



# **In-Lieu Fee Program Prospectus**

U.S. Army Corps of Engineers  
Pittsburgh District  
Ohio Watersheds

**December 2012**





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**Prepared by: Ohio Wetlands Foundation**

1220 Stone Run Court  
Lancaster, Ohio 43130  
740-654-4016

and

**Davey Resource Group**

*A Division of The Davey Tree Expert Company*  
1500 North Mantua Street  
P.O. Box 5193  
Kent, Ohio 44240  
800-828-8312



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# **I. In-Lieu Fee Program Objectives**

The proposed in-lieu fee program (ILFP) is being developed by Ohio Wetlands Foundation (OWF) to address the need for wetland compensatory mitigation in watersheds in Ohio within the Pittsburgh U.S. Army Corps of Engineers (Corps) district that are not currently served by IRT-approved wetland mitigation banks. The requirements for information presented in this Prospectus are detailed in 33 CFR 332.8 (d)(2).

The proposed ILFP would provide third-party compensatory mitigation for unavoidable impacts to the waters of the United States and waters of the State of Ohio. More particularly, the ILFP will be used to satisfy the compensatory wetlands mitigation requirements of permits issued under Section 404 and 401 of the Clean Water Act, the Ohio Isolated Wetlands Permit Program (IWP, ORC 6111), and Section 10 of the Rivers and Harbors Act. The goal of this program is to provide for no-net loss of wetland acreage and aquatic functions for wetlands within Ohio watersheds in the Pittsburgh Corps district.

## **II. In-Lieu Fee Program Establishment and Operation**

The proposed OWF ILFP will operate by providing restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to OWF to satisfy compensatory mitigation requirements for Department of the Army or Ohio Isolated Wetland permits. This section details procedures and practices that will be established and followed during the operation of the OWF ILFP.

### **A. Project Identification**

Potential sites for ILFP mitigation projects will target priority conservation habitats best suited to replace lost wetland functions. The search for mitigation sites will seek input from existing watershed coordinators, Soil and Water Conservation Districts, other watershed based groups/NGOs, permit applicants, communities, counties, ecological consultants, and other state and federal resource agencies. Additionally, geographic spatial data resources will be reviewed (such as National Wetland Inventory Maps, Natural Resources Conservation Service Soil Surveys, U.S. Geological Service StreamStats, and aerial imagery) to help identify and review each potential mitigation site.

Emphasis will be placed on identifying sites that: are locally and regionally significant in terms of their contribution or potential contribution to provide key wildlife habitat; reduce sediment and/or nutrient loading; provide public access for recreation and education; and are owned by entities willing to participate in the ILFP.

### **B. Legal Responsibility for Providing Compensatory Mitigation**

The ILFP assumes all legal responsibility for satisfying the wetlands mitigation requirements of the authorized Corps and/or Ohio EPA permits for which fees have been paid in full by the permit(s) applicant to the ILFP sponsor. The transfer of liability will be established in a manner consistent with the final in-lieu fee instrument by the Corps in accordance with 33 CFR Part 332 and the permit issued by the Corps and/or Ohio EPA.

## C. Accounting Procedures

The ILFP shall establish and maintain a ledger of credit sale transactions for each service area. Transactions will be tracked in terms of how the credits are generated, *i.e.*, establishment, restoration, enhancement and/or preservation of forested or non-forested wetlands. Information in the ledger shall also include the beginning and ending balance of available credits and permitted impacts for each resource type, all additions and subtractions of credits, and any other changes in credit availability (*e.g.*, additional credits released, credit sales suspended).

## D. Reporting Protocols

The ILFP shall provide the Corps with the account statements it receives from all financial institutions holding the funds as part of an annual report. The account reports are to be submitted to the Corps within 60 days of the end of the fourth quarter of each calendar year. The reports will include information related to all income and interest earned for each service area, all permits for which fees were accepted for each service area, a description of program expenditures (*e.g.*, construction, monitoring, and maintenance), and disbursements for each service area, and other information as required by the Corps and IRT.

The permittee retains responsibility for providing the compensatory mitigation until the appropriate number and resource type of credits have been secured from the sponsor and the Corps has received documentation that the sponsor has accepted the responsibility for providing the compensatory mitigation. The notification should include the sponsor's signature, permit number, and statement identifying the type and number of credits purchased.

Annual mitigation monitoring reports will be submitted to the Corps for each ILFP site. These reports will provide data that will be used to assess whether the project is meeting stated performance standards or if it is on a trajectory towards meeting performance standards.

## E. In-Lieu Fee Program Account

The ILFP sponsor shall be permitted to retain 15% of all ILFP payments to offset cost of operations and overhead. The remainder of payments received by the ILFP will be deposited into an interest bearing, FDIC-insured account or series of accounts to ensure account levels remain within FDIC insurance limits. The ILFP sponsor shall account for the funds in accordance with generally accepted accounting principles, and the accounts shall be subject to audit by the Corps and Ohio EPA from time to time. Interest earned by the ILFP and proceeds from the sale of ILFP property shall remain in the account until approved for use by the Corps. Funds in excess of the amount needed for mitigation projects within a designated service area shall be held in reserve in the ILFP and utilized for future expenses associated with new mitigation projects in that service area or for un-anticipated remedial work for projects previously completed within the service area. The ILFP instrument shall require the sponsor to provide financial assurances for approved mitigation projects if warranted. Financial assurances may be provided in a form agreeable to the sponsor and the District Engineer and may include construction performance bonds, letters of credit or sufficient funds in the ILFP account.

The ILFP sponsor shall obtain approval for and will begin construction of a mitigation project within three full growing seasons of the date of the Corps and/or Ohio EPA's final issuance of a permit requiring mitigation via participation in the ILFP. If more than three years pass from the date of permit issuance and a mitigation site has not been secured, the Corps may direct that the funds be allocated to any project or proposal that it deems appropriate, and that mitigation liability to the ILFP shall be reduced accordingly and transferred to the party receiving such funds. If such project or proposal will be accomplished by another organization, the ILFP sponsor will transfer an amount of funds, equal to the total credit sales and any interest accumulated from the original amount paid for the permitted impacts unless, as directed by the Corps, to that other organization. As per 33 CFR 332.8(n)(4), the District Engineer, at his discretion, may allow extensions of the three-year time limit.

Funds paid to the OFW ILFP by applicants will be used to pay for selection, design, acquisition, implementation, monitoring, management and protection of ILFP projects as approved by the Corps. Long-term maintenance and management funding will be determined on a project basis and will include funds to support the long-term care and protection of the compensatory mitigation project.

The Corps will have oversight of the ILFP accounts. Complete budgets for ILFP projects will be approved as part of mitigation plans. An annual report will be presented within 60 days of the end of each calendar year and submitted to the Corps for review. Reports will include detailed summaries of the ILFP, funds received, credits sold or transferred and expenses incurred. Any deviation in excess of 10% from the approved budget for each project will require Corps approval before additional funds are disbursed for a project. The Corps may review ILFP records with 14 days advance written notice. When so requested, the OWF shall provide all books, accounts, reports, files, and other records relating to the ILFP.

