



# Improving In-Lieu Fee Program Implementation: *Full Cost Accounting*



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## Improving In-Lieu Fee Program Implementation

Since 1990, the overall goal of the Clean Water Act Section 404 program has been the “no net loss” of aquatic ecosystems. Ensuring that the area and functions of aquatic ecosystems are maintained depends on effective compensatory mitigation. In-lieu fee (ILF) programs are an important mechanism to provide compensatory mitigation and thus contribute to the “no net loss” goal.

The following is part of a series of comprehensive guides on some of the most challenging components of ILF program implementation identified through extensive research and interviews with operating ILF programs and other mitigation stakeholders. These guides help address perennial problems for ILF programs by identifying specific challenges, providing detailed recommendations on ways to meet these challenges, and including examples or case studies of programs to illustrate effective approaches to implementation.

The guides cover the following topics:

- 1) Full cost accounting
- 2) Project approval and the three-year growing season
- 3) Long-term management
- 4) Programmatic audits

### Full Cost Accounting

The 2008 Rule requires that ILF providers determine their schedule of fees for credits using a “full cost accounting approach”—that is, one that proactively anticipates and accounts for all costs associated with ILF mitigation.<sup>1</sup> According to the Rule, full cost accounting should consider expenses related to land acquisition, project planning and design, monitoring, administration, contingency, financial assurances, and long-term management, among others (see Box A).

The cost of credits is determined by the sponsor, but the Corps has a duty to “review the fees set by sponsors to determine whether they comply with the requirement for full cost accounting to ensure that the required compensatory mitigation is provided and maintained.”<sup>2</sup> The Corps and the Interagency Review Team (IRT) have the opportunity to weigh in on the cost of credits at the approval of the program instrument, but also when the program notifies the Corps of an intent to change fees. A financial audit (or even programmatic audit) could also identify if fees are not sufficient.

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<sup>1</sup> 33 C.F.R. § 332.8(o)(5)(ii). The full cost accounting requirements in the 2008 Compensatory Mitigation Rule (2008 Rule) do not distinguish between advance and released credits. However, the preamble to the rule states that released credits can be “just as certain and close to fulfillment as credits from a bank.” Thus, it is possible that released credits can be treated as bank credits, which are not required to use full cost accounting for determining credit costs.

<sup>2</sup> Compensatory Mitigation Rule, 73 Fed. Reg. 19598 (Apr. 10, 2008) (Preamble to the Final Rule).

Many ILF programs face significant challenges in determining credit costs, including a lack of information on the range of factors to include in calculations and how to estimate costs for each item. Based on a comprehensive analysis of the implementation of ILF programs<sup>3</sup> and a review of program instruments as of May 2020, this guide discusses challenges in applying a full cost accounting approach and outlines recommendations to help ILF programs ensure credit fees collected are sufficient to complete projects that offset the program’s mitigation obligations.

### **Box A: Regulatory Requirements**

The 2008 Rule does not prescribe a fully comprehensive list of costs for each ILF program to consider when determining fees. The language in the Rule does, however, provide the following items for consideration under a full cost accounting approach:

“Costs must be based on full cost accounting, and include, as appropriate, expenses such as land acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, and remediation or adaptive management activities, as well as administration of the in-lieu fee program.”<sup>4</sup>

The Rule also requires that programs proactively account for other possible costs:

“The cost per unit credit must also take into account contingency costs appropriate to the stage of project planning, including uncertainties in construction and real estate expenses. The cost per unit of credit must also consider the resources necessary for the long-term management and protection of the in-lieu fee project. In addition, the cost per unit credit must include financial assurances that are necessary to ensure successful completion of in-lieu fee projects.”<sup>5</sup>

## Range of Challenges Experienced by Programs

Our 2019 report on ILF program instruments and implementation across the country identified a range of challenges ILF programs experience in implementing full cost accounting.<sup>6</sup> These challenges include:

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<sup>3</sup> Environmental Law Institute and Institute for Biodiversity Law and Policy at Stetson University College of Law (2019). In-Lieu Fee Mitigation: Review of Program Instruments and Implementation Across the Country.

<https://www.eli.org/research-report/lieu-fee-mitigation-review-program-instruments-and-implementation-across-country>

<sup>4</sup> 33 C.F.R. § 332.8(n)(5)(ii).

<sup>5</sup> *Id.*

<sup>6</sup> Environmental Law Institute and Institute for Biodiversity Law and Policy at Stetson University College of Law (2019). In-Lieu Fee Mitigation: Review of Program Instruments and Implementation Across the Country.

<https://www.eli.org/research-report/lieu-fee-mitigation-review-program-instruments-and-implementation-across-country>

## **1. Determining Line Items to Include in Full Cost Accounting**

As mentioned above, the 2008 Rule outlines a number of line items that should be included in full cost accounting, but many subcomponents of these items, as well as additional items, may be necessary to include in order to account for local conditions (e.g., state and local policies, geography, and market factors). Some programs have struggled with identifying the range of line items that they should include in the calculation. A comprehensive evaluation of the factors that should be included in full cost accounting can entail a significant effort that may be especially challenging for new or less experienced programs that may not have data on which to draw for the analysis.

## **2. Estimating Costs for Each Factor**

Programs often have difficulty estimating costs for each line item they include in full cost accounting, given the many nuances of their local economy, geography, weather, regulatory and permitting landscape, or other factors. The sometimes wide range of different project types (e.g., restoration or enhancement) that programs may propose and habitats (i.e., wetland or stream type) in which they may work only further complicate the analysis.

Land costs—which vary across the country, as well as within a program’s operational area—often comprise the largest portion of credit fees. Although land costs may be among the easiest costs to look up at any given time, it can be challenging to determine a single land cost figure that will be appropriate across an entire service area and be sufficient to purchase sites sometimes several years later. Because full cost accounting is completed proactively, programs are generally estimating land costs and other expenses for a theoretical future site. Any delay between the sale of credits and start of a project could result in an inaccurate cost estimate because land costs can shift dramatically in a short period of time, particularly in areas with significant development pressure. This situation may create a mismatch between full cost accounting estimates for credit fees and the actual costs. For example, high-demand service areas may have inflated land prices once landowners become aware of the value of their property for mitigation.

Finding the data needed to estimate costs is challenging for many programs. Programs struggle with accessing and interpreting critical data on factors ranging from land values or pace of development to weather, climate change, and local compensation market demand, among others.<sup>7</sup> Determining the amount of administrative costs or what types of activities can be funded with administrative funds (e.g., purely administrative tasks or project scouting and initial plan development) may also be challenging. Many programs also struggle with accessing

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<sup>7</sup> Gardner, R.C., E. Okuno, R. Kihlsinger, and C. Libre, (2019) CWA In-Lieu Fee Mitigation: Project and Programmatic Risks, The Environmental Law Reporter Vol. 49 Iss. 6. <https://elr.info/news-analysis/49/10538/cwa-lieu-fee-mitigation-project-and-programmatic-risks>

data and resources to calculate long-term management funds—a key input in credit cost calculations. See the guide on Long-Term Management in this series for more information.<sup>8</sup>

### **3. Calculating Fees**

Once costs for each line item have been estimated, programs may experience challenges developing systematized methods for calculating overall credit fees. Programs implement a variety of calculation methods, accounting for factors such as resource type, inflation, contingencies, financial assurances, administration, long-term management costs, risks and liability, changing IRT requirements, and economies of scale.

