

# 1.0 Introduction

## 1.1 Background

Five subsidiaries of NiSource Inc. (Columbia Gas Transmission, LLC, Columbia Gulf Transmission LLC, Crossroads Pipeline Company, Central Kentucky Transmission Company, and NiSource Gas Transmission and Storage Company) have applied for an Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (Service or USFWS) and have prepared this Multispecies Habitat Conservation Plan (MSHCP). This MSHCP is intended to provide for both enhanced conservation of listed species and streamlined regulatory compliance requirements for NiSource’s pipeline activities.

### 1.1.1 Overview of NiSource

NiSource Inc., headquartered in Merrillville, Indiana, is engaged in natural gas transmission, storage, and distribution, as well as electric generation, transmission, and distribution. Operating companies owned by NiSource Inc. deliver energy to 3.8 million customers located within the high-demand energy corridor stretching from the Gulf Coast through the Midwest to New England.

NiSource Inc.’s wholly owned pipeline subsidiaries, Columbia Gas Transmission, LLC, Columbia Gulf Transmission LLC, Crossroads Pipeline Company, Central Kentucky Transmission Company, and NiSource Gas Transmission and Storage Company (companies referred to collectively as “NiSource” throughout this MSHCP ) are interstate natural gas companies whose primary operations are subject to the Natural Gas Act and fall under the jurisdiction of the Federal Energy Regulatory Commission (FERC) and the U.S. Department of Transportation (USDOT).<sup>1</sup> NiSource currently maintains and operates approximately 15,500 miles of onshore interstate natural gas transmission pipelines and appurtenant facilities.<sup>2</sup> NiSource delivers annually about one trillion cubic feet of gas to 72 local distribution companies and several hundred gas end-users in southern, northeastern, midwestern, and Mid-Atlantic states. The NiSource operating territory traverses 14 states ranging from New York to Louisiana.

NiSource’s natural gas transmission pipeline systems consist of a number of components, including the pipeline itself, which is located almost entirely underground; compressor stations, which are located every forty to one hundred miles along the transmission pipelines; metering stations; Supervisory Control and Data Acquisition (SCADA) communication systems; access roads; and mainline valves. In addition,

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<sup>1</sup> NiSource, as defined above, is seeking coverage under an Incidental Take Permit for NiSource’s gas transmission and storage operations. NiSource’s corporate parent, NiSource Inc., also owns a number of local natural gas distribution (LDC) companies. NiSource is not seeking coverage under the Incidental Take Permit for the activities of the LDC companies.

<sup>2</sup> Only NiSource activities specific to onshore facilities will be addressed in this Habitat Conservation Plan. These activities take place over approximately 15,500 linear miles. Offshore areas are not included in this initiative. Where the covered lands footprint includes coastal areas, the boundary was typically drawn at the high-tide line. The few exceptions allow for Habitat Conservation Plan (HCP) coverage of the inland reaches of certain waters, including the James River in Virginia and some waters in Louisiana. These exceptions are described in detail in Section 2.3.1.

NiSource operates and maintains underground natural gas storage fields in conjunction with its pipeline system. Currently, NiSource operates 36 storage fields comprised of approximately 3,600 individual storage wells in West Virginia, Ohio, Pennsylvania, Maryland, and New York. **Figure 1-1** shows the general location of NiSource's pipeline facilities.

### **1.1.2 Genesis of the Habitat Conservation Plan**

NiSource contacted the Service, in late 2005, to discuss options for accomplishing Endangered Species Act (ESA) compliance and incidental take authorization with respect to natural gas transmission activities potentially affecting species listed as threatened or endangered under the ESA. Certain pipeline operations and maintenance activities are conducted without specific FERC authorization or permits, which might serve as a basis for consultation and authorization under Section 7 of the ESA. However, NiSource wanted to explore other options for ESA compliance because (1) numerous individual project-focused consultations is inefficient and time-consuming and (2) NiSource believes that the traditional ESA consultation approach to regulatory compliance may be too limited a tool to achieve the ESA's conservation goals due to its local and project-specific focus. For example, when the impacts of natural gas pipeline activities on protected species are quantified for a discrete project, the conservation benefits provided to the species are similarly discrete. Further, the project-by-project approach typically is not designed with species recovery in mind and does not provide the tools necessary to take a holistic, landscape approach to species protection.

Therefore, the Service agreed that a Multi-Species Habitat Conservation Plan (MSHCP) developed under Section 10(a)(1)(B) of the ESA could provide greater opportunities to address listed species' conservation needs. Subsequently, NiSource worked with the Service to develop a MSHCP that covers a wide array of natural gas pipeline activities over a broad geographic region, provides numerous avoidance and minimization measures for the species included in the MSHCP, identifies mitigation needs for species for which take is likely to occur, and employs a landscape-scale conservation approach. With this MSHCP, NiSource seeks to address the full range of its ongoing activities and to identify and manage species and habitat impacts on a system-wide basis.

The Section 7 and Section 10 ESA authorities, however, are not mutually exclusive. As federal actions, the Service's issuance of the Section 10(a)(1)(B) permit, plus the review and permitting activities of other agencies for future aspects of the covered activities, will also need to comply with Section 7 the ESA. The consultation requirements for these various federal actions will be addressed as a whole in the Service's Biological Opinion (BO) and associated Incidental Take Statement (ITS). In many instances, the avoidance, minimization and mitigation measures specified in the HCP will be considered part of the project description for the purposes of the Section 7 consultation, or will serve as the basis for reasonable and prudent measures in the ITS. As such, the BO with its ITS and the Section 10(a)(1)(B) ITP will work in unison to

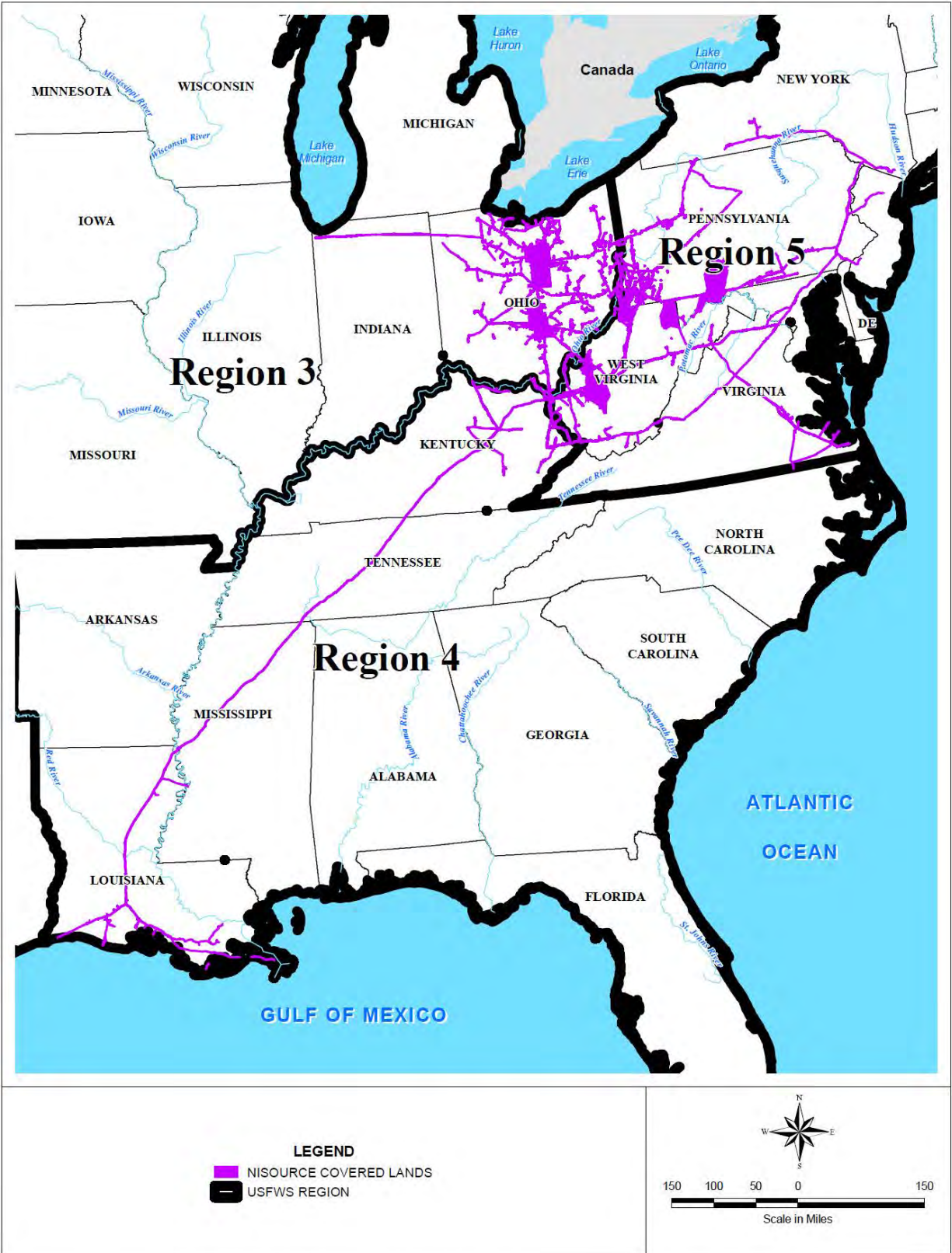


Figure 1-1 General Location of NiSource Pipeline Facilities

provide a coordinated and complementary approach to address endangered species conservation and regulatory concerns.

### **1.1.3 Purpose of the Multi-Species Habitat Conservation Plan**

This MSHCP represents an approach to provide for both enhanced conservation of listed species and streamlined regulatory compliance requirements for NiSource’s pipeline activities. It provides a means to avoid, minimize, and/or mitigate for take of species caused by covered activities. It also memorializes measures to be undertaken to avoid and minimize adverse effects to certain species for which take is therefore not anticipated. In doing so, the MSHCP satisfies applicable provisions of the ESA pertaining to federally listed species protection, and it concurrently improves the permitting efficiency for the construction, operation, and maintenance of NiSource’s natural gas pipelines and ancillary facilities by providing a predictable and accepted structure under which pipeline activities can proceed.

Operation and maintenance of NiSource’s facilities requires numerous activities conducted on an annual basis. On average, NiSource has approximately 400 projects annually that require some form of review pursuant to the ESA, typically under Section 7. Most of these consultations have resulted in a determination that the project would not affect, or would not likely adversely affect, listed species or critical habitat. The majority of these projects have been addressed through informal consultations with Service Field Offices. These activities include routine right-of-way (ROW) maintenance; facility inspection, upgrade, and replacement; forced relocations; and expansion projects.

Section 9 of the ESA and its implementing regulations prohibit the unauthorized “take”<sup>3</sup> of listed species. Like the Incidental Take Statement issued in the Section 7 consultation process, an ITP issued pursuant to Section 10 of the ESA provides such authorization. To obtain an ITP, the permit applicant must submit an application along with an HCP that specifies, among other statutory requirements, the steps the applicant will take to minimize and mitigate the impact of the taking.

This MSHCP addresses the impacts of NiSource’s covered activities on 42 federally listed and candidate species.<sup>4</sup> The MSHCP analyzes impacts to these species occurring during three general categories of activities related to NiSource’s natural gas systems: (1) general operation and maintenance; (2) safety-related repairs, replacements, and maintenance; and (3) expansion. The geographic scope of this MSHCP will extend across Service Regions 3, 4, and 5, covering the general area stretching from Louisiana northeastward to New York where NiSource natural gas systems are in place. The lands covered by this MSHCP are described in detail in Chapter 2. After accounting for its commitments to avoidance and minimization measures, NiSource anticipates take of 10 of the 42 species analyzed. For the purposes

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<sup>3</sup> The ESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” 16 U.S.C. § 1532(19). The ESA implementing regulations further define the terms “harm” and “harass.” 50 C.F.R. § 17.3.

<sup>4</sup> The MSHCP originally analyzed 43 species but the Lake Erie watersnake has since been delisted and is no longer included in this MSHCP.

of this MSHCP, the term “take species” refers to the ten species for which take coverage is requested. The term “MSHCP species” refers to all 42 species that are analyzed in the MSHCP.

### **1.1.3.1 Conservation Benefits to Species**

The MSHCP provides significant conservation benefits to species by addressing the needs of such species and their habitats on a more regional, ecosystem-wide basis, where possible. Further, conservation activities can be coordinated and aggregated on a broader geographic scale more consistent with species population levels and can be focused on achieving species recovery goals. This landscape-level approach, discussed in greater detail in Section 1.1.3.2 below, is expected to provide greater benefits to species than the traditional Section 7 approach to ESA regulatory compliance that has been used for NiSource’s activities. It may also benefit other species that utilize the same habitat as species included in this MSHCP.

This MSHCP also includes avoidance and minimization measures (AMMs), and Environmental Construction Standards (ECS), which provide detailed environmental specifications for NiSource construction, operation, and maintenance activities in environmentally-sensitive areas, including habitat for federally listed and candidate species. AMMs have been specifically tailored to a species’ needs. Consistent and coordinated use of these standards and practices will serve to avoid impacts to species, and where impacts will occur, will seek to minimize and mitigate the impact of the resulting take to the maximum extent practicable.<sup>5</sup>

### **1.1.3.2 The Green Infrastructure Assessment**

The landscape-level mitigation approach of this MSHCP is embodied by the use of a green infrastructure assessment for strategic conservation planning developed for NiSource by The Conservation Fund (TCF) with input from all 14 cooperating states. Green infrastructure offers a conceptual approach for identifying mitigation opportunities at an ecosystem level. Specifically, it is a strategically planned and managed network of natural lands, working landscapes, and other open spaces that conserve ecosystem values and functions and provide associated, incidental benefits to human populations. The MSHCP articulates the parameters for the mitigation. The Green Infrastructure Assessment, when completed, will assist NiSource in identifying the most beneficial projects to be implemented at a landscape scale, consistent with the MSHCP’s mitigation criteria.

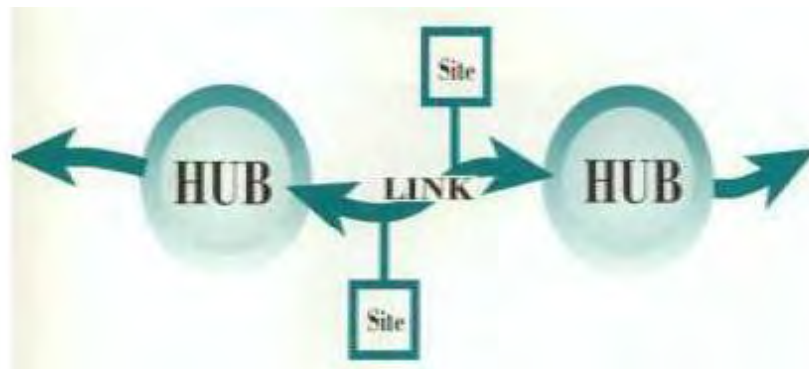
The three primary components of a green infrastructure network design are hubs, links and sites. *Hubs* are comprised of core forest or aquatic areas that anchor the network; they are typically the origination and destination points for wildlife. *Links* are the connectors that tie the system together providing the needed connectivity to ensure that isolated populations of species are not created and that the system functions as a whole. *Sites* are areas that do not necessarily contribute to the ecological integrity of the system, but nevertheless, have value (e.g., cultural resources, parks, recreation

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<sup>5</sup> The MSHCP also provides adaptive management mechanisms to allow the ECS and AMMs to be updated, as necessary. See Chapters 7 and 10

areas, etc.). **Figure 1-2** shows how these three components of a green infrastructure work together.

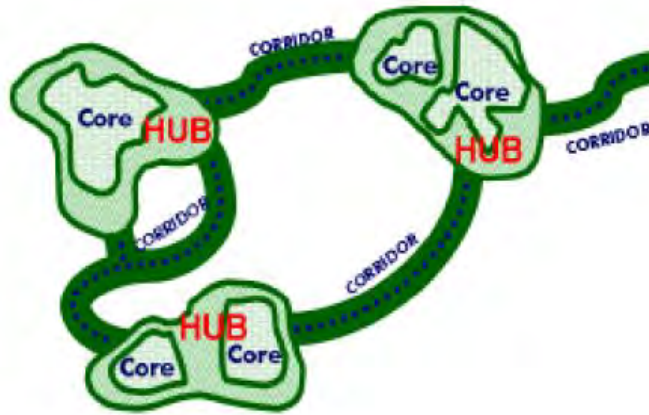
The green infrastructure network design created for the NiSource MSHCP will be the largest green infrastructure assessment conducted in the country. The green infrastructure assessment will extend beyond NiSource's 15,562 mile network to encompass the adjacent counties, ecoregions, and watershed units within the 14-state area. The result of the assessment will be a framework that can be used to identify mitigation opportunities that are intended to provide the greatest benefit for the species. These opportunities are anticipated to extend far beyond what is required for NiSource but should be useful for States and other applicant's in the future. The green infrastructure assessment will not be used to determine how much mitigation should occur in response to a take, but rather will be used to guide decision-making regarding the identification and selection of appropriate mitigation opportunities at an ecosystem level.



**Figure 1-2 Green Infrastructure Network of Hubs, Links, and Sites**

Utilizing a green infrastructure approach in this process will help NiSource integrate species habitat mitigation within the context of an interconnected network of lands and waters, providing multiple benefits across the entire range of NiSource's natural gas pipeline transmission activities. Such an approach will also provide a consistent methodology for assessing possible mitigation projects, in accordance with the sideboards identified in the MSHCP. The methodology employed in this process has been accepted by the 14 states participating in the process.

The key product will be a green infrastructure network design that will delineate a green infrastructure core, hub, and corridor network using criteria based on habitat requirements for federally-listed species outlined in the NiSource MSHCP. TCF will prepare a green infrastructure network design methodology document that will define scales, establish criteria for key ecosystem attributes, and delineate network elements (e.g., core forests, core aquatic systems, core cave/karst systems, etc.). Once the methodology has been approved by the Service, NiSource, and the States, TCF will delineate cores, hubs, and corridors based on each ecosystem type. See **Figure 1-3**.



**Figure 1-3 Example of Core, Hub, and Corridor Assessment**

### **1.1.3.3 Benefits to NiSource**

Pursuant to Section 10 of the ESA, the Service’s issuance of the requested ITP would give NiSource comprehensive protection from take liability when performing the covered day-to-day routine activities necessary to operate, maintain, and expand its pipeline system, provided the terms and conditions of the ITP, MSHCP and implementing agreement are being met.

The MSHCP strategy would streamline and reduce the annual administrative burden of NiSource’s ESA compliance efforts among a variety of agencies, while providing a common platform for improving and contributing to the conservation of protected species. The MSHCP would reduce both the frequency of inter-agency consultations between the Service and other agencies on NiSource’s activities and the possibility of inconsistent obligations being imposed by different Service offices. It also would increase NiSource’s ability to schedule regular or safety-related pipeline operation and maintenance work. Generally, the MSHCP would provide NiSource with a greater level of certainty than the project-by-project approach typically used.

### **1.1.3.4 Benefits to the Service**

A comprehensive MSHCP will allow the Service to use its resources more efficiently and productively without sacrificing the protection of listed species. The upfront planning efforts undertaken to develop this comprehensive MSHCP will significantly reduce the Service’s administrative burden over the life of the requested ITP by reducing the need for project-by-project consultation and avoiding multiple, redundant Section 7 consultations on individual project proposals while assuring compliance with the Section 7 consultation requirements for all covered activities. The Service will be able to redirect time and resources traditionally spent on these reviews of NiSource projects to conservation efforts, which will benefit protected species.

### **1.1.3.5 Benefits to Other Federal Agencies**

Like the Service, other federal agencies with regulatory authority over NiSource’s activities will benefit from a comprehensive MSHCP and the associated

Biological Opinion and National Environmental Policy Act (NEPA) documentation. Such an approach would allow the agencies to use their staff and other resources more efficiently and productively without sacrificing the protection of listed species. The system-wide MSHCP will significantly reduce the agencies' administrative burden by eliminating the need for approximately 400 annual, project-specific, ESA consultations between the federal agencies (usually FERC or the U.S. Army Corps of Engineers [Corps]) and the Service. Given the anticipated fifty year duration of the requested ITP, this would equate to approximately 20,000 project reviews that would have occurred during the same period of time. Based on past practice, the vast majority of projects concluded that that proposed action would have no adverse impacts on listed species or their habitat. Although still responsible for approving or permitting aspects of the gas transmission system or rights-of-ways, the agencies would therefore be able to streamline their ESA compliance and redirect time and money to other agency activities, including conservation of listed species.

In addition, the agencies' participation in the preparation and planning of this HCP and the associated NEPA process furthers the goals and objectives of two interagency agreements regarding natural gas pipeline activities: (1) the 2002 Interagency Agreement on Early Coordination of Required Environmental and Historic Preservation Reviews Conducted in Conjunction with the Issuance of Authorizations to Construct and Operate Interstate Natural Gas Pipelines Certificated by the Federal Energy Regulatory Commission ("Interagency Agreement"); and (2) the 2004 Memorandum of Understanding on Coordination of Environmental Reviews for Pipeline Repair Projects (Pipeline Repair MOU). The Service, the FERC, and the Corps, among others, are participating agencies in both the Interagency Agreement and the Pipeline Repair MOU.

The Interagency Agreement "emphasizes the importance for the lead agency to receive specific information from the other participating agencies at key stages of [natural gas pipeline] project development to foster an efficient procedure to develop documentation to meet all agencies' requirements." In particular, the intent of the Interagency Agreement is to establish a process to facilitate the timely development of needed natural gas pipeline projects, whereby participating agencies will:

- Work together and with applicants and other stakeholders, as appropriate, including before complete applications for the necessary authorizations are filed;
- Identify and resolve issues as quickly as possible;
- Attempt to build a consensus among governmental agencies and their stakeholders; and
- Expedite the environmental permitting and review for natural gas pipeline projects.

The Pipeline Repair MOU similarly "enhances coordination of the processes through which agencies with environmental and historic preservation review responsibilities under various statutes meet those responsibilities in connection with the authorizations required to repair natural gas and hazardous liquid pipelines that have been identified by pipeline operators as in need of repair on a timely basis to protect



life, health or physical property.” The agencies’ coordination on the development of the MSHCP and its associated NEPA analysis represents the type of consensus-building and streamlining described in and encouraged by the Interagency Agreement and Pipeline Repair MOU.

### 1.1.4 Statement of Principles

NiSource and the Service’s collaboration on the preparation of this MSHCP were based on the core values of teamwork, integrity, respect, and value creation. NiSource and the Service also agreed to the following guiding principles:

Clear Purpose: NiSource and the Service would have clear goals and objectives for all aspects of the HCP and would include a diverse array of expertise and interests in its development.

Shared Approach: NiSource and the Service would collaborate with the diversity of stakeholders affected by the MSHCP. Together NiSource and the Service serve a wide range of constituencies and would solicit and incorporate their input into the preparation of the MSHCP. NiSource and the Service will be respectful of one another, valuing all opinions and treating all concerns as legitimate.

Sound Science: NiSource and the Service would use rigorous, scientifically-sound, best available information.

Integrity: NiSource and the Service’s integrity would be demonstrated in their honesty, reliability, and trustworthiness.

Adaptive Management: NiSource and the Service would, to the extent allowable, be adaptive in their approaches recognizing that biological information regarding some listed species is sometimes incomplete.

Compliance with Laws: NiSource and the Service would fully comply with all applicable legal requirements.

## 1.2 Scope of the Multi-Species Habitat Conservation Plan

The scope of the MSHCP includes the duration of the incidental take permit that NiSource is requesting (permit duration); areas for which NiSource is requesting incidental take coverage for its covered activities (covered lands); the otherwise lawful activities for which NiSource is requesting incidental take coverage (covered activities); the species that were analyzed in this MSHCP (MSHCP species); the species for which NiSource is requesting incidental take authorization (take species); and the entities for whom incidental take coverage is requested (permittee). Each of these elements is described below.

MSHCP Key Components
<ul style="list-style-type: none"><li>• <b>Permit Duration</b>: 50 Years</li><li>• <b>Covered Lands</b>: One-Mile-Wide Linear Corridor Approximately 15,562 Miles in Length, plus 12 Counties where storage fields occur equaling approximately 9,783,207 acres.</li><li>• <b>Covered Activities</b>: ROW Vegetation Maintenance, O &amp; M Activities, and Construction</li><li>• <b>MSHCP Species</b>: Forty-two species that were analyzed in the MSHCP.</li><li>• <b>Take Species</b>: Ten species for which NiSource is requesting incidental take authorization.</li><li>• <b>Permittee</b>: NiSource Gas Transmission and Storage and Its Agents</li></ul>

### 1.2.1 Permit Duration

The duration of NiSource's MSHCP was selected to comply with the Service's Five-Point Policy for HCPs, 65 Fed. Reg. 35242 (June 1, 2000), which outlines the following factors to consider when determining the length of incidental take permits:

- The duration of the covered activities and the expected positive and negative effects on species covered by the ITP.
- The extent to which the operating conservation program will increase the long-term survivability of the listed species or enhance its habitat.
- The extent of information underlying the HCP.
- The time necessary to implement and achieve the benefits of the operating conservation program.
- The extent to which the program incorporates adaptive management strategies to address biological uncertainty.

Based on these factors, the NiSource MSHCP is written to cover certain activities over the next 50 years, and NiSource requests an ITP of the same duration. Assessments conducted as part of this plan are therefore based on this 50-year timeframe.

### 1.2.2 Covered Lands

The NiSource MSHCP planning area extends across three Service regions and 14 states to cover an area stretching from Louisiana northeastward to New York. The lands covered by the MSHCP are tied to existing NiSource facilities (e.g., pipelines, ancillary structures, and storage fields). Lands that fall within a one-mile corridor – i.e., one-half mile (2,640 feet) on either side of the centerline of a NiSource pipeline or existing ancillary company structure or building – are considered part of the covered lands as discussed in detail in Chapter 2. This corridor width was chosen for a number of reasons including it would encompass approximately 95% of NiSource Operation and Maintenance (O&M) projects (**Appendix A**). While a one-mile corridor provides various advantages, it is important to understand that over the life of the permit less than 10% of the land within that corridor would be disturbed by NiSource activities and we anticipate that only 0.5% of the area would be impacted by new disturbance. The onshore pipeline system is 15,562 miles long. In addition to these lands, the following counties are included, in their entirety, to permit potential expansion of the existing storage fields contained therein: Hocking, Fairfield, Ashland, Knox, and Richland counties, Ohio; Bedford County, Pennsylvania; Allegany County, Maryland; Kanawha, Jackson, Preston, Marshall, and Wetzel counties, West Virginia. The total area encompassing the covered lands is 9,783,207 acres. **Figure 1-1** shows the geographic scope of the plan. For purposes of this analysis, the covered lands are divided into the 23 ecoregions that the system crosses. These regions are described in further detail in Chapter 3.

This geographic scope was chosen to be consistent with NiSource's business philosophy of managing its natural gas facility activities as a unified system. This has the conservation planning advantage of encompassing a larger portion of a species'

population and habitat so the MSHCP can more comprehensively address conservation best management practices and mitigation measures. As noted in Chapter 2, the breadth of the corridor and counties was chosen to provide flexibility in the selection of future routes and expansion. NiSource anticipates that the covered activities will occur on only a small fraction of the 9,783,207 acres, over the 50 year permit.

### **1.2.3 General Description of Covered Activities**

In developing this MSHCP, NiSource seeks ESA take coverage for a suite of covered activities associated with its natural gas facilities within the covered lands. These include: (1) general operation and maintenance of NiSource’s natural gas systems; (2) safety-related repairs, replacements, and maintenance of NiSource’s natural gas systems; and (3) certain expansion activities related to NiSource’s natural gas systems. The covered lands and covered activities are described further in Chapter 2.

### **1.2.4 Species Analyzed in this MSHCP**

Forty-two species from nine taxonomic groups have been analyzed in the MSHCP. Six mammals (including three bats), one bird, one reptile, two amphibians (both salamanders), six fish, two crustaceans, 17 freshwater mussels, four insects, and three plants have been included in the plan. (See **Table 4-1** for a complete list of species analyzed in this MSHCP. Species for which NiSource is requesting incidental take authorization ( i.e. “take species”) are: Indiana bat, bog turtle, clubshell, fanshell, Northern riffleshell, James spiny mussel, Nashville crayfish, Madison cave isopod, American burying beetle and sheepnose mussel.

### **1.2.5 Permittee**

NiSource is requesting incidental take coverage relevant to covered activities carried out within the covered lands by NiSource, and the designated agents of NiSource. The requested ITP will not provide any ESA coverage for other individuals or entities, including landowners of the covered lands.<sup>6</sup> The ITP may be transferred in accordance with the Service’s regulations, currently located at 50 C.F.R. § 13.25. NiSource may, in the future, seek to include additional subsidiaries of NiSource, or its parent, NiSource, Inc., in the scope of the ITP. In making any such modifications, NiSource will follow the procedures outlined in Chapter 9 of this MSHCP.

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<sup>6</sup> In some instances, NiSource has entered into partnerships with third parties to develop pipeline projects (“Partnership Projects”). NiSource is not seeking coverage under this permit for work performed on the Partnership Projects by the partnerships or by partners other than NiSource. The Partnership Projects, however, are included as part of the “covered lands.” NiSource’s intent in doing this was to include within the scope of the permit only work completed by NiSource and NiSource’s designated agents on the Partnership Projects.

## **1.3 What the Multi-Species Habitat Conservation Plan Does Not Do**

The purpose of the MSHCP planning process and requested ITP is to authorize the incidental take of threatened or endangered species in connection with NiSource's covered activities within the covered lands, not to authorize the underlying activities that result in take. Thus, NiSource will still need to obtain any other required federal, state, and/or local permits and authorizations before undertaking the covered activities.

The MSHCP also does not authorize NiSource to clear or otherwise utilize an entire one-mile-wide corridor along its pipeline facilities. The one-mile corridor and 12 counties included in the covered lands simply provide the boundaries for the areas within which NiSource has incidental take coverage when carrying out its covered activities. As outlined above, NiSource's covered activities are anticipated to impact less than 10% of the covered lands over the entire 50-year permit term, with new disturbance on less than 0.5% of the covered lands. NiSource does not own or control most of the lands included within the covered lands. Thus, prior to conducting any covered activities within the covered lands, but outside its existing easements and ROWs, NiSource would need to obtain usage rights to, or ownership of, affected lands through easement agreements or acquisition of title.

## **1.4 Legal Framework**

The NiSource MSHCP has been developed pursuant to the ESA. Except as noted below, the MSHCP is not intended to serve as a vehicle for compliance with other regulatory programs that may affect federally-listed species and their habitats. NiSource will work with the relevant agencies to ensure that other federal and state requirements applicable to the covered activities are satisfied. However, to the extent possible, the MSHCP has been designed to be consistent with and reflect other regulatory processes and regulatory constraints.

