COMPARATIVE ANALYSIS OF NON-TIDAL WETLAND COMPENSATORY MITIGATION PROGRAMS FOR DELAWARE

Delaware is the only state in the mid-Atlantic region without a state-level nontidal wetland regulatory program. To prevent nontidal wetland loss, Delaware is investigating how best to structure a nontidal wetlands regulatory framework.

Abstract

This comparative analysis examines the compensatory mitigation frameworks for NTW in five surrounding states—Maryland, New Jersey, Ohio, Pennsylvania, and Virginia—in the context of Delaware's absence of a state-level program. It reviews the evolution of federal guidelines, notably the 2008 Mitigation Rule, and explores how each state adapts or diverges from these standards through unique regulatory mechanisms. The study focuses on four primary areas: the definitions of mitigation and wetland impacts; the specific activities that trigger mitigation requirements and those exempted; the types of compensatory mitigation programs employed—including mitigation banking, in-lieu fee arrangements, and permittee-responsible approaches; and the monitoring and enforcement practices that ensure long-term ecological success.

By systematically comparing state practices, the analysis highlights the benefits of centralized, stateadministered programs that integrate federal standards with regional ecological considerations. It underscores how mechanisms such as Maryland's Nontidal Wetland Compensation Fund and New Jersey's rigorous state oversight provide useful models for Delaware. The findings suggest that adopting a well-structured regulatory framework, supported by clear performance criteria and financial assurances, can enhance environmental outcomes and streamline permitting processes.

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This paper is for educational purposes only and is not intended as legal advice.

Comparative Analysis of Non-Tidal Wetland Compensatory Mitigation Programs for Delaware

Delaware is the only state in the mid-Atlantic region without a state-level nontidal wetland regulatory program.¹ To prevent nontidal wetland loss, Delaware is investigating how best to structure a nontidal wetlands regulatory framework.

I. Background

This memorandum has been constructed based on research focusing on surrounding states' non-tidal wetland (NTW) mitigation requirements. The states chosen for review are in harmony with the previous Comparative Analysis from November 2024, including Maryland, New Jersey, Ohio, Pennsylvania, and Virginia. Information was gathered through research of each state's laws and regulations, as well as any additional guidance provided by the states such as mitigation guides and state websites.

The following topics were the focus of the research of the said states' laws, regulations, and additional guidance:

- 1) How a state defines mitigation of wetlands;
- 2) What kinds of activities in a state require mitigation, and what activities are exempt;
- 3) What kinds of compensatory mitigation programs a state allows permittees to utilize to meet mitigation requirements; and
- 4) How a state monitors and enforces compensatory mitigation programs.

NTWs provide vital ecological functions, including water filtration, flood protection, and habitat for diverse plant and animal species. Protecting these wetlands is therefore critical to safeguarding water quality, maintaining biodiversity, and reducing the risk of flood damage. Pursuant to the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) and the Environmental Protection Agency (EPA) jointly regulate discharges of dredged or fill material into wetlands and other "waters of the United States." Historically, permittees whose activities created unavoidable wetland impacts, and therefore were required to mitigate that impact, faced scattered guidance which was consolidated in 2008 with the Compensatory Mitigation Rule, commonly called the 2008 Mitigation Rule.² By centralizing the federal requirements for wetland mitigation, this rule made the process more predictable and uniform, ultimately helping ensure that vital wetland functions are preserved or replaced when impacts are permitted.

¹ Delaware Department of Natural Resources and Control, *SJR 2 – Report to the Governor and Legislature Prepared by DNREC*, OPTIONS FOR NONTIDAL WETLAND PERMITTING PROGRAM, at 1.

² 33 C.F.R. Part 332 and 40 C.F.R. Part 230.