### **4. Evaluating and Adjusting Fees**

It is extremely important for programs to have a consistent process for evaluating the sufficiency of fees and a process for adjusting fees as necessary to ensure project costs are covered. Programs should regularly evaluate fees, at least annually, and adjust them as necessary. Determining how to conduct the evaluation has been challenging for some programs. For example, a program may not have enough representative projects to evaluate actual costs of a range of future projects. In some cases, it can be difficult to break down actual project costs into specific line items, if, for example, programs are using a “full delivery” method where the providers (under contract to the ILF) give a credit cost to the program but do not break down the cost by line item.

Some programs sometimes face rigid or extensive requirements to update fees, drawing down slim resources and consuming time that was in short supply. A few programs, for example, are required to go through legislative channels if they would like to update fees because their fees are set in state statute, as is the case for the [Northwest Florida Water Management District](#) and the [New Hampshire Aquatic Resource Mitigation Fund](#).

### **5. Additional Complexities**

Beyond the issues mentioned above, programs face a variety of additional challenges that may further complicate the process of full cost accounting. For one, new requirements or guidelines (performance standards, credit calculations, etc.) put in place by the IRT can have profound and long-term effects on credit pricing, especially if IRT requires that they apply retroactively to credits already sold.

Some programs have suggested that they sometimes face pressure to keep fees in line with those charged by other providers in their service areas or to adjust costs in order to sell credits in slow markets. This approach is counter to the 2008 Rule—if credit fees do not cover project

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<sup>8</sup> Environmental Law Institute and Institute for Biodiversity Law and Policy at Stetson University College of Law (2021). Improving In-Lieu Fee Mitigation – Long-Term Management of Mitigation Sites <https://www.eli.org/wetlands-program/ILFresources>.

costs, including long-term management, the program will not deliver required offsets and/or the program will need to subsidize development and wetland losses to cover the shortfall.

Full cost accounting is complex, and programs must have the capacity to determine the costs involved in running a program and implementing projects and calculate fees that will be sufficient to offset program liabilities. Programs may need to consider creative approaches to address the challenges of full cost accounting, including ways to build staff capacity at the program level to overcome common challenges and preserve institutional knowledge on full cost accounting procedures.

## Recommendations

Many programs have developed strategies to address the challenges identified above. The following are some recommendations for approaching full cost accounting and credit cost determination.

### 1. Determining Line Items to Include in Full Cost Accounting

We reviewed the program instruments of all 60 active ILF programs as of May 2020 to determine the line items that programs included in their full cost accounting procedures. We found that programs include the line items identified in the 2008 Rule, as well as an array of sub-line items, which programs may find helpful to determine a more accurate estimate of the line item and break down the costs. Below are the aggregated line items that were listed in the instruments reviewed (see Table 1).

**Table 1: Factors for Full Cost Accounting Aggregated from ILF Program Instruments**

<i>Line Item Listed</i>	<i>Sub-Line Items Listed</i>
<i>Land acquisition</i>	<ul style="list-style-type: none"> <li>Site identification and purchase price</li> <li>Appraisals</li> <li>Surveys</li> <li>Title reports</li> <li>Title insurance</li> <li>Conservation easements</li> <li>Environmental review</li> <li>Baseline report (documenting the site’s condition, conservation/aquatic resource values, and intended uses)</li> <li>Due diligence, such as Phase 1 environmental site assessments for hazardous materials</li> <li>Real estate closing fees</li> </ul>

<i>Project planning and design</i>	<ul style="list-style-type: none"> <li>Design plans</li> <li>Engineering services</li> <li>Cultural resources assessments</li> <li>Permitting</li> <li>Soil sampling or geomorphological mapping</li> <li>Research studies to reduce the level of uncertainty related to restoration/creation activities and species goals and objectives</li> </ul>
<i>Mitigation plan development (development of the plan/instrument itself)</i>	
<i>Construction</i>	<ul style="list-style-type: none"> <li>Site layout</li> <li>Construction equipment and labor</li> <li>Contractor fees</li> <li>Water control structure</li> <li>Erosion control</li> <li>Earthwork</li> <li>Planting/seeding</li> <li>Signs</li> <li>Construction oversight and monitoring</li> </ul>
<i>Plant materials</i>	<ul style="list-style-type: none"> <li>Seeds</li> <li>Water well/data logger</li> </ul>
<i>Labor</i>	Broken down for administration, planning, monitoring, legal activities, and other, as necessary
<i>Legal fees</i>	<ul style="list-style-type: none"> <li>Water rights</li> <li>Preparation of bidding documents and contracting</li> <li>Easement defense</li> </ul>
<i>Monitoring</i>	<ul style="list-style-type: none"> <li>Travel costs</li> <li>Annual monitoring surveys</li> <li>Report writing</li> <li>Re-grading</li> <li>Replanting</li> <li>Erosion control</li> </ul>
<i>Adaptive management and remediation activities</i>	<ul style="list-style-type: none"> <li>Earthwork</li> <li>Planting</li> <li>Seeding</li> <li>Weed management/invasive species</li> <li>Labor</li> </ul>

<i>Administration</i>	<i>Tracking credits</i> <i>Managing credit transactions</i> <i>Annual reporting</i> <i>Paying bills</i> <i>Payroll</i> <i>Audit/accounting</i> <i>Marketing</i> <i>Education and training</i> <i>Office and supplies</i> <i>Long-term recordkeeping</i> <i>Costs for working with approval agency and IRT members on individual projects</i>
<i>Contingency costs appropriate to the stage of project planning</i>	Uncertainties in construction and real estate expenses Costs for unexpected natural disasters or catastrophic events Costs to monitor and replant restoration sites in the event that plantings fail due to site conditions, human error, animal browsing, or other factors
<i>Financial assurances (e.g., performance bonds, casualty insurance, letters of credit)</i>	Additional mitigation actions or administrative activities
<i>Long-term management/site protection</i>	Monitoring and enforcing conservation easement or other protection mechanism Stewardship endowment deposit Payments to additional land steward Long-term legal protection Permanent protection activities (site visits, maintenance tasks, and adaptive management)
<i>Protection of the ILF project</i>	Land protection endowment fee Site protection documentation costs Conservation easement insurance

While this list is by no means comprehensive, it provides an overview of factors included in program instruments for full cost accounting for reference. There may be other factors or components identified by programs, depending on their individual needs and circumstances. For example, some programs may struggle with how to account for the cost of identifying projects.