### **1.4.1 Regulatory Agencies**

As an interstate pipeline company, NiSource is regulated by a number of federal agencies, including but not limited to the following:

- FERC – FERC is an independent agency that regulates the interstate transmission of natural gas. FERC also reviews proposals to build and operate interstate natural gas pipelines and issues certificates for those deemed to be in the public interest and necessity.
- U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety (OPS) – OPS is the primary federal regulatory agency responsible for ensuring the safe, reliable, and environmentally-sound operation of the nation's energy pipelines. OPS develops and implements pipeline safety regulations at the federal level.
- U.S. Fish and Wildlife Service – The Service, in the Department of the Interior, and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries), in the Department of Commerce, share

responsibility for administration of the ESA. Among their responsibilities are incidental take authorizations under Sections 7 and 10 of the ESA, and enforcement. The Service is responsible, however, for all the species included in the NiSource MSHCP. Portions of NiSource's natural gas system do, or may in the future, cross Service lands owned and managed by the National Wildlife Refuge System, which is a branch of the Service. Depending on the nature of the right-of-way previously acquired or to be obtained, special use permits from a particular refuge may be required.

- U.S. Army Corps of Engineers – The Corps is responsible for issuance of permits to discharge dredged or fill material into waters of the U.S., including wetlands, under Section 404 of the Clean Water Act (CWA).
- U.S. Forest Service (Forest Service) – The Forest Service, in the Department of Agriculture, manages public lands in national forests and grasslands. Portions of NiSource's natural gas system do, or may in the future, cross Forest Service lands.
- National Park Service (NPS) – The NPS, in the Department of Interior, manages the national park system, a network of nearly 400 natural, cultural, and recreational sites across the nation. Portions of NiSource's natural gas system do or may in the future cross lands owned or managed by NPS.

Federal landholdings that are crossed by MSHCP covered lands are identified in **Appendix E**.

### **1.4.2 Federal Endangered Species Act**

The NiSource MSHCP was developed to meet the requirements of the federal ESA. The ESA was enacted by Congress in 1973 to provide a means of conserving the ecosystems on which threatened or endangered species depend. Although the Service and NOAA-Fisheries share responsibilities for administering the ESA, the Service is responsible for all the species included in the NiSource MSHCP. Thus, no further discussion of NOAA Fisheries' role in the implementation of the ESA will be included in this MSHCP.

The Service can list species as either endangered or threatened. An endangered species is at risk of extinction throughout all, or a significant portion, of its range. A threatened species is likely to become endangered within the foreseeable future. Section 9 of the ESA prohibits the take of any fish or wildlife species listed under the ESA as endangered. That prohibition has been extended by regulation at 50 C.F.R. § 17.31 to most species listed as threatened. Take, as defined by the ESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

Harm is further defined as “an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.” 50 C.F.R. § 17.3. Harass, as defined “means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns

which include, but are not limited to, breeding, feeding, or sheltering.” 50 C.F.R. § 17.3. Section 9 prohibits the removal and reduction to possession of any listed plant species “under federal jurisdiction,” as well as the removal, damage, or destruction of such plants on any other areas in knowing violation of any state law or regulation or in violation of state trespass law.

The ESA includes mechanisms that provide exceptions to the Section 9 take prohibitions. These are addressed in Section 7 for federal actions and Section 10 for nonfederal actions. There may be situations in which a project may have components with a federal nexus and others over which there is no federal control or oversight. In those circumstances, the Service has recognized that Sections 7 and 10 are not mutually exclusive vehicles for authorizing take. As is the case here, the processes may be hybridized so long as the intent of the Act and the implementing regulations are satisfied.

## **Section 7**

Section 7(a)(2) of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of habitat critical to such species’ survival. To ensure that its actions do not result in jeopardy to listed species or in the adverse modification of critical habitat, each federal agency must consult with the Service regarding federal agency actions that have the potential to impact listed species. This consultation may be formal or informal.

Before initiating an action, the federal action agency, or a nonfederal permit applicant, must ask the Service to provide a list of endangered, threatened, and proposed species and designated and proposed critical habitats that may be present in the project area. If no such species or critical habitat is present, then the federal action agency has no further ESA obligation under section 7(a)(2) and consultation is concluded. If such a species or critical habitat is present, then the federal action agency must determine whether the project may affect listed species or their critical habitat. If so, further consultation is required.

If the action agency determines (and the Service agrees) that the project is not likely to adversely affect any listed species or designated critical habitat, then the consultation (informal to this point) is concluded and the Service’s concurrence is put in writing. If the action agency determines that a project may adversely affect a listed species or designated critical habitat, formal consultation is required.

During formal consultation, the Service prepares a BO which analyzes, among other things, the direct, indirect and cumulative effects to the species. It also examines whether the proposed action would be likely to jeopardize the continued existence of the species or adversely modify designated critical habitat. If the BO reaches a jeopardy or adverse modification conclusion, the opinion must suggest “reasonable and prudent alternatives” that would avoid that result. If the BO concludes that the project as proposed would involve the take of a listed species, but not to an extent that would jeopardize the species’ continued existence, the BO must include an incidental take statement. The incidental take statement specifies an amount of take that may occur as a result of the action and may suggest reasonable and prudent measures to minimize the

impact of the take. If the action is performed in accordance with the BO and incidental take statement, it may be implemented without violation of the ESA, even if incidental take occurs.

The issuance of an ITP for this MSHCP is a federal action that triggers a Section 7 consultation internally within the Service. At the same time, other federal action agencies processing aspects of the gas transmission system may also need to consult with the Service. Therefore, the consultation and resulting BO will cover such agencies with regard to covered activities, and provide a programmatic mechanism to guide any future consultations that are not already covered by the MSHCP and BO.

## **Section 10**

Until 1982, state, local, and private entities had no means to acquire incidental take authorization as federal agencies could under Section 7. Therefore, private landowners and local and state agencies risked being in direct violation of the ESA no matter how carefully their projects were implemented. This statutory dilemma led Congress to amend Section 10 of the ESA in 1982 to authorize the issuance of an ITP to nonfederal project proponents upon completion of an approved conservation plan, now referred to as a “Habitat Conservation Plan.”

Where federal land, funding, or authorization is not required for an action by a nonfederal entity, the take of listed species must be permitted by the Service through the Section 10 process. Private landowners, corporations, state agencies, local agencies, and other nonfederal entities may obtain a Section 10(a)(1)(B) ITP for take of federally listed fish and wildlife species “that is incidental to, but not the purpose of, otherwise lawful activities.”

Protection for listed plants is more limited than for listed fish and wildlife. Under section 9(a)(2)(B) of the ESA, endangered plants are protected from removal, reduction to possession, and malicious damage or destruction in areas that are under federal jurisdiction. Section 9(a)(2)(B) of the ESA also provides protection to plants from removal, cutting, digging up, damaging, or destroying them where the action takes place elsewhere in knowing violation of any state law or regulation or in violation of a state criminal trespass law. Because the ESA does not prohibit the incidental take of federally listed plants on private or other nonfederal lands, Section 10 “incidental take” permits are not available to address such take of listed plants. However, because the Section 7(a)(2) jeopardy prohibition applies to plants, the Service may not issue a Section 10(a)(1)(B) ITP if the issuance of that permit would result in jeopardy to a listed plant species.

To receive an ITP, the permit applicant must provide (1) a complete description of the activity sought to be authorized; (2) the common and scientific names of the species sought to be covered by the permit, as well as the number, age, and sex of such species, if known; and (3) an HCP. The HCP must specify: (1) the impact that will likely result from such taking; (2) what steps the applicant will take to monitor, minimize, and mitigate such impacts, the funding that will be available to implement such steps, and the procedures to be used to deal with unforeseen circumstances; (3) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not proposed to be utilized; and (4) such other measures as the

Service may require as being necessary or appropriate for purposes of the plan. 50 C.F.R. §§ 17.22(b)(1) and 17.32(b)(1).17.32(b)(2).<sup>7</sup>

### **1.4.3 National Environmental Policy Act**

The NEPA, 42 U.S.C. §§ 4321-4375, requires federal agencies to include in their decision-making process appropriate and careful consideration of all environmental effects of a proposed action and of possible alternatives to that proposed action. Documentation of the environmental impact analysis and efforts to avoid or minimize the adverse effects of proposed actions must be made available for public notice and review. This analysis may be documented in, among other things, an Environmental Assessment (EA) or an Environmental Impact Statement (EIS). The agency must disclose in its NEPA document whether and how the proposed action may adversely affect the human environment. NEPA requires a comparison of environmental effects among various alternatives but includes no mandate to actually require the imposition of a particular alternative. Because the issuance by the Service of an ITP under Section 10 of the ESA constitutes a federal action, the Service must comply with NEPA. The Service has prepared a draft EIS to accompany the NiSource MSHCP during the public review period.

### **1.4.4 Natural Gas Act**

Under the Natural Gas Act of 1938 (NGA), 15 U.S.C. §§ 717-717z, FERC has the authority to set “just and reasonable rates” for the transmission or sale of natural gas in interstate commerce and to grant “certificates of public convenience and necessity” allowing construction and operation of facilities used in interstate gas transmission. Under Section 7(c) of the NGA, FERC may grant individual certificates of public convenience and necessity for specific projects, or it may grant blanket certificates. Under a blanket certificate, a natural gas company may undertake a restricted array of routine activities without the need to obtain a separate certificate for each individual project. The NGA also requires FERC approval prior to abandonment of any interstate natural gas pipeline facility or services.

### **1.4.5 Natural Gas Pipeline Safety Act**

The Natural Gas Pipeline Safety Act of 1968, as amended, 49 U.S.C. ch. 601, authorizes the USDOT, through the OPS, to regulate pipeline transportation of natural

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<sup>7</sup> Additionally, in order for the Service to issue an ITP, it must find, among other things, that: (A) The taking will be incidental; (B) The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such takings; (C) The applicant will ensure that adequate funding for the conservation plan and procedures to deal with unforeseen circumstances will be provided; (D) The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; (E) The measures, if any, required under paragraph (b)(1)(iii)(D) of this section will be met; and, (F) It has received such other assurances as he or she may require that the plan will be implemented. In making his or her decision, the Service must also consider the anticipated duration and geographic scope of the applicant’s planned activities, including the amount of listed species habitat that is involved and the degree to which listed species and their habitats are affected. 50 C.F.R. §§ 17.22(b)(2) and 17.32(b)(2).



gas and other gases. The federal pipeline safety regulations promulgated under the Natural Gas Pipeline Safety Act (1) assure safety in design, construction, inspection, testing, operation, and maintenance of pipeline facilities; and (2) set out parameters for administering the pipeline safety program. 49 C.F.R. parts 190-199. The regulations are written as minimum performance standards.

#### **1.4.6 Clean Water Act**

Section 404 of the CWA, 33 U.S.C. § 1344, requires authorization from the Secretary of the Army, acting through the Corps, for the discharge of dredged or fill material into all waters of the United States. Waters of the United States include traditionally-navigable waters, interstate waters, their tributaries, and adjacent wetlands. These categories include many wetlands, certain intermittent and ephemeral streams, and areas subject to the ebb and flow of the tide.

New Jersey has been delegated Section 404 authority under the CWA, thus permits must be obtained from the NJ Department of Environmental Protection (NJDEP). No other states within the NiSource covered lands have been delegated Section 404 authority.

The Corps issues two types of permits under Section 404: general permits (either nationwide permits or regional permits) and standard permits (either letters of permission or individual permits). General permits are issued by the Corps to streamline the Section 404 process for nationwide, statewide, or regional activities that have minimal direct or cumulative environmental impacts on the aquatic environment. Standard permits are issued for activities that do not qualify for a general permit (i.e., that may have more than a minimal adverse environmental impact). NiSource activities under the MSHCP may result in impacts to waters of the United States and NiSource will continue to coordinate with the Corps and NJDEP to ensure compliance with all CWA obligations.

#### **1.4.7 Migratory Bird Treaty Act**

The Migratory Bird Treaty Act (MBTA), 16 U.S.C. § 703 *et seq.*, implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the MBTA, taking, killing, capturing, collecting, pursuing or possessing migratory birds, their parts, nests, or eggs are the prohibitions most relevant to NiSource's activities. Take under the MBTA does not include the concepts of harm and harassment as defined in the ESA's implementing regulations. The MBTA defines migratory birds broadly and includes species listed at 50 C.F.R. § 10.13.

This MSHCP analyzes the effects on one ESA-listed bird that is also protected under the MBTA, the interior least tern. The MSHCP provides measures to avoid and minimize potential effects to this species. Any effects to the Interior least tern should not rise to the level of take under either the ESA or the MBTA. Therefore NiSource is not seeking ESA take coverage for the tern and its activities are consistent with the MBTA.

### **1.4.8 Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668 *et seq.*, provides for the protection of the Bald Eagle and the Golden Eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. NiSource is not requesting BGEPA take coverage as part of the ITP. NiSource rarely encounters Bald Eagles and has not thus far ever encountered any Golden Eagles during Covered Activities. Where Bald Eagles were encountered in the past, NiSource successfully avoided any take using Service approved construction timing restrictions and other best management practices found in the Service publication “National Bald Eagle Management Guidelines” (<http://www.fws.gov/midwest/Eagle/guidelines/guidelines.html>). NiSource will continue to implement such Service guidelines to avoid take if Bald and Golden Eagles are encountered in the future.

### **1.4.9 Conservation Reserve Program**

The Conservation Reserve Program (CRP) is a voluntary program in which agricultural landowners establish long-term, resource-conserving vegetative covers on eligible farmland in exchange for annual rental payments from the Commodity Credit Corporation based on the agriculture rental value of the land and cost-share assistance for up to 50% of the participant’s costs. CRP contracts, which typically have 10- to 15-year terms, are managed by the Farm Service Agency (FSA), while technical support is provided by other agencies, primarily the Natural Resource Conservation Service (NRCS). The CRP is authorized by the Food Security Act of 1985.

The State Acres for Wildlife Enhancement (SAFE) program is a new initiative under the CRP to address high-value wildlife habitat restoration and cooperative conservation goals. SAFE encourages the public, producers, wildlife experts in state and federal agencies, the nonprofit community, and others to work together to create and submit proposals to benefit high-value wildlife in need of special consideration through the use of existing and newly established CRP lands. FSA hopes this flexible, results-oriented, locally-led practice will encourage cooperative SAFE proposals that benefit multiple species that require a regional approach in portions of several states.

NiSource recognizes the parallel goals of this MSHCP and these programs, and will propose cooperative mitigation efforts to the benefit of both initiatives, where possible. Any mitigation proposed in the MSHCP will not be constrained by a CRP contract and will be designed in a manner to complement both programs where overlap or complementary efforts can work together to benefit species and their habitats.

### **1.4.10 State Wildlife Laws**

Many of the states crossed by the NiSource facilities have laws protecting sensitive species. NiSource has consulted with all of the state wildlife agencies in the 14 states covered by this MSHCP as part of this planning process. NiSource will continue to coordinate with those state agencies to ensure that it complies with all state wildlife protection laws applicable to the covered activities.

### **1.4.11 State or Local Conservation Easements**

NiSource's system intersects certain states or other local governing entities that use conservation easements that limit development in exchange for landowner tax incentives. This type of easement agreement is becoming more commonplace, especially in Virginia where landowners are given a tax break for entering into such agreements with the Virginia Outdoor Foundation. When NiSource must establish a new easement for its facilities, it works with the landowner and completes title searches to identify the current terms of the conservation easements. NiSource then seeks approval from the governing agency or regulating organization to avoid converting or otherwise affecting the existing conservation easement agreement.

NiSource recognizes the parallel objectives of the MSHCP and these conservation easements and will work to find mutually-agreeable solutions where conflict may exist. Any activities covered by or mitigation proposed in the MSHCP must be consistent with any state or local conservation easement that may be affected by such activities or mitigation.

### **1.4.12 Landowner Easement Agreements**

NiSource negotiates easement agreements with landowners whose land its system crosses. These agreements generally contain specific stipulations that must be followed during the construction and subsequent operation of the system (e.g., notify landowner 24 hours prior to access on landowner property to pipeline maintenance). The mitigation proposed in the MSHCP is not intended to and cannot displace these agreements. The proposed mitigation measures have been developed to be consistent with these pre-existing agreements. Likewise, any new landowner agreements initiated by NiSource will consider the needs of the landowners in conjunction with the conservation initiatives set forth in the MSHCP and in the requested ITP, if issued. NiSource is not seeking incidental take coverage for the activities of any third parties who are not acting as NiSource's agents. This includes the activities of the owners of land over which NiSource has easements.

## **1.5 Overview of the Multi-Species Habitat Conservation Plan Preparation Process**

### **1.5.1 MSHCP Planning**

NiSource has consulted with many parties during the development of its MSHCP. A Key Team was established to facilitate work on the plan and included members from NiSource and the Service as well as NiSource's environmental and legal consultants. The team worked collaboratively throughout the planning process. NiSource, with the support of the Service, has made an effort to fully inform and engage stakeholders in the planning process, as described below. **Figure 1-4** shows the collaborative input NiSource obtained from various parties during the development of the MSHCP. In addition, 13 public scoping meetings were held by the Service to solicit and receive comments on the scope of review for the environmental impact statement.

## **1.5.2 Coordination with Federal Agencies, States, Tribes and Non-Governmental Organizations**

This project crosses three Service regions, four Corps divisions, and 14 states. These entities were contacted early in the MSHCP process to inform them of the plan development and opportunities for their participation. The MSHCP planning process has included involvement from the state agencies in each of the 14 states covered by the project area. In late 2006 and early 2007, NiSource and the Service contacted the states about the MSHCP initiative and provided them with background materials. In mid-2007, NiSource and the Service held in-person meetings with the states to brief staff on the MSHCP development process as well as to provide working documents that addressed covered lands, covered activities, permit duration, and a potential species list for comment. After these meetings, the states determined their desired level of involvement in the process, which varied from participation on committees and specialist teams to more limited involvement through the review of draft and final documents.

NiSource has also involved other federal agencies early in the process. Outreach to the Corps, the FERC, NPS, and the Forest Service has resulted in their participation as cooperators in the NEPA process. Briefings with the Pipeline Hazardous Materials Safety Administration (PHMSA) and Tennessee Valley Authority (TVA) have also kept these federal agencies involved.

Outreach efforts to scope the project included letters to 18 Tribes. None of the Tribes responded with comments on the project. In addition, there were no Tribal representatives in attendance at any of the 13 scoping meetings that were conducted throughout the geographic area from Louisiana northward to New England. A complete description of the scoping process and results from those meetings is available in the Service Scoping Report, April 2008. In addition to the written requests and scoping meetings, additional coordination was completed with the Tribal Liaison staff in the Regional Offices, Regions 3, 4, and 5, of the Service. To date, no concerns have been raised by any of the Tribes that were contacted.

As part of the MSHCP outreach efforts, NiSource contacted a number of non-governmental organizations (NGOs), including The Conservation Fund, The Nature Conservancy, the Environmental Defense Fund, and Defenders of Wildlife. These organizations provided input to the process in various ways.

The Conservation Fund pursues a non-advocacy, non-membership approach to conservation, one that blends environmental and economic goals and objectives. Since its founding in 1985, TCF has helped its partners safeguard wildlife habitat, working farms and forests, community greenspace, and historic sites totaling nearly 6 million acres nationwide.

TCF has provided technical assistance, advice, and review regarding potential conservation strategies, mitigation and minimization measures, and other environmentally related terms and conditions during the development of the MSHCP. As described in Section 1.1.3.2, TCF is preparing a green infrastructure assessment to be used at a landscape scale to implement the mitigation strategy and criteria established under the MSHCP. TCF will serve as a coordinator in the execution and

implementation of the conservation strategies adopted in the MSHCP, through communication with interested parties at the local and regional level, coordination of certain aspects of implementation, and oversight of on-the-ground conservation measures. The Nature Conservancy's (TNC's) mission is to preserve the plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. It has developed a strategic, science-based planning process, called Conservation by Design, which helps it identify the highest-priority places—landscapes and seascapes that, if conserved, promise to ensure biodiversity over the long term. TNC will be involved at the state chapter level where mitigation opportunities align with other goals that TNC has for protected species.

The Environmental Defense Fund (EDF) works directly with businesses, government, and communities to create lasting solutions to the most serious environmental problems, using rigorous science. NiSource met with EDF to discuss the NiSource MSHCP initiative.

The Defenders of Wildlife is a national, nonprofit membership organization dedicated to the protection of all native animals and plants in their natural communities. Founded in 1947, Defenders of Wildlife is one of the country's leaders in science-based, results-oriented wildlife conservation. NiSource discussed the conservation planning effort with Defenders of Wildlife early in the MSHCP development process.

### **1.5.3 MSHCP Advisory Team**

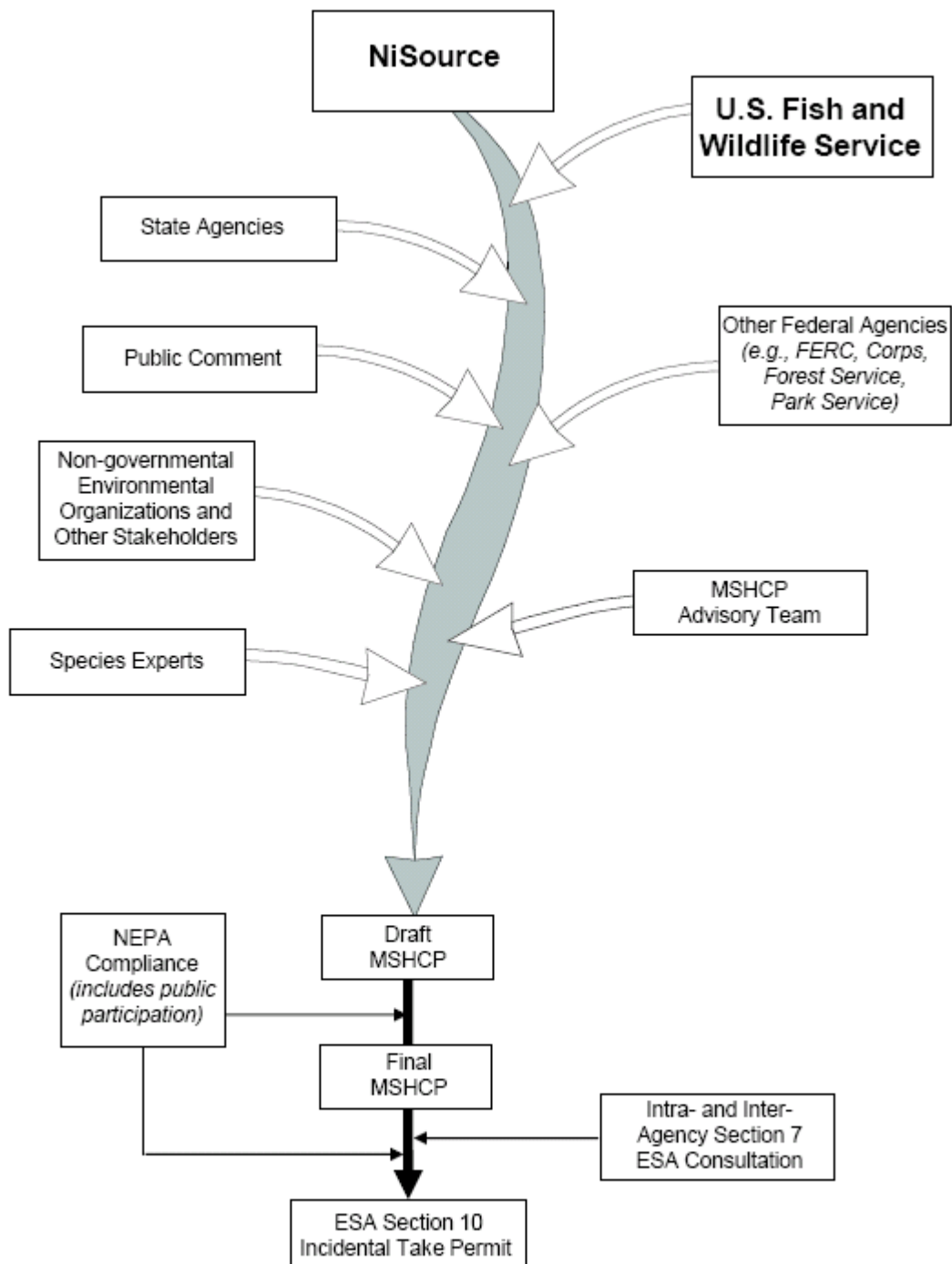
During MSHCP development, NiSource developed an advisory team, including members from academia, the private sector, and state government, all of whom have an interest or experience in habitat conservation planning. Members of this team were consulted on various issues based on their expertise. This group also reviewed draft sections the MSHCP. *See* Chapter 12 for a list of team members.

### **1.5.4 Species-Specific Specialists**

Another category of experts that provided important information to NiSource in the planning process was the species-specific specialists. For example, there are 17 species of freshwater mussels analyzed within the MSHCP. NiSource convened a series of conference calls with mussel specialists to gain their input regarding some of these mussel species. Similarly, NiSource and the Service consulted with other species specialists from various organizations, including state and federal government agencies, TNC, and universities, to obtain information on the MSHCP species, including potential impacts, threats, conservation measures, best management practices, and monitoring.

## **1.6 Overview of MSHCP Implementation**

Implementation of the MSHCP will involve various actions, some of which will occur once and others of which will occur throughout the permit term. **Figure 1-5** shows generally how the implementation will proceed. The threshold actions are the Service's issuance and NiSource's acceptance of the ITP. NiSource will concurrently execute an Implementing Agreement (IA) with the Service. NiSource will also execute



**Figure 1-4 Collaborative Input from Parties During the MSHCP Development**

an agreement with the National Fish and Wildlife Foundation (NFWF) to establish a trust fund discussed in Chapters 5 and 8 and to identify NFWF as an administrative fiduciary with respect to this fund. The permit will become effective once NiSource makes an initial deposit into the Reserve Account and Mitigation Account of the fund, as specified in Chapter 8. These accounts will be updated and refreshed to meeting the rolling implementation and mitigation needs over the duration of the permit.

NiSource will then conduct its covered activities in accordance with the MSHCP, ITP and IA. Prior to undertaking any covered activity, NiSource's Natural Resource Permitting Group (NRP) will gather further site-specific information related to the covered activity's potential impacts on listed species, identify appropriate avoidance and minimization measures, and separately comply with other federal and state laws that apply to that activity, such as the CWA, state wildlife protection statutes, and the National Historic Preservation Act.

As it is conducting covered activities, NiSource will collect data to fulfill its monitoring and reporting obligations, as further described in Chapters 6, 7 and 10. Beginning after the first year of implementation, NiSource will submit an annual report to the Service that will include (1) the results of its covered activity monitoring efforts; (2) a calculation of the amount of take that must be compensated for through mitigation; (3) a discussion and accounting of mitigation measures that were implemented to determine whether NiSource has fully compensated for the impact of take, still owes additional mitigation, or has a mitigation credit to apply to future take of that species under the MSHCP, and (4) any other reporting requirements of the ITP.

As described in further detail in Chapter 5, NiSource will have two mitigation options for compensating for the take calculated in the annual report. It may directly undertake mitigation opportunities as they arise, with the Service's concurrence regarding the level of compensation credit that a particular opportunity would provide. NiSource may also deposit funds into the Mitigation Account of the trust fund, in amounts commensurate with the anticipated take and mitigation debt. A mitigation panel will solicit proposals consistent with the mitigation criteria in Chapter 6, and recommend to NiSource the projects most suitable to undertake using Mitigation Account funds. Assuming the Service approves, NiSource will seek disbursement of funds from NFWF.

Through either option, mitigation efforts may be conducted in advance of impacts under the MSHCP, which will be considered a credit toward future impacts. Alternatively, mitigation may occur following impacts to listed species. The mitigation measures will be monitored to demonstrate success. The results of this monitoring will be included in the annual report. In addition, to help maintain current data for species included in the MSHCP, the Service should provide annually to NiSource any information in its possession regarding (1) the presence/absence of any listed species in or adjacent to the covered lands area, (2) new recovery plans or changes to existing recovery plans; and (3) any other information pertaining to listed species that may inform the implementation of the MSHCP.

At least annually for the first five years, and at least every five years after that, NiSource, the Service, and other stakeholders as appropriate, will meet to discuss the

implementation and performance of the MSHCP. The purpose of these meetings will be to address any issues with implementation of the MSHCP, including whether implementation could be streamlined; whether the avoidance, minimization, and mitigation measures have been effective; whether adaptive management or changed circumstances thresholds have been triggered; and other MSHCP-related concerns. The purpose of these meetings is discussed in detail in Chapter 7.

## **1.7 Document Organization**

This Plan and supporting information are presented in the chapters and appendices listed below. Volume 1 includes the MSHCP, and Volume 2 includes all appendices.

Chapter 1, *Introduction*, discusses the background, purpose, objectives, and scope of the MSHCP; reviews the regulatory setting; and summarizes the MSHCP process.

Chapter 2, *Covered Lands and Covered Activities*, describes NiSource's activities on its natural gas system that is covered under the MSHCP and ITP. It also identifies the lands covered by the MSHCP and ITP.

Chapter 3, *Physical and Biological Environmental Setting*, describes the existing conditions of the Covered Lands.

Chapter 4, *Species Analyzed in the MSHCP*, identifies the species analyzed in the MSHCP and those which NiSource is seeking incidental take authorization.

Chapter 5, *Conservation Strategy*, summarizes the goals, principles, objectives, and framework of the MSHCP's overall conservation strategy.

Chapter 6, *Species Assessments, Impact Analysis, and Mitigation*, describes the impacts the MSHCP will likely have on the take species and their critical habitat. This chapter also estimates the level of take for the 10 take species, and describes the avoidance, minimization, and mitigation measures required for such species.

Chapter 7, *Monitoring, Reporting, and Adaptive Management*, discusses the monitoring requirements and adaptive management procedures associated with implementation of MSHCP.

