired and protected for the conservation of species and habitats within the Plan Area by nongovernmental organizations such as land trusts and conservancies, will be counted toward the local share of the habitat protection acreage contribution to the conservation component of the NHP. Current PEHL Category 2 properties owned by local agencies that are provided NHP protected status through conservation easements (i.e., protection increased to PEHL category 1), will be credited toward the Local Share contribution to conservation to the local share of the habitat protection acreage target.

#### 8.2.1.2.1 Regional and Local Funding Sources

In addition to the federal, state, local, and private sources of funding identified in Section 8.2.2, *Federal/State Share Funding Sources*, there is a broad range of local and regional funding sources that are sometimes used to support habitat conservation and agricultural land preservation. Many of these funding sources require voter approval. Examples of local and regional funding sources that are currently in effect in California include: 1) sales tax measures in San Diego County that fund transportation and open space and in Sonoma County and the City of Davis that fund open space and agricultural land preservation; 2) property tax assessments and parcel taxes in Alameda and Contra Costa Counties that fund parks and open space preservation and development; 3) tipping fees in Riverside County; 4) Mello Roos Community Facilities District special taxes in Solano County for open space preservation; and 5) homeowner’s association fees on development in areas surrounding San Bruno Mountain in San Mateo County.
8.2.1.3 Funding Post-Permit Land Management

At the end of the 50-year permit period, ongoing annual costs will remain that will require funding in perpetuity. All habitat protection, enhancement, and restoration will have been completed and therefore the ongoing costs will be substantially less than costs during the permit period with the primary focus on conservation land management and a reduced level of administrative, legal, and monitoring activities. Funding of the operations of the Implementing Entity to manage and monitor the NHP conservation lands system after the 50-year permit period will be provided through the returns on an endowment fund built during the 50-year permit period. The endowment fund is described in Section 8.3.2.6, Post-NHP Permit Endowment Cost Estimation Methods and in Section H.6, Post-NHP Permits Implementation Costs. All post permit funding is the responsibility of the Implementing Entity and the Permittees. Any shortfalls in returns from the endowment to meet the funding requirements for managing the NHP conservation lands will be the responsibility of, and addressed by, the Implementing Entity and the Permittees.

8.2.2 Federal/State Share Funding Sources

This section describes the Federal/State Share sources of funding, including funding from partner organizations, available to support implementation of the components of the NHP that exceed mitigation requirements and contribute to the conservation of covered species and provide for the conservation of natural communities in the Plan Area. Funding from these sources represents the share of total NHP costs associated with activities by the Implementing Entity to protect, enhance, restore, and manage species occurrences, species habitat, and natural communities as described in Chapter 5, Conservation Strategy. In addition, the conservation activities of non-profit and other organizations will effectively help fund and implement the NHP. As a regional joint HCP/NCCP the NHP must provide for the conservation of species within the biological and geographic context of the Plan Area; as such, NHP goals go beyond the mitigation of impacts that result from covered activities and include the conservation of covered species and natural communities in the Plan Area, including ecological processes, habitat gradients, and biodiversity.

The description of the implementation costs (Section 8.3, Estimate of Implementation Costs and Appendix H, Cost Supporting Materials) provides the details and rationale for the breakdown of implementation costs between the conservation component and mitigation component of the NHP Conservation Strategy. A portion of the conservation component will be funded under the Local Share of funding (see Section 8.2.1.2, Conservation Component of Local Share Funding) and the remainder of the conservation component will be funded through the Federal/State Share of funding described here.

The total conservation component of the NHP costs is estimated at about $349.8 million over the 50-year permit term (see Section 8.3, Estimate of Implementation Costs and Appendix H, Cost Supporting Materials). This cost estimate is a rough projection only and actual costs and therefore actual funding needs may be more or less than this amount. The Implementing Entity
is responsible for acquiring sufficient funding through all sources to implement the conservation
actions under the NHP within the timeframes presented in Section 7.3, NHP Implementation
Schedule. The Implementing Entity will work with federal, state, regional, and local agencies
and conservation partners to identify and secure funding for non-mitigation conservation
activities. At the federal and state levels, support for securing funding from USFWS and DFW
will be particularly important. The primary categories of non-fee direct and indirect funding
sources include the following:

- Federal grants and legislation
- State grants and legislation
- Private nonprofit grant sources
- Land trust/conservation partner activities
- Regional and local sources
- Other (including private donations and other regulatory approaches).

