Appendix I

Mitigation Conceptual Planning Assumptions

Engineering Our Community

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Important Notice to All Readers:

This document contains a mitigation plan for East Locust Creek Reservoir. All the information contained in this document is proprietary. The information is not to be shared without consent of the North Central Missouri Regional Water Commission or Allstate Consultants LLC.

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Summary of Compensatory Mitigation Planning for the East Locust Creek Reservoir Sullivan County Missouri

(Dated: February 6, 2020)

PRELIMINARY

Owner: North Central Missouri Regional Water Commission
Sponsor: USDA-NRCS

DRAFT

PREPARED BY:

ALLSTATE CONSULTANTS

NORTH CENTRAL MISSOURI Regional Water Commission

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CONFIDENTIAL

Introduction and Need:

The mitigation obligations for the East Locust Creek Reservoir (ELCR) are steep and will require a novel approach to ensure that mitigation obligations are met without laying a heavy financial burden on one of the poorest regions of Missouri. The project will need to mitigate for the loss of approximately 49 miles of streams, mostly perennial and intermittent. The project will result in the loss of approximately 350 acres of wetlands and 900 acres of woodlands inhabited by Indiana bats (*Myotis sodalis*). Traditional project-oriented mitigation assumes a "like for like" or "in-kind" offset that conserves biodiversity of a similar kind to that affected by the development, while overlooking opportunities for trading up (Kiesecker, *et. al.*, 2010). The ELCR will be impacting habitats that are ubiquitous (farmed wetlands, highly altered stream channels, and unmanaged woodlands) while offering the chance to mitigate impacts in the Lower Grand Conservation Opportunity Area. This area contains unique habitats supporting a variety of species of conservation concern at the state and continental level.

Conservation Opportunity Areas:

The East Locust Creek Reservoir will lie in the upper reaches of the Lower Grand HUC 8 (8-digit hydrologic unit code) watershed. The lower portions of the watershed encompass an area known as the Lower Grand Conservation Opportunity Area (COA) that has been highlighted in Missouri's State Wildlife Action Plan (MSWAP). The Lower Grand COA is part of a network of opportunity areas representing approximately 13% of Missouri that were selected using professional knowledge and GIS prioritization (MDC 2015). COA's were identified in collaboration with team and partner input and "represents the greatest opportunities for sustainable conservation of fish, forest, and wildlife resources for all habitat systems in Missouri." (MDC 2015). This area was identified as early as 2005 by numerous conservation partners. ELCR mitigation planning efforts have drawn deeply from the MSWAP. The MSWAP is part of a nationwide planning process.

> "The plans promote strategic planning and prioritization in the management of fish and wildlife diversity, so that limited resources are leveraged to the maximum possible benefit for wildlife diversity conservation. The program also supports working across agency and state boundaries toward common goals for resource management. Key to the success of the program is that it also allows the flexibility for states to build their plans in a manner that best integrates with and leverages their existing programs and partnerships." (MDC 2015)

Primary Resources Used:

Other planning documents used include Great Rivers Associates (2011), HDR (2013), Heitmeyer, *et. al.*, (2011), Pitchford and Kerns (1994), Todd, *et. al.*, (1994), U.S. Fish and Wildlife Service (2011), and UMRGLR JV (2007). A more exhaustive list of references is provided at the conclusion of this report.

Inter-Governmental and Private Cooperation:

To date, limited financial resources have been a primary limiting factor to accomplish conservation planning objectives (MDC 2015). The ELCR project not only brings the opportunity and finances to provide for human needs, but also to accomplish vital planning objectives in a priority landscape. Current efforts include a multi-agency ecosystem restoration feasibility study led by the Kansas City District of the U.S. Army Corps of Engineers Planning

Section (USACE 2019). This is a unique opportunity to leverage federal, state, and private monies to accomplish multiple resource objectives in an economically disadvantaged part of Missouri, where communities have experienced many of the burdens of environmental regulation, but few of the benefits. But for this project, several planning objectives may not be accomplished.

ELCR Contributions to Conservation Planning Efforts:

The ELCR team recognizes that the project will have adverse impacts for which compensatory mitigation will need to be addressed. However, conservation agencies need to recognize that the reservoir, itself, will accomplish several objectives highlighted in plans completed by agencies, such as the Corps of Engineers, U.S. Fish and Wildlife Service, Missouri Department of Conservation, and Missouri Department of Natural Resources. The recently completed Grand River Feasibility Study (USACE 2019) recognizes the need for more flood control and expansion of the PL-566 program to reduce natural resource damages to sensitive fish and wildlife habitat caused by increasing precipitation due to climate change. The Lower Grand River HGM report published by Heitmeyer et al (2011) also calls for reduced sediment and flooding in the upper portions of the Lower Grand HUC8 watershed to protect sensitive habitats found in the lower portions of the watershed. The MSWAP (MDC 2015) expresses concerns regarding the increasing trends toward more "problematic winter flooding". From a habitat perspective, the ELCR will provide extensive open water habitat which has been identified in the Upper Mississippi River and Great Lakes Region Joint Venture Implementation Plan as the "cover type in greatest need for restoration and enhancement to achieve carrying capacity goals" (UMRGLRJV 2007). For more details regarding each plan, see Appendix A. Oversight agencies should recognize that this project is not only providing critical drinking water infrastructure, but addressing conservation planning objectives in the 13% of Missouri that has been targeted for intense conservation activities (MDC 2015).

The Path forward:

Due to the scale and uncertainties that come with all mitigation projects, the ELCR project team has committed to a multi-faceted approach that includes several initiatives to accomplish species, wetland, and stream mitigation requirements. Once the mitigation obligation is met for a category, the team will not pursue further initiatives, but rather, will focus on the remaining mitigation categories.

Bat Mitigation

Recent conversations with USFWS personnel have been encouraging. It appears the USFWS requires a mitigation ratio of 1:1. The Biological Assessment is nearly complete.

Bat Mitigation Initiative #1 – NCMRWC Property

This approach focuses on timber management and limited tree planting with associated site protection instruments and financial assurances on available NCMRWC property. Conversations are underway with the Missouri Department of Conservation to be the long-term steward of this effort as part of their Community Assistance Program agreement.

Bat Mitigation Initiative #2 – Smithfield Foods Property

Should a higher mitigation ratio be required, the project team is scheduled to meet with Smithfield Foods management in February 2020 regarding mitigation on some of their production farms. There are 2,564 acres of suitable bat habitat on their Green Hills and Valley View Farms. Conservation easements or other forms of site protection instruments will be pursued to protect and manage these acres for Indiana bats.

Wetland Mitigation

Wetland mitigation options include replacement of a 181-acre Wetland Reserve Program (WRP) easement, as well as traditional wetland mitigation obligations.

Wetland Mitigation Initiative #1 – Central States Land and Auction Company

The ELCR Team has completed the WRP easement evaluation and will be taking a recommendation to the February 2020 meeting of the NCMRWC. Replacing a federal easement is an arduous process that can significantly delay the project. The Central States Land and Auction Company has submitted a proposal that should meet the requirements for the easement, and negotiations on this proposal are underway.

Completion of this project will help fulfill objectives in the Lower Grand HGM report (Heitmeyer et al 2011), Our Missouri Waters Healthy Watershed Plan (MDNR 2016), Missouri State Wildlife Action Plan (MDC 2015), and the Upper Mississippi River and Great Lakes Region Joint Venture Implementation Plan (UMRGLRJV 2007). For more detailed information regarding the objectives in each plan see Appendix A.

Wetland Mitigation Initiative #2 – NCMRWC Property and ELCR Watershed

Steve Hefner with NRCS has identified several potential wetland sites on NCMRWC property, as well as throughout the entire watershed. These sites will not only provide mitigation opportunities, but source water protection as well. They should be a high priority for mitigation.

Wetland Mitigation Initiative #3 – NCMRWC and Other Local Properties

Numerous mitigation opportunities are located along the East Fork of Locust Creek from the ELCR dam to the Milan WWTP. Potential wetland sites, including those on the NCMRWC-owned "Stutler Tract" have been identified, and initial conversations have begun with other landowners. One tract owned by the Bright family has the potential for adding tertiary treatment to effluent from the Milan WWTP.

Completion of these projects will help fulfill objectives in the Grand River Feasibility Study (USACE 2019), Lower Grand HGM report (Heitmeyer et al 2011), Our Missouri Waters Healthy Watershed Plan (MDNR 2016), Missouri State Wildlife Action Plan (MDC 2015), and the Upper Mississippi River and Great Lakes Region Joint Venture Implementation Plan (UMRGLRJV 2007). For more detailed information regarding the objectives in each plan see Appendix A.

Wetland Mitigation Initiative #4 – Swan Lake National Wildlife Refuge

The NCMRWC may want to consider claiming the remainder of wetland mitigation credits be granted from projects at the Swan Lake National Wildlife Refuge described below. Completion of this project will help fulfill one-third (1/3) of the public land objectives in the Grand River

Feasibility Study (USACE 2019), while also completing objectives highlighted in the Lower Grand HGM report (Heitmeyer et al 2011), Missouri State Wildlife Action Plan (MDC 2015), and the Upper Mississippi River and Great Lakes Region Joint Venture Implementation Plan (UMRGLRJV 2007). For more detailed information regarding the objectives in each plan see Appendix A. Completion of this project also brings added value by addressing problematic flooding in the vicinity of the Garden of Eden Levee District.

Stream Mitigation

By all accounts, mitigating for adverse impacts to 49 miles of stream will be the most challenging mitigation objective. Initial calculations based upon the Missouri Stream Mitigation Method (MSMM) indicate that this requires 1.2 million credits worth of mitigation projects. Recent policy changes by the EPA may allow for a significant reduction in the stream mitigation obligations for the project. This plan assumes the full mitigation obligation under the 2015 Waters of the US policy. However, regulators need to be made aware of this concession throughout the negotiation process. The Lower Grand River COA requires both adding resilience to stream systems while addressing sediment inputs from upper portions of the watershed. This mitigation approach will focus on improving riparian habitat, restoring linear and lateral habitat connectivity, and reducing sedimentation in the lower portions of the Lower Grand HUC8 watershed. All mitigation efforts will tie into mitigation efforts identified in conservation planning documents.

Stream Mitigation Initiative #1 – Riparian Plantings

Streamside (riparian) plantings of trees or other native vegetation is the most common form of stream mitigation. Targeted reaches for riparian restoration and enhancement include East Locust Creek from the dam to the Milan WWTP, stream channels in the ELCR watershed, and Smithfield Foods production farms. The proposed permittee responsible riparian projects would convert farmland or grassland along streams to forested riparian buffers. The initial mix of swamp white oak (*Quercus bicolor*), pin oak, bur oak, shellbark hickory, silver maple (*Acer saccharinum*), American sycamore (*Platanusoccidentalis*), and eastern black walnut (*Juglans nigra*) would be planted on a 12’x12’ spacing (stocking density of 302 trees per acre) (Philip Sneed, Blackwell Creek Forestry, personal communication). All operations for riparian buffer projects would be conducted in the sequence presented in Table 1 below.

TABLE 1 – Sequence of events for riparian buffer projects:

Practice	Year 1	Year 2	Year 3	Year 4	Year 5
Planting Plan Development	X				
Mobilization	X	X	X	X	X
Site Preparation					
Mow	X				
Herbicide Application	X				
Herbicide (Buccaneer Plus)	X				
Tree Planting					
Bare root seedlings	X				
Mechanical Planting	X				
Monitoring and Maintenance					
Weed Control w/ Fusilade	X				
Herbicide (Fusilade)	X				
Weed Control w/ Oust		X	X	X	X
Herbicide (Oust)		X	X	X	X
Mowing	X	X	X	X	X
Bare root seedlings		X	X	X	X
Hand Planting		X	X	X	X
Easement					
Survey and Boundary Posting	X				
Legal Fees	X				
Monitoring and Report Writing	X	X	X	X	X

The mitigation target for this effort is 200,000 to 500,000 stream credits. Completion of these projects will help fulfill objectives in the Grand River Feasibility Study (USACE 2019), Lower Grand HGM report (Heitmeyer et al 2011), Our Missouri Waters Healthy Watershed Plan (MDNR 2016), Missouri State Wildlife Action Plan (MDC 2015), and the Upper Mississippi River and Great Lakes Region Joint Venture Implementation Plan (UMRGLRJV 2007). For more detailed information regarding the objectives in each plan see Appendix A.

Stream Mitigation Initiative #2 – Aquatic Organism Passage (AOP) Barriers

Nationwide efforts have been implemented to remove AOP barriers on United States Forest Service (USFS) and United States Fish and Wildlife Service (USFWS) properties for twenty years or more. These barriers are typically outdated low water crossings that no longer provide safe passage across a stream. Additionally, the Missouri Department of Conservation (MDC) has participated with other funding partners to assist counties with replacing poorly functioning low water crossings. Likewise, MDC has begun replacing AOP barriers on state land in the past five to seven years, regardless of the presence of rare, threatened, and endangered (RTE) species.

These solutions provide added value to the ELCR mitigation efforts by bringing badly needed infrastructure improvements to rural counties. AOP barrier replacements address all five functional categories (hydrology, hydraulics, geomorphology, physiochemical, and biology) within the Stream Functions Pyramid Framework (SFPF). Federal and state programs provide precedents for barrier removal as a method for generating compensatory mitigation credits. Likewise, the MSMM lists low water crossing removal replaced with a span bridge as "excellent net benefit" for stream channel restoration and aquatic organism migration. Site protection instruments will include an inter-governmental agreement between the NCMRWC and the County Commission where the project is located. This process is consistent with Corps guidance documents (USACE 2016b). Financial assurance documents will include performance bonds or other approved financial assurance instruments in compliance with Corps guidance documents (USACE 2016a).

The mitigation target for this effort is 400,000 to 600,000 stream credits. Completion of these projects will help fulfill objectives in the Grand River Feasibility Study (USACE 2019), Lower Grand HGM report (Heitmeyer et al 2011), Our Missouri Waters Healthy Watershed Plan (MDNR 2016), and Missouri State Wildlife Action Plan (MDC 2015). For more detailed information regarding the objectives in each plan see Appendix A.

Stream Mitigation Initiative #3 – Swan Lake National Wildlife Refuge

Various planning efforts, including the Corps Feasibility Study (USACE 2019), have identified approximately 6,000 acres of floodplain habitat projects that need to be completed at the Swan Lake National Wildlife Refuge. Public lands comprise the "core" of prized habitat and lands in the Lower Grand COA (Heitmeyer 2011). This occasion is a formidable opportunity to break out of the constraints of "like-for-like" mitigation and "trade-up" from a habitat perspective. This project would address floodplain expansion issues identified with the Garden of Eden levee, replace lost wet prairie habitat, and fulfill one-third (1/3) of the public land objectives identified in the USACE feasibility study. Additionally, no farmland would be taken out of production. The mitigation efforts could address planning objectives that would not likely be accomplished but for the ELCR project. Concerns have been raised about the legality of conservation easements on Federal lands. Corps guidance documents provide a suite of options other than easements for mitigation projects on federal lands (USACE 2016b). Under a management agreement, USFWS could manage the properties as part of their routine refuge management. The mitigation target for this effort is 400,000 to 1,500,000 stream credits and perhaps the remainder of the wetland credits. Other opportunities exist on public lands within the COA and may eventually become part of the mitigation plan.

Completion of this project will help fulfill one-third (1/3) of the public land objectives in the Grand River Feasibility Study (USACE 2019), while also completing objectives highlighted in the Lower Grand HGM report (Heitmeyer et al 2011), Missouri State Wildlife Action Plan (MDC 2015), and the Upper Mississippi River and Great Lakes Region Joint Venture Implementation Plan (UMRGLRJV 2007). For more detailed information regarding the objectives in each plan see Appendix A. Completion of this project also brings added value by addressing problematic flooding in the vicinity of the Garden of Eden Levee District.

Stream Mitigation Initiative #4 – Private Mitigation Providers

The ELCR Project Team recognizes the mitigation expertise that resides in the private sector. Several mitigation providers have reached out to the team to express interest in aiding with this

endeavor. The team is working with NRCS procurement specialists to develop a Request for Information (RFI) to initiate dialogue with private mitigation providers without disqualifying them from bidding on mitigation services. The RFI will be distributed in February with a three-month deadline for project development. Interviews with the ELCR Project Team will be scheduled in early May. Private mitigation providers will be encouraged to consider conservation priorities for the Lower Grand COA. These priorities will be supported by the ranking process. The mitigation target for this effort is 200,000 stream credits.

Final Considerations

Long-term Monitoring, Maintenance and Financial Assurances:

The funding cost share for the actual long-term maintenance implementation needs to be determined. The long-term maintenance consists of the long-term (currently estimated at five years) worth of monitoring, maintenance, and replacement of the mitigation projects. The PL-566 program does not allow NRCS to engage in long-term obligations for mitigation. In order to garner the value for all funding partners of required mitigation, the NCMRWC plans to convert the estimated future mitigation costs to a single present value element similar to a mitigation credit to eliminate the long-term funding obligation. By doing so, this would allow NRCS to participate at a 50% cost share (for that portion of the mitigation project) and eliminate long-term funding obligations.

The NCMRWC will pursue options to self-provide or outsource through a private or governmental partner, the long-term mitigation obligations. It is possible that this is a service the MDNR or other state agency could provide and further possible that they would do so, or at least partially, as an in-kind contribution to the project.

Mitigation Timing:

Due to the desire for an expedient mitigation path that achieves 1:1 mitigation credit and respects the mitigation hierarchy, the East Locust Creek Reservoir Project Team recommends an adaptive management / timed mitigation approach that takes advantage of project lag and reservoir filling time to accomplish mitigation over a series of years, yet prior to impacts to waters of the United States. This adaptive management / timed approach allows all mitigation to take place prior to impacts to jurisdictional waters, without further delay and increased costs to the public. It would allow mitigation to take place over a period of approximately seven years.

ELCR PERMITTEE RESPONSIBLE MITIGATION PLAN

Bat Mitigation 900 Acres

- NCMRWC Land Acquisitions for ELCR Footprint & Dam (4,500 acres)
- NCMRWC Acquisition - Mitigation Tract #1 (121 acres)
- NCMRWC Acquisition - Mitigation Tract #2 (61 acres)
- Targeted Tract #1 HUC8 (6,452 acres)
- Targeted Tract #2 HUC8 – Sullivan (305 acres)
- Targeted Tract #3 HUC8 – Sullivan (508 acres)
- Targeted Tract #4 HUC8 – Chariton (836 acres)

WRP Easement 181 Acres

- Targeted Tract #8 HUC8 – Linn (203 acres)
- Targeted Tract #2 HUC8 – Sullivan (305 acres)
- Private Providers Engagements Unique Places?

Wetland Mitigation 160 Acres

- NCMRWC Land Acquisitions for ELCR North Wetland Complex (TBD acres)
- NCMRWC Acquisition - Mitigation Tract #1 (121 acres) (30 acres Wetland)
- Targeted Tract #7 HUC8 – Sullivan (204 acres)
- Targeted Tract #2 HUC8 – Sullivan (305 acres)

Stream Mitigation 1.2 Million

- Private Providers Engagements 200,000 Credits
- Swan Lake NWR – Mass Project Converted to Stream (< 6,000 ac.) 400k to 1.5M Credits
- Aquatic Organism Passage (AOP) Barrier Removals – HUC8 400k to 600k Credits
- Riparian Plantings with Perpetual Easement 200k to 500k Credits
- Targeted Tract #1 HUC8 (6,452 acres)
- Targeted Tract #3 HUC8 – Sullivan (508 acres)
- Targeted Tract #5 HUC8 – Linn (969 acres)
- Targeted Tract #6 HUC8 – Sullivan (372 acres)

TABLE 2 – Timeline for Submission of ELCR Mitigation Plan:

Mitigation Plan Details	Feb	Mar	Apr	May	Jun
Riparian Plantings					
Identify sites	**X**				
Negotiate with landowners		**X**	**X**		
Credit calculations and planting plans			**X**		
AOP Evaluation					
Evaluation Report			**X**		
Negotiate with Counties			**X**		
Swan Lake NWR					
Complete Conceptual Plan	**X**				
Negotiations with USFWS	**X**	**X**	**X**	**X**	
Private Mitigation Providers					
RFI/RFP	**X**				
Interviews				**X**	
Selection				**X**	
Write Plan		**X**	**X**	**X**	
Submit to Corps					**X**

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Appendices

Appendix A

Mitigation and Conservation Planning Objectives

Grand River Feasibility Study: Draft Indegrated Feasibility Resport and Environmental Assessment (USACE 2019)

Section	Page Number	Comment
Executive Summary	ES-1	Flood frequency and intensity have increased in recent years
Executive Summary	ES-1	Paragraph decribing the importance of Lower Grand COA
Executive Summary	ES-3	Goal #2 Realize additional benefits to improving recreation and reducing flooding in the region
Executive Summary	ES-6	Perferred alternative for yellow creek is to work on Swan Lake National Wildlife Refuge
Executive Summary	ES-11	Yellow Creek Study area - The Corps does not consider this a complete USACE plan
Executive Summary	ES-13	Bank Stabilizations measures above Pershing State Park implemented in these preferred watersheds. Watkins Creek - Locust Creek, **ELC**, West LC, LC
1.4	5	Paragraph describing the importance of the Lower Grand COA.
1.5	10	The importance of COA.
2.1.1	16	The importance of wet prairie habitat in the region
2.2	22	The portion of Locust Creek at Pershing State Park and Fountain Grove is listed as outstanding importance for a variety of reasons.
2.4	35	Yellow Creek conservation area was purchased in 1988 to protect important habitats.
2.7	39	Several streams in the Lower Grand river watershed are impaired or have TMDL's
2.8.5	41	Mitigation efforts in the Lower Grand COA will be important to many species of conservation concern
2.15	50-51	More evidence that ELCR customer base are economically disadvantaged.
2.17.1	52-54	Three notible floods in 84 years from 1909-1993. Over five notible floods in 26 years from 1993-2019
2.17.2	54	Summary of large levee systems along the Lower Grand
3.5.2	66	Lower portions of the wet prairie at Pershing State Park are not anticipated to experience high levels of deposition.
3.7.1	70	Swan lake national wildlife refuge will continue to manage the property to the best of their abilities with budgetary constraints
3.7.1	70	Wet prairie and emergent wetlands can be improved at Swan Lake NWR.
3.7.1	71	Mangement plan will improve bottomland hardwood forest.
4.3.2	73	Goal #2 includes critical infrastructure, agriculutre, water quality, recreation and flood risk reduction
4.3.3	74	Desire to increase quality and quantity of wet prairie at Pershing State Park

4.3.3	74	Goals for Yellow Creek include improve wet prairie and emergent wetlands and bottomland forest.
4.6.1	77	Bank stabilization techniques that are recommended
4.6.10	79	The study recommends reservoirs and small dams as a sediment reduction technique
4.7	79	Documentation that the Yellow Creek Avullsion may occur
4.7.2	86	Yellow Creek alternative 11 at Swan Lake NWR considered a best buy
4.8.2	87	Definition of a best buy is the most efficient plan
4.8.2	90	Locust Creek best buy alternative associated with Pershing State Park
4.8.3.1	94	Corps would like to see a new channel constructed that connects Higgins Ditch to Locust Creek
4.10.1	101	Synergy between multiple agencies, the pubic, and Federal entities will be required to address sedimentation issues
4.10.3	102	Yellow Creek plan YC11 is the only effective plan in achieving the Yellow Creek objectives
4.10.4	103	Paragraph 2 talks about the importance of this region
4.10.4	103	Pershing State Park, Fountain Grove and Swan Lake are all listed as important significant areas
4.10.4	104	The 3 project areas can be completed independently
5.4.1	107	No action will result in continued loss in important habitats
5.9.2	110	Yellow Creek alternative will have no impact to prime farmland
5.19.2	121	ELCR mentioned
6.1.1	132	Importance of watershed bank stabilization above Pershing State Park including preferred watersheds
6.6	140	Note federal cost share in table 6-2 is 65%/
7.1.1	142	BMP's in the watershed include water impoundment reservoir
7.2.3	145	It appears the Corps Planning Section is in favor of more PL566 projects in the waterhsed

Our Missouri Waters Healthy Watershed Plan (Lower Grand River) (MDNR 2016)

Section	Page Number	Objective
Key Points	3	Hundreds of hours of work by participants, presenters, and planners
Objectives and Opportunities	4	Reduce Strambank Erosion
Objectives and Opportunities	4	Reduce logjams and adverse effects
Objectives and Opportunities	4	Reduce flooding and associated streambank damage
Objectives and Opportunities	4	Improve wq and stream habitat
Objectives and Opportunities	4	Reduce sediment and nutrients transport from watershed
Objectives and Opportunities	4	Reduce bacteria levels in impaired streams

Missouri State Wildlife Action Plan (MDC 2015)

Section	Page Number	Objective
Forward	i	Work with partners to identify and prioritize conservation opportunaties
Preface	1	Limited resources continue to ba a limiting factor
Preface	1	Maximize limited resources by working across agency and state boundaries
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The Next Generation of Mitigation

The Next Generation of Mitigation: Linking Current and Future Mitigation Programs with State Wildlife Action Plans and Other State and Regional Plans

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Executive Summary

The next generation of mitigation is explicitly designed to ensure that emerging resource conflicts arising from ene gy and other infrastructure development have more beneficial conservation outcomes. This white paper has been prepared by the Environmental Law Institute (ELI) and The Nature Conservancy (TNC). It is designed to defin and describe the next generation of mitigation, which entails:

- A more comprehensive approach to application of the mitigation protocol (avoid, minimize, compensate) in existing and potential regulatory processes;
- Use of State Wildlife Action Plans and other plans to create an effective decision-making framework for the application of the mitigation protocol; and
- Allocation of compensatory funds derived from mitigation in a manner that supports lasting and large scale ecological results.

While new habitat protection legislation could improve mitigation, we believe much progress can be made by adjusting existing laws and regulations and using tools already available, if those tools are applied as proposed. The suggested changes can also bring greater efficiencies to the mitigation process, a resul especially important at a time of limited financial resources. Guided by these practices mitigation can benefit both conservatio and economic goals by: reducing siting conflicts; increasing mitigation s consistency, transparency, and cost-effectiveness; reducing uncertainty and risks; and ensuring the delivery and durability of higher value conservation results. This is particularly true if consistent approaches can be taken across multiple jurisdictions.

Background

In the coming years, the U.S. will experience significant loss of natural habitats due t population growth, infrastructure development, energy development, and climate change. In the energy sector, for example, in order to meet low carbon electricity and biofuel production requirements as much as one-fift of the land area of the U.S. may be needed for energy production and transmission facilities. New or expanded transmission corridors will affect habitats extending beyond the footprint of the right-of-way. In the Mountain West, over 100,000 additional oil and gas wells with a footprint of roughly 2 million acres are anticipated over the next 20 years. Other infrastructure investments are also increasing with the recent passage of economic stimulus legislation that provides $150 billion for infrastructure including $50 billion for transportation projects. Climate change and sea level rise will demand new measures to deal with coastal hazards and altered rainfall patterns. These trends will have significan impacts on natural systems including habitat fragmentation and loss of ecosystem function. The effective use of regulatory programs coupled with careful mitigation could reduce and offset this damage, but past experience suggests the need for improvements to our approach to mitigation if this objective is to be achieved.

There are existing tools and precedents allowing us to achieve improved outcomes for the nation's at-risk habitats. In the U.S., we now have decades of conservation planning

experience, more comprehensive ecological data than ever available before, advanced modeling and planning tools, and a wealth of effective on-the-ground conservation efforts. And recent policies, such as the 2008 rule requiring a "watershed approach" to compensatory mitigation for losses of aquatic resources, support a more comprehensive framework for mitigation decision-making.[1]

Findings and Recommendations for Action

A more comprehensive approach to mitigation is needed to sustain systems of interconnected, resilient, natural habitats. Such systems provide habitat for plant and animal species and support the resources and processes that underpin human well-being, such as water quality and quantity, pollination of crops, natural hazard mitigation, and recreational opportunities. Ensuring these benefits fo future generations will require improvements in landscape and watershed planning, rigorous use of available ecological information, and greater consistency and coordination in applying mitigation strategies.

We find significant opportunities for improvi the current mitigation framework to make it more effective in meeting the nation's conservation and development priorities. In general, we believe mitigation can move beyond what is often a piecemeal response, to a more integrated, consistent, and pro-active approach guided by landscape and watershed planning. Such an approach will deliver more effective conservation outcomes for wildlife, natural landscapes, and the ecosystem services on which communities depend. It will also help business by improving the basis for project planning, increasing mitigation efficienc , and reducing uncertainty and risks.

Fundamental changes needed:

(1) Ensure consistent and rigorous application of the mitigation protocol (avoid, minimize, compensate) for addressing impacts to wildlife habitat under existing, expanded, and future regulatory programs. We stress throughout this paper the primary importance of the avoidance and minimization elements of the protocol.

(2) Use State Wildlife Action Plans, other federally recognized conservation plans (such as Coastal Zone Management Plans, Forestry Plans, and Endangered Species Recovery Plans), and regional plans as the framework for a more comprehensive approach to making the "avoid, minimize, compensate" decisions required by the protocol. Use of this planning context will lead to decisions that provide stronger and more resilient protection for whole watersheds and other natural systems for their multiple benefits

(3) Give priority in the investment of compensatory funds to projects and activities identified by State Wildlife Action Plans and other plans and that are sufficient in scale and strategic i their location to support the long term health of whole ecosystems. Further benefits can be achieved by anticipatin compensation needs and accomplishing "advance mitigation" when the opportunities for larger ecosystem benefit still exist.

Supporting recommendations:

- Federal and state agencies should play a stronger role in supporting ecologically significant and rigorou mitigation.
    - The President's Council on Environmental Quality (CEQ) should lead an effort to achieve consistent application of the mitigation protocol across federal agencies and programs.
    - The CEQ and federal agencies should strongly encourage federal agency use of State Wildlife Action Plans, other federally recognized conservation plans, and detailed regional plans, to create a biologically-based framework for decision-making informed by environmental review under the National Environmental Policy Act.
    - State agencies responsible for permitting and decision-making should apply the mitigation protocol and make use of State Wildlife Action Plans, other federally recognized conservation plans, and detailed regional planning in their own decisions and approvals affecting habitat.
- State Wildlife Action Plans should be continuously improved to ensure that they support mitigation opportunities and decision-making. Specificall , they should identify sites or areas appropriate for restoration through compensatory mitigation. Some State Wildlife Action Plans use detailed mapping to convey the intent of habitat conservation in their states, but others lack the kinds of detailed information necessary to make specific resourc planning and permitting decisions on the ground. State Wildlife Action Plans can more effectively guide the avoidance of key wildlife habitat, cumulative impact analysis, and the expenditure of compensatory mitigation funds if they set priorities for *protection* of high quality habitat and for *restoration* of important degraded habitat, related natural systems, and connectivity.
- A federal agency or institution should be tasked with assessing the outcomes of existing mitigation actions on landscape and watershed conservation under all federal statutes and should make periodic recommendations on how to improve mitigation across federal agencies. Among the specifi issues that should be evaluated are:
    - The appropriate role of §404 of the Clean Water Act in efforts to deal with the permitting of wetland alterations associated with shoreline protection from sea level rise.
    - Use of the mitigation protocol in the location and expansion of military facilities.
    - Use of the next generation of mitigation in the planning and location of transportation facilities.
    - The consistent use and effectiveness of current avoidance and minimization measures employed across all

mitigation programs.
    - The availability and quality of the tracking programs (impacts, compensation, monitoring) utilized across all mitigation programs.
    - The effectiveness of current cumulative impact analysis conducted across all mitigation programs applied by multiple political jurisdictions within single watersheds and other landscape units.
- Federal energy and infrastructure legislation should expressly include requirements to use the mitigation protocol as it is described here in the planning and design of large scale energy facilities on federal lands and waters, in the design and siting of new transmission corridors that involve federal agencies such as the Federal Energy Regulatory Commission (FERC), and in the siting of major energy generating facilities finance through federal programs and loan guarantees. The mitigation protocol should also be incorporated into legislation guiding offshore energy siting for conventional and alternative energy sources.
- Despite the substantial scale and scope of the nation's current mitigation programs, which primarily protect many wetlands, streams, and the habitat of threatened and endangered species, other high value, natural landscapes remain unprotected. Conservation agencies and organizations should explore opportunities to adopt mitigation requirements for impacts to these key areas.

<u>Proposed Near-Term Actions:</u>

- The President's Council on Environmental Quality should convene a multi-agency workshop on the use of the mitigation protocol and on how mitigation could be used more effectively by federal decision-makers to achieve landscape scale/watershed scale conservation, considering both climate change and the likely impacts of new infrastructure and conservation investments.
- The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency should undertake an evaluation of the effectiveness of the agencies' approach to avoidance and minimization and cumulative impact analysis. The agencies should consider developing guidance and tools to support the ability of field sta f to undertake this analysis.
- The U.S. Fish and Wildlife Service should meet with the Association of Fish and Wildlife Agencies and with other stakeholders to evaluate how State Wildlife Action Plans could be adapted and coordinated with other natural resource plans to better serve as the framework for the effective use of the mitigation protocol in multiple programs.
- U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration should commit resources to developing effective policies and tools to guide mitigation under the Endangered Species Act,[2] such as: a system to track required mitigation measures, and monitoring; guidance and tools to support

cumulative impact analysis; policy that clarifies the role of habitat mitigatio under §7; and research on the ecological effectiveness of the habitat mitigation measures undertaken under the Act.

- Amendments should be considered to the now pending energy legislation to expressly require use of the mitigation protocol for planning energy projects on federal lands and in federal waters, where the approval of transmission corridors directly involve Federal agencies such as FERC, or that affect federally protected resources as a way of both protecting the environment and improving the regulatory process.
- Building on the limited experience with consultation under SAFETEA-LU, the next transportation authorization bill should expressly refer to the State Wildlife Action Plans and other regional plans, where appropriate, in the sections that deal with project-level evaluation, and should expressly require that the mitigation protocol be employed to support the priorities in these plans.

Chapter One

Introduction

a. Purpose of whitepaper

This whitepaper evaluates the potential of a well-designed approach to mitigation to address the impacts to natural habitats from anticipated infrastructure and other development activities. This paper is not intended as an overall analysis and critique of the performance of §404 of the Clean Water Act, nor does it seek to compare or critique specific compensatory mitigatio mechanisms (i.e., wetland mitigation banking, conservation banking, etc.). Specificall , it examines opportunities to apply the mitigation protocol ("avoid, minimize, compensate") more consistently and rigorously to existing, expanded, and any new authorities that regulate activities that affect habitat and species; and opportunities to make mitigation decisions within the context of a more comprehensive vision for conservation. The paper explains how the State Wildlife Action Plans and other federally recognized and regional conservation plans can be used as the framework for this more comprehensive approach to mitigation – the next generation of mitigation. Adopting the next generation of mitigation concepts will help reduce impacts to ecosystems and watersheds from infrastructure construction, energy development, and urbanization; direct these impacts to the least environmentally harmful places; guide cumulative impact analysis; and ensure that funds for offsetting unavoidable impacts will be used more effectively to restore and protect a network of natural areas in the U.S. If implemented and managed properly across whole ecosystems, watersheds, and ecoregions the mitigation of public and private development offers an opportunity to create a more sustainable economy and a healthier environment for human and natural communities.

b. Increasing infrastructure investments will threaten our natural environment and the human and wildlife benefits of natural habitat if effective mitigation practices are not adopted and implemented

Despite the current economic downturn, there is likely to be extensive investment in infrastructure in the United States over the next ten years and beyond. Analyses undertaken to support the recently passed economic stimulus legislation reveal many roads, bridges, dams, flood control structures, rail transit systems and water and sewer systems that must be built, rebuilt, or replaced.[3] Climate change and sea level rise demand new measures to deal with coastal hazards and altered rainfall patterns. The need to reduce carbon emissions and to achieve energy independence will result in extensive new development of lower carbon energy generation and transmission facilities and further exploitation of conventional energy sources, particularly natural gas reserves. The latest version of transportation legislation soon to be taken up by Congress will increase investment in roads and mass transit. While the housing market is now stalled, our population is still projected to grow, requiring more development within and adjacent to metropolitan centers. Continuing global threats are leading to continuing military investment. As a result of the Base Realignment and Closure (BRAC) process, the global restationing of forces from overseas bases, and planned increases in the size of the Army and the Marine Corps, military units are being relocated and new units are

being created. These actions require new construction and increases in military activity at "gaining bases." For example, relocation of forces now stationed on Okinawa and elsewhere to Guam in Micronesia will require extensive construction on Guam and additional training and other military activities in the broader Micronesia region, with the associated additional pressure on marine coastal, wetlands (including coral reefs), and terrestrial resources.

All of these trends suggest extensive public and private infrastructure investments over the next ten years. If past development patterns and practices are any indication of our future direction, this will result in widespread fragmentation of and damage to the natural systems that provide essential human benefit and habitat for plant and animal species. Planning for the location and scope of impacts upon the landscape, and coordinating mitigation strategies to maximize conservation benefits at the landscape and watershed scales will be needed to avoid these outcomes.

c. The importance of the mitigation concept

Recent experience with the administration of our more mature, substantive mitigation programs (§404 of the Clean Water Act (CWA) and the Endangered Species Act (ESA)) has shown that, managed effectively, the mitigation protocol can reduce the environmental impacts of construction projects and produce significan resources for restoration and conservation of the natural environment (see Chapter 4, "Implementation regulations and guidance to support the mitigation protocol.")
Since the mitigation protocol can be made part of project planning, design, and financin process, it is an effective way to influenc the environmental impacts of infrastructure investments and produce significant resource to offset unavoidable damages. Moreover, if mitigation is planned using landscape-level ecological information, it can accomplish meaningful results in coordination with other (mitigation and non-mitigation) conservation actions on the same landscape.

Land and water conservation financed b requiring development projects to avoid environmental damage and offset impacts is likely to receive easier legislative support than the allocation of significant tax revenue for habitat protection and restoration through the appropriation of government funds for conservation purposes. Compensatory mitigation funds often come from long-term public or private financing, are seen as a cos of doing business, and their payment is seen as a way of facilitating the development or infrastructure objective.

d. The role of compensatory mitigation in supporting conservation

Private and public expenditures for compensatory mitigation under the existing major federal programs total approximately $3.8 billion annually,[4] and the Clean Water Act §404 program supports the conservation and restoration of approximately 50,000 acres of aquatic resources a year (see Chapter 3, "Scope of current programs"). Despite the expenditure of compensation funds under the mitigation protocol, many projects have fallen short of their potential for achieving habitat protection and restoration (see Chapter 3, "Performance of existing compensatory mitigation programs"). If mitigation is managed in a more comprehensive way, it can have a more widespread and positive impact on America's

environmental future, as well as on the services provided to people by these ecosystems.

The nation's major mitigation programs are now structured to protect many wetlands, streams, and the habitat of threatened and endangered species. However, uplands (even high quality, intact, and mature areas that harbor multiple at-risk species) outside of existing federal ownership, receive no federal protection, and are rarely the target of mitigation expenditures under state or federal programs. Legal protection and requirements for compensation for species and habitats not yet listed as threatened or endangered are also lacking. Thus, despite the adoption of the new §404 compensatory mitigation regulations and the substantial scale of mitigation overall, the scope of the nation's current mitigation framework is still too narrow. There is real potential, however, to build on this experience as we look at planning and mitigation for future activities that will affect habitats across the nation.

e. Definitions

Several terms will be used in the course of this paper and are defined here

Compensatory mitigation: The restoration, creation, enhancement, or preservation of natural resources to compensate for impacts pursuant to a regulatory program that: (1) prospectively issues permits or licenses or approvals for activities that affect fish an wildlife habitat or other natural resources; or (2) assesses after-the-fact damages for injury to, destruction of, or loss of habitat or natural resources.[5]

Compensatory mitigation mechanisms: Obligations to provide compensatory mitigation may be satisfied by: purchasin credits from a conservation or mitigation "bank" that is established in advance, making a payment to an "in-lieu fee" program that supports a planned conservation action, or by the regulated entity or actor directly undertaking the compensation actions.

Federally recognized and regional conservation plans: In addition to the State Wildlife Action Plans, a wide range of other federally recognized, state-based plans offer important conservation information that can be useful in guiding mitigation decisions. These include, for example, coastal zone management plans, state forestry plans, and endangered species recovery plans. These plans offer value because they are prepared in all or many states; they are constructed according to standards set forth in federal law and therefore offer some consistency; many are referenced in existing federal laws and regulations; and many have been developed through a transparent process with the participation of the public. Other regional, state, and local conservation plans may be appropriate for consideration, including detailed planning that may accompany large scale energy or other infrastructure investments.

Mitigation: Avoiding the impacts of an action; minimizing such impacts by limiting the degree or magnitude of the action or its implementation; rectifying the impact by repairing, rehabilitating or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of an action; and compensating for the impact by

replacing or providing substitute resources or environments.[6]

Mitigation protocol: The mitigation protocol means an approach to the foreseeable impacts of projects that requires first making ever effort to avoid damages to environmental resources, then minimizing that damage that cannot be avoided, and only then offsetting the damage that cannot be avoided or minimized.

Next generation mitigation: A more effective, comprehensive approach to existing, expanded, and future mitigation programs, that rigorously and consistently applies the mitigation protocol *and* is guided by landscape- and watershed-based planning informed by the State Wildlife Action Plans and other federally recognized and regional natural resource plans.