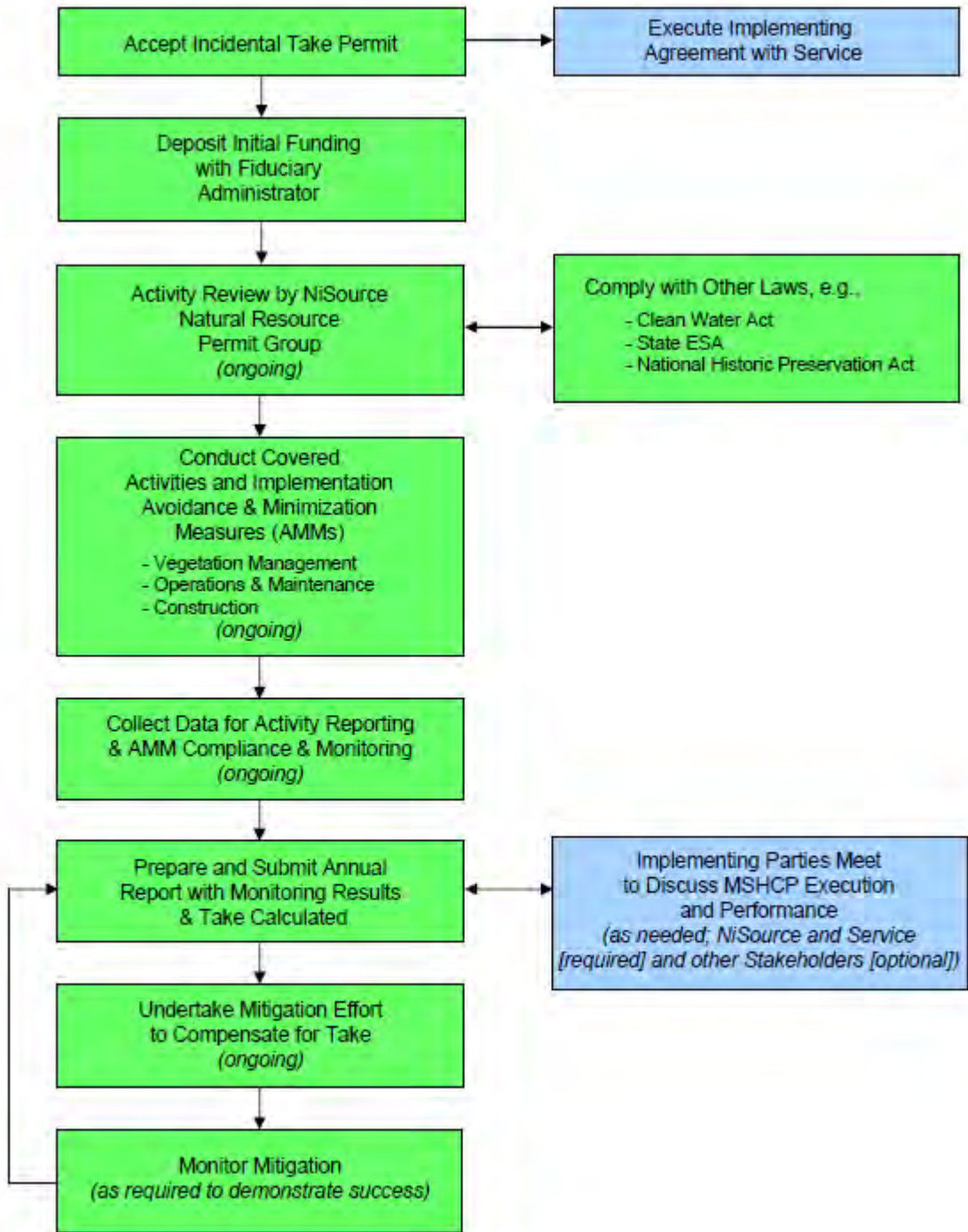
Chapter 8, *Funding Assurances*, reviews the costs associated with implementation of the MSHCP and the funding sources that NiSource will use to fund those costs.

Chapter 9, *Amendment Process*, describes the process for revising and amending the MSHCP.

Chapter 10, *Assurances*, describes the actions NiSource will take in the event of changed circumstances, unforeseen circumstances, or the necessity of modifying or amending the MSHCP.

Chapter 11, *Alternatives to Take*, presents the required analysis of alternatives to take of MSHCP species.





**Figure 1-5 Implementation Process**

Chapter 12, *List of Preparers*, identifies the individuals involved in the preparation of this document.

Chapter 13, *References Cited*, lists the sources of literature and other information used in the preparation of this MSHCP.

Appendix A, *Annual Acreage Disturbance Estimates*, sets forth the methodology for determining the number of acres estimated to be disturbed annually under the MSHCP and ITP and provides estimates for such disturbance.

Appendix B, *NiSource Environmental Construction Standards*, describes the environmental specifications for NiSource construction, operation, and maintenance activities in environmentally-sensitive areas, including habitat for federally listed and candidate species.

Appendix C, *Covered Activities Photographs*, provides photographs of typical appurtenant facilities.

Appendix D, *GIS (Geographic Information System) Metadata*, describes the content, quality, condition, and other characteristics of data utilized in the MSHCP, including descriptions of what is contained in a particular GIS coverage; the spatial reference, the sources used, and the process followed to create the data; the purpose for which the data were developed; restrictions on accessing and using the data; and who to contact for further information.

Appendix E, *Conservation Lands Crossed by NiSource Facilities*, provides information on the federal, state, and NGO-owned conservation lands that are crossed by NiSource facilities covered by the MSHCP and ITP.

Appendix F, *Conservation Frameworks NLTA Species*, presents information and AMMs for species that the covered activities are not likely to adversely affect.

Appendix G, *Take Species Maps*, provides maps for the MSHCP take species.

Appendix H, *reserved*.

Appendix I, *NFWF Agreement*, is a copy of the draft agreement between NiSource and the National Fish and Wildlife Foundation relative to implementing the mitigation strategy of the MSHCP.

Appendix J, *Horizontal Directional Drilling*, provides information on the horizontal directional drilling process and how candidate crossings are evaluated.

Appendix K, *Natural Gas Pipeline & Storage Permitting Processes*, details NiSource's procedure for developing projects.

Appendix L, *Survey and Other Protocols*, provides information on current survey and other procedures to be used during implementation of the MSHCP and ITP.

Appendix M, *Threats Analysis Tables*, provides information on threats from covered activities for each of the covered species.

Appendix N, *Mitigation Panel Charter*, provides information and responsibilities for the Mitigation Panel.

Appendix O, *Information, Planning, and Consultation System*, provides information regarding the Service's IPaC system and how it will be used by NiSource.

Appendix P, *Easement/Acquisition Template*, provides template for any easements or land purchases to be undertaken for mitigation.

## 2.0 Covered Lands and Covered Activities

### 2.1 Introduction

This MSHCP identifies the activities that NiSource plans to conduct during the duration of the 50 year ITP. A variety of these activities may cause take of species for which NiSource is therefore requesting incidental take authorization. Some activities, however, may not impact any species and other activities have been designed or modified to avoid or minimize impacts to the extent that take is not anticipated. NiSource has included in the MSHCP a general description of all NiSource activities within the planning area that: (1) may result in incidental take; (2) are reasonably certain to occur over the life of the permit; and (3) over which the applicant has some form of control. The activities covered in the MSHCP will maximize NiSource's long-term planning assurances, broaden legal coverage, and minimize future regulatory processing by dealing with the activities comprehensively. *See* Habitat Conservation Planning and Incidental Take Permit Processing Handbook, Fish and Wildlife Service and National Marine Fisheries Service (1996a) (HCP Handbook) at 3-12.

In this MSHCP, NiSource has included covered lands that are as large and comprehensive as is feasible to cover the majority of NiSource activities on the landscape. Although the acreage contemplated as covered lands is extensive, less than ten percent of the area will be impacted by the covered activities. The breadth of covered lands is necessary because NiSource cannot precisely predict the location of expansion or rerouting over the next 50 years. Nevertheless, the approach to covered lands allows NiSource to design its conservation measures holistically. Defining covered lands broadly allows an analysis of a wider range of factors affecting listed species, maximizes flexibility needed to develop innovative mitigation programs, and minimizes the burden of ESA compliance by replacing individual project review with comprehensive, area-wide review. *See* HCP Handbook at 3-11.

### 2.2 Description of Pipeline System

The NiSource operating territory traverses 14 States ranging from New York to Louisiana. The covered lands for NiSource's MSHCP overlay NiSource's onshore pipeline system in the states of Delaware, Indiana, Kentucky, Louisiana, Maryland, Mississippi, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. This pipeline system includes approximately 15,562 miles of buried steel pipe ranging in diameter from 2 to 36 inches, 117 compressor stations with approximately 1.1 million in combined horsepower, and 6,236 measuring and regulating stations.

In addition, NiSource operates and maintains underground natural gas storage fields in conjunction with its pipeline system. Currently, NiSource operates 36 storage fields comprised of approximately 3,600 individual storage wells in Maryland, West Virginia, Ohio, Pennsylvania, and New York. **Figure 1-1** in Chapter 1 shows the general location of these facilities.

## 2.3 Covered Lands

In accordance with Service guidance, NiSource considered a number of criteria and several alternatives to determine the most appropriate covered lands for its MSHCP. The alternatives are discussed in more detail in Chapter 11. Approximately 95% of NiSource's annual projects will occur within its existing ROW (typically 50 feet wide with the buried pipe(s) generally in the center) and will result in little ground disturbance. However, as described more fully below in Section 2.3.3, because a portion of NiSource's annual activities required to operate, maintain, and expand its natural gas transmission system likely will deviate from NiSource's existing ROW; NiSource believes a one-mile-wide corridor centered on NiSource's existing facilities is the best approach for identifying the covered lands. **Figure 2-1** depicts this one-mile-wide corridor in relation to NiSource's existing facilities.

This one-mile corridor encompasses all of NiSource's onshore pipeline facilities and the majority of its existing storage fields. However, nine large storage fields that NiSource wishes to expand fall outside the one-mile corridor. NiSource will not be identifying the location of the storage fields because it has determined that information is highly-sensitive (for Homeland Security purposes) and constitutes confidential business information. Therefore, the covered lands have been defined to include, in their entirety, each of the 12 counties in which these storage fields occur, namely Hocking, Fairfield, Ashland, Knox, and Richland counties, Ohio; Bedford County, Pennsylvania; Allegany County, Maryland; Kanawha, Jackson, Preston, Marshall, and Wetzel counties, West Virginia. **Figure 2-2** shows the general location of the covered lands. **Figure 2-3** shows the twelve counties included in their entirety for storage field expansion.

Although a one-mile corridor and county boundaries for the twelve counties listed above are used to delineate the covered lands and to identify the potential presence of threatened and endangered species for inclusion in this MSHCP, the MSHCP does not contemplate unlimited construction or other surface disturbance within those counties or that corridor. **NiSource will not utilize, clear, or disturb the entire one-mile-wide corridor or storage field counties, or even a significant portion of such corridor or counties.** The one-mile corridor and county boundaries for select storage fields were chosen to provide needed flexibility for both the realignment of existing facilities to accommodate future forced relocations (typically resulting from public road construction/maintenance projects) and the minimization of environmental impacts while aligning future replacement and expansion projects. Actual surface disturbance associated with the covered activities will be far less than the covered lands in their entirety. NiSource has estimated annual acreage impacts from all its covered activities, and that information is contained in **Table 2-1** below. Further, NiSource has agreed to restrict, or completely avoid, activities in certain portions of the one-mile wide corridor where such activities would significantly impact certain species. Some areas within the one-mile wide corridor, within Cheat Mountain Salamander habitat, have been removed from the covered lands footprint as a means to avoid impacts on the species. This narrowing of the corridor footprint was completed in coordination with the Service. For the Louisiana Black Bear, areas that have been removed from the covered lands footprint result in minimizing the impact of activities.

As a result of agreeing to remove those areas of bear habitat from coverage for future activities (in conjunction with other avoidance and minimization measures), NiSource's covered activities are not likely to adversely affect the bear. Restrictions are further discussed in **Appendix F** for the Cheat Mountain Salamander and Louisiana Black Bear.

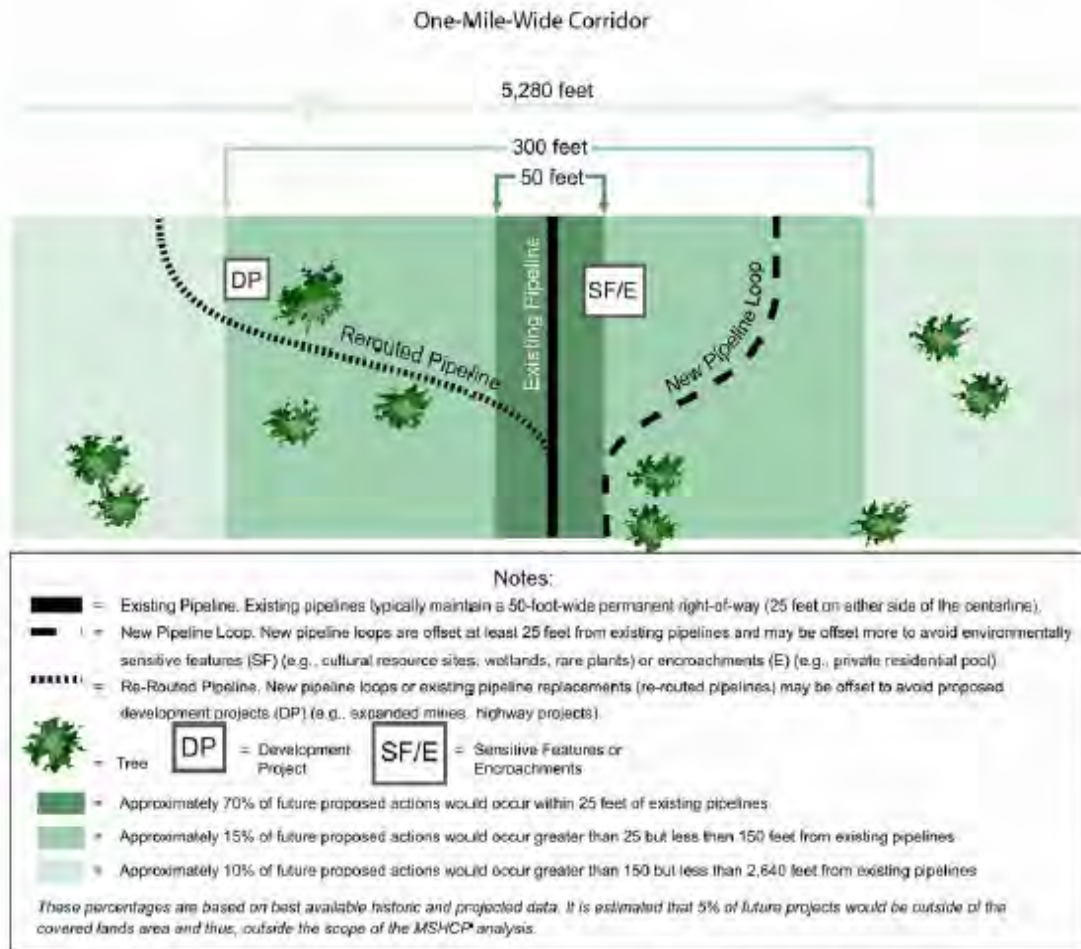
Of the approximately 9,783,200 acres of covered lands, NiSource anticipates only 964 acres of new disturbance and 18,505 acres of disturbance within the existing ROW (most of which is vegetation maintenance) on an annual basis. **This equates to a total annual disturbance of approximately 0.2% of the covered lands (0.19% within the existing ROW and 0.0092% in areas outside the existing ROW).** Thus, while the covered lands boundary represents the area for which NiSource seeks incidental take coverage for its covered activities, only a very small portion of the covered lands will actually be impacted by NiSource's activities. Furthermore, NiSource's activities will not occur all at the same time and location, but instead, will occur throughout the 50-year permit term and will be spread out over the covered lands, minimizing the impacts of such activities.

Although the covered lands represent the areas within which activities described in the MSHCP may take place, the direct and indirect effects of these activities will be fully evaluated regardless of where such effects occur (e.g., if sediment impacts extend within a river beyond the limits of the one-mile-wide corridor, they would still be evaluated). In addition, whenever NiSource plans to undertake activities beyond its existing ROW, all other required permits and landowner permission will be obtained prior to undertaking such activities.

### **2.3.1 Covered Lands Footprint**

The onshore pipeline and storage field system for which NiSource is requesting coverage equals approximately 15,562 miles of linear facilities. With the addition of the twelve counties where the nine key storage fields are located, the total covered lands footprint is approximately 9,783,200 acres. NiSource anticipates it will impact much less than this total area over the permit term. Figure 2-2 shows the general location of these facilities.

The covered lands do not extend offshore into the Gulf of Mexico, but are limited to onshore NiSource facilities. For purposes of this MSHCP, onshore generally means above the high-tide line along coastal reaches. In a few instances, the covered lands boundary deviates from this high tide line. At the mouth of James River in Virginia, the boundary extends past (seaward) the high tide line in order to capture the area in which NiSource anticipates conducting pipeline activities (Figure 2-4). Along the Louisiana coastline, there are areas that have been removed from the covered lands, in essence "cut out" of the one-mile wide corridor, due to a desire to follow the line that represents the jurisdictional boundary between the Service and the National Marine Fisheries Service (NMFS) for ESA implementation (Figure 2-5). Due to these deviations, a small portion of NiSource's covered facilities are below the high-tide line. The covered lands for NiSource's MSHCP overlay the NiSource pipeline system in the 14 states listed in Section 2.2.



**Figure 2-1 One-Mile-Wide Corridor**

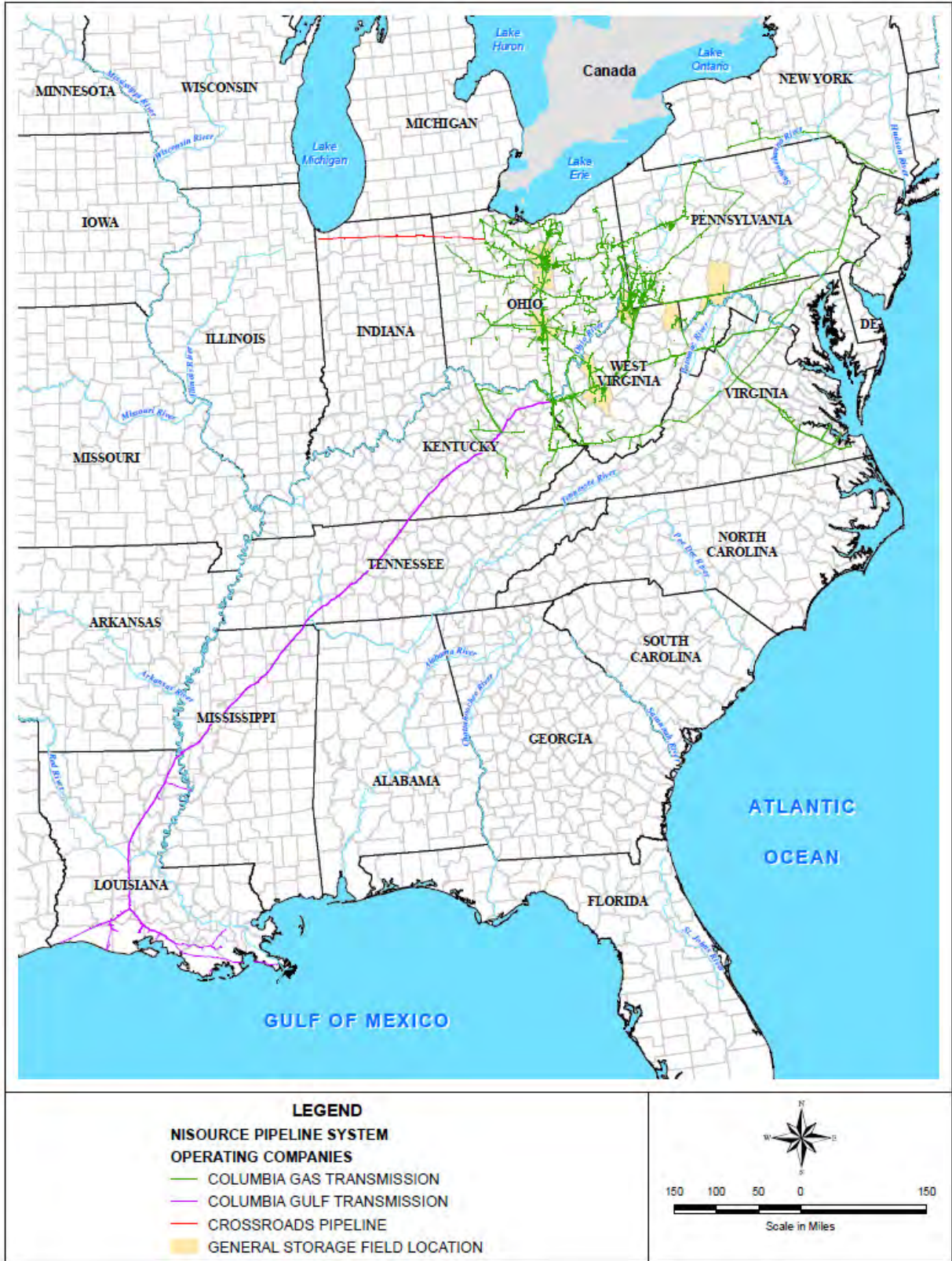


Figure 2-2 General Location of Covered Lands



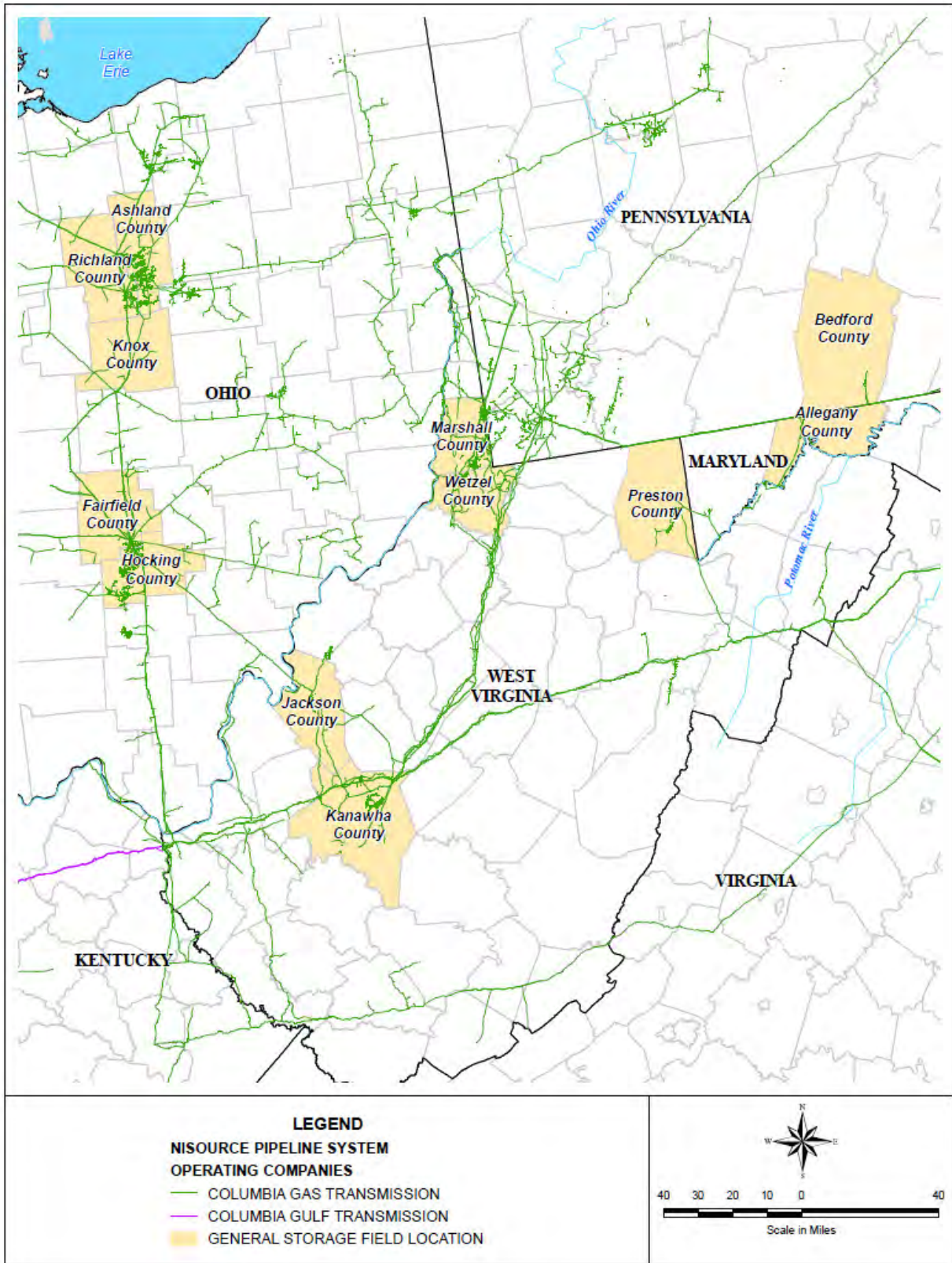


Figure 2-3 Twelve County-Wide Storage Field Areas

### **2.3.2 One-Mile Corridor Rationale**

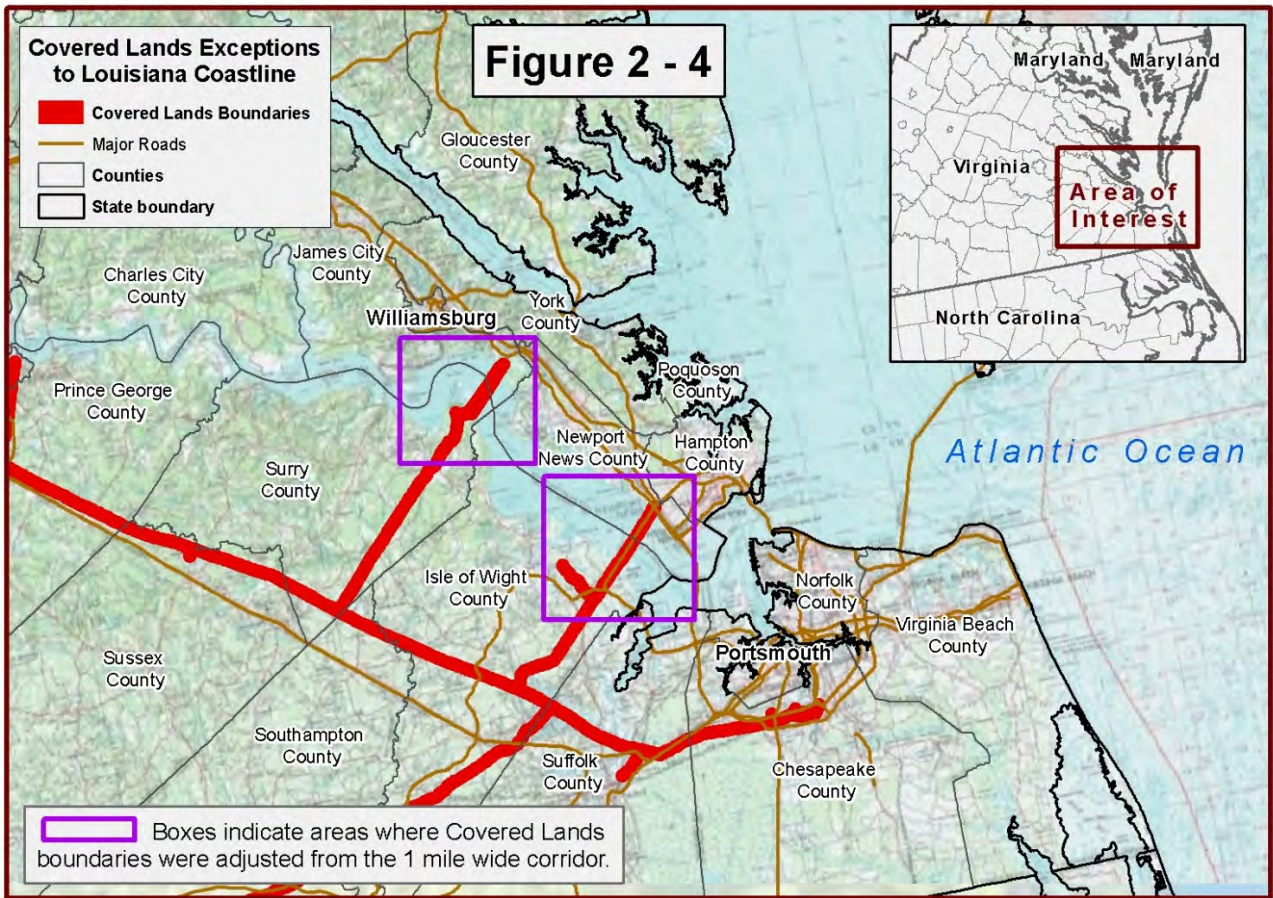
The one-mile corridor covers one-half mile (2,640 feet) on either side of the centerline of a NiSource pipeline or existing ancillary company structure or building. The one-mile-wide footprint represents the most balanced and flexible approach to conservation and regulatory compliance.

A one-mile-wide corridor accommodates approximately 95% of the projects included in routine O&M and capital expansion activities NiSource carries out annually. On average, NiSource pursues approximately 400 projects each year that require some form of ESA review. While 60-70% of these are typically covered through programmatic reviews performed at the Service field office level, 30-40% of projects require individual review. Typically, this review requires NiSource to prepare an information package describing the project activity, project location, and its assessment of impacts, usually not significant, to listed species. This package is forwarded to the appropriate Service field office for review and concurrence. The review typically takes one to several months and is documented by a specific reply letter from the Field Office. Upon receipt, NiSource reviews the concurrence letter, provides its field personnel any required best management practices (BMPs and AMMs), and then retains all the documentation as part of the permanent record for the project. For some NiSource projects, ESA compliance requires additional consultation and analysis beyond this concurrence process. These recurring actions, by both NiSource and the Service, require significant effort and resources.