Similar to the implementation of other HCPs and NCCPs, a broad range of funding sources will
be required over the period of NHP implementation. The primary non-mitigation funding is
expected to come from federal and state grants. This federal and state grant funding will be
complemented by grants from other sources (e.g., private nonprofit), private donations in
exchange for tax deductions from interested individuals, and funds provided for acquisition of
land or lands acquired by land trusts active in Yolo County that contribute towards achieving
NHP biological objectives. Other regional and local funding sources will be sought by the
Implementing Entity to supplement these sources/efforts, as needed, while collateral benefits
with other compatible programs might also emerge (e.g., conservation of land by other entities
can contribute towards achieving NHP commitments if the lands meet the NHP requirements).
The sections below provide more detail on these potential sources.

8.2.2.1 Federal Grants and Legislation

Federal grant sources have played a critical role in funding the preservation of habitat
nationwide, including supporting the implementation of HCPs and NCCPs. The largest federal
funding sources for HCP and NCCP implementation over the last 20 years include the ESA
Section 6 Grants for habitat land acquisition, the Land and Water Conservation Fund, and the
North American Wetlands Conservation Act Grant Program. Funding for all these programs has
or may be reduced in the face of the current economic downturn and fiscal challenges, but may
rebound when stronger economic conditions return. Highlights of these funding sources include
the following:

- USFWS Section 6 Grants. ESA section 6 land acquisition grants have been the most
  important source of conservation funding for HCP implementation in recent years.
  Between 2001 and 2004, California received an average of about $24 million each year,
about 50 percent of the total nationwide funding. In 2010, land acquisition grant funding for California was about $20 million; in 2011, it was $16.4 million; and in 2012, it was $7.0 million.\footnote{California Department of Fish and Game (now the Department of Fish and Wildlife) website, \url{www.dfg.ca.gov}; U.S. Fish and Wildlife Service website, \url{http://www.fws.gov/endangered/esa-library/pdf/Section6_grants.pdf}} Declines in funding due to federal budget cut backs resulting from the Great Recession are expected to continue in the short term, but improvements in funding could result as stronger economic conditions return. HCPs and NCCPs throughout California have received significant funding from this source, including plans in San Diego County, Riverside County, Sacramento County, and Contra Costa County, among others.

- **Land and Water Conservation Fund.** The Land and Water Conservation Fund provides matching grants to state and local governments for the acquisition and development of public outdoor recreation areas and facilities, as well as funding for shared federal land acquisition and conservation strategies.

- **The North American Wetlands Conservation Act Grants.** The North American Wetlands Conservation Act program is also administered by the USFWS. This program provides matching grants to private or public organizations or to individuals who have developed partnerships to carry out wetlands conservation projects. Nationwide annual funding availability has varied, generally between $40 million and $100 million.

Additional potential sources of federal funding and support for NHP implementation include:

- **Environmental Quality Incentives Program.** Administered by the Natural Resources Conservation Service, this program provides financial assistance to plan and implement conservation practices that address natural resources concerns and for opportunities to improve soil, water, plant, animal, air or related resources on farm land and non-industrial private forestland.

- **Farm and Ranch Land Protection Program.** Also administered by the Natural Resources Conservation Service, the Farm and Ranch Land Protection Program utilizes funds provided by the USDA (up to 50 percent of conservation easement value).

- **Wildlife Habitat Incentive Program.** The Wildlife Habitat Incentive Program is administered by the Natural Resources Conservation Service and provides technical assistance to landowners and others to develop habitat that supports fish and wildlife populations of national, state, tribal and local significance.

- **Wildlife Restoration Program Grants.** This Wildlife Restoration Program was authorized under the Pittman-Robertson Act and is used for the selection of restoration, rehabilitation, and improvement of wildlife habitat, wildlife management research and distribution of information produced by projects. The Wildlife Restoration Program is administered by the USFWS.
• **Landscape Conservation Cooperatives.** Administered by the USFWS, the Landscape Conservation Cooperatives program was established in order to improve science and management decisions in response to climate change. The program is intended to apply strategic habitat conservation through partnerships with other federal agencies, states, tribes, non-governmental organizations and stakeholders.

• **General Challenge Grants.** Administered by the National Fish and Wildlife Foundation, General Challenge Grants provide funding up to $150,000 for projects that foster cooperative partnerships to conserve fish, wildlife, plants, and their habitats. In addition, the National Fish and Wildlife Foundation administers the Five Star Restoration Challenge Grant for projects that support community-based wetland, riparian, and coastal habitat restoration projects (however, these grants are modest in size and are limited to $20,000 or less).