State Wildlife Action Plan: A comprehensive wildlife conservation strategy prepared by each state and territory pursuant to the Conservation and Reinvestment Act of 2000.[7]

Chapter Two

A New Approach to Making Mitigation an Effective Tool for the Conservation of Natural Systems

a. The need for a more comprehensive approach to conservation and mitigation

The mitigation program that operates under §404 of the CWA provides an example for the need for a more comprehensive approach to conservation and restoration of habitats and resource lands and waters. Particularly in light of the likely impacts of climate change, we have come to value more fully the services provided by healthy wetlands—storing water in times of flood and metering it out in times o drought, improving water quality, sequestering carbon, and sustaining wildlife. At the same time we now understand that restoring or creating pieces of unconnected aquatic habitats to compensate for losses does not actually sustain these important values over space or time.[8] A more comprehensive approach – the next generation of mitigation – is needed to maximize the ability of the mitigation protocol to advance the conservation of natural systems. Such an approach is, in fact, reflected in the new Compensatory Mitigatio Rule promulgated by the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) in 2008, requiring use of a "watershed approach."[9] Similarly, the idea of Habitat Conservation Plans (HCPs) adopted pursuant to the ESA involves planning across entire property ownerships or groups of ownerships to save key habitat for specific listed species while allowing th development of other less critical areas. A more comprehensive approach to mitigation will support the conservation of ecological systems and not just satisfy regulatory requirements through piecemeal actions.

b. The information basis for a "next generation" of mitigation

Over the years, federal legislation has required and encouraged a variety of state-based plans to guide the use of federal grant funds for natural resource purposes. These plans – as well as regional, state, and local conservation plans – can provide the framework for the next generation of mitigation. The most far-reaching of these plans, State Wildlife Action Plans, have been developed in each of the 50 states and six territories. The plans can offer a framework for a comprehensive consideration of mitigation.

i. State Wildlife Action Plans

Congress created the State Wildlife Grants Program in 2000.[10] In order to be eligible for these new funds, the states were each required to prepare a State Wildlife Action Plan (the original term was "comprehensive wildlife conservation strategy"), a comprehensive plan addressing eight required elements by October 2005. Those elements are:

1. *Information on the distribution and abundance of species of wildlife;*
2. *Descriptions of extent and condition of habitats and community types essential to conservation of species;*
3. *Descriptions of problems which may adversely affect species or their habitats, and priority research and survey efforts to assist in conservation and research;*
4. *Descriptions of conservation*

actions proposed to conserve the identified species and habitats an priorities for implementation;

5. *Proposed plans for monitoring species identified in (1) and thei habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting conservation actions to respond to new information or changing conditions;*
6. *Descriptions of procedures to review the plan at intervals not to exceed ten years;*
7. *Plans for coordinating the development, implementation, review, and revision of the plan with federal, state, and local agencies and Indian tribes; and*
8. *Broad public participation in developing and implementing these plans.*[11]

State Wildlife Action Plans are strategic blueprints that can guide wildlife and habitat conservation on public and private lands and waters. Every state has now completed a firs generation State Wildlife Action Plan and some are engaged in revisions that add more comprehensive habitat maps and include specific responses to the projected impact of climate change. Approximately 31 State Wildlife Action Plans include spatially explicit maps delineating the location of terrestrial, and in some cases aquatic, conservation opportunity areas.[12]

State Wildlife Action Plans can be used as guides for the next generation of mitigation. Because of their focus on habitat, and their provision for public involvement and regular updating with new information, the Plans offer an important framework for guiding mitigation decision-making. The most comprehensive of the habitat maps can serve as a guide to the areas that should be avoided in infrastructure construction projects. However, if the State Wildlife Action Plans are to be more influentia in guiding the expenditure of compensatory mitigation funds, they must be updated to include information and maps identifying restoration priorities. In most cases, in order to guide mitigation and other decisions, the plans must be accompanied by more detailed and finer scale information on critical habitat species distributions, and habitat connectivity, particularly in areas of likely energy and other infrastructure investment.

ii. Other federally recognized and regional conservation plans

In addition to the State Wildlife Action Plans, other federally recognized, state-based plans offer important conservation information that can be useful in guiding mitigation decisions. Among these are coastal zone management plans and special area management plans, state forestry plans, endangered species recovery plans, waterfowl and fish management plans and state conservation and open space plans. Other regional, state, and local conservation plans may be appropriate for consideration as well.

- Coastal Zone Management Plans: Under the Coastal Zone Management Act of 1972 coastal states develop Coastal Zone Management Plans that must identify critical coastal resources and suggest ways of protecting

those resources. The Coastal Zone Enhancement Program of 1990, part of CZMA, now requires coastal states to conduct an assessment of their coastal management activities in nine areas.[13] These assessments must be carried out every five years [14] Many of the coastal states have also adopted Special Area Management Plans to address particular conservation needs within their coastal zones.[15]

- State Forestry Plans: The 2008 Farm Bill added a new section to the Cooperative Forestry Assistance Act of 1978, requiring state foresters to develop a statewide assessment of forest resource conditions and a long-term statewide forest resource strategy. In doing so, the state foresters are required to coordinate with their state wildlife agencies "with respect to strategies contained in the State wildlife action plans" and must "incorporate any forest management plan of the state including…State wildlife action plans."[16] The State Forestry Plans are used for a variety of conservation purposes, including coordination with the previously existing Forest Legacy Program. Under Forest Legacy, for states to be eligible for funding for the purchase of conservation easements on forest lands, they must develop and receive US Forest Service approval of an assessment of need, which identifies maps, and describes forest lands that are deemed important and in need of protection from conversion to non-forest uses. [17] The US Forest Service "shall give priority to lands which can be effectively protected and managed, and which have important scenic or recreational values; riparian areas; fish and wildlife values, includin threatened and endangered species; or other ecological values."[18]
- Endangered Species Recovery Plans: One of the central goals of the federal Endangered Species Act is the recovery of threatened and endangered species and the ecosystems on which they depend.[19] Once a species is listed by the U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration, the agencies must "develop and implement a recovery plan" that includes 1) "a description of such site-specific managemen actions" that will support "conservation and survival of the species"; and 2) "objective, measurable criteria" that will support species recovery.[20] Recovery plans go out to public comment and after they are finalized the plans guide habitat protection and restoration.[21] Recovery plans are also centrally available on a U.S. Fish and Wildlife Service web site.[22]
- Waterfowl Management Plans: Authorized by the North American Wetlands Conservation Act of 1986,[23] the North American Waterfowl Management Plan relies upon partnerships to implement migratory bird conservation. The partnerships are called "joint ventures," which include a broad cross section of government at all levels, conservation organizations, and citizens. Joint ventures develop implementation plans, guided by biologically based planning, focused on areas of concern identified in the Plan There are currently 13 joint ventures in the United States.[24]

- Fish Habitat Plans: Modeled on the North American Waterfowl Management Plan, a coalition of agencies has launched a new initiative aimed at conserving fish habitat. I passed under the National Fish Habitat Conservation Act (first introduced i September 2008 and reintroduced in May, 2009),[25] the National Fish Habitat Action Plan[26] would rely on the federal agencies working cooperatively with plan partners to identify causative factors for declining fish population in aquatic systems; use an integrated landscape approach that includes the upstream/downstream linkages of large-scale habitat condition factors; assess and classify the nation's fis habitats; and support program partners.
- State Conservation and Open Space Plans: Many states undertake their own conservation priority setting planning actions, such as New York State's Open Space Plan and the Florida Forever planning process. Some of these plans combine funding strategies with conservation priorities.[27]
- Regional Conservation Plans: Several regional conservation planning efforts can help to inform mitigation decision-making. For example, in 2007, the Western Governor's Association launched its Wildlife Corridors Initiative, "a multi-state and collaborative effort to improve the knowledge and management of migratory corridors and crucial habitat."[28] The Association established a Western Wildlife Habitat Council to "identify key wildlife corridors and crucial wildlife habitats in the West and coordinate implementation of needed

The Nature Conservancy's Ecoregional Planning

To guide its conservation activities, the Nature Conservancy employs ecoregional planning – a comprehensive process for identifying a set of places or areas that, together, represent the majority of species, natural communities, and ecological systems found within a particular eco-region. Ecoregions are large and identifiable (i.e., map-able) landscapes that differ qualitatively from one another in terms of ecology and biological phenomena and are defined by climate, geology, topography and associations of plants and animals. An ecoregional portfolio (i.e., priority sites), the end product of ecoregional planning, is a selected set of areas that represents the full distribution and diversity of these systems. The selection of portfolio sites is guided to a large degree by biological targets. These can be important plants or animals, or biological communities that when conserved result in the preservation of all representative biodiversity. For each of these targets viability goals are established and it is these goals that drive the selection of areas that are needed to meet these goals. Ecoregional portfolios effectively address the fundamental goals of biodiversity conservation:

- Represent all distinct natural communities within conservation landscapes and protected areas networks;
- Maintain ecological and evolutionary processes that create and sustain biodiversity;
- Maintain viable populations of species;
- Conserve blocks of natural habitat that are large enough to be resilient to large-scale stochastic and deterministic disturbances as well as to long-term changes.

policy options and tools for preserving those landscapes."[29] The Nature Conservancy uses ecoregional plans to guide its conservation acquisitions and priorities. (See Box "Ecoregional Planning.")

iii. The next generation of mitigation: a comprehensive approach

The next generation of mitigation, as described in this paper, depends upon having the biological information and public priority setting needed to make wise landscape-level decisions about mitigation. The State Wildlife Action Plans may be the most advanced tool for accomplishing this goal. A number of other planning authorities can also inform this decision-making. (See Chapter 4, "Landscape-level planning for conservation and ecosystem services," for a discussion of these authorities.) Ultimately the programs and plans could be used together to yield a vision for conservation that can be used for multiple purposes.

Our proposed approach is to use the State Wildlife Action Plans and other federally recognized and regional conservation plans to guide the mitigation protocol in relation to existing, expanded, and any future authorities that regulate impacts to habitat and species.

The Watershed Approach articulated in the 2008 Compensatory Mitigation Rule provides an excellent example that demonstrates how this integration might occur in future decision-making (see Chapter 3, Box "The Watershed Approach"). The Watershed Approach is an "analytical process" for making compensatory mitigation decisions that relies upon a landscape perspective.[30] It acknowledges that there may be many circumstances under which an existing watershed plan is not available to guide compensatory mitigation, and in these instances, it lays out an approach for using existing plans and information available from other sources to guide the decision-making.[31]

Similarly, we propose that in instances when the State Wildlife Action Plan is sufficientl detailed to guide mitigation decision-making, it should be used. But when detail is lacking or other federally recognized or regional plans provide important information on key habitat and species distribution, these plans should be consulted as well. There may be instances, such as current proposals to increase solar energy production in the Mojave Desert, where additional and more detailed planning (i.e., at a finer resolution), tied to th framework of statewide planning, is needed to inform the location of and mitigation for facility construction in a way that protects and enhances the critical natural resources of the Desert.

The overall objective proposed here is to use appropriate species and habitat plans to avoid and minimize impacts on the most sensitive environmental resources, to guide cumulative impact analysis, and to channel compensatory mitigation funding to the restoration and protection of larger natural systems that will be resilient to the environmental threats we face today. These healthy natural systems will yield numerous ecosystem benefits to the public Achieving this vision will require adjustments to some existing legislation, regulations, and guidance.

The Disney Wilderness Preserve

The Nature Conservancy's Disney Wilderness Preserve project provides an example of effective mitigation carried out under the §404 Program and represents the kind of results we would hope to achieve more widely from our proposals. In 1994, when the Walt Disney Company was contemplating construction of the Animal Kingdom at Walt Disney World in Central Florida and the development of the residential community named Celebration, it was clear that the projects would damage significant areas of wetlands in the Reed Creek Watershed at the headwaters of the Everglades ecosystem. Regulatory agencies and the Disney Corporation determined that, while some wetlands damage could be avoided and that some wetlands could be protected on-site, to offset the damage that could not be avoided it was best to select a large mitigation site in the Reedy Creek watershed that was remote from the Disney properties. A 10,000-acre cattle ranch with extensive degraded wetlands was purchased downstream on Reedy Creek at a strategic location adjacent to the Kissimmee chain of lakes. (This area had been identified as important by early planning fo Preservation 2000 – a precursor to the Florida State Wildlife Action Plan.) In exchange for build-out permits, Disney agreed to minimize wetlands loss at their development sites and to provide funding to The Nature Conservancy to buy the ranch, restore its wetlands, and manage the property into the future. Ultimately, other developers contributed to the project to meet their own compensatory mitigation needs, allowing TNC to purchase and restore additional adjoining land.

The compensation project is now complete. The wetlands and adjacent uplands have been successfully restored and the Disney Wilderness Preserve property has become the anchor for the conservation of more than 25,000 acres of land protecting the Everglades headwaters. The Disney Preserve provides both exceptional wildlife habitat and important ecosystem services. It stores extensive amounts of water in times of heavy rainfall, removes excess nutrients from Reedy Creek, metes out water in times of drought, and supports extensive wildlife, including several listed species. Because it has become part of a larger system of protected lands, it has every prospect of enduring in the years to come.

Chapter Three

Foundations of Existing Mitigation Programs

a. Legal framework of existing mitigation programs

Mitigation under U.S. law means avoiding, reducing, and offsetting the foreseeable impacts of authorized activities on the environment. Mitigation as currently understood and practiced derives much of its content from definitions in regulations adopte by the Council on Environmental Quality in 1978 to guide federal agencies' implementation of the National Environmental Policy Act (NEPA).[32]

National Environmental Policy Act and Mitigation: Under NEPA, federal agencies are required to consider the impacts on the environment of their proposed actions. NEPA requires agencies undertaking major federal actions that significantly a fect the human environment (including issuance of permits and licenses) to prepare an Environmental Impact Statement (EIS), which includes analysis of alternatives, identification o impacts, and identification of potentia measures to mitigate identified impacts. NE A regulations define "mitigation" to include

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.
(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(e) Compensating for the impact by replacing or providing substitute resources or environments.[33]

During its 40-year history, NEPA has not been interpreted by the courts to require by itself the adoption and implementation of mitigation measures in connection with federal actions. Rather, NEPA requires that the responsible agency use the NEPA process to *identify* relevant mitigation measures that can address the impacts of the proposed action and its alternatives.[34] The mitigation identified in th NEPA process may subsequently serve as the basis for mitigation requirements laid out in a record of decision, a mitigated "finding of n significant impact," permit, license, contract or other legally binding document; however, the basis for the mitigation requirement is the underlying law being administered by the agency, as informed by NEPA.

For example, private or public users may be required to mitigate impacts on public lands through the Secretary of Interior's duty under the Federal Lands Policy Management Act to prevent "unnecessary or undue degradation"[35] or the Secretary of Agriculture's duty under the Forest Service Organic Act to regulate "occupancy and use [of the national forests] and to preserve the forests thereon from destruction."[36] Mitigation may also be required by the terms of various permitting programs and regulations, such as §404 of the CWA. The NEPA process helps to identify the kinds of mitigation that may be available.

Mitigation plays a more specific role i NEPA under a particular provision of the regulations that allows a federal agency to

forego preparation of a full EIS where an environmental assessment (EA) results in a Finding of No Significant Impact (FONSI) [37] An agency may commit to mitigation as the basis for a "mitigated FONSI" as a way of avoiding the need to prepare the more detailed EIS.[38]

Part of NEPA requires federal agencies to "interpret and administer" their laws and policies in accordance with the "policies" set forth in NEPA, and further provides that these policies are "supplementary to those set forth in existing authorizations of Federal agencies."[39] Federal agencies could use these provisions to support more holistic or aggressive mitigation requirements and conditions.[40]

Several states have their own "state NEPAs." Among these, several, including California and Washington, require adoption of mitigation measures. In these states, the environmental impact review process itself can trigger mitigation obligations to compensate for private and state activities subject to such review.[41] (See Box "Compensation for Impacts to California's Oak Woodlands.")

Clean Water Act Section 404 Program and Mitigation: The most robust and fully developed mitigation regime is that operating under the CWA's §404 program, which regulates dredge and fill activitie in the waters of the United States.[43] In the 1972 law, Congress assigned the day-to-day authority for issuing permits to the Corps, but assigned responsibility for developing the environmental criteria for permitting (the §404(b)(1) Guidelines) to the EPA. In 1980, the §404(b)(1) Guidelines were adopted as final regulations [44] In 1986, the Corps adopted

Compensation for Impacts to California's Oak Woodlands

California's Environmental Quality Act requires state and local agencies to identify the significant environmental impacts of thei actions and to avoid or compensate for them. In 2001, a provision was adopted requiring mitigation for projects that result in the "conversion of oak woodlands that will have a significant e fect on the environment."[42] The new program allows for several mitigation alternatives, including preserving existing oak woodlands through easements, planting an equivalent number of trees, or contributing funds to the Oak Woodlands Conservation Fund administered by the California Wildlife Conservation Board. Contributed funds may be used for a variety of purposes, including the purchase of conservation easements, land improvement grants and cost-share incentive payments, public education and outreach by local government entities, and for assistance to local governments to encourage the incorporation of oak conservation elements into local general plans.

California's Oak Woodlands Conservation Program is an example of a state using its existing authorities – here the state NEPA and ESA – to expand the mitigation protocol to a valuable and dwindling habitat type.

See: California Wildlife Conservation Board. "Oak Woodlands Conservation Program." http://www.wcb.ca.gov/Pages/oak_woodlands_program.asp. (Last visited April 14, 2009.)

a comprehensive mitigation policy that applied to permit actions under §404 and §§9 and 10 of the Rivers and Harbors Act of 1899.[45] Compensatory mitigation guidelines issued by the Department of the Army and EPA in 1990 set out the process for carrying out mitigation under the program.[46] These guidelines referenced the NEPA mitigation definitions described above, but condensed them into three steps and prescribed that the steps be pursued in sequence ("sequencing"). The sequence is: (1) avoidance, (2) minimization, and (3) compensation for impacts that cannot be avoided or minimized.[47]

Avoidance is the first step in the mitigatio sequence. During this step, the Corps determines whether or not the proposed project is the least environmentally damaging practicable alternative (LEDPA). The LEDPA is identified by an evaluation of the direct secondary, and cumulative impacts on the aquatic ecosystem of each alternative under consideration. [48]

In 2008, after many years of practice, studies, outreach, and public comment, the Corps and EPA adopted new compensatory mitigation regulations that supplement, and in some cases replace, the regulations and guidance the agencies had been using for decades. In keeping with past practice, the Compensatory Mitigation Rule states that compensatory mitigation requirements may be achieved through the restoration, enhancement, establishment, and "in certain circumstances" preservation of similar aquatic resources. It specifies, howeve , that restoration should generally be the first option considere [49] and that preservation may only be used when fiv specific criteria are met [50]

The Compensatory Mitigation Rule explicitly preserves the mitigation sequence.[51] The Rule creates higher standards for measuring compensatory mitigation performance against ecological performance standards and requires mitigation site selection to be carried out using a "watershed approach" (see Box "The Watershed Approach," below). The watershed approach outlined in the rule states that the Corps must undertake an assessment of information on the "cumulative impacts of past development activities…"[52] when making decisions about siting compensation projects. The Rule also includes requirements for financial assurances, permanent protection and other measures intended to ensure the long-term conservation and management of compensatory mitigation sites.

This regulatory compensatory mitigation regime is now on a firmer footing than mos other compensatory mitigation regimes. The 2008 Rule is already influencing othe existing compensatory mitigation programs, such as compensatory mitigation carried out under the Water Resources Development Act (see Chapter 4, "Civil Works compensatory requirements"). It does, however, have some characteristics that might limit its useful application in other mitigation contexts. The §404 program is distinctly focused on aquatic resources and watersheds; while it allows for the use of preservation of high quality resources as a means for providing compensatory mitigation, it discourages the use of preservation as a sole mitigation mechanism. The 2008 rule does not support double-dipping or credit "stacking" wherein the same conservation action might address multiple disparate impacts of different activities.[53]

Chart 1: Estimated Annual Compensatory Mitigation Costs Expended or Committed Under Major Federal Regulatory Programs

Regulatory Program Estimate (in millions)	*Cost*
Clean Water Act Section 404	$2,947.3
Endangered Species Act Section 10	$370.3
Federal Natural Resource Damage Programs	$87.7
Federal Power Act	$210.3
Northwest Power Act	$207.1
Total:	$3,822.7

Reference: Environmental Law Institute. October 2007. *Mitigation of Impacts to Fish and Wildlife Habitat: Estimating Costs and Identifying Opportunities.* Washington, DC: Environmental Law Institute.

ESA, Habitat Conservation, and Mitigation
The federal Endangered Species Act includes two separate provisions that may require mitigation to compensate for allowed impacts to a listed species or its habitat: §7 consultations and §10 incidental take permits.

ESA §7: ESA §7 guides federal activities. Section 7 requires federal agencies to "insure that any action authorized, funded, or carried out" by the agency is not likely to jeopardize the continued existence of listed species or result in the destruction of critical habitat.[54] Under the provision, federal agencies must consult with either the U.S. Fish and Wildlife Service (FWS) or the National Oceanic and Atmospheric Administration (NOAA) (the "Services"), depending on the species involved. FWS staff estimates that the agency conducts over 2,000 formal consultations per year.[55] NOAA conducts close to 400 consultations a year.

Following this consultation, the Services must provide the federal agency with a written statement – known as a "biological opinion"– that outlines how the proposed activities affect the species or its critical habitat.[56] During the formal consultation process, the Service is required to not only evaluate the effects of the action on the listed species or habitat, but must also consider cumulative effects.[57] When formulating its biological opinion, the Services are directed to determine whether the action "taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. [58]

In rare instances the Services find that th activity would jeopardize the species or adversely modify critical habitat (a "jeopardy opinion"). In such a case, the biological opinion must outline "reasonable and prudent alternatives" that should be taken to avoid jeopardy or adverse modification [59]

FWS estimates that of the 300,000 formal and informal consultations that occurred from 1998-2002, only 420 received a jeopardy opinion. NOAA estimates that it averages between 20 and 50 jeopardy biological opinions each year (between the years 1998 and 2003).[60] The vast majority of formal consultations, however, result in a determination of no jeopardy or adverse modification. If, howeve , the Services determine that the action will cause a take of a listed species, even if there is no jeopardy finding, the Services issue a biologica opinion that outlines "reasonable and prudent measures" that are "necessary or appropriate

to minimize" impacts of an incidental take of protected species.[61]

ESA §10: Section 10 of the act governs non-federal activities. Since 1982, FWS and NOAA have had the authority to permit the taking of a listed species by non-federal entities for activities that may cause incidental harm to a listed species, if the permittee agrees to develop a habitat conservation plan (HCP).[62] One of the conditions of the permit, known as a §10 incidental take permit, is that the applicant will, "to the maximum extent practicable, minimize and mitigate the impacts of such taking."[63] HCPs must identify the impact on the listed species, the steps the applicant will take to monitor, minimize, and mitigate those impacts, and the funding available to implement the plan.[64]

The HCP process, particularly that developed by FWS, continues to evolve. HCPs were firs adopted primarily to allow individual projects that are otherwise lawful but result in the incidental take of a listed species to proceed. More recent HCPs have attempted to address broader-based regional planning issues and, in some cases, multiple species in one plan.[65] This allows for a more coordinated, proactive, and regional approach to conservation and regulation.

The types of mitigation measures specified i an HCP are as varied as the HCPs themselves. However, an HCP handbook developed by the agencies states that they prefer to see the plans address impacts in the following order:

- *Avoid* the impact (such as changing the timing of the project, relocating the project, and restricting access);
- *Minimize* the impact (such as modifying land use practices, creating buffer areas, and reducing project size);
- *Rectify* the impact (such as enhancement, restoration, or revegetation of degraded or former habitat);
- *Reduce* or *eliminate* the impact over time (through proper management, monitoring, and adaptive management); or, finall ,
- *Compensate* for the impact (such as habitat restoration or protection on- or off-site).[66]

Activities approved under an incidental take permit often involve permanent habitat loss, for which permittees are required to provide "habitat mitigation" by "acquiring, or otherwise protecting, replacement habitat at an onsite or offsite location."[67]

Other Laws and Mitigation: Other laws require compensatory mitigation for impacts to wildlife and the environment. Among these are the natural resource damages provisions of the federal Superfund law (Comprehensive Environmental Response, Compensation, and Liability Act) and the oil pollution provisions of the Clean Water Act and the Oil Pollution Act.[68] Natural resources damages may also be recovered for impacts to the national park systems and marine sanctuaries.[69] These are not offsets in the sense of planned actions to compensate for authorized activities, but rather are restoration and recovery actions meant to restore damaged ecosystems and resources after the fact. There are detailed regulations covering the assessment and implementation of natural resource damage payments, and trustees are designated to assure that recovered funds are spent as necessary to restore the public natural resources.

Compensatory mitigation for hydropower projects may be mandated under the Federal Power Act and the Northwest Power Act.[70] Environmental measures often include mitigation for impacts to fish and wildlif habitat. Projects authorized under the biennial Water Resources Development Act(s) may also be required to undertake compensatory mitigation activities (see Chapter 4, "Civil Works compensatory requirements").

Federally supported transportation projects, including highways, bridges, airports, transit, and the like also may give rise to mitigation obligations. Most of these obligations stem from other laws, such as the §404 program or ESA. Transportation legislation has expressly recognized mitigation as an allowable project cost. The Federal Highway Administration (FHWA) has a well-developed environmental program, including research programs, meant to support environmental design, operation, and mitigation for transportation projects.[71] The state of North Carolina created a coordinated program, the Ecosystem Enhancement Program, to harness the stream of anticipated federal transportation mitigation dollars and direct the mitigation toward landscape and watershed-based objectives.[72]

Finally, the Coastal Zone Management Act (CZMA) allows coastal states to perform a consistency review of federally authorized activities in the coastal zone.[73] Section 401 of the CWA allows states to review federally permitted activities to determine whether state water quality standards will be violated by the proposed action.[74] The federal activities themselves may require compensatory mitigation, but the consistency review gives the state the ability to provide input on the mitigation actions.[75]

b. Scope of current programs: funding and acreage affected

Impacts to the environment from land development and other practices are frequent, widespread, and have a significant cumulativ effect on habitat. Although many impacts go unmeasured, five key federal program (CWA, ESA, federal natural resource damage programs, Federal Power Act, and the Northwest Power Act) do require offsets through monetary or in-kind compensation. In a 2007 report, ELI estimated that private and public expenditures for such compensation under these programs total approximately $3.8 billion annually (see Chart 1).[76]

About $2.9 billion of this spending – over 77 percent of the estimated annual amount of funds spent on compensatory mitigation – is generated through the compensatory mitigation requirements of §404 of the CWA. In terms of habitat programs, the next largest is the §10 of the ESA,[77] which represents an average annual commitment of $370.3 million per year.[78]

The size of these programs – in terms of acreage of adversely affected habitat and that provided as compensation – is difficul to determine. Some information is, however, available for the §404 program.[79] The Corps reports that in the seven-year period from 2000 to 2006 the annual amount of wetland acreage permitted for impacts ranged from 18,900 to 24,650 acres, for an average of 20,620 acres a year. Over the same time period, the amount of compensation required varied between 38,727 and 57,820 acres per year, and averaged about 47,384 acres per yea.[80]

c. Performance of existing mitigation programs

Because they have the longest track record and are the most active ecosystem-based markets in the U.S., the wetlands mitigation and endangered species programs provide the most relevant lessons for designing future mitigation programs that support the conservation of ecological and biological resources. This section will focus on the lessons learned from these programs to draw conclusions about the design of any future efforts to regulate impacts to key habitat and related natural systems.

i. The deterrent factor

The nation's current laws that regulate impacts to habitat and species have been a positive force for conservation. It is commonly understood that the very existence of these regulatory programs provide a deterrence to impacts and significant avoidance. When project proponents determine that potential sites are home to jurisdictional wetlands or threatened and endangered species, many of them will avoid these locations altogether. However, few, if any, data are available to demonstrate this effect.

ii. The role of avoidance and minimization

§404 Mitigation: One of the central concepts of the §404 program is that before a permit can be issued to fill a wetland or stream, impact must be avoided as much as possible[81] and those impacts that cannot be avoided must be minimized.[82] After all of the proposed impacts have been avoided and minimized, the Corps can require the permittee to develop a compensatory mitigation plan for offsetting the unavoidable impacts.[83]

Although the Corps' accounting for the number of acres of aquatic resource impacts that permittees have requested and acres that have been permitted is considered accurate, the data on acres that have been avoided is considered far more subjective.[84] That being said, the agency reports that in the seven-year period of fiscal year 2000 to 2006 projec proponents submitted permit requests for impacts that would have led to the loss of, on average, 26,730 acres a year.[85] During that same time period, the Corps reports that, on average, 5,967 acres a year of those impacts were avoided.[86] In other words, the sequencing provisions supported the avoidance of 22 percent of the requested acres of impacts on average over this time period.

Thus the avoidance provisions clearly help to direct projects to locations that have fewer impacts to aquatic resources. It is difficult t deduce, however, how effective the Corps avoidance and minimization procedures are, as there has been little objective evaluation of them. In addition, in many Corps districts, some amount of avoidance and minimization may take place during a "preapplication" consultation phase with the Corps before an application for a §404 permit is submitted.[87]

ESA Mitigation: Under §7, biological opinions outline "reasonable and prudent measures" to minimize impacts of an incidental take of protected species.[88] We were unable, however, to identify readily available data on how effective these minimization measures are in practice – in terms of acres of impacts or number of species affected. Nor were we

able to evaluate how effective avoidance and minimization measures are under §10.

iii. The role of compensatory mitigation

§404 Mitigation: Compensatory mitigation in the §404 program is the third and final step i the mitigation sequence. Offering to undertake compensatory mitigation does not, however, guarantee that a permit will be issued. The new Compensatory Mitigation Rule clearly states that the Corps may determine that a permit cannot be issued if the compensation that the permittee offers is not considered "appropriate and practicable."[89] However, it is difficult to determine how many permi requests are denied on the grounds that the offered compensatory mitigation is unlikely to successfully replace lost resources. In 2003, the Corps denied less than one percent of those permits requested.[90]

Unlike many of the other compensatory mitigation programs reviewed here and elsewhere,[91] the Corps does strive to track the number of acres of aquatic resources that are impacted through the §404 program and the amount of compensatory mitigation that is required. The database the Corps uses throughout its 38 district offices is referred t as the OMBIL Regulatory Module, or "ORM." Although ORM is being used nationwide, the Corps has yet to release updated data on acres of impacts and acres of mitigation required in recent years.

ESA Mitigation: There remains considerable uncertainly whether or not the minimization provisions of the §7 consultation process give the Services the authority to require compensation as a minimization measure. The 1998 FWS *Final ESA Section 7 Consultation Handbook* advises that "it is not appropriate to require mitigation for the impacts of incidental take," and that minimization measures should only occur within the action area, and only to minimize the impacts on specific species o habitat.[92]

Some FWS offices, howeve , have taken a different approach and have determined that impacts to listed species may be "minimized" by requiring conservation measures. The Sacramento field office of FWS, for exampl secures compensation for most, if not all, of the consultations that end in take.[93] Moreover, FWS's 2003 guidance on the use of conservation banks acknowledges that "activities regulated under Section 7 or Section 10 of the ESA may be eligible to use a conservation bank, if the adverse impacts to the species from the particular project are offset by buying credits created and sold by the bank."[94] The feeling of most FWS staff, however, is that the authority provided to the Service under §7 and the consultation process emphasizes the minimization or avoidance of project impacts through design and project changes, rather than compensatory measures.

Section 7 consultations conducted by NMFS rarely if ever result in compensatory mitigation as a requirement in an incidental take statement. NMFS instead relies on avoidance and minimization measures.

Our research revealed that the Services do very little in the way of tracking the nature or amount of compensatory mitigation required under §7 of ESA. This conclusion is supported by a 2009 report by Government Accountability Office and ELI s 2007 compensatory mitigation study.[95]

Unlike §7, §10 of ESA clearly states that permittees are required to minimize and mitigate the impacts to species "to the maximum extent practicable."[96] FWS does maintain a centralized database of Incidental Take Permits, HCPs, and other FWS agreements with non-federal landowners. The database, the Environmental Conservation Online System (ECOS),[97] provides information on the species covered by the HCP, the size of the HCP, and the duration of the HCP.

1. Replacement of functions and services and the need for effective ecological performance standards

§404 Mitigation: A review of the existing literature on the administrative and ecological performance of compensatory mitigation reveals that in many separate studies, a significant percentage of the compensator mitigation projects across the country fail to comply with their permit conditions and, even more frequently, fail to replace lost wetland acres and functions.[98] In its comprehensive national study on compensatory mitigation for wetland losses, the National Research Council reported that between 70 to 76 percent of mitigation required in permits is actually implemented.[99] Several other studies have had similar results.[100] In a 2001 review, researchers found that an average of only 21 percent of mitigation sites met various tests of ecological equivalency to lost wetlands.[101]

The lessons that wetland compensatory mitigation and wetland mitigation banking offer must be viewed not only in the context of the health of the ecosystem *market* it has spawned, but also in the health and resilience of the *habitats* they were designed to conserve. In the §404 program, market success has not, to date, been shown to translate into consistent ecological success.[102]

The ecological success of compensatory mitigation hinges on many factors, including whether or not the mitigation project is measured against performance standards that are ecologically based and adequately designed such that, if met, they will yield the desired aquatic resource functions. To date, the §404 program has fallen short in this regard.[103] Several field-based studies have concluded tha compliance with permit conditions is a poor indicator of whether or not mitigation projects are adequately replacing the appropriate habitat types and ecological functions of wetlands.[104] In many cases, compensatory mitigation sites meet all of their permit standards, but still have not yielded a wetland that meets the federal definition for jurisdiction

The Compensatory Mitigation Rule issued by EPA and the Corps in April 2008,[105] did not prescribe "one size fits all" ecologica performance standards to be included in mitigation plans.[106] In recognition that "ecological performance standards will vary depending upon aquatic resource type, geographic region, and compensation method," the Rule describes "general criteria" or "principles" for establishing appropriate ecological performance standards,[107] and requires that they be "based on the best available science that can be measured or assessed in a practicable manner."[108]

Developing science-based ecological performance standards remains a challenge for the regulatory agencies.[109] Although getting this part of the program right has proven to be essential, several problems remain. In some instances, the science is currently lagging

behind the regulatory requirements. In others, some reviewers have contended that the Corps has not effectively incorporated the "best available science" into performance standards.[110]

ESA Mitigation: In contrast to wetland compensatory mitigation, there is very little in the way of research or literature on either the compensatory mitigation measures that are being required of permittees under §7 or §10 or on the ecological effectiveness of these compensatory mitigation practices or conservation banking.

In 1998, Defenders of Wildlife sought to analyze a sample of HCPs to determine their effectiveness.[111] The report concluded that few of the plans reviewed were adequately based on science; nor were the plans consistent with species recovery. In 1999, the National Center for Ecological Synthesis (NCEAS) and the American Institute of Biological Sciences (AIBS)[112] undertook a study of the use of science in the development of 43 habitat conservation plans (HCPs). Although the study did not seek to evaluate the implementation of these HCPs, it did attempt to assess the likelihood of success of the mitigation measures. The authors concluded that "although HCPs most often identify the primary threat to the affected species, only a little more than half of the time do mitigation plans adequately address that threat."[113] Neither of these studies, however, were designed to determine if species compensatory mitigation measures are achieving their intended biological results.

One mechanism for the agencies to evaluate the ecological effectiveness of the compensatory mitigation provisions required under the Act is through the 5-year review process. The ESA requires the agencies to conduct a review of all listed species at least once every five years [114] This might be the appropriate opportunity for a summary of compensatory mitigation measures required and their ecological outcomes. In 2005, the services released guidance on "the scope and role" of the 5-year review, as well as a template for what should be included in the review. The guidance, however, makes no mention of summarizing or assessing the ecological outcomes of minimization or compensatory mitigation requirements.[115]

2. The need for adequate monitoring

In order for regulatory agencies and the public to determine whether or not individual compensatory mitigation projects are being carried out and if those that are carried out are replacing lost resources, it is essential that the permittees be required to monitor the outcomes of the required mitigation measures. Such monitoring should be directly tied to ecological performance standards outlined in the §404 permit or biological opinion.

§404 Mitigation: Under the 2008 compensatory mitigation rule, all compensatory mitigation projects are required to have a mitigation plan.[116] All mitigation plans must address 12 elements, including monitoring requirements. This section must lay out the parameters that will be monitored in order to determine if the compensatory mitigation project is on track to meet its objectives, as well as a schedule for monitoring and providing monitoring reports to the Corps.[117]

As some members of the 2001 NRC panel on wetland mitigation recently noted, "The manner in which Corps districts implement the ecological performance standards (§332.6/230.95) and the related monitoring section (§332.6/240.96) may well spell the ultimate success of the regulation."[118]

ESA Mitigation: Under §7 of the ESA, biological opinions should contain provisions for the permittee to monitor the effects of its action on listed species. A recent report by the Government Accountability Office (GAO found that "The extent to which the [Fish and Wildlife] Service includes monitoring and reporting requirements in its biological opinions varies considerably."[119] The report also notes the importance of the information provided in monitoring reports to the FWS's ability to assess the cumulative effects of the given take on the species.[120]

3. The need for rigorous oversight and enforcement

Performance standards and monitoring provisions cannot guarantee ecological success on the ground unless compensatory mitigation projects are rigorously measured against such appropriately designed standards and the regulatory agencies provide adequate oversight and enforcement.

§404 Mitigation: Many of the administrative and ecological deficiencies of the §40 program can be attributed to the insufficien resources provided to the Corps for oversight and enforcement.

In 2005, GAO released a report on the Corps' oversight and enforcement track record[121] that concluded that the Corps districts "performed limited oversight to determine the status of required compensatory mitigation."[122] GAO found that the agency provided "somewhat more" oversight for compensatory mitigation satisfied through mitigation banks and in-lie fee mitigation than permittee-responsible compensation[123] (the most frequent type of compensatory mitigation employed).[124] However, "oversight was still limited…" for mitigation banks and in-lieu fee compensation.[125]

GAO concluded that many of the deficiencies in oversight were due to "conflicting guidance, which notes that compliance inspections are crucial yet makes them a low priority," and the agency's limited resources.[126] In its response, the Department of Defense concurred and noted that the agency was working on revising their Standard Operating Procedures (SOP), which outlines the agency's priorities, to clarify discrepancies and provide more clear guidance on mitigation oversight. The agency hoped to finalize the revised SOP by the fall of 2005,[127] but Corps officials state that the revised SOPs are not yet available but should be released in the coming weeks.[128] With regard to enforcement, several different enforcement options are available to the Corps if the agency determines that required compensatory mitigation is not being performed or not meeting performance standards, the mitigation provider fails to submit monitoring reports, or there are other infractions. These include "issuing compliance orders and assessing administrative penalties, requiring the permittee to forfeit a bond, suspending or revoking a permit, and implementing the enforcement provisions of agreements with third parties to perform mitigation on permittees' behalf."[129] The Corps may also bring legal action against permittees in federal district court.

GAO found, however, that Corps districts rarely rely upon the enforcement measures at their disposal and instead rely "primarily on negotiation with permittees or third parties…"[130]

ESA Mitigation: The 2009 GAO report on §7 consultations concluded that "The [Fish and Wildlife] Service lacks a systematic means of tracking the monitoring reports it requires in biological opinions…and does not know the extent of compliance with these requirements.[131] The study reports that in the field offices included in the stu , GAO found that of the consultations that had reporting requirements, FWS "could not fully account for required monitoring reports in 40 of the 54 consultation files (63 percent)… [132] The 5-year review developed for the Valley Elderberry Longhorn Beetle in 2006 supports this finding. In the report, FWS estimate how much habitat has been restored as a result of §7 consultations and acknowledges that its estimate is "likely very inaccurate" because "due to staff and workload constraints, the [FWS] has been unable to determine which compensation measures were actually implemented and their success."[133]

Much like the situation encountered by the Corps', FWS field sta f get conflictin messages about how much of a priority they should place on tracking monitoring reports. FWS staff reported that "responding to requests for consultations often takes a higher priority than following up on monitoring reports…"[134] Part of this is due to the fact that tracking monitoring reports is not an agency performance measure.[135]

Very little information was readily available on the Services' oversight of compensatory mitigation measures that are required through HCPs under §10.

iv. The need for connectedness to a conservation vision

For several decades, federal §404 policy has stated a clear preference for compensatory mitigation to be carried out on-site and in-kind.[136] Lingering concerns over the ecological effectiveness of this approach, as well as its failure to take into consideration a wider view of conservation priorities, led the agencies to allow increasing flexibilit in siting compensatory mitigation projects, by shifting their focus to locating these projects where they are more likely to be ecologically successful. In 1995, the agencies released guidance on mitigation banking that encouraged the use of the off-site option, when it could be demonstrated that doing so was "environmentally preferable."[137] In 2001, the National Research Council (NRC) issued its influential stud , *Compensating for Wetland Losses Under the Clean Water Act.*[138] In it, the NRC Committee recommended that the federal wetland mitigation program make site selection decisions that "follow from an analytically based assessment of the wetland needs in the watershed" rather than through an automatic preference for on-site and in-kind compensation.[139] The Compensatory Mitigation Rule issued by EPA and the Corps in 2008 reversed the agencies' previously held position and established a "preference hierarchy" for selecting compensation options that favors off-site mitigation banks and in-lieu fee programs that are designed using a watershed approach, over on-site compensation. The "Watershed Approach" is described in the box below.

The Watershed Approach

The 2008 Compensatory Mitigation Rule defines the watershed approac as an "analytical process" for making compensatory mitigation decisions that involves consideration of watershed needs and relies upon a landscape perspective.[140] It incorporates many of the comprehensive conservation concepts laid out in this paper.

The agencies first state that if an existing "appropriate" watershed plan is available, it should be used to guide compensatory mitigation decision-making. If such a plan is not available, as will be the case in the vast majority of instances, the watershed approach should be used.

The Rule outlines the "*considerations*" that must be a part of the watershed approach:

> A watershed approach to compensatory mitigation considers the importance of landscape position and resource type of compensatory mitigation projects for the sustainability of aquatic resource functions within the watershed. Such an approach considers how the types and locations of compensatory mitigation projects will provide the desired aquatic resource functions, and will continue to function over time in a changing landscape. It also considers the habitat requirements of important species, habitat loss or conversion trends, sources of watershed impairment, and current development trends, as well as the requirements of other regulatory and non-regulatory programs that affect the watershed, such as storm water management or habitat conservation programs. It includes the protection and maintenance of terrestrial resources, such as non-wetland riparian areas and uplands, when those resources contribute to or improve the overall ecological functioning of aquatic resources in the watershed.[141]

The approach also acknowledges that the compensatory mitigation program does not focus solely on specific functions of aquati resources, such as water quality or habitat for certain species, but rather, "should provide, where practicable, the suite of functions typically provided by the affected aquatic resource."[142] In other words, the program is meant to take into consideration the full range of ecosystem services provided by aquatic resources.

The Rule also describes the *type of information* that should be utilized in watershed-based decision-making. It suggests that this information may be contained in existing plans or in information from other sources, including wetland and soil maps; U.S. Geological Survey topographic and hydrographic maps; aerial photographs; information on rare, threatened, and endangered species; local ecological reports or studies, etc.[143] The list of items that should be consulted includes "current trends in habitat loss or conversion; cumulative impacts of past development activities, current development trends, the presence and needs of sensitive species site conditions that favor or hinder the success of compensatory mitigation projects; and chronic environmental problems such as flooding or poor water qualit ."[144]

The watershed approach to compensatory mitigation decision-making fully contemplates the selection of sites that contribute to maintaining habitat diversity, connectivity, and the appropriate proportions of habitat types needed to enhance the long-term stability of watersheds. In most cases, such information is readily available in the State Wildlife Action Plans and other state and regional conservation plans.[145]

Chapter Four

A Framework for Advancing The Next Generation of Mitigation

This section sets forth a more detailed discussion of how the next generation of mitigation can be applied to existing, expanded, and new authorities that regulate impacts to habitat and species.

a. Essential components of the next generation of mitigation

The structure of and lessons from current mitigation programs suggest several essential components for an effective, comprehensive mitigation framework – the next generation of mitigation. These include:

- Extend mitigation concepts to all habitat types;
- A clear policy goal;
- Landscape-level planning for conservation and ecosystem services;
- Regulatory drivers;
- A defined mitigation protocol; an
- Implementation guidance to ensure that the mitigation protocol is consistently and rigorously applied and that accountability for results is assured.