## **F. Advanced Credits**

Advanced credits are any credits of an approved ILFP that are available for sale prior to being fulfilled in accordance with an approved mitigation plan. Per section 332.8(n), advance credits will be based on:

- (i) The compensation planning framework
- (ii) The sponsor's past performance for implementing aquatic resource restoration, establishment, enhancement, and/or preservation activities in the proposed service area or other areas
- (iii) The projected financing necessary to begin planning and implementation of in-lieu fee projects

The amount of advance credit assigned to a particular service area is outlined in Appendix A. The amount of the proposed advanced credits is based on the average amounts of wetland impacts in the last seven State of Ohio fiscal years (2004 through 2011) within each service area. The OWF ILFP proposes to utilize two service areas in the Pittsburgh District. The service areas are shown in Appendix B. Appendix A shows the average annual amount of impact in each service area as well as the proposed amount of advanced credit for each service area. Additionally, compensatory mitigation for impacts to Category 1 wetlands isolated wetlands and to Category 1 and 2 jurisdictional wetlands less than 0.5 acres may be mitigated at any IFLP wetland mitigation project located within the Ohio portion of the Pittsburgh District.

The amount of advanced credit is based on the average annual impact to wetlands in each service area for the years 2004-2011. The ILFP allows the sponsor three years to start construction of a compensatory mitigation project once the first transaction is completed. Additionally, advanced credits sold cannot be offset with the release of additional credits until a completed mitigation project meets the performance goals and/or demonstrates it is on a trajectory to do so. It has been the experience of the ILFP sponsor that this typically takes 3+/- years to demonstrate. Therefore, the amount of advance credit is approximately eight times the average amount of annual impact in each service area.

As the ILFP projects meet performance-based milestones and additional credits are released, these credits will be used to fulfill any advance credits that have been already provided within the project service area prior to transferring any remaining released credits to permittees. Once previously provided advance credits have been fulfilled (for the service area of each ILFP project), an equal number of advance credits will be re-allocated to the sponsor for sale or transfer to fulfill new mitigation requirements, consistent with the terms of the final ILFP instrument. The number of advance credits available to the sponsor at any given time to sell or transfer to permittees in a given service area is equal to the number of advance credits specified in the final ILFP instrument, minus any that have already been provided but not yet fulfilled. Projects that have successfully demonstrated that they have met or that they are on a trajectory to meet the established performance goals and are in excess of the amount of advance credits sold, may be used by the ILFP sponsor to sell to applicants as equivalent to mitigation bank credits.

## **G. Method for Determining Project Specific Credits and Fees and Draft Fee Schedule**

Project-specific credits will be determined using standard ratios for wetlands as indicated in the *Guidelines for Wetland Mitigation Banking in Ohio*.

Per Section 332.8(o)(5)(ii), the cost of compensatory wetlands mitigation credits provided by a mitigation bank or ILFP is determined by the sponsor. The cost per credit will include expected costs associated with the restoration, establishment, enhancement, and/or preservation of aquatic resources in each service area. Full cost accounting, including expenses such as mitigation site identification and acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, and remediation of adaptive management activities, as well as administration of the ILFP must be completed as appropriate. These costs will also include considerations related to the resources necessary for successful completion of the mitigation project, and long-term management and protection of the site. The prices charged for credits shall be reviewed, at minimum, on an annual basis, or more often as deemed appropriate by the ILFP sponsor. This review will take place within three months of the completion of the Annual Report and per the requirements of Section 332.8(o)(5)(ii). The ILFP sponsor will rely on the extensive knowledge it has developed over the past 20+ years of operation to initially develop advanced credit prices.

## **H. Contingencies, Default, and Closure Procedures**

If the district engineer determines that the ILFP is not meeting performance standards or complying with the terms of the ILF instrument, appropriate action will be taken. Such actions may include, but are not

limited to, suspending credit sales, adaptive management, decreasing available credits, utilizing financial assurances, or terminating the ILFP instrument.

The Corps or the ILFP sponsor may terminate the final ILFP instrument by giving sixty (60) days written notice to the other parties. Prior to termination, the ILFP sponsor shall provide an accounting of funds and shall complete payment on contracts for projects approved by the IRT, acting through the Corps, and any expenses incurred on behalf of the account. Upon termination, after payment of all outstanding obligations, the remaining funds in the ILFP shall be paid to a similar conservation entity(s) if required by the Corps. In the event that the ILFP is closed, the ILFP sponsor is responsible for fulfilling any remaining obligations for credits sold, unless the obligation is specifically transferred to another entity as agreed upon by the Corps in consultation with the IRT. Funds remaining in the ILFP account after these obligations are satisfied should continue to be used for restoration, establishment, enhancement, and/or preservation of wetlands and associated upland buffers.

### **III. Proposed Service Area**

The proposed ILFP is being developed to address the compensatory wetlands mitigation needs of the 8-digit hydrologic unit (8-digit HUC) watersheds located within the Ohio portion of the Pittsburgh District not served by IRT-approved mitigation banks or by banks that have released credits available of the appropriate habitat type. The 8-digit HUC watersheds include the Shenango (05030102), Mahoning (05030103), Upper Ohio (05030101) and Upper Ohio-Wheeling (05030106) 8-digit USGS sub-basins. The OWF ILFP proposes to utilize two service areas in the Pittsburgh District. The service areas will be split into northern and southern halves of the District and are shown in Appendix C. Data related to these service areas are displayed in Appendix A along with the average annual amount of impact in each service area and the amount of proposed advanced credit for each service area. Maps of each service area are provided in Appendix B

The north service area includes the Shenango and the Mahoning 8-digit HUC watersheds. The permit data from 2004-2011 shows that the Shenango averages 0.1 acre of authorized impact per year while the Mahoning averages 5.2 acres of authorized impact per year. Since the impacts in the Shenango are so small, it is proposed that these two watersheds be combined into a single service area.

The south service area includes the Upper Ohio and the Upper Ohio-Wheeling 8-digit HUC watersheds. The permit data from 2004-2011 shows that the Upper Ohio-Wheeling averages 2.2 acres of impact per year while the Upper Ohio averages 7.2 acres of impact per year. Since the impacts in the Upper Ohio-Wheeling are much smaller than that of the Upper Ohio, it is proposed that these two watersheds be combined into a single service area. The ILFP sponsor will attempt, over time, to site mitigation projects within the service area so that compensatory mitigation is provided within each of the four 8-digit HUC watersheds in a manner relative to the amount of impact that occurs in each.

Additionally, compensatory mitigation for impacts to Category 1 wetlands isolated wetlands and to Category 1 and 2 jurisdictional wetlands less than 0.5 acre may be mitigated at any IFLP wetland mitigation project located within the Ohio portion of the Pittsburgh District. Authorized impacts to wetlands will be mitigated to the maximum extent practicable within the service area of the impact. In cases where multiple ILFP sponsors operate ILFP mitigation projects within the service area, the Corps in consultation with the IRT, may request that the ILFP sponsor transfer funds to another program that has an active

mitigation project within the 8-digit USGS HUC where advanced credits have been sold so that mitigation occurs within the same watershed as impacts to the extent practicable.