[The Nature Conservancy’s Ohio Stream and Wetland ILF Program](#), for example, considers a wide range of factors in determining fees. Accounting categories include administration, property acquisition, pre-construction design, construction, monitoring and maintenance, stewardship endowment, and program contingency.

Programs typically include language in their program instruments that describes line items to consider in full cost accounting. For greater transparency, programs may consider describing their process for full cost accounting in their instruments. This can serve as a reference for future staff in case of turnover, as well as IRT and Corps members who may need to weigh in on fee adjustments, instrument amendments, and other procedures or evaluations related to full cost accounting. Box B provides an example of instrument language describing the full cost accounting process.

**Box B: Sample Program Instrument Language  
(from The Nature Conservancy Ohio Stream and Wetland ILF Program)**

“The fees charged to permittees and others for credits shall be determined by the Sponsor. The cost per unit of credit will take into account the expected costs associated with the restoration, establishment, enhancement and/or preservation of aquatic resources in a particular service area. Such costs must be based on full cost accounting in accordance with the Compensatory Mitigation Rule (33 CFR §332.8(o)) and will reflect, as appropriate, expenses for land or property interest acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, remediation or adaptive management activities, long-term management, and costs associated with the administration of the program. The cost per unit credit shall also take into account contingency costs appropriate to the stage of project planning, including uncertainties in construction and real estate expenses. In addition, the cost must also include the cost of providing financial assurances that are necessary to ensure successful completion of projects, and may reflect other factors as deemed appropriate by the Sponsor and the District Engineers.” (The Nature Conservancy’s Ohio Stream and Wetland ILF Program Instrument, p. 9-10).

## **2. Estimating Costs for Each Line Item**

ILF programs use various strategies to estimate costs of each line item in full cost accounting. Programs rely on a variety of sources for cost data, including land appraisals, analyses of regional construction/restoration costs, and analyses of the credit market. If there are data gaps, programs may consider conducting a comprehensive study or analysis to gather the information needed.

Based on our 2019 report and an analysis of 60 ILF program instruments, we identified the following strategies used by programs to estimate costs of various factors. Note that much of the data described below should be considered just a component of the credit price. These data sources do not necessarily include program administration, project development, land costs, and long-term management.

## a. Building Financial Analyses to Estimate Supply, Demand, and Projected Costs

A few programs have developed financial models or market analyses to understand expected demand for credits and determine credit pricing. Estimating supply and demand with historical data has helped these programs set costs that align with the overall credit market.<sup>9</sup>

One approach was to analyze previous required mitigation under Corps 404 and state permits to project expected demand for advance credits. For example, the [Indiana Department of Natural Resources \(IDEM\) In-Lieu Fee Program](#) conducted such an analysis in each service area. Based on this information, the program created a business model to estimate the expected demand for advance credits. This model was used to estimate the size of the initial project that will be needed in each service area, how soon additional projects could be expected to be implemented, and the full cost to implement the initial project.<sup>10</sup>

Programs have also performed market analyses of credit prices charged by nearby banks to predict costs over the next few years. Before opening its ILF program, the [Georgia-Alabama Land Trust](#) contracted one of the largest mitigation banks in the region to perform such a market analysis, analyzing supply data for nearby banks over the last five years.<sup>11</sup> The program's project implementation costs tend to be lower than bank credit costs; therefore, by using bank credit costs to estimate fees, the program is able to ensure adequate funds for both its avenues of compliance (purchasing bank credits and implementing projects). This approach of collecting data from mitigation banks works for the Georgia-Alabama Land Trust because the IRT adheres strictly to the 2008 Rule's hierarchy of third-party mitigation, and the program often purchases mitigation bank credits to satisfy its obligations.<sup>12</sup>

## b. Data from State Programs

State data from state-funded restoration programs or state agency bids for mitigation projects can provide valuable information for ILF programs for credit cost calculation.

Programs may be able to obtain usable cost information from projects conducted under state-funded restoration programs. Many states implement restoration programs—according to a report by the Association of State Wetland Managers, as of 2015, 16 states had a state-run voluntary wetland restoration program, and two states were in the process of developing a formal program.<sup>13</sup> Although much of this state restoration work is funded by federal dollars,

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<sup>9</sup> Changes in high-level policies and jurisdiction, such as the 2020 Navigable Waters Protection Rule, may also impact and change market demand.

<sup>10</sup> Indiana Department of Natural Resources. (2018). *Indiana Stream and Wetland Mitigation Program Final In-Lieu Fee Program Instrument*, p. 7.

<sup>11</sup> Georgia-Alabama Land Trust. (2013). *In-Lieu Fee Program for Compensatory Mitigation in the USACE Savannah District Program Instrument*, p. 33.

<sup>12</sup> Phone call with Alex Robertson, Director of the Georgia-Alabama Land Trust ILF Program, 10.26.2020

<sup>13</sup> Association of State Wetland Managers (2015). Status and Trends Report on State Wetland Programs in the United States. [https://www.aswm.org/pdf/lib/state\\_summaries/status\\_and\\_trends\\_report\\_on\\_state\\_wetland\\_programs\\_in\\_the\\_united\\_states\\_102015.pdf](https://www.aswm.org/pdf/lib/state_summaries/status_and_trends_report_on_state_wetland_programs_in_the_united_states_102015.pdf)

state programs have evolved over the past few decades to support and complement federal restoration efforts, including through state wetland programs.<sup>14</sup>

Several programs have indicated that their credit costs estimates have been informed by state restoration programs. For example, the [Louisiana Department of Natural Resources ILF Program](#) determined fees based on an analysis of the most recent cost information gathered from the last four years of project bid tabulations from the state's Dedicated Dredge Program, Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA), Coastal Impact Assistance Program (CIAP), and/or state surplus-funded projects.<sup>15</sup>

Another way programs obtain recent restoration costs is by looking at publicly available bids by state agencies. For example, the Georgia-Alabama Land Trust ILF program obtains credit cost data from publicly available bids by the Georgia Department of Transportation, which is by far the biggest purchaser of credits in Georgia. The Department is able to share the number of credits purchased and total amount paid with the public. Although bid tabulations do not provide line items or full cost accounting breakdowns, this credit price information captures a valuable "snapshot" of current credit costs.<sup>16</sup>

### **c. Data from Mitigation Banks and Other ILF Programs in the Region**

Some programs use restoration cost data from mitigation banks and other ILF programs in the region as a frame of reference for similar service areas and project types.

One way ILF programs do this is by using credit cost information from mitigation banks. For example, the [Land Trust for the Mississippi Coastal Plain](#) determines the cost of a credit annually as "the average cost of credits available from all active mitigation banks in the service area."<sup>17</sup> Other programs, such as the [Cumberland River Compact Stream Restoration ILF Program](#) and [Wisconsin Wetland Conservation Trust ILF Program](#) also determined initial costs based on cost data from mitigation banks and other mitigation providers. Data on mitigation bank credit prices may be difficult for many programs to access because these are generally not publicly available.