A core element of the 2008 Mitigation Rule is its emphasis on the "avoid, minimize, compensate" sequence.³ First, projects must avoid wetland impacts wherever feasible; if that is not possible, they must minimize impacts through careful design and best management practices.⁴ Only when avoidance and minimization measures have been exhausted does compensatory mitigation come into play, requiring permittees to restore, create, enhance, or preserve wetlands to offset any remaining impacts.⁵ The 2008 Mitigation Rule strengthened this sequence by clarifying a preference hierarchy for compensatory mitigation (mitigation banking over in-lieu fee programs over permittee-responsible mitigation), setting minimum performance standards and monitoring requirements (often five or more years), and adopting a watershed-based approach to ensure mitigation is located where it provides the greatest ecological benefit.⁶ The rule also introduced financial assurances and site protection instruments, ensuring that mitigation projects remain sustainable and functional over the long term.⁷

A key objective of the Section 404 program and the 2008 Mitigation Rule is the goal of "no net loss" of wetland acreage and functions.⁸ In practice, this means that any unavoidable impacts to NTW—after reasonable avoidance and minimization measures have been taken—must be offset through compensatory mitigation, ensuring that lost ecological services are replaced or enhanced elsewhere.⁹ Compensatory mitigation focuses on offsetting the remaining damage by improving or safeguarding wetland areas. This process can involve four key actions: restoration, creation, enhancement, or preservation.¹⁰ Each approach serves a different purpose, but all aim to ensure that the overall balance of wetland functions and values is maintained or improved.

Restoration focuses on returning a degraded wetland to a more natural condition by reestablishing original hydrology, planting native vegetation, and controlling invasive species.¹¹ Creation involves constructing a wetland in an area where one did not exist historically, requiring careful site shaping, hydrological management, and introduction of suitable plant species.¹² Enhancement targets improving specific wetland functions—such as biodiversity or water regulation—without fully reverting the site to its original condition.¹³ Finally, preservation secures existing, high-quality wetlands against future threats or degradation, often through legal

⁴⁰ C.F.K. § 250.91 *et* ¹⁰ *Id*.

³ 40 C.F.R. § 230.94.

⁴ Id.

⁵ 40 C.F.R. § 230.93(2).

⁶ 40 C.F.R. § 230.93, .95, and .96.

⁷ 40 C.F.R. § 230.97.

⁸ 33 C.F.R. § 332.1 (codifying the regulatory framework commonly known as the "no net loss" policy for wetlands). While the text does not use the phrase "no net loss" verbatim, it implements the principle by requiring permit applicants, under Section 404 of the Clean Water Act, to (1) avoid and minimize impacts to waters of the United States wherever practicable; and (2) compensate for any unavoidable impacts through "all types of compensatory mitigation," including mitigation banks, in-lieu fee programs, or permittee-responsible projects. This framework— developed jointly by the U.S. Army Corps of Engineers and the Environmental Protection Agency—effectively ensures that wetlands lost through permitted activities are offset by restoration or creation of comparable aquatic resources, thereby preventing a net decline in the overall acreage and functions of the Nation's wetlands. ⁹ 40 C.F.R. § 230.91 *et seq*.

¹¹ 40 C.F.R. § 230.92.

 $^{^{12}}$ Id.

¹³ Id.

mechanisms or stewardship agreements, ensuring that their ecological functions and habitat values endure over time. $^{\rm 14}$

A. How States Incorporate (or Diverge from) the 2008 Mitigation Rule

Many states that do not fully "assume" Section 404 from the federal government still incorporate the 2008 Mitigation Rule through joint permitting or by explicitly citing federal definitions and processes. For instance, a state may require that any compensatory mitigation plan "adhere to the federal standard" or "comply with 33 C.F.R. 332," effectively stitching the 2008 Mitigation Rule requirements into the state-level permitting process.

