Appendix P  Conceptual Mitigation Plan
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Conceptual Mitigation Plan for Impacts to Wetlands and Other Waters of the United States

P.1 Introduction

This Conceptual Mitigation Plan (Plan) is intended to provide a framework for identifying the potential mitigation areas and approaches for impacts of the MCP project to wetlands and other waters of the United States and to demonstrate that this mitigation is feasible. The Plan focuses on impacts that are regulated by the United States Army Corps of Engineers (USACE) under the Clean Water Act (CWA) in order to satisfy both Section 404 of the CWA and NEPA through the CWA Integration Process. In addition, this Plan also serves as the framework and feasibility analysis for the mitigation of impacts to riparian resources pursuant to CEQA, as well as for resources regulated by the CDFG pursuant to Fish and Game Code Section 1602.

The Plan is based on the impacts and potential mitigation for the composite footprint for all of the MCP Build Alternatives (see Figure 1), since the Preferred Alternative has not yet been chosen. MCP impacts based on each of the MCP Build Alternatives are summarized in the following Table A.

Mitigation will be achieved in accordance with the USACE and United States Environmental Protection Agency (EPA) Final Rule (33 Code of Federal Regulations [CFR] Parts 325 and 332 and 40 CFR Part 230, respectively) on Compensatory Mitigation for Losses of Aquatic Resources and on the most current version of the USACE South Pacific Regulatory Program Standard Operating Procedure for Determination of Mitigation Ratios. Mitigation approaches may include establishment (creation\(^1\)), restoration, preservation, or enhancement, as those terms are defined in the Final Rule.

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\(^1\) “Establishment” is defined in the Final Rule as the manipulation of physical, chemical, or biological characteristics to develop an aquatic resource that did not previously exist at an upland site, resulting in net gain of aquatic resource area and functions. The alternative term “creation” is used in this plan, as that term is more commonly used locally, and “establishment” is more often used in the context of establishing vegetation through planting.
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**Regional and Project Location**

**FIGURE 1**

**LEGEND**
- Biological Study Area
- Composite Project Footprint
- Alternative(s) Modified

**SOURCE:** Jacobs Engineering (04/2011); USGS 7.5' Quads; County of Riverside (06/2013)
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## Table A  Impacts to Wetlands and Other Jurisdictional Areas

<table>
<thead>
<tr>
<th>Mod Alt/DV</th>
<th>CDFG</th>
<th>USACE</th>
<th>Impacts (acres)¹</th>
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<tr>
<td></td>
<td>Temp</td>
<td>Perm</td>
<td>Temp</td>
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Source: Supplemental Natural Environment Study, December 2011.

¹ Excludes impacts to jurisdictional areas that are within the MCP/SR-79 interchange footprint, which are wholly attributable to the SR-79 Realignment Project (i.e., jurisdictional areas that will be impacted by the SR-79 project prior to construction of MCP and will be mitigated by the SR-79 project). See Section 2.2.2 for additional discussion and Appendix L of the 2008 NES for mapping.

CDFG = California Department of Fish and Game  
MCP = Mid County Parkway  
NES = Natural Environment Study  
Perm = Permanent  
SJN DV = San Jacinto North Design Variation  
SJRB DV = San Jacinto River Bridge Design Variation  
SR-79 = State Route 79  
Temp = Temporary  
USACE = United States Army Corps of Engineers
Existing tools for identifying mitigation opportunities, including the evaluation of expected gains in aquatic resource functions, include several studies that have been prepared by the USACE for the proposed San Jacinto River Watershed Special Area Management Plan and for the MCP project in particular. These documents include:

- Riparian Ecosystem Restoration Plan for the San Jacinto River Watershed: General Design Criteria and Site Selection (Smith 2006)
- Assessment of Riparian Ecosystem Integrity: San Jacinto River Watershed, Riverside County, California (Smith 2002)
- Potential Impacts of Alternative Corridor Alignments to Waters of the United States, Riparian Ecosystems, and Threatened and Endangered Species: Mid County Parkway Project, Riverside County, California (Smith 2011)
- Planning Level Delineation and Geospatial Characterization of Aquatic Resources for San Jacinto and Portions of the Santa Margarita Watersheds, Riverside County, California (Lichvar 2002)