Even when sourcing other banks' or ILF programs' cost information, programs should evaluate if all the necessary inputs are included and determine if gaps need to be filled with additional data. For example, the [Cumberland River Compact Stream Restoration ILF Program](#) analyzed cost data provided by The City of Charlotte Umbrella Mitigation Bank and the North Carolina Division of Mitigation Services (NCDMS) In Lieu Fee Program to aid in determining credit costs. The program found that neither the umbrella bank nor the NCDMS ILF program provided long-term stewardship costs. To fill in this gap, the program estimated these costs for a typical

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<sup>14</sup> *Id.* at p. 51.

<sup>15</sup> State of Louisiana Department of Natural Resources, Office of Coastal Management. (2014). *Louisiana Coastal In-Lieu Fee Instrument*, p. 15.

<sup>16</sup> Phone call with Alex Robertson, Director of the Georgia-Alabama Land Trust ILF Program, 10.26.2020

<sup>17</sup> Land Trust for the Mississippi Coastal Plain. (2010). *Coastal Mississippi In Lieu Fee Program Instrument*, p. 16.

project in each basin using the [Long-Term Stewardship Calculator developed by The Nature Conservancy in May 2016](#).<sup>18</sup>

Programs have also incorporated mitigation bank and ILF program cost data as one of many sources to determine project fees. For example, the [Wisconsin Wetland Conservation Trust ILF Program](#) initially analyzed available performance bond data associated with mitigation banks and permittee responsible mitigation projects in Wisconsin, as well as land sales data prepared by the U.S. Department of Agriculture specific to nine separate districts that span Wisconsin to provide the basis for land cost. As more ILF projects are constructed in Wisconsin and more ILF project costs become available, the Wisconsin ILF Program will substitute its actual project costs in place of the performance bond data. In addition, the program crosschecked Wisconsin mitigation bank credit fees with other ILF programs.<sup>19</sup>

**Box C: Note on Antitrust Concerns**

Programs should consider informing themselves about antitrust laws, also known as competition laws, that prohibit activities that suppress competition or constitute price-fixing. Such laws can apply to nonprofit organizations. A particular concern may arise in the ILF context if horizontal competitors in the same service area share price information not available to the general public.

**d. Data from Similar Programs, such as Habitat Conservation Plans**

Programs may consider obtaining program data and costs from similar projects under different federal programs, such as Habitat Conservation Plans under the Endangered Species Act. For example, the [National Fish and Wildlife Foundation Sacramento District California ILF Program's](#) bi-annual evaluations of credit prices are informed by program data and relevant information from other sources, including cost data from similar programs, such as regional Habitat Conservation Plans, and expert opinion.<sup>20</sup>

**e. Conducting Independent Studies**

ILF programs can obtain initial credit cost data by conducting an independent study to determine costs of various project components, such as restoration costs. These studies can serve as the backbone for future cost estimates, with periodic adjustments for factors such as inflation. Conducting these kinds of independent studies regularly may enable the program to track changes in these costs over time. For example, the Oregon Department of State Lands ILF Program estimates restoration costs (engineering, construction, planning, and seven years of monitoring and maintenance) based on a biennial survey of regional project data.

<sup>18</sup> The Cumberland River Compact. (2018). *Stream Restoration In-Lieu Fee Program Instrument*, p.10.

<sup>19</sup> Wisconsin Wetland Conservation Trust. (2014). *In-Lieu Fee Mitigation Program Instrument*, p. 18.

<sup>20</sup> National Fish and Wildlife Foundation. (2018). *Sacramento District California In-Lieu Fee Program Enabling Instrument*, Exhibit F. <https://www.nfwf.org/sites/default/files/ilf/Documents/Exhibit%20F%20-%20Program%20Account.pdf>

In several instances, programs have contracted personnel to conduct an independent study of potential restoration costs. [The Wetland Trust](#), for example, enlisted three wetland staff biologists to produce independent estimates of the cost of developing eight potential mitigation credits on a hypothetical 80-acre parcel (considered by the program to be a realistic credit number and parcel size) using a mix of mitigation types (re-establishment, establishment, rehabilitation, preservation, and enhancement). These estimates were compared and averaged for a consistent and comprehensive estimate.<sup>21</sup>

Other programs have enlisted contractors to review past restoration projects conducted in the area and create a cost database. The [Southeast Alaska Mitigation Fund](#) took this approach, hiring contractors to develop a restoration cost tool (RCT) database for Southeast Alaska. The contractors compiled information on wetland restoration projects completed between 2008 and 2012 that ranged across a variety of restoration types. In addition to recording location, activity and wetland type, size, and net area improved, the RCT reported the costs of land acquisition, permitting, planning/design, materials, construction/inspection, and monitoring.<sup>22</sup> The study resulted in a range of costs that helped to form the historical backbone of the program's full cost accounting. The program provides a credit price range for wetland and stream credits each year based on the initial analysis of past restoration sites in Southeast Alaska (with the exact credit price determined based on "the costs associated to carry out specific mitigation projects that have been identified prior to the selling of any advance credits").<sup>23</sup>

Programs can also conduct independent studies by reaching out to consulting firms with expertise in compensatory mitigation to gather data on costs. For example, [the Georgia-Alabama Land Trust](#) conducted a voluntary, anonymous poll of mitigation consultants through the Georgia Environmental Restoration Association (GERA) to establish a range of costs among the consultants and among the resource types, locations, and mitigation construction types.<sup>24</sup> The [Montana Aquatic Resources Services ILF Program](#) (MARS) also conducted a 2012 survey of four Montana restoration consulting firms with mitigation-related restoration expertise, as well as relevant state agency officials, to determine restoration costs for the program's credit calculation formula.<sup>25</sup>

#### **f. Sources to Calculate Land Costs**

Land costs are one of the primary expenses considered in determining credits costs. Programs use a variety of data sources to estimate land costs, including consultants, county assessor's offices, and studies by nonprofits and universities, among others.

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<sup>21</sup> The Wetland Trust. (2013). *Susquehanna Basin Headwaters In-Lieu Fee Program Instrument*, p. 32.

<sup>22</sup> The Southeast Alaska Mitigation Fund. (2017). *In-Lieu Fee Compensatory Mitigation Program, Program Instrument*, p. 82, Appendix 4.0.

<sup>23</sup> *Id.* at p. 12.

<sup>24</sup> Georgia-Alabama Land Trust. (2013). *In-Lieu Fee Program for Compensatory Mitigation in the USACE Savannah District Program Instrument*, p. 34.

<sup>25</sup> Montana Aquatic Resources Services, Inc. (2013). *Montana Statewide In-Lieu Fee Mitigation Program Instrument*, p. 20. MARS finalized a new program instrument in 2020.