• **Habitat Conservation Fund.** The Habitat Conservation Fund is administered by the California Department of Parks and Recreation, and requires a dollar-for-dollar match from non-state sources for wetlands, riparian, trails and anadromous fish/trout categories.

• **Recreation Trail Fund.** The Recreation Trail Fund provides federal dollars for non-motorized trail projects and can provide up to 80 percent of total project cost. The fund is administered by the California Department of Parks and Recreation.

• **Clean Water State Revolving Fund.** Administered by the EPA, the Clean Water State Revolving Fund provides low-interest loans for projects that improve water quality and reduce nonpoint source pollution, including the preservation, restoration, and creation of wetlands. Loans can cover 100 percent of the project costs.

Finally, funding for the conservation of habitat has been and can be acquired directly through federal Congressional legislation. The Permittees and Implementing Entity have the ability to lobby Congress for funding to support implementation of the NHP. Additionally, the NHP is a member of the Northern California Conservation Planning Partners that can lobby collectively to attain federal funds for implementation of HCPs and NCCPs in Northern California, including the NHP.

### 8.2.2.2 State Grants and Legislation

State bond funding, in particular, and the State’s General Fund have funded major investments in natural resources, along with parks and recreation, over the last four decades. The State administers the bond programs and funding, typically through competitive (e.g., Non-motorized Trails Grant Program, California Heritage Fund Grant Program, and the Environmental License Plate Fund) and noncompetitive (e.g., per capita) grant programs. The noncompetitive grants are

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12 A consortium of counties that have completed or are preparing HCPs and NCCPs in Northern California, including the Yolo NHP, East Contra Costa HCP/NCCP, Butte Regional Conservation Plan, Placer County Conservation Plan, Natomas Basin HCP, South Sacramento County HCP, San Joaquin County HCP, Sutter/Yuba HCP/NCCP, and Santa Clara Valley HCP/NCCP.
allocated to local and regional jurisdictions for use at the discretion of the jurisdiction for projects that meet state guidelines. Other state grant programs include:

- California Wildlife Conservation Board Grants
- California Farmland Conservancy Program (California Department of Conservation)
- Habitat Conservation Fund (California Department of Parks and Recreation)
- Watershed Coordinator Grant Program (California Department of Conservation)
- Resources Trust Fund (California State Lands Commission)

Between 1970 and 2003, Californians approved 27 of 37 natural resource bonds measures to fund $15.3 billion in park and water-related programs, an overall 73 percent approval rate. During the 1970s and 1980s, 90 percent of bond referenda were approved though minimal parks bonds passed during the 1990s. After 2000, however, some of the largest natural resource bonds were passed by California voters, including the following:

- **Proposition 12**, 2000 Safe Neighborhoods, Clean Water and Coastal Protection Act, $1.2 billion
- **Proposition 13**, 2000 Safe Drinking Water, Watershed Protection, and Flood Control Bond, $505 million
- **Proposition 40**, 2002 bond for clean water, air, parks and coastal protection, $2.3 billion
- **Proposition 50**, 2002 bond to fund a variety of water projects, including coastal land protection, $1.5 billion
- **Proposition 84**, 2006 parks and water bond to improve drinking water, flood control, protection of coastlines, and state parks, $5.4 billion

Revenues from most of these bonds have been fully exhausted or allocated. Other natural resource bonds with funds still available include Proposition 117, often referred to as the “Mountain Lion Fund,” that was approved by California voters in 1990 and provided $30 million per year for 30 years (through 2020).

Funding for the conservation of habitat has been and can be acquired directly through state legislation. The Permittees and Implementing Entity have the ability to lobby the California Legislature for funding to support implementation of the NHP. Additionally, the NHP is a member of the Northern California Conservation Planning Partners that can lobby collectively to attain state funds for implementation of HCPs and NCCPs in Northern California, including the NHP.
8.2.2.3 Private Foundation Grant Programs

There are a number of private foundations and non-profits that have provided significant funding for open space and habitat restoration and acquisition in the past. Foundations and non-profits with major presences in California and applicable missions include: David and Lucile Packard Foundation; The Columbia Foundation; William and Flora Hewlett Foundation; and the National Fish and Wildlife Foundation.