### P.2 Mitigation Approach

Temporary impacts will be mitigated through in-place restoration of resources that are temporarily affected by project construction at a 1:1 ratio. Additional compensation for temporary impacts may be required by the permitting agencies if temporary impacts are of an extended duration (e.g., more than 2 years) in an effort to compensate for the interim loss of habitat value. Such additional compensatory mitigation, if necessary, will be provided in the same manner as mitigation for permanent impacts.
Compensatory mitigation for permanent impacts and extended temporary impacts will be provided using any or all of the mitigation approaches described in the Final Rule on compensatory mitigation. The goal of this mitigation will be no net loss of waters (i.e., creation of new waters or reestablishment [restoration\(^1\)] of formerly functioning aquatic resources at a ratio of 1:1). Additional compensatory mitigation will be used to provide an overall minimum ratio of 2:1, for a net increase of aquatic resource function. The permitting agencies may require a higher ratio, depending on timing of mitigation, increases in functional values, etc. In accordance with the Final Rule, the compensatory mitigation will be based on a watershed approach, which is an analytical process that emphasizes the sustainability or improvement of aquatic resources in the watersheds that are affected by the project. The order of priority for using various approaches to compensatory mitigation for permanent impacts is as follows:

- On-site\(^2\) creation or reestablishment
- Off-site creation or reestablishment
- On-site rehabilitation
- Off-site rehabilitation
- On-site enhancement
- Preservation

\(^1\) In the new Final Rule, “restoration” is defined as manipulation of physical, chemical or biological characteristics, with the goal of returning natural/historic functions to a former or degraded aquatic resource. This term is further divided into two categories: (1) reestablishment results in rebuilding a former aquatic resource for a net gain in aquatic resource area; and (2) rehabilitation results in a net gain of aquatic resource function, but not area. These two subdivisions have traditionally been described locally as restoration and enhancement. However, the terms as defined in the Final Rule are used here. The term “enhancement” is defined differently in the Final Rule to mean manipulation of physical, chemical, or biological characteristics of an existing aquatic resource to heighten, intensify, or improve specific aquatic resource function(s). This approach does not necessarily involve a degraded system; this approach may be used on the MCP project, and the term enhancement is used here as defined in the Final Rule.

\(^2\) “On-site” is defined as land that will be obtained by the RCTC, including the project right of way, and immediately adjacent land that may be part of contiguous parcels.
P.2.1 On-Site Creation or Reestablishment
On-site opportunities for replacing aquatic resource areas, through either creation or reestablishment, exist where drainage channels need to be realigned to accommodate flow through the project area, or where channels can be widened in conjunction with construction of some of the project drainage facilities.

P.2.2 Off-Site Creation or Reestablishment
Off-site mitigation opportunities will focus on the type of “riparian ecosystem restoration” opportunities identified by Smith (2006) for the San Jacinto River watershed, especially those opportunities that involve physical manipulation of drainage channels to expand the area of riparian resources. This restoration will not be limited to the San Jacinto River watershed, but may also occur in other watersheds that are affected by the MCP project.

P.2.3 On-Site Rehabilitation
On-site rehabilitation involves improving the functional capacity of existing drainages through such measures as correcting erosional degradation, removing nonnative vegetation, and possibly planting native vegetation to improve existing native habitat. In general, this does not involve the expansion of aquatic resource area and thus would be used primarily as an additional “ratio” multiple (i.e., beyond the basic 1:1 replacement ratio).

P.2.4 Off-Site Rehabilitation
Off-site rehabilitation involves the same type of activities as on-site rehabilitation but in off-site locations similar to those for the off-site creation or reestablishment. There should also be an effort to combine off-site restoration efforts (both reestablishment and rehabilitation) with upland habitat mitigation for the MCP project. As Smith (2006) notes, the condition of the surrounding upland watershed has an important effect on the function of riparian areas. Therefore, if mitigation for the upland habitats impacted by the MCP project includes conversion of rangeland or agricultural land to native vegetation, this can also have a positive effect on the functional capacity of associated riparian areas.