Many programs determine land costs through property tax statements (which may not reflect fair market value) and recent land appraisals. The [Western Placer County ILF Program](#) developed fee title land cost assumptions based on an analysis of property values in the service area conducted by an appraisal firm. Beyond information from the county assessor’s office and information from real estate brokers, the program also looked at *Trends in Agricultural Land and Lease Values California and Nevada*, published annually by the California Chapter of the American Society of Farm Managers and Rural Appraisers (ASFMRA), as another source of information for land costs.<sup>26</sup>

The [Southeast Alaska Land Trust](#) determines land value range based on “consultation with realtors, regional listings, native allotments, public agency land sales, and the Trust’s land transaction experience.” The program notes that land values may vary dramatically depending on “location, utilities, access, etc.” It also notes that land costs are subject to change based on the real estate markets, inflation, and other temporal factors.<sup>27</sup>

[The Terra Foundation](#) determined real estate prices by using land value averages for each county as provided by the Oklahoma State University Department of Agricultural Economics Extension Service. The program selected the highest per acre price in each service area to calculate real estate fees in order to “help ensure that the in-lieu fee program generates enough revenue to successfully provide in-lieu fee project sites.”<sup>28</sup>

For additional resources to calculate land costs and other online resources for estimating restoration costs, financial assurances, and long-term management costs, please refer to the appendix on data resources for estimating costs.

#### **g. Accounting for Costs of Delays**

Compiling accurate data and estimates for land costs and other expenses may prove difficult if there is a significant delay between determining credit costs (or advance credit sales) and securing a project site. In areas with significant development pressure, for example, land costs can shift dramatically in a short period of time, meaning actual costs for a project can exceed advance credit fees. Beyond delays resulting from challenges in securing a site, other delays, such as in collecting enough funds for an appropriate project in a service area or navigating the sometimes-lengthy IRT project review and approval process, may also mean that a program’s credit fee does not equal the actual project implementation cost.

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<sup>26</sup> Placer County Community Development Resource Agency. (2018). *Western Placer County In-Lieu Fee Program Enabling Instrument*, Exhibit H.

<sup>27</sup> Southeast Alaska Land Trust. (2011). *Instrument Between the Southeast Alaska Land Trust and the U.S. Army Corps of Engineers, Alaska District for the Southeast Alaska Land Trust In-Lieu Fee Program*, Exhibit C.

<sup>28</sup> Terra Foundation, Inc. (2015). *Terra Foundation In-Lieu Fee Stream & Wetland Mitigation Program, Final Program Instrument*, p. 11.

Programs have sought to address these challenges in a number of ways. For example, the Arizona Game and Fish Department ILF Mitigation Program only sells advance credits once a site is secured and it has a defined project with realized costs for initial capital restoration costs and long-term endowment establishment. A number of programs have identified specific projects or sites in their instruments, minimizing some of the delays in project development.

Programs have also used the credit cost calculation process to try to address some of the effect of potential delays. Point of sale calculators (see section on Calculating Fees), for example, allow programs the opportunity to integrate more up-to-date land costs when the advance credit is sold. Several programs include a line item for inflation in the credit cost calculation, which may address some of the increases in costs over time. Other programs have set credit prices so that they are sufficient to purchase mitigation bank credits in the service area in the event that the program is unable to conduct a project in the required timeframe.

### **3. Calculating Fees**

Programs generally set credit costs by service areas covered by the program or for a given mitigation method (e.g., restoration, enhancement, buffer, etc.) or resource type (e.g., wetland, stream, etc.). Fees range widely among programs because context varies a lot across the country (e.g., land costs) but also because programs measure credits differently (e.g., credit, acre, square foot, linear foot, etc.).<sup>29</sup>

Fees should include expenses related to land acquisition, project planning and design, monitoring, administration, contingency, financial assurances, and long-term management.

ILF programs have developed a number of methods for calculating fees. In general, programs either develop fixed fees or fee ranges for a given service area or resource type, or use calculators/formulas to determine fees at point of sale. Below are examples of full cost accounting strategies and processes different ILF programs use for calculating fees.

#### **a. Fixed Fees**

Many programs develop fixed fees (or fee ranges) for credits for a given service area or resource type.

The [Quil Ceda Village ILF program](#) is an example of a program that develops fixed fees or fee ranges for a given service area or resource type. For Quil Ceda Village ILF projects, mitigation fees are composed of two components: a credit fee and a land fee. The credit fee was determined by summing the average project cost per acre of wetland restoration (calculated by comparing an estimated per credit cost using the King County Mitigation Cost Worksheet and real project costs calculated based on real costs of projects conducted by the Tribe), a

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<sup>29</sup> Environmental Law Institute and Institute for Biodiversity Law and Policy at Stetson University College of Law (2021). Improving In-Lieu Fee Mitigation – Long-Term Management of Mitigation Sites <https://www.eli.org/wetlands-program/ILFresources>, Table 7: Fees charged by ILF programs based on interviews, information posted on program websites and instrument review (p. 61).

contingency fee, administrative costs, monitoring and maintenance, and long-term monitoring and maintenance costs. The land fee is “used exclusively for purchase of properties to replace those impacted under permit authorizations.”<sup>30</sup> The land fee is based on an analysis of average cost of recent natural lands acquisitions in the service area. The final cost per credit assumes 3% inflation projected over three years of project implementation.<sup>31</sup>

#### **b. Point-of-Sale Calculation**

Several programs use formulas to calculate credit costs for each credit sale.

For example, the [New Hampshire Aquatic Resource Mitigation Fund](#) allows users to calculate fees using an online calculator. Fees are based on construction costs (adjusted yearly with rate of inflation), land acquisition costs (adjusted locally assessed values to estimate 100% market value), and an administrative cost. To determine payment amount, users start by inputting square feet of impact and town land value (based on a table of town values included in the calculator). The impact amount is converted to acres and then adjusted according to a required mitigation ratio based on resource type (forested wetlands = 1.5:1; tidal wetlands = 3:1; all other areas = 1.5:1). Wetland construction and land acquisition costs are then calculated based on the adjusted construction acreage. An administrative fee is added to the total construction and land cost to yield the total payment. The calculator is available on the program’s [website](#). The program also has a calculator for determining stream payments.

The [Oregon Department of State Lands Program](#) also uses a payment calculator to determine fees when ILF project costs are not known (project has not yet been conducted) at the time of payment (see Box D):

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<sup>30</sup> Quil Ceda Village. (2013). *Quil Ceda Village In-Lieu Fee Program: In-Lieu Fee Instrument: Appendix C- Program Operation*, p. 22

<sup>31</sup> Environmental Law Institute and Institute for Biodiversity Law and Policy at Stetson University College of Law (2021). Improving In-Lieu Fee Mitigation – Long-Term Management of Mitigation Sites <https://www.eli.org/wetlands-program/ILFresources>.