## **IV. Need and Technical Feasibility of In-Lieu Fee Program**

The proposed ILFP is being developed to address the compensatory wetlands mitigation needs of the 8-digit HUC watersheds within Ohio in the Pittsburgh Corps district. Although many mitigation banks are in operation throughout Ohio, there is not currently a mitigation bank or ILFP operating within the watersheds identified as the service area for the OWF ILFP. For projects in these watersheds proposing wetland impacts, the only mitigation option for applicants is to conduct permittee-responsible mitigation.

In 2008, the *Federal Rule on Compensatory Mitigation: Mitigation for Losses of Aquatic Resources, Final Rule (33 CFR Parts 325 and 332)* was published. This rule provides new guidelines for the creation of mitigation banks and in-lieu fee programs using a watershed based approach, and established the following order of preference for mitigation types serving as compensation for unavoidable impacts to water resources: 1) credits from mitigation banks; 2) credits from in-lieu fee programs; and 3) permittee-responsible mitigation.

The use of mitigation banks and in-lieu fee programs for compensatory mitigation can help to reduce the risk and uncertainty associated with the replacement of lost water resources and associated functions and services. When compared to permittee-responsible mitigation, mitigation banks and in-lieu fee mitigation sites generally provide larger, more ecologically valuable mitigation options. Additionally, these sites must go through rigorous scientific and technical analysis prior to their acceptance as an authorized mitigation site. The proposed OWF ILFP will provide a preferred method of compensatory mitigation for projects located within watersheds that currently lack an operating mitigation bank or ILFP.

A wealth of data related to water quality assessments and conservation opportunities is publically available from several resources (Division of Forestry FRAS Priority areas, Division of Wildlife Focus Areas, and Ohio EPA TMDL locations). These resources provide scientific based data from which mitigation priorities can be established and potential mitigation project sites can be identified. Mitigation projects can then establish specific, quantifiable targets for water quality improvement and aquatic resources restoration

## **V. Long Term Management Strategy**

The ILFP projects completed by the sponsor will have a long-term stewardship provider and owner identified in the project mitigation and monitoring plan. All property used as compensation shall be protected in perpetuity in a site protection instrument that shall run with the land and shall remain in place in the event of transfer of the land. If portions of acquired properties are not used for compensatory mitigation, those portions may be excluded from the long-term protection mechanisms. Owners and long-term stewardship providers will typically be units of government including: metropolitan park districts; soil and water conservation districts; or Ohio Department of Natural Resources. In some cases, non-governmental organizations, such as Ducks Unlimited, Cleveland Museum of Natural History, or watershed-based organizations, may be engaged to provide long-term stewardship and/or ownership of compensatory mitigation projects. Achieving an ecologically stable mitigation project that achieves the

maximum level of aquatic ecosystem functions and services with the minimum amount of human involvement will be the goal of each ILFP mitigation project. The Long-Term Management and Maintenance Plan shall include, at a minimum, provisions for:

- 1) Periodic inspections to evaluate the site for signs of trespassing or vandalism. Maintenance will include reasonable actions to deter trespassers and repair any damaged features.
- 2) Monitoring the condition of structural elements and facilities of the site such as signage, water level control structures, fencing, roads, and trails and provisions to repair said structures, if necessary.

The sponsor will be responsible for developing a Long-Term Management and Maintenance Plan for each mitigation site. Once a mitigation site has met its performance goals and has been transferred to the site steward, the steward will be tasked with meeting any and all long-term management responsibilities outlined in that site's management and maintenance plan. ILFP sponsor shall transfer the long-term management funds/account or otherwise arrange for disbursements from such funds/account to the land stewardship entity once the IRT has concurred that the project has met the performance goals and/or is on a trajectory to do so and monitoring can be stopped. Since the long term financial needs varies by project, the amount of long term management funds transferred to the long term stewardship/owner will be established in the mitigation plan for each mitigation project.

## **VI. Sponsor Qualifications**

The ILFP sponsor, Ohio Wetlands Foundation, is a non-profit 501(c)(3) organization with over 20 years of experience as a successful provider of compensatory mitigation within the State of Ohio. The sponsor has protected, enhanced or restored over 2,500 acres of wetlands across Ohio through the creation of mitigation banks, consolidated and individual mitigation projects. Currently, the sponsor operates five active wetland mitigation banks in Ohio. Sponsor accomplishments of particular note include the establishment of the first preservation-based mitigation bank (Pine Brook) in Ohio and the creation of the first wetlands mitigation bank in the United States to successfully achieve its required performance standards and to complete the required monitoring (Hebron Fish Hatchery).

During its 20-year operating history, OWF, the ILFP sponsor, has developed strong relationships with public and private entities. These relationships have been an essential resource when assessing the feasibility and performance of mitigation sites. Partners have included the Columbus Franklin County Park District, Geauga Park District, Lorain County Metro Parks, the Metroparks of Toledo and Lucas County, Ohio Department of Natural Resources Division of Wildlife, the Cleveland Museum of Natural History, and Warren County Park District. Importantly, these entities have been a crucial source of long-term management stewards for completed mitigation sites. During the operation of this proposed ILFP, the sponsor will continue to draw upon these relationships while fostering new ventures with local, regional and state agencies, NGOs, and private individuals.

## Appendix A Advanced Credits

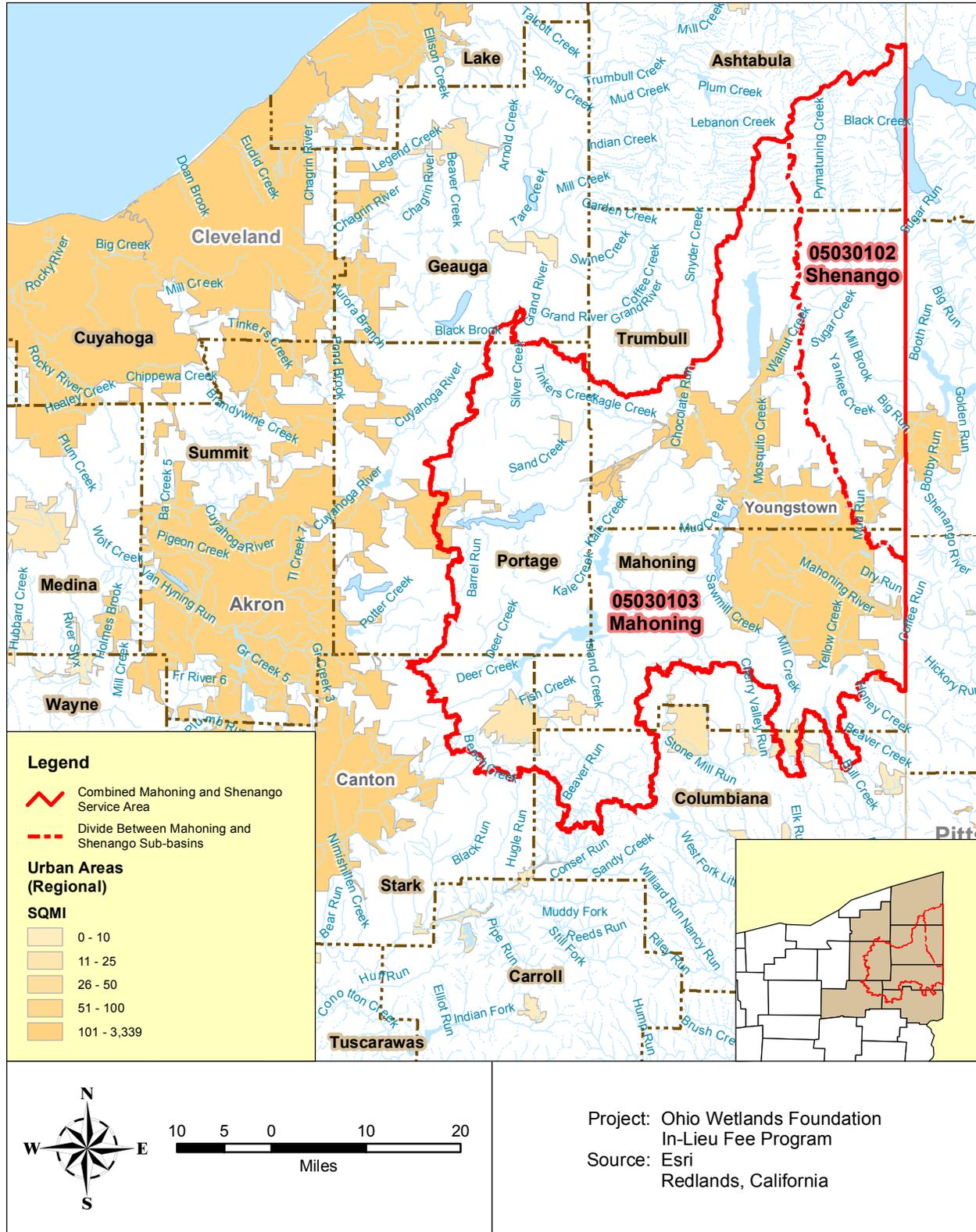
HUC Basin	HUC Sub-basin	Primary Stream Name	Advance Wetland Credit <sup>1</sup>	2004-11 SFY Average Authorized Impacts to Wetlands (acre)
6-digit HUC	8-digit HUC (or combination as per ORC 6111)			
050301	-01	Upper Ohio	70	2.2
	-06	Upper Ohio-Wheeling		7.2
	-02	Shenango River	40	0.1
	-03	Mahoning River		5.2