These fundamental elements should be addressed by any regulatory program seeking to apply, expand, or extend protections to habitat and species through mitigation.

i. Policy goal

A policy goal for compensatory mitigation, such as the "no net loss" policy for wetlands[146] or the policy to offset adverse impacts to threatened and endangered species under habitat conservation banking,[147] greatly influences how regulatory agencies mak mitigation decisions and how regulations and guidance evolve over time. Establishing such a goal is essential for any regulatory program aiming to ensure the long-term conservation of wildlife habitat. Without it, we are left with a regulatory program that allows habitat loss without any effort to avoid or minimize impacts and without at least equivalent habitat gains. Ideally this goal will encourage more proactive, comprehensive efforts to conserve wildlife before it becomes threatened or endangered (and thereby more costly to protect and ensure survival). This would be in line with the State Wildlife Grants Program,[148] which was designed to prevent wildlife from becoming endangered and encourages improvements in conservation planning through the development of State Wildlife Action Plans.

ii. Landscape-level planning for conservation and ecosystem services

Mitigation programs should move away from piecemeal, project-by-project mitigation approaches, which often result in a patchwork of isolated, disconnected, and difficult-t - manage protected or restored habitats that fail to deliver effective conservation. Mitigation should be based on conservation planning developed in a landscape context to ensure mitigation contributes to the long-term conservation goals of a specified geographi area – a watershed for wetlands or a recovery unit for species. For example, under the Watershed Approach, the compensatory mitigation step is now required to take a

landscape-scale perspective (see Box "The Watershed Approach"). Under the approach, compensatory mitigation sites must be located within the same watershed as the impact site and where it can most successfully replace lost functions and services.[149] The approach requires that siting decisions take into account watershed scale features such as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources, land use trends, ecological benefits, and compatibility wit adjacent land uses.[150] Such landscape-level planning is essential for effective mitigation. It can support effective avoidance of impacts to critical resources, cumulative impact analysis, and the expenditure of compensatory mitigation funds in a manner that contributes to broader conservation goals for wildlife habitat and resilience to future stresses.

A framework is needed to guide landscape-level conservation planning and ensure coordination among the range of mitigation programs operating under different regulatory authorities. State Wildlife Actions Plans could serve this role, as they currently identify critical wildlife habitat and threats to that habitat in a landscape context. While in some cases State Wildlife Action Plans will need further development, additional data, and wider conservation planning input,[151] such improvements could make them a vital guide for effective mitigation. In addition to the State Wildlife Action Plans, there are also a wide range of other federally recognized and regional conservation plans that offer important conservation information that can be useful in guiding mitigation decisions. (These are outlined in Chapter 2, "The information basis for the next generation of mitigation.")

Taken together, these plans may provide the necessary information on species, ecological communities, and habitats regarding their biodiversity significance, irreplaceability an vulnerability, historic and existing conditions, trends in loss and conversion, immediate and long-term conservation needs, and priorities for restoration, establishment, enhancement, and preservation activities. In some cases additional planning and analysis are needed to provide the detailed information required to make site-based choices concerning avoidance of habitat loss and to identify the best locations for habitat replacement through compensatory mitigation.

To be effective, landscape-level planning needs to more fully account for sources of, and threats to, "ecosystem services." Ecosystem services refer to the benefits tha nature provides to people, such as a forested watershed's contribution to drinking water quality. In 2008, ecosystem services were for the first time explicitly integrated a one of the decision-making factors in the regulatory permitting process of the wetlands compensatory mitigation program.[152]

To support this decision-making, more landscape-level information on ecosystem services will be needed, including the types of services, service stocks and production flows, service delivery pathways, servic beneficiaries, service values, e fects of cumulative service losses, and projections of service changes.[153] With such information, it will be possible to identify important areas for ecosystem services. And where ecosystem services can be integrated into landscape-level conservation plans, such as State Wildlife Action Plans, there will be the opportunities for compensatory mitigation to deliver both

wildlife and ecosystem service benefits. Fo more on ecosystem services, see Chapter 5.

iii. Regulatory drivers

Appropriate legal and regulatory drivers are needed to support mitigation programs. For example, regulations under §404 of the CWA support the goal of "no net loss" of wetlands. Likewise, mitigation carried out through conservation/habitat banking is driven by provisions of the ESA. Section 9(a)(1) prohibits the "take" of endangered fish and wildlife species and §4(d) extend this to threatened species. Implementation of regulatory approvals under §§7(a)(2) and 10(a) provide the basis for compensatory mitigation. For other programs, it may be necessary to strengthen existing regulatory drivers in order to expand mitigation for wildlife habitat.

iv. Mitigation protocol

All compensatory mitigation programs should follow the same mitigation protocol applied for wetlands and conservation banking. Referred to as "sequencing" in the §404 context, mitigation is generally a step-wise process designed to first avoid and minimiz impacts as much as possible and then require compensation for residual impacts. (For a description of the origins of this protocol and its application in legal contexts, see Chapter 3, "Legal framework of existing programs.") This mitigation framework is broadly accepted and has been adopted around the world (e.g., European Union, Australia). The aim is to ensure compensatory mitigation is used as an option of last resort, after appropriate efforts have been made to avoid and minimize impacts, and that compensatory mitigation is not used to make a potentially avoidable project appear more acceptable.

v. Implementation regulations and guidance

Regulatory agencies need clear implementation rules and guidance to advance the next generation of mitigation, especially with regard to ensuring conformance to the mitigation protocol. On-the-ground results from current programs, such as wetlands mitigation under the §404 program, suggest there is room to improve guidance on avoidance and minimization.[154] Specific issues to addres include:

- Clear provisions on how to implement the mitigation protocol to ensure effective avoidance and minimization;
- Consistent guidance providing for sufficient resources to suppor implementation of avoidance and minimization steps;
- Guidance and resources for oversight and enforcement supporting meaningful deterrence for non-compliance.

Improvements in implementation are also needed for compensatory mitigation – the third step of the mitigation protocol. To date, compensatory projects have not delivered consistent and effective outcomes for conservation (for a full discussion, see Chapter 3, "Performance of existing compensatory mitigation programs"). Based on lessons from wetlands compensatory mitigation, to advance compensation under the next generation of mitigation, further implementation guidance is needed to address the following issues:

- Types of compensatory mitigation (restoration, establishment, enhancement, preservation) that qualify as compensation;
- Basis for determining a new contribution to conservation ("additionality");
- Basis for determining equivalence between the impact site and the value of the compensation provided;
- Science-based replacement ratio requirements (amount of compensatory mitigation required per unit of impact);
- Location of compensatory mitigation sites relative to the impact site;
- Timing of project impacts vs. functionality of compensatory mitigation benefits, with adequat consideration of "advance" mitigation;
- Science-based performance standards or success criteria that, if met, will yield the intended ecological outcomes;
- Provisions for monitoring of compensatory sites that is directly tied to the ecologically based performance standards and measured against the impact sites; and defined length o monitoring periods;
- Provisions for protection of sites in perpetuity;
- Provision of adequate financia resources and legal assurances to support long-term stewardship; and
- Provisions for built in buffers to guard against failure, such as requiring compensation ratios above 1:1 or requiring preservation of intact habitat in addition to restoration, to guarantee a net gain in natural habitat functions.

Finally, measures should be in place to ensure that if independent field-based researc demonstrates that the compensatory mitigation program is not achieving the replacement of habitat area *and* functionality, or if the offered mitigation does not promise success, the regulatory agency has a clear avenue for denying the action and/or the mitigation approach. Mitigation that is based on a plan, particularly an ecologically based plan, can more readily be assessed and adjusted when results are not being achieved.

b. Existing or expanded provisions for next generation mitigation

Existing U.S. laws and programs offer a substantial basis for the next generation of mitigation. In this section we consider ways to improve implementation of these programs and offer opportunities to expand upon existing authorities in view of anticipated infrastructure developments and related activities.

i. Clean Water Act §404 mitigation

In the §404 program, the vast majority of the agencies' attention over the past 20 years has been paid to improving the third step in the mitigation process – compensatory mitigation. Very little attention, on the other hand, has been paid to more consistently and rigorously applying the first two steps – avoidance an minimization.[155] (For more, see Chapter 3, "The role of avoidance and minimization.") Particularly in light of the mixed track record of compensatory mitigation, the agencies should develop further tools, guidance and/or regulations to ensure the rigorous application of avoidance and minimization.[156]

The regulations that guide the mitigation sequence state that the Corps may not issue a permit "if there is a practicable alternative

to the proposed discharge which would have less adverse impact on the aquatic ecosystem…"[157] The permittee is required to submit documentation to the Corps on the alternatives that were considered. However, the Corps does not currently have the tools at their disposal to adequately evaluate whether or not all of the legitimate alternatives were considered. Developing a new tool or making an existing tool available that would allow the agency to check real estate records of available properties would go a long way to helping them evaluate whether or not the alternatives outlined reflect a consideration of all of th available properties.

The minimization provisions of the §404(b)(1) Guidelines are satisfied through procedure described in Subpart H of the Guidelines.[158] The section provides a broad array of possible methods for minimizing the impacts of a proposed activity. The regulatory agencies, however, do not have the in-house expertise they would need to effectively evaluate whether the minimization measures proposed are adequate or reasonable. Developing standards for how impacts can be minimized in broad categories – such as mining, port development, residential development, etc. – would improve the regulators' ability to evaluate whether impacts have been adequately minimized.

The ability of §404 compensatory mitigation to achieve the objectives of broad, non-aquatic resource conservation plans does have its limitations.[159] Given the nation's historic loss of wetlands and streams, this is a wise approach. The Corps has limited ability to force compensation providers – either permittees or bankers – to locate compensation projects in areas that are deemed ecologically desirable in a watershed plan or more comprehensive conservation plan. The 2008 Compensatory Mitigation Rule, however, provides a significant opportunity to link th §404 compensatory mitigation program to a broader habitat conservation vision.[160] Under the Watershed Approach outlined in the rule (see Box "The Watershed Approach"), the agencies state that compensatory mitigation decisions should be made in the context of a watershed plan, if one is available, and if one is not, should consider, among other things, "habitat requirements of important species" and "habitat loss or conversion trends."[161] In addition, the rule states that the watershed approach should consider "the requirements of other regulatory and non-regulatory programs that affect the watershed, such as…habitat conservation programs."[162]

Thus, the rule opens the door for viewing compensatory mitigation site selection within the context of whole watersheds. This approach will help the agencies more effectively identify the most critical sites to avoid, undertake cumulative impact analysis, and identify the most ecologically strategic sites to compensate for those impacts that cannot be avoided. The overall objective can then be to reinforce the health and resilience of the whole watershed.

ii. Federal Endangered Species Act

The federal Endangered Species Act does not apply the mitigation protocol in the same manner as the CWA § 404 program (see Chapter 3, "Legal framework of existing mitigation programs"). In order to clarify the mitigation protocol under §7, the agencies should develop rules or guidance outlining the process for avoidance and minimization

and should clarify that compensation is an appropriate measure to minimize impacts to species, particularly when the take leads to permanent habitat loss. As noted earlier (see Chapter 3, "ESA, Habitat Conservation, and Mitigation"), inconsistencies in FWS policy currently create uncertainty with respect to whether or not the minimization provisions give the Services the authority to require compensation as a minimization measure.

In addition, the Services should develop adequate tools for field staff to track impacts authorized through §7 consultations, migration measures required, and monitoring. The agencies should also provide clear signals and incentives for field staff to devote time to oversight. Tracking monitoring and undertaking oversight of mitigation measures will support more effective cumulative impact analysis. Nonetheless, the agencies should consider developing cumulative impact analysis guidance and tools to support field staff.

The §10 HCP process also specifically require review of alternatives, minimization of impacts, and mitigation (see Chapter 3, "ESA, Habitat Conservation, and Mitigation").[163] It too provides a basis to implement the mitigation protocol. Over the past ten years, HCP planning efforts have evolved from predominantly small-scale, project-by-project planning efforts to more large-scale or multi-species plans. These regional HCPs can cover hundreds of thousands of acres and numerous species. If based on the best available science, these larger-scale, more regional plans can allow for a more coordinated, proactive, and regional approach to mitigation. Regional HCPs can identify priority habitats for conservation and mitigation, while also prioritizing where to develop and what kinds of development should take place where. These larger scale plans may ensure that species and their habitats are preserved in a regional context and facilitate preservation of habitat connectivity and wildlife corridors.

As with the wetland program, federal agencies cannot require that mitigation carried out under the ESA be sited in a particular location, but the mitigation action must satisfy FWS or NOAA. In addition, because mitigation is targeted to offset impacts to a specific liste species, any compensation must contribute to supporting the preservation and recovery of that particular species.

However, compensatory mitigation carried out under ESA can support landscape-scale conservation, primarily by siting and managing conservation banks in support of more comprehensive conservation goals. When developing §7 and §10 minimization and mitigation measures, FWS and NOAA are required to gather all available data on surrounding habitat. Having a comprehensive conservation framework could also provide strategic guidance for HCP development. Comprehensive conservation plans could help support the development of multi-species HCPs that address broad-based, landscape-level planning issues.

But even apart from regional HCPs, the availability of detailed conservation information can help the Services determine how best to target mitigation in the context of individual HCPs as well as §7 consultations with federal agencies.

iii. The operation of the National Environmental Policy Act on federal lands and elsewhere

NEPA requires consideration of mitigation in the context of evaluating environmental impacts of major federal actions. There is no required sequence of mitigation that requires avoidance and minimization in advance of compensatory mitigation. However, alternatives and their impacts must be identified, including reasonable mitigatio measures. The mitigation protocol can be applied by federal agencies in their NEPA evaluations.

In the west, vast federal ownerships makes mitigation under NEPA at the landscape scale possible, but in the east where there is far less federal land ownership, there are fewer opportunities to use NEPA to drive the mitigation protocol. Even in the west, many critical valley areas and their riparian zones are outside of federal ownership and may not be directly subject to NEPA evaluations and consideration for mitigation actions, absent the need for a federal permit.

Impacts from mining, siting of renewable energy projects, rights-of-way, and other activities are subject to permitting, licensing, leasing, or other kinds of approvals. NEPA can serve as a means of identifying the mitigation that will be needed and that may be incorporated in such approvals.

Dealing with these issues on a landscape or ecosystem basis is supported by several provisions of the NEPA regulations. The firs is the use of "programmatic" Environmental Impact Statements to address the likely impacts, alternatives, and mitigations of a whole federal program (such as solar leasing on Bureau of Land Management lands). The programmatic statements provide an opportunity to conceptualize both impacts and mitigation at a macro scale. Then the preparation of leasing plans and approval of specific projects have their own NE A reviews, which can rely on the programmatic statement to guide the more fine-grained analysis in subsequent plan or project EIS or EA.[164] The NEPA regulations note that when preparing statements on "broad actions," agencies may find it useful to evaluate the proposals in on of several different ways, among which are "geographically, including actions occurring in the same general location, such as body of water, region, or metropolitan area," by generic type of action or impact or subject, or by stage of technological development or activity.[165]

Thus, a programmatic EIS could address the likely impact of a particular technology on a broad area of public lands and waters and identify likely bases of mitigation and sources of information that could best inform such mitigation. At the project level, this broader analysis would shape the specific mitigatio responses considered in the project EIS or EA. NEPA regulations also provide for consideration of cumulative impacts,[166] so that even if a programmatic EIS is not prepared, each project EIS will need to address the foreseeable impacts of the project and future projects. This too can serve as a basis for integrating broader-scale conservation plans into mitigation – rather than treating each project's mitigation requirement as an independent decision. Reliance on State Wildlife Action Plans and other federally recognized and regional plans will result in better predictions using NEPA, and may well help projects with avoidance of key habitats,

development of mitigated FONSIs (Finding of No Significant Impact), and design o useful compensatory mitigation measures for unavoidable impacts at the project level.

iv. Specific activities an circumstances under existing law

1. Energy development

U.S. energy demand is expected to increase by 0.5 percent annually through 2030,[167] requiring large investments in energy generation and transmission. This demand, in combination with broader aims to reduce carbon emissions and achieve energy independence, signals the potential for a dramatic expansion in the "footprint" of impacts from the energy sector. Consider the following projections:

- About one-fifth of the land area o the U.S. may need to be dedicated to energy production and transmission facilities to meet low carbon electricity and biofuel production requirements.[168]
- The Department of Energy's 20 percent wind goal will cause the fragmentation of approximately 12 million acres of land from the siting of wind turbine facilities and 11,000 miles of new transmission lines in the grasslands and forests of Central and Western U.S.[169]
- Solar energy is considered economically viable on about 35 million acres of land. With more than 100 permit applications for solar projects already pending, there is high potential for fragmentation of millions of acres of sensitive deserts in the Southwest U.S.[170]
- Over 100,000 additional oil and gas wells with a roughly 2 million-acre footprint are anticipated over the next 20 years in the U.S. Mountain West.[171]
- The need to transmit such energy to market and the demand for a so-called smart grid will result in the construction of new energy transmission lines that will also fragment important wildlife habitat

In light of this potentially large energy development footprint, a more comprehensive planning approach is needed. This approach should provide consistency and specificit to the application of the mitigation protocol for these impacts, with primary attention to avoidance and minimization of impacts to priority habitat and compensatory mitigation for unavoidable residual impacts. Currently, mitigation policy varies depending on the type of energy generation (oil and gas, wind, solar, and so on) and jurisdiction (e.g., Bureau of Land Management, USDA Forest Service, and federal and state endangered species policies).

A more comprehensive and consistent approach to mitigation planning would help in meeting federal mandates specified i the Federal Land Policy and Management Act of 1976 (FLPMA), the National Forest Management Act of 1976,[172] the National Environmental Policy Act of 1969, and CEQ Regulations for Implementing the National Environmental Policy Act.[173] These programs can already support a consistent and rigorous use of the mitigation protocol and a reliance on comprehensive landscape-scale planning as a basis for mitigation decisions. For example, §202(c) of FLPMA calls for land use planning to "(2) use a systematic interdisciplinary approach to achieve integrated consideration of the physical, biological, economic, and other sciences" and "(3) give priority to the

designation and protection of areas of critical environmental concern."

In addition to planning, there may be opportunities to strengthen guidance for compensatory mitigation under some programs, such as Bureau of Land Management's (BLM) Offsite Mitigation Policy[174] issued September 30, 2008. The guidance states:

> Offsite mitigation may be offered voluntarily by a project proponent, incorporated into the project proposal, and approved by the BLM as a condition of the permit authorization. In certain other cases, the BLM may fin it necessary to advise the applicant that the project proposal cannot be approved without additional onsite modificatio or additional mitigation, including offsite mitigation. There may be a need for offsite mitigation when:
>
> - Impacts of the proposal cannot be mitigated to an acceptable level onsite; and
> - It is expected that the proposed land use authorization as submitted would not be in compliance with law or regulations or consistent with land use plan decisions or other important resource objectives.[175]

This guidance would be strengthened by requiring the use of information from comprehensive landscape-level conservation plans, such as State Wildlife Actions Plans, to provide a clear basis for determining when onsite mitigation is insufficient and the "certain other cases" when compensatory mitigation is needed.

Application of the Next Generation of Mitigation to Oil & Gas Development
In the intensive natural gas development areas of south/central Wyoming, The Nature Conservancy worked with the Bureau of Land Management and the British Petroleum Company to employ new strategies for mitigation for oil and gas development. Using regional biological assessments from its ecoregional planning the Conservancy firs advised BP about the best locations to mitigate the impacts on important sage brush habitat of its exploration activities and, then, used the same ecoregional data to advise BP and the BLM about the most important places to avoid the direct impacts of drilling. This approach incorporates both more rigorous use of the mitigation protocol and viewing mitigation in a regional planning context to minimize and compensate for ecological impacts.

2. Transportation and infrastructure

In 2005, Congress enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) to govern transportation policy and funding through 2009. A new federal transportation bill will need to be enacted to guide the next set of transportation expenditures and plans.

Section 6001 of SAFETEA-LU requires metropolitan and state transportation agencies to consider conservation, including landscape conservation relevant to wildlife. Under this section, each metropolitan planning organization (MPO) and state department of transportation (DOT) must "consult" with state, tribal, and local agencies "responsible for land use management, natural resources,

wildlife, environmental protection, conservation and historic preservation" when developing the required long range (20-year) transportation plans that govern planning and decision-making. This consultation "shall involve comparison of transportation plans to State and tribal conservation plans or maps, if available, and comparison of transportation plans to inventories of natural or historic resources, if available."[176] The conservation plans that must be consulted and compared should include, but are not limited to, State Wildlife Action Plans.

The law also requires long range transportation plans to include a discussion of the type and location of "potential environmental mitigation activities and potential areas to carry out these activities, including [mitigation] activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan." This "discussion" must also be developed "in consultation with federal, state, and tribal wildlife, land management, and regulatory agencies."[177] Once again, these requirements present a significant opportunit to integrate mitigation for transportation projects with landscape scale, ecologically significant conservation plans, where thes exist or are under development.

Under current law, preparation of the long-range transportation plans by MPOs and state DOTs are not major federal actions subject to NEPA. Thus, the consultation, discussion, and comparison requirements that lend themselves to landscape-scale conservation *do not* include the evaluation of alternatives or rigorous environmental analysis that NEPA requires. Thus, even though the §6001 planning process offers significant opportunities for coordinatio and integration of conservation objectives with transportation infrastructure, it is not until the project level that the connection of actions to actual mitigation types and locations receives detailed consideration.

Moreover, with one exception, the transportation laws as they currently stand do not themselves specify compensatory mitigation of any particular type or form. Such obligations arise under other laws, including the ESA and §404 of the CWA.

The DOT does have one compensatory mitigation requirement under a section commonly known as "§4(f)," which refers to the section where it originally appeared in 1966 legislation.[178] This section prohibits federally supported transportation projects that require the use of "any *publicly owned* land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdictio thereof, or any land from an historic site of national, State, or local significance as s determined by such official *unless* (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use."[179] Essentially this requires avoidance and minimization of impacts on public park land. The Federal Highway Administration interprets this provision to include compensatory mitigation.[180]

> Minimization of harm entails both alternative design modifications tha lessen the impact on 4(f) resources and mitigation measures that compensate for residual impacts. Minimization

and mitigation measures should be determined through consultation with the official of the agency owning o administering the resource. Neither the Section 4(f) statute nor regulation requires the replacement of 4(f) resources used for highway projects, but this option is appropriate under 23 C.F.R. 710.509 as a mitigation measure for direct project impacts. Mitigation measures involving public parks, recreation areas, or wildlife and waterfowl refuges may involve a replacement of land and/or facilities of comparable value and function, or monetary compensation, which could be used to enhance the remaining land.

Thus, where a transportation project unavoidably affects §4(f) resources, compensatory mitigation might be guided by a landscape scale mitigation plan or conservation plan that the relevant conservation agency has adopted or recognized.

3. Response to sea level rise

Section 404 is by no means the only or controlling response to sea level rise. It is one of many regulations, programs, and responses likely to be needed. But §404 and the watershed or regional approach can have an important function in mitigating the impacts of the infrastructure investment that may be employed to respond to rising sea levels.

The likelihood of significant sea level rise in response to global climate change presents special circumstances for the application of §404 in coastal areas. Current projections suggest increased sea levels of 1 to 1.5 meters by the end of the century, with the potential for

Advance Mitigation

Another framework that is gaining popularity is regional advance mitigation. Proactive regional advance mitigation planning allows state and federal agencies to anticipate the environmental impacts of several planned infrastructure projects at once, and to identify regional conservation opportunities that will satisfy anticipated mitigation requirements before the projects are in the final stages of environmental review, when the need to identify specific mitigation measures can delay project approvals. The result is cost-effective and efficient mitigation for infrastructure project delivery and more viable conservation investments by pooling mitigation needs across agencies over larger areas.

By addressing biological mitigation needs early in the projects' timelines, during project design and development, planners can reduce the cost of mitigation and integrate natural resource conservation in the project design and achieve more effective conservation. The benefits to natural resources and ecosystems are many, including better alignment of mitigation with existing conservation priorities, larger scale conservation allowing for protection of ecosystem function, buffering and securing past conservation investments and providing the resources to adaptively mange these lands in the face of accelerating change.

an even faster rate of increase. Rises of this magnitude would expose a number of large U.S. cities, such as Miami and Boston, to storm damage and, ultimately, inundation of low lying areas. It is unlikely that our society will abandon this level of investment, so engineers are already designing protection schemes. While non-structural "natural" protection measures may help at some locations, structural solutions will be required at others. As has been the case in the Netherlands, such solutions would likely involve extensive dredging and filling of coastal wetland and alteration of other natural coastal features. In the U.S., such activities would trigger §404. Given the risks to human and natural communities from sea level rise, a comprehensive approach to such measures would help to identify which areas of coastline can adapt to changing sea levels, where non-structural measures can be employed, where engineered protection must be put in place and how the impacts of such construction can be mitigated.

Such analysis can only be done on a regional basis and, given the long term character and high costs of such investment decisions, a specific process within the context of §40 should be adopted to ensure the widespread application of the mitigation protocol and application of mitigation criteria that takes into account regional issues. Using State Wildlife Action Plans and Coastal Zone Management Plans can guide this process.[181]

4. Department of Defense/Homeland Security applications

Military installations occupy approximately 30 million acres in the U.S. and are often located in rural or coastal areas that include or are adjacent to important natural resources. In many instances, military installations contain some of the largest unfragmented habitat in the area. For a variety of reasons, including their location, size, active ecosystem-based management,[182] and the loss and degradation of habitat and wetlands resulting from development on non-military lands in the vicinity, military installations contain the highest density per acre of ESA listed species of any federal lands.[183]

In addition to generally applicable statutes such as the ESA, CWA, and NEPA, management of natural resources on military lands is governed by the Sikes Act.[184] The Act includes requirements for the military to prepare Integrated Natural Resource Management Plans (INRMPs) that address the management of natural resources on Department of Defense (DoD) lands and waters. These plans are prepared in coordination with, and subject to the concurrence of, FWS and the relevant state fish and wildlife agencies, a requiremen unique to DoD. Importantly, the Sikes Act also requires that INRMPs provide for "no net loss in the capability of military installation lands to support the military mission of the installation."[185] DoD has for some time been exploring the desirability of fully integrating its own natural resource management plans with the relevant State Wildlife Action Plans in order to maximize the "ecological return on investment" of their own natural resource management activities.

In the past, compensatory mitigation actions under NEPA, §7 of ESA, and §404 of the CWA, have largely been undertaken within the boundaries of the same military installation where the action requiring compensation occurs. However, several factors have limited

the number of viable compensatory mitigation opportunities on DoD's own lands and waters. In response, the 2009 National Defense Authorization Act provided new authority to DoD to satisfy their compensatory mitigation requirements through the purchase of credits from conservation banks and participation in in-lieu-fee programs outside the borders of its own installations,[186] paralleling similar authority provided previously for DoD to participate in wetland mitigation banks and in-lieu-fee programs.[187]

The Department of Homeland Security (DHS), and specifically Customs and Borde Protection (CBD) within DHS, has undertaken significant infrastructure construction an other activities at or in the vicinity of the international borders of the U.S., especially the border with Mexico.[188] Under the "Real ID" provisions[189] of the Illegal Immigrations Reform and Responsibility Act of 1996,[190] the Secretary of Homeland Security received, and has exercised, sweeping and unprecedented authority to "waive all legal requirements," including environmental laws, that the Secretary deemed necessary in order to expeditiously complete construction of pedestrian fencing, vehicle barriers, and roads along the borders. Accordingly, for actions within the scope of the exercise of this waiver authority, application of the mitigation hierarchy is arguably not required as a matter of law. However, under a January 2009 Memorandum of Agreement between DHS and the Department of the Interior (DOI),[191] compensatory mitigation action is being planned for impacts of activities covered by the waivers, with an initial focus on compensatory mitigation action that otherwise would have been required under the ESA, especially on federal lands.

Recognizing the impacts of security infrastructure and operations along the border, legislation has been drafted and is pending introduction in the 111th Congress.[192] Under that Act, DHS would be required to develop and implement[193] a "comprehensive mitigation plan to address the ecological and environmental impacts of border security infrastructure, measures, and activities along the international land borders of the United States." The mitigation measures contemplated by the proposed legislation would be based on a broader approach than the ESA and similar statutes, and would be aimed at preserving the ecological health of natural communities as a whole, include maintaining and if necessary restoring wildlife migration corridors. In addition, the legislation would require provisions for monitoring the effectiveness of actions taken and provide for adaptive management and additional measures determined to be required on the basis of such monitoring.

5. Civil Works compensatory requirements[194]

The Water Resources Development Act (WRDA) is the biennial legislation that is the main vehicle for funding the Corps to study, plan, and carry out water resource development and restoration projects. WRDA 1986 required the Corps to "mitigate damages to fish an wildlife resulting from any water resources project under [its] jurisdiction."[195] Although the §404 program's Watershed Approach was still nine years away, the Corps' regulations guiding this provision of WRDA acknowledges the need to plan compensatory mitigation projects within a landscape perspective: "Ecosystem restoration projects should be formulated in a systems context to improve the potential

for long-term survival of aquatic, wetland, and terrestrial complexes as self-regulating, functioning systems."[196] The regulations also note that when planning the ecological restoration, the Corps must comply with the Fish and Wildlife Coordination Act by giving full consideration to, among other things, "the appropriate head of the State agency exercising administration over the fish and wildlif resources."[197]

The 2007 version of the bill, for the firs time, requires the Corps to consider the use of a mitigation bank if the bank is within the same service area as the impact and has the appropriate number and type of credits available.[198] Guidance issued in support of the Act in November 2008 states that when using a bank to compensate for impacts, the bank must "be approved in accordance" with the 2008 Compensatory Mitigation regulations.[199]

6. Federal Energy Regulatory Commission licensing[200]

The Federal Power Act (FPA) may require compensatory mitigation for impacts due to non-federal hydropower projects. The Federal Energy Regulatory Commission is the lead federal agency responsible for issuing licenses and renewals under FPA and for making the final determination about license conditions including protection, mitigation, and enhancement requirements. There are currently around 1,000 licensed non-federal hydropower projects (projects licensed to private or public agencies rather than federally-operated); FERC granted about 350 licenses (mostly renewals) from 1993 through 2005.[201] Given the life of the permit, 30 – 50 years, many of the projects up for re-licensing today were granted prior to the passage of modern environmental law - with few environmental requirements. New conditions set forth today may not be reviewed or revised for decades.

Several sections of the FPA relate to mitigation requirements. Section 4(e) requires FERC to consider competing objectives when issuing licenses or re-licenses. The law requires that "in addition to the power and development purposes for which licenses are issued" FERC "shall give equal consideration", but not necessarily equal treatment,[202] "to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife (including related spawnin grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality."[203]

To receive a license, re-license, or to surrender a license applicants must comply with development, safety, and any environmental mitigation requirement set by FERC. Section 10(j) of the FPA requires that "in order to adequately and equitably protect, mitigate damages to, and enhance, fish and wildlif (including related spawning grounds and habitat) affected by the development, operation, and management of the project, each license issued…shall include conditions for such *protection*, *mitigation*, and *enhancement*."[204] The law also requires that hydropower projects must be:

> best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstat or foreign commerce, for the improvement and utilization of water-power development, for the adequate protection, mitigation, and

> enhancement of fish and wildlif (including related spawning grounds and habitat), and for other beneficia public uses, including irrigation, floo control, water supply, and recreational and other purposes referred to in [Section 4(e)].[205]

Further, environmental conditions specifie by FERC in hydropower licenses are based on recommendations from fish and wildlif agencies (e.g., U.S. Fish and Wildlife Service, National Marine Fisheries Service, and state fish and wildlife agencies) [206] The wildlife agencies provide information to help determine the damage to fish and wildlife resource and the means and measures to be adopted to mitigate the damage.[207] Resource agencies can also impose mandatory licensing conditions in some cases, which can include compensatory mitigation requirements. These include mandatory conditions for projects 1) within a defined "reservation [208] area, imposed by the overseeing agency under §4(e) of the FPA[209] or 2) prescribed as "fishways" by FWS o NOAA's National Marine Fisheries Service under §18 of the Federal Power Act. The FPA recognizes impacts (e.g., fragmenting rivers, preventing up- and downstream movement of fish) to fishwa [210] as separate from other habitat and fish and wildlife impacts

These mitigation requirements provide an opportunity for FERC and the fish and wildlif agencies to use State Wildlife Action Plans, or other comprehensive conservation plans, as a reference for understanding state fis and wildlife diversity, threats, and priorities; helping the agencies to assess protection, mitigation, and enhancement measures and mandatory conditions in relation to the priorities of the conservation plans as well as the other goals of the FPA under §4(e) and 18.

The best available data on compensatory mitigation required by hydropower licenses come from Environmental Assessments (EAs) and Environmental Impact Statements (EIAs) issued by FERC during the licensing process. For the years 2003 to 2006, FERC issued 70 EAs and final EIAs that itemize mitigation measures. In total, the EAs and EIAs recommended an annual commitment of $210.3 million to compensatory mitigation annually.[211]

7. Natural resource damages

Assessment and compensation for natural resources damages under federal[212] can be considered another form of compensatory mitigation. While outside the scope of this paper, the use of State Wildlife Action Plans and the other plans referenced here can and should inform the selection of activities to offset the harm caused by spills and other environmental insults.[213] Such activities, however, cannot be anticipated and so they are outside the use of the overall mitigation protocol described in this paper.

c. Potential new authorities

i. On-shore energy development

New energy bills are likely to be introduced in the 111th Congress that provide incentives and/ or a framework for the siting of conventional and alternative energy facilities on public and private lands. It is conceivable that environmental requirements could be added to this legislation that while facilitating siting

could also include requirements for evaluating environmental impacts and for mitigation.

There is the prospect for reform of electric power transmission in the U.S., both to bring more sources of renewable energy into the power grid, and to take advantage of improvements in technology and efficienc . If Congress adopts legislation to promote or facilitate siting of high voltage transmission across the landscape, it may also decide to impose mitigation requirements (in addition to those already applicable under ESA, §404, and identified under NE A review). Congress could specify that as a condition for siting and approval of these large-scale, linear infrastructure facilities, habitat avoidance, minimization, and compensation would be required. It would be logical to have such mitigation coordinate with existing large-scale conservation plans. Because much of the existing approval of transmission is under state law (or would require a federal override of state law under new authority), referencing state conservation plans has an attractive logic.

ii. Offshore energy/marine spatial planning

With likely increases in offshore oil and gas and alternative energy (wind, wave) development, there is increasing interest in comprehensive marine spatial planning driven by energy uses. As a result, the federal government and the states might be amenable to supporting legislation that, rather than using a case by case approach to locating offshore energy facilities, would evaluate environmental resources and human uses in coastal waters, identify areas of critical concern, and plan or allocate uses in ways that maximize public benefit while accommodatin energy development. Such a system of marine spatial planning could incorporate elements of the mitigation protocol described here. Most State Wildlife Action Plans do not include consideration of off-shore and marine resources. Organizations such as The Nature Conservancy and some state governments have been creating marine ecoregional assessments that identify critical biological resources in marine waters. These could be used as the basis for marine conservation plans that could guide marine spatial planning. Rhode Island has initiated an Ocean SAMP under the Coastal Zone Management Plan.

iii. Transportation legislation

As noted above, Congress is due to consider a new transportation bill to govern transportation planning and investment for the next six years. In the previous legislation, SAFETEA-LU, Congress built in references to conservation planning in the context of the preparation of long range transportation plans by MPOs and state DOTs.

The next transportation legislation could build on the prior experience by building the mitigation protocol and landscape-based mitigation into project decisions – thus providing accountability for the SAFETEA-LU §6001 planning efforts, which were intended to lead to greater care for state wildlife and conservation priorities when planning new and replacement transportation infrastructure. The legislative basis has been laid by the current authorization legislation.

iv. Habitat regulatory authority

The existing mitigation authorities discussed in preceding sections above afford habitat

protection to aquatic resources including freshwater and tidal wetlands (§404 of the CWA), critical habitat for listed species (federal ESA), impacts to the environment on public lands where required by federal agencies after review (NEPA), and various other habitats (e.g. Federal Power Act). They do not, however, afford specific protectio to wildlife habitat overall or even to areas of critical or exceptional habitat that do not support listed species. Nor do they, except in the §404 "Watershed Approach" example, seek to make decisions about avoidance, minimization, and compensation in the context of a larger conservation vision. There have been proposals advanced to create a new regulatory authority, perhaps tied expressly to State Wildlife Action Plans, which would afford protection of general habitat or key habitat identified in State Wildlife Action Plans from impacts from various land uses. Were such legislation to be adopted, it could then be tied to the mitigation protocol and with the next generation of mitigation proposed here. The introduction and passage of such broad legislation, however, does not seem likely in the near future. More targeted legislation tied to energy, marine spatial planning, or transportation offers a more likely prospect for mitigation improvements and expansions.

Chapter Five

Incorporating Ecosystem Services

Natural ecosystems provide more than biodiversity values; they support resources and processes that underpin human well-being. These "ecosystem services" – water quality and quantity, pollination of crops, flood mitigation, and recreation opportunitie to name a few – have real value. But when such ecosystem benefits are not included i conservation planning, we lose the opportunity to optimize conservation decision-making for nature and people.

According to the comprehensive Millennium Ecosystem Assessment,[214] ecosystems around the world have declined rapidly and extensively over the past 50 years, primarily as a result of human actions that cleared forests, plowed grasslands, dammed rivers, and overtaxed marine ecosystems. While this use of our natural capital supported significan increases in crop, livestock, and aquaculture production, it has also had a range of negative impacts. The Millennium Ecosystem Assessment estimates that 60 percent of ecosystem services are currently degraded or at risk of collapse, including freshwater, capture fisheries, wild foods, erosion regulation genetic resources, pollination, and natural hazard mitigation. And pressure on these services is expected to continue. Over the next 50 years demand for food crops is projected to increase by 70-85 percent and demand for water by 30-85 percent. Without a course correction in the management of our natural capital, this will lead to continued conversion of lands and waters and further loss of ecosystem services and biodiversity.

An important step toward addressing impacts to ecosystem services is recognizing their value. For example, a study by Defenders of Wildlife[215] provides a "first-orde approximation" of expected service benefit – from recreation, water supply, water quality, and a range of other services – that would be generated by establishing a national habitat conservation system. This system would focus on conserving unprotected areas identifie in State Wildlife Action Plans. The study compares the expected costs of conserving this national system under different approaches (i.e., fee simple, easement, and rental costs) to the system's expected ecosystem service benefits and finds that benefits outweigh co under all but one conservation strategy (fee simple plus management option under the low benefit scenario). This suggests that, due to ecosystem service values, conservation investments can result in net public economic benefits and that these investments ca be competitive with other types of public investments.

Another important step is the integration of services into regulatory frameworks for planning and mitigation. The wetlands Compensatory Mitigation Rule issued in 2008 takes this step, defining services a "the benefits that human populations receiv from functions that occur in ecosystems"[216] and requiring the consideration of services in mitigation decision-making.[217] Although the 2008 Compensatory Mitigation Rule requires consideration of services as one of many factors in mitigation determinations, guidance on how to implement this requirement is limited. This reflects the lack of baselin information and assessment methods for ecosystem services. As the Rule's preamble notes: "Although the services provided by

aquatic resource functions are important to consider when determining the type and location of compensatory mitigation projects, there are few methods available for assessing services. Therefore, in most cases consideration of services will be conducted through best professional judgment."[218]

Noting the limitations of the Compensatory Mitigation Rule's guidance and current reliance on "best professional judgment," Ruhl et al. (2009)[219] put forward a research agenda for developing a more robust foundation for assessing services. The aim is to: (1) identify the key questions that the Corps and EPA must address under the new ecosystem services provisions; (2) determine the information and methods the Corps and EPA will need to competently answer those questions; and (3) design research to compile information and develop methods. The steps aim to support the "co-evolution of policy and science" for addressing ecosystem services in wetlands mitigation.

In line with the agenda recommended by Ruhl et al. (2009), there is an opportunity to expand our understanding about ecosystem services beyond wetlands, to the wider role wildlife habitat plays in delivering services. Several efforts already underway seek to improve understanding about the service benefit of conservation. For example, the Natural Capital Project – a joint venture of Stanford University, The Nature Conservancy, and World Wildlife Fund – is developing decision support tools to assess the contributions of natural systems to human well-being, including carbon sequestration, drinking and irrigation water, flood mitigation, native pollination agricultural crop production, and recreation and tourism.[220]

Connecting this information to mitigation planning, the Nature Conservancy is advancing a landscape-level planning approach called "Development by Design," and applying it at a number of pilot project areas. The approach integrates conservation planning and ecosystem services information into the mitigation process, with the aim of more effectively avoiding impacts to priority areas for conservation and services, and identifying opportunities for more resilient, higher value compensatory mitigation.[221] Development by Design and the Natural Capital Project are just two of many initiatives that can support improvements in conservation planning frameworks, encouraging the incorporation of ecosystem services and providing a better basis for determining mitigation priorities.

State Wildlife Action Plans are not specificall structured around ecosystem services, but they identify many of the habitats and areas that are important for the function of the natural systems upon which both humans and animals rely. A key feature for improvement of State Wildlife Action Plans will be the identificatio of important areas for ecological restoration. Restoration priorities can, if well-targeted, result in the support of multiple ecosystem services and synergies with preserved habitats, rendering the latter more effective for both wildlife and other values.

Chapter Six

A Vision for the Next Generation of Mitigation in the U.S.

a. Overall conclusions

Our evaluation suggests that (1) a wider application of the mitigation protocol (avoid, minimize, compensate) to existing and future regulatory programs, and (2) a more comprehensive approach to mitigation informed and guided by State Wildlife Action Plans and other federally recognized and regional conservation plans (the next generation of mitigation), can yield more effective conservation outcomes for natural landscapes and whole watersheds than the current piecemeal approach to mitigation. Likewise, (3) reliance on ecologically-meaningful conservation plans allows existing and future compensatory mitigation funds to be directed efficiently and e fectively toward restoration and protection priorities, including appropriate mitigation in advance of impacts. Such an integrated approach will more effectively provide meaningful wildlife habitat and sustained ecosystem services.

Findings:

- Infrastructure investments for a growing population and the development and transmission of new sources of energy, will result in extensive impacts on natural systems.
- Between $3.5 and $4.5 billion are now spent annually on compensatory mitigation in the U.S., making it one of the largest sources of conservation outlays. Not all of the compensatory mitigation follows the mitigation protocol, nor is it all guided by regionally specific planning
- Several of the nation's existing regulatory programs (such as §404 of the CWA and ESA) can provide valuable lessons for the next generation of mitigation.
    - Mitigation programs must set aside sufficient funding t ensure adequate regulatory oversight, planning, and enforcement. These programs must also have a high degree of transparency and accountability to the public for outcomes. Without such components compensatory mitigation is unlikely to achieve its desired objectives.
    - Mitigation programs are evolving to take landscape, ecosystem, and watershed considerations into account. Larger conservation objectives will be difficult to achiev if there continues to be a piecemeal approach to mitigation.
- Impacts can be reduced and ecosystem-scale conservation objectives supported if government programs:
    - Employ the mitigation protocol (avoid, minimize, compensate) when locating, designing, and approving new development and infrastructure; and
    - Use State Wildlife Action Plans and other federally recognized and regional conservation plans to avoid key habitats and to guide compensatory mitigation for unavoidable habitat loss.