8.2.2.4 Land Trust/Conservation Partner Activities

The activities of regional and national land trusts often provide substantial support to the achievement of conservation goals. The conservation efforts of land trusts and other conservation organizations in Yolo County may contribute directly to the conservation goals of the plan and may indirectly fund NHP implementation through the raising and investment of their own funding. Yolo Land Trust plays an important role in agricultural and open space preservation in Yolo County but does not currently have its own source of independent funding for agricultural or open space protection.

8.2.2.5 Other Local and Regional Funding Sources

There is a broad range of local and regional funding tools that are sometimes used to support habitat conservation and agricultural land preservation (see discussion in Section 8.2.1.2.1, Regional and Local Funding Sources).

8.2.2.6 Other Mechanisms

There are a number of additional mechanisms through which land conservation can be achieved. In many California counties, private donations of conservation easements or fee title ownership to land tracts of valuable open space and conservation lands have made important contributions to conservation efforts. These donations carry potential tax-benefits for the donor, though are often driven by individual preferences and values rather than financial concerns. Additional regulatory conservation tools, such as clustering ordinances and transfer of development rights programs, have sometimes been successful in California (e.g., Livermore, San Luis Obispo.

8.2.3 Funding Assurances

The Permittees and Implementing Entity are committed to securing sufficient funds within the required timeframe to implement the NHP Conservation Strategy in its entirety. Funding for the mitigation component of the NHP (i.e., payment of mitigation fees) will be provided, or acquired from project proponents, by the Permittees to the Implementing Entity under the process described in Section 7.5, Implementation Process. Funding for the conservation component of the NHP will be sought by the Implementing Entity and the Permittees from the sources identified in Section 8.2.1, Local Share Funding Sources and Section 8.2.2, Federal/State Share Funding Sources, and other appropriate sources. The Implementing Entity and the Permittees
will secure sufficient funds within the timeframe identified in the NHP implementation schedule (Tables 7-1, 7-2, and 7-3) to implement the conservation component of the program.

It is anticipated that state and federal agencies, including the USFWS and DFW, will contribute to the conservation component of the NHP. The Permittees recognize that state and federal funds cannot be guaranteed in advance of the approval of yearly budgets, nor can they be guaranteed by agency staff without the authority to commit these funds. However, the Permittees assume and request the assurance that the USFWS and DFW will make every effort to assist the Implementing Entity in securing the funding outlined in this chapter to conserve species and to help implement the conservation component of the NHP.

8.3 ESTIMATE OF IMPLEMENTATION COSTS

8.3.1 Scope and Purpose of the Implementation Cost Analysis

The NHP identifies conservation actions that will be implemented over the 50-year permit period to meet the biological goals and objectives and to comply with the requirements of the ESA and the NCCPA (see Sections 5.3, Biological Goals and Objectives and Section 5.4, Conservation Measures). Among those actions are measures to avoid, minimize, and mitigate impacts of the covered activities (described in Chapter 3, Covered Activities) on natural communities and covered species (described in Chapter 2, Existing Ecological Conditions, and Appendix A, Covered Species Accounts) and to provide for the conservation of natural communities and covered species. In addition, the NHP includes the implementation of monitoring and adaptive management actions (Chapter 6, Adaptive Management and Monitoring Plan) and steps to respond to changed circumstances (Section 7.10, Regulatory Assurances, Changed Circumstances, and Unforeseen Circumstances).

The NHP implementation cost analysis quantifies the estimated total cost to implement the NHP over 50 years and divides those costs between the mitigation component and conservation component of specific NHP actions. The implementation cost estimates are used to establish the Local Share and Federal/State Share funding requirements for NHP implementation (Section 8.2, Funding Sources and Assurances). Cost estimates are provided for the mitigation component and conservation component for each of the following cost categories.

- Conservation Measures. Cost estimates are provided for each of the nine conservation measures described in Section 5.4, Conservation Measures. The cost estimates for conservation measures only include, except where noted otherwise, costs directly associated with implementation of the actions required to physically implement each measure, including any associated avoidance and minimization measures (see Section 5.4.4, Avoidance and Minimization Measures). Costs associated with planning, permitting, monitoring, conducting surveys, and related actions that support the physical implementation of conservation measures are, except as noted in Appendix H, Cost Supporting Materials, included under other cost categories in this chapter.
• **Environmental Compliance.** This category includes costs associated with complying with other laws and regulations and obtaining associated permits necessary to implement the conservation measures that restore habitat that will require vegetation and ground disturbing activities.