P.2.5 On-Site Enhancement
On-site enhancement is similar to on-site creation or establishment in that both approaches involve the manipulation of physical, chemical, or biological characteristics of an existing aquatic resource to heighten, intensify, or improve specific aquatic resource function. The primary difference is that the baseline for this
type of improvement can be a relatively natural, functioning riparian ecosystem rather than an upland area or degraded aquatic resource. The potential for such an approach may be limited, but one example would be changing the hydrologic regime of a drainage system by directing the output of a water quality basin into an ephemeral drainage course in a local drainage area that previously received much less runoff.

P.2.6 Preservation
Preservation of existing resources has usually not been considered by regulatory agencies as adequate compensation for loss of aquatic resources because of the net loss of aquatic resource function. However, the Final Rule on compensatory mitigation identifies some situations where this is appropriate, and it is expected that this will be consistent with the Special Area Management Plan approach of preserving important resources on a watershed scale. Specifically, preservation may be appropriate where there are important functions that contribute significantly to the sustainability of the watershed, and where these resources are under threat of destruction or adverse modification. Ideally, this preservation would be done in conjunction with other restoration, establishment, and/or enhancement activities.

P.3 Mitigation Opportunities
In general, there are many mitigation opportunities within the MCP study area. This is illustrated by some of the work by Smith (2006, 2011) relative to the restoration potential in the San Jacinto River watershed and the impacts of the MCP project, respectively. Smith (2011) calculated the reduction in functional capacity of the riparian ecosystems affected by the MCP project in terms of hydrologic integrity units, water quality integrity units, and habitat integrity units. This change in units reflects both the direct and indirect impacts of the MCP project as follows: hydrologic integrity would be reduced by 0.59 to 1.16 units; water quality integrity would be reduced by 0.52 to 1.01 units; and habitat integrity would be reduced by 0.48 to 1.0 unit. In contrast, Smith (2006) assessed the potential for increasing the functional capacity in the San Jacinto River watershed through a series of potential restoration scenarios. The results of this analysis are that habitat integrity indices could be raised by at least 0.3 point throughout most of the watershed. Given that there is a total of 664 acres (ac) of riparian ecosystem polygons mapped by Smith (2002, 2011) within 40 drainage areas within a 2-mile (mi) buffer surrounding the MCP project, there is a potential for an increase of approximately 199 functional capacity units for habitat integrity, which far exceeds the impact of the project.
The following two subsections generally describe some of the locations where mitigation for the MCP project impacts to riparian resources could be accomplished. This is a very preliminary assessment, derived from facts obtained during the preparation of the Natural Environment Study and Supplemental Natural Environment Study, the Jurisdictional Delineation, the draft Section 404(b)(1) Alternatives Analysis, and the Riparian Ecosystem Restoration Plan for the San Jacinto River Watershed: General Design Criteria and Site Selection (Smith 2006). Other mitigation opportunities likely exist and should not be excluded from consideration as the final mitigation is developed.

P.3.1 Conservation in Perpetuity
Areas used for habitat restoration, creation, reestablishment, rehabilitation, or enhancement as mitigation for impacts to biological resources and jurisdictional waters are typically required to be preserved in perpetuity through a conservation easement, deed restriction, or some other legal means to ensure the mitigation areas are preserved from development or other disturbances in perpetuity.

P.3.2 On Site
Temporary impacts will be restored on site to their original condition at a 1:1 replacement ratio (or off site through an approved mitigation bank, as discussed in the following section). The project could result in up to 2.58–5.48 ac of temporary impacts to CDFG jurisdictional areas (USACE jurisdictional areas are less than this amount and are generally included within the areas of CDFG impacts). Temporary impacts were calculated based on a conservative estimation of impacts within the entire right of way, and actual impacts would likely be reduced within the right of way, thus leaving additional area for potential on-site mitigation to occur.