Recommendations:

- Federal and state agencies should play a role in supporting the wider application of the mitigation protocol and the ecologically comprehensive approach to mitigation on the landscape.
    - The President's Council on Environmental Quality (CEQ) should lead an effort to support consistent application of the mitigation protocol across federal agencies and programs.
    - The CEQ and federal agencies should strongly encourage federal agency use of State Wildlife Action Plans and other federally recognized and regional conservation plans for decision-making informed by environmental review under the National Environmental Policy Act.
    - State agencies responsible for permitting and decision-making should apply the mitigation protocol and make use of State Wildlife Action Plans and other federally recognized and regional conservation plans in their own decisions and approvals affecting habitat.
- State Wildlife Action Plans should be continuously improved to ensure that they support mitigation opportunities and decision-making. These Plans can more effectively guide the avoidance of key wildlife habitat, cumulative impact analysis, and the expenditure of compensatory mitigation funds if they set priorities for *protection* of high quality habitat and for *restoration* of important degraded habitat, related natural systems, and connectivity. They can also be improved by incorporating the findings of an referencing other federally recognized state plans.
- Over the long run, federal energy and infrastructure legislation should expressly include requirements to use the mitigation protocol as it is described here in the planning and design of large scale energy facilities on federal lands and waters, in the design and siting of new transmission corridors that involve federal agencies such as the Federal Energy Regulatory Commission (FERC), and in the siting of major energy generating facilities financed through federal program and loan guarantees. The mitigation protocol should also be incorporated into legislation guiding offshore energy siting for conventional and alternative energy sources.
- A federal agency or institution should be tasked with assessing the outcomes of mitigation on landscape and watershed conservation under all federal statutes and should make periodic recommendations on how to improve mitigation across federal agencies. Among the specific issue that should be evaluated are:
    - The appropriate role of §404 of the Clean Water Act in efforts to deal with the permitting of wetland alterations associated with shoreline protection from sea level rise.
    - Use of the mitigation protocol in the location and expansion of military facilities

- Use of the new generation of mitigation in the planning and location of transportation facilities
- The extent and effectiveness of current avoidance and minimization measures employed across all mitigation programs.
- The availability and quality of the tracking programs (impacts, compensation, monitoring) utilized across all mitigation programs.
- The effectiveness of current cumulative impact analysis conducted across all mitigation programs.

- Despite the substantial scale and scope of the nation's current mitigation programs, which primarily protect many wetlands, streams, and the habitat of threatened and endangered species, other high value, natural landscapes remain unprotected. Conservation agencies and organizations should explore opportunities to adopt mitigation requirements for impacts to these key areas.

b. Benefits and risks of a more comprehensive approach to mitigation

Employing a landscape or watershed approach to mitigation has several important benefits

- Understanding the ecological character of whole landscapes or watersheds can provide the framework for understanding what critical resources to avoid when planning for infrastructure development.
- Offsetting damage through mitigation projects that are of sufficient scale an are located in pivotal locations helps to ensure the successful restoration of those sites and reinforces the health and sustainability of the larger system. This kind of mutual resilience is particularly important given the pressures of climate change.
- Large and connected projects are easier to maintain, manage, and monitor than small mitigation projects or sites scattered across the landscape unconnected by any plan.
- Smaller projects can be more readily maintained, managed, and monitored, including those surrounded by urban land uses, if they are part of an ecological plan that addresses outcomes and relates the parcels to one another in terms of function and landscape.
- Truly functional systems can produce ecosystem services more effectively than fragmented mitigation.
- Comprehensive use of the mitigation protocol and using statewide and landscape scale plans to guide the siting of infrastructure can actually facilitate construction of alternative energy facilities and other infrastructure because it can help to avoid protracted siting conflict stemming from inadequate scientifi information and ill-informed siting decisions.

There are, however, also risks in the more comprehensive approach that should be addressed: Among these is the possibility that development of an effective overall mitigation framework could lead to by-passing the firs two steps in the mitigation protocol: avoidance

and minimization. Next generation mitigation approaches will also need to guard against the sacrifice or loss of smaller habitat patche that may be locally important, in the quest for large ecosystem results. In particular, in urban areas, small wetlands and other areas of natural habitat may have particularly important functions including providing the opportunity for urban area residents to experience nature. The new approach should not be used as a justification for the elimination of such site in favor of larger, more remote blocks of habitat.[222]

Chapter Seven

Next Steps: A Plan of Action

We propose that the following short term actions be taken to begin the process of moving toward the next generation of mitigation:

- The President's Council on Environmental Quality should convene a multi-agency workshop on the use of the mitigation protocol across federal agencies and on how mitigation could be used more effectively to achieve landscape/watershed scale conservation, considering both climate change and the likely impacts of new infrastructure and conservation investments.
- The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency should undertake an evaluation of the effectiveness of the agencies' approach to avoidance and minimization and cumulative impact analysis. The agencies should consider developing guidance and tools to support the ability of field sta f to undertake this analysis.
- The U.S. Fish and Wildlife Service should meet with the Association of Fish and Wildlife Agencies and with other stakeholders to evaluate how State Wildlife Action Plans could be adapted and coordinated with other natural resource plans to better serve as the framework for the effective use of the mitigation protocol in multiple programs.
- U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration should commit resources to developing effective policies and tools to guide mitigation under the Endangered Species Act, such as: a system to track required mitigation measures, and monitoring; guidance and tools to support cumulative impact analysis; policy that clarifies the role of compensator mitigation under §7; and research on the ecological effectiveness of the compensatory mitigation measures undertaken under the Act.
- Amendments should be considered to the now pending energy legislation to expressly require use of the mitigation protocol for planning energy projects on federal lands and in federal waters, where the approval of transmission corridors directly involve Federal agencies such as FERC, or that affect federally protected resources as a way of both protecting the environment and improving the regulatory process.
- Building on the limited experience with consultation under SAFETEA-LU, the next transportation authorization bill should expressly refer to the State Wildlife Action Plans, and other regional plans where appropriate, in the sections that deal with project-level evaluation, and should expressly require that the mitigation protocol be employed to support the priorities in these plans.

Chapter Eight

Conclusion

At a time when the resources for conservation in the U.S. are limited and there are many competing needs, the strategic use of the mitigation protocol can save natural habitat by directing development away from sensitive areas and can use compensatory payments in a more targeted and effective way to accomplish restoration on a watershed or landscape scale that would not otherwise be accomplished. Given the real dollars involved, mitigation can be an important tool in restoring and conserving large ecosystems that will be resilient to climate change and to other environmental pressures. While new legislation might be useful in accomplishing this, much progress can be made by adjusting existing laws and regulations and better using the tools already available. And, importantly in today's economic crisis, mitigation used correctly can facilitate investment by helping to avoid environmental conflicts an adequately offset the conflicts that cannot b avoided.

ENDNOTES

1 Compensatory Mitigation for Losses of Aquatic Resources, 73 Fed. Reg. 19,593, 19,594 (Apr. 10, 2008) [hereinafter Mitigation Rule (2008)] (to be codified at 33 C. .R. pt. 325). §332.2.
2 *See* Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1544 (2006).
3 *See* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009) (appropriating about $150 billion for infrastructure spending, including $50 billion for transportation infrastructure).
4 Environmental Law Institute. 2007. Mitigation of Impacts to Fish and Wildlife Habitat: Estimating Costs and Identifying Opportunities [Hereinafter ELI (2007)].
5 ELI (2007).
6 40 C.F.R. § 1508.20 (2008). This definition of mitigation has been highly influential on federal agency practi and procedure, although it applies primarily to evaluation of impacts under NEPA.
7 16 U.S.C. § 669c (2006).
8 See: Ruhl, J. B. and James Salzman, 2006. "The Effects of Wetland Mitigation Banking on People." *National Wetlands Newsletter.* Vol. 28, No. 2:1. The authors argue that banking facilitates the redistribution of wetland resources from urban to rural areas, reallocating the important environmental services wetlands provide human communities. With no overall framework, important services (flood control, water quality) provide by wetlands can be lost from more urban areas, i.e., these values are not maintained over space. Also, see: Cooke, S.S. 1992. Wetland Buffers: Use and Effectiveness. Appendix A: Wetland buffers – A Field Evaluation of Buffer Effectiveness in Puget Sound. Washington Department of Ecology. Publication No. 92-10. The report shows that 18 of 21 buffers were subjected to a reduction in size over the eight year study period, likely resulting in reduced buffer functions and changes in wetland water quality over time.
9 Mitigation Rule (2008).
10 16 U.S.C. § 669c.
11 See: Association of Fish and Wildlife Agencies, *State Wildlife Action Plans: Eight Required Elements*, http://www.wildlifeactionplan.org/pdfs/eight_elements_handout.pdf (listing eight elements required by Congress).
12 Lerner, Jeff. January 2009. "Identified Conservation Opportunity Areas for the Lower 48 States." Unpublished map.
13 The nine "coastal zone enhancement areas" are: wetlands, coastal hazards, public access, marine debris, cumulative and secondary impacts, special area management plans, ocean/Great Lakes resources, energy and government facility citing, and aquaculture.
14 For more on the Coastal Zone Enhancement Program, see: NOAA. "Coastal Zone Enhancement Program." http://coastalmanagement.noaa.gov/enhanc.html. (Last viewed April 15, 2009.)
15 16 U.S.C. §§ 1453(17), 1455 (2006).
16 Food, Conservation, and Energy Act of 2008, 16 U.S.C. § 2101a (2006).
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18 *Id*. § 2103c(e).
19 U.S. Fish and Wildlife Service, Sacramento Fish & Wildlife Office. "Recovery Planning." http://ww .fws.gov/sacramento/es/recovery.htm. (Last viewed June 11, 2009.)
20 16 U.S.C. §1533(f)(1)(B).
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23 16 U.S.C. § 64 (2006).
24 Ducks Unlimited. "North American Waterfowl Management Plan." http://www.ducks.org/Conservation/GovernmentAffairs/1623/NAWMP.html. (Last viewed April 15, 2009.)
25 H.R.7150, 110th Cong. (2008); S. 3552, 110th Cong. (2008).
26 For more, see: National Fish Habitat Action Plan. "National Fish Habitat Action Plan." http://fishhabitat.o g. (Last visited April 15, 2009.)

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28 Western Governors' Association. "Western Governors' Wildlife Council." http://www.westgov.org/wga/initiatives/corridors/index.htm. (Last visited April 24, 2009.)
29 Western Governors' Association. June 29, 2008. "Wildlife Corridors Initiative Report."
30 Mitigation Rule (2008), §332.2.
31 Mitigation Rule (2008), §332.3(c)(1).
32 42 U.S.C. § 4321 (2006).
33 40 C.F.R. § 1508.20.
34 *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 332-52 (1989) ("There is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure tha environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted.").
35 43 U.S.C. § 1732(b) (2006).
36 16 U.S.C. § 551 (2006).
37 40 C.F.R. § 1508.13.
38 *See*, *e.g.*, *Cabinet Mountains Wilderness/Scotchman's Peak Grizzly Bears v. Peterson*, 685 F.2d 678 (D.C. Cir. 1982) (mitigating FONSI).
39 42 U.S.C. §§ 4332(1), 4335.
40 J. Mintz, "Taking Congress's Words Seriously: Towards a Sound Construction of NEPA's Long Overlooked Interpretation Mandate," 38 Envtl. Law 1031 (2008); see also Environmental Law Institute. 1995. Rediscovering the Environmental Policy Act: Back to the Future, available at http://www.elistore.org/reports_detail.asp?ID=376&topic=NEPA
41 D. Mandelker. 1993. NEPA Law & Litigation (2d. ed.) Clark Boardman Callaghan.
42 Cal . Pub . Res . Code § 21083.4 (2005).
43 33 U.S.C. § 1344 (2006).
44 40 C.F.R. § 230 (2008).
45 33 C.F.R. 320.4(r).
46 Memorandum of Agreement Between the Environmental Protection Agency and the Department of Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines," Feb. 6, 1990.
47 Compensatory mitigation had long been recognized under §404 as well as other programs but assumed even greater importance after the senior George Bush's administration's commitment to "no net loss "of wetlands was announced in 1989.
48 U.S. Corps of Engineers, San Francisco District. "Mitigation Sequence: Avoidance, Minimization, then Compensation." http://www.spn.usace.army.mil/regulatory/amc.htm. (Last visited May 28, 2009.)
49 Mitigation Rule (2008), §332.3(a)(2).
50 Mitigation Rule (2008), §332.3(h).
51 Mitigation Rule (2008), §332.1(c).
52 Mitigation Rule (2008), 332.3(c)(3)(i).
53 "Under no circumstances" may the "same" compensation credits be used to provide mitigation for more than one permitted activity, but where appropriate mitigation projects may be designed to "holistically address requirements under multiple programs for the same activity" such as compensatory mitigation under the Endangered Species Act for the activity (Mitigation Rule (2008), §332.3(j)(1)(ii)(3)). Moreover, "credits for compensatory mitigation projects on public land must be based solely on aquatic resource functions provided by the compensatory mitigation project, over and above those provided by public programs already planned or in place" (Mitigation Rule (2008), §332.3(a)(3)).
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58 *Id*. § 402.14(g)(4).
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60 Personal correspondence. NMFS staff, Endangered Species Division, NMFS, (June 19, 2006) (on file wit author).
61 16 U.S.C. § 1536(b)(4).
62 Id. § 1539(a).
63 *Id.* § 1539(a)(2)(B).
64 *Id.* § 1539(a); *see also* FWS Incidental Take Permits Rules, 50 C.F.R. § 17.22 (2008).
65 U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration Fisheries Service. November 1996. "Habitat Conservation Planning and Incidental Take Permit Processing Handbook." [Hereinafter "U.S. FWS HCP Handbook (1996)."]
66 U.S. FWS HCP Handbook (1996). *See also* 65 Fed. Reg. 35,242 (June 1, 2000) (an addendum to the Handbook). The addendum, known as the "five-point polic ," provides additional guidance on HCPs regarding: (1) establishment of biological goals and objectives for HCPs, (2) adaptive management, (3) monitoring, (4) determination of permit duration, and (5) the use of public participation.
67 U.S. FWS HCP Handbook (1996), 3-21.
68 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601-9675 (2006); Federal Water Pollution Control Act (Clean Water Act; CWA) § 311, 33 U.S.C. § 1321 (2006); Oil Pollution Act, 33 U.S.C. §§ 2701-2720 (2006).
69 16 U.S.C. § 19j-1 (2006); *Id.* § 1443.
70 *See* Federal Power Act, 16 U.S.C. §§ 791a-828c (2006); *see also* Pacific Northwest Electric Power Plannin and Conservation Act, 16 U.S.C. § 839-839h (2006).
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75 Indeed, many states use their §401 authority to ensure appropriate input from the state into mitigation for §404 permits issued by the Corps and/or to require compensatory mitigation for actions that might otherwise be allowed under federal "nationwide" permits for activities deemed to have only a small impact.
76 ELI (2007).
77 There are no specific data available for mitigation expenditures that may get undertaken as part of the vas scope of ESA Section 7 consultations. Data on mitigation costs associated with Section 10 habitat conservation plans and incidental take permits (HCP/ITPs) are available and more thorough, although they are not complete.
78 ELI (2007).
79 Although the Corps makes available statistics on the acreage of wetland impacts permitted and the amount of compensatory mitigation it requires on an annual basis, the last year for which these data are available is FY2003. In addition, although the Corps reports the acreage of compensatory mitigation that was *required* as part of its permit and project approvals, these numbers do not provide any insight into whether the amount of wetland compensation required was actually *carried out*, or whether, if carried out, it met performance standards and proved to be sustainable. Moreover, the Corps' own data do not include statistics on the total amount of *stream* compensation required or conducted, in FY2003 or in any other year – a significant data gap
80 Note that the Corps states that "The values for FY 01, FY 02, and FY 04-06 requested acres are estimates only, errors in data reporting are being investigated." U.S. Army Corps of Engineers. 2007. "Wetland Impacts and Mitigation."
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210 …for the safe and timely upstream and downstream passage of fish [and]shall be limited to physical structures facilities, and devices necessary to maintain all live stages of such fish, and project operations and measure related to such structures, facilities, or devices which are necessary to ensure the effectiveness of such structures, facilities, or devices for such fish. (Fish and Wildlife Service and National Marine Fisheries Service, Interagency Guidance for the Prescription of Fishways Pursuant to Section 18 of the Federal Power Act (May 2002))
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217 "In general, the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, an compatibility with adjacent land uses" (Mitigation Rule (2008), §332.3(b)(1)). "Locational factors (e.g., hydrology, surrounding land use) are important to the success of compensatory mitigation for impacted habitat functions and may lead to siting of such mitigation away from the project area. However, consideration should also be given to functions and services (e.g., water quality, flood control, shoreline protection) that wil likely need to be addressed at or near the areas impacted by the permitted impacts" (Mitigation Rule (2008), §332.3(c)(2)(ii)).

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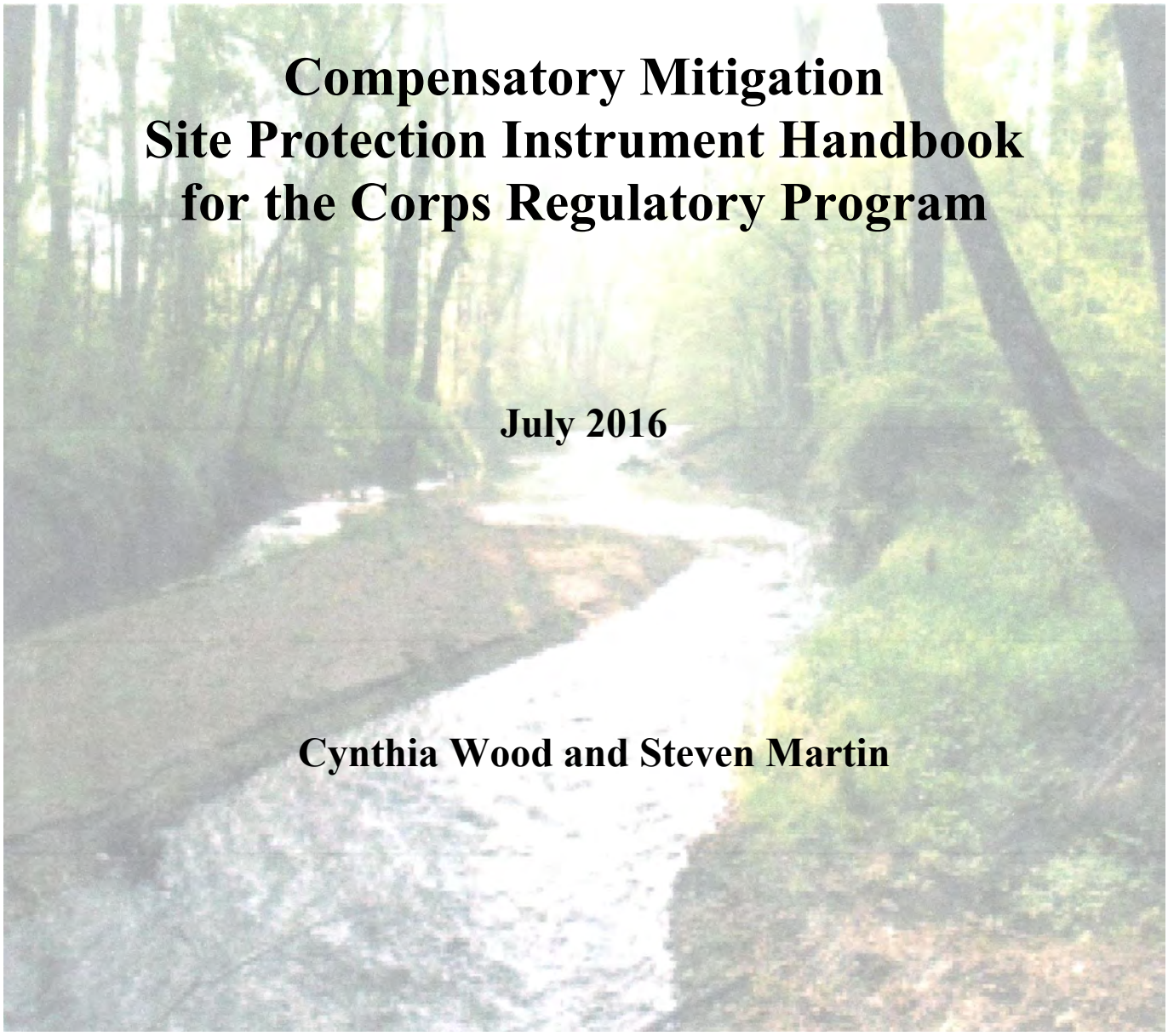
Appendix C

Compensatory Mitigation Site Protection Instrument Handbook

US Army Corps of Engineers®

IWR



Compensatory Mitigation Site Protection Instrument Handbook for the Corps Regulatory Program

July 2016

Cynthia Wood and Steven Martin

This handbook is intended for use in the Regulatory Program only and is not intended to apply to Corps owned property or to where the Corps is a party to a real estate instrument.

Compensatory Mitigation
Site Protection Instrument Handbook
for the Corps Regulatory Program

Table of Contents

Developing suitable site protection instruments for mitigation projects can be challenging for the regulatory project manager placing demands on regulators outside their regular areas of practice and expertise. The Institute for Water Resources (IWR) prepared this white paper on site protection for compensatory mitigation projects to provide a reference resource for Corps district regulatory staff involved with ensuring that mitigation projects are protected.

"Compensatory Mitigation Site Protection Instrument Handbook for the Corps Regulatory Program" reviews different site protection approaches and considerations for protecting compensatory mitigation projects. It describes and compares key features of different site protection instruments.

Comments and information on experiences should be submitted in writing to Steve Martin (steven.m.martin@usace.army.mil).

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Compensatory Mitigation Site Protection Instrument Handbook

for the U.S. Army Corps of Engineers
Regulatory Program

1. Introduction

Under the Final Rule, Compensatory Mitigation for Losses of Aquatic Resources, 33 CFR part 332/40 CFR part 230, Subpart J ("Mitigation Rule"), all compensatory mitigation plans required for Department of the Army (DA) permits are required to address 12 fundamental components. One of these components is the "site protection instrument" (see 33 CFR 332.4(c)). In accordance with the Mitigation Rule, the long-term site protection required for compensatory mitigation sites must be provided through real estate instruments or other available mechanisms, as appropriate considering relevant legal constraints.
33 CFR 332.7(a)(1).

The site protection instrument[1] is a written description of the legal arrangements, including site ownership, management, and enforcement of any restrictions, that will be used to ensure the long-term protection of the compensatory mitigation project site. The Mitigation Rule requires adequate protection of all compensatory mitigation project sites to the extent appropriate,[2] whether the protection is accomplished through a real estate instrument, management plan, or other long-term protection instrument. Because real estate instruments have binding legal consequences and the legal frameworks for these instruments vary from state to state, it is necessary that U.S. Army Corps of Engineers (Corps) Regulatory Project Managers (PMs), in consultation with their Office of Counsel or Real Estate Office, understand key issues surrounding real estate instruments as they relate to the protection of compensatory mitigation sites in general, and specifically within the state in which the compensatory mitigation site is located.

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[1] The terms "Site Protection Instrument" will be used when generally referring to mechanisms use to protect the compensatory mitigation project site. The term "Real Estate Instrument" will be used when specifically referring to one or more types of real estate instruments used to protect compensatory mitigation project sites.

[2] The Mitigation Rule recognizes that there are situations where it may not be possible to require a real estate instrument, management plan, or other long-term protection instrument because the mitigation provider does not have the required property interest to impose an instrument or management plan (see 73 FR 19646):

> There are other examples of situations where it may not be feasible to require site protection through real estate or legal instruments for compensatory mitigation projects. One potential situation is the construction of oyster habitat or the restoration of sea grass beds in state-owned tidal waters, where the project proponent does not have a real estate interest, but may obtain authorization to conduct those environmentally beneficial activities. Another example may be the restoration of tidal marshes or other coastal resources, since the long-term sustainability of those projects in the dynamic coastal environment cannot be assured because of the natural littoral processes that occur in those areas.

A. Purpose of the Compensatory Mitigation Site Protection Instrument Handbook

This handbook is intended for Corps Regulatory program staff to identify and explain some of the key issues surrounding site protection instruments as they apply to the protection of compensatory mitigation sites. It is not intended for Corps owned property or situations where the Corps is a party to a real estate instrument.

B. Legal/Regulatory Context and Issues

1. Regulatory Context: The Mitigation Rule states that compensatory mitigation projects must be provided long-term protection though real estate instruments or other available mechanisms, as appropriate. **(**33 CFR 332.7(a))
2. A real estate instrument should be legally sufficient, enforceable, properly recorded in the chain of title, and be able to ensure long-term protection of the compensatory mitigation site. A nationwide standardized real estate instrument is not possible since real property laws differ from state to state.
3. For compensatory mitigation required by Department of the Army permits, there is no legal authority for the Corps to hold a real estate interest in land; therefore, site protection must be accomplished through recognized forms of property protection instruments, some of which are usually administered by a third party.[3]
4. Ownership of the Land: Because the protection of a compensatory mitigation site requires involvement of the owner of the property or an entity with the pertinent property interest, it is preferable that the owner of the compensatory mitigation site (or an entity with a property interest in the mitigation site) be a permittee of a DA permit and/or sponsor of the mitigation bank or in-lieu fee program.[4]
5. The Corps' Office of Counsel (Counsel) plays an essential role in providing advice and determining the legal sufficiency of real estate site instruments and other site protection instruments for compensatory mitigation sites. Timely involvement of Counsel will

[3] Many states regulate wetlands, streams, and aquatic resources and take the lead in site protection of aquatic resources both on behalf of the state program as well as the federal Clean Water Act 404 program. In those states, the Corps generally plays an oversight role, may negotiate with the State as to the wording of site protection documents and may have third party right of enforcement. In Corps districts where the state is not as active in site protection of wetlands, streams and aquatic resources, the districts generally look to 501(c)(3) non-profit land trusts, departments within the state, or to county or city forms of government to hold conservation easements. Absent any willing easement holder (or Grantee), the Corps looks to the property owner to protect the compensatory mitigation site either through a declaration of restrictive covenant or simply by virtue of the terms and conditions of the permit.

[4] The advantage of having the owner of the land or land interest be the permittee or co-permittee and sign the site protection instrument is to prove that the owner was on notice as to why use restrictions were placed on the land and that he or she agreed to those restrictions. So long as the owner of the property is the permittee or co-permittee and signs the protective instrument, he or she is accountable for the impacts to waters, wetlands, and other resources on the land being provided as compensatory mitigation,, and accountable for the long term protection of the mitigation site according to the terms of the site protection instrument. Where the property owner is a limited liability corporation, partnership or business, it is advisable to identify the officers of the corporation, partnership or business and to require them to sign the permit or mitigation bank instrument as individuals and to take responsibility individually, jointly and/or collectively as owners of the land for the long term protection of the mitigation site according to the terms and conditions of the site protection instrument. For example in California, if the bank sponsor is not the property owner, the property owner is required to sign the banking instrument and a condition precedent to bank establishment is recordation of a conservation easement granted by the property owner. Further, in California, most (but not all) in-lieu fee (ILF) program sponsors are not the property owners of the lands on which an ILF compensatory mitigation project would be located. Generally, the ILF program sponsor purchases a conservation easement from the landowner.

enable the Corps Regulatory PMs to avoid various problems that can arise with the preparation of site protection instruments and writing permit conditions relating to site protection. The following offer examples of where Counsel's involvement is key:

a. Real Property law is based on statutes and case law within the state where the subject property is located, is subject to change, and its application often depends upon the facts in a particular permit situation. Because of this, Corps Regulatory PMs need to involve Counsel to ensure that the proposed site protection instrument reflects the current state of real property law within that state and is properly applied to the facts of a particular permit and mitigation plan.
b. Counsel is able to research real estate laws available in a particular state for long-term protection as well as to develop a real estate instrument that satisfies the requirements of the Mitigation Rule and reflects the conditions that PMs desire in the instrument. Counsel review of the language proposed for the site protection instrument is necessary to assure that it is legally sufficient, recordable, and enforceable within a legal context.
c. Counsel, after researching the real property law of a state, may prepare a real estate instrument template for use by the Corps Regulatory PMs in that state. Using this approach, Counsel's review of the real estate instrument will be significantly streamlined and can focus on instances in which the permittee, sponsor, and/or Corps Regulatory PM wishes to vary from the language of the template.
d. As part of our due diligence in accepting a site for compensatory mitigation, prior to approval of a mitigation plan, Counsel should be provided the opportunity to review any title search documentation and to evaluate property rights, interests (such as timber, or mineral rights), and encumbrances that could result in a site being deemed unacceptable as a compensatory mitigation site. Corps Regulatory PMs and their Counsel should be alert to the possibility of unrecorded interests, agreements, permits or licenses that may not show up in a title search or opinion, but which could impact the acceptability of a compensatory mitigation site.
e. Counsel also may review the real estate instrument and exhibits and interact with the property owner's legal representative.
f. Counsel can assist the Regulatory PM in determining the real estate instrument best suited for the specific circumstances.
g. Counsel and the Regulatory PM could develop a checklist of items the landowner should provide as part of the review process for the site protection element of the mitigation plan (e.g. deeds evidencing ownership, maps, a preliminary and final title report, title insurance, draft easement). In addition, outlining a sequence of events when these items are needed for review would be helpful.

Based on the above, it is advisable for the Corps Regulatory PMs to engage Counsel early in the permit review process if it is likely that site protection will be required. Inability to protect a compensatory mitigation site will affect permit compliance and may create enforcement issues.

II. Types of Real Estate Protection Instruments (including Advantages and Disadvantages)[5]

The real estate instruments most commonly used to protect compensatory mitigation sites and those cited in the Mitigation Rule at 33 CFR 332.7 include:

A. *Conservation Easements*
B. *Deed Restrictions (Restrictive Covenants)*
C. *Transfer of Title*
D. *Multi-Party Agreements, and*
E. *Other Documents,* such as Conservation Land Use Agreements, Federal Facility Management Plans or Integrated Natural Resources Management Plans, that *protect real property or mitigation projects on Federal lands*

(It should be noted that not all forms of site protection may be available for a given compensatory mitigation site. It is incumbent upon Corps Regulatory PMs, acting on the advice of Counsel, to determine whether that method of site protection proposed for the mitigation project is appropriate given the characteristics of the compensatory mitigation project.)

A. ***Conservation Easements:***

A conservation easement is an interest in real property that precludes the property owner from using the land in ways that would adversely impact the natural resources on the property. The property owner ("Grantor") makes a written conveyance of an easement (real estate instrument) which protects the natural resources and restricts the activities that can be conducted on the property. The party receiving the conservation easement is referred to as the "Holder" (or Grantee) and is usually a non-profit, land trust or governmental entity. The Holder does not gain ownership rights to or possession of the land, but does hold a real property interest. The conservation easement may also grant oversight and enforcement rights to a third party, typically in return for some benefit to the Grantor or property owner (such as issuance of a permit, mitigation bank approval, etc.).

1. Advantages.

A conservation easement may convey to a Holder the legal authority to access the property, monitor compliance, and to enforce land use restrictions in accordance with the terms of the real estate instrument. In cases of non-compliance, the Holder may be authorized to take action to address non-compliance, including in some cases initiating litigation. The conservation easement should include a provision requiring the Holder to notify the Corps and other appropriate entities of any non-compliance in accordance with the terms of the real estate instrument. The Corps may then determine whether an enforcement action is necessary to ensure

[5] Real property law differs from state to state. Also the entities engaged to protect DA permit compensatory mitigation sites may differ. In addition to (and especially in the absence of) the ability to use conservation easements, restrictive covenants, or the conveyance of the property to a conservation entity, the district looks to the permit conditions, the mitigation banking instrument, or the terms of the in-lieu fee program instrument to protect the compensatory mitigation site and ensure that the required compensatory mitigation continues to be provided over the long term. There are some statutes, such as the Uniform Environmental Covenants Act, that create environmental covenants that are perpetual. However, the state legislature must adopt the act and add language that would make it applicable to DA permit compensatory mitigation sites. An actual transfer of land from the owner to an entity that will hold and protect the land for its conservation values is another form of site protection.

compliance with the terms and conditions of the DA permit, the mitigation banking instrument or the ILF project instrument. The conservation easement, if properly drafted and recorded in the chain of title[6], remains in force even if the property is transferred to a new owner by sale or other means.

A conservation easement may allow the land owner to retain many property rights. For example, a property owner could convey a conservation easement over wetland property while retaining the right to hunt on the property or to enjoy other compatible uses.

The typical conservation easement statute provides for a third-party right of enforcement which may be used to augment and back-up the capabilities of the Holder by providing that third party with the right to ensure compliance with the conservation restrictions, through litigation if necessary. Although the Corps may not hold real property interests unless it has the specific statutory authority to do so, it may be the recipient of a third-party right of enforcement if permitted under State law. Having an explicit third-party right of enforcement recognized in the conservation easement: 1) provides a legal basis to enforce the easement based on state law in addition to the permit conditions, and 2) provides notice in the chain of title as to the nature of and reason for the easement to both tribunals and subsequent purchasers.

The Holder, such as a land trust or natural resource agency, may have experience in monitoring aquatic resources, managing wildlife habitat or protecting endangered species. Therefore, not only is the land protected from future development and other incompatible activities through conveyance of the conservation easement, but under proper management, the Holder may increase its environmental values and functions.

Another advantage of the conservation easement is that the Holder is responsible for monitoring compliance and can take action to address non-compliance rather than the Corps. This in turn reduces Corps' compliance workload.

2. Disadvantages.

Holders may have the discretion not to enforce the conservation easement terms.

A conservation easement could be extinguished for several reasons. One main reason is if the Holder of the easement ceases to exist, as in the case of a non-profit 501(c)(3) corporation or a land trust that dissolves.[7] A conservation easement can be extinguished for lack of a Holder. The easement may also be extinguished if the Holder does not enforce the use restrictions and/or if the land is used or developed for a contrary purpose to the easement.

It can often be difficult to find a Holder, especially for small compensatory mitigation sites. There may be no state or local governmental department or non-governmental agency willing or

[6] The expression, "chain of title" simply refers to the recorded deeds of owners of a parcel of land going back over time. If a real estate instrument is not properly recorded to provide adequate "notice" to the public or future owners, it may not be recognized as an enforceable interest in land.

[7] In some districts, the requirement by the Corps that the compensatory mitigation site be protected by a conservation easement, or servitude, coupled with the lack of governmental entities or reputable land trusts who are willing to hold a conservation easement, has led to the formation of 501(c)(3) non-profit entities formed for the sole purpose of holding conservation easements on DA permit compensatory mitigation sites. Some districts have adopted standards for non-profit entities that are proffered as conservation easement holders, such as the "Land Trust Standards and Practices," set by the national Land Trust Alliance and accessible on their web site.

authorized to hold a conservation easement, especially if the property is small and difficult to access for enforcement purposes or if adjoining land uses are viewed by a potential Holder as incompatible with the conservation easement.

Insufficient funding is another reason that potential Holders may decline an easement. If an adequate endowment (funds necessary for easement Holder to meet their legal and management responsibilities) was not established or if the Holder's financial situation changes, the Holder may not have sufficient funds to monitor, manage and enforce the terms of the easement.

B. Deed Restrictions (Restrictive or Negative Covenants):

A restrictive covenant is a condition in a deed limiting or prohibiting certain uses of real property. Restrictive covenants should "run with the land," meaning that they are enforceable by and against later owners or occupiers of the land. Land developers typically use restrictive covenants when they subdivide property to impose limitations on the use of property such as set back lines, common area use, architectural design rules, etc. Restrictive covenants are also used to protect compensatory mitigation sites. For example, the owner (or permittee) may agree to place limitations on the use of the compensatory mitigation property as a condition of a DA permit, for authorization to operate a mitigation bank, or to proceed with an In-Lieu Fee (ILF) project. The "Declaration of Conservation Covenants and Restrictions," is recorded in a record of deed office. For compensatory mitigation sites, the recorded restrictive covenant should be written so that it runs with the land. The compensatory mitigation project site and its aquatic resources are protected as a benefit to the owner, subsequent owners and to the public.[8] The Corps may enforce the use restrictions under the deed restriction or negative/restrictive covenant as long as it is a condition of a DA permit, a mitigation banking instrument, or an in-lieu fee program instrument. In other words, violation of the restrictive covenant would be a violation of the applicable permit condition(s). Therefore, it is important that the conditions of the DA permit and the deed restriction be linked together to create an enforceable real estate instrument.

1. Advantages.

The restrictive covenant is written to "run with the land" in perpetuity or for a substantial period of time and the covenant remains in effect regardless of ownership of the land. Every subsequent owner or occupier must comply with the terms of the covenant. Also a deed restriction does not require a third party holder because the restrictions are on the land itself.

2. Disadvantages.

Deed restrictions are more difficult to enforce because a third party cannot be given legal responsibility for monitoring and protecting the site and ensuring compliance with the terms of the deed restriction. The burden of enforcing the deed restriction or negative/restrictive covenant is on the property owner and potentially the Corps and/or state regulatory agencies.

[8] State statutes, corresponding case law and surveys of the law, like Restatements of Property, published by the American Law Institute, are used by counsel to determine if restrictive covenants may be used to protect compensatory mitigation sites. Where restrictive covenants are used, the property owner, by virtue of issuance of a DA permit, banking instrument, or in-lieu fee program instrument, agrees to declare covenants, conditions and restrictions that run with the land as to certain platted and legally described wetlands, streams, aquatic resources, and buffers, and to record the declaration in the chain of title where it will serve as notice to future owners.

State statutes may limit the number of years that a deed restriction or negative/ restrictive covenant is in force and consider "covenanting parties' intent" when determining whether enforcing the covenant would be adverse to "public policy".[9] Therefore, it is imperative that the restrictive covenant include the purpose of the covenant and state that the covenant is a requirement to secure a DA permit, a mitigation banking instrument, or approval for an in-lieu fee project.

In should be noted that marketable title statutes typically apply to deed restrictions which could have the effect of sunsetting these restrictions. One option might include provisions in the deed restrictions for periodic re-recordation of the restrictions knowing, however, that there is some risk that periodic recordation may not take place.

It is important that the deed restriction or restrictive covenant be written to "run with the land" and be recorded in the chain of title to serve as notice to anyone searching the property records. Without this, the deed restriction may not be enforceable to subsequent owners of the land. (This is also true of conservation easements.) Therefore, within the documentation that is filed with the deed, it is important to provide language and maps showing specific areas (e.g., aquatic resources such as wetlands, streams, upland buffers) on the parcel that are a protected interest on that property and indicate that they are part of a compensatory mitigation site required by a DA permit, or is a mitigation bank site or an in-lieu fee program project site.

C. Transfer of (Fee) Title:

In a transfer of title, ownership of the compensatory mitigation property is transferred to a natural resource management or other governmental agency, land trust, land management entity, or another non-profit entity deemed acceptable to the Corps. That entity must agree to manage and protect the mitigation site including its aquatic and other natural resources on the property.

1. Advantages.

Transferring real property to a land management entity (land trust, natural resource management or other governmental agency) is beneficial to the extent that the land management entity may have greater resources to staff, manage and protect the property including the aquatic resources on that property. Compensatory mitigation sites may become part of a larger protected area that is currently being managed by that land management entity.

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[9] In Indiana for example, the state Court allows restrictive covenants but only upholds them when they are justified and unambiguous and their enforcement is not adverse to public policy. Therefore, when a Court is called upon to interpret a restrictive covenant in that state, the restrictive covenant will be strictly construed, and if there are any doubts they will be resolved in favor of the free use of property and without the restrictions. The covenanting parties' intent must be determined from the specific language used in the covenant and from the situation of the parties when the covenant was made. Specific words and phrases cannot be read exclusive of other contractual provisions. In addition, the parties' intentions must be determined from the contract read in its entirety. When the restrictive covenant is a requirement to obtain a Corps permit, this should be stated clearly in the Declaration of Covenant document.

2. Disadvantages.

It may be possible that once the land has been transferred, the receiving entity could convert compensatory mitigation sites to other purposes.[10] The perpetual set aside of lands for natural resources alone is often times unsustainable. Land owners often have limited resources for operation costs (e.g. property taxes, surveys etc.) or the costs needed to repair or restore the site if it is damaged due to a natural or unforeseeable event. Limited resources sometimes result in the landowner adapting the site for uses that generate income such as planting of crops; licensed hunting activities and structures; or opening the site to ecotourism or passive recreation. These may be incompatible uses, depending on the provisions of the approved mitigation plan (see 33 CFR 332.7(a)(2)).

Some Districts have placed reversionary clauses in title transfer agreement to address incompatible uses by a land management agency. A problem with reversionary clauses is even if the compensatory mitigation site reverts to the original owner if the real estate instrument is violated, the original land owner (or estate in case of his or her death) may be unwilling take the land back and manage it as a compensatory mitigation site, or the original land owner may no longer exist. However, some states have included in their reversionary provisions the ability for title to be transferred to a designated state agency such as a state wildlife or natural resource management agency in the event of change in use.

D. Multi-Party Agreements

These are agreements among several interested parties to protect a property. Those agreements establish roles and responsibilities for each of the signatory parties consistent with applicable federal and/or state statutes, as well as the objectives of the land trust.

Example 1: A Land Trust has a willing seller of land that has been identified as a priority area for aquatic resource restoration or protection but the Trust lacks funds necessary for long-term protection of the property. There is an approved mitigation plan for restoration and protection of aquatic resources on the property. After the Land Trust acquires the property and after the compensatory mitigation has been successfully completed, the Land Trust plans to transfer the property to the U.S. Forest Service who will be responsible for long-term management. The parties execute a multi-party agreement to establish their respective roles and responsibilities which will be undertaken after the permittee responsible for providing compensatory mitigation makes the necessary payment to the Land Trust. The Land Trust acquires the property and implements the approved mitigation plan. If the project covered under this agreement is permittee-responsible mitigation then the permittee remains responsible for ensuring the mitigation project meets its ecological performance standards until it enters the long-term management phase.

Example 2: A state non-game agency owns a property and agrees to allow restoration and enhancement activities to be undertaken on the property by the State's Department of Transportation who needs compensatory mitigation credit. The state non-game agency does not have the funds to conduct the restoration and enhancement activities, and is unlikely to obtain the necessary funds. The state non-game agency also agrees to manage and preserve the DA permit

[10] Monitoring of mitigation projects for incompatible uses or activities is appropriate at all compensation sites regardless of the site protection instrument.

compensatory mitigation area for its restored and enhanced aquatic resources. The parties enter into a multi-party agreement via an MOA or MOU.

1. Advantages.

There are more opportunities to leverage multiple agencies resources to ensure that a compensatory mitigation project is implemented and managed over the long term, through shared financial or monitoring obligations. Multi-party agreements also provide for participants with specialized areas of expertise which may increase the long-term ecological performance of the compensatory mitigation project and ensure that it will be protected and managed properly over the long term.

2. Disadvantages.

Where there are several parties, there can be more issues over agreements and it could be more difficult to achieve consensus. For example, if one party does not fulfill its responsibilities, it jeopardizes the success of the entire compensatory mitigation project, including its long term management and protection. It is important to ensure that the agreement is coordinated through Counsel and contemplates potential conflicts and ways to resolve those conflicts, such as a mediation or arbitration clause.

Agreements are not necessarily as binding as a conservation easement and may not necessarily "run with the land" and usually have termination clauses.

E. Other approaches to site protection, documents, such as Conservation Land Use Agreements, Federal Facility Management Plans or Integrated Natural Resources Management Plans, that Protect Real Property or Compensatory Mitigation Projects on Federal/State Lands

Conservation Land Use Agreements are agreements to conserve property while allowing certain compatible uses but restricting other uses that are incompatible with compensatory mitigation. These types of agreements can be used when the governmental entity is already the owner of the compensatory mitigation land and no transfer of title will be required. These types of arrangements may also be necessary when a governmental entity is responsible for providing compensatory mitigation, and uses government land for a compensatory mitigation project, but cannot use a conservation easement or deed restriction to provide long-term protection because of statutory or regulatory restrictions applicable to government lands.