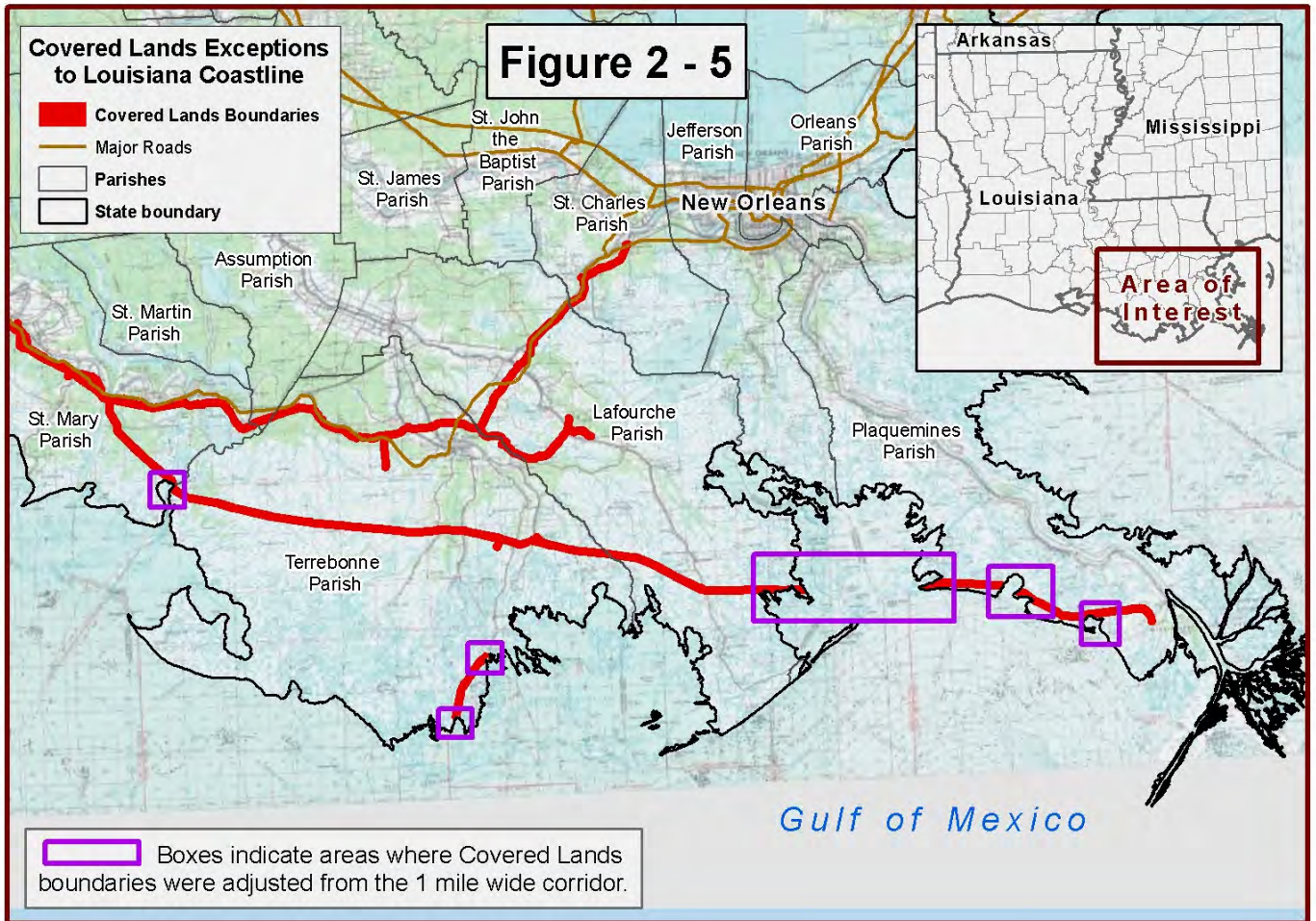
Approximately 380 of the annual O&M and capital projects occur within the one mile wide corridor and require some form of ESA review. This equates to approximately 19,000 ESA project reviews (and attendant project documentation generation and storage) over the 50-year life span of the ITP. The remaining 5% (or about 20 projects per year) that would occur outside the one-mile wide corridor (and thus which are not covered by the ITP) would consist of new construction or major reroutes of existing pipelines to accommodate other facilities such as major interstate or other highway construction or rerouting, dam construction, mining activities, etc. Because the one-mile corridor will cover the overwhelming majority of NiSource's O&M activities, delineating the covered lands in this manner will help reduce the administrative burden and will contribute to the accomplishment of the desired conservation goals and objectives of this MSHCP.

The one-mile corridor "covered lands" designation:

- Provides appropriate space for all approved deposits of necessary spoil piles during maintenance or construction and other normal activities as described in the covered activities.
- Provides appropriate workspace for O&M activities, particularly in areas where the ROW encompasses two or more mainlines and is almost 200 feet wide.
- Provides appropriate space to loop any mainline(s) (up to 125 feet required for ROWs and workspace) for the duration of the permit.



**Figure 2-4 Covered Lands Near James River, Virginia**



**Figure 2-5 Covered Lands Near Louisiana Coastline**

- Allows for analysis of lands to fully avoid impacts to some species and provide better minimization for others within the corridor.
- Provides an adequate buffer to include consideration of endangered species habitat in close proximity to, but not immediately on, the existing ROW.
- Provides enough space on either side of the existing pipeline to perform minor reroutes to lessen impacts to any sensitive environmental areas.
- Provides sufficient area on either side of the existing pipeline to perform minor reroutes required to accommodate highway relocations.
- Provides enough space to avoid work over existing natural gas lines and to ensure an adequate level of safety during construction.
- Provides enough space to route or place new facilities within that corridor while considering impacts to species, the landscape, landowners, and sensitive environmental or archaeological areas.

### **2.3.3 Disturbance Area**

It is not possible to predict precisely where the construction, operation, and maintenance activities will occur within the covered lands area over the 50-year permit term or precisely when such activities will occur. To determine potential impacts to the species addressed in the plan, NiSource evaluated its activities and estimated the amount of disturbance that may occur within the covered lands over the term of the permit. This projection provides both annual and cumulative estimates of the acreage, and where possible, number of linear miles in which covered activities are likely to occur. These projections allow an examination of the impacts to the species analyzed in Chapter 6.

For purposes of this disturbance analysis, activities were broken into four main categories: ROW Maintenance, O&M, Medium Capital Expansion Projects, and Large Capital Expansion Projects. ROW maintenance acreage estimates were based on historic and anticipated future budgets for this work, which translates into approximately 2,200 miles of ROW maintenance a year. O&M acreage predictions were projected based on historic five-year average and anticipated future growth for this type of work across the pipeline system.

Both Medium and Large Capital Expansion Project acreage estimates were developed based on data from previous projects and NiSource's anticipation of future growth of domestic natural gas transmission in the next 50 years. Medium Capital Expansion Projects were defined as the construction of a new pipeline up to 50 miles in length, the drilling of up to 30 wells, and the addition of up to four compressor stations. Large Capital Expansion Projects were defined to include construction of new pipelines between 50 and 200 miles in length. The upper limit of these ranges was used in calculating annual disturbance estimates.

**Table 2-1** below displays the estimated annual acreage impacts from NiSource covered activities within the covered lands. A more detailed version of **Table 2-1** is contained in **Appendix A**. NiSource estimates that, on an annual basis, 18,505 acres within previously disturbed areas (i.e., existing ROW and existing compressor stations)

will be affected (18,501 acres for pipeline activities and 4 acres for compressor station activities). Most of this activity will represent vegetation maintenance. The establishment of new ROW and new storage field easements will affect 904 acres of land annually (844 acres for pipeline activities and 60 acres for storage field activities). Excluding vegetation maintenance, the estimated impact of covered activities (i.e., O&M and Capital Expansion projects) is 2,742 acres (1,838 existing-facility acres and 904 new-disturbance acres) each year. Over the 50-year life of the permit, the total new-disturbance acreage impact from all covered activities is estimated to be approximately 45,200 acres of the covered lands.

## 2.4 Covered Activities

The covered activities addressed in this MSHCP are those activities necessary for safe and efficient operation of NiSource's pipeline system, many of which are performed pursuant to the regulations and guidance of the FERC, the USDOT, and other regulatory authorities. The covered activities generally can be divided into three main categories of activities related to NiSource's natural gas pipeline system: (1) general operation and maintenance; (2) safety-related repairs, replacements, and maintenance; and (3) certain expansion activities. For purposes of this MSHCP, NiSource's natural gas pipeline system does not include any electric transmission lines that support the transmission of natural gas. This section provides a general overview of the covered activities.

Additionally, the ECS (Appendix B) provide greater detail and graphical representations of many of the construction and operation techniques outlined below. As described in Chapter 6, the ECS also describe the existing methodologies and BMPs NiSource uses to reduce and mitigate impacts to environmentally-sensitive areas during field activities.<sup>1</sup> Appendix C contains photographs of a typical pipeline ROW and appurtenant facilities.

NiSource's covered activities often occur on or within three main types of locations: pipeline ROWs, appurtenant facility sites (AFSSs), and access roads. The following is a brief description of these categories.

As noted in Chapter 1, NiSource is seeking coverage, under this permit only, for NiSource's own activities. This includes the activities of NiSource's subsidiaries and designated agents of NiSource companies. NiSource is not seeking coverage under this permit for the activities of third parties, including the owners of land upon which NiSource has easements and persons who use the same access roads as NiSource.

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<sup>1</sup> NiSource maintains three versions of the ECS, which contain minor differences specific to the particular subsidiary utilizing the document or location where the activity is being performed. While NiSource updates the ECS documents annually, any revisions made to the standards will be reviewed by the Service to ensure an equal or greater level of protection to natural resources as the ECS in effect at the time of issuance of an ITP. To accommodate any changes, the provisions of Chapter 9 will be used to amend the MSHCP or permit, as necessary. For convenience, the MSHCP will refer to the three ECS documents as a single set of standards, the ECS or the NiSource Gas Transmission & Storage Companies (NGTS) ECS, unless reference to one of the particular versions is appropriate.

**Table 2-1 Maximum Anticipated Annual Impacts within the Covered Lands**

	Total Acreage (annual)	Pipeline			Storage Field		Compressor Station	
		Length (miles)	Existing ROW (acres)	New Disturbance (acres)	Existing Storage Field (acres)	New Disturbance (acres)	Existing Compressor Station (acres)	New Disturbance (acres)
<b>Right-of-way Vegetation Maintenance<sup>A,B</sup></b>	16,667	na	16,667	0	incl	incl	incl	incl
<b>Operations &amp; Maintenance<sup>B</sup></b>	1102	na	1046	56	incl	incl	incl	incl
<b>Capital Expansion Project - Medium (occurs every other year)<sup>B,C</sup></b>	670	50	303	303	0	60	4	0
<b>Capital Expansion Project - Large (occurs every fifth year)<sup>B,D</sup></b>	970.0	80	485	485	na	na	incl	incl
<b>Totals</b>	<b>19,409</b>	<b>na</b>	<b>18,501</b>	<b>844</b>	<b>0</b>	<b>60</b>	<b>4</b>	<b>0</b>

*Table Notes:*

<sup>A</sup> ROW vegetation maintenance is split between mechanical and herbicide methods. Acreage is based on 2,200 miles of ROW maintained/year. Generally, NiSource will perform some type of ROW maintenance at any given location once every 5 to 10 years.

<sup>B</sup> Includes design margin which doubles acreage for O&M and Capital expansion projects, and it adds only 25% to ROW acreage.

<sup>C</sup> “Medium Capital Expansion Projects” are defined as construction of a new 50-mile pipeline, drilling of 30 wells, or installation of 4 compressor station additions. In the year of construction, a well is assumed to impact two acres; a compressor station is assumed to impact one acre. Medium capital expansion projects are estimated to occur once every other year. It is estimated there will be 25 medium capital expansion projects over the term of the MSHCP. For acreage impacts in the year of work, multiply the total annual acreage by 2 and then multiple again by 2 to address the design margin.

<sup>D</sup> “Large Capital Expansion Projects” are defined as the construction of a new pipeline 200 miles in length. Large capital expansion projects are estimated to occur once every five years. It is estimated there will be 10 large capital expansion projects over the term of the MSHCP. For acreage impacts in the year of work, multiply the total annual acreage by 5 and then multiply again by 2 to address the design margin.

“incl” denotes that the acres disclosed under Pipeline include storage field and compressor station acres.

“na” denotes not applicable

**Pipeline ROW & Extra Work Space**

Pipeline ROWs consist of a cleared and maintained corridor for their entire length. They are delineated with aboveground pipeline markers, spaced along the ROW, in accordance with USDOT guidelines. The permanent cleared corridor width for a single pipeline is typically 50 feet centered on the pipeline. Additional parallel pipelines (loop pipelines) require a larger permanent ROW width. For example, a permanent ROW that accommodates two parallel pipelines will typically be 75 feet in width (25 feet on either side of the pipelines with a 25-foot offset in between). Figures 2 and 3 of the ECS provide typical ROW cross-sections.

An additional five to 50 feet of temporary ROW width may be utilized to facilitate pipeline construction activities. Temporary ROWs are cleared, graded, and restored during construction, and do not become a permanent part of the operating easement, nor are they maintained after successful restoration. Once construction is complete, landowners typically allow temporary ROWs to revert to their original land-use status.

In addition to the permanent and temporary ROWs utilized during a construction project, extra work spaces are often necessary. These extra work areas are temporary in nature and include staging areas, contractor's lots, and/or pipeyards. These locations are used to accommodate mobile construction trailers/offices; material, fuel and equipment storage; and various work activities that require extra space not provided by the standard construction ROW. Once a project is near completion, these areas are restored. A typical staging area may measure 50 feet by 100 feet, while a pipeyard or contractor's lot may occupy several acres. Large temporary locations, such as pipeyards and contractor's lots, are typically chosen for their ease of use (i.e., little or no site preparation required) and ready access to public roads and the project.

Coastal-area permanent ROWs, particularly those associated with NiSource's Gulf system, are different in nature from standard onshore ROWs. Coastal-area ROWs do not require the same type of maintenance, as many of their associated pipeline facilities are submerged.

### **Appurtenant Facility Sites**

Appurtenant facilities are components of the pipeline system that are integral to its operation, other than the pipeline itself (e.g., valve sets, launchers/receivers, compressor stations, measurement and regulation stations, cathodic protection, storage wellheads, etc.). Many appurtenant facilities are accommodated within the standard ROW corridor width. Thus, this location category is limited to those appurtenances whose site footprint exceeds, or is located away from, the standard pipeline permanent ROW corridor. NiSource's office buildings and administrative centers also fall within this location category.

AFSs range widely in size, but are typically cleared, maintained, and fenced locations. The sites may be graveled, paved, maintained in a mowed herbaceous state, or a combination of the three. These sites may be owned in fee title (such as compressor station lots) or occupied through a lease/easement.

### **Access Roads**

Access roads are non-public or otherwise non-traditional roads that are utilized and maintained (solely or in part) for access to existing or proposed facilities. Access roads are typically utilized under a lease/easement agreement with the landowner or land management agency. An access road is typically constructed and maintained to 25-feet in width, with additional width provided for tight turns.

#### **2.4.1 O&M Activities**

The O&M category constitutes the overwhelming majority of NiSource's field activities and is defined herein as those activities that do not require excavation or



significant earth disturbance. O&M includes activities conducted daily in order to keep the system operating efficiently and safely. These activities include the physical operation and the required maintenance, monitoring, and inspection of the facilities. The comparatively minor disturbance associated with this category is generally limited to ingress and egress and vegetation management. These activities are limited to existing ROWs, AFSs, and access roads.

A majority of NiSource's facilities occupy lands through easement/lease agreements with private landowners or federal or state land management agencies. These agreements may be strictly limited to allow performance of only those activities that facilitate the construction and continued operation and maintenance of facilities.

#### **2.4.1.1 Vegetation Maintenance**

Periodic vegetation maintenance on ROWs, AFSs, and access roads is conducted to protect facility integrity and to accommodate the continued operation, maintenance, and inspection of those facilities. Vegetation management techniques can include tree clearing and side-trimming, mowing, and herbicide application in varying integrated fashions. Some form of vegetation management activity may occur during any time of the year.

For onshore ROWs, full-width mechanical clearing (mowing, tree clearing, and side-trimming) of ROWs is typically conducted every seven years and may occur as often as every three years. To facilitate periodic corrosion and leak surveys, a corridor typically not exceeding 10 feet in width (centered on the pipeline), may be mowed annually. Vegetation maintenance on access roads and facility sites is conducted periodically on an as-needed basis.

#### **2.4.1.2 Pipeline and Appurtenant Facility Operation, Maintenance, Monitoring, and Inspection**

Pipeline and appurtenant facility operation, maintenance, monitoring, and inspection activities occur year round. These activities include the multiple field actions that are necessary to maintain and operate a safe and reliable pipeline and storage system. Generally, these activities involve field personnel accessing facilities via vehicles such as pickup trucks or other maintenance-type vehicles. Access is obtained through the use of public roads, access roads, and/or traveling the ROW. Once field personnel arrive at their facility destination, their activities are confined to the ROW or AFSs.

Operation, maintenance, and monitoring activities may include, but are not limited to: underground facility location and identification, communications facility O&M, compressor station O&M, pipeline liquid-removal activities, valve O&M, methanol injection system O&M, cathodic protection system O&M and monitoring, storage well O&M and monitoring, and above-ground facility painting, etc. These activities typically do not cause earth disturbance and may include actions such as valve greasing, recording information from gauges, performing facility inspections, refilling methanol injectors, and other routine maintenance actions.

Inspections conducted in accordance with NiSource policy and federal law (Natural Gas Pipeline Safety Act and USDOT regulations) are performed on all system facilities. Inspections may be performed by ground personnel and monitoring equipment or by aerial means (e.g., fixed wing and/or helicopter surveys). The inspections under this heading are limited to surface inspections (i.e., no excavation required) and internal pipeline inspections, which are conducted using “pigs” and existing or temporarily-installed launching/receiving facilities.

Coastal-area ROW and system maintenance may differ significantly from conventional upland area ROW maintenance primarily due to access issues and the submerged nature of some of the facilities. Maintenance activities in coastal areas are similar to those in more traditional onshore locations, but may also include actions such as pipeline canal bulkhead maintenance and installation, navigational beacon placement and maintenance, access canal and barge terminal suction dredging, pipeline-crossing and dredge-warning sign maintenance and installation, aerial span maintenance, etc. Equipment used to access these coastal-area facilities may include pickup trucks driven on public and NiSource access roads and existing levee systems, air boats, and barges mounted with equipment. Watercraft access is typically obtained through the intercoastal waterway, existing bayous, and access canals.

#### **2.4.1.3 Access Road O&M**

NiSource facilities are accessed through the combined use of public roads, the ROW, and NiSource access roads. Access roads are typically dirt and/or graveled and require periodic maintenance. Construction-related maintenance might include the regrading of the roadbed and gravel placement and maintenance performed on road ditches and other water conveyances.

#### **2.4.1.4 Cathodic Protection Operation and Maintenance**

Cathodic protection (CP) is a method used to protect metal structures from corrosion. CP installations typically are located along or directly adjacent to the permanent pipeline ROW and consist of a thin, buried cable with sacrificial anodes attached to it. The anodes are typically grouped within an area referred to as a groundbed. The cables and anodes are connected to the pipeline and to a rectifier mounted on a power pole, which impresses low-voltage DC current into the system. Operation and maintenance of CP systems include activities such as recording information from test stations and ground beds, measuring the soil-to-pipe electrical potential, and adjusting current flow from rectifiers.

#### **2.4.1.5 Facility Inspection Activities**

NiSource facilities are inspected on a continual basis to ensure safe and reliable service and to adhere to applicable regulations and NiSource policy. While the overwhelming majority of these inspections require no earth disturbance, there are instances where disturbance is required to complete the inspection. Coating inspection, facility verification, and temporary launcher/receiver installation to facilitate internal inspection of the pipe all require earth disturbance. This earth disturbance is typically contained within the ROW and generally requires only bell-hole-type excavation.

### **2.4.1.6 Facility Abandonment**

There are occasional instances when NiSource and/or its customers determine that a pipeline, storage well, or appurtenant facility is no longer necessary and may be abandoned or retired. Depending upon varying factors, pipeline abandonment may be in-place, by removal, or a combination of the two. Abandonment may also occur by sale, where the facility and its easement/property rights are transferred directly to the purchaser. The disturbance initiated by in-place abandonment is typically minimal, with minor excavations usually necessary only to remove appurtenant facilities (valves, drip tanks, etc.), any pipeline fluids, and to cut and cap the pipeline segment for proper abandonment. Abandonment by removal results in more disturbance than in-place abandonment, as the entire pipeline segment (along with its associated appurtenances) is physically removed from the ground.

Storage well abandonment may require the well to be plugged, or to be converted to an observation well, which is used to monitor the utilization of the storage formation. Well abandonment may require some level of construction activity (typically confined within the existing and maintained well site) in order to convert or plug the well in accordance with State requirements.

Large appurtenant facilities, such as compressor stations, may also be abandoned. When these facilities are abandoned, above- and below-ground appurtenances are typically removed from the site unless otherwise conditioned in a sale agreement. Buildings may be left in place at the discretion of NiSource, the current landowner, or the potential purchaser of the associated property.

## **2.4.2 Capital Projects**

NiSource's construction activities include those that require grading, excavation, or other significant form of earth disturbing activities in order to construct, replace, inspect, and maintain facilities. The disturbance may be minor such as a small (15-foot by 15-foot) excavation to repair damaged pipeline coating, or may be as significant as constructing 100 miles of pipeline within a new ROW.

### **2.4.2.1 Pipeline Construction**

Pipeline construction may involve the construction of a new transmission or storage pipeline on a new ROW, or the replacement of an existing pipeline. The replacement pipe may be the same size as the existing pipe in order to address pipeline age and condition concerns, or it could be larger in order to serve an increasing market or accommodate an engineering need. The range of disturbance varies depending on the scope and magnitude of a specific project or construction activity.

A typical construction project follows a consistent sequence as summarized in the following paragraphs and shown in **Figure 2-6**. These steps are described in detail in the ECS. While more than one portion of this sequence may be ongoing at any given time or location, each portion of pipeline goes through the same general process. Projects in sensitive areas, such as wetlands and waterbodies, are constructed as a

single construction effort, as those locations undergo an expedited construction sequence that is completely separate from adjacent uplands.

Once construction authorizations are obtained, NiSource personnel or their contractors will typically delineate the limits of the project's footprint or construction work area in the field. Clearing crews commence construction in these marked areas, removing trees and brush as necessary.

After clearing, the construction work area is then graded to create a safe and stable working surface. Grading is done to the minimum extent necessary. Large rocks and tree stumps may be cut (includes grinding), graded, or removed as appropriate. They may also be buried within the construction work area, or windrowed just off of the construction work area. Topsoil segregation in agricultural lands and/or residential areas also typically occurs during this stage. Upon the completion of grading activities, temporary erosion and sediment (E&S) control devices are installed and other BMPs are initiated.

The next step in the construction sequence is the trenching phase, during which a trench that will be occupied by the new pipeline is excavated. This step may also first include the removal of an existing pipeline. Trenching is typically conducted with a backhoe, and the spoil removed from the trench is side-cast along and within the edge of the construction work area. The trench is excavated to a sufficient depth to allow for proper padding beneath the new pipeline and to accommodate a typical minimum of three feet of cover above the pipeline upon backfilling.

In unique locations (e.g., roads, rivers, or otherwise sensitive or prohibitive areas), other construction methodologies may be utilized that do not require conventional surface trenching techniques. These techniques may include boring or horizontal directional drilling. While these techniques are often utilized, their use is not appropriate or possible in every unique location.

As addressed above, construction through wetlands and waterbodies is conducted separately from the standard upland construction sequence. This allows for implementation of special construction techniques appropriate to these sensitive areas.

In the event that consolidated rock impedes the excavation of the trench, blasting may be required. Blasting will only be performed to the extent necessary to fracture any rock in the trench. Vibration is controlled through the use of shape charges, stemming materials, and delays to prevent significant vibration outside the work area. Blasting is conducted by a licensed contractor and in accordance with all applicable laws and regulations. The rock is then excavated with a backhoe.

Once trenching is complete, the joints of pipe are transported to the construction work area and placed beside the trench in a procedure called stringing. The joints of pipe are carried via a truck, the size and type of which is commensurate with the diameter and amount of pipe joints being transported. Pipe segments are most often offloaded by a side boom. The pipe joints are then bent to conform to the contours of the existing landscape. After that, the pipe joints are welded together, inspected, and coated with a protective layer that aids in corrosion prevention.

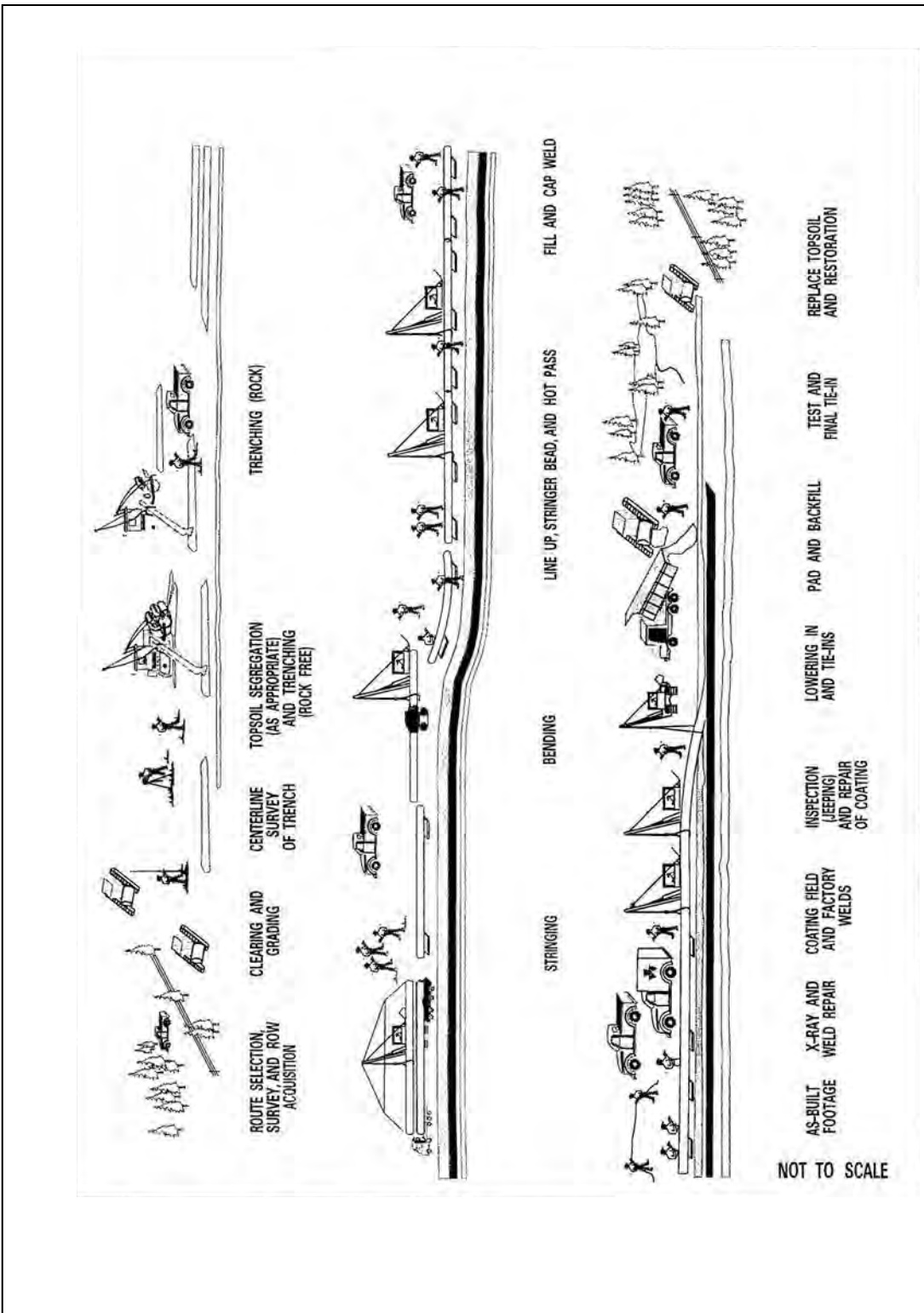


Figure 2-6 Typical Upland Pipeline Construction Sequence

Next, the pipeline is lowered into the trench and backfilled. The constructed pipeline is then hydrostatically tested to verify its integrity prior to placing it into service. The test requires that the pipeline be filled with water withdrawn from a local source, such as a stream, pond or public service department, and then pressurized above its proposed operating limit. Once the test is completed, the water is discharged to the ground.

As the final step in the construction sequence, the construction work area is stabilized via final grading and restoration. This part of the sequence includes regrading the construction work area to restore pre-construction contours, topsoil replacement, removal of excess rock in agricultural lands, and the placement of final E&S control devices. Restoration includes seedbed preparation and subsequent seeding and mulching activities.

Coastal-area pipelines are often located in canals as opposed to a typical upland ROW. Typically, low ground weight bearing equipment (commonly referred to as “swamphoes” or “swampbuggies”) is used on saturated soils that cannot support conventional excavation equipment. In more open water marsh environments, the pipeline may be constructed using barge mounted equipment or “lay barges.” In both instances, the pipe is typically welded in multiple joint sections, and then floated or push-pulled into the excavated trench. Concrete weights are commonly placed on the pipe to prevent it from floating. As mentioned above, rock or wooden structures known as bulkheads are placed at the intersections of pipeline canals and public waterways used for access. These structures prevent unwanted intrusion into the pipeline canals.

#### **2.4.2.2 Storage Well Construction**

Storage fields are used for temporary underground storage of natural gas. Storage fields can range in size from a few hundred to several thousand acres and consist of a few dozen to hundreds of wells. These wells are typically spaced 1,800 feet to 2,400 feet apart, depending on site geology and reservoir performance. Storage field operators generally inject gas into the storage formation during low-use periods (warm weather) and withdraw it during peak-use periods (cold weather), although a second peak utilization period has developed during the hot summer season for gas-fired electric power generation. The location of a natural gas storage field and its associated storage wells is strictly dependent upon the location of an appropriate geologic storage formation.

Unlike linear pipeline construction, storage-well construction is confined to one static location (well site), or multiple locations when drilling multiple wells. The surface preparation for storage-well construction is similar in sequence and practice to construction activities described above.

A new storage well location may require a construction work area measuring approximately 400 feet by 400 feet. Unlike pipeline construction, which typically follows existing land contours, a storage well site may require permanent recontouring in order to establish a suitable construction and operating location. During drilling, these sites must be large enough to accommodate the large drilling rig, multiple equipment trailers, drilling mud recirculation tanks, drilling mud waste pits, office

trailers, and numerous trucks and personal vehicles. The duration of drilling activities varies from location to location but typically will last from one to three months. Upon completion of the well, the well site will be restored to a condition suitable for operation. Aboveground appurtenances, such as a wellhead, meter house, and telemetry equipment, will typically occupy the well site, and normal and periodic O&M activities will occur throughout the life of the well. Vegetation maintenance is usually confined to the amount of space required to maintain, operate, and monitor the well (i.e., not the entire 400-foot by 400-foot site).

Once a storage well is in operation for a period of time, enhancement and/or reconditioning activities for the well (reconditioning, acidizing, coil tubing cleanout, drilling to deepen the well, hydraulic fracturing, re-perforating, and wellbore stabilization) may be required to increase or return the well to previous injection/withdrawal efficiency (US Dept of Energy, 2009) and increase the deliverability of the wells. Some activities may be required, however, to enhance and/or recondition new or existing injection or withdrawal wells associated with NiSource's permitted underground storage reservoirs. The specified times for these activities are calendar days, and work will generally be done during daylight hours. A more complete listing and description of these activities are provided below. Clearing of re-established vegetation may be required to allow for these activities. Depending upon the current extent of the maintained well site, site expansion may sometimes be required in order to accommodate the equipment necessary to conduct these activities.