<sup>1</sup> Advance credits are based on the average annual impacts multiplied by an anticipated average mitigation ratio of 2.5:1 for a period of three years (the time permitted to complete an ILF project from the date of the first transaction).

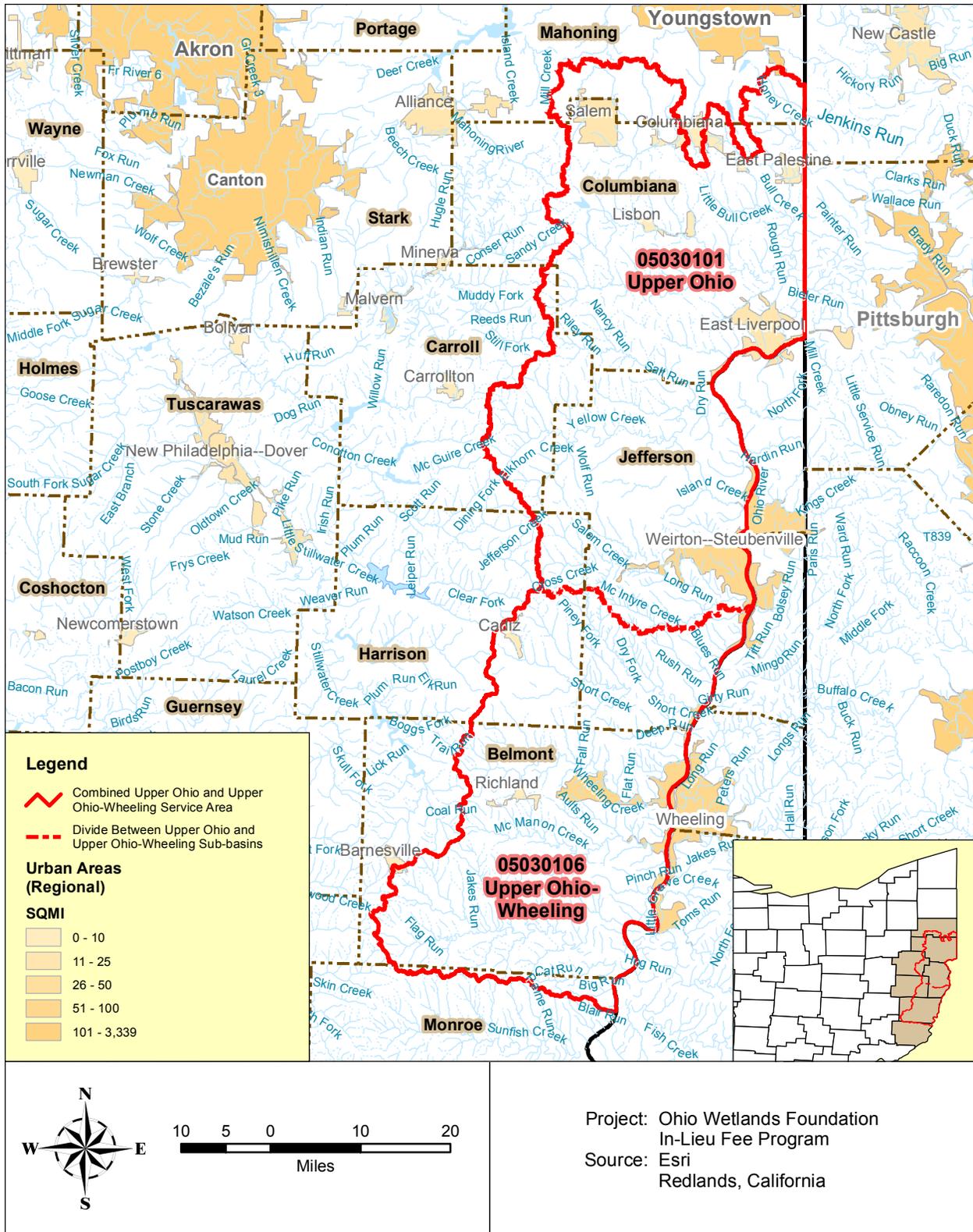
# **Appendix B**

## **Location of Service Areas on Ohio Map**

# Mahoning and Shenango Service Area



# Upper Ohio and Upper Ohio-Wheeling Service Area



# **Appendix C**

## **Compensation Planning Framework**

# Elements I, II, III, IV, and V

## *Geographic Service Areas, Descriptions of Threats to Aquatic Resources, Historical and Current Resources Lost in the Service Area, and Statement of Goals and Objectives*

As the ILF sponsor, Ohio Wetlands Foundation (OWF) will utilize the goals and objectives of watershed management plans and other conservation priority plans in identifying and implementing projects. These plans provide important information related to the threats to water quality currently being faced within the watershed, and strategies being implemented by government entities and conservation groups to protect resources within the watersheds. This section provides a description of watershed characteristics, current and historic threats and impacts, conservation planning, and watershed management goals. ILF projects that support restoration of a diverse mix of water resources will aid in the long-term conservation and management of critical habitats and species within the service areas.

## Service Area – Shenango and Mahoning Watersheds

Grouped service area including the Shenango River watershed within Ohio (HUC 05030102) and Mahoning River watershed within Ohio (HUC 05030103).