• **Monitoring and Other Surveys.** This category includes costs associated with implementing the monitoring plan (see Section 6.3, Monitoring Program) and conducting pre-land acquisition surveys and other surveys related to the management of conservation lands.

• **Administration and Management.** This category includes costs necessary to administer implementation of the NHP, including hiring of personnel and the ongoing costs of personnel expenses, office equipment and supplies, contracted services, and other overhead and related expenses. A description of the NHP Implementing Entity and its administrative functions is provided in Chapter 7, Plan Implementation.

• **Changed Circumstances.** This category includes costs of implementing measures to respond to changed circumstances. The range of measures to address changed circumstances is described in Section 7.10.4.2, Changed Circumstances Provided for in the NHP.

• **Post-NHP Permits.** This category includes the costs associated with raising an endowment that would fund ongoing management of NHP conservation lands after the expiration of NHP incidental take permits 50 years following their issuance.

The estimate of costs is for the purpose of projections of necessary funding to implement the NHP. Should costs be greater or less than the estimates provided, the commitment to funding the full implementation of the NHP as described under Section 8.2, Funding Sources and Assurances is unchanged.

### 8.3.2 Cost Estimation Methods

This section summarizes the methods and assumptions used to estimate implementation costs for each of the cost categories. Detailed descriptions of methods and assumptions used to estimate costs for each of the cost categories are presented in Appendix H, Cost Supporting Materials. Implementation cost estimates represent average planning-level cost estimates in 2013 dollars. Specific investments (such as specific land acquisitions, restoration projects, or monitoring efforts) are expected to show significant unit cost volatility around the assumed averages, given the unique effects of parcel-specific characteristics on costs. The implementation cost estimates are considered best estimates in 2013 dollar terms given the information available and current market conditions.

Major considerations and assumptions used to estimate total implementation and per unit costs included the following parameters:
• **Land Protection and Restoration Goals.** Total NHP costs are driven by the natural community and covered species habitat protection and restoration objectives (Tables 5-5a-d, 5-7, and 5-8) which will require protection of approximately 74,882 acres, mainly through conservation easement rights but also including fee title acquisition as necessary, to achieve both the mitigation and conservation components of the NHP.

• **Acquisition Approach.** Land can be acquired for habitat protection through either fee title or conservation easement. In most instances, conservation easement rights are preferred, as they allow for continued land use practices in the working landscapes of Yolo County (e.g., farming, ranching, and other land uses) and can be less costly to acquire and maintain compared to fee title acquisitions. In some instances, fee title acquisition will be necessary, for conservation lands requiring frequent access and more intensive habitat management, and instances where landowners are only interested in fee title sale of the land. In all cases, the JPA Board will need to approve fee title acquisitions of land (see Section 7.5, *Implementation Process*).

• **Acquisition Size.** Some cost estimates were determined on a per transaction basis rather than a per acre basis. Larger area acquisitions are generally preferred, but smaller parcels with particularly high biological value would also be pursued. For acquisition cost estimating purposes, it is assumed that parcels of 40 acres or greater would be the primary focus of the NHP.

• **Implementation Schedule.** The term of the NHP is 50 years and includes the full range of conservation activities and investments. The NHP includes a timeline for implementation of the conservation component activities divided into five periods, each a decade long (Tables 7-1 to 7-3). The cost estimates were developed using the NHP timeline to subdivide estimated costs by 10-year period. Mitigation actions are required to be conducted as covered activities occur and, since there is no set schedule for covered activities, there is no set schedule for implementation of mitigation actions and costs. In the absence of a mitigation implementation schedule, the cost analysis used the assumption that the acquisition of lands to protect and restore habitat for mitigation would be implemented proportionately on the same schedule as land acquisitions for the conservation component (Tables 7-1 to 7-3).