Underground storage well enhancement/reconditioning activities also include wellbore clean outs, changing wellhead valves and well tubing, formation fracturing, and well testing. These activities typically require a well service rig, which looks like a small drilling rig mounted on a truck. Materials removed during the enhancement/reconditioning activities include sand used during hydraulic fracturing treatments, wellbore cuttings, bentonite drilling muds, and fluids. All removed materials are captured in an enclosed steel tank, or occasionally, a temporary surface pit (permanent waste pits are not used). Surface pits are typically 50 feet long by 20 feet wide and up to 10 feet in depth, and are lined with 20-30 mil plastic. Any fluids generated by these activities are disposed of in approved offsite injection wells or third-party disposal facilities. Naturally occurring solids (e.g., bore cuttings) are typically buried on-site. Remaining materials are disposed of in an approved landfill.

Reconditioning involves replacing existing casing, installing new casing, cementing casing, and/or wellhead replacement. Equipment needed includes a well service rig, mud pump, pipe skids, pipe tubs, and water tanks. Generally, the time needed for reconditioning will be seven to 20 days.

Acidizing involves pumping acid down the well's flow string and into the storage zone to dissolve and remove materials which are restricting flow from the well. Equipment needed includes a pump truck, acid truck(s), nitrogen truck(s), flow-back tanks, and water tanks. Generally, the time needed for acidizing will be one to five days.

Coil tubing cleanout involves using a coil tubing unit to pressure wash the inside of the flow string and the formation face and clean out debris from surface to total

depth. Equipment needed includes a coiled tubing unit, pump truck, nitrogen truck(s), and flow-back tanks. Generally, the time needed for coil tubing cleanout will be one to three days.

Drilling deeper involves deepening the well to expose additional storage formation. Equipment needed includes a drilling rig or well service rig and support equipment as listed in reconditioning. Generally, the time needed for drilling deeper will be one to two days.

Re-perforating involves shooting additional holes through the well casing and cement sheath into the storage zone. This process may also involve pumping liquids, such as acid and water, into the well prior to perforating. Equipment needed includes a pump truck, acid truck, crane truck, logging truck, flow-back tank(s), and water truck(s). Generally, the time needed for re-perforating will be one to two days.

Wellbore stabilization involves using a coil tubing unit to place materials in an open-hole well to prevent formations (typically shale) from caving in across the storage zone. The procedure thus stabilizes the open-hole section. Equipment needed includes a coiled tubing unit, pipe transport truck(s), flow-back tank(s), and water tank(s). Generally, the time needed for wellbore stabilization will be one to three days.

Hydraulic fracturing is utilized by NiSource on an as-needed basis for the construction and/or maintenance of underground storage wells. It is important to note that none of NiSource's business units engage in the exploration and development of new production of natural gas, where hydraulic fracturing also is used. Consequently, NiSource's covered activities do not include activities associated with new exploration and development. The activity described herein applies only to NiSource's underground storage wells and is limited to the counties included in the covered lands where NiSource has existing underground storage reservoirs. The following discussion provides general information on the use of hydraulic fracturing as it applies to the NiSource MSHCP and, in particular, to the construction and maintenance of the underground storage wells and reservoirs existing within the covered lands.

Hydraulic fracturing is a process that results in the creation of fractures in rocks to increase the output of a well. The most important industrial use for the practice is to stimulate oil and gas wells. Hydraulic fracturing has been used for over 60 years in more than one million wells. Thus, it is a common method used to make reservoir rock more permeable, allowing natural gas to flow more efficiently to the wellbore. Hydraulic fracture stimulation is commonly applied to wells drilled in low-permeability reservoirs. An estimated 90% of the natural gas wells in the United States use hydraulic fracturing to produce natural gas at economic rates. The process also is commonly used on many wells drilled or operating within underground storage reservoirs, such as those covered by this MSHCP.

More particularly, a hydraulic fracture is formed by pumping fracturing fluid into the wellbore at a rate sufficient to increase the pressure down-hole to a value in excess of the fracture gradient of the formation rock. The pressure causes the targeted formation to crack, allowing the fracturing fluid to enter and extend the crack farther into the formation. To keep this fracture open after the injection stops, a solid



proppant, commonly sieved round sand, is added to the fracturing fluid. The “propped” hydraulic fracture then becomes a high-permeability conduit through which the natural gas can flow more freely into the wellbore.

During the drilling of a new borehole or well, downward pressure is applied to a rotating drill bit. This drilling action produces rock chips and fine rock particles that may enter cracks and pore space at the wellbore wall that result in damage to the permeability at and near the wellbore. This damage often reduces flow into the borehole from the surrounding rock formation and partially seals off the borehole from the surrounding rock. In such instances, hydraulic fracturing may be used to mitigate damage that occurred during drilling of the new well or to enhance flow from an existing well where particles or other debris have clogged the fractures over time.

Hydraulic fracturing typically takes place well below the water table and is isolated from drinking water by thousands of feet and millions of tons of impermeable rock. As with all well work, companies like NiSource must comply with strict local, state, and federal regulations and regularly monitor and test to confirm their work is proceeding safely. For example, current well construction regulations require the installation of multiple layers of protective steel casing and cement that are specifically designed and utilized to protect freshwater aquifers. The existing storage wells that are included in this MSHCP were constructed, monitored, and tested in accordance with all applicable regulations. Moreover, NiSource will comply with all applicable local, state, and federal regulations in the construction of any new storage wells within the covered lands, this would also include any new regulations that would become effective during the duration of the permit and that would pertain to storage well construction or operation. Additional background information on hydraulic fracturing is available in the US Department of Energy’s *Modern Shale Gas Development in the United States: A Primer*, April 2009 (US Dept of Energy, 2009).

Hydraulic fracturing is specifically designed (through control of pressures and fluid injection) to fracture only the intended formation within the target zone. Created fractures are bounded above and below by tougher, confining rock layers. For NiSource storage well treatments, these fractures typically extend up to several hundred feet radially from the wellbore, but always within the FERC-approved storage reservoir.

All of the fluids recovered from NiSource’s hydraulic fracturing processes are hauled to a commercial, licensed disposal facility. NiSource does not release any of the fluids recovered from a hydraulic fracturing process directly into the environment or into any waterbody. All flowback fluids are initially captured in special blow-back tanks, and waste haulers then pick those fluids up and take them to an approved disposal site. Occasionally, recovered fluids may exceed the volume anticipated in the recovery tanks and that additional volume will be placed in a lined drilling pit on location for temporary storage before being hauled to the licensed disposal site. The recovery of fracturing fluids typically reaches 70% or more during the flowback operations immediately following the fracturing treatment. NiSource’s initial fluid recovery rates typically are near the 70% level or higher. The remainder of the fluid is either entrained in the gas stream or is retained in the fractured formation.

Unrecovered fluids do not make their way to near-surface formations or to ground or surface water. The geological trapping mechanisms that enable natural gas to collect and be stored also serve to trap any injected fluids. The installation of multiple strings or well casing and the use of properly designed cementing procedures ensure that fluids, as well as natural gas, are contained down-hole and are unable to migrate upward. All states require the installation of special freshwater protection casing strings to isolate the freshwater zone from deeper brines, produced hydrocarbons, and formation fluids. As previously stated, in each state within the covered lands where storage wells are located, NiSource has and will continue to comply with applicable state requirements. Significantly, NiSource has never had an incident occur where natural gas or any fluids escaped into near-surface formations or groundwater from its underground storage operations.

Hydraulic fracturing processes utilized in underground storage well work are fundamentally the same as those used during natural gas or oil well development, except for the size of the treatments and the regulatory oversight of the FERC. For example, modern shale gas hydraulic fracturing processes for exploration or production wells use much more fresh water – typically in the millions of gallons per well. On the other hand, the treatments used for NiSource’s underground storage wells typically use a significantly lesser amount, i.e., tens of thousands of gallons per well.

NiSource performs a hydraulic fracturing process on almost all newly constructed underground storage wells (typically 40 wells per year). All of its existing underground storage wells (whether used for injection or withdrawal purposes) are regularly tested for functionality. When well testing results indicate that wellbore restrictions or formation damage are present and that well productivity can be enhanced by performing a fracturing treatment, NiSource reservoir engineers schedule and initiate that process (typically 60 wells per year). Well-designed fracturing treatments can normally be expected to last for decades before any re-treatment is necessary although, in specific instances, additional treatments may be necessary to clean a clogged wellbore.

Hydraulic fracturing, as more fully described above, involves pumping various fluids into the well to crack (fracture) the storage zone and carry a proppant (sand) into the fracture to keep it open. Equipment needed includes a blender truck, pipe transport truck(s), fracturing pump truck(s), sand transport truck(s), nitrogen truck(s), flow-back tank(s), and water tank(s). Generally, the time needed for hydraulic fracturing will be one to five days.

Due to efficiencies gained in simultaneously performing multiple activities on the same well, the total length of time involved often will be less than the sum of the time estimates for individual activities. The sum of the individual activities represents the outer limits in terms of time involved. For example, coiled tubing cleanout, re-perforating, and hydraulic fracturing may only require two days with numerous pieces of equipment on site followed by a few days of well flow-back with minimum pieces of equipment on site — a considerably shorter time than the estimated maximum of ten days were the activities performed separately.

Again, these activities are all confined to the existing underground storage fields and reservoirs as identified within the covered lands of the MSHCP. All of the above activities are confined to specific underground storage zones within those reservoirs that are certificated by FERC.

### **2.4.2.3 General Appurtenance and Cathodic Protection Construction**

As noted above, CP is a method used to protect metal structures from corrosion, and consists of a thin cable connected to the pipeline that is buried along or directly adjacent to the pipeline ROW. The cable, which is attached to sacrificial anodes, delivers a direct current to the pipeline system. These facilities are commonly installed with a vibratory plow mounted on a bulldozer, Ditch Witch, tracked excavator, or backhoe.

In addition to CP, numerous appurtenant facilities are required to operate the transmission and storage system. These appurtenances, which consist of control valves and vents, measuring and regulating facilities, and gas heaters, among others, are mostly aboveground and are integral to the operation, monitoring, and inspection of the NiSource system. Construction of these facilities is confined to the permanent ROW or AFSs.

### **2.4.2.4 Compression-Related Facility Construction**

Compressor stations typically represent the largest AFSs and often occupy several acres. A compressor station produces the pressures necessary for the transport of natural gas through the pipeline system, and/or the injection or withdrawal of natural gas in a storage field. Compressor station lots are typically fenced, and the stations themselves are often manned full or part-time. These stations are spaced throughout the NiSource system. Common items within a compression facility site are: office buildings, paved lots and driveways, compressor and maintenance buildings, aboveground and belowground tanks, aboveground and belowground pipe and compression appurtenances, communications facilities, etc.

When additional compression is required to meet new or increased market demands, modifications are most often made to an existing station through the addition of compressor units. Compressor station modifications are typically done within the existing fenced compressor station lot and/or adjacent NiSource property limits. The additional compression may be installed within the existing compressor building, or it may require that a new building or building-addition be constructed.

Far less frequently, an entirely new compressor station may be built. A compressor station development site will encompass several acres, and depending on the condition of the preferred site, may require significant amounts of permanent recontouring to accommodate the facilities.

### **2.4.2.5 Communication Facility Construction**

Remote communication technologies are used in operating, monitoring, and communicating between NiSource facilities. These communication systems may utilize hard-wired and/or broadcast signals. The construction of these facilities typically

includes the installation of cable (often done by a Ditch Witch) within existing ROWs and/or the construction of communication towers. Communication towers are often “line-of-sight” dependent, so their placement and height vary with their surroundings.

#### **2.4.2.6 Access Road Construction**

As addressed above, NiSource facilities are accessed through the combined use of public roads, the ROW, and NiSource access roads. Access roads are typically dirt and/or graveled and require periodic maintenance. Construction-related maintenance might include the regrading of the roadbed and gravel placement and maintenance performed on road ditches and other water conveyances.

For new facilities in areas not previously occupied by NiSource, new access road construction will often be necessary. Their length is normally contingent upon the facility’s proximity to a public road and the area’s topography (e.g., mountainous terrain may not be conducive to direct-access routing). Access road construction uses procedures similar to the clearing, grading, and E&S control device installation described above in pipeline construction. An access road is typically constructed and maintained to 25 feet in width, with additional width provided for tight turns. Access road construction also includes the installation of proper stormwater conveyances, such as ditches and culverts, and may also include the construction of permanent equipment crossings at stream locations. Many of the access roads required for construction are also maintained for use by O&M personnel.

### **2.5 Activities Not Covered by the Multi-Species Habitat Conservation Plan**

#### **2.5.1 Activities Outside the Covered Lands**

This document describes the covered activities and the covered lands to be included within the ITP coverage. This MSHCP does not include any O&M or construction activity outside the one-mile wide corridor and designated counties for storage fields. For example, greenfield projects, which require new ROW outside the one-mile corridor or designated storage field counties, are not covered by this MSHCP. If such projects pose potential effects to listed species, separate ESA review will be necessary (e.g., ESA Section 7 consultation between FERC and the Service, amendment of this MSHCP and ITP, or development of a separate HCP and ITP). This MSHCP also does not include O&M or construction activities for NiSource’s offshore facilities, and those below the high tide line that are not explicitly included in the MSHCP. All of these activities must still undergo appropriate ESA review.

#### **2.5.2 Access Roads Beyond the Covered Lands**

NiSource facilities are accessed through the combined use of public roads, the ROW, and NiSource access roads. As described in sections 2.4.1.3 and 2.4.2.6, the use, operation, and maintenance of access roads within the covered lands are treated like any other covered activity. Some of these access roads extend beyond the covered lands described above, cannot be easily identified on topographic maps, and have not been surveyed and mapped. However, continued use of these existing roads for access to all

installation, abandonment, and/or maintenance projects is necessary. NiSource is not requesting any take coverage outside covered lands because the conservation measures it commits to will avoid or minimize species impacts to such an extent that take is not anticipated. While the use, operation, and maintenance of access roads within the covered lands are treated like any other covered activity, the following is a summary of the treatment of access road activities beyond the covered lands. This summary is also represented in **Figure 2-7** below. NiSource is not requesting any take coverage outside covered lands.

### **Access Roads Outside the Covered Lands But Within Counties Crossed by the One-Mile Corridor**

For access roads that are located outside the covered lands but within the counties where the one-mile corridor occurs, this MSHCP includes AMMs for the potentially affected species. For some species, the implementation of these AMMs for access road use will be sufficient to reach a “no effect” or “not likely to adversely affect” determination. *See* Chapter 6 and **Appendix F**. Where NiSource can follow the access road AMMs defined for such species in those counties, the impacts of the use, operation, or maintenance of access roads located outside the one-mile corridor, but within counties crossed by the one-mile corridor, are considered “no effect” or “not likely to adversely affect.” If NiSource cannot follow these access road avoidance and minimization measures for these species, it will coordinate with the local Service field office as necessary to ensure compliance with the ESA and to reduce potential impacts to listed species to a “no effect” or “not likely to adversely affect” level.

For other species, the use of the access road avoidance and minimization measures may not be sufficient to reach a “no effect” or “not likely to adversely affect” determination. For those species, NiSource will coordinate with the local Service field office for access road use outside the one-mile corridor, but within counties crossed by such corridor, to ensure compliance with the ESA and to reduce potential impacts to listed species to a “no effect” or “not likely to adversely affect” level.

### **Access Roads Outside the Counties Crossed by the One-Mile Corridor**

For use, operation, or maintenance of any access roads in counties outside of the counties intersected by the one-mile corridor, NiSource will consult with the applicable Service field office for additional species guidance and ESA compliance.

### **2.5.3 ESA Compliance for Future, Non-covered Activities**

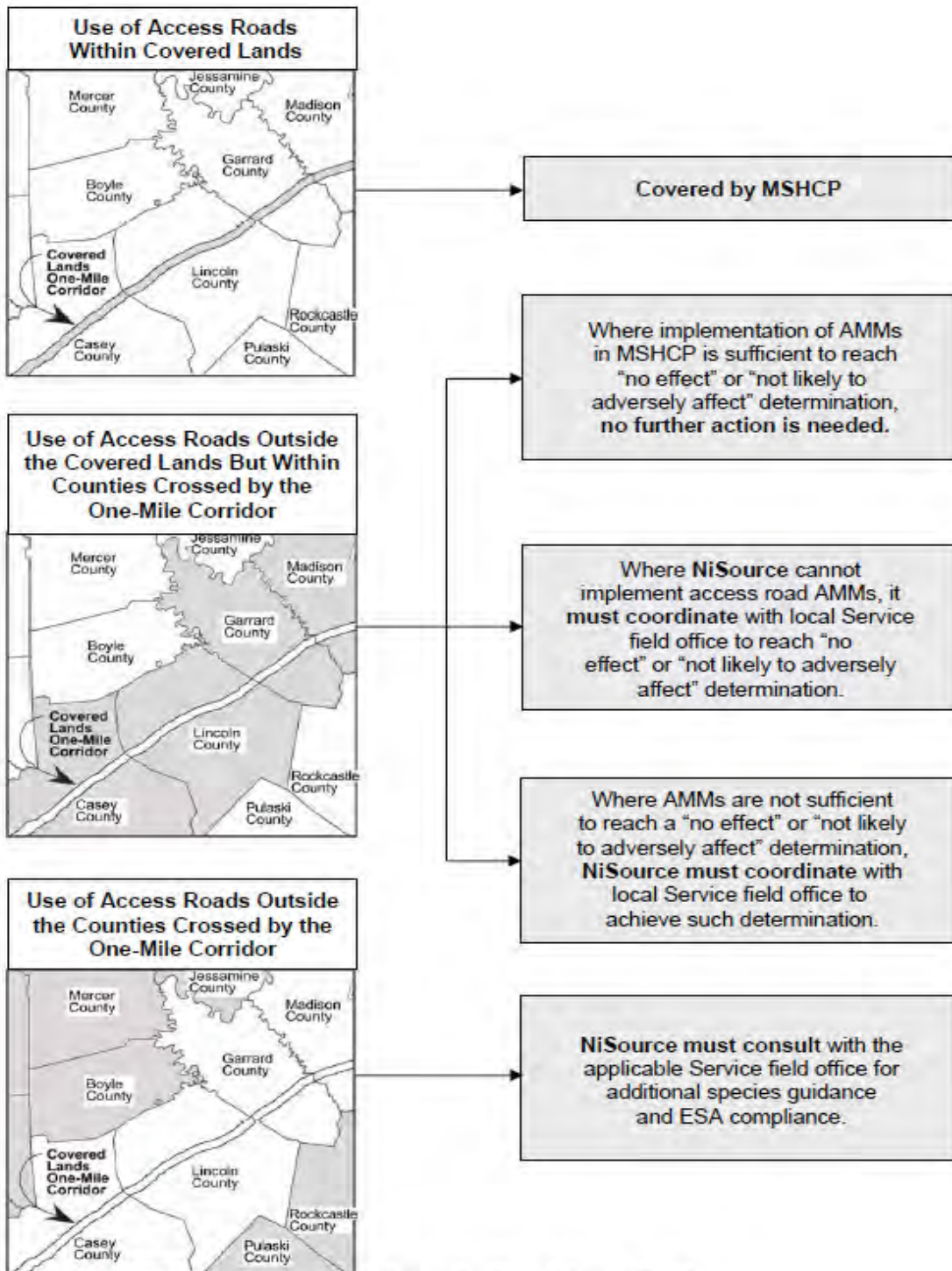
NiSource also anticipates that over the life of the proposed 50-year permit term, it will undertake some activities for which take coverage is not provided in the MSHCP and ITP. These are activities outlined in Section 2.5, which may require independent ESA and NEPA compliance. NiSource believes that the MSHCP will be helpful in those efforts, given its breadth and thoroughness. To the extent that the information contained in the MSHCP remains relevant and accurate, NiSource expects that some of it can be readily reviewed, applied and incorporated, potentially shortening the time period for administrative review. For instance, should a future project involve species that are covered in the MSHCP, solid background materials and threat assessments already exist. Moreover, consideration of the MSHCP's species conservation strategies

will enable complementary, future mitigation, if needed. Additionally, the MSHCP provides a robust explanation of NiSource's operation, maintenance and construction activities, and the suite of associated environmental impacts. Though new activity-specific analyses would be necessary, much of the above-referenced information already exists, and could be incorporated by reference or excerpted.

Some of the possible mechanisms to obtain future take coverage include: individual habitat conservation plans; amendments to the MSHCP and ITP, or further consultation under Section 7 of the ESA.

#### **2.5.4 Emergency Response**

In addition to the covered activities described above, it is likely that during the ITP permit term, NiSource will have to respond to emergency situations on its natural gas system, where an immediate response is often critical. Emergency response activities generally include those activities that are not part of the normal routine of O&M or construction. These activities are unscheduled, may occur at any time of the year or day, and are generally conducted when there is an imminent or current threat to life, property, and/or the environment. These activities may include, but are not limited to, appropriate responses to a hazardous spill, fire, natural disaster, and/or pipeline/storage well failures. The activities associated with an emergency response vary depending upon the specific characteristics of that particular emergency and the surrounding vicinity. In light of the inability to predict when these emergency response activities may be required, where they may occur in relation to MSHCP species, and the magnitude of such activities, emergency response activities are not included as covered activities under this MSHCP. Instead, in the event an emergency situation occurs involving the NiSource natural gas system within the covered lands that may affect covered species, NiSource will advise the Service and the applicable action agency, if any, of such emergency circumstances as soon as practicable to determine whether emergency Section 7 consultation under the provisions of 50 C.F.R. § 402.05 is required.



**Figure 2-7 Process for ESA Compliance for Use of Access Roads**

## 3.0 Physical and Biological Environmental Setting

### 3.1 Introduction

The NiSource system covered by this MSHCP spans 14-states ranging from Louisiana to New York, with system components located in southern, northeastern, Midwestern, and Mid-Atlantic states. This chapter provides background information on the environmental setting and the environmental data sources used in subsequent sections of this plan for analysis. It begins by introducing some of the key project-wide datasets used. This chapter also summarizes existing land use within the covered lands and the existing conservation lands crossed by the project, as well as a brief summary of climate information.

### 3.2 Data Collection

As described in Chapter 1, this MSHCP covers a large, primarily linear geographic area. Thus, it was important to obtain base data layers that were available and consistent across the project. The following data sets were used to help assess the project area:

- Ecoregion Data: Omernik's Ecoregion data from the Environmental Protection Agency (2007);
- Watershed Data: Hydrologic Unit Maps from U.S. Geological Survey (USGS) (2007);
- Land Use Data: National Land Cover Dataset (NLCD) from USGS (US Dept. of Interior 2006); and
- Conservation Lands Data: Primarily Gap Analysis Program (GAP) data, but also state land ownership layers for states where GAP analysis has not been completed.

Metadata for each of these data layers is described in detail in **Appendix D**, as well as additional data sets used for species-specific analyses.

### 3.3 Ecoregions

The covered lands cross 23 ecoregions, as defined by Omernik's Level III ecoregional data framework (**Figure 3-1**). In light of the scope and nature of the project, Omernik's Level III ecoregional descriptions are used as the foundation for describing the physical environmental setting of the project. Omernik's system is available in different scales, which allows for more in-depth descriptions on a species-specific level, where necessary. *See* Chapter 6.

Omernik's Level III ecoregional data was compiled based on the premise that ecological regions can be identified through analysis of patterns and composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality and integrity. These phenomena include geology, physiography, vegetation, climate, soils,



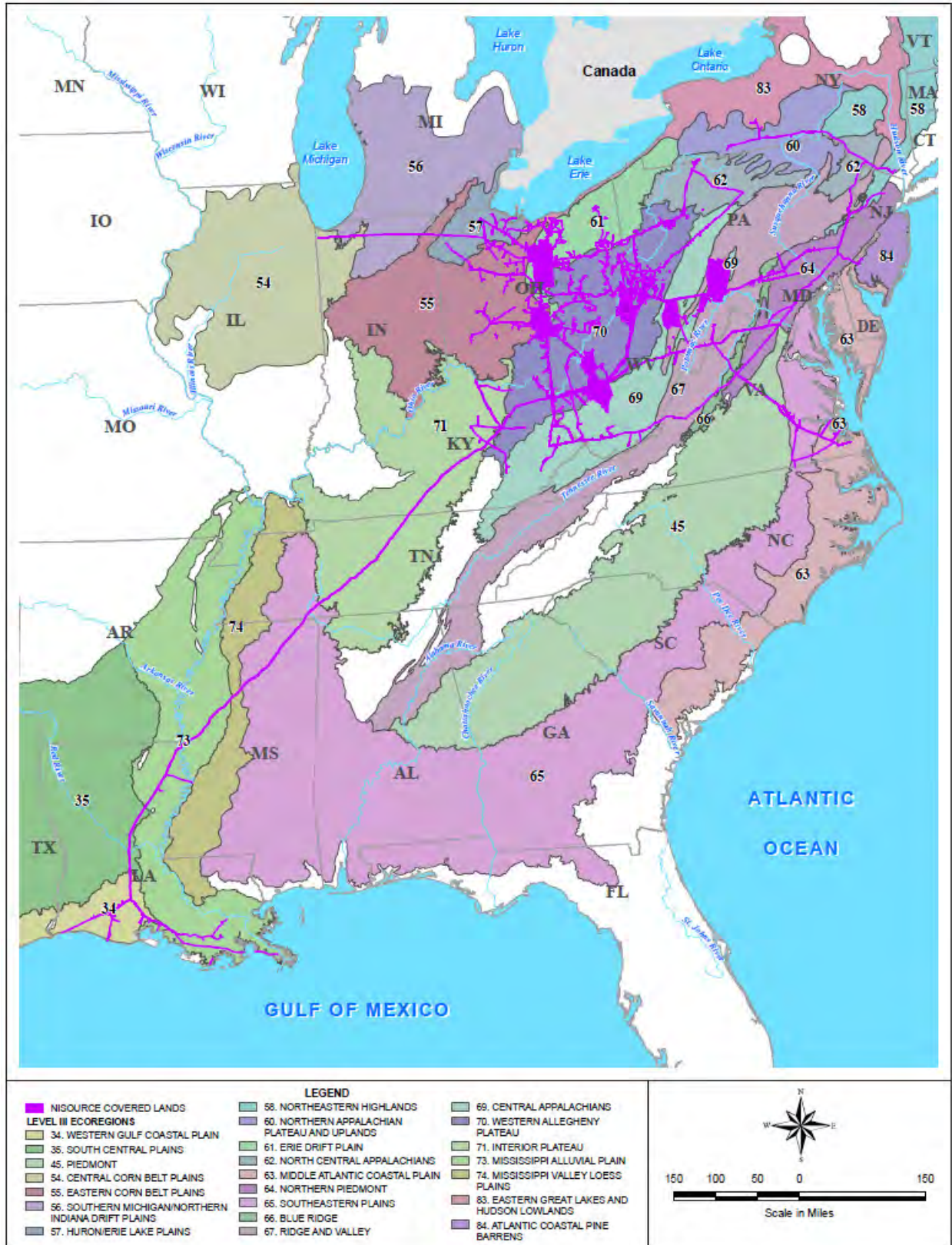


Figure 3-1 Level III Ecoregions Crossed by NiSource's Facilities

land use, wildlife, and hydrology (Environmental Protection Agency [EPA] 2007). The following 23 descriptions are taken from Omernik's Level III ecoregional descriptions and include the assigned ecoregional number for reference (EPA 2002). They describe the landscape setting of this MSHCP, starting at the southwest boundary and ending at the northeast boundary of the project.

### **3.3.1 Western Gulf Coastal Plain (34)**

The NiSource system crosses the Western Gulf Coastal Plain in southwestern Louisiana. The principal distinguishing characteristics of the Western Gulf Coastal Plain are its relatively-flat coastal plain topography and natural vegetation of mainly grassland. Inland from the region, the plains become more irregular and have mostly forest or savanna-type vegetation. Because of these characteristics, a higher percentage of the land is cropland, compared to land in bordering ecological regions. Recent urbanization and industrialization have become concerns in this region.

### **3.3.2 Mississippi Alluvial Plain (73)**

The NiSource system crosses the Mississippi Alluvial Plain in southeastern and northeastern Louisiana, and in northwestern Mississippi. This riverine ecoregion is mostly a broad, flat alluvial plain with river terraces, swales, and levees providing the main elements of relief. Soils are typically finer textured and more poorly drained than the upland soils of adjacent Mississippi Valley Loess Plains, although there are some areas of coarser, better-drained soils.

Winters are mild and summers are hot, with temperatures and precipitation increasing from north to south. Bottomland deciduous forest vegetation covered the region before much of it was cleared for cultivation. Presently, most of the northern and central parts of the region are in cropland and receive heavy treatments of insecticides and herbicides. Soybeans, cotton, and rice are the major crops.

### **3.3.3 South Central Plains (35)**

The NiSource system crosses a small portion of the South Central Plains in central Louisiana. Locally termed the "pine woods," this region of mostly irregular plains was once blanketed by oak-hickory-pine forests, but is now predominantly in loblolly and shortleaf pine. Only about one-sixth of the region is in cropland, whereas about two-thirds are in forests and woodland. Lumber and pulpwood production are major economic activities.

### **3.3.4 Mississippi Valley Loess Plains (74)**

The NiSource system crosses a small region of the Mississippi Valley Loess Plains in north-central Mississippi. This ecoregion stretches from near the Ohio River in western Kentucky to Louisiana. It consists primarily of irregular plains, some gently rolling hills, and near the Mississippi River, bluffs. Thick loess is one of the distinguishing characteristics. The bluff hills in the western portion contain soils that are deep, steep, silty, and erosive. Flatter topography is found to the east, and streams tend to have less gradient and siltier substrates than in the Southeastern Plains ecoregion. Oak-hickory and oak-hickory-pine forest was the natural vegetation.

Agriculture is now the dominant land cover in the Kentucky and Tennessee portion of the region, while in Mississippi there is a mosaic of forest and cropland.

### **3.3.5 Southeastern Plains (65)**

The NiSource system crosses the Southeastern Plains ecoregion in northeastern Mississippi, southern Tennessee, and in southeastern Virginia. These irregular plains have a mosaic of cropland, pasture, woodland, and forest. Natural vegetation was predominantly longleaf pine, with smaller areas of oak-hickory-pine and southern mixed forest.

The Cretaceous or Tertiary-age sands, silts, and clays of the region contrast geologically with the older metamorphic and igneous rocks of the Piedmont ecoregion, and with the Paleozoic limestone, chert, and shale found in the Interior Plateau ecoregion. Elevations and relief are greater than in the Southern Coastal Plain ecoregion, but generally less than in much of the Piedmont. Streams in this area are relatively low gradient and sandy bottomed.