### **Watershed Characteristics**

The Shenango River watershed within Ohio, located within portions of Ashtabula, Trumbull and Mahoning Counties, consists of several sub-watersheds that drain directly into the mainstem of the Shenango River in Pennsylvania. These watersheds include Pymatuning Creek, the Pymatuning Reservoir tributaries, Yankee Creek, and Little Yankee Creek. These watersheds drain an area of approximately 278 square miles of land within the Erie Ontario Lake Plain (EOLP) ecoregion.

The Mahoning River watershed within Ohio, located within portions of Ashtabula, Geauga, Columbiana, Mahoning, Portage, Stark, and Trumbull Counties, consists of five primary sub-watersheds. These sub-watersheds include Eagle Creek, Mosquito Creek, Meander Creek, Mill Creek, and West Branch. At its confluence with the Shenango River near New Castle, Pennsylvania, it forms the Beaver River, a tributary of the Ohio River. The Mahoning River watersheds drain an area of approximately 1,140 square miles of land within the Erie Ontario Lake Plain (EOLP) ecoregion in Ohio and Pennsylvania (55 square miles in Pennsylvania).

The Shenango River and Mahoning River watersheds are typically characterized by a mix of land uses, including areas of forest, cropland, pastureland, and developed areas. Although the population density of this area of Ohio is lower than other regions of the state, urban centers (including Youngstown, Warren, Alliance, Niles and Struthers, among others) do have substantive effects on the water quality of adjacent rivers and creeks.

### **Threats and Impacts**

Anthropogenic water quality threats and impacts in these watersheds result from several different sources, including municipal and individual residential waste water treatment systems, removal of riparian corridor, dams/impoundments, channelization, agricultural runoff, and urban runoff, and oil and gas extraction operations (Figure 1). The history of heavy industry in this region of the state has left numerous

relic brown fields in the area, which also contribute to the degradation of water quality in these watersheds. During the 2008 Ohio Environmental Protection Agency (EPA) biological and water quality study Of the Shenango River watershed in Ohio, only 38% of the sites sampled within the Pymatuning Creek and Pymatuning Reservoir tributaries subwatersheds met full aquatic life use attainment, while 60% of the sites sampled in the Yankee and Little Yankee Creeks subwatersheds met full aquatic life use attainment (Ohio EPA 2011). In the upper Mahoning study conducted by Ohio EPA in 2006, only 38.4% of the sites sampled met full aquatic life use attainment. In the lower Mahoning study of 1994 that evaluated sites along the mainstem of the Mahoning River, a mere 7.6% of the sites sampled met full aquatic life use attainment (Ohio EPA 1996). These studies reflect current and past anthropogenic impacts to the water bodies within these watersheds.

Significant continuing future threats to water quality in this area include increasing urbanization (and associated storm water runoff, riparian habitat removal, and nutrient loading) related to the growth of cities and municipalities, oil and gas production, conversion of forested land to other uses, and intensification of agriculture and livestock farming.

### **Conservation Planning**

A Shenango River Watershed Conservation Plan, funded in part by the Pennsylvania Department of Conservation and Natural Resources, was published in 2005 by the Western Pennsylvania Conservancy. Similarly, the Mahoning River has been the focus of a watershed action plan (primarily focusing on Mosquito Creek and the lower Mahoning watershed area), published in 2004 by the Mahoning River Consortium. These documents outline goals and procedures to protect, restore and enhance the Shenango River and Mahoning River watersheds' natural resources and regional assets. These plans utilized input from watershed community stakeholders to identify important issues and pinpoint resources needing restoration, protection, conservation, and/or preservation so that a long term vision for the watershed could be developed and attained.

### Watershed Management Goals

The Shenango River Watershed Conservation Plan and the Mahoning River Watershed Action Plan developed a list of management recommendations to help improve the quality of life and water quality within the watersheds. The following management strategies are approaches that OWF ILF projects may specifically address. Implementation priorities taken from the Shenango River Watershed Conservation Plan are included in brackets after each of its associated management strategies.

- Protect critical and environmentally sensitive areas with land-use regulations (High).
- Utilize best management practices to control erosion and sedimentation in agriculture, forestry, development, and mining industries (High).
- Protect natural areas by converting them into parks, purchasing conservation easements, or utilizing other conservation methods (Medium).
- Protect wetland habitats for their many uses and benefits (High).
- Expand outreach to municipal and county officials for planning and implementation of future wetland mitigation and the establishment of new wetlands (Medium).
- Inventory and monitor wetland plants and animals; take action when and where necessary to eradicate any invasive species (Low).
- Protect and enhance existing riparian buffers to achieve maximum protection of water resources (High).

- Identify and protect additional environmentally sensitive areas and areas of high biodiversity (High).
- Protect habitats that support threatened and endangered species and species of concern through acquisition, easements, and/or landowner education (High).
- Acquire property or easements on land in the 500 year floodplain, wetlands, and critical wildlife habitat.
- Identify and implement projects to enhance the aesthetic quality, wildlife habitat, and sustainability of the river corridor.

## Service Area – Upper Ohio and Upper Ohio-Wheeling

Grouped service area including the Little Beaver and Yellow Creeks (Upper Ohio 05030101) and Short, Wheeling and Captina Creeks (Upper Ohio-Wheeling 05030106) within Ohio.

### Watershed Characteristics

The Little Beaver Creek, Yellow Creek, and associated Ohio River tributary watersheds drain an area of approximately 768 square miles in eastern Ohio within the Western Allegheny Plateau ecoregion in portions of Mahoning, Carroll, Columbiana, Harrison and Jefferson Counties. There are five main sub-watersheds within this HUC, including: North, Middle, and West Branch of the Little Beaver Creek; Yellow Creek; and Cross Creek.

The Short Creek, Wheeling Creek, Captina Creek and associated Ohio River tributary watersheds drain an area of approximately 434 square miles in eastern Ohio within the Western Allegheny Plateau in parts of Harrison, Jefferson, Belmont, and Monroe Counties. There are four main sub-watersheds within this 8-digit HUC, including: Short Creek; Wheeling Creek; Captina Creek; and McMahan Creek.

The majority of the watersheds within this proposed service area are characterized by forested land covering areas of rolling to steep topography. Much of this portion of Ohio was historically or is currently impacted by coal mining activities (Figure 3), including extensive amounts of surface and subsurface mining that took place prior to implementation of the Surface Mining Reclamation Control Act (SMRCA). Extensive sediment and acid mine drainage has greatly affected the water quality and biological integrity of numerous streams in this service area. Conversely, several unimpacted, high-gradient creeks in this region boast some of the highest water quality levels in the state. A portion of Little Beaver Creek 36 miles in length is designated as both a State Wild and Scenic and National Scenic River. Little Beaver Creek and Captina Creek support the largest populations of endangered hellbender salamanders (*Cryptobranchus alleganiensis*) in the State of Ohio. Ohio EPA recently added several water bodies within this service area to the state list of outstanding State waters and superior high quality waters. ILFP projects within this service area may help to protect the water quality of these exceptional resources (Figure 4).