• **Unit Cost Research.** Unit cost research (including additional estimates of unit cost drivers, e.g., number of conservation land management contractors required) was conducted as necessary to ensure that total cost estimates could be developed for all conservation measures and cost categories. In general, the unit cost driver and unit cost estimates were based on one or both of the following approaches:

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13 The timing of most covered activities will be determined by specific markets within the regional economy (e.g., housing market, commercial markets, transportation needs and funding, etc.) and mitigation actions will be initiated in association with the impacts of the covered activities.
o **County-Specific Data.** In some cases, most notably for land values, per acre values were developed primarily based on information directly from Yolo County examples. Land value estimates were developed based on information on land transactions in Yolo County as provided by recent appraisals, County assessor information, and interviews with selected appraisers, brokers, and the Yolo Land Trust.

o **Literature Review and Case Studies.** A number of the conservation measure implementation and monitoring costs were developed based on a review of available literature and personal communications on the costs of planning, implementing, and monitoring different conservation activities. Some of these case studies provided unit costs from Yolo County cases, though literature from other locations where the conservation activity and habitat characteristics were similar was also considered.

o **Existing Conservation Plans.** While all regional conservation plans are different, experiences associated with administration and management of approved HCPs and NCCPs provide useful cost indications for the NHP. Cost assumptions used in several other California regional conservation plans were considered while developing the cost estimates in this analysis. Information from the East Contra Costa HCP/NCCP, San Joaquin County HCP, and Natomas Basin HCP proved useful to costing the aspects of the NHP where activities were similar. Experiences in other plans with ongoing endowments and other costs where circumstances are sufficiently similar provided useful cost indications.

In instances where a cost could be included in more than one cost category, that cost was allocated to the most appropriate cost category as described in Appendix H, *Cost Supporting Materials.* All costs are expressed in 2013 dollar to allow for better comparability of real costs through time and to avoid making specific assumptions about the uncertain rate of inflation.

The remainder of this section provides a general overview of the methods and assumptions used to prepare cost estimates for each of the NHP cost categories. Detailed descriptions of methods and assumptions are provided in Appendix H, *Cost Supporting Materials.*

### 8.3.2.1 Conservation Measure Cost Estimation Methods

Conservation measure CM1, *Protect Landscapes and Natural Communities* requires acquisition of lands that support existing habitat and lands that are suitable for habitat restoration to achieve natural community and covered species habitat objectives (see Section 5.4.1.1, **CM1: Protect Landscapes and Natural Communities** and Tables 5-5a-d, 5-7, and 5-8). Available lands meeting NHP natural community protection and restoration requirements will be acquired through conservation easement or in fee title ownership at fair market value. The values of fee title ownership and conservation easement on land is based on land value research on transactions in Yolo County and other relevant locations (e.g. northern Solano County). The average per acre values used were based on information on land transactions as provided by recent appraisals, County Assessor information, and interviews with selected appraisers and brokers active in the Plan Area. Estimated costs for CM1, Protect Landscapes and Natural Communities also capture
all land acquisition costs associated with implementation of conservation measures CM4, 
*Restore Natural Communities and Habitat* and CM6, *Restore Covered Plant and Vernal Pool 
Shrimp Species Habitat and Establish Occurrences*. Land acquisition biological survey costs for 
land acquisitions are addressed under administrative costs for biologists employed or contracted 
by the Implementing Entity.

Cost estimates for conservation measures CM2, *Develop an Invasive Species Control Program*, 
CM 4, CM5, *Enhance and Manage Protected Natural Communities*, CM6, CM7, *Increase the 
Abundance of Covered Plant Species in NHP Protected Occurrences*, CM8, *Establish Nest Trees 
for Raptors*, and CM9, *Improve Protection and Management on Existing Public and Easement 
Habitat Lands to Maintain or Enhance Covered Species Occurrences and Habitat* are based on 
actual or estimated costs of similar conservation actions implemented or planned under other 
conservation programs and conservation measure-specific assumptions regarding how each of 
these conservation measures will be implemented in the Plan Area (see Appendix H, *Cost 
Supporting Materials*). Costs for implementing conservation measure CM3, *Improve the 
Permeability of Linear Structures for Native Wildlife* is strictly administrative and is included in 
the Administration and Management cost category.

### 8.3.2.2 Environmental Compliance Cost Estimation Methods

Environmental compliance costs are applicable to NHP habitat restoration projects (see Section 
5.4.2.1, *CM4: Restore Natural Communities and Habitat*) and encompass costs necessary to 
prepare NEPA, CEQA, Clean Water Act (CWA), National Historic Preservation Act (NHPA), 
and other environmental compliance documents and secure associated permits and 
authorizations. The cost estimates included in this analysis assume an average restoration project 
size of about 30 acres for mitigation component projects and 39 acres for conservation 
component projects. The average environmental compliance cost per restoration project is 
estimated at $115,000, including $60,000 for NEPA and CEQA, $25,000 for CWA, $15,000 for 
NHPA, and $15,000 for other environmental compliance laws and regulations. The NHPA costs 
only include the cost of a cultural inventory; if significant cultural resources were found, the 
NHPA compliance cost could increase considerably. It is assumed that other NHP 
implementation actions, such as land acquisition, ongoing maintenance and habitat management, 
and monitoring and other survey work, will not require environmental compliance and therefore 
would not incur any environmental compliance costs.