### **3.3.6 Interior Plateau (71)**

The NiSource system crosses the Interior Plateau ecoregion in central Tennessee, western Kentucky, and southwestern Ohio. The Interior Plateau is a diverse ecoregion extending from southern Indiana and Ohio to northern Alabama. Rock types are distinctly different from the coastal plain sediments and alluvial deposits to the west, and elevations are lower than the Appalachian ecoregions to the east. Mississippian- to Ordovician-age limestone, chert, sandstone, siltstone, and shale compose the landforms of open hills, irregular plains, and tablelands. The natural vegetation is primarily oak-hickory forest, with some areas of bluestem prairie and cedar glades. The region has a diverse fish fauna.

### **3.3.7 Central Corn Belt Plains (54)**

The NiSource system crosses the Central Corn Belt Plains in northwest Indiana. Extensive prairie communities intermixed with oak-hickory forests were native to the glaciated plains of the Central Corn Belt Plains. Beginning in the nineteenth century, the natural vegetation was gradually replaced by agriculture. Farms are now extensive on the dark, fertile soils of the Central Corn Belt Plains and mainly produce corn and soybeans. Cattle, sheep, poultry, and hogs are also raised, but they are not as dominant as in the drier Western Corn Belt Plains to the west. Agriculture has affected stream chemistry, turbidity, and habitat.

### **3.3.8 Southern Michigan/Northern Indiana Drift Plains (56)**

The NiSource system crosses the Southern Michigan/Northern Indiana Drift Plains in northern Indiana. Bordered by Lake Michigan on the west, this ecoregion is less agricultural than the Central and Eastern Corn Belt Plains to the south, and it is better drained and contains more lakes than the flat agricultural Huron/Erie Lake Plains to the east. The region is characterized by many lakes and marshes as well as an assortment of landforms, soil types, soil textures, and land uses. Broad till plains with thick and complex deposits of drift, paleobeach ridges, relict dunes, morainal hills, kames, drumlins, meltwater channels, and kettles occur. Oak-hickory forests, northern

swamp forests, and beech forests were typical. Feed grain, soybean, and livestock farming, as well as woodlots, quarries, recreational development, and urban-industrial areas, are now common.

### **3.3.9 Eastern Corn Belt Plains (55)**

The NiSource system crosses the Eastern Corn Belt Plains in northeast Indiana, and western Ohio. The Eastern Corn Belt Plains are primarily a rolling till plain with local end moraines. It had more natural tree cover and has lighter colored soils than the Central Corn Belt Plains. The region has loamier and better-drained soils than the Huron/Erie Lake Plain, and richer soils than the Erie Drift Plain. Glacial deposits of Wisconsinan age are extensive. They are not as dissected nor as leached as the pre-Wisconsinan till which is restricted to the southern part of the region. Originally, beech forests were common on Wisconsinan-age soils, while beech forests and elm-ash swamp forests dominated the wetter pre-Wisconsinan soils. Today, extensive corn, soybean, and livestock production occurs and has affected stream chemistry and turbidity.

### **3.3.10 Huron/Erie Lake Plain (57)**

The NiSource system crosses the Huron/Erie lake Plans in northwestern Ohio. The Huron/Erie Lake Plain is a broad, fertile, nearly-flat plain punctuated by relic sand dunes, beach ridges, and end moraines. Originally, soil drainage was typically poorer than in the adjacent Eastern Corn Belt Plains, and elm-ash swamp and beech forests were dominant. Oak savanna was typically restricted to sandy, well-drained dunes and beach ridges. Today, most of the area has been cleared and artificially drained and contains highly productive farms producing corn, soybeans, livestock, and vegetables. Urban and industrial areas are also extensive. Stream habitat and quality have been degraded by channelization, ditching, and agricultural activities.

### **3.3.11 Central Appalachians (69)**

The NiSource system crosses the Central Appalachian ecoregion in portions of southeastern Kentucky, southern West Virginia, northwestern Virginia, and western Pennsylvania. The Central Appalachian ecoregion, stretching from central Pennsylvania to northern Tennessee, is primarily a high, dissected, rugged plateau composed of sandstone, shale, conglomerate, and coal. The rugged terrain, cool climate, and infertile soils limit agriculture, resulting in a mostly-forested land cover. The high hills and low mountains are covered by a mixed mesophytic forest with areas of Appalachian oak and northern hardwood forest. Bituminous coal mines are common, and have caused the siltation and acidification of streams.

### **3.3.12 Western Allegheny Plateau (70)**

The NiSource system crosses the Western Allegheny Plateau ecoregion in northeastern Kentucky, southeastern Ohio, northwestern West Virginia, and southwestern Pennsylvania. The hilly and wooded terrain of the Western Allegheny Plateau was not muted by glaciation and is more rugged than the agricultural till plains of ecoregions to the north and west, but is less rugged and not as forested as the Central Appalachians Ecoregion to the east and south. Extensive mixed mesophytic forests and mixed oak forests originally grew in the Western Allegheny Plateau and, today, most of

its rounded hills remain in forest. Dairy, livestock, and general farms, as well as residential developments, are concentrated in the valleys. Horizontally-bedded sedimentary rock, underlying the region, has been mined for bituminous coal.

### **3.3.13 Erie Drift Plains (61)**

The NiSource system crosses the Erie Drift Plains ecoregion in northeastern Ohio and northwestern Pennsylvania. Once largely covered by a maple-beech-birch forest, much of the Erie Drift Plain is now in farms, many associated with dairy operations. The Eastern Corn Belt Plains, which border the region on the west, are flatter, more fertile, and therefore more agricultural. The glaciated Erie Drift Plain is characterized by low rounded hills, scattered end moraines, kettles, and areas of wetlands, in contrast to the adjacent unglaciated ecoregions (Western Allegheny Plateau and North Central Appalachians) to the south and east that are hillier and less agricultural. Areas of urban development and industrial activity occur locally. Lake Erie's influence substantially increases the growing season, winter cloudiness, and snowfall in the northernmost areas.

### **3.3.14 Ridge and Valley (67)**

The NiSource system crosses the Ridge and Valley ecoregion along the northern Virginia state boundary into eastern West Virginia, central and eastern Pennsylvania, and southeastern New York. This northeast-southwest trending, relatively low-lying, but diverse ecoregion is located between generally higher, more rugged mountainous regions with greater forest cover. As a result of extreme folding and faulting events, the region's roughly parallel ridges and valleys have a variety of widths, heights, and geologic materials, including limestone, dolomite, shale, siltstone, sandstone, chert, mudstone, and marble. Springs and caves are relatively numerous. Present-day forests cover about 50% of the region. The ecoregion has a diversity of aquatic habitats and species of fish.

### **3.3.15 Blue Ridge (66)**

The NiSource system crosses the Blue Ridge ecoregion in north central Virginia and southern Pennsylvania. The Blue Ridge extends from southern Pennsylvania to northern Georgia, varying from narrow ridges to hilly plateaus to more massive mountainous areas, with high peaks reaching over 2000 meters. The mostly forested slopes; high-gradient, cool, clear streams; and rugged terrain occur primarily on metamorphic rocks, with minor areas of igneous and sedimentary geology. Annual precipitation of over 200 centimeters can occur in the wettest areas.

The southern Blue Ridge is one of the richest centers of biodiversity in the eastern United States. It is one of the most floristically-diverse ecoregions, and includes Appalachian oak forests, northern hardwoods, and, at the highest elevations, Southeastern spruce-fir forests. Shrub, grass, and heath balds, hemlock, cove hardwoods, and oak-pine communities are also significant.

### **3.3.16 Piedmont (45)**

The NiSource system crosses the Piedmont ecoregion in northeastern Virginia. Considered the non-mountainous portion of the old Appalachians Highland by

physiographers, the northeast-southwest trending Piedmont ecoregion comprises a transitional area between the mostly mountainous ecoregions of the Appalachians to the northwest and the relatively-flat coastal plain to the southeast. It is a complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks, with moderately dissected, irregular plains and some hills. The soils tend to be finer-textured than in coastal plain regions. Once largely cultivated, much of this region has reverted to successional pine and hardwood woodlands, with an increasing conversion to an urban and suburban land cover.

### **3.3.17 Middle Atlantic Coastal Plain (63)**

The NiSource system crosses the Middle Atlantic Coastal Plain in the northernmost portion of Delaware and eastern New Jersey. The Middle Atlantic Coastal Plain ecoregion consists of low elevation flat plains, with many swamps, marshes, and estuaries. Forest cover in the region, once dominated by longleaf pine in the Carolinas, is now mostly loblolly and some shortleaf pine, with patches of oak, gum, and cypress near major streams. Its low terraces, marshes, dunes, barrier islands, and beaches are underlain by unconsolidated sediments. Poorly drained soils are common, and the region has a mix of coarse and finer textured soils. Less cropland occurs in the southern portion of the region than in the central and northern parts.

### **3.3.18 Northern Piedmont (64)**

The NiSource system crosses the Northern Piedmont ecoregion in northern Virginia, central Maryland, southeastern Pennsylvania, and central New Jersey. The Northern Piedmont is a transitional region of low rounded hills, irregular plains, and open valleys. It is underlain by a mix of metamorphic, igneous, and sedimentary rocks, with soils that are mostly Alfisols and some Ultisols. Potential natural vegetation here was predominantly Appalachian oak forest as compared to the mostly oak-hickory-pine forests of the Piedmont ecoregion to the southwest. The region now contains a higher proportion of cropland compared to the Piedmont.

### **3.3.19 Atlantic Coastal Pine Barrens (84)**

The NiSource system crosses the Atlantic Coastal Pine Barren ecoregion in eastern New Jersey. This ecoregion is distinguished by its coarser-grained soils, cooler climate, and Northeastern oak-pine potential natural vegetation. The climate is milder than the Northeastern Coastal Zone to the north that contains Appalachian Oak forests and some Northern hardwoods forests. The physiography of this ecoregion is not as flat as that of the Middle Atlantic Coastal Plain, but it is not as irregular as that of the Northeastern Coastal Zone.

### **3.3.20 North Central Appalachians (62)**

The NiSource system crosses the North Central Appalachian ecoregion in northern Pennsylvania and southeastern New York. More forest cover than most adjacent ecoregions, the North Central Appalachians ecoregion is part of a vast, elevated plateau composed of horizontally bedded sandstone, shale, siltstone, conglomerate, and coal. It is made up of plateau surfaces, high hills, and low mountains, which unlike the ecoregions to the north and west, was largely unaffected by

continental glaciation. Only a portion of the Pocono Mountains section in the east has been glaciated. Land use activities are generally tied to forestry and recreation, but some coal and gas extraction occurs in the west.

### **3.3.21 Northern Appalachian Plateau and Uplands (60)**

The NiSource system crosses the Northern Appalachian Plateau and Uplands along the southern state border of New York. The Northern Appalachian Plateau and Uplands comprise a transition region between the less irregular, more agricultural and urbanized Erie/Ontario Drift and Lake Plain and Eastern Great Lakes and Hudson Lowlands ecoregions to the north and west and the more mountainous and forested, less populated North Central Appalachians and Northeastern Highlands ecoregions to the south and east. Much of this region is farmed and in pasture, with hay and grain for dairy cattle being the principal crops, but large areas are in forests of oak and northern hardwoods.

### **3.3.22 Northeastern Highlands (58)**

The NiSource system crosses the Northeastern Highlands ecoregion in southern New York. The Northeastern Highlands comprise a relatively sparsely populated region characterized by nutrient-poor soils blanketed by northern hardwood and spruce fir forests. Land-surface form in the region grades from low mountains in the southwest and central portions to open high hills in the northeast. Many of the numerous glacial lakes in this region have been acidified by sulfur depositions originating in industrialized areas upwind from the ecoregion to the west.

### **3.3.23 Eastern Great Lakes and Hudson Lowlands (83)**

The NiSource system crosses the Eastern Great Lakes and Hudson Lowlands ecoregion in south-central New York. This glaciated region of irregular plains bordered by hills generally contains less surface irregularity and more agricultural activity and population density than the adjacent Northeastern Highlands and Northern Appalachian Plateau and Uplands. Although orchards, vineyards, and vegetable farming are important locally, a large percentage of the agriculture is associated with dairy operations. The portion of this ecoregion in close proximity to the Great Lakes experiences an increased growing season, more winter cloudiness, and greater snowfall.

## **3.4 Watersheds**

The MSHCP analyzed 25 aquatic species. In order to conduct some assessments of and determine potential mitigation for these aquatic species, this MSHCP also utilizes USGS hydrologic units. Similar to ecoregions, hydrologic units can be divided into smaller units so different scales can be used for more detailed analysis as needed. A map (**Figure 3-2**) and table (**Table 3-1**) of all of the hydrologic units (watersheds) crossed by the project are provided below. The United States is divided and sub-divided into successively smaller hydrologic units from the smallest (cataloging units) to the largest (regions) (USGS 2007). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to eight digits based on the four levels of classification in the hydrologic unit system.

The first level of classification divides the United States into 21 major geographic areas, or regions. Eighteen of the regions occupy the land area of the conterminous United States (USGS 2007). The MSHCP covered lands fall within eight of these regions. The key regions include the Mid-Atlantic (17.43% of covered lands), Ohio (58.98% of covered lands), and Lower Mississippi (10.47% of covered lands).

The second level of classification divides the 21 regions into 221 subregions. A subregion includes the area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area (USGS 2007). The MSHCP covered lands cross 36 subregions. *See Table 3-1* for a list of the subregion watersheds crossed. Subregions correspond to the three digit watersheds HUC.

### **3.5 Existing Land Use**

Existing land use is important to consider when determining: whether a species may be present within a given area; threats to species; the need for connectivity, and, the suitability of minimization and mitigation options. NiSource used the NLCD land-use data layer for the purposes of this analysis (US Dept. of Interior 2006).<sup>1</sup> A summary of land-use types is provided below in **Table 3-2**.

The most prevalent land-use type in the covered lands area is Deciduous Forest (49.30%), followed by Cultivated Crops (17.72%), Pasture/Hay (13.53%), and Developed – Open Space (6.47%). The remainder of the area is covered by eleven other types, none exceeding 3% of the total area. A description of each land-use-cover class is included in the table.

### **3.6 Existing Conservation Areas within Covered Lands**

Another component of determining the environmental setting of the project was to investigate what existing conservation lands were crossed by the covered lands. These areas may contain habitat for species that will be addressed in this MSHCP. Likewise, lands adjacent to existing conservation lands may be important to consider in mitigation efforts.

**Appendix E** provides the best consistently available data on conservation lands owned by federal, state, and local governments and nongovernmental organizations that are crossed by the MSHCP's covered lands. GAP data were used to compile this information. In states where GAP data were not available, a similar dataset was used (i.e., Conservation Management Institute, 2000; Ducks Unlimited, 2004; Environmental Resource Research Institute, 1998; Indiana State University et al., 2002; Kentucky Fish & Wildlife Information System, 2001; Maryland Department of Natural Resources and University of Maryland Eastern Shore, 2002a, 2002b, and 2002c; Natural Resource Analysis Center and West Virginia Cooperative Fish and Wildlife Research Unit, West Virginia University, 2002; New York State Gap Analysis Project, 2000; Tennessee

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<sup>1</sup> NLCD data published in 2001 represent the most recent, consistent land cover dataset available. The NLCD data are re-evaluated for change detection analysis using Landsat imagery approximately every 10 years.



Wildlife Resources Agency, 1997; US Geological Survey, National Wetlands Research Center, 2000).

Although the conservation lands listed in **Appendix E** represent those lands included in the GAP data or similar datasets, there may be other conservation lands crossed by NiSource's facilities that are not included in the table. Similarly, inclusion of properties in **Appendix E** merely denotes that the land is owned or managed by a federal, state, local or non-profit entity. It does not mean that the land necessarily contains conservation values, is managed for conservation, or that the conservation objective is consistent with endangered species management. For instance, although **Appendix E** contains numerous wildlife management areas, forests and preserves, it also includes resort parks, sports complexes, horse farms, and fairgrounds.

**Table 3-3** below summarizes the information from **Appendix E**, by state, in four categories: federal, state, local, and NGO. In states where a particular landowner type of conservation land is not crossed, that type is not included in the table.

### **3.7 Climate**

National Climatic Data Center climate data for three annual metrics is provided below for the area covered by the NiSource natural gas system: (1) mean annual precipitation (**Figure 3-3**), (2) mean daily average temperature (**Figure 3-4**), and (3) median freeze-free period (**Figure 3-5**). Climate varies across the project area based on latitude, distance from the ocean or mountains, and topography of a particular area.

Over the term of the ITP, it is possible that the area covered by the NiSource natural gas system may experience the effects attributable to climate change. For the purposes of the MSHCP, relevant global climate change impacts may include rising sea levels, changes in the range and distribution of plants and animals, earlier blooming of trees, lengthening of growing seasons, changes in amount, timing, or intensity of precipitation, and later freezing and earlier thawing of ice on rivers and lakes. Responses of terrestrial species to warming trends generally include poleward and elevational range shifts of flora and fauna, and changes in the timing of growth stages (i.e., phenological changes), especially the earlier onset of spring events, migration, and lengthening of the growing season.

The extent of climate change effects, and whether these effects will prove to be harmful or beneficial, will vary by region, over time, and with the ability of different societal and environmental systems to adapt to or cope with the change. Scientists generally believe that most areas in the United States will continue to warm, although some areas will likely warm more than others. It remains very difficult to predict which parts of the country will become wetter or drier, but, in general, scientists expect increased precipitation and evaporation, and drier soil in the middle parts of the country. Northern regions are expected to experience the most warming (EPA 2008a, EPA 2008b, EPA 2008c). Further details are furnished in Chapter 10 of this MSHCP.

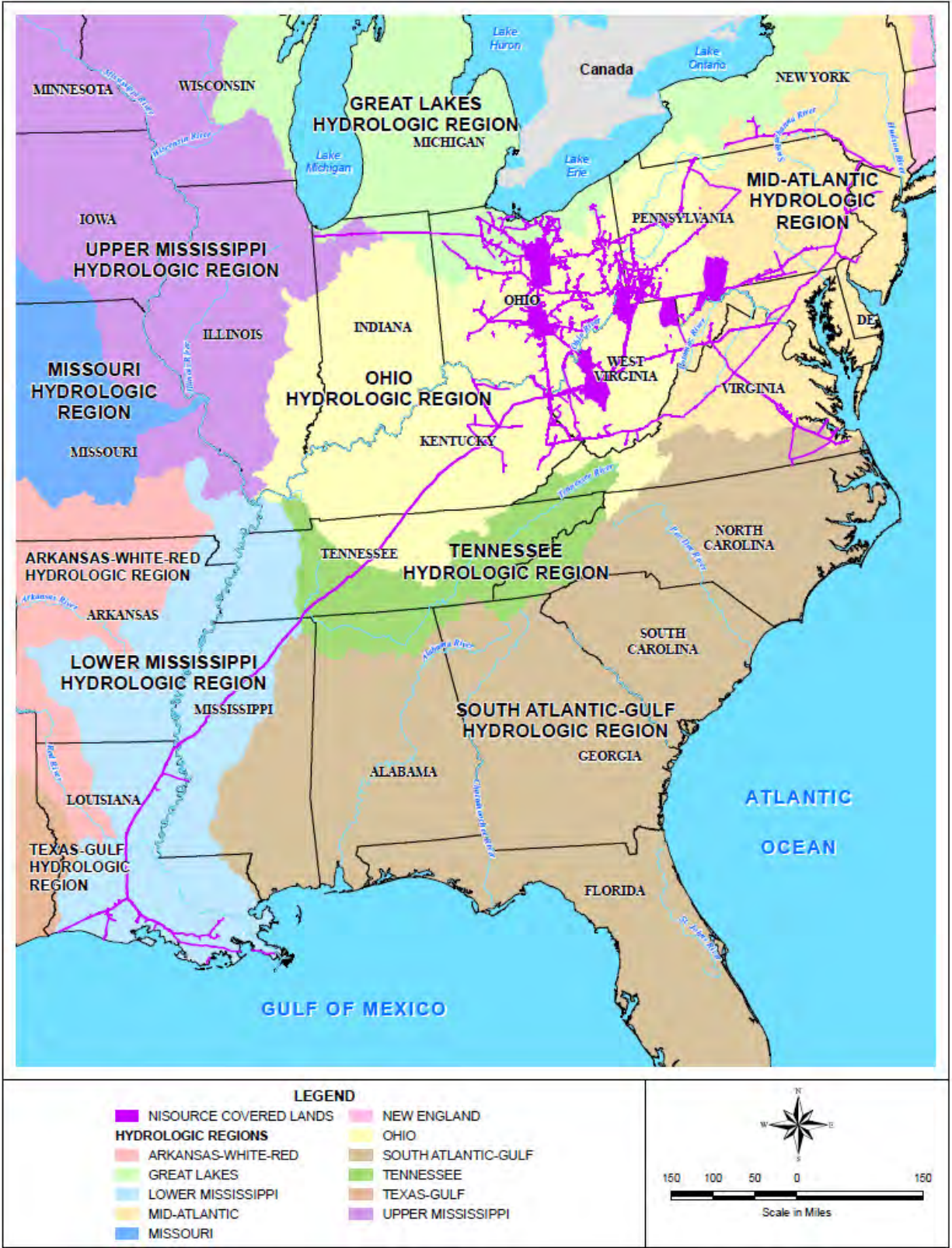


Figure 3-2 Hydrological Units

**Table 3-1 Subregional Watersheds Crossed by the Covered Lands Area**

<b>Subregion HUC Code</b>	<b>Subregion Watershed Name</b>	<b>Region Watershed Name</b>	<b>Acres by Subregion Watershed</b>	<b>Percent of Covered Lands by Region</b>	
0202	Upper Hudson	Mid-Atlantic Region	13,524.61		
0203	Lower Hudson-Long Island	Mid-Atlantic Region	38,452.71		
0204	Delaware	Mid-Atlantic Region	178,837.88		
0205	Susquehanna	Mid-Atlantic Region	737,123.11		
0206	Upper Chesapeake	Mid-Atlantic Region	38,437.73		
0207	Potomac	Mid-Atlantic Region	767,752.73		
0208	Lower Chesapeake	Mid-Atlantic Region	226,865.96		20.45%
0301	Chowan-Roanoke	South Atlantic-Gulf Region	99,903.68		1.02%
0404	Southwestern Lake Michigan	Great Lakes Region	13,026.69		
0405	Southeastern Lake Michigan	Great Lakes Region	26,440.27		
0410	Western Lake Erie	Great Lakes Region	440,960.96		
0411	Southern Lake Erie	Great Lakes Region	147,015.45		
0412	Eastern Lake Erie-Lake Erie	Great Lakes Region	554.01		
0413	Southwestern Lake Ontario	Great Lakes Region	4,686.07		
0414	Southeastern Lake Ontario	Great Lakes Region	16,950.87		6.64%
0501	Allegheny	Ohio Region	190,954.33		
0502	Monongahela	Ohio Region	784,607.76		
0503	Upper Ohio	Ohio Region	1,795,649.21		
0504	Muskingum	Ohio Region	1,315,179.15		
0505	Kanawha	Ohio Region	760,992.88		
0506	Scioto	Ohio Region	467,479.04		
0507	Big Sandy-Guyandotte	Ohio Region	321,948.04		
0508	Great Miami	Ohio Region	32,924.40		
0509	Middle Ohio	Ohio Region	286,531.80		
0510	Kentucky-Licking	Ohio Region	229,902.54		
0511	Green	Ohio Region	69,034.71		
0513	Cumberland	Ohio Region	50,042.57	64.45%	
0604	Lower Tennessee	Tennessee Region	69,441.70	0.71%	
0712	Upper Illinois	Upper Mississippi Region	34,516.06	0.35%	
0801	Lower Mississippi-Hatchie	Lower Mississippi Region	20,350.05		
0803	Lower Mississippi-Yazoo	Lower Mississippi Region	123,368.93		
0804	Lower Red-Ouachita	Lower Mississippi Region	40,896.24		
0805	Boeuf-Tensas	Lower Mississippi Region	77,964.47		
0806	Lower Mississippi-Big Black	Lower Mississippi Region	1,802.32		
0808	Louisiana Coastal	Lower Mississippi Region	233,324.20		
0809	Lower Mississippi	Lower Mississippi Region	125,763.39		6.37%
<b>Total</b>			<b>9,783,206.51</b>		<b>100.00%</b>

**Table 3-2 Land Use Cover Classes in the Covered Lands Area**

Land Use Cover Class	Class Code	Total Acres	%	Class Description
Open Water	11	142,788	1.46	All areas of open water, generally with less than 25% cover of vegetation or soil.
Developed, Open Space	21	633,101	6.47	Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot, single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
Developed, Low Intensity	22	241,657	2.47	Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20%-49% of total cover. These areas most commonly include single-family housing units.
Developed, Medium Intensity	23	777,666	7.95	Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50%-79% of the total cover. These areas most commonly include single-family housing units.
Developed, High Intensity	24	27,423	0.28	Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial facilities. Impervious surfaces account for 80% to 100% of the total cover.
Barren Land (Rock/Sand/Clay)	31	26,628	0.27	Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits, and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover
Deciduous Forest	41	4,823,334	49.30	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
Evergreen Forest	42	218,225	2.23	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.
Mixed Forest	43	124,262	1.27	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.

<b>Land Use Cover Class</b>	<b>Class Code</b>	<b>Total Acres</b>	<b>%</b>	<b>Class Description</b>
Shrub/Scrub	52	44,635	0.46	Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage, or trees stunted from environmental conditions.
Grassland/Herbaceous	71	112,413	1.15	Areas dominated by grammanoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.
Pasture/Hay	81	1,323,925	13.53	Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.
Cultivated Crops	82	1,733,599	17.72	Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.
Woody Wetlands	90	152,127	1.55	Areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
Emergent Herbaceous Wetlands	95	101,424	1.04	Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
<b>Totals</b>		<b>9,783,207</b>	<b>100</b>	

**Table 3-3 Conservation Lands Crossed by the Covered Lands**

<b>State</b>	<b>Owner Type</b>	<b>Acres</b>
Delaware	Local	72
Indiana	State	751
	Local	424
	NGO	81
Kentucky	Federal	11,004
	State	943
Louisiana	Federal	18,741
	State	9,673
	Private/Federal WRP <sup>1</sup>	4,276
Maryland	Federal	475
	State	66,716
	Local	6,374
	NGO	414
Mississippi	Federal	1,887
	State	1,027
New Jersey	State	1,357
	Local	438
	NGO	176
New York	State	11,286
North Carolina	None	0
Ohio	Federal	41,603
	State	39,413
	Local	20,559
	NGO	335
Pennsylvania	Federal	17,270
	State	164,768
	Local	2,216
	NGO/Local	123
Tennessee	Federal	710
	State	4,938
Virginia	Federal	19,768
	State	6,779

<b>State</b>	<b>Owner Type</b>	<b>Acres</b>
West Virginia	Federal	37,005
	State	41,530
	Local	96
	NGO	459

**Owner Type:**

Federal = federally owned lands (e.g., Forest Service, Fish and Wildlife Service, Army Corps of Engineers, Tennessee Valley Authority)

State = state-owned lands (e.g., state forests, state parks, state wildlife areas)

Local = locally owned lands (e.g. county parks, city parks, municipal recreation areas)

NGO = lands owned by non-governmental organizations (e.g. lands owned by The Nature Conservancy, local land trust properties)