### Threats and Impacts

Anthropogenic water quality threats and impacts in these watersheds result from several different sources, including municipal and individual residential waste water treatment systems, removal of riparian corridor, dams/impoundments, oil and gas production (Figure 1 and 2), channelization, agricultural runoff, sedimentation, and acid mine drainage (AMD). Acid mine drainage is of particular importance to water

quality, as this portion of Ohio accounts for a large percentage of the coal production of the state; Belmont County alone produces 55% of the coal within of Ohio (Belmont County SWCD 2011). Accidental slurry releases from coal mines have also impacted the chemical and biological integrity of several creeks and streams within these watersheds. In addition to the direct effects on water quality, slurry release cleanup activities also impact the integrity of the affect water bodies, as remediation activities often disturb riparian corridors and the stream channels themselves.

Unlike several other portions of Ohio, this region has not experienced large population growth over the past several decades. As such, environmental impacts associated with increasing urbanization (storm water runoff, nutrient loading, conversion of forested land to other uses) have not had a large effect on these watersheds. However, utilization of abundant natural resources such as timber, coal, and natural gas will continue to have an impact on the streams and creeks in this part of the State.

### **Conservation Planning**

A Little Beaver Creek Watershed Conservation Plan was published in 2006 by the Little Beaver Creek Land Foundation. Captina Creek has also been the focus of a watershed action plan, a draft version of which is currently in development by the Belmont County Soil and Water Conservation District. The Yellow Creek Watershed Restoration Coalition is also active in watershed management in conjunction with the Jefferson County Soil and Water Conservation District. These documents and resources outline goals and procedures to protect, restore and enhance the Little Beaver Creek, Captina Creek, and Yellow Creek watersheds' natural resources and regional assets. These plans utilized input from watershed community stakeholders to identify important issues and pinpoint resources needing restoration, protection, conservation, and/or preservation so that a long term vision for the watershed could be developed and attained.

### Watershed Management Goals

The Little Beaver Creek and the Captina Creek Watershed Action Plans developed a list of management recommendations to help improve the water quality and biological integrity of the watersheds. The following management strategies are approaches that OWF ILF projects may specifically address.

- Source water (springs, seeps) protection.
- Construction of acid mine drainage wetland treatment systems.
- Acquisition of conservation easements to protect areas of high natural integrity, and areas that provide critical habitat for flora and fauna.
- Gob (spoil) pile reclamation and remediation.

## **Element VI**

### ***Prioritization for selecting and implementing mitigation activities***

Potential sites for ILF mitigation project will target priority conservation habitats best suits to replace lost wetland functions and restore in-stream habitat and water quality. The search for mitigation sites will seek input from existing watershed coordinators, Soil and Water Conservation Districts, other watershed based groups/NGO's, permit applicants, communities, counties, ecological consultants, and other state and federal resource agencies. Additionally, geographic spatial data resources will be reviewed (such as National Wetland Inventory Maps, National Resource Conservation Service Web Soil Surveys, U.S.

Geological Service StreamStats, and aerial imagery) to help identify and review each potential mitigation site.

Emphasis will be placed on identifying sites that are locally and regionally significant in terms of their contribution or potential contribution to provide key wildlife habitat; reduce sediment and/or nutrient loading, provide public access for recreation and education; and are owned by entities willing to participate in the ILFP.

## **Element VII**

### ***Preservation objectives***

33 CFR 332.3(h) states that preservation must protect resources that provide important physical, chemical or biological functions. These resources must be under threat of destruction or adverse modification. Preserved sites must be permanently protected through an appropriate real estate or legal instrument.

Under the OWF ILF program, preservation projects will incorporate objectives identified within the watershed approach to protecting aquatic habitat and functions. These projects may include preservation of high quality wetlands, protecting areas of critical habitat for threatened or endangered species, or conserving important natural areas. These areas may include sites identified in regional watershed action plans, or conservation plans developed by U.S. Fish and Wildlife Service, or Ohio Department of Natural Resources, Division of Wildlife.

In accordance with the federal mitigation rule, preservation-only projects may be used to provide compensatory mitigation when the following criteria are met:

- The resources to be preserved provide important physical, chemical, or biological functions for the watershed;
- The resources to be preserved contribute significantly to the ecological sustainability of the watershed;
- Preservation is determined by the district engineer to be appropriate and practicable;
- The resources are under threat of destruction or adverse modification;
- The preserved site will be permanently protected through an appropriate real estate or other legal instrument.

## **Element VIII**

### ***Description of stakeholder's involvement***

As the OWF ILF program sponsor, OWF will work closely with federal and state agencies, other conservation partners, and private landowners to identify projects that take into account local knowledge and planning efforts. OWF has worked extensively with a wide variety of government agencies, NGOs, and county and local administrators in the past. OWF will work collaboratively with partners in Ohio to evaluate wetland and stream mitigation opportunities, and to develop mitigation plans and assessment strategies. Projects will be evaluated using standard quantitative assessment methodologies pre- and post-project implementation to help determine the effect of the restoration activities on the aquatic ecosystem. Use of standard assessment methodologies will allow for the performance of OWF ILF projects to be compared against other restoration activities.

In addition to the expertise and experience of the program sponsor, OWF regularly collaborates with environmental consultants that provide additional knowledge and technical proficiency to help identify, implement, and evaluate the performance of a restoration project. OWF will work closely with volunteers and local partners to create projects that maximize conservation potential and target water quality improvements.

OWF will strive to create strong relationships and partnerships with conservation groups and private landowners that share common restoration and preservation goals and strategies. These bonds will allow OWF to further target and prioritize projects with the maximum potential for improving the aquatic ecosystem, protecting important wildlife habitat, and enhancing existing conservation strategies and goals. OWF will continue to foster relationships with partners from federal, state, local, academic, industry, and private entities to ensure that successful conservation and restoration projects are completed.

Potential partners and stakeholders include:

- **Federal Government Agencies**
  - U.S. Army Corps of Engineers
  - U.S. Fish and Wildlife Service
  - Natural Resource Conservation Service
  - U.S. Environmental Protection Agency
  - National Park Service
  - National Oceanic and Atmospheric Administration
- **State Agencies**
  - Ohio Environmental Protection Agency
  - Ohio Department of Natural Resources
  - Ohio Historic Preservation Office
- **Other**
  - Conservation organizations
  - Watershed action groups (including but not limited to the Mahoning River Consortium, and Little Beaver Creek Land Foundation)
  - Soil and Water Conservation Districts
  - Land trusts
  - Private landowners
  - Industry groups
  - Environmental consultants

These partners can assist with a variety of tasks related to the ILF program, including identifying potential mitigation projects, holding easements or environmental covenants, assisting with the development and implementation of monitoring programs, and providing long term management and resource protection.

## **Element IX**

### ***Description of long term protection and management***

OWF will be responsible for developing and implementing a long-term protection and management plan for each OWF ILF project. On privately-owned property, including property held by OWF or other conservation organizations, real estate instruments will be developed and recorded to provide legal mechanisms to protect aquatic resources in perpetuity. Draft conservation easements or equivalent

protection mechanisms will be submitted to the IRT as part of each project mitigation plan for review and approval. In the event that projects are implemented on publicly-owned property, long term protection and management may be provided through facility management plans or integrated natural resource plans.