The agreement may be recorded in a land records office. These agreements can also be used when the federal government is going to become the owner but is not authorized to allow recordation of any limitation on the property or its use. Federal agencies including the Department of Defense, the U.S. Forest Service, and Bureau of Land Management are typically precluded by law from recording easements or restrictive covenants on their lands. This complicates long-term protection of compensatory mitigation projects on federal lands. However, federal agencies are authorized to use other tools to protect and manage compensatory mitigation sites on federal lands. Such tools may include memoranda of understanding, integrated natural resource management plans, federal facility management plans, and conservation land use agreements.

A governmental permittee or third party mitigation sponsor can lease a compensatory mitigation or conservation property to a non-profit conservation organization as a mechanism to conserve or protect a compensatory mitigation site. Department of Defense agencies have out-leased some compensatory mitigation and conservation properties to conservation organizations on a long-term basis as a mechanism for providing long-term site protection.

Where there is a conservation land use agreement, lease, or similar agreement all parties involved sign the agreement that sets out the applicable authorizing state and/or federal statutes. The agreement includes a legal description and survey of the compensatory mitigation property, the approved mitigation plan, and provides for any acquisition and transfer of ownership as well as funding methods. The agreement names the entity that will ultimately record the Conservation Land Use Agreement and will manage the property over the long term according to a memorandum of agreement. Additionally and importantly, the agreement specifies the way to report to the Corps on management issues and to address modifications, renovations, or termination of the agreement.

Federal agencies typically identify the compensatory mitigation or conservation lands in their land management plans. These plans are generally identified as Integrated Natural Resource Management Plans (INRMP) by Department of Defense (DoD) agencies, Forest Management Plans by the U.S. Forest Service, or Comprehensive Conservation Plans by the National Wildlife Refuge System and Federal Facility Management Plans by other agencies. These plans clearly identify the location and extent of the compensatory mitigation properties, suitable management activities, and incompatible activities. They are typically utilized by agency staff in planning future activities on federal lands. These plans are typically referenced by Conservation Land Use Agreements and together with conservation land use agreements may provide acceptable compensatory mitigation site protection on federal lands. Other government agencies (e.g., state agencies) may use similar plans to protect compensatory mitigation or conservation lands.

1. **Advantages**

Land management plans or agreements are a mechanism to protect compensatory mitigation sites where laws prohibit recordation of real estate documents. Federal facility management plans, including INRMPs, are intended to be living documents, and may change over time. They are typically reviewed annually and may be revised every 5 years.

2. **Disadvantages**

Leases are typically granted for limited terms (typically 10 but can also extend up to 99 years). Compensatory mitigation lands protected under these agreements have limited time periods for protection. These agreements are subject to periodic review and renewal. With these reviews, there is a potential for revision to the management plans resulting in reducing or even removing of a mitigation site from the plan.

Compensatory mitigation sites can be utilized for other purposes, for instance when land management plans are changed to meet national security requirements. However, change in use of these sites requires notification to the Corps, and the Corps may require the compensatory mitigation provider to provide replacement compensatory mitigation acceptable to the Corps.

III. Important Issues to Consider

A. What to include in a Site Protection Instrument

a. Express statement that the purpose of the instrument is to protect a compensatory mitigation site under Federal and (where applicable) State law;
b. Express reference to the DA permit and/or mitigation banking or ILF program instrument.
c. Survey/Legal Description (Survey shows any easements that will remain in place)
d. Identification of other property rights/interests;
e. Baseline- Description of conservation resources on the site, including listed species, habitat, and available information concerning the contribution they provide in terms of functions and services;
f. Prohibited and Acceptable Uses (See K and L below);
g. Third-party right of enforcement, where appropriate;
h. State that any amendment of the instrument must be preapproved by the Corps and that approval must be reflected in an amendment recorded in the chain of title; and
i. Provision regarding what happens in a "taking" by the Government (eminent domain).

B. ***When to Require, When to Record:*** It is important to develop a local policy and process regarding development and recordation of site protection instruments for compensatory mitigation projects in coordination with Counsel. (The owner of the real property and/or the permittee/banker/ILF sponsor will most likely be represented by legal counsel as well). Provided the applicant has identified a compensatory mitigation site that is acceptable to the Corps, the appropriate time to require submittal of title insurance, title search and a questionnaire regarding land issues would be just after a public notice has been issued for the permit application, mitigation bank prospectus, or ILF project proposal. For DA authorizations that do not require a public notice such as NWP or general permit verifications, the appropriate time to submit real estate information would be upon receipt of a proposed detailed mitigation plan. The Corps Regulatory PMs should not wait until the DA permit, mitigation banking instrument, or in-lieu fee project approval is being finalized to begin review of site protection issues. There is no point in proceeding with those actions if there are outstanding issues regarding the land, since a permit, instrument, or instrument modification cannot be issued until the mitigation plans have been approved.

A real estate instrument is recorded at the county register of deeds office in the county or parish where the land is located. It then provides a public record of the interests associated with the land. Land management plans should be accessible at any registry of deeds office, military base, tribal land office, natural resource area office or similar location for review by interested parties. Among those interested parties could be:

- Potential buyer of land
- Title Search – open to public
- Financial institutions prior to lending
- Private and governmental developers
- Court proceedings
- Land planning

C. **Marketable Title**: A marketable title is a title that is clear of any conflict of ownership and can be transferred by sale, gift, death, or donation to another person, conservation group or government entity. Twenty-two states have passed Marketable Title Statutes to provide clear marketable title by removing encumbrances of old and perhaps abandoned claims (including conservation easements and restrictive covenants) after a certain number of years (25-40 years). Some states (e.g. Massachusetts, North Carolina, California, Rhode Island and Wisconsin) specifically exempt conservation easements from their Marketable Title Statutes. In the other states, it is important for Corps Regulatory PMs to be aware of how these statutes could affect the legal protection of a compensatory mitigation site and what language or condition could be added to prevent extinguishment of the real estate instrument. One option is to condition the DA permit or third party mitigation instrument to require periodic re-recordation of the site protection document.

D. **Title Insurance**: Title Insurance guarantees that the title is clear and there is no conflict of interest regarding ownership of a particular parcel. The requirement of title insurance means that a title insurance company is hired to go to the record of deeds office and research the history of the property (chain of title) going back 30-60 years (depending upon state law) to see if the owner has clear title and to see if there is any conflict in ownership. If there is clear title, then the company backs their determination with insurance**.** A title search provides a list of all interests in the real property that are recorded on the deed. It will not identify any agreements that have been made that bind the property but do not relate to ownership, unless a lien has been filed. Licenses or permits issued over the subject property are often not recorded and may not be identified. Title insurance does not identify any other interest such as mineral or timber rights, but rather insures the buyer against any future clouds on title that may be raised adverse to ownership. However, title insurance is not a substitute for a title report. A title report is a written analysis of the status of title to real property, including a property description, names of titleholders and how title is held, tax rate, encumbrances (easement, mortgages, liens, deeds of trusts, recorded judgments), and real property taxes due.

A title insurance company may be willing to insure property that is encumbered by easements or other interests that may be adverse to the use of the property as a compensatory mitigation site, but not adverse to ownership (e.g., oil wells, large pipelines, or drainage structures). Therefore, a title report should be requested and provided to Counsel for review. For smaller parcels of land, used for permittee-responsible mitigation title reports and title insurance may not be required by the Corps. Rather, the real estate instrument can include a statement by which the owner of the property (or entities with interests/rights in the property) warrants that there are no conflicting property interests or rights and pledges some type of corrective action or indemnification if it turns out that there are in fact conflicting interests or rights in the property.

Title insurance does not necessarily address all factors that could affect the suitability of the site for compensatory mitigation. Title insurance just assures clear title for the specified period of time. It often does not list all the existing easements, rights-of-way, tax liens, financial liens and other interests less than ownership. A title search for other interests should be conducted by a title company and provided to the Corps for review. The California Interagency Review Team has developed a template for this search for other property interests, known as a “Property Assessment and Warranty”.

E. ***Enforcement:*** Where possible, the site protection instrument, DA permit, or third party mitigation instrument should establish a party with the right to access the site and enforce provisions in the site protection document that protect the compensatory mitigation site. The party(s) responsible for the overall enforcement of the site protection instrument should be clearly identified, and should have adequate resources to monitor and enforce the conditions that protect the compensatory mitigation site. For conservation easements[11], the Corps may accept a third-party right of enforcement consistent with State law (consult with your legal counsel). The regulatory agencies (Corps and/or state) should have a copy of the final site protection instrument or in the case of a real estate instrument a recorded copy

F. Eminent Domain refers to the power of the government to appropriate property for public use. Condemnation proceedings can result in the loss of title to the property or a portion of the property. However, the landowner is paid the fair market value of the land lost. If eminent domain is proposed on a compensatory mitigation site required for a DA permit, or for a mitigation bank site or an in-lieu fee project site, try to negotiate a solution with the governmental entity and educate them on the value of the compensatory site to encourage continued protection of the site. Additionally, a court might consider the consequential value loss or an uneconomic consequence argument in addition to the fair market value where the real estate instrument cites the conservation values provided to the public by the site. For example, the potential effect of exercising eminent domain on conservation values could be demonstrated by explaining that a road right-of-way through a compensatory mitigation site not only results in the direct fill area loss, but secondary impacts such as fragmentation, loss of hydrology, or loss of buffer area. Suggested language in the real estate instrument:

> *If protected compensatory mitigation property is taken in whole or in part through eminent domain, the consequential loss in the value of the property protected by the Corps' Regulatory Program is the cost of the replacement of the conservation functions, services and values of the aquatic and terrestrial resources on the compensatory mitigation property.*

G. Subordination: To subordinate means to make subject to or to relegate to a lesser position of priority. For compensatory mitigation sites, to subordinate would require that any pre-existing easements, liens or encumbrances take second priority to the use of the property as a compensatory mitigation site. For example, if a ***real estate instrument*** is recorded after a deed to secure a debt, the land may be foreclosed upon to settle the debt and the compensatory mitigation site protection instrument would be terminated. Subordination allows more assurance that the site will withstand adverse actions. Consider requiring language like the following in the ***real estate instrument***:

> *Consent and Subordination*
> *The undersigned (Lender) beneficiary under a Deed to Secure Debt (dated) and recorded in (Deed Book) and (Pages) in the (County, State) records, for itself, its successors and assigns, consents to the foregoing (easement/covenant).*
>
> *Lender agrees that, upon recordation of the (document), the provisions (of the document) shall run with the land which serves as security for the debt evidenced by the Security*

[11] These rights have been upheld in Federal court. See, e.g., U.S. v. Bedford, 2009 WL 1491224 (E.D. Va. 2009).

Deed and further agrees that any foreclosure or any other remedy available to Lender will not render void or otherwise impair the validity of the (easement, covenant).

The undersigned acknowledges that it has received and reviewed a copy of the (document and exhibits).

Why would a financial institution agree to or consent to subordination? The lender is in the business to loan money and may be confident that the party responsible for the compensatory mitigation project (e.g., developer or mitigation banker) will succeed and therefore pay interest on the loan so the lender can profit. The lender also acknowledges the Corps' compensatory mitigation requirements associated with a DA permit, mitigation banking instrument, and in lieu fee program instrument and understands that the areas placed in site protection would normally need permission from the Corps to be impacted. Additionally, the lender may determine that the real estate instrument does not diminish substantially the value of the property which may contain uplands outside of the protected compensatory mitigation area that still could be developed. For example, a lien or other financial debt owed may encumber a large tract of land where the area needed for compensatory mitigation only covers a small fraction of the total acreage. Therefore, to subordinate the encumbrance to the compensatory mitigation only may not substantially diminish the value of the property as a whole.

If, however, an institution is unwilling to subordinate, this might be reason to reject a proposed compensation site.

H. Severed Rights/Split Estates: For many properties, subsurface rights (including oil and gas) may be severed from surface rights. Timber rights might be another severed right. These interests may have been severed in the past through a conveyance or reservation of rights. The owner of these severed rights or interests may not be the owner of the land surface and has the right to access those materials and to convey the associated rights. Long-term protection of a mitigation project may be complicated when the owner of mineral or timber rights is unwilling to agree to extinguish or subordinate its interest for the mitigation interest. The inability to resolve conflicts between surface rights, mineral, and timber rights has prevented development of a number of compensatory mitigation projects. In some cases, regulators have worked with the holders of those interests to minimize the impact of exercising those rights on compensatory mitigation projects. Mechanisms that have been used to minimize those impacts include mitigation providers purchasing those rights, and for holders of subsurface mineral rights directional drilling and establishing minimal pads or access areas for development, etc.

I. Signage and posting: Proper signage and posting should be used to alert the public to the presence of the compensatory mitigation site. Signage should clearly indicate prohibited uses. Provisions for signage and posting should be required as permit special conditions or as part of the approved mitigation plan or third party mitigation instrument.

J. Amendment/Notice/60-day language: Requests to amend a recorded ***real estate instrument*** or another type of site protection instrument are inevitable. Corps Project Managers should consider including the following language in the instrument to discourage such amendments:

This (document) shall not be amended or extinguished except by written approval of the (Corps). Amendments to the (document) for the purpose of proposing additional impacts are not favored and will be considered only in rare circumstances following (Corps) policy and procedures.

or

After recording, these restrictive covenants may only be amended by a recorded document signed by the Corps and_____. The recorded document, as amended, shall be consistent with the District model conservation restrictions at the time of amendment. Amendment shall be allowed at the discretion of the Corps and _____, in consultation with resource agencies as appropriate, and then only in exceptional circumstances. Compensatory mitigation for amendment impacts will be required pursuant to District mitigation policy at the time of amendment. There shall be no obligation to allow an amendment.

The 60-Day Notice Requirement on Amendments. To insure the Corps is aware of any proposed changes to a recorded site protection instrument, the instrument should include language requiring a 60-day advance notice before any amendment to a conservation document can occur (33 CFR 332.7(a)(3)). Assuming the site protection instrument is properly recorded, a title search of the property will provide notice to any subsequent owner of this requirement.

Some of the reasons or justifications for amendments sought by the permittee include:

1. **It will only impact the buffer/upland and therefore no waters of the U.S. will be affected.** The compensatory mitigation was required after consideration of the functions and value of the entire tract, including any buffers. Impacting those buffers may affect the ability of the compensatory mitigation site to fulfill the ecological objectives stated in the DA permit conditions or approved mitigation plan. Corps regulations at 33 CFR 332.3(i) indicate that buffers are required where necessary to ensure long-term viability of a compensatory mitigation site

2. **It is the best alternative for a linear project (e.g., roads or pipelines) because all other alternatives involve impacts to homes, businesses or developed areas. A publicly-sponsored project could save taxpayer money by crossing a protected site instead of having to go around it.** Cost savings, although a factor, are not the most significant consideration. A thorough alternatives analysis taking into account additional compensatory mitigation cost could prove that the requested amendment is not the least costly alternative.

3. **The wetland area to be impacted is small, the functions and values are low, or the area is no longer jurisdictional.** The Corps may determine that the impact regardless of its size or quality could affect the entire site and not just the portion directly proposed for impact. Compensatory mitigation sites do not have to be jurisdictional under Section 404 of the Clean Water Act and/or Sections 9 and 10 of the Rivers and Harbors Act of 1899 (see 33 CFR 332.1(b)).

4. **An impact to the protected wetlands is needed for some national security interests (i.e., the military needs to impact the site for training activities).** Typically, acceptable replacement compensation would be required by the District.

Consider the following requirements when developing any policy for amendments:

- **a.** The owner of the property must consent and, if accepted, the amendment to the real estate instrument must be drafted, reviewed and pre-approved by the Corps, signed by all parties, and recorded in the record deeds office.
- **b.** The party responsible for the compensatory mitigation should conduct and provide to the Corps an alternatives analysis regarding other options that may be available. Cost saving, although a factor, should not be the controlling consideration.
- **c.** The Rule requires that when a change(s) is proposed to compensatory mitigation projects on public lands that would result in an incompatible use, acceptable alternative compensatory mitigation must be provided to the Corps (33 CFR 332.7(a)(4)) .
- **d.** Each district should develop a clear and consistent policy for amendments and post them on the district's Regulatory web site.
- **e.** It is not relevant whether the impact is to aquatic resources or to terrestrial resources (e.g. upland buffers) that are part of the approved compensatory mitigation project. The entire site was required as compensatory mitigation for permitted impacts and buffers provide important functions and are valuable to the sustainability of the aquatic resource. The Corps may determine that the impact will affect the sustainability, functions and services of the aquatic resources on much or even the entire site (for example due to changes in hydrologic regime) and not just the acreage on which the impact is proposed.
- **f.** Additional compensatory mitigation may be required to replace the resource functions, quality, temporal losses, etc. of the compensatory mitigation project that will be lost as a result of the impact resulting from the amendment.

Transfer of ownership of compensatory mitigation parcel may entail amendment of the permit, mitigation plan, and/or third party mitigation instrument. For mitigation banks and in lieu fee projects, it may be considered a streamlined modification of the instrument under 33 CFR 332.8(g)(2). It is especially important that the Corps PM be made aware of any change in property ownership. Language in the site protection instrument should be included to notify the Corps of such a change, such as:

> "*At any time during the life of the mitigation bank or compensatory mitigation project, should the real property be transferred, sold or conveyed, be subject to foreclosure, bankruptcy or transferred by any other means whatsoever, the owner, sponsor or administrator shall immediately notify the Corps in writing and no further mitigation credits shall be sold or credited toward fulfilling mitigation requirements pending review and approval of the transfer by the Corps.")*

(In the case of a mitigation bank wishing to continue to sell credits, add the following:

> *The new transferee shall provide the Corps with a letter agreeing to adopt the terms and conditions of the mitigation banking instrument and provide acknowledgement of the terms and conditions of the recorded (*real estate instrument *).*

K. **Merger.** Merger occurs when the Holder of the conservation easement becomes the owner of the land and the two entities "merge." When this happens, there is no longer a third party who

has an interest in the land. In order to prevent the extinguishment of the conservation easement, it is recommended that the following language be included in the conservation easement:

> *The doctrine of merger shall not operate to extinguish this Conservation Easement if the Conservation Easement and the Mitigation Property become vested in the same party. If the doctrine of merger applies to extinguish the Conservation Easement then, unless Grantor, Grantee and the Signatory Agencies otherwise agree in writing, a replacement conservation easement or restrictive covenant containing the same protections embodied in the conservation easement shall be recorded against the Mitigation Property. The owner of the Mitigation Property may suggest a new conservation easement holder and upon approval by the agencies, grant a conservation easement protecting the Mitigation Property.*

L. Notice of Conservation Restrictions in other Permit Applications. To ensure that other governmental entities are not induced to take action without knowledge of the conservation restrictions, consider including the following provision:

> *Any permit application, or request for certification or modification, which may affect the Property, made to any governmental entity with authority over wetlands or other waters of the United States, shall expressly reference and include a copy (with the recording stamp) of these restrictive covenants.*

M. *Suggestions for Prohibited Uses*[12] (*PM can add or subtract from this list)*

- Clearing, cutting, mowing
- Earthmoving, grading, filling, topography change
- Mining, drilling, timbering
- Draining, diking
- Diverting or affecting the natural flow of surface or underground waters
- Spraying with herbicides or pesticides that violate water quality standards
- Grazing or use by domesticated animals
- Use of off-road vehicles and motor vehicles
- Creating fuel modification zones

N. Possible Acceptable Uses of Land*[13] *(PM can add or subtract from this list)

- Walking trails in uplands using pervious materials
- Minimal structures and boardwalks for the observation of wildlife, stream and wetland ecology
- Hunting, fishing, canoeing, hiking, passive recreation
- Carrying out approved conservation and wildlife management plans
- Fencing to prohibit entrance of livestock and trespassers

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[12] Incompatible uses are determined on a case-by-case basis during review and approval of the mitigation plan, and should be identified in the site protection instrument (see 33 CFR 332.7(a)(2)). In some cases what might be incompatible uses for one site may be considered necessary for maintenance of another mitigation site, such as grazing, burning, etc.

[13] In some cases, uses that are typically considered acceptable may be inappropriate for a particular site, for example walking trails in a wetland that is sensitive to disturbance.

- Posting of acceptable signs
- Grazing or use by domesticated animals, especially if an objective of the compensatory mitigation project is to maintain a plant community that is dependent on grazing

IV. Frequently Asked Questions and Issues (Examples of questions that may arise and are good to consider in reviewing **site protection instruments**)

A. Questions to ask before accepting the land as part of the compensatory mitigation site to be provided long-term protection. Remember, a record search and even title insurance search does not reveal everything. Ask the property owner the following questions:

1. Are there any outstanding mineral rights or leases? Contracts?
2. Are there water rights affecting the property?
3. Are there any outstanding timber rights or leases?
4. If there are other rights/leases, do they conflict with the protection requirements on the compensatory mitigation site?
5. Is this land subject to any litigation? Zoning disputes?
6. Is the property subject to any uses not of record?
7. Who or what entity owns it?
8. Does the owner have good title and title insurance?
9. Is the land protected already?
10. Who has an interest in the land? (i.e. ownership; individual, couple, family, partnership, LLC, business, in common, trust, government)
11. Are there any existing easements (utility, water/sewer, cable, drainage) on the property?
12. Are there any existing Right-of-Ways (roads, access)?
13. Are there any Lien Holders (Financial institutions- mortgages)?
14. Is this a property that will pass by probate (wills and trusts)?
15. If a road is shown on the plat, ask if it is a private or public road and will it remain as part of the compensatory mitigation area?
16. Will the owner have access to his or her land on the other side of the stream when the stream and buffers are protected with the real estate instrument? How will the owner get across? Does the title of the land go only to the middle of the stream channel?
17. Who is responsible for installing/maintaining fences, signs, etc. Are they located inside or outside the site protection boundary?
18. Does the Grantee have sufficient resources to maintain the property in a manner consistent with the terms of the conservation easement? Are there provisions for an endowment?
19. When can the real estate instrument be recorded?
20. Does the grantee have a schedule for performing site inspections?

B. Other questions to ask when preparing the site protection instrument:

1. **What if the applicant provides wrong information?** Consider including the following language in the DA permit, and/or third party mitigation instrument to protect the compensatory mitigation site in case any information provided is inaccurate or fraudulent and becomes an issue after the compensatory mitigation is accepted:
   Should an easement, right, interest, or lease on or to the property not shown on the survey or listed in the (document) and prior in time and recording to this

(document), or unrecorded, be exercised in such a manner that it conflicts with or voids the uses of the property set out in this (document), then the owners of the property shall be responsible for providing alternative compensatory mitigation in such amounts and of such resource type and function as the Corps or any enforcer of this (document) shall determine in accordance with the DA permit.

2. **Does your Corps District offer a credit incentive (such as an incremental increase in mitigation credits) for every additional layer of legal site protection? Why would you want to provide extra credit for multiple site protection methods on a compensatory mitigation property?** Each additional layer of protection makes it more likely that the compensatory mitigation site will be protected by multiple parties under changing circumstances. It will also make it more difficult for any one entity to extinguish the site protection instrument(s) in the future. For example: If the site is protected by two instruments (e.g., restrictive covenant and a conservation easement), then additional mitigation credit might be issued. Likewise if statutory protection is added by a governmental entity, then additional credit might be issued.

3. **What might happen when one entity owns the land and another entity owns the mitigation bank with the right to sell credits?** The mitigation bank land is legally considered "real property." On the other hand, mitigation credits that have monetary value are considered "personal property." However, statutes and case law treat them differently. This issue should be discussed with Counsel and how it may affect enforceability of the site protection instrument. For example, in a bankruptcy case in Virginia, a federal judge determined that the bank lands were real property and separate from the bank credits (personal property) and allowed the bank lands to be auctioned as part of the resolution of the bankruptcy case.

4. **Can the Corps be allowed to intervene in a litigation case to enforce a real estate instrument?** To preserve the Right to Intervene in Litigation, the following language could be inserted into the real estate instrument:
In any state court action or Federal Bankruptcy action affecting waters of the U.S., the United States Army Corps of Engineers reserves the right to request to be represented by the U.S. Department of Justice and/or to move for a removal of actions affecting waters of the U.S., to the United States Federal District Court in the district where the land lies.

V. Examples of Corps District and State Model Site Protection Instruments, Documents, and Templates

North Atlantic Division
Baltimore District
(Draft) Declaration of Restrictive Covenants

New York District
New York Model Conservation Easement
New Jersey Model Conservation Easement

Norfolk District
Model Declaration or Restrictions (March 2015)

Northwestern Division
Kansas City District
Checklist for review of Conservation Easements and Restrictive Covenants
Conservation Easement Holder List December 4, 2012
Missouri Conservation Easement Template 2013
Kansas Conservation Easement Template
Kansas Declaration of Restrictions

Omaha District
Appendix I1: Conservation Easement for Mitigation Banks – template
Appendix I2: Deed Restriction - template

Portland
Portland District requires long-term site protection on compensatory mitigation projects In accordance with the Federal Compensatory Mitigation Rule for Losses of Aquatic Resources (33 CFR 332.7(a)).

South Atlantic Division
Charleston District
Charleston District Conservation Easement Model of September 2010
Charleston District Restrictive Covenant Model of September 2010

Mobile District
Conservation Easement Template (Mitigation Bank)
Model Conservation Easement for Individual Permit
Instructions for using the Model Conservation Easement
Model Declarations of Restrictions

Savannah District
Amendments to the Declaration of Covenants and Restrictions Department of the Army Corps of Engineers, Savannah District 7 Jan 2004
U.S. Army Corps of Engineers, Savannah District Regulatory Program Standards for Qualified Conservation Easements
Model Declaration of Conservation Covenants and Restrictions updated December 2009

Wilmington District
Model Conservation Easement
Model Declaration of Restrictions
Wilmington District Process for Preservation of Mitigation Property November 25, 2003
Restrictive Covenant Guidance August 2003

South Pacific Division
San Francisco District
(Draft) Conservation Easement Deed
(Draft) Property Assessment and Warranty

Southwest Division
Ft. Worth District
(Draft) Conservation Easement Agreement

Galveston District
Example Deed Restriction
Example Conservation Easement

Appendix D

Implementing Financial Assurance for Mitigation Project Success

IWR White Paper

March 2016

Implementing Financial Assurance for Mitigation Project Success

US Army Corps of Engineers®

IWR

www.iwr.usace.army.mil

Implementing financial assurances for mitigation project success can be challenging and place demands on regulators outside their regular areas of practice and expertise. The Institute for Water Resources (IWR) prepared this white paper on financial assurance for mitigation project success to provide a reference resource for Corps district staff involved with establishing and overseeing financial assurances.

"*Implementing Financial Assurance for Mitigation Project Success*" reviews key design and implementation issues and considerations relating to the use of financial assurances for mitigation project success. It describes and compares key features of alternative assurance instruments.

This is an update to the original that was released in 2011. This 2015 update reflects experiences with financial assurances for compensatory mitigation since the original document. The update was conducted by Steve Martin with IWR.

The paper is intended to be a "living document" that will be updated periodically as more information becomes available. Therefore, IWR is soliciting comments relating to whether key design and implementation issues and considerations have been adequately addressed and accurately represented, as well as information on Corps district experiences in establishing and using financial assurances in the mitigation context.

Comments and information on experiences should be submitted in writing to Steve Martin (steven.m.martin@usace.army.mil).

Financial assurance for mitigation project success can be defined as a mechanism that ensures that sufficient resources will be available for use to complete or replace a mitigation provider's obligations to implement a required mitigation project and meet specified ecological performance standards in the event that the mitigation provider proves unable or unwilling to meet those obligations.

Implementing Financial Assurance for Mitigation Project Success

June 2011

Updated March 2016

Paul Scodari, Steve Martin and Aaron Willis

Institute for Water Resources
U.S. Army Corps of Engineers
Alexandria, VA

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1. Introduction

The U.S. Army Corps of Engineers (Corps) has the authority to issue permits under Section 404 of the Clean Water Act for discharges of dredged or fill material into waters of the United States, including jurisdictional wetlands, and Section 10 of the Rivers and Harbors Act of 1899 for structures or work in navigable waters. This federal regulatory program requires applicants for section 404 permits to satisfy "mitigation sequencing" as a condition for permit issuance. Mitigation sequencing requires permit recipients to first avoid and minimize impacts on aquatic resources to the extent practicable. Permit recipients may also be required to provide "compensatory mitigation" for any remaining unavoidable impacts to aquatic resources. Compensation is expected in the form of restoration of former or severely degraded aquatic resources, the enhancement of somewhat degraded aquatic resources, the establishment of new aquatic resources, and the preservation of well-functioning aquatic resources.

The program allows permit recipients to provide compensatory mitigation using three different types of mitigation providers. One allowable mitigation type is "permittee-responsible mitigation" in which a mitigation activity is undertaken by a permit recipient as compensation for the permit recipient's own permitted impacts on aquatic resources, and for which the permit recipient retains full responsibility. Permittee-responsible mitigation may be undertaken at or contiguous to the site of the permit recipient's discharge (on-site), and/or at a location away from the discharge site (off-site).

Two other allowable types of mitigation involve third-party mitigation providers that assume legal responsibility for providing the required compensatory mitigation of multiple permit recipients at one or more off-site locations. One form of third-party compensatory mitigation is mitigation banking. Mitigation banks produce large areas of restored, enhanced, established, and preserved aquatic resources for the express purpose of providing consolidated, off-site compensatory mitigation for the permitted aquatic resource impacts of multiple permit recipients. Most mitigation banks are commercial ventures developed by private entrepreneurs to create mitigation "credits" for sale to the general universe of permit recipients in need of compensatory mitigation. In-lieu fee (ILF) programs are another form of third-party mitigation provider in which permit recipients pay mitigation fees to non-federal government or non-governmental natural resource management entities that consolidate and use the fee revenues to construct large-scale, off-site mitigation projects. The use of mitigation banks and ILF programs to provide compensatory mitigation can reduce the costs and delays associated with the permit review process, and the large-scale mitigation projects they provide are generally more ecologically valuable and protected than smaller and scattered permittee-responsible mitigation projects.

In 2008, the Corps and the U.S. Environmental Protection Agency jointly promulgated regulations governing compensatory mitigation for permitted losses of aquatic resources under the federal regulatory program (33 CFR Part 332). The rules establish standards and criteria for the use of all types of compensatory mitigation. Among the rule provisions are general requirements for implementing financial assurances for compensatory mitigation projects that state in part, "The District Engineer shall require sufficient financial assurances to ensure a high level of confidence that the mitigation project will be successfully completed." [33 CFR 332.3(n)(1)]. Further, the rules state that financial assurances "…may be in the form of performance bonds, escrow accounts, casualty insurance, letters of credit, legislative appropriations for government

sponsored projects, or other appropriate instruments subject to the approval of the district engineer." [33 CFR 332.3(n)(2)].

Financial assurances are one of a number of "tools" used by the Corps to better ensure compensatory mitigation success. Other tools available include: (1) enforcement of the Corps permit and its conditions; (2) enforcement of the real estate protection instrument; (3) monitoring of attainment of ecological performance standards; (4) maintenance of projects; and (5) adaptive management of projects.

1.1 Purpose and Scope

This report reviews key design and implementation issues and considerations relating to the use of financial assurances for mitigation project success, and describes and compares key features of alternative assurance instruments, including letters of credit, performance bonds, cash-in-escrow, casualty insurance, legislative appropriations, or other appropriate instruments. The information contained herein is intended to serve as a reference resource for Corps regulators involved with establishing and overseeing financial assurances for compensatory mitigation projects pursuant to the federal rules cited above.

Financial assurance for mitigation project success, also known as short-term financial assurances, can be defined generally as a mechanism that ensures that a sufficient amount of money will be available for use to complete or replace a mitigation provider's obligations to implement a required mitigation project and meet specified ecological performance standards in the event that the mitigation provider proves unable or unwilling to meet those obligations. They are distinct from financial resources set aside for the long-term management of the compensation site, commonly referred to as long-term stewardship funds (see below). Short-term financial assurances can be provided by third-party institutions, such as a surety (bonding) companies, insurance companies, banks and other financial institutions that agree to hold themselves financially liable for the failure of a responsible party to perform compensatory mitigation obligations.

The purpose of requiring short-term financial assurance in the mitigation context is to indemnify the public (through the Corps) against the potential loss of aquatic resources due to the failure of mitigation providers to perform their compensatory mitigation obligations. Mitigation project failure is always a possibility. Mitigation projects are generally complex and the final outcomes are uncertain even when mitigation providers fully implement approved mitigation plans and diligently apply adaptive management and corrective measures as problems are encountered. Mitigation providers might also become unable to successfully complete mitigation projects because of financial difficulties, which in the extreme could cause a mitigation provider to enter into bankruptcy or dissolution. Financial assurances for mitigation project success are meant to counter these risks.[1]

When mitigation projects are constructed, the required performance standards have been met, and the period of monitoring and maintenance (the performance period) is successfully completed, then any remaining

[1] The risk of project failure can also be managed through other mechanisms that are beyond the scope of this paper including mitigation project site selection, ecological performance standards, and the use of credit release schedules.

financial assurances posted to ensure mitigation success can be released. However, mitigation providers are also required to provide for the long-term protection and long-term management of compensatory mitigation projects. Financial resources are typically associated with both activities, commonly referred to as long-term stewardship funds. Long-term protection is provided through conservation easements or other suitable mechanisms and may entail protection of the mitigation site from encroachment. Typically resources are allocated to allow for monitoring of the protection of the site. Similarly, long-term management activities typically begin after performance standards have been achieved and the project has been closed (i.e., the Corps has made a written determination that the mitigation project has satisfied its performance standards and no further performance monitoring is required.) Long-term management is generally focused on maintaining the mitigation project as a well-functioning aquatic resource and ensuring the integrity of the site. Long-term management may include active management measures such as posting property boundaries, repair and replacement of fencing, prescribed burning, and control of invasive species. Both long-term protection and long-term management of the mitigation project may necessitate the mitigation provider to establish funding mechanisms that provide the landowner (or some other entity that is charged with maintaining the site) with the resources needed for these activities. Site protection and long-term management activities are considered under the 2008 Mitigation Rule to be separate from financial assurances in the mitigation plan (see 33 CFR 332.4(c)(2) - (14) and the associated funding serves different purposes than financial assurances for mitigation project success, and are not addressed in this report. Separate papers addressing site protection and long-term management and associated funding are in preparation. All further references to financial assurances in this report deal with short-term financial assurances.

1.2 Background

Private entities and public agencies, including the Corps, routinely require financial assurances from the general contractors they hire for construction projects. Assurances are also regularly required of certain regulated entities pursuant to a variety of federal regulatory programs, including the owners of municipal landfills, waste treatment facilities, mining operations, nuclear power facilities, underground gasoline storage tanks, ships carrying oil and hazardous materials, and offshore oil and gas facilities. Of these federal assurance requirements, perhaps the most analogous to compensatory mitigation are those required for the reclamation of surface mines pursuant to the Surface Mine Control Reclamation Act, and for the closure of solid and hazardous waste treatment, storage, and disposal facilities under the Resource Conservation and Recovery Act.

Financial assurances were rarely required for compensatory mitigation projects until the widespread emergence of Corps-approved, commercial mitigation banks beginning in the mid-1990s. Before then, most compensatory mitigation was provided through permittee-responsible mitigation projects for which financial assurances were seldom required. When Corps regulators were faced with the first few proposed commercial mitigation banks seeking regulatory approval in the early 1990s they had to confront the issue of whether those banks could be allowed to sell credits before their mitigation projects were fully constructed and/or had achieved ecological success. That issue was important because the sponsors of the proposed banks argued that the commercial viability of those banks depended on their ability to generate revenue from credit sales before mitigation bank projects were demonstrated to be fully successful. The

bank sponsors were concerned that if they were not allowed to sell any credits before their mitigation projects met specified performance standards, the credit prices they would need to charge to ensure a competitive, risk-adjusted rate of return would be above that which permit recipients would be willing to pay. Corps regulators, on the other hand, were concerned about allowing such "early" credit sales, given the potential for the failure of mitigation bank projects. These competing concerns were reconciled by allowing those early commercial mitigation banks to engage in limited credit sales before mitigation obligations had been fully met in return for posting financial assurances for mitigation project success.

In subsequent years, as more commercial mitigation banks were proposed and approved, several states passed laws and promulgated regulations governing mitigation banking, and at least one Corps district (Chicago) issued mitigation banking guidelines that allowed for early credit sales when backed with financial assurances. Such provisions were also included in 1995 *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks* issued by the Corps and several federal resource agencies. In its 2001 evaluation of compensatory mitigation, the National Research Council suggested incorporation of financial assurances to guarantee that mitigation projects were initiated, completed, and managed, whether on the project site or at an alternate site[2]. In 2005, Corps Headquarters issued a regulatory guidance letter that provided general guidance for the use of financial assurances for compensatory mitigation projects when assurances were included as a permit condition[3]. Finally, the 2008 federal rulemaking for compensatory mitigation for losses of aquatic resources, which supersedes much of the earlier guidance, codified new directives for the use of financial assurances for mitigation project success, but did not provide specifics on the various types of financial assurance instruments.

Mitigation banks, ILF programs, and permittee-responsible mitigation projects are used by permit recipients to meet their compensatory mitigation obligations. In general, those mitigation banks that have been allowed to sell credits before mitigation obligations have been fully met have been required by the Corps to post financial assurances for mitigation project success. On the other hand, financial assurances have often not been required for many permittee-responsible mitigation projects. For many smaller permittee-responsible mitigation projects, it may be determined to be impractical to require conventional financial assurances, so alternative mechanisms may be used instead, such as permit special conditions requiring projects to be constructed and managed to meet performance standards, establishing a time frame for mitigation project compliance, and if unsuccessful, provision of replacement compensatory mitigation through the use of third party compensatory mitigation (mitigation bank or ILF programs). Enforcement actions have often been taken to ensure compliance with permit conditions relating to compensatory mitigation as well.

For some ILF programs, contingency funding is built into the advance credit prices charged or into compensatory mitigation project budgets as an alternative to more conventional types of financial assurances (e.g. letters of credit, performance bonds, cash in escrow, casualty insurance) used to ensure

[2] National Research Council (NRC). 2001. Compensating for Wetland Losses Under the Clean Water Act. National Academy Press (Washington, DC) pages 150-153

[3] Regulatory Guidance Letter 05-1. Guidance on Financial Assurances

compensatory mitigation performance.

In making any decision about financial assurance requirements consideration should be given to the preamble to the mitigation rule (pages 19638-9) which cautions that, "*Decisions regarding the appropriate type and amount of financial assurances should not be based solely on the size of the compensatory mitigation project, or whether it is a mitigation bank. The risk and uncertainty associated with a specific compensatory mitigation project should be considered.*" Financial assurances are an important mechanism for managing the risk of project failure, including failure to complete the project, to meet performance standards, or to maintain the mitigation project. Holding all forms of compensatory mitigation to equivalent standards, including financial assurances; helps to reduce uncertainty, including risk of project failure. Many permittees may conclude that utilizing a bank or ILF program is more efficient than developing a mitigation project that complies with all the same standards required of mitigation banks and ILF programs.

1.3 Report Organization

This report is organized as follows. Section 2 reviews key design and implementation for the use of financial assurances in the mitigation context. This review includes a description of the various alternative assurance instruments specifically mentioned in the mitigation rule. Section 3 provides a comparative review of key features of alternative assurance instruments, highlighting features that may be advantageous or potentially problematic for the Corps and mitigation providers. Section 4 provides concluding remarks on the challenge of implementing financial assurances for mitigation project success. Figures that illustrate the basics of how alternative assurance instruments work are provided in Appendix A. Headquarters USACE Office of Counsel's 2011 memo on financial assurances for compensatory mitigation is provided in Appendix B. Links to examples of some district template financial assurance instruments are provided in Appendix C.

2. Design and Implementation Issues

The goal of the federal regulations found at 33 CFR 332 is to ensure that compensatory mitigation projects offset the aquatic resource functions lost through permitting. There are a number of mechanisms used to better ensure compensatory mitigation project success, including strategic selection of compensatory mitigation project sites, use of financial assurances, ecological performance standards, monitoring attainment of performance standards, maintenance of projects, credit release schedules, adaptive management, and long-term management of mitigation projects. The role of financial assurances is to ensure that mitigation projects are successfully completed and meet their established performance standards. The federal mitigation rule speaks at some level to the applicability, timing and release, amount, and types of financial assurance instruments that may be used to assure the success of compensatory mitigation projects. What the rule says about these assurance design and implementation issues, and how different Corps districts have handled these issues in practice, are reviewed below.

2.1 Applicability

The mitigation rule says the following with respect to when financial assurances for mitigation success are applicable:

> "*The district engineer shall require sufficient financial assurances to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with applicable performance standards. In cases where an alternative mechanism is available to ensure a high level of confidence that the compensatory mitigation will be provided and maintained (e.g. a formal, documented commitment from a government agency or public authority) the district engineer may determine that financial assurances are not necessary for that compensatory mitigation project."* [33 CFR 332.3(n)(1)]

This rule language indicates that financial assurances are applicable whenever there is doubt about whether a mitigation project will be completed and meet specified performance standards. At the same time, it recognizes that there may be alternative means of ensuring mitigation success, and gives regulators discretion to decide when those alternatives are sufficient substitutes for financial assurances. The ways in which different districts have used this discretion with respect to different types of mitigation providers are outlined briefly below.

In general, Corps districts have required commercial mitigation banks to post financial assurances when those banks have been allowed to engage in limited credit sales prior to the achievement of specified performance standards at bank projects. In some cases, however, districts have delayed release of commercial mitigation bank credits until mitigation success has been achieved instead of requiring them to post financial assurances. Sometimes this alternative has been workable due to the particular circumstances of the mitigation project. For example, one mitigation bank sponsor in Idaho agreed to an arrangement whereby bank wetland restoration credits would not be released for sale until all performance standards were met, while bank credits generated from wetlands preserved at the bank site were released for sale when the bank instrument went into effect. In some districts financial assurances have not been required to guarantee mitigation bank construction, but credits are not released until the bank site begins to meet performance standards.

Approximately 25% of the approved mitigation banks nationally are "single-user" banks developed by state Departments of Transportation (DOTs) to fulfill their own compensatory mitigation needs (rather than to sell credits to others). Many state DOTs have track records of successful completion of compensatory mitigation and have not typically been required to post financial assurances. Other state or local government agencies may be required to provide financial assurances until they can demonstrate sustained performance. Some DOTs do not have the authority to secure conventional financial assurances. Where performance has been problematic, districts have required DOTs to provide financial assurances to guarantee project completion.

At least one district (Seattle) has established standards for determining whether an alternative to conventional financial assurances would be considered for government-sponsored compensatory mitigation projects. The governmental mitigation provider must:

- Demonstrate that a constitutional, statutory, or similar prohibition exists that precludes the future commitment of those appropriated funds;

- Be a public body, and either a political subdivision of the State of Washington or a political subdivision of a federally recognized tribe;
- Fund all its compensatory mitigation obligations solely through legislatively appropriated sources;
- Not rely on the expenditure of any mitigation credit sale revenue to fund any of the sponsor's responsibilities including establishment, management, and remedial action activities

Some ILF program sponsors, including non-governmental agencies, have suggested that consideration be given to a sponsor's extensive experience in restoration and protection of lands and financial resources in determining whether financial assurances are necessary. The argument is that consideration of those factors could lead to the conclusion that the likelihood of success is very high, and that if there is a problem with a particular project, then the program sponsor could be relied upon to correct the deficiency. Some ILF programs sponsored by state resource agencies have not been required to post short-term financial assurances. Instead, these state agencies have committed in writing to successful completion of ILF project mitigation. For example, the North Carolina Department of Environment and Natural Resources provided a formal commitment to the Corps guaranteeing completion of mitigation projects undertaken by the North Carolina Ecosystem Enhancement Program. Similar practices have not been approved for ILF programs sponsored by non-governmental agencies.