Within the project right of way for the MCP Build Alternatives, there are six riparian ecosystems mapped by Smith (2002). Riparian ecosystems in Smith’s 2002 report are defined from a functional perspective as the areas along perennial, intermittent, and ephemeral streams where the interaction with surface and groundwater results in distinctive geomorphic features and vegetation communities. These riparian ecosystems have habitat integrity index scores ranging from 0.09 to 0.56 (with a mean index score of 0.42) that are ranked as low (<0.4), moderate (0.4–0.7), and high (>0.7).
There is a total of 5.0 ac of on-site riparian ecosystems identified by Smith (2002) located within the proposed MCP project right of way. For the purposes of this Plan, it is estimated that approximately 20 percent of the riparian ecosystems identified by Smith within the project right of way (1 ac) are located outside the cut/fill of the MCP project and may provide additional area for potential mitigation. Of this amount, approximately half (0.5 ac) are ranked as low habitat integrity and have the greatest potential to improve the integrity of the riparian ecosystem. The other half (approximately 0.5 ac) are ranked as moderate habitat integrity. No riparian ecosystems within the right of way are ranked as high habitat integrity.

On-site restoration within these riparian ecosystems may include localized reestablishment of native riparian vegetation, control of exotic species, and varying degrees of reconfiguration of existing alluvium surfaces (e.g., sculpting of terraces depending on engineering constraints). The greatest amount of improvement would occur in the lower-scoring riparian ecosystems, especially those with low-scoring local drainage boundaries.

According to Smith (2006), conducting restoration in upland areas adjacent to the riparian ecosystems increases the riparian reach integrity, especially when active or former rangeland land use and agriculture are restored to native vegetation. Thus, restoring upland areas adjacent to the riparian ecosystems may also contribute to additional on- and off-site mitigation. Restoring upland areas would be out of kind mitigation and would be utilized at a higher mitigation ratio.

If on-site mitigation is feasible for the riparian ecosystems ranked by Smith (2002) as low and moderate for habitat quality, approximately 5 percent of the mitigation for MCP project permanent impacts could potentially occur on site.

Additional analysis of potential on-site mitigation areas based on the MCP Jurisdictional Delineation may identify additional on-site mitigation potential beyond that identified as part of the large-scale mapping efforts for the San Jacinto River watershed. Thus, additional on-site mitigation land is likely available (refer to Figure 2 for locations of CDFG jurisdictional areas within the right of way) for enhancement and, potentially, creation if sufficient hydrology is made available. For the purposes of this Plan, it is estimated that approximately 20 percent of the delineated jurisdictional areas within the MCP project right of way (between 2.3 and 3.1 ac (depending on which alternative is selected) are located outside the cut/fill boundary and may provide additional area for mitigation.
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FIGURE 2

POTENTIAL ON-SITE RIPARIAN ECOSYSTEM MITIGATION AREAS

LEGEND

Composite Project Footprint
CDFG Jurisdictional Streambed and Associated Riparian Habitat within Right-of-Way
Alternative(s) Modified

Riparian Ecosystem Habitat Integrity Index Ranking

Habitat Integrity Score 0.4 - 0.7 (Moderate Potential for Mitigation)
Habitat Integrity Score <0.4 (High Potential for Mitigation)

SOURCE: Jacobs Engineering (09/2011); Audits (2008 & 2010); County of Riverside (06/2003); Smith (2002).
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The identified potential restoration areas must be acquired as part of the right of way, or, if the area is on an easement owned by another land owner, the restoration efforts must be approved by the property owner. On-site mitigation is preferred; however, if these riparian ecosystems cannot be utilized for mitigation due to issues involving land ownership/easement/flood control restrictions, engineering constraints, and/or agency preferences, off-site mitigation may be necessary.

P.3.3 Off Site

Off-site mitigation will likely be required if there is insufficient opportunity for on-site mitigation or if regulatory agencies prefer off-site mitigation in order to restore a consolidated patch (e.g., sub-basin) of native habitat for certain target species. Off-site mitigation will occur within the San Jacinto River watershed at a minimum 1:1 ratio for the replacement of area and function (i.e., establishment or reestablishment).

There are numerous locations off site that would benefit the quality of the San Jacinto River watershed. Within a 2 mi radius of the MCP project, there are 191 ac of mapped riparian ecosystems that have low habitat integrity indices (<0.4), 455 ac that have moderate habitat integrity indices (0.4–0.7), and 18 ac that have high habitat integrity indices (>0.7) (refer to Figure 3). As previously stated, there is a greater potential to improve the quality of the riparian ecosystem when the integrity index ranking of an ecosystem is low. There is less potential for mitigation in a riparian ecosystem where a high habitat integrity index already exists.