- Pennsylvania, for example, does not have a standalone codification of the 2008 Mitigation Rule in 25 Pa. Code, but its joint permitting with USACE (the PASPGP framework) practically enforces compliance with federal mitigation requirements.¹⁵ Applicants must show they have avoided and minimized wetland impacts before presenting a compensatory mitigation plan that meets the 2008 Mitigation Rule's technical standards.¹⁶
- Ohio references federal mitigation rules within its administrative code indicating that mitigation banking or in-lieu fee projects must follow 33 C.F.R. Part 332.8, even though the rule's language is not reprinted verbatim in Ohio's statutes or regs.¹⁷

Meanwhile, some states essentially mirror the 2008 Mitigation Rule's requirements without formally "signing on" or rewriting the entire federal text into their own code. They do so by defining "mitigation" in a way that includes the same sequential approach and watershed focus. For instance:

- Maryland typically references the federal approach, requiring on-site or nearby watershedbased replacement, and it also coordinates heavily with the USACE on major projects. Although it has not "adopted" the 2008 Mitigation Rule word-for-word, the state's Nontidal Wetlands Protection Act and COMAR regulations reflect most key elements like monitoring timelines, performance standards, and a preference for certain mitigation types.¹⁸
- Virginia codifies a hierarchy of mitigation (mitigation banks > in-lieu fee > permitteeresponsible) that aligns with the 2008 Mitigation Rule's preference structure, yet the full text of Part 332 does not appear in the state code.¹⁹ Instead, any mitigation bank or in-lieu fee program in Virginia must have an instrument approved by an interagency review team (IRT) following the federal guidelines, ensuring functional compliance with the 2008 Mitigation Rule's standards.²⁰

B. States with Assumed Section 404 Authority

¹⁴ Id.

 ¹⁵ Pennsylvania State Programmatic General Permit-6, Part IV – Procedures: A. Application Submittal.
 <u>https://www.nab.usace.army.mil/Portals/63/PASPGP-6 Permit signed 20210625.pdf</u>
 ¹⁶ Id.

 $^{^{17}}$ OAC 3745-1-54(E)(1)(a)

¹⁸ Md. Code Regs. 26.23.04.03; Md. Code Regs. 26.23.04.05(C)

¹⁹ 9 Va. Admin. Code § 25-210-116(C)

²⁰ Va. Code Ann. § 62.1-44.15:23; and 9 Va. Admin. Code § 25-210-116(D) et seq.

New Jersey is notable because it is one of only two states to have assumed primary Section 404 authority from the federal government.²¹ By doing so, New Jersey steps into the USACE's shoes for many freshwater wetlands. Since the 2008 Mitigation Rule is a federal regulation that guides Section 404 mitigation, NJDEP effectively applies those standards in its own permitting—particularly for major discharges that might warrant review by EPA or the Corps. Even in an assumed program, states can add their own nuances, such as requiring transition area (buffer) replication or establishing a unique wetlands council to manage in-lieu fees. But they still must meet or exceed the federal baseline set by the 2008 Mitigation Rule.²²

II. State Compensatory Mitigation Program Research

A. Maryland

As mentioned earlier, Maryland represents one of the states which mirror the 2008 Mitigation Rule without fully signing onto the 2008 Mitigation Rule. As described more fully below, Maryland essentially incorporates the functional aspects of the 2008 Mitigation Rule by copying many of the definitions and processes outlined within it.

1. How Maryland Defines Compensatory Mitigation of NTW

Maryland defines NTW mitigation as "the creation, restoration, or enhancement of nontidal wetlands, to compensate for nontidal wetlands that were or will be lost due to regulated activities or non-exempt agricultural activities."²³

- "Creation" means establishing NTWs on upland sites, usually involving lowering the elevations of uplands by grading the soil to increase the frequency of soil saturation, flooding, and ponding.²⁴
- "Restoration" means projects that reestablish nontidal wetlands on sites where they were formerly located; for example, the removal of drainage structures from agricultural fields can result in nontidal wetland restoration.²⁵
- "Enhancement" means projects that improve the functions of existing nontidal wetlands. ²⁶
 - Planting wetlands that are farmed or dominated by lawn grass is the most common type of enhancement project.²⁷