Some other ILF programs sponsored by non-governmental entities have not been required to post conventional financial assurances (e.g. performance bonds, letters of credit) for mitigation success. Instead, these programs have been required to build into credit fee rates a contingency charge intended to provide funds for correcting any deficiencies in mitigation project work. This practice is consistent with the mitigation rule, which states, *"For in-lieu fee programs…the cost per unit credit must include financial assurances that are necessary to ensure successful completion of in-lieu fee projects."* [33CFR 332.8(m)(ii)]

The Virginia Aquatic Resources Trust Fund (VARTF), an ILF program sponsored by the Nature Conservancy of Virginia, uses another alternative to conventional financial assurances. The VARTF earmarks 20% of each mitigation project's estimated full cost of completion for implementing remedial or corrective measures if necessary during the construction and performance monitoring phases of the project. Once performance monitoring is complete and performance standards have been met (typically 10 years following construction), the earmarked funds are applied to long-term stewardship of the project site.

In the case of permittee-responsible mitigation, many districts have required financial assurances for relatively large mitigation projects. Financial assurances may not be required for smaller mitigation projects associated with either individual permits or general permits. These cases generally rely upon compliance with permit special conditions in lieu of financial assurances. For example, assurances may be handled through permit special conditions that indicate that if the project does not meet its performance standards within a specified time frame, the permittee would then have to secure replacement mitigation.

Another consideration for districts in determining when to require financial assurances for all forms of mitigation (mitigation banks, ILFs, and PRM) involves whether comparable requirements are already mandated by state or local regulations. States that typically require posting of financial assurances for mitigation projects include Florida, New Jersey, Ohio, Oregon, and West Virginia, among others. The Corps districts permitting activities in these states may review and determine whether the assurances posted to comply with state or local rules provide sufficient assurances for mitigation project success.

2.2 Coverage, Timing and Release

The issues of assurance coverage, timing, and release are closely interrelated. Assurance "coverage" relates to the specific mitigation responsibilities that are backed by an assurance instrument. For example, separate assurance instruments might be employed to first assure project construction and then assure project success in accordance with performance standards. And in the case of large mitigation bank projects that are implemented in phases, one or more assurances might be employed to cover each different project phase in succession. Assurance "timing" relates to the time at which assurances are posted, and assurance "release" relates to the time at which the Corps determines that the mitigation responsibilities covered by the assurance have been met, enabling the assurance mechanism to be terminated.

The mitigation rule speaks directly to assurance timing and release. With respect to timing in the case of permittee-responsible mitigation projects, the rule states, *"If financial assurances are required, the permit must include a special condition requiring the financial assurances to be in place before commencing the permitted activity."* [33 CFR 332.3(n)(3)]. In this case "commencing "means the discharge of dredge or placement of fill material in waters of the U.S. associated with the permitted impact. With respect to assurance timing for mitigation banks, the rule states, *"The mitigation banking instrument may allow for an initial debiting of a percentage of the total credits projected at mitigation bank maturity, provided the following conditions are satisfied: the mitigation banking instrument and mitigation bank plan have been approved, the mitigation bank site has been secured, appropriate financial assurances have been established…"* [33 CFR 332.8(m)(ii)].

With respect to assurance release, the rule states, *"Financial assurances shall be phased out once the compensatory mitigation project has been determined by the district engineer to be successful in accordance with its performance standards. The DA permit or instrument must clearly specify the conditions under which the financial assurances are to be released to the permittee, sponsor, and/or other financial assurance provider, including, as appropriate, linkage to achievement of performance standards, adaptive management, or compliance with special conditions."* [33 CFR 332.3(n)(4)].

The rule does not speak directly to assurance coverage, and there is considerable variation in the ways in which districts have approached coverage issues, particularly for mitigation banks. Different approaches to assurance coverage, timing, and release are outlined briefly below.

When financial assurances have been required for permittee-responsible mitigation projects, many districts have required a single financial assurance instrument to assure project construction and

successful attainment of performance standards. The dollar amount of the assurance initially established is then generally reduced in phases as project performance milestones are met, such as completion of construction, attainment of hydrology, and annual monitoring reports that show the project is trending toward successful attainment of performance standards. This approach to implementing financial assurances for permittee-responsible mitigation projects is used in the Buffalo, Norfolk, San Francisco, and Seattle districts. In the case of mitigation banks, several districts (including Baltimore, Chicago, Mobile, Omaha, Savannah, and in some cases, Seattle) have required bank sponsors to post a single financial assurance instrument to assure construction and success for the entire mitigation bank project. These assurances are then released in phases as performance milestones are reached. Release of assurances may actually mean termination of the existing assurance mechanism (such as a bond or letter of credit) and reissuance for a lower dollar amount.

Other districts have required two distinct assurances for mitigation bank projects, one to assure project construction (a "construction assurance") and the other, often called a "performance assurance" to guarantee that the project meets its performance standards during the required monitoring period (which typically ranges between 5 and 10 years). The construction assurance is released when construction has been completed and deemed successful by the interagency review team, often through review and approval of as-built drawings. The performance assurance is released in phases as ecological success milestones are reached. This is a common practice in the New Orleans, Seattle, and Baltimore districts.

A variant of this approach is used in the Buffalo and Norfolk Districts. Once a mitigation bank instrument has been finalized, these districts will release a limited share of bank credit for sale prior to project construction in return for a financial assurance that assures construction for only that part of the project that backs the released credits (rather than construction for the entire bank project). Once construction associated with the initial release of credits is complete, that assurance may be released to the sponsor. At that point the bank sponsor is required to post another financial assurance to assure successful monitoring and maintenance of the project during the monitoring period. This assurance is usually an escrow account funded by a portion of the revenues generated through credit sales. This assurance may be reduced in phases as monitoring reports show the project is trending toward attainment of performance standards. Recently, Norfolk District approved the use of other forms of financial assurances (casualty insurance, performance bond, letter of credit) as alternatives to an escrow account to guarantee successful project monitoring and maintenance. Norfolk District also requires bank sponsors to fund an escrow account that provides funding to address project deficiencies caused by catastrophic events such as hurricanes, droughts, fires, and other unexpected events.

Perhaps the most comprehensive approach to financial assurances for mitigation banks is employed by the Corps districts in California (Los Angeles, Sacramento, and San Francisco). These districts use a state-wide Mitigation Bank Enabling Instrument template that requires three different assurances over the life of a mitigation bank (as well an endowment for long-term site management). These include a construction assurance, a performance assurance, and an interim management assurance.

The construction assurance remains in effect only during bank site construction. The performance

assurance goes into effect when the first credit is sold and remains in effect until all performance standards are met. The interim management assurance goes into effect following construction and stays in force until all performance standards are met and after the first anniversary of the full funding of the endowment for long-term site management.

2.3 Amount

Among the most challenging aspects of implementing financial assurances for mitigation success is setting the dollar amount. With respect to this issue the mitigation rule states,

> *"The amount of the required financial assurances must be determined by the district engineer, in consultation with the project sponsor, and must be based on the size and complexity of the compensatory mitigation project, the degree of completion at the time of project approval, the likelihood of success, the past performance of the project sponsor, and any other factors the district engineer deems appropriate … The rationale for determining the amount of the required financial assurances must be documented in the administrative record for either the DA permit or the instrument. In determining the assurance amount, the district engineer shall consider the cost of providing replacement mitigation, including costs for land acquisition, planning and engineering, legal fees, mobilization, construction, and monitoring."* [33 CFR 332.3(n)(2)]

In order to ensure that sufficient funds are available to remediate or replace a failed mitigation project, the assurance amount should reflect all possible component costs of remediation or replacement, including possible contingencies. Component costs can include costs for land purchase and surveys; project planning, design and engineering; site construction and planting; monitoring and maintenance; remedial work and other contingencies, and legal and administrative tasks. These component costs can be further divided into costs for specific tasks; for example, construction could include earthwork, sediment and erosion controls, and installation of water control structures among other tasks.

Not all of the component costs listed above might be applicable in every case. Land cost, which is often the single largest mitigation project cost component in many areas of the country, may or may not be relevant for determining assurance amounts. Determining whether land costs are relevant depends on whether or not it is believed, a priori, that the mitigation project in question could and should be successfully completed in the event that the mitigation sponsor was unable to meet its mitigation obligations. If it is believed that mitigation project remediation would be desirable and likely to be successful (e.g., the mitigation site is an excellent candidate for a successful restoration project), then there would be no need to include component costs for land purchase when setting assurance amounts.

Alternatively, if there is uncertainty surrounding the possibility or benefits of remediating a failed mitigation project, then assurance amounts should be based on the cost of completing a separate mitigation project at another location. Assurance amounts based on such off-site replacement would need to include component costs for land purchase.

In general, remediation of a failed mitigation project might be deemed a priori to be desirable and likely to succeed if all of the following criteria were met:

- The mitigation project site is in a favorable location—that is, the site has a high probability of providing the desired resource type and current and projected uses of adjacent lands would not threaten the sustainability of the mitigation project, and long-term protection of the project site is secured.
- There is a high likelihood that mitigation project remediation would succeed in achieving mitigation performance standards and provide the project's intended functions and services.
- An independent third-party can be secured that is willing and able to use the assurance monies to remediate a failed mitigation project, and that party's access to the mitigation site for remediation work and monitoring and maintenance is assured.

Generally, the mitigation provider is expected to provide the Corps with estimates of the cost of the sponsor's mitigation project, itemized by project task, for purposes of establishing financial assurance amounts. Some districts have required mitigation providers to provide cost estimates developed by independent sources or contractors. Other sources of cost data that may be useful for preparing a mitigation project cost estimate or for validating the accuracy of an estimate provided by a mitigation provider include:

- Corps in-house engineering costs estimates.
- Independent cost estimates for similar mitigation projects in the area.
- Publicly-available bid data for similar projects included in proposals for mitigation work, such as data available online from the North Carolina Division of Mitigation Services (http://deq.nc.gov/about/divisions/mitigation-services).
- Cost estimates from proprietary software such as the Property Analysis Record developed by the Center for Natural Lands Management.

Consideration should be given to several factors when developing or reviewing project cost estimates, including:

1. Quality of the source data (is it from a reliable source and current?);
2. Completeness (are costs for all reasonable and expected project elements included in the estimate?);
3. Potential for escalating costs over time (does the estimate include an adjustment for inflation or increasing component costs?), and;
4. Potential for project failure (what is the mitigation provider's previous experience and record in providing compensatory mitigation?).

If the assurance mechanism is expected to last 5 or more years, consideration may be given to requiring an annual adjustment for inflation over the life of the assurance. The rate of inflation used may be subject to discussion. A number of districts have used the Consumer Price Index for their area to estimate the rate of inflation.

The proposed assurance amount should include sufficient resources for the beneficiary of the assurance to develop a plan-of-action (if necessary), to implement the remedial work, and to cover the administrative costs of receiving and applying those funds to appropriate remediation activities. Although it may be difficult to predict in advance the cost of administration of these funds, at least one assurance provider (National Fish and Wildlife Foundation) recommends allocating 10% above and beyond the projected cost of remediation.

Another alternative for costing assurances to provide replacement mitigation for a failed mitigation project involves basing costs on credit prices of Corps-approved mitigation banks and ILF programs in the same service area. Such banks or ILF programs provide a ready supply of mitigation credits that could be purchased to replace a failed mitigation project, and the credit prices they charge could be used to establish required financial assurance amounts. This obviates the challenge of developing cost estimates for the purpose of setting assurance amounts, as well as the need to secure a third-party that is willing and able to use assurance monies to remediate a failed mitigation project or provide a replacement project. This approach to setting financial assurance amounts has been employed by some districts where mitigation banks and ILF programs are located. One potential concern with this approach is that the credit prices charged by mitigation banks may be higher than the actual costs of corrective action on a failed or non-performing mitigation project. This is because bank credit prices reflect not only the costs of producing the mitigation including securing a land interest but also a competitive, risk-adjusted rate of return to bank owners. Although the costs may be higher than most corrective actions, purchasing credits from a mitigation bank may be one appropriate corrective action that the Corps could take to address a failed mitigation project.

2.4 Claims & Performance

The term "claim" refers to calling-in a financial assurance when the Corps determines that a mitigation provider has defaulted on the provider's mitigation obligations. The term "performance" relates to use of a financial assurance to ensure remediation or replacement of a failed mitigation project.

With respect to assurance claims that involve the transfer of assurance monies, the rule states,

> "*Financial assurances shall be payable at the discretion of the district engineer to his designee or to a standby trust agreement. When a standby trust is used (e.g. with performance bonds or letters of credit) all amounts paid by the financial assurance provider shall be deposited directly into the standby trust fund for distribution by the trustee in accordance with the district engineer's instructions."* [33 CFR 332.3(n)(6)].

In addition,

> "*The compensatory mitigation project must comply with all applicable federal, state, and local laws. The DA permit, mitigation banking instrument, or in-lieu fee program must not require participation by the Corps or any other federal agency in project management,*

> *including receipt or management of financial assurances or long-term financing mechanisms, except as determined by the Corps or other agency to be consistent with its statutory authority, mission, and priorities."* [33 CFR 332.3(o)]

The above rule language is meant to ensure that the Corps does not participate in any management of mitigation projects, including receiving or managing financial assurance funds. The prohibition on Corps receipt and management of assurance monies stems from statutory restrictions imposed by the Miscellaneous Receipts Statute [31 USC 3302(b)], which requires that funds obtained by any federal agency that does not have statutory authority to collect or use those funds must be deposited in the U.S. Treasury. Congress has not given the Corps regulatory program explicit authority to collect or use mitigation assurance funds. This statutory restriction can be addressed either by ensuring that financial assurance payouts are made payable to a standby trust or to a third-party that is acceptable to the Corps who agrees to complete the project or provide alternative mitigation.

In 2011, Corps Headquarters Office of Counsel provided additional clarification on what role the Corps should play in administering the financial assurances funds (see Appendix B). Office of Counsel cautioned that even if financial assurance funds are held by a third party, the Corps could be viewed as being in "constructive receipt" of the funds if the Corps plays too great a role in directing the use of those funds.

One mechanism identified for avoiding constructive receipt is through a contingency mechanism in the mitigation plan, permit, financial assurance document, or bank instrument that indicates how compensatory mitigation requirements would be met if a claim on the financial assurance becomes necessary. In the event of a claim, it would be the responsibility of the entity receiving the funds to develop a proposal for accomplishing the mitigation project goals. The Corps would have the ability to review and approve the plan but would not have control over the funds obtained through an assurance claim, which would be used by the recipient to fulfill the mitigation obligations of the mitigation provider. Other tools and strategies can also be implemented to limit the Corps control of the funds and state agencies may have greater flexibility in directing how the funds are used and can be an important partner for the Corps.

A standby trust is an agreement between a neutral third party, such as a financial or legal institution (the trustee), and a mitigation provider whereby the trustee agrees to hold any money collected when a claim has been made on a financial assurance, and then disperse that money to implement a plan approved by the District Engineer. Standby trusts may be established at the time of bank approval or later. Standby trusts may be useful when the financial assurance instruments used to assure mitigation obligations do not directly name a designee acceptable to the Corps as the beneficiary of monetary claims. Any assurance monies deposited in a standby trust will remain secure until the Corps can approve a designee to receive the funds and develop and implement a proposal for completing the compensatory mitigation or provide replacement mitigation. The holder of the trust is under no obligation to find a beneficiary. It is the Corps responsibility to identify a willing beneficiary to implement remedial action. It may be preferable to address these issues prior to bank approval where the banker can work to identify an appropriate beneficiary in advance.

An appropriate beneficiary of a financial assurance or a standby trust should have the experience and capability to complete the compensatory mitigation obligation. When deemed applicable, a standby trust could be established by a mitigation provider at the same time that the sponsor established the required financial assurance; the trust would remain dormant until a claim on assurance funds was made. The mitigation provider is required to pay an annual premium to maintain the standby trust. Standby trusts have been used with compensatory mitigation projects in Florida, Virginia, and Washington. Care must be exercised to ensure that the standby trust is structured in a way that avoids the appearance of constructive receipt.

Corps districts have approved a number of different entities as beneficiaries of the financial assurances who would use those assurance funds to ensure performance in the event of default by mitigation providers. Beneficiaries have included non- governmental resource conservation organizations, state, county and municipal resource agencies, and quasi-state agencies such as soil and water conservation districts. In some Corps districts, the conservation easement holder for a mitigation project may be named as the beneficiary of financial assurances for that project. In several districts, approved ILF programs and mitigation banks have been identified as acceptable beneficiaries of financial assurances.

It is important to note that some assurance instruments promise performance of the mitigation sponsor's obligations by the assuring entity rather than simply payment of funds for that purpose. That feature of assurance instruments is considered in Section 3.

2.5 Instruments

With respect to the different types of financial assurance instruments (sometimes referred to as assurance "forms") that can be used to assure mitigation obligations, the mitigation rules states,

> *"…Financial assurances may be in the form of performance bonds, escrow accounts, casualty insurance, letters of credit, legislative appropriation for government sponsored projects, or other appropriate instruments, subject to the approval of the district engineer…"* [33 CFR 332.3(n)(2)]

This rule language gives the District Engineer flexibility in the review and approval of financial assurance instruments used to assure successful compensatory mitigation, including the potential to allow combinations of different instruments to fulfill a responsible party's assurance requirements[4].

Under the mitigation rule, notification of the Corps is required at least 120 days prior to the termination or revocation of the financial assurance (33 CFR 332.3(n)(5)).

Table 1 presents a basic description of alternative assurance instruments. Figures that illustrate the basics of how they work are presented in Appendix A. The narrative that follows briefly reviews how these instruments can be set up to work in the mitigation context in compliance with the federal rule on

[4] Another important feature is the requirement to notify the district at least 120 days prior to the revocation or termination of financial assurance instruments (33 CFR 332.3(n)(5).

compensatory mitigation. A comparative review of important features of these assurance instruments is provided in Section 3.

Table 1. Overview of Alternative Financial Assurance Instruments

Instrument	Use to Assure Compensatory Mitigation Obligations
Letter of Credit	A letter of credit is a document issued by a financial institution (the issuer) on behalf of a mitigation provider (the account party) that provides for payment of the account party's obligations to another party (or beneficiary) designated by the Corps who is willing to accept responsibility for completing or replacing the mitigation project. Payment is assured up to a specified dollar amount during a specified period of time (typically no more than one year). If the Corps determines that the account party has failed to fulfill its obligations referenced in the letter, the Corps can demand payment to the beneficiary of all or part of the dollar amount specified in the letter to complete or replace the mitigation project. When the beneficiary draws on the money, the account party then owes that amount to the issuer according to the terms of a loan agreement between the issuer and the account party established to secure the letter. These loan agreements often require the account party to post collateral with the issuer (e.g., maintain a certain cash balance at the financial institution).
Performance Bond	A performance bond is an assurance contract with a specified dollar limit (penal sum) for a specified period of time whereby a bonding company (the surety) assumes the obligations of a mitigation provider (the principal) for the benefit of the Corps (the obligee) in the event that the principal fails to fulfill those obligations. The surety may fulfill the principal's obligations either by performing those obligations up to the limit of the penal sum, or by paying an amount up to the penal sum (less any costs already incurred by the surety) to a willing party designated by the Corps, who would develop a proposal to fulfill the mitigation obligations. . To secure a performance bond, the principal must enter into an indemnity agreement with the surety that requires the principal to reimburse the surety for any loss the surety may incur under the performance bond, and such agreements often require the principal to post collateral with the surety. The indemnity agreements can put at risk the personal assets of mitigation providers and their investors.
Cash in Escrow	An escrow is an agreement between a mitigation provider (the grantor) and the escrow agent to transfer ownership of cash to a beneficiary (grantee) approved by the Corps if the mitigation provider fails to meet its obligations specified in the agreement. The escrow agent is a neutral third party such as a law firm or financial institution (the depositary) which receives and holds the money and assures its transfer to the grantee if the grantor fails to fulfill its obligations. Prior to a claim, legal title to the money in escrow remains with the grantor; however, after the money has been transferred to the depositary, the cash cannot be returned to the grantor until the Corps notifies the depositary that the grantee has fulfilled its obligations.

Table 1. Overview of Alternative Financial Assurance Instruments	
Use to Assure Compensatory Mitigation Obligations	
Casualty Insurance	Casualty insurance is a contract between a mitigation provider (the insured) and an insurance company (the insurer) for claims against the policy made by the Corps (the regulatory body) up to a specified dollar limit (limit of liability) for a specified period of time. The insurer agrees to fulfill the obligations of the insured in the event that the Corps makes a claim on the policy after the Corps has notified the insurer that the insured has not met its obligations. The insurer may satisfy the claim by fulfilling the obligations of the insured or by cash payment (up to the limit of liability) to a Corps designee. The insured is required to repay to the insurer any insurer costs that result from claim up to a specific deductible amount. If the insured is unable to do so, then the insurance company would incur those costs.
Legislative Appropriations	Legislative appropriations are a government appropriation of funds to guarantee that the mitigation responsibilities of a government agency such as a Department of Transportation are met for a specific period of time. This appropriation may be a line item in a government budget, such as a capital improvement budget. Should the Corps determine that the agency has defaulted on its mitigation obligations the agency must provide a plan to fulfill its obligations or provide alternative mitigation acceptable to the Corps utilizing the appropriated funds.

2.5.1 Letter of Credit

In the mitigation context, a letter of credit is an agreement between a financial institution such as a bank (the issuer) and a mitigation provider (the account party) whereby the issuer agrees to provide cash for the benefit of the Corps or its designee (the beneficiary) if the Corps determines that the mitigation provider has not fulfilled its mitigation obligation, which is the condition for payment that is directly referenced in the letter (see Appendix A, Figure 1). Essentially, the issuer extends its credit to cover the mitigation provider's obligations. The letter assures payment for the mitigation provider's unmet mitigation obligation up to a specified dollar amount during a specified period of time.

To make a claim, the Corps must present to the issuer the letter of credit along with documentation of mitigation project failure and an estimate of the amount of assurance funds needed to repair or replace the project. Since the Corps does not have the authority to directly collect and use assurance payouts, the letter should do one of the following :1) name as beneficiary a willing party that is designated by the Corps, 2) name the Corps as the beneficiary for the purpose of making the default determination and allow the Corps to at that time identify an appropriate designee to receive the funds and develop plans for addressing the default [5]or 3) identify a state or local entity that will nominate a suitable party to receive the funds to implement plans to address the default.

Most letters of credit are issued for no more than one year terms, but in some states, such as Louisiana, letters may be issued for 1, 3, or even 5 year terms. , Letters of credit may be set up to be "evergreen,"

[5] This approach is used in South Pacific Division and in New Orleans and Wilmington Districts.

meaning they can be automatically extended for another term if necessary. But even with an evergreen letter of credit, the issuer always has the option not to renew the letter of credit at the end of the specified term. Such letters should be "irrevocable" (that is, it cannot be revoked during its term without the agreement of the beneficiary) to ensure that the bank will honor all claims by the Corps or its designee that occur during the letter term.

2.5.2 Performance Bond

In the mitigation context, a performance bond is an agreement between an insurance or bonding company (the surety) and a mitigation provider (the principal) whereby the surety agrees to fulfill the principal's mitigation obligation to the Corps (the obligee) if the principal has failed to meet that obligation, which is the condition for surety liability directly referenced in the bond (see Appendix A, Figure 2). As with a letter of credit, a performance bond specifies a dollar limit of liability for the surety (called the penal sum) and a term during which claims can be made against the bond. Typically, performance bonds are issued for 1-2 year terms, although the period of coverage can be longer. If a claim is presented on the bond during its term, the surety agrees to complete the mitigation provider's obligation either by performing that obligation itself (up the dollar limit of the penal sum) or by paying the penal sum (less any costs already incurred by the surety) to the obligee. If the Corps is the named obligee, then the bond should stipulate that any bond payouts be made payable to an established standby trust or to the Corps' designee. To the greatest extent practicable, the designee or a pool of potential designees should be identified at the time the bond is written.

2.5.3 Escrow Agreement

In the mitigation context, an escrow is an agreement between a mitigation provider (the grantor) and the escrow agent (depositary) to transfer ownership of up to a certain amount of cash from the mitigation provider to a designee of the Corps, if the Corps determines that the grantor has failed to meet its mitigation obligation (see Appendix A, Figure 3). The depositary is a neutral third party such as a law firm or financial institution who agrees to hold and transfer the funds per the terms of the agreement. Under an escrow agreement, the grantor deposits cash into an escrow account administered by the depositary. The agreement identifies non-compliance with the provider's mitigation obligation as the condition for transfer of cash held in escrow to the Corps' designee. To make a claim, the Corps must provide to the grantor documentation of mitigation project failure and an estimate of the amount of assurance funds needed to repair or replace the project.

The mitigation provider retains legal title to the cash in escrow (and may earn interest on the funds held that is invested in safe, liquid investments such as certificates of deposit). However, once the cash has been transferred to the depositary, the cash deposit (including principal and earnings) cannot be returned to the mitigation provider until the Corps notifies the depositary that the mitigation provider's obligation has been fulfilled.

An escrow agreement can be established for an indefinite period to accommodate the time necessary for successful completion of the mitigation obligation. Upon notification by the Corps that a mitigation provider is in default of its compensatory mitigation obligation, the escrow agent would transfer all or part of the funds held in escrow to a Corps designee that is identified either in the escrow agreement or

named at the time that the Corps demands payment. Alternatively, the escrow agreement could specify that claims will be made payable to a standby trust that is to be established by the depositary at the time a claim is made. Some Districts, such as New Orleans and Norfolk, have developed model escrow agreements. To the greatest extent practicable, the designee or a pool of potential designees eligible to accept the funds should be identified at the time the agreement is written to reduce the likelihood of having to identify a designee immediately prior to making a claim on the assurances.

2.5.4 Casualty Insurance

In the mitigation context, casualty insurance is an agreement between an insurance company (the insurer) and a mitigation provider (the insured) whereby the insurer agrees to fulfill the mitigation obligation of the insured, up to a specified dollar limit within a specified period of time, if the Corps determines that the mitigation provider has failed to meet its mitigation obligation (see Appendix A, Figure 4). An insurance product now in use by mitigation banks and permittee responsible mitigation (PRM) projects is a "claims made" policy that can be established to allow for claims over as much as a 10 year time period during which the mitigation bank or PRM project is required to achieve mitigation success. A claim can only be filed by the named regulatory body (Corps or identified state regulatory agency). The policy specifies that the insurer will satisfy a claim (up to the dollar limit of liability) by remediating the failed mitigation project, providing replacement mitigation, or making payment to a Corps designee. In general, there is no need for a pre-established standby trust or for parties to be designated in advance to accept the funds because the insurance company will proffer parties to execute the work for Corps approval.

2.5.5 Legislative Appropriations

There are a few cases where legislative appropriations (established by state or local governments) have been identified to guarantee successful completion of mitigation projects by government agencies as compensation for the permitted impacts of those agencies (for example, compensation associated with road projects). In those situations, the legislative body has appropriated specific funds to be set aside (for example, in a capital improvement budget) to guarantee fulfillment of mitigation obligations. Should the responsible government agency default on its obligations, the agency would either draw on the funds to correct mitigation project deficiencies or to provide alternative compensatory mitigation. This approach has been used by local governments and by a number of states, including Illinois, Maine, and Washington.

2.5.6 Alternative: Credit Sales Revenue to Escrow

In the immediate aftermath of the financial crises of 2007-2008, some mitigation bank sponsors reported difficulties finding financial institutions and sureties willing to issue letters of credit and performance bonds at affordable terms, as well as obtaining the funds necessary for establishing upfront cash escrows as assurances for mitigation obligations. One way around these difficulties that was used in at least one district (Norfolk), allowed for an initial release of a limited share of bank credits available for sale without the posting of financial assurances, but required establishing an escrow account prior to the initial release of credits. All the revenue from the sale of those credits would be placed in escrow until attainment of performance standards for a portion of the bank project equivalent in size to the initial credit release. This escrow option differed from the traditional use of escrow as financial assurance only in that there was no requirement for upfront posting of funds to escrow as a condition of credit release. This

alternative is no longer used as a financial assurance mechanism and it is not included in the comparative review of assurance instruments presented below.

3. Comparative Review of Assurance Instruments

The following narrative provides further elaboration of these features for different assurance instruments, and provides limited commentary on their possible implications for mitigation providers and the Corps. The review considers the following assurance features:

1. Availability and procurement, which relates to the general availability of the assurance instrument and the process and demands that a mitigation provider must meet in order to secure it.

2. Price and opportunity cost, which relates to the fee charged to a mitigation provider to secure the assurance instrument as well as the costs to the mitigation provider of tying-up money in the assurance instrument or in any collateral that may be required by the assurance provider.

3. Term and renewal, which relates to the period of assurance coverage provided by the assurance instrument as well as prospects for renewal if more time is needed.

4. Claims and performance, which relates to the process required for making and honoring a claim against an assurance instrument, and whether additional steps are needed to secure the repair or replacement of a failed mitigation project.

Table 2 (located at the end of this section) compares alternative financial assurance instruments in terms of these features.

3.1 Availability and Procurement

Letters of credit and performance bonds have been used fairly extensively to assure mitigation obligations. In certain years, however, some mitigation providers have had difficulty securing these instruments from financial institutions and sureties. For example, financial and market conditions during the economic downturn of 2007-2010 reduced the credit capacity of some financial institutions and sureties and reduced their willingness to extend credit generally.

Currently, letters of credit are fairly readily available to qualified parties, and because of national and international standards and practices (the Uniform Commercial Code and the ICC Uniform Customs and Practice No. 600), they can be issued with minimal customization or negotiation. Procuring a letter of credit is essentially a credit transaction that requires the mitigation provider to successfully complete a loan application with the issuing financial institution. In the event that a claim is made against a letter of credit during its term, the issuer of the letter of credit (the financial institution) pays the claim. The mitigation provider then owes the issuer the amount of the claim per the terms of the loan agreement.

There was a general retrenchment in the willingness of sureties to issue performance bonds during the early 2000's following a spike in surety industry losses experienced during previous years. Sureties may have become even more conservative during the economic downturn due to economic stress in the construction industry during that period, which is the main market for performance bonds.

A further issue that may limit the availability of performance bonds in the mitigation context relates to the possibly nebulous nature of what constitutes mitigation project success from the perspective of sureties. Sureties are accustomed to issuing bonds for construction projects that have a clear expected end result that can be readily evaluated against pre-established plans and specifications. Thus, when sureties are willing to issue bonds in the mitigation context, they may limit their bonding to assure mitigation project construction (e.g., grading and placement of water control structures to produce the needed topography and hydrology) while choosing not to bond the risk that mitigation success will not be achieved in accordance with performance standards.

Bond sureties view their underwriting as both a performance obligation and a credit transaction and emphasize careful selection of buyers based on an exhaustive review of the buyer's capacity and resources for completing its obligation, as well as the buyer's character. Procuring a performance bond as assurance for mitigation obligations can be a time-consuming and onerous process for mitigation providers. Once a bond "line of credit" is secured, approval of subsequent bonds may be easier to secure so long as the total dollar limit of bonding capacity remains below that threshold. Sureties will also require a mitigation provider to enter into an indemnity agreement whereby the provider agrees to reimburse the surety for any losses the surety incurs from claims made on the bond. Such indemnity agreements can potentially put at risk the personal assets of the mitigation provider as well as those of any investors in the provider's mitigation venture.

The availability of letters of credit and performance bonds in the mitigation context is related to any collateral requirements imposed on prospective buyers of these instruments. Generally, financial institutions will issue letters of credit and sureties will issue performance bonds for mitigation project success when the buyers agree to post collateral in amounts that approach the full face amount of a letter of credit or bond. Such collateral requirements greatly increase the cost of these assurance options, however, and thus limit their potential affordability for mitigation providers.

Escrows established to hold cash as assurance for mitigation obligations can be readily established at many legal and financial institutions. The main hurdle with establishing a cash escrow as assurance is the ability of mitigation providers to post the required cash at the same time that they need substantial funds to implement their mitigation projects.

At the end of 2014, casualty insurance policies had been approved and were in force for 32 operational mitigation banks and 7 PRM projects in 12 districts. They are generally used to secure both construction and performance (monitoring, maintenance, and remediation) obligations. This insurance product is being marketed to mitigation banks and permittee responsible mitigation nationwide and has been proposed as financial assurance for many prospective mitigation banks now under review in a number of additional districts. This product is available to any mitigation provider deemed qualified by the insurer. To obtain a policy, a mitigation provider must show the insurer that the provider has the capacity and resources to complete their mitigation obligations, though this qualification process is much less detailed and time-consuming than required of applicants for performance bonds. The policy also includes a deductible that requires the mitigation provider to reimburse the insurer for any costs the insurer incurs from claims up to a stated amount. The insurer recognizes that it will not recoup all of its claim costs, and

pools that risk across many premium-paying policyholders.

3.2 Price and Opportunity Cost

The prices charged for letters of credit can vary according to the credit-worthiness of buyers, but generally range from 1.5 - 3% of the specified annual credit limit. More importantly in terms of cost to mitigation providers, financial institutions often require buyers to post collateral for the credit line by, for example, maintaining a certain cash balance in an account at the issuing institution. Buyers with large balances in financial institutions (such as large timber and construction companies and large non-governmental organizations) may have little problem securing letters of credit. Smaller mitigation providers may have to post collateral to secure letters of credit. A letter of credit will typically reduce a mitigation provider's other available credit lines by a corresponding amount.

The prices charged for performance bonds can range from 1.5-5% of the bond dollar limit, where prices at the high end of the range are associated with bonds issued for activities that carry risks that are considered "substandard" (i.e., higher than normal) by the surety. As with issuers of letters of credit, sureties may require mitigation providers to post significant collateral with the surety as a condition for bond issuance.

The institution that serves as depositary for an escrow account will charge the mitigation provider a minimal annual fee, which is often paid from the interest earned on the deposited cash that is invested in safe, liquid investments such as certificates of deposit. The main cost of establishing an escrow account relates to the opportunity cost to the mitigation provider of tying-up significant sums of money in escrow at the same time that the provider needs substantial funds to implement the provider's mitigation project.

As noted above, letters of credit and performance bonds can impose significant costs on mitigation providers when, as a condition of issuance, providers are required to post collateral with the assurance provider. If collateral requirements were set at 100% of the face value of the letter of credit or bond, the opportunity cost of these assurance options would reach the level incurred by mitigation providers when they deposit cash in escrow as assurance for mitigation obligations, but sometimes collateral requirements are less than this. To the extent that some mitigation providers are unable to post the funds needed to establish an escrow or to meet any collateral requirements of a letter of credit or performance bond, these instruments are unworkable assurance options for those providers.

The casualty insurance policy marketed to mitigation providers was developed in recognition of potential limits on the availability and affordability of other assurance options for mitigation providers. To secure a policy, a mitigation provider must pay a one-time, non-refundable premium equal to about 2-4% of the sum of dollar limit of insurance for each year that is written into the policy. For example, consider a mitigation bank that is allowed to sell a limited share of bank credit capacity when a casualty insurance policy has been established to assure that the mitigation work associated with those credits is completed and meets performance standards within a ten-year monitoring and maintenance period. The premium for this policy would be based on a Corps-approved estimate of the amount of assurance dollars required for the release of credits during each year of the required monitoring and maintenance period. The insurer charges the full premium amount for the ten year period upfront, because once in

force the insurer cannot cancel the policy during its multi-year term.

The casualty insurance policy does not require a mitigation provider to post collateral as a condition of policy issuance. However, the insurance underwriter or broker does examine the mitigation provider's financial and technical qualifications as part of its risk assessment for prospective policy. For mitigation providers this is an important potential advantage of the insurance option over cash in escrow, as well as letters of credit and performance bonds when those instruments impose significant collateral requirements. Unlike those instruments, casualty insurance does not require a mitigation provider to tie-up large amounts of cash as assurance or collateral at the same time that the provider needs substantial resources to implement the mitigation project. This obviates the need for mitigation providers to secure additional funds for assurances or collateral, and then carry the cost of those funds until mitigation obligations are met. Casualty insurance has been used by many approved mitigation banks and a number of permittee-responsible mitigation projects, and proposed in connection with many more prospective mitigation banks, suggesting that it may be the most cost-effective available assurance option for some mitigation providers.

3.3 Term and Renewal

Letters of credit are generally issued for no more than a one-year term, and performance bonds are also generally issued for limited terms (1-2 years), although sureties have issued bonds for longer terms in the mitigation context. In the New Orleans district some mitigation providers have been able to secure letters of credit for 3 or even 5 year periods. Issuers generally offer prospects for the automatic renewal of letters of credit and performance bonds at the end of their terms, although they always have the option not to renew these instruments. Non-renewal of a letter of credit or performance bond could result from a negative judgment by an issuer about a mitigation provider's ability to complete the mitigation obligation, or from external factors that reduce the issuer's willingness to extend credit to certain types of projects generally.

The limited terms of letters and performance bonds, and the less-than-certain prospects for their renewal, can be problematic for mitigation providers and the Corps alike. Both parties must closely monitor mitigation progress against the remaining term of the assurance instrument, and the mitigation provider must move to secure renewal of the instrument when necessary. A renewal may be offered by an assuring entity but at a higher price or involving higher collateral. If a needed renewal were not forthcoming, a mitigation provider would then have to quickly secure a Corps-approved replacement assurance. If such replacement assurance were not quickly secured, the Corps might feel compelled to take regulatory enforcement action. In the case of a mitigation bank, such enforcement might involve suspension of further credit sales, reduction in the amount of credits awarded to the bank, or suspension or termination of the instrument.

Escrows and casualty insurance, on the other hand, do not involve complications relating to limited assurance terms and uncertain renewal prospects. The term of an escrow agreement can be set up to coincide with the time period required for mitigation success set forth in a permit or mitigation bank instrument, or could be established for an indefinite period to accommodate the amount of time needed to successfully complete a mitigation project. Similarly, casualty insurance provides coverage for up to 10

years which is often equivalent to the full term over which a mitigation bank is required to achieve mitigation success in accordance with performance standards. The extended period of coverage provided by escrows and casualty insurance is an important advantage of these assurance options from the perspectives of mitigation providers as well as the Corps.

3.4 Claims and Performance

In the case of escrows and letters of credit, claims made against the assurance instruments will be honored if received within the specified term as long as the Corps provides notification indicating that the mitigation provider is in default of its mitigation obligation. That is, a depositary for an escrow account or an issuer of a letter of credit will not contest a claim that meets the stated conditions of the assurance instruments. Sureties for performance bonds, on the other hand, generally do have the ability to contest a claim against a bond, and may do so if they disagree with a Corps determination that a bonded mitigation obligation has not been met. From the Corps' perspective, the possibility that a surety will resist a bond claim is a potential drawback for the use of performance bonds to assure mitigation obligations. Casualty insurance is relatively new in the mitigation context and no claims have been made on policies so the actual treatment of claims is unknown. However, the presumption is that the insurer would honor legitimate claims following claims adjustment, but as with performance bonds, there is the potential for an insurance provider to dispute a claim.

Although escrows and letters of credit provide an assured source of funds when the Corps makes a claim against these instruments within the terms and stated conditions of the instruments, these funds provide the means to effect a remedy for a failed mitigation project, but not the remedy itself. An acceptable designee must be identified to receive and apply the funds to implement a remedy in the event of a claim. The Corps is charged with approving arrangements for an appropriate remedy, such as having the designee remediate the failed mitigation project or implement or secure replacement mitigation.

Unlike escrows and letters of credit, performance bonds promise the performance of mitigation obligations rather than simply cash payout. When a surety receives what it deems to be a valid claim against a bond, the surety will seek to fulfill the mitigation provider's obligation in the most cost- effective way for the surety. This could involve hiring contractors to remediate a failed mitigation project. Typically, monetary payment to a Corps designee or to a standby trust would be a last resort for a bond surety (and would be limited to the penal sum of the bond less any costs already incurred by the surety in trying to fulfill the mitigation obligation).

As noted above, a surety may resist a Corps determination that the mitigation provider is in default, or maintain that surety expenditures to remedy a failed mitigation project have been successful, even if the Corps does not agree. Such an impasse could lead to litigation or other enforcement actions. For that reason it is important to clearly identify in the instrument or mitigation work plan what constitutes successful performance.

Some districts have developed rigorous standards for surety bonds to address these concerns, but which may reduce the likelihood of mitigation providers being able to procure a performance bond. Other districts do not support use of performance bonds because of the potential challenge on whether a default has occurred, since a surety might challenge first and then provide performance or payment only

after an investigation of liability has been completed.

Districts have developed two strategies to minimize potential disputes with performance bond sureties: 1) Insist that the performance bond specify transfer of funds to a conservation entity to perform the work in accordance with a plan approved by the Corps; and 2) Clearly specify in the project's mitigation work plan what is meant by project success. However, a permittee may have difficulty finding a designee willing to commit in advance to mitigation work when the possible need and timing of that work are unknown.

The casualty insurance policy that is available to mitigation providers is a unique assurance mechanism in that it offers a claim service whereby the insurer will settle a claim in any manner deemed acceptable by the Corps (up to the dollar limit of insurance). The policy states that when presented with a claim by the Corps that includes documentation of mitigation default, the insurer will either: 1) work with the Corps to settle a claim to the full satisfaction of the Corps by a certain date agreed to by the Corps, or 2) pay to the Corps' designee a claim amount that the Corps determines is necessary to complete or replace the mitigation provider's compensatory mitigation obligation. It should be noted that it may be a challenge to identify a designee prior to or concurrent with any claim on an assurance. This assurance mechanism is a relatively new one and to date no claims have been made on any of the policies in force. It is not clear whether an insurer would or could dispute a claim.

The insurance option affords the Corps flexibility in ensuring the performance of mitigation obligations when the Corps determines that a mitigation provider has failed to meet its compensatory mitigation obligation. If the Corps deems the mitigation project is remediable, the Corps might invoke the first option by requiring the insurer to hire contractors to develop and implement a remediation plan. If, on the other hand, the Corps determines that the mitigation project could not be successfully remediated, the Corps could invoke the second option by requiring the insurer to propose an acceptable alternative mitigation plan such as purchasing credits at an approved mitigation bank or ILF program or identifying an alternate site and implementing replacement compensatory mitigation. From the Corps' perspective, the flexible claims service provided by casualty insurance may be advantageous since it can provide several different remedies for a failed mitigation project as well as the ability for the Corps to review and approve the form of that remedy.

At the same time, some districts have questioned whether these casualty insurance policies allow the Corps clear authority to approve a plan to correct a mitigation project deficiency. In some applications the policy, associated endorsements, notices and in some cases bank instruments have been modified to address this concern.

3.4.1 District Experiences with Assurance Claims

Based on the information on district experiences with financial assurances obtained for this report, it appears that there have been very few cases where an assurance claim was made because of non-compliance with compensatory mitigation obligations. A number of districts reported that mitigation providers, especially bank sponsors, worked to correct deficiencies on mitigation projects rather than face a claim on financial assurances, project suspension, or enforcement actions. Several experiences with claims and near-claims involving permittee- responsible mitigation projects and mitigation bank

projects are outlined briefly below.