**Box D: Oregon Department of State Lands Program**

$$Payment = \frac{\{A+R+RMV+LT\}}{mm}$$

- *A* = Administrative costs (10% of *R*, *RMV* and *LT*)
- *R* = Restoration costs. The sum of all anticipated costs (e.g., engineering, construction, planning and seven years of monitoring and maintenance) based on a biennial survey of regional project data.
- *RMV* = Real market value of the impact area (total cost and acreage of the tax lot). Land value is discounted based on a combination of zoning, tax lot size and improvements.
- *LT* = Long-term management costs (30% of the restoration costs)
- *mm* = mitigation multiplier. The *mm* is the number of credits typically generated per unit area of mitigation conducted. The program assumes two acres of mitigation for every one acre of impact, so *mm* = 0.5.

The [Montana Aquatic Resources Services ILF Program \(MARS\)](#) calculates a base wetland and stream credit price using expenditure data from MARS ILF projects and information gathered from consultants, practitioners, such as biologists and engineers, and other experienced contractors and agencies. The base credit fees incorporate all expected costs for a project, in line with the 2008 Rule's full cost accounting approach.

This base fee may then be adjusted, either up or down, to account for a variety of factors, including geography, project partners (service areas where MARS has well-established contacts require less time to identify suitable sites), land value, economies of scale, and project efficiency (which considers if MARS already has a project lined up at the time of advance credit sale, reducing site investigation and design costs). Additional factors include geographical constraints, "such as mountainous terrain or constricted valleys," that limit site selection, landowner type (private, public, or Tribal), which may involve additional requirements, and in-kind permittee contributions, such as land or land protections or services, among others. Finally, "the total credit purchase price quoted to the permittee is the scaled base price multiplied by the number of debits required by the permit."<sup>32</sup> MARS allocates 50% of credit fees to its mitigation account, 17% to the contingency account, 13% to long-term management, and the remaining 20% to administrative costs.

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<sup>32</sup> Montana Aquatic Resources Services, Inc. (2020). *Montana Statewide In-Lieu Fee Mitigation Program Instrument*, p. 29. <http://montanaaquaticresources.org/beta/wp-content/uploads/2020/08/2020MARSInstrument.pdf>

### c. Resource-Dependent Formulas

The [Maine Natural Resource Conservation Program](#) uses a resource-dependent formula. The program determines a base rate that is calculated using estimates of regional construction and monitoring costs plus county unimproved land cost. Once the base rate is determined, the program applies resource multipliers. The resource multiplier is an “adjustment factor that reflects the significance of specific resources and the Department’s resource compensation ratio outlined in the Wetlands and Waterbodies Protection Rules, Chapter 310 and the Significant Wildlife Habitat Rules, Chapter 355.”<sup>33</sup> The resource multipliers include:

- 2:1 for projects ≥ 20,000 square feet
- 2:1 for areas of special significance (e.g., peatlands dominated by shrubs, sedges and sphagnum moss; coastal wetlands; great ponds; and others)

Fees are then calculated via a resource-specific formula.<sup>34</sup> Additional fees are then added for impacts to uplands that affect aquatic organisms (e.g., vernal pool species).

### d. Economies of Scale and Point-of-Sale Adjustments

As we noted in our 2019 report, some ILF programs are challenged to sell enough credits in a given service area to conduct an appropriate project.<sup>35</sup> A few programs were thus forced to submit proposals for extremely small projects or come up with other creative projects to ensure they stayed in compliance (including buying bank credits).

Because small and large sites may require roughly the same amount of work to establish, the cost for implementing mitigation on a small site can be much higher per acre or linear foot than a larger site. Additionally, the greater risk associated with small sites may require additional investment for financial assurances. Therefore, programs may find point-of-sale adjustments in credit fees helpful for mitigating issues such as economies of scale.

The [Georgia-Alabama Land Trust](#) for example, differentiates price calculations between small-scale purchases and large-scale ILF credit purchases. Because advance credit demand is not guaranteed, and therefore “accrual of funds for successful project implementation is not guaranteed, purchasing mitigation [bank] credits”<sup>36</sup> may be the most expeditious or feasible use of funds collected on a small scale, preventing delay in providing mitigation for a permitted impact. Credit costs for small-scale purchases are established at a price intended to approximate mitigation bank credit prices when availability is low, in case the program needs to purchase credits from a mitigation bank in that service area to prevent delay in providing mitigation. This cost (i.e., the cost of mitigation bank credits) is anticipated to be greater than

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<sup>33</sup> Maine Department of Environmental Protection. (2011). *State of Maine - In Lieu Fee Program Instrument*, p. 25.

<sup>34</sup> *Id.*

<sup>35</sup> Environmental Law Institute and Institute for Biodiversity Law and Policy at Stetson University College of Law, *In-Lieu Fee Mitigation: Review of Program Instruments and Implementation Across the Country*.

<https://www.eli.org/research-report/lieu-fee-mitigation-review-program-instruments-and-implementation-across-country>

<sup>36</sup> Georgia-Alabama Land Trust. (2013). *In-Lieu Fee Program for Compensatory Mitigation in the USACE Savannah District Program Instrument*, p. 33.

the estimated project implementation costs per credit. Large-scale project fees are established using expected project costs with a full cost accounting approach.<sup>37</sup>

Some programs include provisions in their instruments to allow for point-of-sale adjustments under certain circumstances. For example, the National Fish and Wildlife Foundation in Sacramento District, California may on a “case-by-case basis determine whether a particular transaction is eligible to receive the benefits of a bulk price discount.”<sup>38</sup>

Table 2 includes examples of the various ways programs account for point-of-sale adjustments for credit fees in their program instruments. These point-of-sale adjustments account for economies of scale, as well as other considerations, such as site-specific costs for challenging service areas.

**Table 2: Point-of-Sale Adjustments in Credit Fees**

<b>Program</b>	<b>Instrument Language</b>
<a href="#"><u>Louisiana Department of Natural Resources ILF Program</u></a>	“DNR acknowledges that there is significant cost saving associated with larger scale marsh creation projects. If DNR anticipates and/or projects that only small projects are slated for construction, the Program will need to increase its fee schedule to compensate for the likely increase in construction costs for marsh creation projects.” (p. 14).
<a href="#"><u>Montana Aquatic Resources Services ILF Program (MARS)</u></a>	“Credit prices may also take into consideration economies of scale as a function of the number of credits sold to a given permittee, anticipated credit demand, and number of credits generated by a given mitigation project. Alternatively, an Administrative Fee may be applied to the total credit purchase price for purchases that are below a minimum purchase threshold.” (p. 29).
<a href="#"><u>NFWF Sacramento District ILF Program</u></a>	“Sponsor may on a case-by-case basis determine whether a particular transaction is eligible to receive the benefits of a bulk price discount...” (p. 6 Exhibit F).
<a href="#"><u>The Cumberland River Compact Stream Restoration ILF Program</u></a>	“The Sponsor may apply a cost adjustment increase factor of up to 100% of the established credit price for the service area to purchasers requiring in-system mitigation. This cost adjustment factor recognizes the increased difficulty, and therefore increased costs, of identifying, securing, and developing mitigation credits within a more confined sub-service area.” (p. 10-11).