²¹ State or Tribal Assumption of the CWA Section 404 Permit Program, United States Environmental Protection Agency, Status of State/Tribal Section 404 Program Assumption (October 29, 2024).

https://www.epa.gov/cwa-404/state-or-tribal-assumption-cwa-section-404-permit-program

²² See 40 C.F.R. § 233.1(c)–(d) (allowing states under an assumed § 404 program to impose additional regulatory provisions, provided they are as stringent as federal standards); N.J. Admin. Code § 7:7A-11.12 (requiring transition area replication); N.J. Stat. Ann. § 13:9B-14 (West 2024) (establishing the New Jersey Wetlands Mitigation Council to manage in-lieu fee mitigation); *see also* Compensatory Mitigation for Losses of Aquatic Resources, 73 Fed. Reg. 19,594, 19,594–95 (Apr. 10, 2008) (codified at 33 C.F.R. pt. 332; 40 C.F.R. pt. 230) (setting federal baseline mitigation standards that assumed state programs must meet or exceed).

²³ Md. Code Regs. 26.23.01.01(B)(59).

²⁴ Md. Code Regs. 26.23.01.01(B)(19).

²⁵ Md. Code Regs. 26.23.01.01(B)(76).

 $^{^{26}}$ Md. Code Regs. 26.23.01.01(B)(70).

²⁷ Nontidal Wetland Mitigation Overview – What is Mitigation, MARYLAND DEPARTMENT OF THE ENVIRONMENT,

https://mde.maryland.gov/programs/water/WetlandsandWaterways/AboutWetlands/Pages/nontidalmitigation.aspx#

- $\circ\,$ Stream restoration projects that reconnect the flood plain can enhance existing nontidal wetlands. 28
- Enhancement projects are additionally subjected to additional requirements to meet certain mitigation requirements.²⁹
 - 2. What Activities Require Mitigation, and Which Are Exempt in Maryland

Maryland requires mitigation for regulated and certain agricultural activities that will unavoidably result in the loss of NTWs.³⁰ Regulated activities mean the following activities which are undertaken or originate in a NTW, or within a 25-foot buffer or expanded buffer of a NTW³¹:

- Removal, excavation, or dredging of soil, sand, gravel, minerals, organic matter, or materials of any kind;
- Changing existing drainage characteristics, sedimentation patterns, flow patterns, or flood retention characteristics;
- Disturbance of the water level or water table by drainage, impoundment, or other means;
- Dumping, discharging of material, or filling with material, including the driving of piles and placing of obstructions;
- Grading or removal of material that would alter existing topography;
- Destruction or removal of plant life that would alter the character of a nontidal wetland; and
- New agricultural activities in wetlands.

Additionally, Maryland provides that certain activities are exempt from their permit and mitigation requirements:

- Forestry Activities;³²
- Traditional ongoing agricultural activities such as plowing and cultivating, which do not drain, dredge, fill, or otherwise convert undisturbed nontidal wetlands to agricultural production;³³
- Development activities with minimal or temporary adverse impacts to nontidal wetlands;³⁴ and
- Activities in isolated nontidal wetlands of less than 1 acre and having no significant plant or wildlife value.³⁵

3. Compensatory Mitigation Programs Maryland Utilizes

²⁸ Id.

²⁹ Md. Code Regs. 26.23.04.03. This section of the COMAR highlights the mitigation standards for all forms of mitigation in Maryland.

³⁰ Md. Code Regs. 26.23.04.02(B)(2). Explaining that permittees must avoid, minimize, and then utilize compensatory mitigation for remaining requirements.

³¹ Md. Code Regs. 26.23.01.01(B)(74); see also, Md. Code Ann., Envir. § 5-901.

³² Md. Code Ann., Envir. § 5-905(a); *see also*, Md. Code Regs. 26.23.05.02(B).