In one case involving a permittee-responsible mitigation project for which a letter of credit (LOC) was posted as financial assurance, a claim was made on the LOC because the permittee proved unwilling to correct project deficiencies. Funds from the LOC were released to a state resource agency that was named as the LOC beneficiary; that state agency applied the assurance funds to bring the project into compliance.

In another case, a district attempted to draw funds from a LOC posted as project assurance because of non-compliance with a permittee-responsible mitigation project. When the district presented a copy of the LOC to the financial institution that issued it, the financial institution said that it would honor the assurance only if provided with the originally-issued LOC document (not a copy). The district could not locate the original LOC, however, and the result was that the claim was not honored and non-compliance issues were not resolved. This case highlights the need for districts or the named beneficiaries of LOC to maintain all original assurance documents, as well as to monitor them over time to ensure that their terms do not expire before any needed renewals or replacement assurance can be obtained.

In a case involving a permittee-responsible mitigation project that was assured with a performance bond, project deficiencies remained after the district had notified and given the permittee time to bring the project into compliance. At that point the district notified the permittee as well as the surety that had issued the bond. A meeting was held involving the district, the permittee, and the surety to review project deficiencies and possible corrective actions, at which the district informed the surety that a claim would be made on the bond if project deficiencies were not promptly corrected. In the aftermath of the meeting the permittee corrected all project deficiencies, obviating the need to make a claim on the bond.

In one case involving a problem with invasive vegetation at a bank project assured with funds in escrow, the bank sponsor requested a partial release of funds to address the problem. Upon district approval, escrow funds were released to the bank sponsor who used the funds to bring the invasive vegetation under control.

Another near-claim involved an LOC posted as an assurance for a mitigation bank project. Project deficiencies remained after the district had notified and given the sponsor time to correct them, and again remained when the district subsequently informed the sponsor that it would suspend credit sales if corrections were not made. At that point the district suspended credit sales at the bank and informed the bank sponsor that it would draw from the LOC if project deficiencies were not addressed. The sponsor subsequently corrected project deficiencies before a claim on the LOC was made.

This last example illustrates that the Corps has other options apart from financial assurances for enforcing mitigation performance and other obligations set out in mitigation banking and ILF program agreements. For example, the Corps can suspend or otherwise restrict credit sales, reduce the amount of credits awarded, and suspend or terminate the venture. Use of these enforcement options may be sufficient to compel compliance without the need to make a claim on financial assurances.

3.5 Security of Assuring Entities

Another relevant issue for establishing financial assurances involves the financial strength and stability of the assuring entities, which bears on their ability to provide payment or perform obligations when an assurance claim is made. Under the Miller Act, which requires performance bonds for federal construction contracts exceeding $100,000 in amount, bonds can be accepted only from sureties that are listed as qualified by the U.S. Treasury [6]. Although the Miller Act may not apply to performance bonds for mitigation projects required by federal permits, many districts will only accept bonds as assurances for such projects from sureties that are on the Treasury list and that are licensed to issue bonds in the state where the assurances are provided.

With respect to letters of credit, districts typically require that the issuing financial institution be federally regulated and insured, and rated investment grade or higher. In the case of the institutions that serve as depositaries for escrow accounts, districts often require that they be licensed, neutral third-parties that have no personal or professional ties to the relevant mitigation sponsor.

For insurance, the underwriter should be licensed in the state where the insured mitigation project is located. Further, several independent rating agencies provide ratings of the financial strength of insurance underwriters that can be used to assess the financial security of the insurer. These include A.M. Best, which provides an independent opinion of an insurer's financial strength and ability to meet its ongoing insurance policy and contract obligations. Other agencies that rate the ability of insurers to meet their policy obligations include Standard & Poor and Moody's Investor Services, among others. If an insurer has been rated by one or more of these agencies, the ratings should be available from the insurer's website and from the relevant insurance broker.

[6] A list of qualified sureties can be found in the U.S. Treasury Department's circular 570 found at http://www.fiscal.treasury.gov/fsreports/ref/suretyBnd/c570_a-z.htm

Table 2. Comparative Overview of Assurance Instrument Features

Instrument	Availability and Procurement	Price and Cost	Term and Renewal	Claims and Performance
Letter of Credit	Letters of credit (LOC) are issued by many financial institutions,. Procuring a LOC is a credit transaction that requires the mitigation provider (buyer) to complete a loan application process with the issuing financial institution. If a claim is made against a LOC, the buyer will owe the issuer the claim amount per the terms of a pre-established loan agreement.	Prices vary but generally are around 1.5-3% of the credit limit per year. Financial institutions often require buyers to post collateral by, for example, maintaining a certain cash balance in an account at the issuing institution. Procuring a LOC may also decrease by a corresponding amount any other credit lines that might be available to the buyer.	LOC are typically issued for no more than a one year term. An "evergreen" LOC provides for automatic renewal at the end of the term, but financial institutions have the option not to renew the instrument. Non-renewal could result from a negative judgment by financial institutions about a buyers' ability to complete its obligation, or from external factors that limit the willingness of financial institutions to extend credit generally.	LOC provide a guaranteed source of funds when the Corps determines that a mitigation sponsor is in default. The financial institution will not contest a claim against a LOC during the coverage period when provided with Corps documentation indicating default under the terms of the LOC and an estimate of the amount of assurance money needed to repair or replace a failed project. Any money drawn from a LOC must be made payable to a designee of the Corps or to a standby trust. LOC provide the funds to implement a solution to a failed mitigation project, but not the solution itself; the Corps is still faced with arranging for another entity to use the money to remediate the failed project or provide replacement mitigation.
Performance Bond	Bonds are issued by many insurance and bonding companies primarily for standard classes of business within the construction industry. Sureties appear to be less willing to bond mitigation projects, or may provide bonding for the construction phase of mitigation projects but not for mitigation success. Sureties emphasize careful selection of buyers based on an exhaustive review of buyers' capacity to complete the obligation, financial standing, and character. The buyer must enter into an indemnity agreement whereby it agrees to reimburse the surety for any loss the surety may incur under the bond; such indemnity agreements can reach down to the personal assets of the buyer and the buyer's investors.	Prices range from 1.5- 5% of the bond dollar limit (penal sum), and sureties often require a buyer to post liquid collateral with the surety.	Typically, bonds are issued for limited terms (1-2 years) with the potential for renewal. Renewals may not be forthcoming, however. Non-renewal of a bond could result from a negative judgment by the surety about the buyer's ability to complete its obligations, or from external factors that reduce the surety's willingness to bond certain types of projects.	When a claim is made, a surety will try to fulfill the buyer's obligation in the most cost-effective way for the surety; payout of part or all of the penal sum (less any costs already incurred by the surety) is a last resort. Payout must be made payable to a designee of the Corps or to a standby trust. Bond payouts provide the funds needed to implement a solution to a failed mitigation project, but the Corps must still arrange for another entity to use the funds to remediate the project or provide replacement mitigation. A surety may dispute a bond claim if the surety disagrees with a default judgment by the Corps.

Table 2. Comparative Overview of Assurance Instrument Features *(continued)*

Instrument	Availability and Procurement	Price and Cost	Term and Renewal	Claims and Performance
Cash in Escrow	Escrow accounts hold cash as assurance for performance of mitigation obligations and can be easily set-up at many law firms and financial institutions (the depositary). The main hurdle with establishing cash escrow as assurance in the mitigation context relates to the mitigation provider's ability to post the required cash in escrow at the same time that the mitigation provider must expend funds to implement the mitigation project.	The depositary will charge a minimal fee to the mitigation sponsor who secures the account. The main cost of establishing an escrow account relates to the opportunity cost to the mitigation sponsor of tying-up cash in escrow.	The term of an escrow account can be set up for an indefinite period to accommodate the amount of time necessary to successfully complete the mitigation project.	An escrow account provides a ready source of cash that is available to a designee of the Corps when demanded by the Corps. The depositary cannot contest a claim against an escrow account and will pay out all claims when provided with Corps documentation indicating default under the terms of the escrow agreement and an estimate of the amount of assurance money needed to repair or replace a failed project. One challenge is in finding a designee willing to take on the obligation to repair or replace a project. Draws on escrow provide the money to implement a solution to a failed mitigation project, but arrangements must be made for another entity to use the money to repair or replace the mitigation project.
Casualty Insurance	Casualty insurance to assure mitigation obligations had been approved and is in-force for many banks and PRM projects in 13 districts, and has been proposed for mitigation banks in development in several other districts.This product is available to any mitigation provider deemed qualified. To obtain a policy, mitigation providers must show the insurer that they have the capacity and financing to complete their obligations, The policy includes a deductible clause that requires the mitigation provider to reimburse the insurer for any costs that the insurer incurs up to the deductible amount.	A mitigation provider must pay a one-time, non-refundable premium of about 2 to 4% of the dollar limit of insurance written into the policy. The policy does not require the insured party to post collateral with the insurer. Prices vary with the size of the mitigation bank project and other underwriting considerations.	The policy period can be established to cover the time period over which a mitigation project is required to achieve success (e.g., the term of a mitigation bank as set forth in the banking instrument) up to 10 years. Once in force, the policy cannot be canceled within the policy period unless the Corps releases the insurer from coverage.	Claims against the policy can be made only by the identified regulatory body (Corps or state counterpart). The insurer will respond to a claim by either 1) working with the Corps to settle claim to the full satisfaction of the Corps (up to the limit of insurance), or; 2) pay to a Corps designee the claim amount that the Corps determines is necessary to meet the compensatory mitigation requirement (which could involve purchase of mitigation bank or ILF credits, as approved by the Corps).

4. Concluding Remarks

Implementing financial assurances for mitigation project success can be challenging and place demands on regulators that are outside their regular areas of practice. The information included herein is meant to provide regulators with a basic understanding of different assurance instruments and how they work, as well as key design and implementation issues and how those have been handled in practice by different Corps districts. This information is intended to provide a useful reference for regulators who face the task of implementing assurances.

Nevertheless, it is important to recognize that there are few hard and fast rules for implementing financial assurances in the mitigation context. The decision on when assurance is needed as well as decisions relating to what instrument is to be used and how it is to be structured involve judgment calls that must be made in consideration of all the other regulatory requirements imposed on a specific mitigation provider, as set out in the provider's permit or mitigation bank or ILF program instrument.

One important decision involves the choice of assurance instrument. As a general matter, it is the mitigation provider's responsibility to propose a financial assurance instrument. This proposal will be made in consideration of the availability, cost, and other terms of alternative assurance instruments and other factors specific to each mitigation provider. At the same time, individual Corps districts may hold preferences for using certain assurance instruments based on various factors, including issues relating to assurance term and renewal, ease of access to funds and performance considerations, as well as past district practices and experiences with alternative instruments. However, regulators should maintain at least some flexibility in the choice of assurance instrument, given that in some cases a district-preferred instrument may not be available or workable for a particular mitigation provider. In such cases, creativity may be necessary to fashion an assurance form that is both acceptable to the regulator and workable for the mitigation provider.

Setting the dollar amount of assurance is perhaps the most challenging task faced by regulators. The assurance amount should reflect all possible component costs of repairing or replacing a failed mitigation project under the worst case scenario (i.e. complete project failure). However, assurance amounts should not be set at amounts that are greater than that which could possibly be needed, as this could limit the availability or workability of assurance instruments for mitigation providers. That said, from the perspective of regulators, the simplest way to secure replacement mitigation for a failed mitigation project may be through the purchase of credits from approved mitigation banks or ILF programs in the same area, and when this option is workable, the credit prices they charge may provide a benchmark for setting assurance amounts.

When necessary, regulators should consult with and solicit the help of district staff with experience in establishing assurances for mitigation success. Regulators should also seek

review by district counsel before finalizing an assurance instrument in any particular case.

Finally, work to establish assurances in those cases where regulators deem them necessary should begin well before the finalization of a permit or mitigation bank or ILF program instrument. Given the many challenges of establishing assurances, work on this task should not wait until all other permit or instrument provisions have been fully addressed.

Appendix A:

Illustrations of Alternative Assurance Instruments

Figure 1 Letter of Credit with Standby Trust

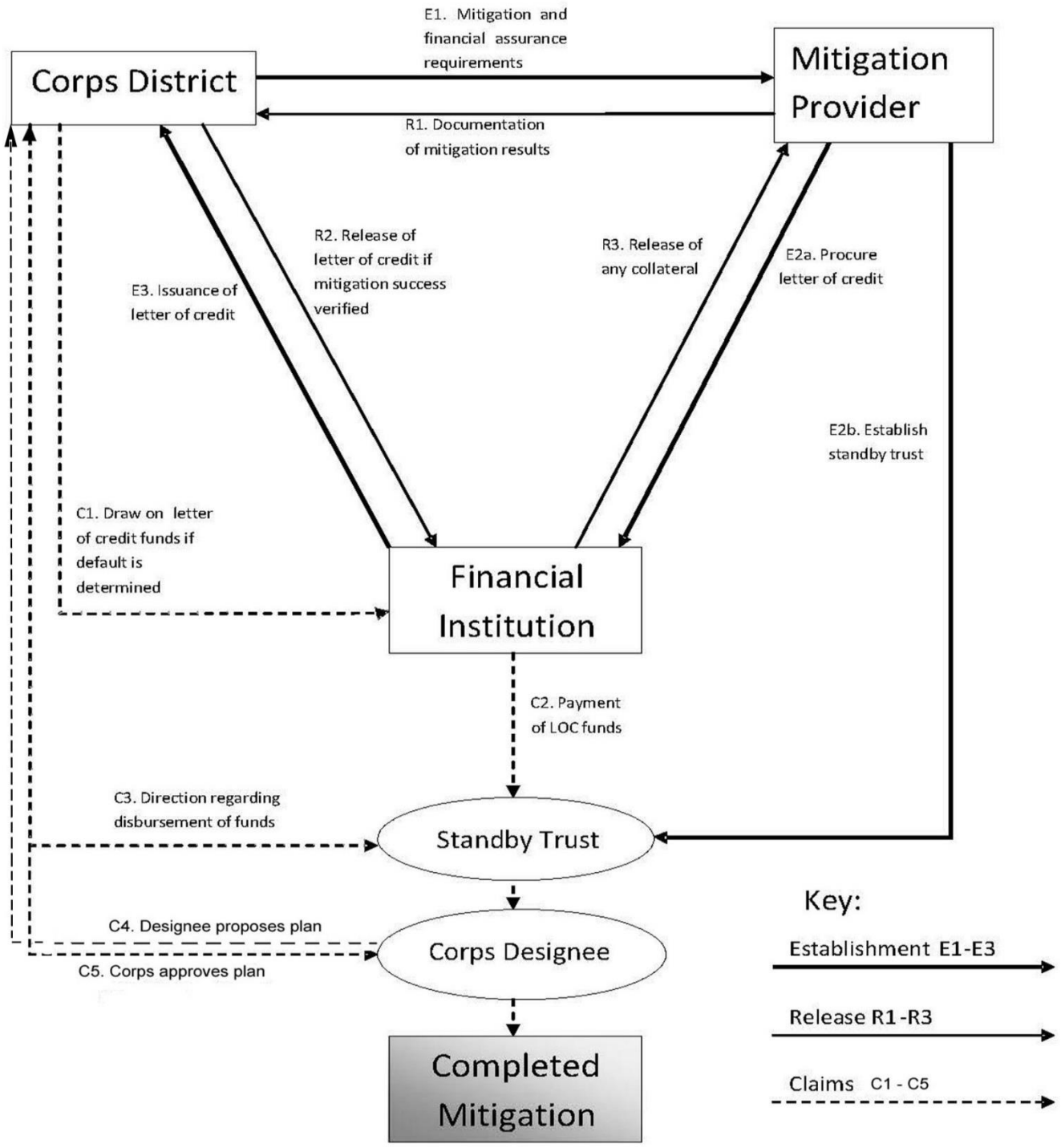


Figure 2 Performance Bond with Standby Trust

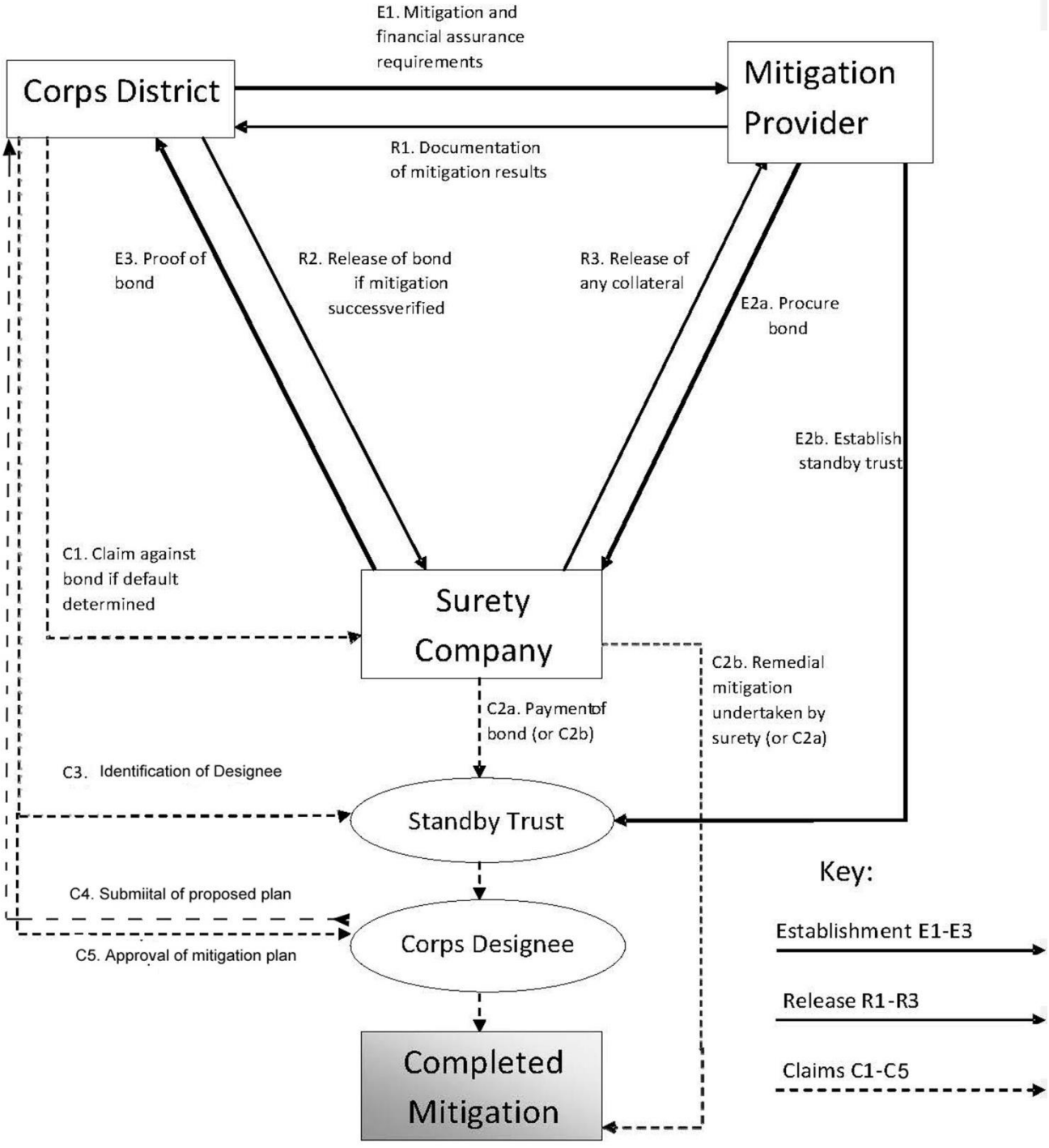


Figure 3 Cash in Escrow

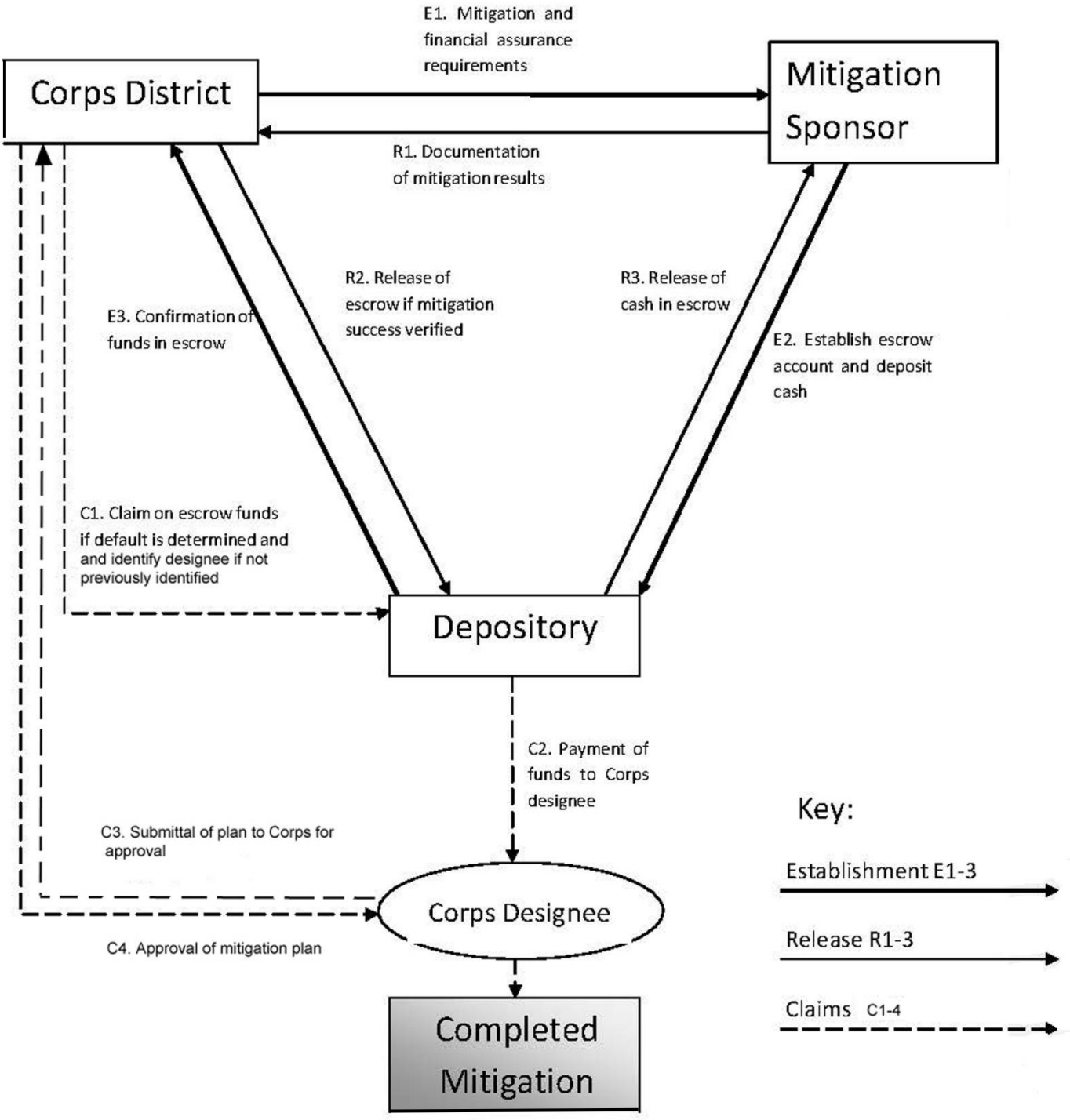
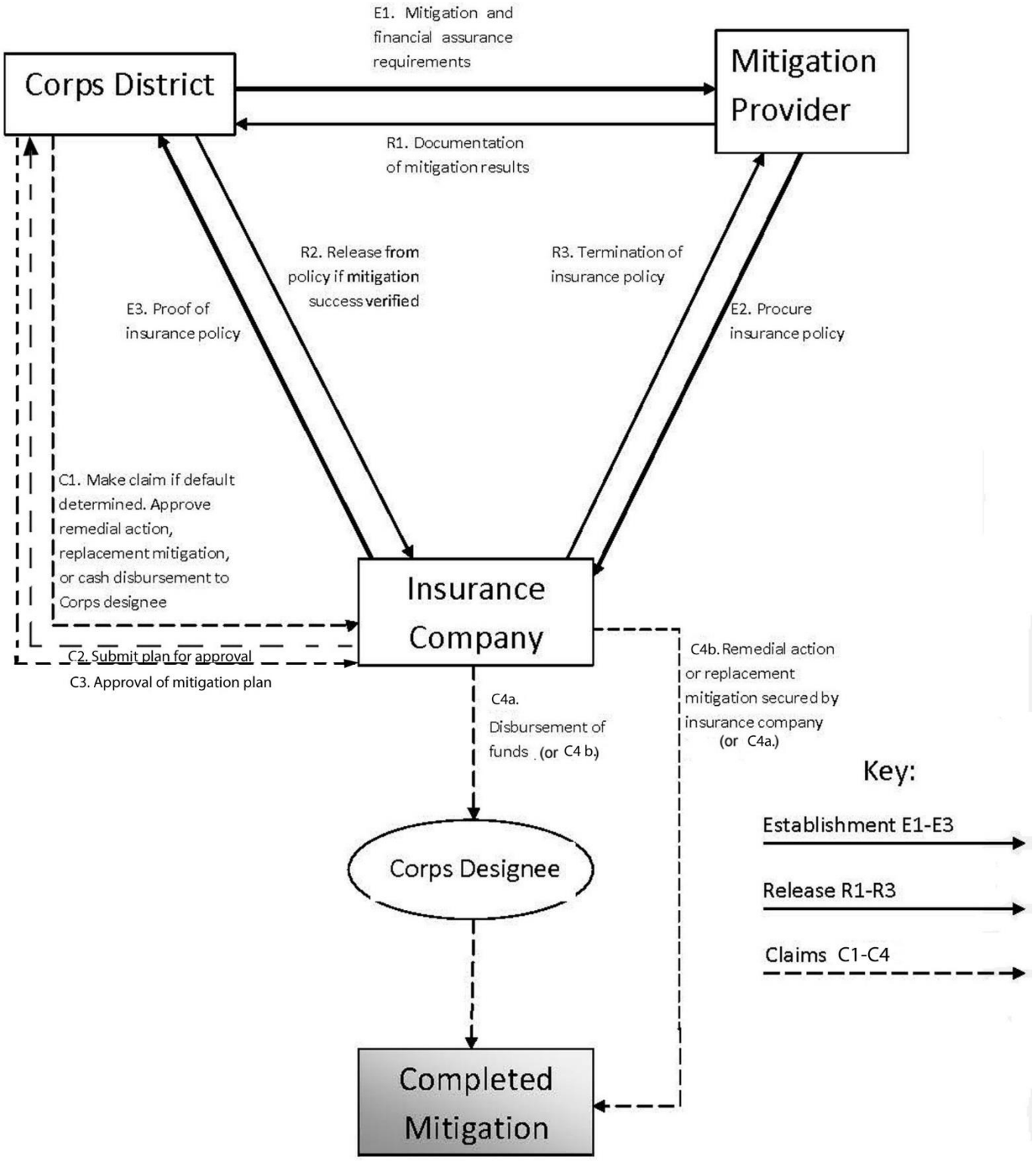


Figure 4 Casualty Insurance



Appendix B:

HQ USACE Office of Counsel Memo on Compensatory Mitigation Financial Assurances (2011)

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
WASHINGTON DC 20314-1000

REPLY TO
ATTENTION OF

DEC 012011

CECC-E

MEMORANDUM FOR ALL DIVISION AND DISTRICT COUNSEL

RE: Financial Assurance Instruments for Compensatory Mitigation under the Corps Regulatory Program

1. The U.S. Army Corps of Engineers (Corps) often requires compensatory mitigation to offset environmental losses resulting from unavoidable impacts to waters of the United States authorized by Army permits under the Clean Water Act and Rivers and Harbors Act. See 33 CFR 332.3. In some instances, the District Engineer will determine that it is necessary to require financial assurances that are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, as measured by applicable performance standards. The regulations that establish the requirement for financial assurances set forth a number of different financial assurance products that may be appropriate to satisfy this requirement, including "performance bonds, escrow accounts, casualty insurance, letters of credit, legislative appropriations for government sponsored projects, or other appropriate instruments." See 33 CFR 332.3(n)(2). It is permissible to use different financial assurances to cover different stages of mitigation construction so long that each financial assurance is of an adequate duration to ensure that the stage it covers was successful.

2. District Offices of Counsel should work with their Regulatory Division or Branch clients to review and negotiate the financial assurance instruments used to support mitigation projects. Counsel should work with the proponents of financial assurance products, whether it be a new form of assurance or a new issuer of a previously utilized assurance, in a timely manner in order to determine if they can negotiate acceptable terms. The different forms of financial assurance have different benefits and limitations, but all forms of financial assurance should be provided an equal opportunity for review and approval if terms can be negotiated that fulfill project-specific requirements. However, it is recognized that it may not always be possible to reach an agreement on terms that are acceptable to both the Corps and the financial assurance provider. The District Engineer retains authority to determine acceptable terms in each case.

3. Miscellaneous Receipts Statute (31 U.S.C. 3302(b)) Compliance

    a. Regardless of the form of financial assurance used, the financial assurance instrument must not provide that the Corps could be in actual or constructive receipt of the assurance funds. Even if the funds are held by a third party, the Corps is viewed as having constructively received those funds if the arrangement affords the Corps discretion to direct the use of those funds. For instance, assume that a financial assurance, settlement, or other arrangement

requires that funds be paid into an escrow account that is nominally managed by some third party (e.g., a bank). If the Corps retains discretion to directthe use of those funds, then the funds must be viewed as having been received by the United States, and as thus being subject to the deposit requirements of the Miscellaneous Receipts Statute.

b. The line is admittedly vague between (a) when the Corps is directing the use of funds held by a third party, in which case those funds must likely be deposited into the U.S. Treasury as miscellaneous receipts, and (b) when the Corps is simply giving its consent or approval to a proposed mitigation bank, permittee-responsible mitigation, or similar arrangement that is to be financed with funds provided under a financial assurance or similar arrangement. A useful, albeit informal, test for determining which end of the spectrum a proposed arrangement falls is as follows: is the Corps attempting to do indirectly through a third party that which it could not do itself? If so, then the Corps is likely exercising constructive control over the funds held by the third party, and this arrangement is likely improper.

c. One means for avoiding problems with constructive receipt is to incorporate contingencies into the financial assurance documents or mitigation banking instrument that address how the mitigation requirements should be met if it becomes necessary to draw upon the financial assurance. Under this model, the documents establishing the financial assurance product would reference the approved mitigation plan associated with the Department of the Army permit, mitigation banking instrument, or approved in-lieu fee project and identify entities, such as non-profits, state agencies, or private mitigation providers, that would be eligible under the terms of the financial assurance product to accept the financial assurance and complete the approved mitigation project. In the event that it would not be possible or practicable to undertake or complete the approved mitigation project, then the financial assurance product would set forth in a general way an alternative means of accomplishing the approved mitigation project's goals (e.g., replacement of lost habitat units of a certain quality and type) that should be pursued with the funds. The Corps can retain authority to review and approve the plans of the entity utilizing the funds to ensure that they are likely to achieve the goals. However, if the contingencies contemplated by the assurance change (such as the dissolution of the entity eligible to accept the financial assurance funds), the parties to the assurance will have to modify that agreement. By establishing these contingencies and goals when the financial assurance product is created, the Corps limits the extent of control it can exercise over the funds and makes it clear that the funds are to be used to fulfill the mitigation commitments of the mitigation bank or other mitigation provider. In other words, the Corps is not attempting to direct the use of these funds and

thus do indirectly that which it could not do itself; rather, the Corps is simply establishing a framework to ensure that legal commitments that result from the issuance of a Department of the Army permit or the approval of a mitigation banking or in-lieu fee program instrument are in fact honored.

d. Casualty insurance policies can avoid running afoul of the miscellaneous receipts rule by utilizing operative language that provides that the insurance company will complete or secure the required mitigation itself or pay the necessary funds to a third party to complete the mitigation. An example of such language follows: "In the event of the 'Named Insured's' failure during the 'policy period' to meet the 'performance standards' under the 'mitigation banking instrument' at the 'insured property,' the Company agrees to undertake and complete or secure through payment, whether directly or through a third party, the 'compensatory mitigation' for which the 'Named Insured' is legally responsible under the 'mitigation banking instrument,' provided the 'regulatory body' first makes a 'claim' to the Company in writing and during the 'policy period' seeking such 'compensatory mitigation.'"

4. Neither the Corps Regulatory Community of Practice nor the Office of the Chief Counsel endorses any particular type of financial assurance or any specific financial assurance product or company. However, a form of financial assurance that had not previously been widely available, casualty insurance, has recently been proposed for use in connection with a number of different mitigation projects. In order to assist Districts in negotiating and approving casualty insurance policies, we have provided guidance specific to casualty insurance below. However, in providing this guidance it is recognized that there is no single solution that can be uniformly applied in all cases, and every policy should be carefully reviewed and modified to fit the particular circumstances and requirements of the particular mitigation project. Further, it may not always be possible to negotiate policy terms that meet a District's requirements. The District Engineer retains authority to determine acceptable terms in each case.

5. When negotiating casualty insurance policies, there will be a number of provisions that will be of greater significance to the Corps. The specific provisions that need particular attention have been identified below along with some recommendations.

   a. Policy Period – Ensure that the policy period aligns with the time required for achievement of the mitigation bank performance standards for at least the duration of the monitoring period, or provides for options for renewal of the policy if the monitoring period exceeds the initial term of the policy. (Note that insurance policies generally have a maximum of a ten year term.)

   b. Exclusions – Scrutinize the exclusions under the policy to ensure that there is adequate coverage to ensure the project will be successfully completed. An

"Act of God" exclusion will be a common feature of most policies. While this exclusion can be negotiated out of the policy (with a resulting higher rate for the insured), it will be important to look closely at what kind of coverage for natural disasters is necessary. In many cases, "natural disasters" such as flooding or fire might be desired events in the management and success of the mitigation bank. Most mitigation banking instruments will have provisions that address "Acts of God" that should be considered when determining whether modifications to the insurance policy's exclusion are needed. Fraud on the part of the insured should not be an exclusion and should not limit the insurance company's obligation to pay. It may be appropriate for exclusions to cover other properties, claims that would be covered by a standard comprehensive general insurance policy, legal fees associated with defending any disputes between the insured and the insurer, and other site-specific matters.

c. Bankruptcy- Ensure the policy is payable upon bankruptcy or insolvency of the insured and that the insured's failure to satisfy the deductable does not release the insurance company's obligation to pay up to the full policy limit if a claim is made.

d. Modification- Provide that any modification of the policy should be contingent upon the approval of the Corps.

e. Notice of Cancellation- Include the regulatory requirement that any cancellation of the policy requires notice to the Corps at least 120 days prior to the proposed cancellation/release date.

f. Change in Law- Address the effects of any changes in applicable law or regulation after commencement of the policy on the terms would have on the policy.

g. Choice of Law/Forum- If a choice of law provision exists in the policy, it should not be applicable to the Corps. The provision should be clear that the Federal Courts are the only appropriate venue for any litigation regarding the policy that involves the Corps.

h. Filing Claims- The insured should generally not be able to file a claim. Only the Corps, and in some instances state regulators, should be the only party that can file a claim.

i. Third Party Rights -The policy should explicitly recognize the Corps' third party rights.

j. Definitions- For any terms that the policy defines that are also defined in Corps regulations, such as "adaptive management plan," "performance standards," "mitigation banking instrument," and "compensatory mitigation," the policy's definitions should reference the Corps regulations and adopt consistent definitions.

6. There will be a few additional matters that are not part of a casualty insurance policy but which should be considered before deciding whether to accept an insurance policy as financial assurance.

a. State Law on the Effect of Fraud – Understand the effect that fraud on the part of the mitigation bank proponent would have on the validity of the policy under the applicable state law. Some states may have statutory provisions or common law that provides that if insurance was obtained fraudulently, the policy is rescinded.

b. Qualifications of the Insurance Company- Review the qualifications of the issuing insurance company to ensure generally that they have an adequate rating from a rating agency (e.g., A.M. Best, Fitch, Moody's, or Standard & Poor's) , are licensed in at least one state, and are not closely financially tied to the insured (generally, the insurance company should not be wholly owned subsidiary of the parent company seeking insurance).

7. The Corps Institute for Water Resources (IWR) has developed an information paper on financial assurance products titled "Implementing Financial Assurance for Mitigation Project Success." This paper provides helpful background information on the different forms of financial assurance products, how they work, and the limitations and advantages of each. This background may be helpful in gaining a better understanding of how the Corps interest in ensuring the success of a mitigation project needs to be protected when negotiating a specific financial assurance instrument. This information paper is available on IWR's website (http://www.iwr.usace.army.mil/docs/iwrreports/Financial_Assurance.pdf).

8. My point of contact for this issue is Max Wilson (202-761-8544).

/ Ptiillip Steffen
Assistant Chief Counsel for Environment

Enclosure:
IWR Fact Paper: Implementing Financial Assurance for Mitigation Project Success

Appendix C:

Links to Sample Financial Assurance Mechanisms

DISTRICT	TITLE	ON RIBITS	ON WEBSITE	LINK
New Orleans	Escrow Agreement - Construction & Establishment	Y		
St. Paul	MN Performance Bond Template	Y		
	WI Irrevocable Escrow Mitigation Construction Agreement		Y	http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Website%20Organization/Irrevocable%20Escrow%20Wetland%20Mitigation%20Bank%20Construction%20Agreement.doc
	WI Irrevocable Escrow Mitigation Bank Maintenance Agreement		Y	http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Website%20Organization/Irrevocable%20Escrow%20Wetland%20Mitigation%20Bank%20Maintenance%20Agreement.doc
	WI Template Bond Form - Bank Construction		Y	http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Website%20Organization/Bond%20Form-Construction-Wetland%20Mitigation%20Bank%20template.doc
	WI Template Bond Form Post-Construction Maintenance		Y	http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Website%20Organization/Bond%20Form-Maintenance-Wetland%20Mitigation%20Bank%20template.doc
Baltimore	Typical Compensatory Mitigation Cost Estimate Components		Y	http://www.nab.usace.army.mil/Portals/63/docs/Regulatory/Mitigation/FA_CostEstimateComponents071510.pdf
	Sample Performance Bond		y	http://www.nab.usace.army.mil/Portals/63/docs/Regulatory/Mitigation/Sample%20Performance%20Bond.pdf
Seattle	Template Standby Trust Agreement	Y		
Wilmington	Template Letter of Credit	Y		
Los Angeles	Performance Bond Template		Y	http://www.spl.usace.army.mil/Portals/17/docs/regulatory/Mitigation/UsefulLinks/PerformanceBondForm.doc

U.S. Army Engineer Institute for Water Resources

The Institute for Water Resources (IWR) is a Corps of Engineers Field Operating Activity located within the Washington DC National Capital Region (NCR), in Alexandria, Virginia and with satellite centers in New Orleans, LA; Denver, CO; Pittsburgh, PA; and Davis, CA. IWR was created in 1969 to analyze and anticipate changing water resources management conditions, and to develop planning methods and analytical tools to address economic, social, institutional, and environmental needs in water resources planning and policy. Since its inception, IWR has been a leader in the development of strategies and tools for planning and executing the Corps water resources planning and water management programs.

IWR strives to improve the performance of the Corps water resources program by examining water resources problems and offering practical solutions through a wide variety of technology transfer mechanisms. In addition to hosting and leading Corps participation in national forums, which include the production of white papers, reports, workshops, training courses, guidance and manuals of practice. IWR develops new planning, socio-economic, and risk-based decision-support methodologies, improves hydrologic engineering methods and software tools, and manages several Civil Works information systems including national waterborne commerce statistics. IWR serves as the Corps expertise center for integrated water resources planning and management, hydrologic engineering, collaborative planning and environmental conflict resolution, and waterborne commerce data and marine transportation systems.

The Institute's Hydrologic Engineering Center (HEC), located in Davis, CA, specializes in the development, documentation, training, and application of hydrologic engineering and models. IWR's Navigation and Civil Works Decision Support Center and Waterborne Commerce Statistical Center (WCSC) are in New Orleans, LA. These centers are the Corps data collection organizations for waterborne commerce, vessel characteristics, port facilities, dredging information, and information on navigation locks. The Risk Management Center (RMC), located in Denver, CO and Pittsburgh, PA, is a center of expertise that supports Civil Works by managing and assessing risks for dams and levees, supporting dam and levee safety activities across the Corps, and developing policies, methods, tools, and systems to enhance those activities.

Other enterprise centers at the Institute's NCR office include the International Center for Integrated Water Resources Management (ICIWaRM), which is an intergovernmental center established in partnership with various Universities and non-Government organizations, and a Conflict Resolution and Public Participation Center of Expertise, which includes a focus on both the processes associated with conflict resolution and the integration of public participation techniques with decision support and technical modeling. The Institute plays a prominent role within a number of the Corps technical Communities of Practice (CoP), including the Economics CoP. The Corps Chief Economist is resident at the Institute, along with a critical mass of economists, sociologists, and geographers specializing in water and natural resources investment decision support analysis and multi-criteria tradeoff techniques.

For further information on the Institute's activities associated with the Mitigation Rule, please contact Forrest Vanderbilt at 703-428-6288, forrest.b.vanderbilt@usace.army.mil. The Director of IWR is Mr. Robert A. Pietrowsky, who can be contacted at 703-428-8015, or via e-mail at: robert.a.pietrowsky@usace.army.mil. Additional information on IWR can be found at: *http://www.iwr.usace.army.mil/*. IWR's NCR mailing address is:

U.S. Army Institute for Water Resources 7701 Telegraph Road, 2nd Floor Casey Building
Alexandria, VA 22315-3868

US Army Corps of Engineers®

www.iwr.usace.army.mil

Appendix J

Public Comments

Draft Supplemental Environmental Impact Statement
Substantive Comments and Responses

Public Comment

It appears that the DSEIS fails to address the impacts of residential shoreline development on the reservoir. Would there be shoreline buffers to protect water quality? Would there be septic tank setbacks to prevent pollution of the water supply reservoir? Would there be permitting of residential docks?

Response

There is no residential shoreline developed planned. The North Central Missouri Regional Water Commission (NCMRWC) owns all the land surrounding the shoreline and does not intend to develop any land it owns. Land outside the NCMRWC boundary may be developed by private landowners or developers; however, the NCMRWC land provides a buffer to any development. The Shore Line Protection Plan is reference in Section 3.8.4.3 and is included in Appendix G.

Draft Supplemental Environmental Impact Statement
Other Public Comments Received

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

OFFICE OF THE
REGIONAL ADMINISTRATOR

Mr. Chris Hamilton
Assistant State Conservationist (Water Resources)
Missouri NRCS State Office
601 Business Loop 70 West, Suite 250
Columbia, Missouri 65203-2585

Dear Mr. Hamilton,

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act, the U.S. Environmental Protection Agency has reviewed the Natural Resources Conservation Service's draft supplemental environmental impact statement (DSEIS) for the East Locust Creek Reservoir Revised Plan (CEQ No. 20200206).

The proposed action is to build a 2,328-acre multipurpose reservoir located northeast of Milan, Missouri, that would support water supply and water-based recreation for the 10-county region and reduce flood damage along a 22.5-mile reach of East Locust Creek from the toe of the dam to Locust Creek. The reservoir would provide seven million gallons per day of water supply and approximately 92,000 annual user-days of recreation. The lake size was adjusted from 2,235 acres in the 2006 final EIS to 2,328 acres in this DSEIS. The change in estimated normal pool size is because of the use of more accurate elevation data to estimate the normal pool size and elevation. The 2006 final EIS used photogrammetry measurements and the DSEIS was based on 2009 lidar measurements.