<sup>37</sup> *Id.*

<sup>38</sup> National Fish and Wildlife Foundation. (2018). *Sacramento District California In-Lieu Fee Program Enabling Instrument*, Exhibit F. <https://www.nfwf.org/sites/default/files/ilf/Documents/Exhibit%20F%20-%20Program%20Account.pdf>

#### 4. Evaluating and Adjusting Fees

At a minimum, programs should evaluate fees on an annual basis. Instrument language should specify an annual evaluation of fees, detail the methodology that will be used, and allow for fee adjustments without needing to amend the program instrument. To streamline review processes, programs could also incorporate fee evaluations into the annual reporting process.

##### Box E: Sample Instrument Language for Evaluating and Adjusting Fees

“The Sponsor will evaluate credit fees on an annual basis. Fees may be adjusted as deemed necessary to reflect the full cost accounting and the fee adjustments will not constitute a modification of the Instrument.” ([The Nature Conservancy’s Ohio Stream and Wetland ILF Program Instrument](#), p. 10).

In this review process, programs should evaluate how project implementation costs align with fees collected in the service area. If the projects have been implemented in the past year, programs should compare budgeted costs to actual costs. This should include an analysis of project identification as well as design, implementation, monitoring, and long-term management. If there are differences, programs should take note and determine why they occur. Fees should be adjusted for the next year as necessary.

[Western Placer County ILF Program](#) provides an example of implementing such an evaluation process. Although the program conducts automatic annual fee adjustments, the instrument also provides for a comprehensive evaluation every five years in coordination with the IRT to review costs and underlying assumptions, as well as estimate remaining costs for implementing the program.<sup>39</sup> Western Placer County compares the actual costs of operating, maintaining, managing, and monitoring ILF projects with the original estimates to determine any changes in costs. The program then adjusts fees based on the analysis, including costs such as endowment contribution.

Although many programs implement similar evaluations, few appear to have included as much detail about these processes in their program instruments as Western Placer County. Including this information in instruments may help provide clarity and guide programs and IRT members through a systematic, regular review of full cost accounting in the long-term future.

Finally, programs should take note of broader trends such as how costs change over time and consider factors like temporal lag and inflation.

#### 5. Additional Complexities

When calculating fees, programs have to account for a variety of project types that may vary across habitat types, locations, and complexity. Programs also need to consider factors such as local, state, and federal regulations; real estate market fluctuations; climate change; human

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<sup>39</sup> Placer County Community Development Resource Agency. (2018). *Western Placer County In-Lieu Fee Program Enabling Instrument*, Exhibit E, p. E-6.

error; and other unpredictable events. Data sources for estimating costs of each factor can be difficult to find, especially since costs vary widely depending on a multitude of factors described above. Programs implementing projects for the first time may worry that they have not set fees high enough—or that they have set them too high.

Program should also determine a process for how to address changing requirements and guidelines put in place by the IRT in the program instrument. Changing requirements, such as new performance standards or credit calculation methodologies, can have significant effects on credit pricing. For example, if new IRT requirements impact credit costs, they should not apply retroactively to projects covering credits already sold, but only once the ILF program has an opportunity to adjust pricing.

Given the complexity of full cost accounting, programs may consider strategies to retain institutional knowledge and build staff capacity to effectively address these challenges. Programs may turn to in-house resources or seek outside contractors to address full cost accounting needs. For example, programs may consider employing or contracting accountants or individuals with accounting expertise. If they lack this capacity, programs can also consider seeking out the assistance and review of supporters like sponsor organization board members. Similarly, programs may contract with outside partners to conduct a cost analysis of mitigation projects. Within the organization, programs could consider developing regular training between entry-level and more experienced staff members to preserve institutional knowledge on full cost accounting procedures, among other areas of expertise.

Another approach that has been used successfully in the past is seeking out the mentorship of experienced ILF staff from other areas. See Box F for an example of a mentor relationship between programs.

<b>Box F: Mentorship and Knowledge-Sharing: Southeast Alaska Mitigation Fund</b>
The relatively young Southeast Alaska Mitigation Fund was the beneficiary of the Coda Global Fellows Program of The Nature Conservancy (TNC). The mitigation fund hosted a staff member from TNC’s Virginia Aquatic Resources Trust Fund to assist with the initial development of the program. These types of mentorships and knowledge-sharing relationships offer a space to troubleshoot challenges and share effective solutions. They also equip sponsors to better identify the questions they should be asking and needs to anticipate at each stage of implementation. To that end, ILF programs have established an In-Lieu Fee Communications Group. This group allows programs across the country to discuss current challenges, post new developments, and share strategies.

## Conclusion

Under the 2008 Rule, full cost accounting must proactively account for all costs of implementing compensatory mitigation, including financial assurances and long-term management costs, in calculating credit costs. In practice, full cost accounting presents a number of challenges for ILF programs, such as determining which line items to include in full cost accounting processes, estimating the costs of each line item, calculating credit fees, evaluating and adjusting fees, and building the programmatic capacity to conduct these procedures. See Box G for a few key takeaways for programs to consider as they continue to address these ongoing challenges with full cost accounting.

### Box G: Key Takeaways

**Accounting for all costs:** Full cost accounting should account for all possible costs, including long-term management costs (see Table 1 for a list of potential factors). These factors, as well as a description of the program's full cost accounting procedures, should be included in instrument language. A failure to ensure full cost accounting essentially subsidizes development.

**Estimating costs:** Estimating costs for factors such as land acquisition, restoration, monitoring, and long-term management may prove challenging. Programs can consider a variety of strategies to estimate costs and establish fees, such as conducting independent studies and building financial analyses to estimate supply and demand.

**Accounting for costs of delays:** Delays in selling enough credits in a service area to conduct a project, securing a project site, and getting a project approved may pose challenges for programs in accurately estimating costs because the land costs and other expenses could rise dramatically over short time periods. Programs can consider a number of strategies to account for these challenges, such as choosing to not sell advance credits until a site has been selected or ensuring that calculated cost would at least cover the cost of mitigation bank credits (or other alternative mitigation), if needed.

**Adjusting fees at point of sale:** Programs may find it challenging to implement projects when only a small number of credits have been sold. Programs may find maintaining the ability to make point-of-sale adjustments in credit fees helpful for mitigating issues such as economies of scale (see Table 2 for examples of instrument language used by programs to address this issue).