WRP = Wetlands Reserve Program

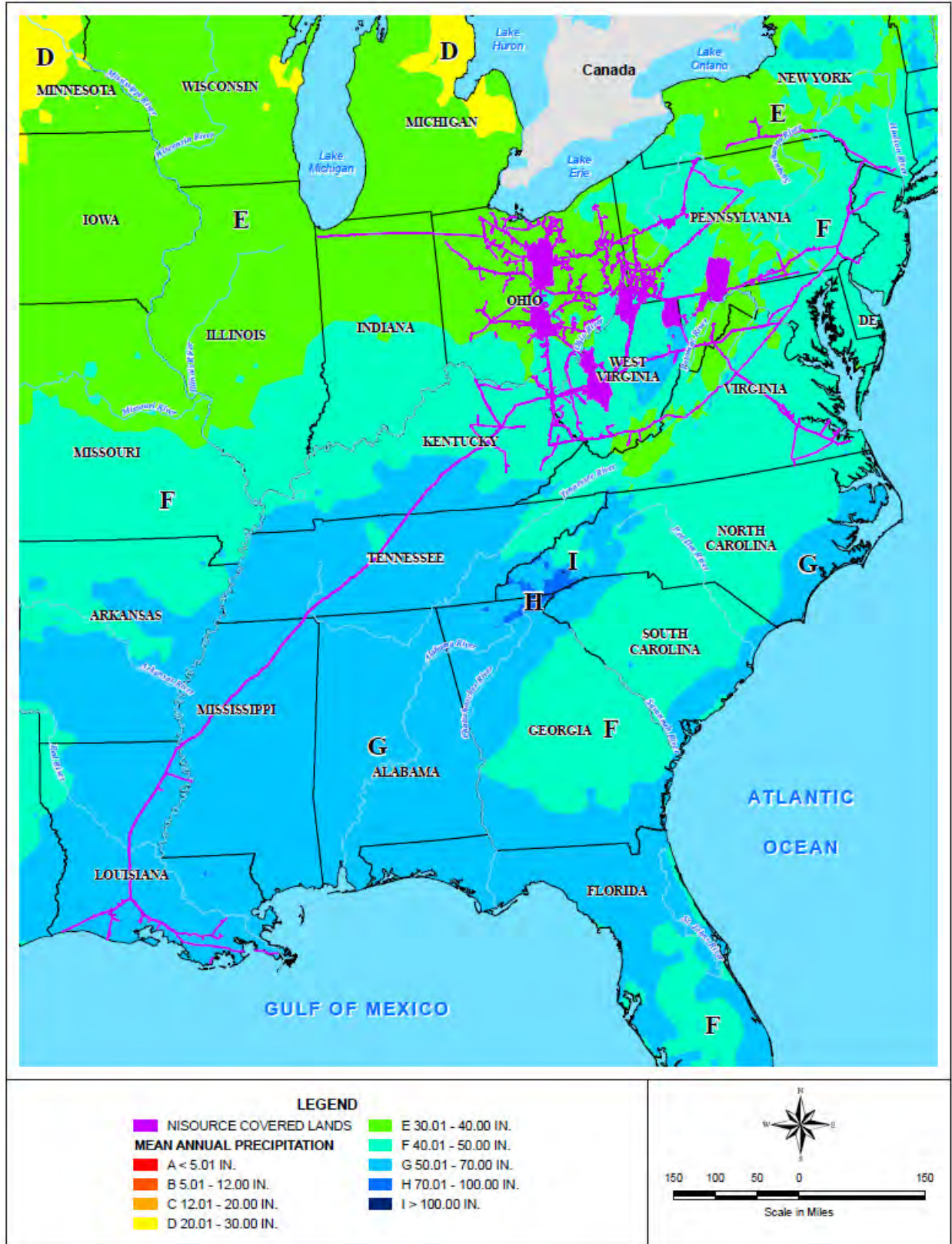


Figure 3-3 Mean Annual Precipitation



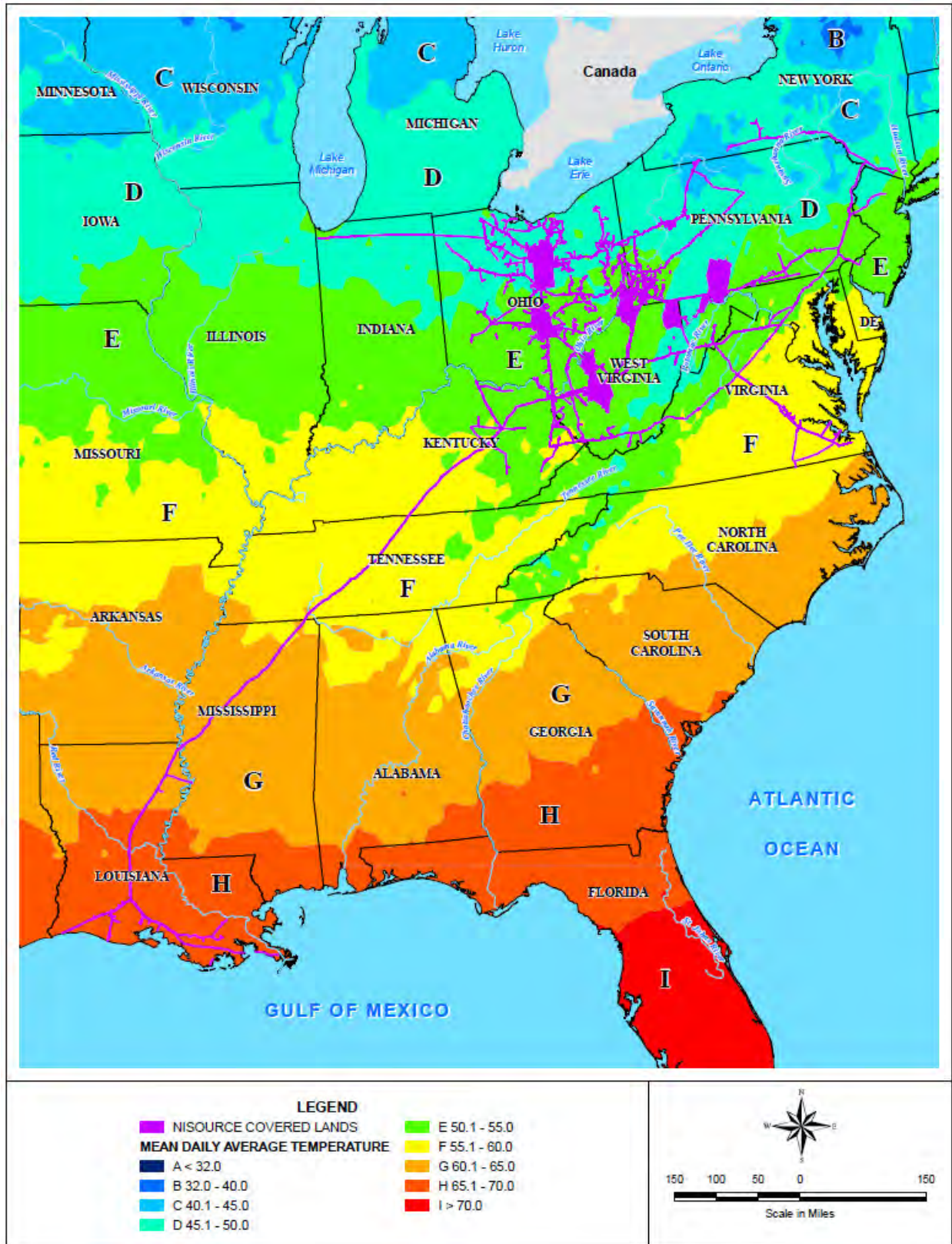


Figure 3-4 Mean Daily Average Temperature

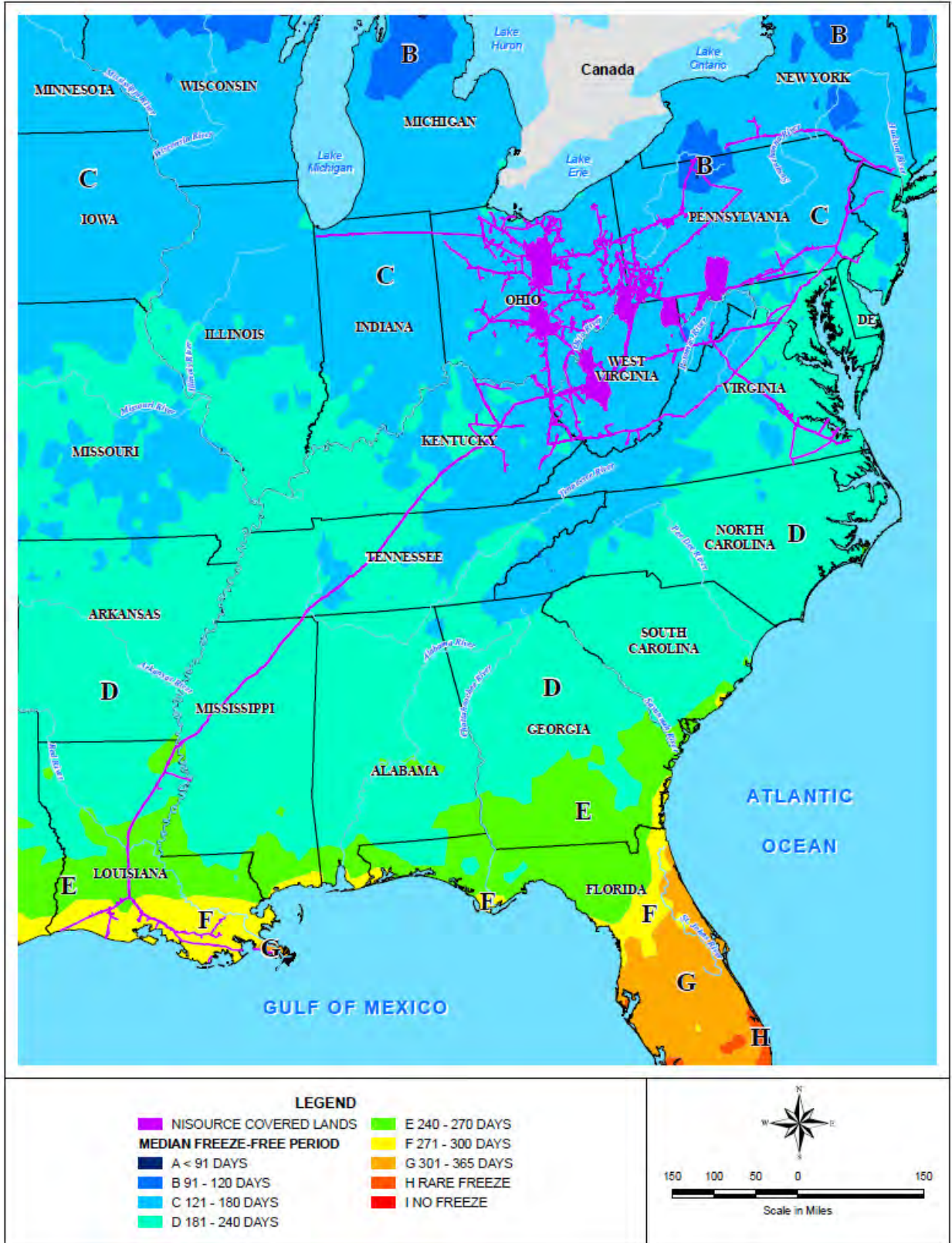


Figure 3-5 Median Length of Freeze Free Period

## **4.0 Species Analyzed in the MSHCP**

### **4.1 Introduction**

This MSHCP originally analyzed 43 species, consisting of 41 federally listed species and two candidate species (*see Table 4-1* below). Since that original analysis, one of the candidate species (sheepnose) was listed as endangered (effective April 12, 2012 FR 77, No. 49, 14914-14949) and the Lake Erie watersnake was delisted (effective September 15, 2011 FR 76, No. 158, 50680-50702). As an outcome of the analysis performed on each species, three discrete groups of species emerged: 1) those species (10) for which NiSource would request incidental take authorization from the Service; 2) those species (nine) for which NiSource would avoid take by implementing appropriate avoidance measures; and 3) those species (23) for which the Service determined that NiSource activities would have “no effect” on these species within the covered lands. For the purpose of this MSHCP, we refer to the 10 species for which take coverage is requested as “take species.” We refer to all species analyzed in the MSHCP as “MSHCP species.”

Altogether, the 42 MSHCP species represent those species in which NiSource would no longer need to consult with the Service prior to undertaking covered activities within the covered lands, subject to the conditions of the ITP or BO, or the reinitiation or programmatic tiering of that document.

### **4.2 Process for Species Inclusion in the MSHCP**

NiSource sought Service guidance in the initial development of the plan. In that process, a group of federally listed, state-listed, candidate species, and species of concern to be considered for inclusion in the MSHCP were identified. This MSHCP directly addresses 41 federally listed and one candidate species. However, other species of concern will likely benefit from the measures provided by this MSHCP.

#### **4.2.1 Federally Listed Species**

In March, 2005 NiSource began collaborating with the Service to develop a MSHCP. The main goal of the effort was to develop a MSHCP that would provide significant conservation benefits to the covered species. A comprehensive MSHCP would also allow both the Service and NiSource to use resources more efficiently without sacrificing the protection of threatened and endangered species. These efforts would contribute significantly to NiSource’s goal of applying sustainable conservation measures during its operation, maintenance and construction activities. An MSHCP also would provide a unique opportunity for NiSource and the Service to develop an innovative approach to achieve regulatory compliance, while accomplishing broader conservation and recovery goals of the ESA.

The MSHCP, as originally conceived, would have analyzed the five species that are routinely the subject of ESA Section 7 consultation on NiSource projects: the Indiana Bat, the Virginia Big-Eared Bat, the Gray Bat, the Bog Turtle, and the American Burying Beetle. In addition to their presence along the NiSource pipeline system, NiSource recognized that these species face increasing pressure from

encroaching commercial, industrial, residential, and infrastructure growth and development. Although other listed species exist in the area of the NiSource system, the initial set of species represented those most commonly encountered by NiSource and with respect to which conservation opportunities were most likely to be served by inclusion in an MSHCP.

Subsequent discussions on the scope and coverage of the ITP and MSHCP suggested that NiSource should increase the number of covered species. While many of the species that had not initially been included were rarely the subject of Section 7 consultations related to NiSource projects, or likely to be impacted to the level of take as a result of NiSource project activities, it was determined that including additional species would further streamline the project approval process and would enhance the conservation opportunities presented by the conceptual MSHCP. Subsequently, NiSource and the Service discussed the development of an MSHCP that potentially could be applicable to all federally listed and candidate species within the covered lands, and could also consider any species that might be in the listing process. To further develop the MSHCP concept, NiSource and the Service identified a list of some 90 species believed by the Service to be potentially present within any county intersected by the proposed NiSource covered lands footprint (Chapter 2). This work occurred during 2006 and 2007. The purpose of this aggressive effort was to:

1. identify all listed and candidate species within the general area of the NiSource system;
2. allow identification of the species most likely to be affected by NiSource activities;
3. identify the species for which ESA compliance and conservation efforts could be most effectively accomplished pursuant to the MSHCP;
4. identify species for which ESA compliance and conservation could be accomplished more effectively through other mechanisms; and
5. identify those species that were highly unlikely to be affected by NiSource activities.

Ultimately, NiSource decided to analyze 43 species in its permit application and MSHCP. The 43 species include all five of the species that NiSource initially deemed the most critical for inclusion, along with 38 others. The 43 species were selected based upon the frequency with which NiSource encounters species in pursuing the covered activities, and the ability to develop adequate measures which would completely avoid or minimize effects on the species. NiSource recognizes that the Service will evaluate effects of the MSHCP on all species that occur within the covered lands footprint (action area), regardless of whether they are included in the MSHCP. Non-MSHCP species will be included in the Service's Biological Opinion written for the requested ITP and MSHCP. NiSource will continue to evaluate listed species not included in this MSHCP to determine if appropriate information and materials can be developed to include them in an amended MSHCP or a separate HCP. Additionally, NiSource will utilize the Information, Planning, and Consultation System (IPaC) to ensure that potential impacts of NiSource activities to listed species, which are not

covered under the MSHCP, are identified and appropriate ESA compliance and conservation actions are performed. *See Appendix O* for additional details.

The process of developing the MSHCP species list began with an inventory of all federally listed species recorded in counties crossed by the covered lands. NiSource subsequently narrowed this inventory to include 41 federally listed species and two candidates present in the counties crossed by the MSHCP covered lands. Species included in the MSHCP were selected based on availability of information about the species, prevalence within the covered lands, anticipated effects from covered activities, and business concerns. Note that the final MSHCP species list in **Table 4-1** reflects the current status of the analyzed species.

The prohibitions in Section 9 of the ESA are more limited for federally listed plants than for federally listed fish and wildlife, and a Section 10 ITP is not available for listed plants. However, NiSource chose to analyze the effects of its activities on three federally listed plant species in the MSHCP's evaluation process because Section 7(a)(2)'s jeopardy prohibition applies to both wildlife and plants. Thus, the MSHCP also includes an analysis of three federally listed plant species (**Table 4-1**).

#### **4.2.2 Candidate Species**

Candidate species are those species being considered by the Service for listing as an endangered or a threatened species, but are not yet the subject of a proposed rule. Typically, the Service has sufficient information to propose candidate species for listing under the ESA, but development of a proposed listing regulation is precluded by other higher priority listing activities. NiSource evaluated all candidate species located in the counties crossed by the covered lands for inclusion in the MSHCP, and decided to include two (sheepnose mussel and Cumberland snubnose darter) of these candidate species in the MSHCP. As noted above, the sheepnose mussel has since become listed as endangered. The Cumberland snubnose darter does not occur within the covered lands; thus, no effect on this species resulting from NiSource activities is expected. NiSource activities are expected to take the sheepnose mussel and it is now included in NiSource's request for take coverage.

#### **4.2.3 State-Listed Species**

State-listed species that are not also federally listed or candidate species are not covered by nor analyzed in the MSHCP. State-listed species may be analyzed on a parallel track; i.e., NiSource may prepare analyses under state laws that are similar to the MSHCP to address these species. The decision to exclude state-listed species was based on the exceedingly large number of such species recommended for inclusion, which would have overwhelmed and significantly reduced the effectiveness of the MSHCP.

### **4.3 Species Analyzed in the MSHCP**

Forty-two species from nine taxonomic groups are analyzed in the MSHCP. They include six mammals, one bird, one reptile, two amphibians, six fish, two crustaceans, 17 freshwater mussels, four insects, and three plants.

**Table 4-1 MSHCP Species List (Updated November 2012)**

Common Name	Scientific Name	Federal Status	Take Determination
<b>Mammals</b>			
Delmarva Peninsula fox squirrel**	<i>Sciurus niger cinereus</i>	E	No Take
Gray bat*	<i>Myotis grisescens</i>	E	No Take
<b>Indiana bat</b>	<i>Myotis sodalis</i>	E	Take
Louisiana black bear*	<i>Ursus americanus luteolus</i>	T	No Take
Virginia big-eared bat*	<i>Corynorhinus townsendii virginianus</i>	E	No Take
West Indian manatee**	<i>Trichechus manatus</i>	E	No Take
<b>Birds</b>			
Interior least tern*	<i>Sterna antillarum</i>	E	No Take
<b>Reptiles</b>			
<b>Bog turtle</b>	<i>Glyptemys muhlenbergii</i>	T	Take
<b>Amphibians</b>			
Shenandoah salamander**	<i>Plethodon Shenandoah</i>	T	No Take
Cheat Mountain salamander*	<i>Plethodon nettingi</i>	T	No Take
<b>Fish</b>			
Blackside dace**	<i>Phoxinus cumberlandensis</i>	T	No Take
Cumberland snubnose darter**	<i>Etheostoma susanae</i>	C	No Take
Gulf sturgeon**	<i>Acipenser oxyrinchus desotoi</i>	T	No Take
Maryland darter**	<i>Etheostoma sellare</i>	E	No Take
Scioto madtom**	<i>Noturus trautmani</i>	E	No Take
Slackwater darter**	<i>Etheostoma boschungii</i>	T	No Take
<b>Crustaceans</b>			
<b>Madison Cave isopod</b>	<i>Antrolana lira</i>	T	Take
<b>Nashville crayfish</b>	<i>Orconectes shoupi</i>	E	Take
<b>Mollusks</b>			
Birdwing pearl mussel*	<i>Lemiox rimosus</i>	E	No Take
<b>Clubshell</b>	<i>Pleurobema clava</i>	E	Take
Cracking pearl mussel*	<i>Hemistena lata</i>	E	No Take
Cumberland bean pearl mussel**	<i>Villosa trabalis</i>	E, XN	No Take
Cumberland monkeyface pearl mussel*	<i>Quadrula intermedia</i>	E	No Take
Dromedary pearl mussel**	<i>Dromus dromas</i>	E, XN	No Take
<b>Fanshell</b>	<i>Cyprogenia stegaria</i>	E	Take
<b>James spinymussel</b>	<i>Pleurobema collina</i>	E	Take

<b>Common Name</b>	<b>Scientific Name</b>	<b>Federal Status</b>	<b>Take Determination</b>
Louisiana pearlshell**	<i>Margaritifera hembeli</i>	E	No Take
<b>Northern riffleshell</b>	<i>Epioblasma torulosa rangiana</i>	E	Take
Oyster mussel*	<i>Epioblasma capsaeformis</i>	E	No Take
Pale Lilliput pearlshell**	<i>Toxolasma cylindrellus</i>	E	No Take
Purple cat's paw pearlshell**	<i>Epioblasma obliquata obliquata</i>	E	No Take
<b>Sheepnose</b>	<i>Plethobasus cyphus</i>	E	Take
Tan riffleshell**	<i>Epioblasma florentina walkeri</i>	E	No Take
White cat's paw pearlshell**	<i>Epioblasma obliquata perobliqua</i>	E	No Take
White wartyback pearlshell**	<i>Plethobasus cicatricosus</i>	E	No Take
<b>Insects</b>			
<b>American burying beetle</b>	<i>Nicrophorus americanus</i>	E	Take
Karner blue butterfly**	<i>Lycaeides Melissa Samuelis</i>	E	No Take
Mitchell's satyr butterfly**	<i>Neonympha mitchellii mitchellii</i>	E	No Take
Puritan tiger beetle**	<i>Cicindela puritana</i>	T	No Take
<b>Plants</b>			
Braun's rock cress**	<i>Arabis perstellata</i>	E	No Take
Pitcher's (sand dune) thistle**	<i>Cirsium pitcheri</i>	T	No Take
Mead's milkweed**	<i>Asclepias meadii</i>	T	No Take

**Notes:**

E=Endangered

T=Threatened

C=Candidate

XN=Experimental, Non-essential

Species in **bold** represent those species to be included in the ITP.

Species marked with a single asterisk (\*) are those where take will be avoided through implementation of appropriate measures.

Species marked with a double asterisk (\*\*) are those where no effect is anticipated and thus no avoidance or minimization measures are necessary.

## 5.0 Conservation Strategy

### 5.1 Overview

NiSource is committed to complying with the applicable environmental rules and regulations of federal, state, and local governments. Consistent with this commitment, the conservation strategy of this MSHCP builds on NiSource's current business policy that all construction, operation, and maintenance activities be conducted in a safe manner that minimizes impacts on stream and wetland ecosystems, wildlife habitat, cultural resources, and the human environment. The conservation strategy lays out the overall conservation goals of the MSHCP, explains NiSource's current business practices where NiSource already meets some of those goals, and summarizes the conservation program that NiSource will implement in accordance with this MSHCP. This MSHCP was developed in coordination with the Service and builds upon NiSource's existing environmental practices. The plan addresses conservation of endangered species using management practices that have been developed over time, as well as new measures that have been developed in collaboration with Service biologists specifically for this MSHCP. The resulting conservation plan will protect important ecosystems for the benefit of the species that dwell within them while allowing NiSource to provide natural gas to its customers in an environmentally safe manner. Discussion of specific conservation strategies developed for MSHCP species, including biological goals and objectives, is provided in Chapter 6 for take species and **Appendix F** for other species analyzed in the MSHCP.

It should be understood, for purposes of this chapter and for the entire MSHCP that NiSource is committed in everything it undertakes to meet human needs while preserving the environment, now and for future generations. NiSource has implemented a sustainability program that strives to resolve conflicts between competing goals in pursuing economic prosperity, environmental quality, and social equity in all NiSource does as a company. Therefore, in reviewing each enhancement to a NiSource energy facility, the "triple bottom line" concept receives due consideration and balance as decisions are made to maintain and grow its energy systems. The NiSource vision is one that establishes a legacy for sustained economic growth, social responsibility, and environmental stewardship reflective of a premier energy company.

#### 5.1.1 Goals of the Conservation Strategy

As stated in Chapter 1, the purpose of the MSHCP is to implement an innovative approach to both conserve listed species under the ESA and to streamline regulatory compliance requirements for NiSource's covered activities. In light of this purpose, the goals of the conservation strategy are to:

- Protect MSHCP species and their habitats through the implementation of an environmental compliance program (e.g., practices, standards, training, etc.) that meets or exceeds federal, state, and local regulations and requirements;
- Enhance the conservation of MSHCP species through the application of rigorous planning, adaptive management, and sound scientific principles; and



- Support species conservation actions using a landscape approach, maximizing conservation benefits to take species and the ecosystems that support them.

### **5.1.1.1 Core Values and Guiding Principles**

NiSource holds the core values of *quality, credibility, reliability, integrity, and responsiveness* as the basis for all conservation actions. NiSource will be guided by these core values as well as the following guiding principles:

- NiSource will minimize and mitigate the impact of take associated with covered activities to the maximum extent practicable.
- To eliminate or reduce the likelihood of take, NiSource will first employ avoidance and minimization measures before undertaking mitigation measures.
- NiSource will monitor and report compliance and project impacts, as well as verify progress toward biological goals.
- NiSource will embrace adaptive management, where appropriate, so information gathered during monitoring can be incorporated into avoidance, minimization, or mitigation measures.
- NiSource will ensure that conservation measures are consistent with NiSource’s business philosophy and with species conservation objectives.
- NiSource will develop clear goals and objectives for all aspects of the MSHCP utilizing a diverse array of expertise and interests.
- NiSource will collaborate with the diversity of stakeholders affected by the MSHCP. NiSource serves a wide range of constituencies and will solicit and incorporate their input, as appropriate, in its decision-making process.
- NiSource will use scientifically-sound information.

### **5.1.2 NiSource Environmental Practices**

NiSource follows standard practices outlined in company environmental documents that help avoid and minimize impacts to many of the MSHCP species. NiSource’s pre-construction planning and project implementation comply with various specifications as set forth in the documents described below and in **Appendix K**. These may be supplemented or superseded by species-specific avoidance and minimization measures described in this Chapter, Chapter 6, and **Appendix F**.

#### **5.1.2.1 Environmental Construction Standards (ECS)**

The ECS document (**Appendix B**) provides NiSource personnel and its contractors with the minimum requirements for construction, operation, and maintenance activities in environmentally sensitive-areas. The ECS provides standards for various aspects of NiSource’s operation, maintenance, and construction activities, including, but not limited to: right-of-way width; clearing; grading; access roads; residential areas; trenching; backfilling; final grading, restoration, and stabilization; noise impact mitigation; hydrostatic testing; stream crossings; wetland crossings; spill prevention, containment, and control; maintenance; environmental inspections;

environmental training; contractor's environmental compliance; environmental construction management; and emergency construction.

### **5.1.2.2 Pre-Construction Environmental Compliance Program**

NiSource's Natural Resources Permitting Staff developed an Environmental Awareness Handbook that NiSource uses to train its personnel. The training and handbook provide guidance regarding adherence to NiSource's environmental compliance program, which meets or exceeds federal, state, and local regulations and requirements. Topics include, but are not limited to, the steps and forms used to comply with the environmental program, governing regulations and required permits, and application of the ECS during project work.

### **5.1.3 Training**

A properly trained work force is essential to the safe and successful operation and maintenance of a natural gas transmission pipeline system. Therefore, NiSource has established and maintained a performance-based instructional training system. A significant feature of the training system is that it meets standards and guidelines established by the International Association for Continuing Education and Training (IACET).

NiSource business units that construct and operate the interstate natural gas pipeline facilities are highly regulated by federal agencies. Virtually all of the NiSource pipeline segments are subject to federal regulation as explained in Chapters 1 and 8 and therefore must be in compliance with all federal, state, and local laws, rules and regulations. Consequently, a properly trained work force is essential to operating and maintaining the natural gas pipeline facilities in full compliance.

All training is aimed not only at educating the work force in a safe and successful operation and maintenance mode, but also stresses the NiSource management commitment to regulatory compliance. The training for MSHCP implementation will be handled in this same manner, whether the Service's IPaC system (*see* Chapter 7) system is used or not. If the IPaC system is not fully operational and able to handle the MSHCP needs, NiSource will continue its current tracking, monitoring, and reporting methods until such time as the IPaC system (or something similar) is functional. NiSource accepts the full responsibility to train all personnel associated with the MSHCP to meet all implementation, monitoring and reporting requirements.

All NiSource personnel that will engage in activities associated with this MSHCP and ITP, whether in Operations or Construction and Engineering, will be thoroughly trained in all compliance aspects. NGT&S NRP and trained personnel, in partnership with the NiSource Corporate Environmental Safety & Sustainability staff, will plan and conduct all training of NiSource's workforce as required by this MSHCP and ITP. Training materials will be completed prior to implementation of the MSHCP and ITP and training will occur regularly, as necessary to keep the work force adequately trained.

The Training Program is based on the following assumptions:

- Training is more effectively delivered in the context of an established curriculum. Such curriculum will be developed in accordance with the MSHCP, ITP, and Implementing Agreement. When the curriculum is prepared, it will be furnished to the Service for approval prior to the initiation of any internal training of personnel.
- Training delivery systems are more easily maintained and implemented when designed in a modular format. The training associated with the MSHCP and ITP will be in modular format, with responsibilities broken down for each employee.
- Training programs are more credible when internal validity is easily determined. All personnel training for the MSHCP will be recorded and will be available to the Service upon request.
- Training documentation and evaluation is more defensible when appropriate criteria have been established in a catalog of tasks (or instructional objectives) and performance guides. Such appropriate training documents will be prepared and used by NiSource trainers.
- On-The-Job training is acceptable only when delivered in a structured format with skill performance checklists. All NGT&S personnel working in areas that are applicable to the MSHCP and ITP, and have compliance responsibility for that plan and permit, will be trained prior to being placed on the job site. The only on-the-job training (e.g., tailgate sessions) that will be acceptable will be when personnel, not thoroughly trained, are accompanying other trained personnel out on job sites. The trained personnel will bear responsibility for all actions of un-trained employees.
- Training must be in compliance with NiSource operating procedures and compatible with requirements detailed in the MSHCP, ITP, and IA.

## **5.2 Conservation Program**

Because the MSHCP is a landscaped-based conservation plan that crosses 14 states and encompasses over nine million acres of land, the strategies for avoiding, minimizing and mitigating impacts to MSHCP species are intended to also be landscape-based, where such approaches serve to maximize the conservation of the affected species. For example, mitigation for impacts from NiSource activities will not necessarily be limited to onsite measures because the location where the activities occurred may not be the optimal location for mitigation from a species conservation standpoint. Accordingly, mitigation measures may be implemented in other areas where such measures would have a greater benefit to the species. Offsite mitigation may also be warranted in light of the recurring nature of pipeline operation and maintenance activities and the inability to implement onsite mitigation efforts. Thus, the mitigation measures will not be limited to NiSource's right-of-way or the MSHCP covered lands, but generally will utilize a landscape approach that employs sound biological rationales and principles.

### 5.2.1 Avoidance and Minimization Measures

Due to the nature of this MSHCP, in terms of scope of covered lands and the requested permit term, NiSource cannot predict with certainty where or when a given covered activity would occur. As a result, we also cannot precisely calculate the take of species from those actions. Thus, the species analyses in Chapter 6 includes our assessment of the “reasonable worst case scenario” from which we anticipate take over the requested 50 year permit duration. When planning individual projects over that time, NiSource will employ avoidance and minimization measures, including possible project rerouting, which will cause less take than the reasonable worst case suggests. Obtaining the requested take authorization and having a process to avoid and minimize the impact of any take that does occur will provide NiSource with the predictability it needs to be efficient in its operations, while providing a benefit to the MSHCP species through the MSHCP’s landscape-level conservation approach.

NiSource’s conservation strategy includes avoiding, minimizing, and mitigating adverse effects of covered activities on MSHCP “take” species. NiSource will utilize AMMs before employing mitigation measures.

A detailed analysis was completed to determine the specific effects that each of the covered activities might have on individual MSHCP species. Specific AMMs were then developed to address, to the maximum extent practicable, these effects and impacts of the resulting take. These species-specific measures are described in detail in the individual species’ analysis presented in Chapter 6 and in **Appendix F**. Most of the measures are mandatory and must be applied to all covered activities. NiSource went through a rigorous internal review process to ensure that these proposed mandatory AMMs could be implemented all of the time. The mandatory measures are shown in standard font text. The waterbody crossing method selection process is of particular importance in terms of some species’ conservation measures and economic considerations for the project and thus is discussed in detail in Section 5.2.1.1 below.

#### Non-Mandatory AMMs

During the internal review process, NiSource identified a suite of the proposed AMMs that cannot be feasibly implemented in every instance. NiSource, however, did not want to completely dismiss this suite of potentially valuable conservation measures. These AMMs therefore are not mandatory, but optional. These non-mandatory AMMs appear in *italic* font text and are described in detail in the individual species’ analysis presented in Chapter 6 and in **Appendix F**. A decision to apply a non-mandatory measure will therefore be made on a case-by-case basis taking into account practicality in terms of other requirements of the project based on the factors described below.<sup>1</sup> NiSource will include in its annual report submitted to the Service the specific evaluation, including the criteria considered during the decisional process and how they were applied.<sup>2</sup> NiSource will implement mitigation measures when take of an MSHCP species results from deciding not to implement a non-mandatory AMM.