The project will require an individual Clean Water Act Section 404 permit, and the DSEIS has identified the proposed action, East Locust Creek Reservoir (RW1), as the preferred alternative. The EPA notes that the content of this correspondence is limited to the NEPA review and not intended to be review comments on the Section 404 permit. EPA has provided separate comments on the U.S. Army Corps of Engineers Public Notice (NWK-2004-255) Clean Water Act Section 404 individual permit related to this action.

We appreciate the opportunity to review the DSEIS. EPA acknowledges the early engagement and ongoing conversations with NRCS to discuss Agency feedback on the DSEIS. EPA does not have substantive comments pertaining to our review of the DSEIS.

We look forward to our continued participation with NRCS on this action. If you have questions regarding these comments, please contact Mr. Joshua Tapp, Program Manager, Office of Intergovernmental Affairs, at 913-551-7606 or tapp.joshua@epa.gov.

Sincerely,
JAMES GULLIFORD
Digitally signed by JAMES GULLIFORD
Date: 2020.12.04 12:54:51 -06'00'
James B. Gulliford

NCMRWC Public Hearing, November 10, 2020

Name: Jeff Carey

Representing: United Rentals – Fluid Solutions

Phone: 314-964-2152

Email: jcarey@ur.com

NCMRWC Public Hearing, November 10, 2020

Name: NANCY WATT

Representing: City of Milan

Phone: 660-265-4499

Email: chiefnw@nemr.net

NCMRWC Public Hearing, November 10, 2020

Name: Dawn Rhodes

Representing: SCPWSD #1

Phone: 6602921217

Email: rhodeshr@gmail.net

NCMRWC Public Hearing, November 10, 2020

Name: Chris May

Representing: Sullivan Co.

Phone: 660-265-5654

Email:

NCMRWC Public Hearing, November 10, 2020

Name: Melvin L. Scott

Representing: REC

Phone: 660 265 6423

Email: mls1936@Windstream.net

NCMRWC Public Hearing, November 10, 2020

Name: Randy Huffman

Representing: Sullivan Co. Commission

Phone: 660-359-1063

Email:

NCMRWC Public Hearing, November 10, 2020

Name: Dennis Mead

Representing:

Phone: 660 265 6184

Email:

East Locust Creek Watershed Plan - Public Comment Period

The USDA-NRCS welcomes public ideas, comments, or concerns regarding a watershed plan about a proposed multi-purpose reservoir for the East Locust Creek Watershed. An Environmental Impact Statement for the East Locust Creek Watershed was prepared in 2006 but has been recently updated with new information in a Draft Supplemental Environmental Impact Statement (DSEIS).

You may locate the DSE IS on the internet at the following link: https://go.usa.gov/xGhWC.

Public input about the East Locust Creek DSEIS will be open until December 7, 2020. Comments may be provided:

a) in person to a USDA-NRCS representative during the open house event at the Milan Community Center, 205 North Market Street in Milan, MO from 3-7 p.m. on November 10, 2020

b) or in writing by mail or email to Chris Hamilton, Assistant State Conservationist, USDA Natural Resources Conservation Service, Parkade Center Suite 250, 601 Business Loop 70 West, Columbia, Missouri 65203-2585, or Chris.Hamilton@mo.usda.gov.

Substantive comments received will be addressed and incorporated into a subsequent Final Supplemental Environmental Impact Statement. The FSEIS will then be published on the Federal Register with another 30-day public comment period.

Provide statement below (optional) ----------

The East Locust Creek Watershed Plan for the E L C reservoir was very informative. The information posted around the room at the Milan Community Center, November 10, 2020 took you step by step to show all the planning that has taken place. The need for this project to be completed is vital for this 10 County Region's survival. The future looks very bright with the completion.

Name: (print) Chris May Address: 44434 Robin Rd.

Date: 11-10-20 Humphreys, MO. 64646

Signature Chris May

East Locust Creek Watershed Plan - Public Comment Period

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Substantive comments received will be addressed and incorporated into a subsequent Final Supplemental Environmental Impact Statement. The FSEIS will then be published on the Federal Register with another 30-day public comment period.

Provide statement below (optional) ----------

A lot of work has been put into this. I hope it continues on pace. It will be very beneficial for the 10 county area. A water source that is desperately needed.

Name: (print) Randy Huffman Address: 20773 Hwy 139 GALT, MO. 64641

Date: 11/10/20

Signature Randy Huffman

Section 404 Permit

Agency Comments

From:	WPSC.Water Quality Certification
To:	Beyke, Sean M CIV USARMY CENWK (USA)
Cc:	john_s_weber@fws.gov; USEPA Region 7; Thorne, David; Campbell-Allison, Jennifer; Miller, Stuart; Vitello, Matt; Hoggatt, Jennifer; Weller, Michael; Hunt, Rob; Irwin, Mike; Libbert, Danielle
Subject:	[Non-DoD Source] North Central Missouri Regional Water Commission, NWK-2004-00255/CEK007390
Date:	Monday, November 30, 2020 2:46:45 PM

The Missouri Department of Natural Resources' Water Protection Program has reviewed the Public Notice for NWK-2004-00255 in which the North Central Missouri Regional Water Commission (NCMRWC) is proposing to construct an earthen dam approximately 0.5 mile long by 600 ft wide by 78 ft tall within East Locust Creek for the creation of a 2,328-acre multipurpose reservoir. The project is proposed under the United States Department of Agriculture's (USDA) Natural Resources Conservation Service's (NRCS) Watershed Protection and Flood Prevention Act, Public Law 83-566 Program and is proposed to be constructed under agreement between the NCMRWC and the NRCS, the lead federal agency.

The dam would be constructed in three stages. Stages 1 and 2 would be the construction of the eastern and western sides of the dam adjacent to East Locust Creek. The third phase would involve constructing the center portion that blocks East Locust Creek and fills the reservoir. Seven borrow areas totaling 84 acres are proposed to provide fill for the dam. Five of the 7 borrow sites are within the reservoir's normal pool, and 2 of the borrow sites are located outside the reservoir's normal pool. The 2 borrow sites located outside the normal pool are a 25-acre site west of the dam and a 22-acre site northwest of the dam. These borrow sites were selected to avoid tree clearing, and the marina was selected on a borrow area to provide a secondary use. A concrete spillway would be constructed on the eastern end of the dam. It would extend 1,247 ft southwest to the East Locust Creek main channel and provide downstream flow in East Locust Creek. The spillway would be 55 ft wide at the dam and would taper down to 25 ft wide near its confluence with East Locust Creek.

To facilitate public access and recreational use, allow for construction access, and to minimize adverse transportation impacts, additional road improvements and realignments are proposed. This work would include the construction of several bridges and culvert crossings as well as the closure and abandonment of several roads, including a portion of State Highway N near Boynton. The timing of the mid-lake corridor portion of this proposed work would occur concurrent with or prior to the dam construction. The roadway projects would be partially funded by a Better Utilizing Investments to Leverage Development (BUILD) grant. The BUILD grant would be overseen by the Federal Highway Administration and administered by the Missouri Department of Transportation. Additional funding sources for the roadway projects include NCMRWC, NRCS, USDA Rural Development, and the state of Missouri.

Water supplied by the proposed action would be transferred by a raw water transmission pipeline to Milan, Missouri, the location of the existing NCMRWC water treatment plant. An approximately 24,700-ft raw water line would be constructed from a water intake near the dam and run to the water treatment plant. The raw water line would cause impacts to a width of approximately 40 ft and would run generally southwest along the existing, abandoned rail line until it reaches the water treatment plant north of Milan.

A total of 255,441 linear ft (LF) of streams and 375.1 acres of wetlands would be impacted by the proposed project, including 46,502 LF of perennial streams, 72,104 LF of intermittent streams, and 136,835 LF of ephemeral streams. Impacted wetlands include 280.17 acres of palustrine emergent, 9.79 acres of palustrine scrub-shrub, and 63.92 acres of palustrine forested wetlands as well as 21.22 acres of open water features. A total of 225 acres of wetlands, approximately 64 percent of the 354 wetland acres in the proposed normal pool, are impaired because they are currently or were previously farmed or comprised of over 50 percent reed canarygrass.

The proposed project is located in Locust Creek and wetlands adjacent to unnamed tributaries to East Locust Creek in Sections 1, 2, 11, 12, 13, 14, 24, 25, 26, and 35, Township 63 North, Range 20 West; Sections 5, 6, 7, 8, 17, and 18, Township 63 North, Range 19 West; Sections 12, 13, 23, 24, 25, 26, 35, and 36, Township 64 North, Range 20 West; and Sections 16, 17, 18, 19, 20, 21, 29, 30, 31, and 32, Township 64 North, Range 19 West, south of Pollock in Sullivan County, Missouri. Approximate geographic coordinates for the proposed earthen dam are 40.26617°N, 93.08223°W.

The Department requests a response to or acknowledgment of the following specific comments:

1. According to the Department's geospatial data, the project will impact multiple streams classified in Missouri Water Quality Standards' Missouri Use Designation Dataset [10 CSR 20-7.031(2)(E)] as well as many unclassified streams. East Locust Creek, the largest stream in the proposed impact area, has been assigned the following designated uses in Missouri Water Quality Standards: protection and propagation of fish, shellfish, and wildlife – warm water habitat; recreation in and on the water - whole body contact category A and secondary contact recreation; human health protection – fish consumption; irrigation; and livestock and wildlife protection [10 CSR 20-7.031(1)]. In addition, East Locust Creek is on the Department's CWA Section 303(d) list of impaired waters for *Escherichia coli* and low dissolved oxygen. The Missouri Water Quality Standards antidegradation requirement for maintenance and protection of these designated uses [10 CSR 20-7.031(3)] will still apply outside of the proposed project's limits.

   The Department's geospatial data is available upon request, and all published data is available on the Missouri Spatial Data Information Services website at msdis.missouri.edu/. Additional information to identify the project location, including stream reaches with listed impairments or special water designations, may be obtained from the Department's Water Protection Program by phone at 573-522-4502.

2. It is essential that any impacts to water ways are avoided or minimized to the extent possible. In-stream impoundments dramatically affect water quality and conflict with the Missouri Water Quality Standards general criterion requiring waters be free from physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(G)].

3. According to the U.S. Army Corps of Engineers (USACE) public notice, the applicant proposes to provide compensatory mitigation for unavoidable impacts with at least one large, watershed-approach mitigation site. The Department welcomes proposals regarding alternative methods for compensatory stream and wetland mitigation, including but not limited to alternative impact and benefit assessment methods. Any such alternative methods will be reviewed for approval by the Department for Clean Water Act Section 401 Water Quality Certification (WQC) purposes. The Department reviews proposed projects for compliance with the Missouri

antidegradation requirement for maintenance and protection of designated uses [10 CSR 20-7.031(3)] under Missouri Clean Water Law, which provides the Department authority to adopt remedial measures to prevent, control, or abate pollution [Chapter 644.026.1(9), RSMo] and approval authority for compensatory mitigation used in connection with any WQC [Chapter 644.026.1(26), RSMo].

4. To ensure compliance with the Missouri Water Quality Standards general criterion requiring waters be free from physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(G)], hydraulic design of the dam should seek to minimize adverse impacts by matching design outflows to natural inflows to the greatest extent practicable. Proposed efforts to maintain ecological flows, as well as other efforts to manage dissolved gases and temperature in release water, are beneficial to minimize additional impacts downstream of the proposed project. However, since such measures do not replace resources lost due to fill and impoundment impacts, they should not be considered as a form of compensatory stream or wetland mitigation.

5. State regulations regarding permitting and construction of dams must be followed. Dams over the height of 35 ft require approval through the Department's Dam and Reservoir Safety Program. Construction of the dam should be in accordance with the provisions of Chapter 236.400 to 236.500 of the Revised Statutes of Missouri and the rules and regulations of the Missouri Dam and Reservoir Safety Council.

6. Acquisition of a WQC should not be construed or interpreted to imply the requirements for other permits are replaced or superseded, including Clean Water Act Section 402 National Pollutant Discharge Elimination System Permits. Permits or any other requirements should remain in effect. Questions regarding permit requirements may be directed to the Department's Northeast Regional Office by phone at 660-385-8000.

7. Land disturbance activities disturbing one or more acres of total area for the entire project or less than one acre for sites that are part of a common promotional plan of development may require a stormwater permit. This will ensure compliance with CWA Section 402 National Pollutant Discharge Elimination System Permit requirements under Missouri Clean Water Law [Chapter 644.026.1, RSMo]. Instructions on how to apply for and receive the online land disturbance permit are located at www.dnr.mo.gov/env/wpp/epermit/help.htm. Questions regarding permit requirements may be directed to the Department's Land Disturbance phone line at 573-526-2082 or toll free at 855-789-3889.

8. The project proponent may wish to maintain or establish a forested perimeter around the lake to protect the water quality within the lake. A native, deep-rooted buffer would be beneficial to protect the lake's shoreline from wind and wave erosion while also filtering stormwater entering the lake from the watershed. This in turn would extend the life of the lake by reducing its sediment intake and storage while also improving the quality of water that is released from the lake into the waters downstream.

Response:

Comments 1 – 8 are acknowledged.

The following comments do not require a response but should be considered since they might be

included as or influence conditions of a WQC:

9. Streambed gradient should not be adversely impacted outside of proposed project areas. No project should accelerate bed or bank erosion. This will ensure compliance with the Missouri Water Quality Standards general criterion requiring waters to be free from physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(G)].

10. Only clean, nonpolluting fill should be used. The following materials are not suitable where contact with water is expected and should not be used due to their potential to cause violations of the general criteria of Missouri's Water Quality Standards [10 CSR 20-7.031(4)(A)-(H)]:
    a. Earthen fill, gravel, and broken concrete where the material does not meet the Suitable Material specifications stated in the "Missouri Nationwide Permit Regional Conditions" (https://usace.contentdm.oclc.org/digital/collection/p16021coll11/id/2662/) in locations where erosive flows are expected to occur on a regular basis, such as streambanks and/or lake shorelines.
    b. Fragmented asphalt.
    c. Concrete with exposed rebar.
    d. Tires, vehicles or vehicle bodies, and construction or demolition debris are solid waste and are excluded from placement in the waters of the state.
    e. Liquid concrete, including grouted riprap, if not placed in forms as part of an engineered structure.
    f. Any material containing chemicals that would result in violation of Missouri Water Quality Standards general criteria [10 CSR 20-7.031(4)] or specific criteria [10 CSR 20-7.031(5)].

11. Waste concrete or concrete rinsate should be disposed of in a manner that does not result in any discharge to the jurisdictional water ways. This will ensure compliance with the Missouri Water Quality Standards general criteria requiring waters be free from unsightly bottom deposits [10 CSR 20-7.031(4)(A)]; substances resulting in toxicity [10 CSR 20-7.031(4)(D)]; and physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(G)].

12. Missouri Water Quality Standards antidegradation requirements dictate all appropriate and reasonable Best Management Practices (BMPs) related to erosion and sediment control, project stabilization, and prevention of water quality degradation are applied and maintained [10 CSR 20-7.031(3)(B)]; for example, preserving vegetation, streambank stability, and basic drainage. BMPs should be properly installed prior to conducting authorized activities and maintained, repaired, and/or replaced as needed during all phases of the project to limit the amount of discharge of water contaminants to waters of the state. The project should not involve more than normal stormwater or incidental loading of sediment caused by project activities so as to comply with Missouri's general water quality criteria [10 CSR 20-7.031(4)(A)-(H)].

13. Care should be taken to keep machinery out of the water way as much as possible. If work in the water way is unavoidable, it should be performed during low-flow conditions and in a way that minimizes the duration and amount of any disturbance to banks, substrate, and vegetation to prevent increases in turbidity. This will ensure compliance with the Missouri Water Quality Standards antidegradation requirement for BMPs [10 CSR 20-7.031(3)(B)].

14. All efforts should be made to minimize exposure of unprotected soils. To the best of the

applicant's ability, project activity should be conducted at times of little or no rainfall to limit sediment movement and increased stream turbidity caused by heavy equipment. This will ensure compliance with the Missouri antidegradation requirement for BMPs [10 CSR 20-7.031(3)(B)].

15. Fuel, oil and other petroleum products, equipment, construction materials, and any solid waste should not be stored below the ordinary high water mark at any time or in the adjacent flood-prone areas beyond normal working hours. All precautions should be taken to avoid the release of wastes or fuel to streams and other adjacent waters as a result of this operation. This will ensure compliance with the Missouri Water Quality Standards antidegradation requirement for BMPs [10 CSR 20-7.031(3)(B)] and Missouri Water Quality Standards general criteria requiring waters be free from substances preventing beneficial uses [10 CSR 20-7.031(3)(A)]; substances causing unsightly color or turbidity [10 CSR 20-7.031(4)(C)]; and physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(G)].

16. Petroleum products spilled into any water or on the banks where the material may enter waters of the state should be cleaned up immediately and disposed of properly. Any such spills of petroleum should be reported as soon as possible, but no later than 24 hours after discovery to the Department's Environmental Emergency Response phone line at 573-634-2436 or website at http://dnr.mo.gov/env/esp/esp-eer.htm. This will ensure compliance with Missouri Environmental Improvement Authority [Chapter 260.015, RSMo] to provide for the conservation of state water resources by the prevention of pollution and proper methods of disposal and Missouri Water Quality Standards general criteria requiring waters be free from substances that prevent maintenance of beneficial uses; cause unsightly color, turbidity, or toxicity; and/or impair the natural biological community [10 CSR 20-7.031(4)(B)-(G)].

17. Clearing of vegetation and trees should be the minimum necessary to accomplish the activity except for the removal of invasive or noxious species and placement of ecologically beneficial practices. This will ensure compliance with the Missouri antidegradation requirement for BMPs [10 CSR 20-7.031(3)(B)].

18. The dam's face and disturbed areas should be restored to a stable condition to protect water quality as soon as possible. Seeding, mulching, and needed fertilization should be within three days of final contouring. To ensure erosion and deposition of soil in waters of the state are not occurring from this project, on-site inspections of these areas should be conducted as necessary to ensure successful revegetation and stabilization. This will ensure compliance with the Missouri antidegradation requirement for BMPs [10 CSR 20-7.031(3)(B)].

19. The Department encourages the use of native vegetation to protect impacted areas from future water quality concerns. Native vegetation has evolved with Missouri's geology, climate, and wildlife to occur within a region as a result of natural processes rather than human intervention. For areas where direct impacts to streams are to be avoided, the Department recommends a minimum riparian buffer strip width of 50 ft as measured from top of bank.

Thank you for the opportunity to comment on the proposed project. You may send responses to comments and other requested information electronically to the Stormwater and Certification Unit's general email account at wpsc401cert@dnr.mo.gov. If you have any questions, please contact Mike Irwin by phone at 573-522-1131, by email at mike.irwin@dnr.mo.gov, or by mail at Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176. Thank

you for working with the Department to protect our aquatic resources.

MI/pc

Missouri Department of Natural Resources
Water Protection Program
Operating Permits Section
P.O. Box 176
Jefferson City, MO 65102-0176
Phone (573) 522-4502 Fax (573) 522-9920
e-mail: wpsc401cert@dnr.mo.gov
web site: www.dnr.mo.gov/env/wpp/401

We'd like your feedback on the service you received from the Missouri Department of Natural Resources. Please consider taking a few minutes to complete the department's Customer Satisfaction Survey at https://www.surveymonkey.com/r/MoDNRsurvey. Thank you.

From:	Stuart Miller
To:	Beyke, Sean M CIV USARMY CENWK (USA)
Cc:	john_s_weber@fws.gov; David Thorne; Vitello, Matt; Hoggatt, Jennifer; Weller, Michael; Hunt, Rob; Irwin, Mike; Aaron Jeffries; Bryan Gragg; Danny Hartwig; Sherry Fischer
Subject:	[Non-DoD Source] RE: North Central Missouri Regional Water Commission, NWK-2004-00255/CEK007390
Date:	Wednesday, December 2, 2020 7:46:30 AM

Thank you for the opportunity to review and comment on the East Locust Creek Reservoir, Public Notice NWK-2004-00255. The Missouri Department of Conservation (Department) is the agency responsible for the fish, forest, and wildlife resources of Missouri. As such, the Department actively participates in the review of projects and proposals that may affect those resources. The Department's comments and recommendations are for your consideration and are offered to reduce impacts to the fish, forest, and wildlife resources in Missouri.

The proposed plans included in the public notice to avoid, minimize, and mitigate impacts to streams and wetlands suggest a need for more specificity as to how ecological benefits will be accomplished. As a federal, state, and local government project, there are numerous avenues in the future to coordinate mitigation of impacts. The Department encourages future coordination between agencies and interested parties.

If you have any questions, please contact me. My email address is stuart.miller@mdc.mo.gov or call (573) 522-4115 Extension 3378.

Response:

Acknowledged.

From:	Gaggero, Jaime
To:	Beyke, Sean M CIV USARMY CENWK (USA)
Cc:	mike.irwin@dnr.mo.gov; Vitello, Matt; John_S_Weber@fws.gov; Amy Rubingh; Robichaud, Jeffery; Huffman, Diane; Tapp, Joshua; Tilley, Amber; DuPree, Gabriel; Muehlberger, Christopher
Subject:	[Non-DoD Source] Clean Water Act Section 404 permit application for the East Locust Creek Reservoir Project
Date:	Wednesday, December 2, 2020 7:12:36 PM
Attachments:	image003.png
	ELC 404 comment letter_Final.pdf

Mr. Beyke,

Please accept the attached letter containing comments regarding the 404 permit application for East Locust Creek Reservoir currently on Public Notice, on behalf of EPA Region 7. We appreciate the opportunity to review and comment. EPA offers continued coordination in support of a permit that meets the project purpose and objectives. We are willing to participate in any meetings that would be beneficial to the Corps and the Applicant and would appreciate the opportunity to meet prior to a decision being rendered for the 404 permit. For future communication on this project, feel free to reach out to Gabriel Dupree or I.

Thank you -

Jaime Gaggero

Watersheds and Grants Branch Chief
U.S. Environmental Protection Agency R7
11201 Renner Blvd. Lenexa, KS 66219
913.551.7977

UNITED STATES ENVIRONMENTAL PROTECTION

AGENCY REGION 7
11201 RENNER
BOULEVARD
LENEXA, KS 66219

December 2, 2020

Sean Beyke
Regulatory Project Manager
U.S. Army Corps of Engineers
Missouri State Regulatory
Office 515 East High Street,
Suite 202 Jefferson City,
Missouri 65101

Subject: Clean Water Act Section 404 permit application for the East Locust Creek Reservoir Project, Sullivan County, Missouri

Mr. Beyke:

The U.S. Environmental Protection Agency (EPA) has reviewed North Central Missouri Regional Water Commission's (NCMRWC) proposal for the East Locust Creek Reservoir Project. The proposal includes a Clean Water Act Section 404 individual permit application submitted to the United States Army Corps of Engineers (Corps), and a Draft Supplemental Environmental Impact Statement (DSEIS) for the proposed East Locust Creek Watershed Revised Plan, prepared by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). The project is proposed to be constructed under agreement between the NCMRWC and the NRCS, the lead federal agency.

This letter provides EPA comments pursuant to Section 404 of the Clean Water Act. EPA will provide comments pursuant to the National Environmental Policy Act in a separate letter to NRCS by December 7, 2020.

With respect to the requirements associated with the application for a 404 permit, EPA has two recommendations.

- First, EPA recognizes the DSEIS will be used as a source of information during the 404 permit review. EPA also recognizes the scope of alternatives analysis under 40 CFR 230.10(a) may be inclusive of alternatives that were not identified as the preferred alternative. In order to determine the least environmentally damaging practicable alternative per 404(b)(1) Guidelines requirements, a thorough understanding of the screening criteria for evaluating alternatives and the thresholds used will be necessary in

order to appropriately evaluate the full scope of practicable alternatives. For example, it would be prudent to understand why MA6 was eliminated and RW1 is the preferred alternative.

Response:

A description of the screening criteria method is described in Section 2.0 and states the following:

This alternatives analysis is intended to meet the requirements of both NEPA and Clean Water Act Section 404(b)(1) guidelines. Both require that a reasonable range of alternatives be considered. The NEPA alternatives analysis focuses on screening alternatives that are ***reasonable and feasible*** *and meet the* ***purpose and need*** *for the project. The Clean Water Act Section 404(b)(1) process focuses on determining a practicable alternative that is the* ***least damaging to aquatic resources*** *while considering other significant adverse environmental consequences.* ***Practicable means "available and capable of being done after taking into consideration cost, technology, and logistics****" (40 CFR 230.3(g)). In terms of the LEDPA analysis, the least environmentally damaging alternative focuses primarily on aquatic resources and secondarily on a public interest review of other environmental resources. The alternatives discussed were developed jointly with the regulatory agencies to satisfy both NEPA and Clean Water Act Section 404(b)(1) requirements.*

Because there are three project purposes, each project purpose was independently evaluated for:

- **Considered reasonable and feasible**
- **Meets the project purpose and need**
- **Fewest environmental impacts**
- **Practicable - available and capable of being done when considering:**
    - **Cost (excluded until the multipurpose evaluation)**
    - **Technology**
    - **Logistics**

For a description of the screening criteria for each project purpose and why it was appropriate based on the above considerations, see the following section:

- **Water supply alternatives: Section 2.1 and Section 2.1.1.**
- **Flood damage reduction alternatives: Section 2.2 and Section 2.2.1.**
- **Water-based recreation alternatives Section 2.3 and Section 2.3.1.**

Multipurpose alternatives were combined in Section 2.4 and the process for how they were combined is described in Section 2.4. Below is an excerpt from Section 2.4

The NEPA and CWA require federal agencies consider all reasonable and practicable alternatives that meet project purposes. The multipurpose analysis evaluates the following:

• Multipurpose alternatives that meet the screening criteria for each of the three project purposes.

• Analysis of impacts to aquatic resources including streams and wetlands.

• Analysis of whether the alternative is practicable. Practicability means the alternative is available and capable of being done, and it includes a consideration of cost, logistics, and technology regarding the project purposes.

• As required by the Endangered Species Act, an analysis of impacts to rare species habitat.

In this case, forest is used because it is habitat for threatened and endangered bats. All possible multipurpose alternatives will be generated from individual alternatives that met the screening criteria for one or more of the project purposes. ***In this document, to determine the multipurpose Preferred Alternative, Section 2.4.1 will combine individual alternatives (if necessary), Section 2.4.2 will evaluate the multipurpose alternatives, and Section 2.4.3 will determine the multipurpose Preferred Alternative.***

As described in the DSEIS, the Preferred Alternative is evaluated in Section 2.4.2 and selected in 2.4.3. The evaluation (Section 2.4.2) includes environmental impacts and practicability. While the environmental evaluation portion of Section 2.4.2 shows MA6 as having the fewest environmental impacts, the practicability portion shows MA6 is not practicable because of costs and logistics. The FSEIS document was updated to make this distinction.

- Second, once all practicable avoidance and minimization of impacts has been achieved, the mitigation plan should address not only direct project impacts, but secondary impacts such as instream flow, loss of aquatic organism passage due to the earthen dam, and sediment transport. Furthermore, proposed mitigation should also include provisions for watershed cumulative impacts.

Response:

Acknowledged.

As the DSEIS, mitigation plan and 404 permit review are being finalized, EPA offers our continued coordination in support of developing a robust, defensible permit that meets the project purpose and objectives. We would be willing participate in any meetings that would be beneficial to the Corps and the Applicant and would appreciate the opportunity to meet prior to a decision being rendered for the 404 permit.

I want to reaffirm that EPA understands and supports the Applicant's desire and needs to develop its water resources in a responsible way that addresses the needs of the Applicant while safeguarding valuable aquatic resources. Thank you for the opportunity to review the 404 permit application and DSEIS. If you have questions regarding these comments, please feel free to write me or contact Mr. Gabriel DuPree, Missouri Coordinator, at (913) 551- 7751 or by email at dupree.gabriel@epa.gov.

Sincerely,

Jaime Gaggero
Chief, Watersheds & Grants Branch

cc (electronically):

Mr. John Weber, U.S. Fish and Wildlife Service, Columbia, Missouri
Mr. Matt Vitello, Missouri Department of Conservation
Mr. Mike Irwin, Missouri Department of Natural Resources, Water Protection Program
Ms. Amy Rubingh, Missouri Department of Natural Resources, State Historic Preservation Office

Section 404 Permit
Public Comments

From:	Edward Heisel
To:	Beyke, Sean M CIV USARMY CENWK (USA); chris.hamilton@mo.usda.gov; Herrington, Karen; Edward Heisel
Subject:	[Non-DoD Source] Comments on NWK-2004-00255 (E. Locust Creek Reservoir)
Date:	Wednesday, December 2, 2020 3:08:08 PM
Attachments:	Ltr-2020-12-02-USACE.pdf

Dear Mr. Beyke,

Please see the attached comments on the above permit application.

Ted Heisel

314.401.6218

EDWARD J.
HEISEL

Attorney at Law

5966 Wallach Road
Eureka, Missouri 63069
(314) 401-6218
ejheisel@yahoo.com

December 2, 2020

VIA EMAIL (sean.m.beyke@usace.army.mil)

Sean Beyke
U.S. Army Corps of Engineers
515 E. High Street
Suite 202
Jefferson City, MO 65101

Re: NWK-2004-00255 (East Locust Creek Reservoir)

Dear Mr. Beyke:

I submit these comments on my own behalf as someone who is a regular user of Missouri's waterways and who has spent time exploring public lands and waters along Locust Creek downstream of the above referenced project area. It seems likely at this stage in the process that construction of the project is a fait accompli. Therefore, my comments focus on the required mitigation for impacts to jurisdictional waters and protected wildlife.

Mitigating Impacts to Waters

The public notice indicates that 255,441 feet of streams and 375.1 acres of wetlands would be destroyed by the project. This is a huge impact on waters protected by the federal Clean Water Act. It is the most significant impact on Missouri's water resources of any section 404 permitted project in recent memory.

A major failing of the project documents is that they include very little specificity with regard to how the very large stream and wetland impacts of this project will be mitigated. For streams, the SEIS (p.201) merely states that:

> Mitigation measures would be developed in coordination with resource agencies including the USACE, USFWS, MDNR, and MDC. Potential projects include removing barriers which impede the passage of aquatic organisms, streambank stabilization, levee setback, riparian enhancement and protection, floodplain expansion,

and addressing the impacts of channel avulsions affecting sensitive habitats along the lower portions of Locust and Yellow creeks.

For wetlands, the SEIS (pp.201-202) is similarly vague and non-committal, stating that:

> Unavoidable wetlands impacts would require compensatory mitigation following prescribed replacement to affected ratios. . . . Wetlands delineations and preliminary jurisdictional determinations are planned to be completed. . . . Appropriate mitigation sites would require adequate soils and hydrology to establish wetland vegetation. . . . Wetland mitigation sites and extent would be determined in coordination with USACE and MDNR. Wetland mitigation locations would focus on areas upstream and downstream of the Proposed Action. . . . Permittee-responsible mitigation will require monitoring to ensure the success of wetland mitigation areas.

These statements along with the "Preliminary Draft" mitigation planning document in SEIS Appendix I are insufficient compliance with applicable regulations and give the public very little to work with in terms of evaluating the adequacy of mitigation measures. This is essentially a "trust us, we'll get it done" approach. The Corps' permitting regulations state: "For Section 404 applications, mitigation shall be required to ensure that the project complies with the 404(b)(1) Guidelines." 33 C.F.R. § 320.4(r)(1)(ii). While every last detail of a mitigation plan does not have to be finalized at the point of permit issuance, such plans must be developed to a "reasonable degree" and must reflect a "genuine effort to develop a detailed mitigation plan." Bering Strait CRRD v. USACE, 524 F.3d 938 (9th Cir. 2008). The 2008 Mitigation Rule further states that: "Compensatory mitigation requirements must be commensurate with the amount and type of impact that is associated with a particular DA permit. Permit applicants are responsible for proposing an appropriate compensatory mitigation option to offset unavoidable impacts." The East Locust Creek reservoir project documents do not represent a "genuine effort to develop a detailed mitigation plan" and the Corps must require greater specificity before issuing a Section 404 permit.

Selected mitigation sites must be provided with long-term protection in the form of a conservation easement or other protective mechanism. 33 C.F.R. § 332.7(a). Among the details lacking in the Corps' public notice and the SEIS is any reference to how long-term site protection will take place. Similarly, the mitigation planning document in the SEIS suggests that stream mitigation will be permittee responsible without any discussion of why the preferred mitigation bank or in-lieu fee approaches were rejected. 33 C.F.R. § 332.3(b). In sum, there is little to no compliance with the 2008 Mitigation Rule demonstrated in the available project documents.

Carrying out mitigation projects on existing public conservation lands is inappropriate in that these lands are already protected and any needed restoration thereon should be undertaken from agency budgets. Allowing impacts of the project to be offset at Swan Lake NWR, for example, is merely substituting private mitigation dollars for public funds that should be allocated for this purpose. Any restoration activities that are already included in existing agency plans such as the Swan Lake CCP cannot be used to offset private mitigation needs. 33 C.F.R. § 332.3(a)(3).

The best way to offset impacts of this magnitude are to purchase land with degraded aquatic resources (e.g. marginal farmland), restore them, and – ideally – make them available for public use. The project developers should work with the Missouri Department of

Conservation to add lands to the nearby Locust Creek Conservation Area or the Fountain Grove Conservation Area. Alternatively, they could work with the U.S. Fish & Wildlife Service to add lands to the Swan Lake National Wildlife Refuge or the Big Muddy National Wildlife Refuge. Finally, they could work with the Missouri Department of Natural Resources to add lands to Pershing State Park. These are the types of projects that would operate at a scale needed to offset impacts of the new reservoir. Adding acreage to existing public land units will provide the maximum ecological benefit and the lowest long-term monitoring and maintenance costs.

Bat Habitat

The project will similarly impact a large amount of terrestrial forested habitat for the endangered Indiana bat, as well as many other wildlife species. The bat habitat mitigation measures discussed in the SEIS – like those for streams and wetlands – are generalized and non- committal. The USFWS Biological Opinion specifies that 1,236 acres of forested habitat must be protected with a conservation easement, but only a vague reference to discussions with one land trust about site protection mechanisms is mentioned in the SEIS. Additional detail must be provided to demonstrate that implementation of these mitigation measures will actually take place. As with the aquatic impacts, the best mitigation approach would be to donate these lands to an agency like the Department of Conservation such that a new conservation area can be created with the specific objective of offsetting impacts of the reservoir on terrestrial species, including the Indiana bat.

Thank you for considering these comments. Please add me to any notification lists for future updates on this project.

Very truly
yours,

Edward J.
Heisel

cc: Chris Hamilton, NRCS (Chris.Hamilton@mo.usda.gov)
Karen Herrington, USFWS
(Karen_Herrington@fws.gov)

Response:

Mitigation measures that meet the 404(b)(1) guidelines are being developed and will be approved by the USACE prior to acquiring a Section 404 permit and prior to wetland and stream impacts.

Appendix K
Record of Decision

Record of Decision
East Locust Creek Watershed Plan
Sullivan County, Missouri

AGENCY:
Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture (USDA).

SUMMARY:
NRCS is publishing this provisional Record of Decision (ROD) within the Final Environmental Impact Statement (FSEIS) for the East Locust Creek Watershed Plan (ELCWP) to select the preferred alternative to construct the multiple-purpose reservoir. The purpose of the FSEIS and the subsequent ROD is to detail the National Environmental Policy Act (NEPA) considerations made both during and after NRCS prepared the ELCWP and Environmental Impact Statement (EIS) in 2006. The FSEIS updates the original EIS with more recent relevant environmental information and expands the alternatives analysis beyond those previously considered. The FSEIS evaluates reasonable and practicable alternatives and their expected environmental impacts under the EIS provisions of the Council on Environmental Quality. After evaluating the new information, this ROD remains consistent with the conclusions made in the 2006 EIS.

PUBLIC PARTICIPATION:
NRCS invites you to provide input on this action. Public input regarding the ROD will be considered 30 days after publishing the FSEIS. Comments may be directed to Chris Hamilton, Assistant State Conservationist, Water Resources and Easements, at chris.hamilton@usda.gov or (573)-876-0901. Persons with disabilities who require alternative means for communication should contact the USDA Target Center at (202) 720-2600 (voice).

SUPPLEMENTARY INFORMATION:
Background:
The NRCS, in cooperation with the Project Sponsors (North Central Missouri Regional Water Commission, Locust Creek Watershed District, Putnam County Commission, Sullivan County Commission, Putnam County Soil and Water Conservation District, and the Sullivan County Soil and Water Conservation District) and cooperating federal agencies (the U.S. Army Corps of Engineers [USACE], Federal Highways Administration [FHWA], USDA Rural Development [USDA-RD]), has prepared a FSEIS for the ELCWP in Sullivan County, Missouri authorized pursuant to the Watershed and Protection and Flood Prevention Act, Public Law 83-566, (16 U.S.C. 1001-1008).

The East Locust Creek Watershed is approximately 79,500 acres and is in North Central Missouri. East Locust Creek is a tributary to Locust Creek, then the Grand River, and the Missouri River. North Central Missouri has, for decades, suffered under the threat of water shortage. The Sullivan and Putnam County Commissions and the Sullivan and Putnam County Soil and Water Conservation Districts initially applied for federal watershed planning assistance in the East

Locust Creek Watershed in 1974. NRCS completed the East Locust Creek Watershed Plan-Environmental Assessment (EA) in 1986. Recognizing that the large lake proposed in the 1986 EA could help meet the regional need for a dependable water supply, the Locust Creek Watershed Board in November 2000 requested an NRCS study to revise the 1986 Watershed Plan-EA and include a public water supply reservoir.

NRCS began planning activities following authorization in July 2003 and revised the ELCWP in March 2006. The East Locust Creek Revised Plan (ELCRP) recommended the construction of a multiple-purpose reservoir that would provide a water supply, water-based recreation, and flood prevention. NRCS announced a ROD to proceed with installation of a multiple-purpose reservoir in September 2006 stating, "No alternative or combination of alternatives will afford greater protection of the environmental values while accomplishing the other project goals and objectives." The Environmental Protection Agency concurred and did not object to the proposed action.

Following the 2006 ROD, the project was not installed because of insufficient federal and local funding. Since 2010, a ½ cent retail sales tax has generated required funds for the local funding match for project related expenses. The Project Sponsors began acquiring land assets for the project which were completed in 2017 without the use of condemnation.

A Notice of Intent to prepare a Draft Supplemental Environmental Impact Statement (DSEIS) for the ELCRWP was published in the Federal Register on December 8, 2014. The NRCS determined that additional analysis was required and the purposes of the NEPA would be furthered through the preparation of a SEIS. The USACE, FHWA, and USDA-RD were cooperating federal agencies in the preparation of a DSEIS. The DSEIS was completed on October 23, 2020 and considered all reasonable and practicable alternatives to meet the purpose and need for the federal action. The DSEIS has assessed the potential social, economic, and environmental impacts of the project, and addressed federal, state, and local regulatory requirements. The DSEIS analyzed the direct, indirect, and cumulative effects of the proposed action.

Proposed Action:
The proposed federal action as presented in the 2006 EIS includes a 2,235-acre multiple-purpose reservoir on East Locust Creek, a water intake structure, a raw water line, fish and wildlife habitat enhancement, utility relocation, and recreational facilities. The lake size was adjusted in the FSEIS from 2,235 acres to 2,328 acres to reflect more accurate elevation data. The 2006 EIS used photogrammetry measurements and the FSEIS was based on 2009 Light Detection and Ranging (LiDAR) measurements. The purpose of the proposed federal action is to:

- Provide a dependable, affordable long-term water supply to meet the water demand for the 10-county region of north-central Missouri, including Adair, Chariton, Grundy, Linn, Livingston, Macon, Mercer, Putnam, Schuyler, and Sullivan counties.

- Reduce flooding damages on 22.5 miles of East Locust Creek above the confluence with Locust Creek.
- Provide water-based recreation to meet the unmet demand for the 10-county recreation management area including Adair, Chariton, Grundy, Linn, Livingston, Macon, Mercer, Putnam, Schuyler, and Sullivan counties.

The installation of the proposed action will result in temporary and permanent impacts to jurisdictional waters of the U.S. requiring a Clean Water Act (CWA) Section 404 permit. The USACE has not issued a Section 404 permit for this project. Potential impacts of all reasonable and practicable alternatives have been updated and analyzed in the FSEIS in compliance with Section 404(b)(1) of the CWA.

Alternatives:
The FSEIS evaluated environmental impacts of alternatives that were identified as reasonable and practicable:

(1) Creation of a multiple-purpose reservoir;
(2) A combination of independent purpose alternatives to meet the overall project purposes and needs; and
(3) The no-action alternative.

The FSEIS identified the National Economic Development alternative, which is the alternative with the greatest net economic benefit consistent with protecting the Nation's environment and documents the estimated direct, indirect and cumulative impacts of the proposed action and alternatives on the environment. The FSEIS recommends a multiple-purpose reservoir and are consistent with the findings of the 2006 EIS.

Scoping:
In developing the ELCRWP, numerous scoping meetings were held to gather public input and keep the community informed on the status of project planning activities. Periodic news articles, fact sheets were published through the years to update local citizens. The 2010 tax issue for the project passed by an 81% vote in favor. A public open house was held from 3:00 p.m. to 7:00 p.m. in conjunction with USACE on November 10, 2020, at the Milan Community Center in Milan, Missouri to answer questions and solicit comments on the DSEIS. NRCS has responded to all substantive comments received in this FSEIS (see Appendix J).

Other Environmental Review and Coordination Requirements:
The USACE, USDA-RD, and the FHWA are cooperating federal agencies assisting in the preparation of the FSEIS. The NRCS, as the lead Federal agency, will continue to coordinate with other agencies and entities throughout the NEPA process including: Putnam and Sullivan County Commissions, Putnam and Sullivan Soil and Water Conservation Districts, Missouri Department of Natural Resources (MDNR), Missouri Department of Conservation, U.S. Fish and

Wildlife Service, and the Environmental Protection Agency. The FSEIS addresses project compliance with applicable laws and regulations, including NEPA, CWA, Endangered Species Act, and the National Historic Preservation Act. The FSEIS also includes an administrative action proposal to exchange an Agricultural Conservation Easement Program easement which will be inundated by the permanent pool (Appendix F).

Permits or Licenses Required:
The proposed federal action requires a CWA Section 404 permit from the USACE. The project also requires certification by the State of Missouri, MDNR, under Section 401 of the CWA, that the project would not violate State water quality standards. A land disturbance permit issued by the MDNR under Section 402 of the CWA (National Pollutant Discharge Elimination System Permit) is required. Construction and Safety Permits issued by the Missouri Dam and Reservoir Safety Program will also be needed.

DECISION:
Having concluded that all practical means have been considered according to laws and policy, and that the need for a regional water supply is extraordinary, the NRCS has decided to implement the ELCRWP preferred alternative which includes construction of a 2,328-acre multiple-purpose reservoir. The ELCRWP will serve the overall public interest while avoiding impacts to the extent possible and minimizing and mitigating for impacts that are unavoidable.

_____ Date _____

Scott Edwards
Missouri State Conservationist, USDA-NRCS
Responsible Federal Official
Columbia, MO