To the maximum extent practicable, OWF ILF projects will be designed to require little or no long-term management efforts once performance standards have been achieved. OWF will be responsible for maintaining OWF ILF program projects consistent with the mitigation plan to ensure long-term viability as functional aquatic resources. OWF shall retain responsibility unless the long-term management responsibility is formally transferred to a Corps approved long-term manager. The long-term management plan developed for each OWF ILF project will include a description of anticipated management needs with annual cost estimates and an identified funding mechanism (such as non-wasting endowments, trusts, contractual arrangements with future responsible parties, or other appropriate financial instruments).

The final conservation easement or equivalent mechanism for long term protection will be submitted to the IRT for review upon acquisition of the site and will be the first milestone for which credit release can occur. Upon achieving its performance standards and approved transfer of the project for long-term management and protection OWF will request that the Corps issue written “closure certification” in coordination with the IRT.

## **Element X**

### ***Program monitoring and reporting***

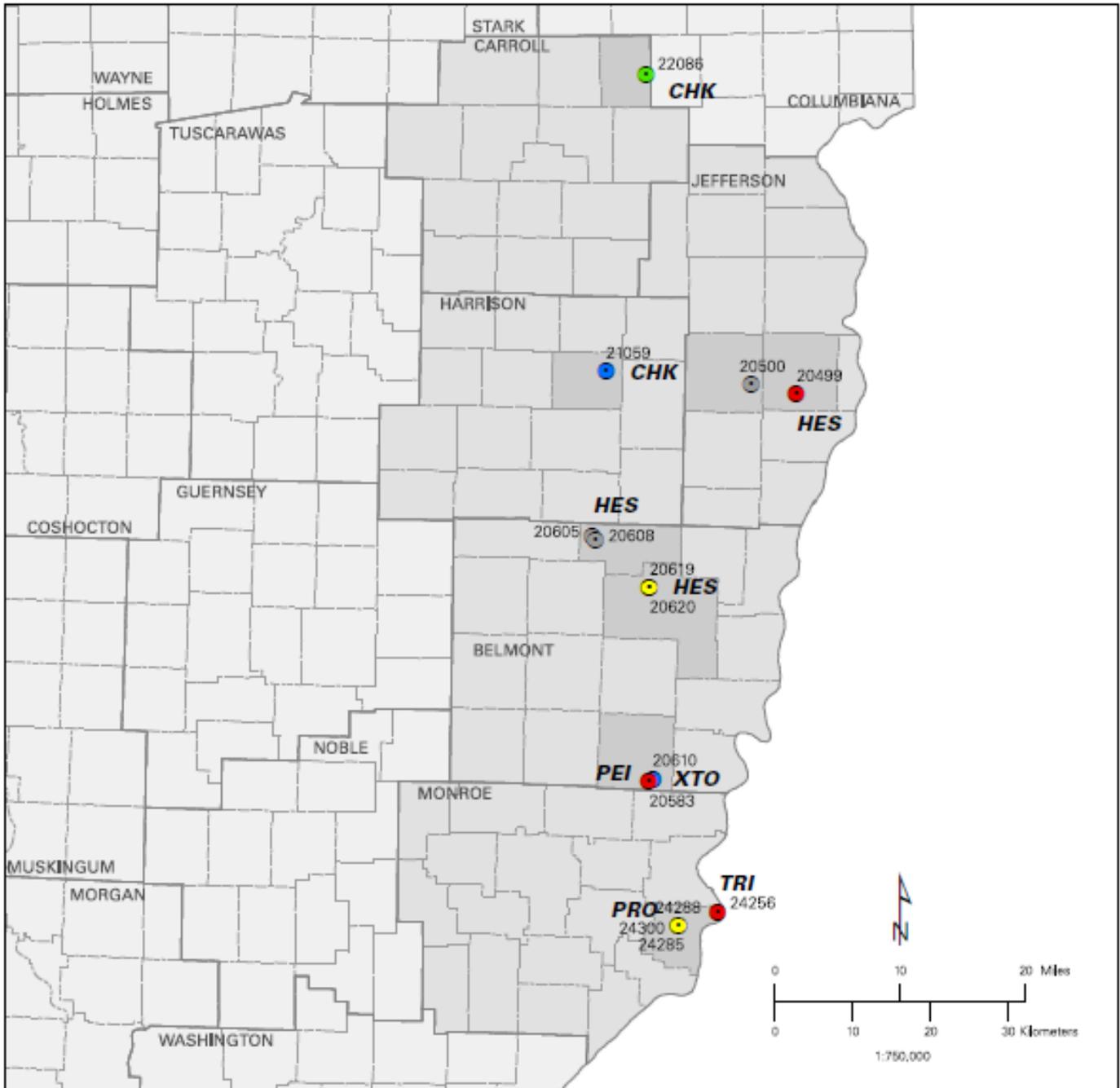
As detailed in Section V of the prospectus, OWF will submit an Annual Program Report to the IRT no later than March 31<sup>st</sup> of each year and will include program data from the previous calendar year (January 1-December 31).

OWF will periodically provide an evaluation report documenting performance and success of the OWF ILF program as established in the instrument and compensation planning framework. This evaluation report will identify programs strengths, and any perceived weaknesses in implementation of the program’s projects. Finally, these reports will provide documentation of any proposed changes to the compensation planning framework.

Annual mitigation monitoring reports will be submitted to the Corps for each OWF ILF project. These reports will document the current status of the water resources on the mitigation sites, and will provide details regarding the trajectory of the site to meet established performance standards.



# Appendix C, Figure 2 Horizontal Marcellus Well Activity



### EXPLANATION

- Horizontal well status  
Showing wells permitted 2006–Present
- Permitted
  - Drilling
  - Drilled
  - Producing
  - Expired

OPERATOR	MAP LABEL	COUNT
CHESAPEAKE EXPLORATION LLC	CHK	2
MARQUETTE EXPLORATION LLC	HES	6
PHILLIPS EXPLORATION, INC	PEI	1
PROTEGE ENERGY II LLC	PRO	3
TRIAD HUNTER, LLC	TRI	1
XTO ENERGY, INC.	XTO	1
		14