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<sup>1</sup> It is important to note that given their non-mandatory nature, protections afforded by the italicized AMMs were not considered when calculating the reasonable worst case scenario when predicting take.

<sup>2</sup> The mitigation strategy for Indiana bat fully compensates for all impacts (both direct and indirect) regardless of when potential habitat is removed. Therefore, the decision whether to apply non-

There are a variety of reasons why all of the AMM's cannot be used for all proposed projects. Those reasons include: location, technical or engineering feasibility, potential adverse impacts to other trust resources, project timelines, customer needs, and effectiveness. For all of the non-mandatory AMMs, except those associated with waterbody crossings, NiSource will use the following criteria to determine the feasibility of their implementation and will implement them to the maximum extent practicable. Depending on individual project circumstances, any or all of these reasons may be the primary reason for NiSource not implementing the non-mandatory AMMs. For instance:

- The specific topography and/or weather conditions may prevent effective implementation of an AMM to the point that it would not accomplish the intended conservation goals. For example, a project may cross a stream containing a freshwater mussel that is one of the MSHCP "take" species. Non-mandatory AMM #12 specifies that "*Abandon pipelines in place to avoid in-stream disturbance that would result from pipeline removal unless the abandonment would be detrimental to endangered mussels.*" It is possible that the abandoned pipe is exposed in the stream bed, diverting the water flow, and causing downstream erosion of the stream banks. Leaving the abandoned pipe in-place in this situation could be more detrimental to the long-term health of the mussel habitat than the temporary impacts of removing it and properly stabilizing the stream bed and banks.
- The safety of NiSource personnel, the public, and property is of paramount importance in the selection and implementation of non-mandatory AMMs. For example, a project may cross a wetland area containing habitat for bog turtles. Non-mandatory AMM #13 specifies that NiSource should "*Avoid pulling woody vegetation out by the roots in "mucky" areas to avoid destruction of potential hibernacula.*" It is possible that leaving the woody vegetation in place could create an unsafe work environment. This can occur if one of a side boom's tracks rides up and over the vegetation and destabilizes the load it is carrying. This could cause the side boom to flip over and injure the operator.
- Due to terrain, AMM implementation may be prohibitively expensive, technically infeasible, or risky in terms of environmental consequences.
- A project may need to be placed into service during a timeframe that does not allow adherence to a specific avoidance window. For example, a customer informs NiSource in April of a critical need for natural gas service by November 1<sup>st</sup> of that year. The project may cross an area with suitable summer habitat for Indiana bats. Mandatory AMM #29 and non-mandatory AMMs #30 and 31 specify that:
  - i. #29 - No clearing of suitable summer habitat within the covered lands of the MSHCP from June 1 to August 1 or "side-trimming" of suitable summer habitat from April 15 to September 1 to protect non-volant Indiana bat pups.

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mandatory AMMs will be made by the project manager, taking into account the needs of the project, and will not be included in the annual report to the Service.

- ii. #30 - No clearing of suitable summer habitat within the covered lands of the MSHCP from April 1 to May 31 to avoid direct affects to pregnant females and minimize direct effects on Indiana bats in summer habitat.
- iii. #31. No clearing of suitable summer habitat located more than 10 miles from a Priority 1, 2, 3 and 4 hibernacula within the Covered Lands of the MSHCP from August 2 to October 15 to avoid direct effects to post-lactating females and volant juveniles and minimize direct effects to Indiana bats in summer habitat.

Taken together, there would not be sufficient time to construct the facilities and provide the necessary service. In this example, it may be necessary to begin construction in late September and therefore be unable to implement non-mandatory AMM #31.

- NiSource’s work schedules are such that the avoidance window cannot be adhered to for the entire project (i.e., ROW clearing in Indiana bat habitat). Examples of this situation include certificates and/or orders, time-sensitive safety-related mandates from the USDOT Pipeline Hazardous Material Safety Administration, etc.

### **Pre-Construction Project Planning**

The species-specific AMMs supplement (and supersede where in conflict with) the general BMPs specified in the NGT&S ECS document (**Appendix B**). They do not substitute for NiSource’s pre-construction planning and project implementation specifications.

NiSource’s NRP developed an Environmental Awareness Handbook that NiSource uses to train its personnel. The training and handbook provide guidance regarding adherence to NiSource’s environmental compliance program, which meets or exceeds federal, state, and local regulations and requirements. Topics include, but are not limited to, the steps and forms used to comply with the environmental program, governing regulations and required permits, and application of the ECS during project work.

**Appendix K** (Natural Gas Pipeline & Storage Permitting Processes) details NiSource’s overall project development process. The waterbody crossing method selection process is described in Section 5.2.1.1. In addition, NiSource will utilize the following pre-construction planning and project implementation specifications when implementing this MSHCP (*see* additional details in Section 8.4.1).

1. In accordance with its current practice and corporate policy, NiSource will use a Project Environmental Information Form (PEIF) and Environmental Management & Construction Plan (EM&CP) – EZ form, modified as necessary based on AMMs, to gather data related to the potential project impacts.
2. NiSource will follow all mandatory AMMs including potentially modifying the project activity and/or relocating the project footprint to avoid effects on MSHCP species. NiSource will implement non-mandatory avoidance measures as described above. All modifications and/or relocations made to specifically avoid impacting a MSHCP species will be documented and reported in the annual report.

3. For projects that cannot be designed to fully avoid impacts, NiSource will then evaluate the specific covered activity's potential impact on MSHCP species and prepare a clearance package, including an EM&CP with appropriate AMMs identified to further avoid and/or minimize the impacts on these species. Relevant mandatory AMMs from Chapter 6 and **Appendix F** will be included in the EM&CP. Non-mandatory AMMs will be selected on a project-by-project basis as described above. Consideration will also be given to customer and business needs and the site-specific circumstances that influence the effectiveness of the AMM (examples provided above).
4. The clearance package will contain reply forms that will be used to evaluate and track the implementation of AMMs and actual impacts to MSHCP species for a particular project, including how often optional AMMs are used and documentation of why they are not when they would benefit the species.

The information gathered during the pre-construction planning and project implementation phases will be used to determine actual project impacts on MSHCP species and used as the basis for the mitigation debt, if take is anticipated or occurs (*see* Section 8.4.1).

#### **5.2.1.1 Waterbody Crossing Method Selection Process**

Several of the covered activities involve installing, operating and maintaining facilities across waterbodies that are occupied or presumed occupied by MSHCP species. Selecting the appropriate crossing method is the first step in avoiding or minimizing affects on these species. For some MSHCP species the crossing method is specified as a mandatory AMM, and for others the crossing method will be decided on a project-specific basis. Following is the process NiSource will use in deciding which waterbody crossing method will be selected.

Since the NiSource natural gas pipeline system is linear and traverses varied landscapes in fourteen states, there are numerous times in which those pipeline facilities cross under a waterbody. Once in place those facilities have to be maintained. The maintenance of an existing pipeline facility, or the proposed installation of a new pipeline facility within or across a waterbody, would be accomplished in accordance with NiSource's crossing methods as detailed more fully in the following paragraphs of this section. Prior to selecting one of the basic methods furnished in this section to cross a waterbody, NiSource will complete a site-specific review of the crossing, an environmental assessment, which will include consideration of all specific needs of any species potentially present, a design and engineering assessment, and a balanced economic evaluation.

NiSource uses five basic methods to cross waterbodies. They are:

- Open-cut, wet-ditch
- Open-cut, dry-ditch (dam & pump or flume pipe(s))
- Horizontal bore
- Horizontal Directional Drill (HDD)

- Span

The open-cut methods are described in NiSource's ECS; the other methods are described more fully below. If the crossing method is not specified in a mandatory AMM, the process to decide which method is used for a particular crossing includes a site-specific review of the crossing, an environmental assessment including consideration of the species needs, a design and engineering assessment, and a balanced economic threshold evaluation. These steps provide strategic guidance in the decision process and are an integral part of the Natural Gas Pipeline & Storage Permitting Processes attached as **Appendix K**.

### **Horizontal Bore**

The horizontal bore method consists of excavating a pit on either side of the feature, drilling a hole from pit to pit underneath the feature, and pushing (jacking) the pipe thru the hole. This method is typically used to cross highways and railroads. However, in some instances it can be successful under waterbodies.

### **Horizontal Directional Drilling**

HDD is a trenchless method of installing underground pipes in a shallow arc, along a prescribed bore path, by using a surface launched drilling rig. The tools and techniques used in the HDD process were originally developed in the oil well drilling industry in the 1960's. The rigs use similar components, with the major difference being that the pipeline rig is equipped with an inclined ramp. A complete description of the HDD method and the components involved in an engineering evaluation (authored by J. D. Hair & Associates - experts in the field of HDD) are attached in **Appendix J**. NiSource typically performs site investigations as described in these two documents.

HDD installations are generally accomplished in three stages:

**The first stage** consists of directionally drilling a small diameter pilot hole along a designed directional path. The path of the drilling string is tracked and directed using surface monitoring systems. The surface monitoring system determines the location of the probe down-hole by taking measurements from a grid or point on the surface. This allows the operator to follow the designed directional path.

**The second stage** involves enlarging the pilot hole to a diameter that will accommodate the pipeline. The enlargement process involves the use of hydraulic cutting with jet nozzles and down-hole hydraulic motors (also called "mud motors") used to cut harder soils. It can take several passes to enlarge the hole to the required diameter, typically 42 inches for a 24-inch pipeline.

**The third stage** begins once the pilot hole is enlarged to the correct size. The section of pipe, prepared in advance, is pulled back through the hole using the horizontal directional drilling unit.

### **Spans**

In some instances (although rarely), the crossing can be completed by spanning the feature. Often this is accomplished by hanging the pipeline from an existing bridge. A significant amount of design engineering and safety considerations are necessary for this type of installation.



## **Regulatory Considerations**

In addition to the evaluation of the above mentioned studies, processes, and decisional sequences, NiSource must also file for and obtain all other necessary water crossing permits prior to performing any construction. These permits typically include CWA permits issued by the Corps and state water crossing/obstruction permits typically issued by their Dept. of Natural Resources (or similar agency). The application and negotiation for such site-specific permits may influence and, at times, dictate the type of crossing method that NiSource must use regardless of the results of the evaluation process described herein.

## **Economic Considerations**

In concert with NiSource's sustainable approach in pursuing environmental quality, economic prosperity, and social equity in all it does as a company, economics are considered as part of the waterbody crossing method selection process. During this evaluation, NiSource develops costs for the specific water crossing being considered. These costs may be based on NiSource's experience or could involve a specific bid from qualified contractors.<sup>3</sup>

Although cost is not the only factor NiSource uses in determining which waterbody crossing method to utilize, economics may be a factor in some decisions. For waterbody crossing measures only, in rare occasions it may not be economically practical for NiSource to implement a somewhat more protective, but significantly more expensive, crossing method.<sup>4</sup> When implementation of a waterbody crossing method that would reduce impacts to a MSHCP species would be impracticable from a financial standpoint, NiSource will completely mitigate for any impacts on the species resulting from the selected crossing method. In cases where cost is flagged as a primary driver in determining which waterbody crossing method to employ, NiSource will consider the following factors, among others, as part of the decision process to determine whether or not it is economically feasible to implement the biologically preferred method:

1. Whether or not the project is a single crossing or repair of an existing crossing, or part of a larger project with a correspondingly larger overall budget?
2. Whether or not there are multiple sensitive resources in the vicinity of the crossing that might be better crossed using trenchless technologies?
3. Whether or not there are numerous endangered species habitat crossings that need to be completed independent of each other and thus substantially increase overall project costs?
4. Whether there are other factors that might directly or indirectly influence the crossing method?

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<sup>3</sup> Typically open-cut (wet or dry) stream crossing costs range from \$50,000 to \$500,000; trenchless crossings (e.g. HDD) range from \$500,000 to several million dollars depending on length, soil type, and pipe diameter.

<sup>4</sup> An example would be where a dry-ditch crossing might temporarily affect a 30-foot wide stream containing Nashville crayfish for approximately 185 feet of its length and cost \$150,000 to install. The same crossing using a HDD, because of the typical solid bedrock geological formations in the area, could cost up to \$2,500,000 but would avoid impacts to the crayfish.

This information will be considered jointly by the Project Manager and NRP Manager to determine the appropriate method for each crossing. NiSource will include in its annual report, submitted to the Service, the details of the method used for the waterbody crossing and the specific evaluation criteria considered during the decisional process and how they were applied.

### **5.2.2 Covered Activities that Avoid Take**

NiSource routinely conducts a number of operational activities that would have minor or no effect on MSHCP and non MSHCP species. These activities include:

- All activities inside fenced compressor stations, and measuring and regulating yards, and other fenced facility lots.
- The following activities within existing ROW and access roads and not in “special areas”<sup>5</sup>:
  - i. All non-earth disturbing upland activities except tree (>5” dbh) clearing and chemical use.
  - ii. Minor tree side trimming with chain saws (limited to small limbs [i.e., < 3” dbh] that can be cleared with a hand-held chain saw from the ground or while standing on a vehicle.
  - iii. Removal of individual trees hazardous<sup>6</sup> to above ground facilities (removal from April 1 to November 14) requires a negative bat emergence survey (Appendix L – Protocols).
  - iv. Small (< 500’) upland excavations for pipe inspection/replacement, line marker placement, etc.
  - v. Upland erosion control and ROW/access road repair/restoration.

Consistent with this MSHCP’s strategy to streamline the administrative burden of ESA compliance, implementation of these activities will not require any further action to demonstrate compliance with this MSHCP, the ITP, or the ESA.

## **5.3 Mitigation Program**

### **5.3.1 Mitigation Strategy**

Due to the geographic scope of this MSHCP, the mitigation strategy outlined below will be landscape based, where appropriate, and will utilize an ecoregional approach. This means that mitigation may occur at a location distant from the impact

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<sup>5</sup> “Special Areas” are critical habitat for Louisiana Black Bear; identified habitat for Interior Least Tern; identified habitat for Cheat Mt. Salamander; known Indiana, Virginia Big Eared, and Gray Bat hibernacula, maternity colonies, and roost trees; known or presumed occupied Bog Turtle wetlands and hibernacula; and slopes greater than 30% leading directly to those identified mussel streams and rivers.

<sup>6</sup> “Hazardous trees” include situations where one or a few trees pose a near term threat to a facility or employee safety such as: trees blocking the telecom signal back to gas control; trees leaning toward an above ground facility like a measuring station or well head; and trees blocking a drivers line of site when pulling out of an access road.

area, when appropriate for conservation purposes, such as protection of a large block of habitat versus small, fragmented blocks, or to ensure that such mitigation is not disturbed by further facility operation or maintenance along the right-of-way, or where other constraints, such as landowners' rights, preclude mitigation activities within the vicinity of the impact area.

Species-specific mitigation measures are identified and explained in Chapter 6. Examples of mitigation that will be required to compensate for the impact of the taking include, but are not limited to:

- Permanent protection of existing habitat through fee acquisition, conservation easements or other legal instruments (may include both NiSource-owned lands and lands owned by others);
- Enhancement and restoration of habitat;
- Management of habitat to achieve and/or maintain specific biological characteristics; and
- Species propagation and reintroductions.

Chapter 6 discusses these measures in detail, outlining the calculus to quantify the amount of mitigation necessary, as well as the criteria for suitability, eligibility, success and completion. But because the requested permit period is 50 years, mitigation for most species will not occur in its entirety at the outset.

In addition to the species-specific information set forth in Chapter 6, the following methods will be utilized to compensate for impact of the take under the ITP.

- Mitigation shall occur within states crossed by the covered lands.
- NiSource shall provide funding assurances for all MSHCP implementation, including mitigation, as described in Chapter 8.
- NiSource shall initiate on-the-ground efforts for mitigation as described in Chapter 8 (*see* Chapter 6 for species-specific roll outs).
- NiSource shall initiate mitigation activities no later than 2 years after take unless the Service agrees that a longer initiation period is advantageous in garnering the conservation benefit for the species (*see* Chapter 6 for species-specific timing requirements) – for any type of project unless other terms are discussed for specific species in Chapter 6.
- It is likely that multiple activities will occur in the same location over the life of the MSHCP and ITP. However, compensatory mitigation will only be required for the first time that a covered activity involving take is conducted in a specific geographic location. For example, once compensatory mitigation is provided for Nashville crayfish take in a specific stream crossing location, additional mitigation is not required for covered activities within the same area previously affected and compensated for. However, the total mitigation obligation for a particular take species was calculated based on the anticipated overall take.

- NiSource will maintain and annually provide to the Service a report describing, among other things, the amount of mitigation performed, by species, along with any “credits” remaining. The report will include details regarding mitigation projects that compensate for take for more than one species at the same site.

To the extent that NiSource undertakes conservation efforts to offset the impacts of a given activity on one or more migratory bird species protected under the MBTA, and such conservation efforts also offset that activity’s impacts on one or more species covered by this MSHCP, NiSource may use those conservation efforts to satisfy, in whole or in part, its mitigation obligations for that activity under this MSHCP. Likewise, where mitigation undertaken pursuant to this MSHCP to offset an activity’s impacts to take species also serves to offset impacts of that activity to one or more migratory bird species, NiSource may use that mitigation to satisfy, in whole or in part, any commitment NiSource has made under the MBTA.

In most cases, NiSource’s minimization and mitigation measures will be implemented on real estate owned by third parties. NiSource will ensure that those rights left to the third party landowners are compatible with achieving the success criteria of the mitigation. Strategies used to protect the mitigation values may include a variety of tools such as entering into conservation easements and other contractual arrangements, and installing fences and other physical barriers. If a third-party landowner damages a mitigation measure despite NiSource’s best efforts, NiSource will assess and handle this damage using the procedures described in Chapter 10. NiSource may also purchase credits in existing conservation banks to provide the mitigation necessary to compensate for all or part of the take from its activities. To do so, however, the banked lands must satisfy all the mitigation criteria identified in Chapter 6

The Service, in collaboration with NiSource, has identified the parameters for required mitigation required for each take species in Chapter 6. These include, but are not limited to the type, quality, amount and general location of habitat to be conserved. As discussed above, however, specific locations of on-the-ground mitigation projects have not been identified to date. Therefore, to guide implementation during the permit period, The Conservation Fund is developing a Strategic Conservation Planning Tool that will extend beyond the covered lands to encompass the adjacent counties, ecoregions, and watershed units within the 14-state area. Part of this planning process includes a comprehensive assessment, covering more than 10 million acres, to identify the location of species-specific conservation opportunities to maximize conservation benefits to the affected species. More information on this planning process and assessment is provided in Section 1.1.3.2. As described in Sections 5.3.2 through 5.3.4, subsequent mitigation implementation in response to individual projects may be guided by this assessment, as well as by recovery plans, state requirements and/or other ecoregional information, so long as mitigation criteria in Chapter 6 have first been satisfied.

The MSHCP includes two approaches for undertaking mitigation efforts to compensate for impact of take of MSHCP species: (1) mitigation undertaken directly by NiSource, and (2) mitigation undertaken by third parties. NiSource reserves the right to choose between the two approaches, at NiSource’s discretion, unless specific mitigation measures and the parties to conduct them have been identified in Chapter 6. The

approaches are described below in Sections 5.3.2, 5.3.3 and 5.3.4 and shown in **Figure 5-1**.

### **5.3.2 Mitigation Undertaken by NiSource**

In light of the requested 50-year permit term, mitigation of impacts from NiSource activities will be an ongoing process. While mitigation may occur before, during, or after undertaking permitted activities, the preference will be for mitigating before take occurs, and in all cases, mitigation shall be initiated within 2 years of take unless the Service agrees that a longer initiation period is advantageous in garnering the conservation benefit for the species (*see* Chapter 6 for species-specific timing requirements). This approach allows NiSource to pursue mitigation opportunities as they arise, consistent with the requirements identified in Chapter 6. For instance, if a parcel of land with significant habitat for an MSHCP species becomes available for purchase or a conservation easement, NiSource may purchase or acquire a conservation easement on the property to compensate for past and/or future impacts to such species.

Before pursuing any mitigation efforts, NiSource will calculate compensation credit, based on Chapter 6, and seek the Service's written concurrence before undertaking the activity. If the NiSource-initiated mitigation effort more than compensates for previous impacts to a given take species, NiSource will receive a mitigation "credit" toward future impacts to that species. NiSource may also agree to conduct activities that provide additional benefit to the species beyond what is required to compensate for the impact of the take. If the mitigation effort does not fully compensate for impacts to a given species, NiSource will either pursue additional mitigation efforts or will utilize the mitigation fund described below.

### **5.3.3 Mitigation Undertaken by Third Parties**

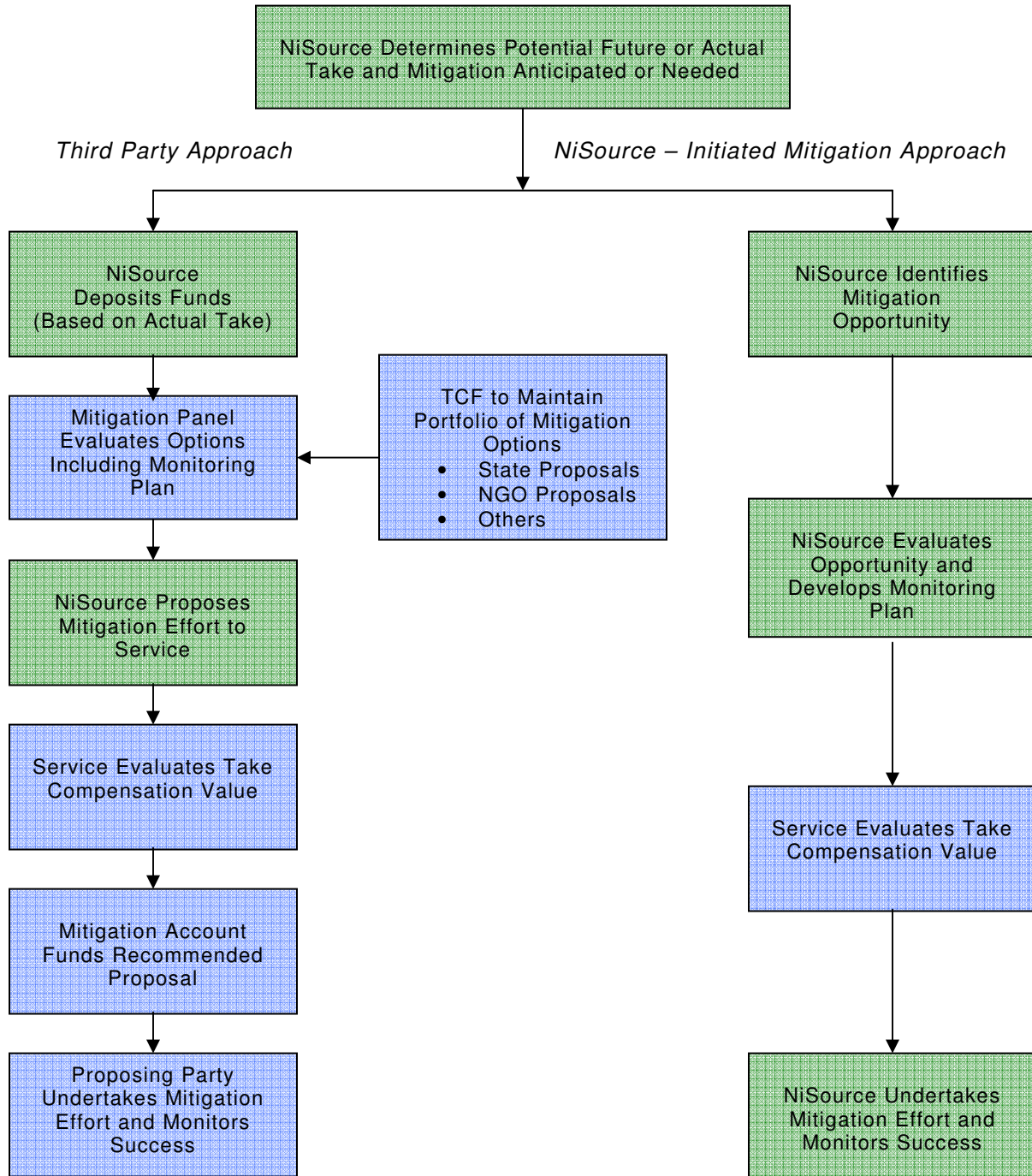
In addition to the NiSource-initiated mitigation approach, NiSource may partner with third parties to complete mitigation projects. NiSource will establish a trust fund (MSHCP Fund) that will be administered by the NFWF.<sup>7</sup> Monies will be disbursed at NiSource's request, following vetting with the Service to ensure consistency with the mitigation requirements of Chapter 6. NFWF is a private, nonprofit, tax-exempt organization chartered by Congress in 1984 that sustains, restores, and enhances the Nation's fish, wildlife, plants, and habitats through leadership conservation investments with public and private partners.

The MSHCP Fund will contain of two separate but related sub-accounts. The first, referred to as the "Reserve Account," will consist of an initial payment of \$100,000. The Reserve Fund will be maintained at this amount to finance any unfunded obligations for mitigation, monitoring, adaptive management, or changed circumstances. The initial \$100,000 will provide a pool of cash for NiSource to draw upon if an unexpected situation develops or an underestimate becomes evident.

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<sup>7</sup> As described in Chapter 8, the MSHCP Fund will be used to provide financial assurance for all mitigation obligations, including in instances where the mitigation projects ultimately will be undertaken by NiSource. A full discussion of financial assurances and the MSHCP Fund is outside the scope of this Chapter but is discussed in detail in Chapter 8.

However, it is possible that the \$100,000 will never be used during the life of the permit. Additionally, every five years, NiSource will deposit a sum of money into the



**Figure 5-1 Mitigation Process**

Fund to account for inflation, as reflected by the consumer price index. The goal shall be to maintain a balance of \$100,000 in 2010 dollars. Chapter 8 identifies the process for drawing upon the Reserve Account.

The second sub-account, referred to as the “Mitigation Account,” is intended to fund mitigation to compensate for the impact of the take species. Deposits into the Mitigation Account will vary from year to year, depending on anticipated take and the level of compensation that is required by Chapter 6. Chapter 8 identifies the various timeframes for deposits, depending on the type of covered activity being undertaken. It also obligates NiSource to make necessary and regular adjustments to ensure the Mitigation Account is fully funded.

Although NiSource will make deposits to the MSHCP Fund to ensure that mitigation measures will be financed, NiSource’s ultimate goal is to avoid and minimize the take of endangered species. The financing mechanisms described above give NiSource the incentive to minimize take because NiSource’s contributions to the Mitigation Fund in any given year depend on the amount of take. By implementing its AMMs, NiSource can meet the dual goals of reducing its expenditures under the ITP and minimizing its impact on endangered species. However, NiSource can not fully avoid all impacts to MSHCP take species; therefore, mitigation projects will be implemented for at least some of the take species.

The MSHCP Fund will be managed as a general account for all species and funds may be used as necessary for mitigation for any species as needed. NiSource will ensure, however, that there is adequate funding to compensate for all take of each species; mitigation must be completed within the established timeframes for each species. This information will be provided in the annual mitigation report described above in Section 5.3.1.

#### **5.3.4 NiSource Mitigation Panel**

If NiSource chooses not to directly undertake mitigation efforts (Section 5.3.2), mitigation will be carried out with monies from the Mitigation Account of the MSHCP Fund (Section 5.3.3). NiSource shall select the future mitigation projects from proposals solicited from third parties. Proposals will be solicited on a rolling basis throughout the permit duration, consistent with NiSource’s annual mitigation debt, if any. After evaluating proposals, NiSource will submit final written recommendations, including its reasoning and all supporting information to the Service, which will ultimately determine whether the proposed mitigation package is acceptable.

NiSource will convene a Mitigation Panel (Panel), which it will chair, to assist it in evaluating third-party mitigation proposals. The charter for the Panel describing its structure, membership, conflict of interest provisions, purpose, record-keeping and reporting is included in **Appendix N**.

NiSource or the Panel may solicit proposals from various NGOs, states within the MSHCP area, tribes, federal agencies, academics, and others for projects to be funded by the Mitigation Fund. The proposals must conform to the mitigation requirements identified in Chapter 6 for the particular take species at issue. These proposals must also relate to the take species impacted by the MSHCP covered

activities and must be conservation- and science-based. At a minimum, each mitigation proposal should set forth the following information:

- The entity or entities responsible for undertaking the proposal, a contact person for that entity or those entities, and the particular individuals who would undertake the activities described in the proposal;
  - i. Whether the entity(ies) has any pending business before the Service or any financial ties or affiliations with Panel members, their sponsoring organizations, TCF or NFWF;
  - ii. Resume (Curriculum Vitae) describing relevant experience conducting the described work;
  - iii. Entity will have any necessary State/Service endangered species permits to conduct the work or will be in the process of obtaining such permits;
- Specific geographic location of the proposal;
  - i. Project-specific information such as habitat type, length/width of riparian corridor, and other pertinent features;
  - ii. Current and future proposed ownership of parcel if land-based mitigation, results from title search or title insurance identifying any encumbrances, reserved rights or rights-of-way on real property to be protected, and how that mitigation parcel will be protected and for how long;
- The nature of the mitigation activity (e.g., conservation easement, habitat restoration, research, species reintroduction, etc.) and the anticipated timeframe for such activity;
  - i. Explanation of how the project falls within the sideboards written in the MSHCP/ITP;
- The take species that will benefit from the proposal and how such species will benefit (e.g., relationship to other projects in the area);
- The amount of funding sought for the proposal and a breakdown of costs used to derive such amount, including costs associated with management and monitoring of the mitigation effort;
- A monitoring protocol, that is consistent with Service protocols, that will be used to track the effectiveness of the mitigation proposal, and
- Specific reporting obligations that satisfy the needs of the Service and NiSource.

Funds in the Mitigation Account for individual species may be aggregated over multiple years (up to 2 years after impacts or preferably before impacts) so that the Panel may consider larger, more significant projects for funding. In addition, mitigation measures may be undertaken that provide greater mitigation than is required to compensate for the previous year's take. Such mitigation may also provide a "credit" toward future impacts.

Using the MSHCP Fund and Mitigation Panel, NiSource will be able to achieve greater conservation benefit per dollar spent, by taking advantage of economies of scale



and partnering opportunities, compared to traditional prescriptive regulations and project-specific mitigation efforts. It will also provide a centralized and streamlined process for obtaining, evaluating, tracking, and funding mitigation proposals.

## **5.4 Species-Specific Conservation Strategies**

While this chapter discusses the overall conservation strategy for the MSHCP and company policy, Chapter 6 discusses in detail the species-by-species biological goals, objectives, conservation measures, and mitigation that comprise the remainder of the conservation strategy.