According to Smith (2006), depending on the objectives for mitigation, there are numerous strategies for determining which mitigation option is the best. One objective is to restore large patches (e.g., sub-basin) of native habitat for certain target species. Another objective could be to restore riparian corridors for the purpose of connecting existing large patches of habitat. Smith (2006) determined that conducting restoration in the riparian ecosystem proper as well as in adjacent upland areas (including restoring native vegetation in areas of active or former range land use and agriculture) would increase riparian reach integrity. Thus, low-quality riparian ecosystems that are within the proposed parcels to be purchased as mitigation for the project to achieve consistency with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency and as mitigation for coastal sage scrub would be a high priority for off-site mitigation.
LEGEND

- Composite Project Footprint
- Potential Off-Site Mitigation Study Boundary
- Local Drainage Boundary
- Alternative(s) Modified

Riparian Ecosystem Habitat Integrity Index Ranking
- Habitat Integrity Score >0.7 (Minimal Potential for Mitigation)
- Habitat Integrity Score 0.4 - 0.7 (Moderate Potential for Mitigation)
- Habitat Integrity Score <0.4 (High Potential for Mitigation)

POTENTIAL OFF-SITE RIPARIAN ECOSYSTEM MITIGATION AREAS

SOURCE: Jacobs Engineering (09/2011); Aerials (2010 & 2008); County of Riverside (06/2003); Smith (2002).
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Additionally, off-site mitigation may include the purchase of mitigation bank credits for removal of giant reed (*Arundo donax*) from a location approved by the USACE and CDFG under guidelines described by the resource and regulatory agencies through the permitting process, or through participation in another approved habitat mitigation bank. These off-site programs may occur for temporal loss of habitat value and for mitigation for permanent impacts beyond the basic 1:1 replacement ratio in the watershed.

**P.4 Development of Detailed Mitigation Plan**

The detailed mitigation plan for the MCP project will be developed during preparation of applications for regulatory permits from USACE and CDFG as the project design becomes more detailed and as the project moves closer to implementation. Because the detailed mitigation plan will likely include both on- and off-site mitigation, part of its development will depend on engineering information (e.g., hydrology studies) and right of way definition for the MCP project. In particular, hydrology engineering will consider the needs and opportunities for creation or expansion of drainage features that can provide riparian ecosystem functions. Off-site mitigation will depend on the specific identification of off-site opportunities and the acquisition of mitigation rights on off-site property. The off-site mitigation opportunities will also be guided by the continuing development of the San Jacinto River Watershed Special Area Management Plan, which will further define desired preservation and restoration areas.

Regardless of the emergence of specific mitigation opportunities, the detailed mitigation plan must be developed prior to issuance of the Section 404 Individual Permit by the USACE and the Streambed Alteration Agreement by CDFG. This development will take place in consultation with the representatives from CDFG, USACE, the Regional Water Quality Control Board (RWQCB), and the United States Fish and Wildlife Service (USFWS). This consultation will focus on specific mitigation ratios and performance standards that will define the mitigation necessary to comply with the Western Riverside County MSHCP, as well as state and federal agency policies regarding the conservation of wetlands and other waters.

**P.5 Elements of Detailed Mitigation Plan**

The mitigation that is ultimately included in the detailed mitigation plan for the MCP project could consist of some combination of permittee-responsible mitigation, a mitigation bank, or in-lieu fees. There will be a substantial component of permittee-
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responsible mitigation associated with temporary impacts and other compensatory mitigation within the MCP project right of way. Therefore, there will be a project-specific detailed mitigation plan, which is discussed in more detail below. It is also possible that some of the off-site mitigation may take the form of participation in a mitigation bank or payment of in-lieu fees to a resource conservation district. In cases of a mitigation bank or in-lieu fees, the responsibility for planning and carrying out the mitigation falls to the sponsors of the mitigation bank or in-lieu fee program, and the detailed mitigation plan for MCP will merely provide the relevant details regarding project participation (i.e., the amount and type of mitigation, the entity responsible for implementation, and the mechanism for ensuring MCP participation).