### 8.3.2.3 Monitoring and Other Surveys Cost Estimation Methods

Surveys and other activities associated with NHP monitoring requirements are described in 
Section 6.3, *Monitoring Program*. Other survey costs include surveys necessary to evaluate 
lands for acquisition into the NHP conservation lands system and baseline surveys of NHP 
protected lands.

Most costs for this cost category are labor costs, since equipment needs are assumed to be 
minimal. The monitoring and other survey cost estimates included in this cost analysis represent
planning-level “best estimates” based on standardized assumptions. These assumptions may not fully encompass the inherent flexibility and variability of each parameter considered. Landscape-level monitoring involves monitoring the overall status of the covered species over the term of the NHP and is conducted specifically to inform adaptive management decisions. Data compilation, management, and analysis actions are assumed to be part of the staff responsibilities of the Implementing Entity and these costs are included within the administration and management cost estimate for the Implementing Entity.

8.3.2.4 Administration and Management Cost Estimation Methods

The structure of and responsibilities for implementing the NHP program are described in Section 7.2, Implementing Entity and Implementation Structure. The JPA will be the Implementing Entity and will be responsible for implementation of the NHP, including all costed elements of the mitigation and conservation components. To carry out the responsibilities associated with implementing the NHP, the JPA will require funding to support staff (salaries and benefits), required supplies, equipment, and vehicles, and legal and other advisory services provided by outside professional services organizations. Costs were estimated based on the proposed staffing and costs reported by other approved HCP/NCCP implementing entities in California. Specific assumptions used to calculate administration and management costs are presented in Appendix H, Cost Supporting Materials.

8.3.2.5 Changed Circumstances Cost Estimation Methods

Changed circumstances are described in Section 7.10.4, Changed Circumstances. Changed circumstances for which costs are estimated are those that affect covered species habitat conditions on NHP conservation lands. Any costs associated with changed circumstances that require only an administrative response (e.g., coordination with the permitting agencies) are included in administration and management costs. In the event that changed circumstances affecting habitat conditions on conservation lands occur, the Implementing Entity may implement, as appropriate, the planned responses identified for each of the changed circumstances described in Section 7.10.4, Changed Circumstances. Conservation measures that address habitat conditions on conservation lands are:

- CM4, Restore Natural Communities and Habitat
- CM5, Enhance and Manage Protected Natural Communities

The cost analysis assumes that the cost for implementing responses to changed circumstances will be 10 percent of the total implementation costs for the conservation measures listed above. This assumption is considered reasonable because it effectively assumes that the intended habitat functions for covered species on up to 10 percent of all NHP conservation lands (7,600 acres of NHP protected and restored land) could be affected by changed circumstances. Any greater magnitude of habitat failure would be considered catastrophic and beyond the financial resources of the Implementing Entity to address.
8.3.2.6 Post-NHP Permits Endowment Cost Estimation Methods

In the post-NHP Permits period (i.e., when NHP incidental take permits expire 50 years following their issuance), the management and maintenance of NHP conservation lands will continue in perpetuity (see Section 5.8, Post-NHP Permits Administration and Management Activities, for a full description of post-NHP permits activities). To pay for these ongoing costs in the post-NHP permit period, a non-depleting endowment will be built over the 50 years of the NHP implementation period. This endowment will be sufficient to generate interest payments that annually support NHP administration and management and conservation land management and maintenance costs in perpetuity. The cost estimate for funding the endowment is based on an assumed real interest rate of 2 percent.

To determine the necessary size of the endowment, an estimate was developed for conservation land maintenance, management, and administration costs on an ongoing annual basis in the post-NHP Permits period. Specific assumptions are described in Appendix H, Cost Supporting Materials. By the end of the NHP Permits period, all conservation measures will have been implemented and compliance and effectiveness monitoring requirements achieved. Consequently, there are no post-NHP Permits implementation costs associated with land acquisition, habitat restoration, environmental compliance, most monitoring/surveys, and changed circumstances categories. Administration and management costs during the post-NHP Permits period are assumed to be substantially reduced from such costs during 50-year NHP implementation due to greatly reduced responsibilities of the Implementing Entity. Conservation land management and maintenance costs in the post-NHP Permits period include labor and material and supply costs necessary to maintain conservation land infrastructure (e.g., fences, fire breaks, roads), land management practices (e.g., grazing), and management of water for specific species habitats.