³³ *Id.*; *see also*, Md. Code Regs. 26.23.05.01(B)(1).

³⁴ Md. Code Ann., Envir. § 5-906(a)(1); see also, Md. Code Regs. 26.23.01.02(F).

³⁵ Md. Code Ann., Envir. § 5-906(a)(2).

Maryland, much like the other states in this analysis, utilizes three distinct types of Mitigation Programs: (a) In-Lieu Fee Mitigation Programs; (b) Permittee-Responsible Mitigation Programs; and (c) Mitigation Banking Programs.

Maryland's regulations for nontidal wetlands mitigation aim to achieve no net loss of wetland acreage and function—and ideally a net resource gain—by combining permit-by-permit oversight with broader restoration and enhancement initiatives.³⁶ Although the no-net-loss standard may not hold in each individual permit action, the Department's overall approach, including best management practices and other statewide measures, is designed to meet this goal over time.³⁷

Central to Maryland's framework is the use of acreage replacement ratios, which compare the acreage lost to the acreage replaced through in-kind creation or restoration—or through approved mitigation banks.³⁸ In general, emergent wetlands require a 1:1 (1.5:1 with bank credits) replacement ratio, whereas scrub-shrub and forested wetlands require a 2:1 or 3:1 ratio (3:1 or 4.5:1 for special State concern wetlands).³⁹ The loss of nontidal wetlands due to agricultural use can be offset by either enhancement of nontidal wetlands in farming use or creation/restoration of other types of wetlands at a 1:1 ratio (increasing to 1.5:1 with bank credits).⁴⁰

a) Maryland's In-Lieu Fee Program

An in-lieu fee mitigation program is operated by a nonprofit or governmental entity that offers credits to those whose authorized activities affect wetlands or streams, then uses the funds generated to undertake consolidated mitigation at designated sites

The Maryland Department of Environment (MDE) accepts money from developers when it is not feasible to create, restore, or enhance nontidal wetlands.⁴¹ This payment does not alleviate a developer from avoiding or minimizing nontidal wetland losses.⁴² To manage these payments, Maryland formed the Nontidal Wetland Compensation Fund in the MDE. Funds deposited in the Nontidal Wetland Compensation Fund can only be used to create, restore, or enhance nontidal wetlands.⁴³ The funds can be used for specified activities such as the acquisition of NTWs.⁴⁴ It is important to note that interest accrued in the Nontidal Wetland Compensation Fund remains available until spent and cannot be reverted to the general fund for any reason.⁴⁵ The MDE is required to prepare an annual report on the Nontidal Wetland Compensation Fund, covering the fiscal standing.⁴⁶

⁴³ Id. ⁴⁴ Id.

 46 Id.

³⁶ Md. Code Regs. 26.23.04.03.

³⁷ Id.

³⁸ Id.

³⁹ Id.

⁴⁰ *Id*.

⁴¹ Md. Code Ann., Envir. § 5-909. This Section of Maryland's Code explains the functioning of their "Nontidal Wetland Compensation Fund" which is integral to the functioning of their ILF program.

⁴² *Id*.

 $^{^{45}}$ Id.

To engage in the in-lieu fee program, the permittee must make a proposal for acceptance of monetary compensation during Phase 1 of a mitigation plan.⁴⁷ The MDE determines monetary compensation fees based on costs anticipated to construct mitigation projects.⁴⁸ Maryland additionally allows payment of fees from permittees to other organizations such as the Chesapeake Bay Trust to provide grant programs using the funds generated from fees to compound the amount of funding available to NTW remedial developers.⁴⁹

b) Maryland's Permittee-Responsible Mitigation Program

Permittee-responsible mitigation involves an authorized representative taking on the full obligation to offset any unavoidable wetland impacts that remain after thorough avoidance and minimization efforts.