The permittee responsible for mitigation (RCTC) will prepare a detailed mitigation plan, which will include the elements below. (Mitigation banks and in-lieu fee programs must prepare their own mitigation plans, which also include these elements.)

- **Objectives:** This section of the plan will describe the amount and type of mitigation that will be provided, including the method (i.e., restoration, establishment, enhancement, and/or preservation). This section must also describe how the resource functions to be provided will address the needs of the watershed.
- **Site Selection:** Site selection includes a discussion of the factors that were considered during the site selection process, including the needs of the watershed, site availability, alternative approaches and locations considered, and the feasibility of establishing ecologically self-sustaining functions, with an emphasis on habitat and hydrology functions.
- **Site Protection Instrument:** This section includes a description of measures by which the mitigation site will be preserved for mitigation purposes, including ownership and perpetual protection of the mitigation areas.
- **Baseline Information:** Baseline information that is important for the mitigation plan includes a description of the existing conditions of the mitigation area, including information on soils, hydrology, plant communities, and other site characteristics that are important for determining the value of the proposed mitigation. This will include a wetland delineation of the mitigation site for comparison with the wetland impacts for the project.
- **Determination of Credits:** This section of the plan will provide information on both the permittee-responsible mitigation and any mitigation that is secured through mitigation banks or in-lieu fee programs. For the permittee-responsible mitigation, this will include an explanation and rationale for how the proposed
compensatory mitigation offsets the project impacts. To the extent that mitigation banks or in-lieu fee programs are used, this section will include the number and resource type of the mitigation credits to be used and how these were determined.

- **Mitigation Work Plan:** The mitigation work plan will include the details for the physical implementation of the mitigation. This section will describe the basic responsibilities of the biological monitor/restoration ecologist and restoration contractor and provide the implementation specifications. These details include the specific geographic boundaries of the areas to be manipulated and/or planted; the construction methods, sequence, and timing; the grading plan, if applicable; the sources of water and methods for temporary irrigation, if necessary; control of invasive plant species; erosion control; the species, density, sources, and planting methods for container plants, cuttings, and seed; and the maintenance requirements for initial establishment of vegetation.

- **Maintenance Plan:** This section of the mitigation plan will describe the expected maintenance activities and responsibilities, including the specifications for maintaining the mitigation sites until the performance standards are achieved. Typical maintenance requirements are weed control, including specifications for the use of herbicides, irrigation, herbivory control, erosion control, and supplemental planting. Maintenance schedules will depend on the site-specific conditions relative to weeds, temporary irrigation, etc. Therefore, maintenance requirements will be set forth in terms of performance specifications rather than time schedules. These performance specifications will be closely tied to the overall mitigation site performance standards discussed below.

- **Performance Standards:** In accordance with the Final Rule, performance standards must be based on attributes that are objective and verifiable. Depending on the specific nature and purpose of each of the mitigation sites, these standards may consist of vegetative/habitat-based measurements or measures of overall functional capacity. The vegetative/habitat-based measurements are most appropriate where the goal is replacement of habitat (e.g., for riparian birds). These standards will likely include criteria such as percent cover of various native strata, low weed cover, tree height, etc. For purposes of more general aquatic resource function, especially where the goal is to increase the functional capacity of existing resources, indices of functional capacity are appropriate for defining performance standards. These may include functional assessment tools similar to those used by Smith (2002).
• **Long-Term Management Plan**: The long-term management plan will describe how the mitigation areas will be managed after the performance standards are achieved. The goal of this aspect of the mitigation plan is the long-term sustainability of the resources. It is likely that the mitigation areas will be in public ownership. Nevertheless, components of the long-term management plan should include ownership, financing, and management responsibility.

• **Adaptive Management Plan**: Adaptive management is a strategy to deal with unexpected changes in site conditions, responsibilities, or performance of the site. Essentially, this component of the plan will provide a process for resolution of these unexpected occurrences to ensure that adequate mitigation will occur.

• **Financial Assurances**: The purpose of this portion of the mitigation plan is to ensure a high level of confidence that the compensatory mitigation project will be completed successfully. There is usually no requirement for a bond or other financial assurance instruments for public projects. Nevertheless, the plan should demonstrate that the costs of the mitigation have been reasonably estimated and that adequate funding for the mitigation portion of the project exists.