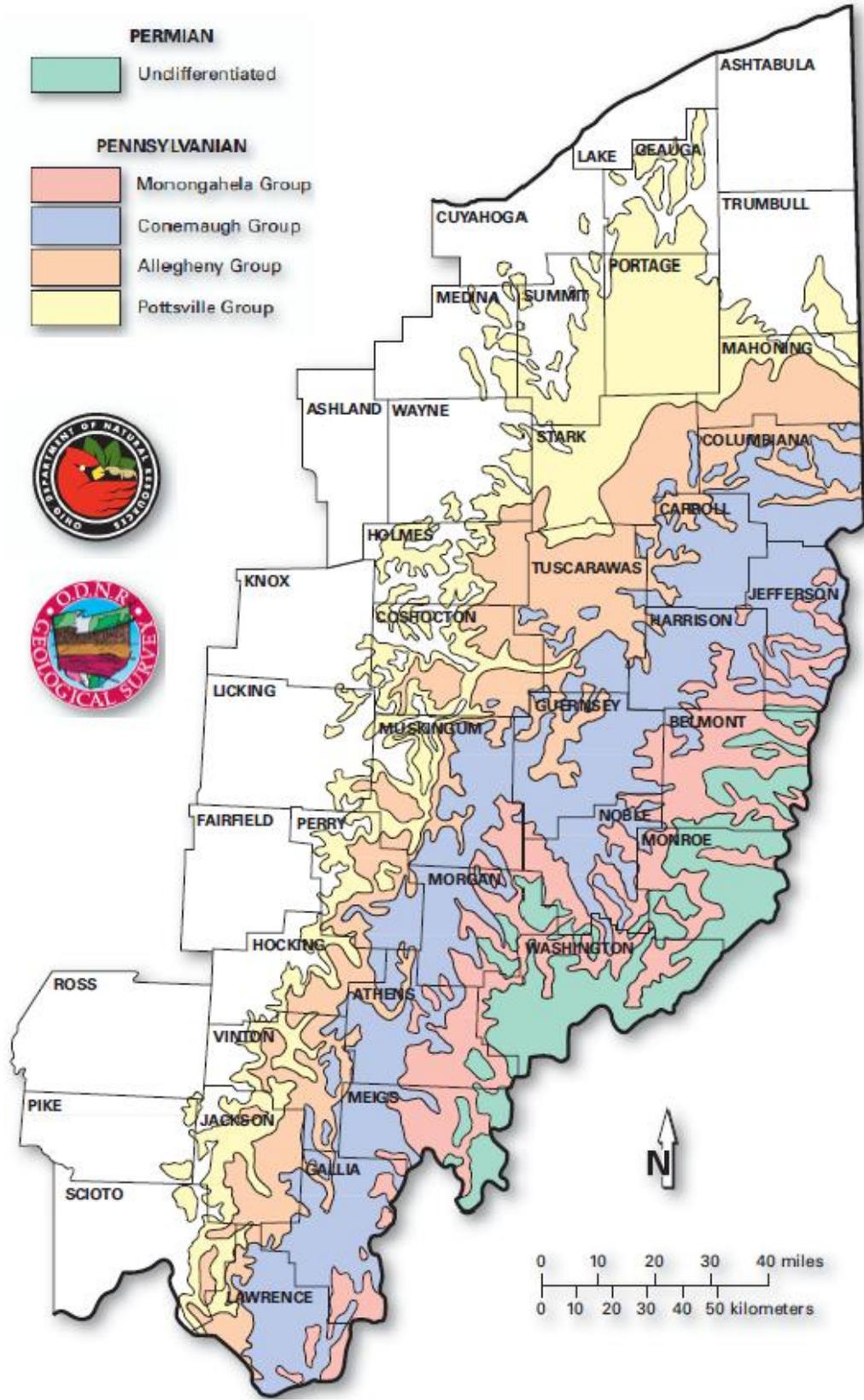


Well permit information from the ODNR Division of Oil and Gas Resources Management

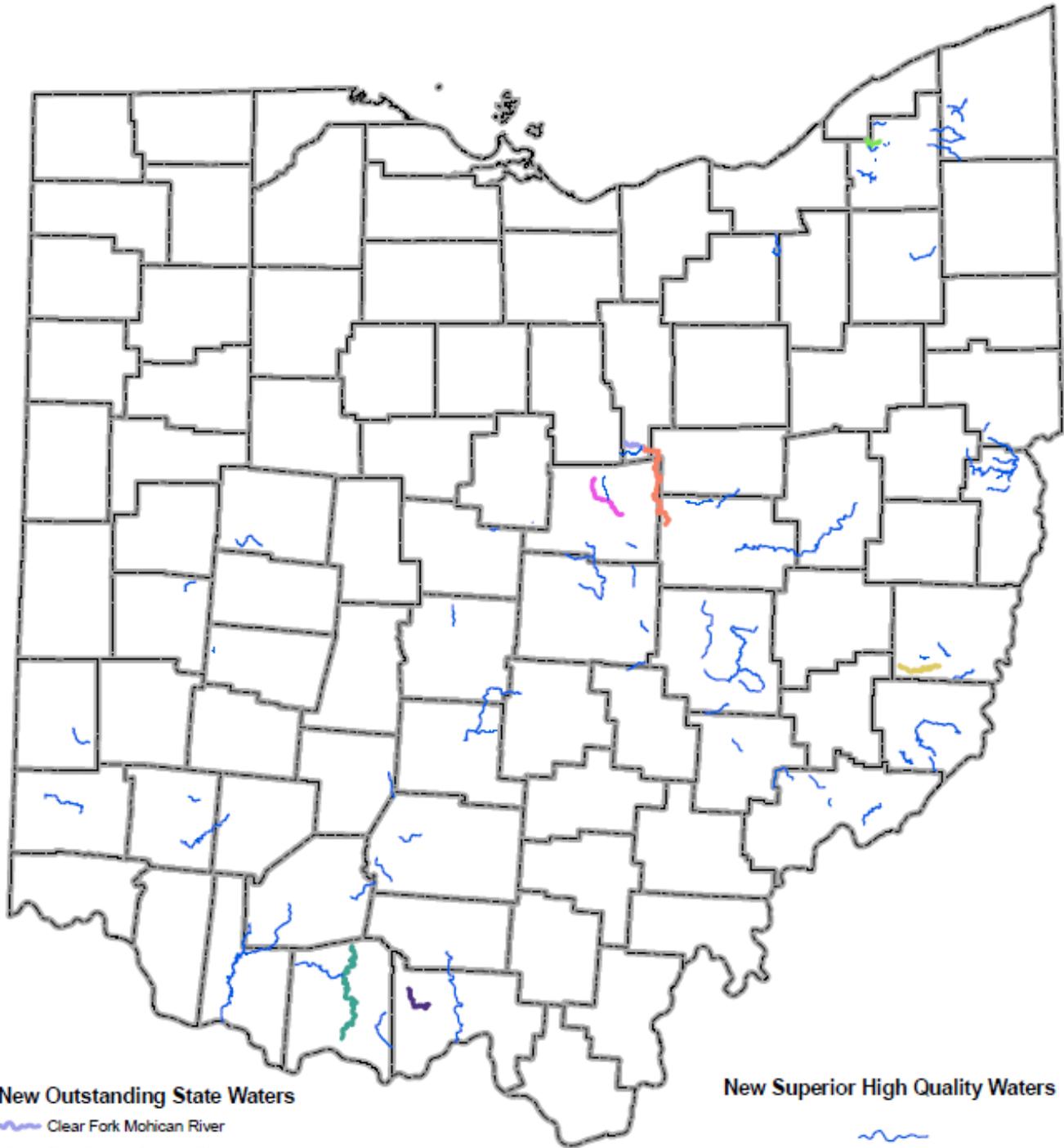
**Recommended citation:** Ohio Department of Natural Resources, 2012, Horizontal Marcellus Shale Well Activity in Ohio: Ohio Department of Natural Resources, Division of Geological Survey, scale 1:750,000.



# Appendix C, Figure 3 Map of Coal-Bearing Rocks of Ohio



# Appendix C, Figure 4 New Outstanding and Superior High Quality Waters of Ohio



## New Outstanding State Waters

- Clear Fork Mohican River
- East Branch Chagrin River
- Mohican River
- Ohio Brush Creek
- Schenck Creek
- Scioto Brush Creek
- South Fork Captina Creek

## New Superior High Quality Waters



# Appendix D

## References

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