**Evaluating fees:** Programs should review their fee schedules at least annually, ideally in conjunction with preparation of the financial report. Programs should consider regularly conducting a more thorough, systematic review of credit fees to ensure they align with the actual costs of operating and maintaining projects, and they should adjust fees accordingly. Programs should consider describing this process in their instruments or in Standard Operating Procedures to guide future staff.

**Additional complexities:** Finally, given the wide variety of challenges in full cost accounting, programs can look to strategies for building staff and programmatic capacity to take on these challenges. These include contracting outside expertise, intra-program training between staff, and inter-program mentorship programs.

## Appendix:

### Data Resources for Estimating Costs

While costs will vary depending on many factors, including geography, climate, project size, and level of difficulty in restoring the service area, programs may find the following online data resources useful for developing cost estimates. Links and descriptions are included below, organized by the relevant expense category.

#### ***Land costs***

Database of county assessor offices

- <https://www.countyoffice.org/assessor>
- A reference guide for public records sources for assessor offices, organized by state and county.

Database of farmland and non-farmland values

- <https://www.acrevalue.com/>
- AcreValue analyzes data on soils, climate, crop rotations, taxes, interest rates, and corn prices to calculate the estimated value of land in 17 states.

USDA *Quick Stats* for farmland values

- <https://quickstats.nass.usda.gov/>
- The Quick Stats Database allows users to access agricultural data published by the National Agricultural Statistics Service. Users can visualize data on maps and export results.

USDA Agricultural Land Values Averages

- <https://usda.library.cornell.edu/concern/publications/pn89d6567>
- This annual report provides data on average agricultural land values, organized by state and region. Types of land include farm real estate, irrigated and non-irrigated cropland, and pastureland. The report covers the following regions: Northeast, Lake States, Corn Belt, Northern Plains, Appalachian, Southeast, Delta States, Southern Plains, Mountain, and Pacific.

US Parcel Data Inventory

- <http://nationalcad.org/ParcelDashboard/index.html>
- This map tool, published by the Subcommittee on Cadastral Data under the Federal Geographic Data Committee, provides county parcel data.

Bureau of Land Management Navigator geospatial database

- <https://navigator.blm.gov/home>

- The Navigator tool houses all of the geospatial datasets available under the Bureau of Land Management.

#### National Conservation Easement Database

- <https://www.conservationeasement.us/>
- The first database to provide national conservation easement information, including records from land trusts and public agencies. Managed by the Trust for Public Land and Ducks Unlimited.

#### **Restoration costs**

##### USDA Natural Resources Conservation Service - Engineering Field Handbook, Part 650

- <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17765.wba>
- Chapter 13, “Wetland Restoration, Enhancement, or Creation,” provides tips and guidance on estimating costs for wetland restoration.

##### USDA Natural Resources Conservation Service - Developing Cost Data for Conservation Planning

- <https://directives.sc.egov.usda.gov/viewDirective.aspx?hid=37536>
- This guide is a part of a series of NRCS Economics Handbooks (<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/econ/tools/#EconHandbooks>) and provides general guidance and a framework for determining cost data for conservation projects.

##### U.S. Fish and Wildlife Service Habitat Conservation Plan Handbook: Implementation Costs and Funding Assurances

- [https://www.fws.gov/endangered/esa-library/pdf/HCP\\_Handbook-Ch11.pdf](https://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook-Ch11.pdf)
- Provides guidance and a funding worksheet to help estimate implementation costs and funding assurances for Habitat Conservation Plans under the Endangered Species Act.

##### Targeting Investments To Cost Effectively Restore and Protect Wetland Ecosystems: Some Economic Insights (2015)

- <https://ageconsearch.umn.edu/bitstream/199283/2/ERR183.pdf>
- This study presents county-level estimates of the costs of restoring and preserving wetlands for some parts of the United States.
- Although the estimates range in precision and are not comprehensive, they call attention to some areas where the benefits of new wetlands are likely to exceed costs or perhaps may be insignificant.

### ***Long-term management costs***

The Nature Conservancy Long-term Stewardship Calculator

- <http://www.conservationgateway.org/ConservationPlanning/ToolsData/Pages/stewardshipcalculator.aspx>
- This Excel spreadsheet is free to download and walks users through different cost inputs for long-term management.

The Nature Conservancy Long-term Stewardship Calculator: Accompanying Handbook

- <https://www.conservationgateway.org/ConservationPlanning/ToolsData/Documents/Long-Term%20Stewardship%20Calculator%20Handbook.pdf>
- This handbook accompanies the spreadsheet calculator to provide more detail and helpful tips for estimating costs, especially for first-time project managers.

Center for Natural Lands Management – Property Analysis Record (PAR)

- <https://www.cnlm.org/par/>
- PAR is a software available for purchase that allows users to input costs of various factors and calculates an average annual long-term stewardship cost. The software also calculates a perpetual stewardship amount (endowment) and creates a detailed report explaining the methodology and cost justification.

### ***Financial assurances***

“Implementing Financial Assurances for Project Success” by the Institute for Water Resources, U.S. Army Corps of Engineers

- [https://www.epa.gov/sites/production/files/2017-01/documents/financial\\_assurance\\_guide\\_update\\_march\\_2016.pdf](https://www.epa.gov/sites/production/files/2017-01/documents/financial_assurance_guide_update_march_2016.pdf)
- Provides guidance on determining the amount of financial assurances to secure for mitigation projects (pg. 10-12, “Amount”).

U.S. Army Corps of Engineers – Financial Assurances of Compensatory Mitigation Projects

- <https://www.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/1087768/financial-assurances-of-compensatory-mitigation-projects/>
- Provides basic facts on purpose, requirements, and timing for financial assurances.

**Data Resource Database:** Programs nationwide may also consider creating a national (or regional) database of publicly available data resources used to calculate credit fees. Through a shared database, ILF programs can compare costs of different categories to provide examples and aid each other in the process of full cost accounting. Data resources might include costs for land, planning, administration, and long-term management. It may be helpful to organize these resources by habitat type, size, and region or location. In order to avoid any antitrust concerns,

the data must be anonymized (e.g., fees reported on a regional basis) and managed by a third party.

## Additional Resources

ENVIRONMENTAL LAW INSTITUTE & INSTITUTE FOR BIODIVERSITY LAW AND POLICY AT STETSON UNIVERSITY COLLEGE OF LAW, IN-LIEU FEE MITIGATION: REVIEW OF PROGRAM INSTRUMENTS AND IMPLEMENTATION ACROSS THE COUNTRY (2019), <https://www.eli.org/research-report/lieu-fee-mitigation-review-program-instruments-and-implementation-across-country>.

ENVIRONMENTAL LAW INSTITUTE & LAND TRUST ALLIANCE, WETLANDS AND STREAM MITIGATION: A HANDBOOK FOR LAND TRUSTS (2012), <https://www.eli.org/research-report/wetland-and-stream-mitigation-handbook-land-trusts>.



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