8.3.3 Mitigation and Conservation Components of Cost Estimates

Using the methods summarized in Section 8.3.2, Cost Estimation Methods and described in Appendix H, Cost Supporting Materials, a total cost estimate for each of the cost categories was calculated based on full implementation of the NHP. The mitigation component of the implementation costs was estimated by disaggregating the costs of implementing mitigation measures that address the effects of the covered activities on natural communities and covered species from the costs for implementing the full NHP Conservation Strategy (see Appendix H Cost Supporting Materials for a description of assumptions used to identify the mitigation component costs for each of the cost categories). The remaining costs of the full NHP Conservation Strategy implementation comprise the conservation component costs.

8.3.3.1 Mitigation Component NHP Implementation Cost Estimate

Total mitigation component costs under the NHP are estimated to be $175.5 million in 2013 dollar terms (Table 8-5). These costs address the mitigation requirements for impacts on biological resources resulting from 17,820 acres of new development within the Plan Area (see
Table 4-7). The total mitigation component costs reflect the mitigation requirements if all of the covered activities (see Chapter 3, Covered Activities) are implemented (i.e., full build-out of the County’s and cities’ general plans, and other plans and activities). For those covered activities that are not implemented, mitigation will not be required and the total mitigation costs will be lower than indicated in Table 8-5.

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation Measures</td>
<td>$134,388,000</td>
</tr>
<tr>
<td>Environmental compliance</td>
<td>$2,071,000</td>
</tr>
<tr>
<td>Monitoring and other surveys</td>
<td>$1,767,000</td>
</tr>
<tr>
<td>Administration and Management</td>
<td>$10,373,000</td>
</tr>
<tr>
<td>Changed circumstances</td>
<td>$4,906,000</td>
</tr>
<tr>
<td>Endowment Costs for Post-NHP implementation</td>
<td>$21,979,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$175,485,000</strong></td>
</tr>
</tbody>
</table>

1 Discrepancies in total values due to rounding. Cost estimates are rounded to the nearest $1,000.

8.3.3.2 Conservation Component NHP Implementation Cost Estimate

Total conservation component costs for NHP implementation over the 50-year NHP implementation period are estimated to be $329.2 million in 2013 dollar terms (Table 8-6). These costs are distributed over the 50-year implementation as shown in Table 8-6. These costs address the implementation of conservation actions that contribute to the conservation of natural communities and covered species in the Plan Area and do not include costs for avoiding, minimizing, and mitigating impacts of the covered activities. As shown in Table 8-6, the total estimated conservation component cost over 50 years includes approximately $193 million to implement the conservation measures, representing 59 percent of costs of the NHP conservation component. Protecting 58,532 acres of natural communities (CM1, Protect Landscapes and Natural Communities) requires the largest investment, with an estimated cost of approximately $85.3 million (see Appendix H, Cost Supporting Materials). Consequently, NHP conservation component costs are highest during the second and third decades of implementation when the majority of conservation lands are assumed to be acquired (Table 8-6).
### Table 8-4. Summary of NHP Conservation Component Implementation Costs by Cost Category

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Conservation Costs by Implementation Period</th>
<th>Average Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Years 1–10</td>
<td>Years 11–20</td>
</tr>
<tr>
<td>Conservation measures</td>
<td>$21,305,000</td>
<td>$49,721,000</td>
</tr>
<tr>
<td>Environmental compliance</td>
<td>$431,000</td>
<td>$891,000</td>
</tr>
<tr>
<td>Monitoring and other surveys</td>
<td>$634,000</td>
<td>$1,582,000</td>
</tr>
<tr>
<td>Administration and Management</td>
<td>$7,441,000</td>
<td>$7,441,000</td>
</tr>
<tr>
<td>Changed circumstances</td>
<td>$759,000</td>
<td>$1,969,000</td>
</tr>
<tr>
<td>Endowment for Post-NHP implementation</td>
<td>$9,165,000</td>
<td>$19,877,000</td>
</tr>
<tr>
<td>Total</td>
<td>$39,735,000</td>
<td>$81,481,000</td>
</tr>
</tbody>
</table>

1. Discrepancies in total values due to rounding. Cost estimates are rounded to the nearest $1,000.