The MDE has the authority to develop comprehensive watershed management plans which provide the foundational framework for guiding "nontidal wetland protection, creation, and restoration."⁵⁰ Maryland emphasizes cooperation among state, local, and federal agencies, ensuring that completed watershed management plans are used to promote consistent permitting decisions.⁵¹ In practical terms, this means the permittee-responsible mitigation approach exists within a broader strategy to protect and restore wetlands while considering factors like cumulative impacts, flood protection, and water supply.

Maryland additionally sets forth the specific procedures for implementing a permitteeresponsible mitigation plan.⁵² It envisions a two-phase application process. Phase 1 primarily occurs during the permitting process itself, capturing initial mitigation proposals.⁵³ Phase 2 requires permittees to submit more detailed information on their planned mitigation within three months after permit approval.⁵⁴ This structure ensures that, once a permit is granted, the mitigation design and execution become more detailed and tailored to the conditions of the approved project. Furthermore, the MDE is permitted to modify mitigation plans under certain circumstances, providing necessary flexibility to address evolving environmental conditions or other relevant considerations consistent with the MDE's watershed management goals.⁵⁵

c) Maryland's Mitigation Banking System

A mitigation bank is a designated site or group of sites where aquatic resources—such as wetlands, streams, or riparian zones—are restored, created, enhanced, or preserved to compensate

⁴⁷ Md. Code Regs. 26.23.04.07. This portion of Maryland Regulation sets out further procedures for the operation of the Nontidal Wetland Compensation Fund.

⁴⁸ Md. Code Regs. 26.23.04.07 (C).

⁴⁹ MDE's In-Lieu Fee Program, MARYLAND DEPARTMENT OF THE ENVIRONMENT,

https://mde.maryland.gov/programs/water/WetlandsandWaterways/AboutWetlands/Pages/inlieu.aspx ⁵⁰ Md. Code Ann., Envir. § 5-908

⁵¹ Id.

⁵² Md. Code Regs. 26.23.04.05. This portion of Maryland Regulation outlines the mitigation plan which is required with a permittee's application whenever mitigation is required by the activity.

⁵³ Id.

⁵⁴ Id.

⁵⁵ Id.

for permitted adverse impacts. Once established, the bank sells credits to permittees, transferring the obligation to provide compensatory mitigation from the permittee to the bank's sponsor.

In Maryland, the establishment and use of mitigation banks for NTW impacts is governed by a combination of statutory and regulatory provisions that aim to balance ecological outcomes with procedural transparency. Maryland requires the MDE to develop regulations governing the creation of wetland mitigation banks.⁵⁶ Importantly, while mitigation banks are authorized through law and regulation, their use is meant to be secondary to on-site mitigation unless on-site options are not feasible.⁵⁷

Maryland lays out a detailed framework for the application, approval, and oversight of mitigation banks. A prospective mitigation bank must submit a formal application that meets the standards outlined through Maryland law and regulation and must undergo a public notification process, including an informational hearing if requested by the community.⁵⁸ For proposed banks larger than five acres, this public process may be conducted at the applicant's expense.⁵⁹ Once an application is approved, the MDE and the bank operator enter into a Mitigation Bank Agreement, which is a prerequisite to initiating construction.⁶⁰ Additionally, the regulation imposes strict accounting, reporting, and closure procedures, ensuring ongoing compliance and oversight.⁶¹

4. How Maryland Monitors and Enforces Compensatory Mitigation Programs

The MDE holds broad authority to ensure compliance with permits and mitigation conditions. Moreover, the MDE can issue a stop work order for any breach of a regulation, permit, or related order tied to wetland activities.⁶² This enforcement power acts as a strong deterrent to noncompliance and ensures that developers and permittees understand the consequences of failing to carry out approved mitigation projects.

On the monitoring side, Maryland outlines the state's procedural requirements for ensuring that mitigation sites perform as intended. Monitoring officially begins with the first full growing season after the completion of site construction.⁶³ Permittees are required to submit annual monitoring reports to the MDE by December 31st each year, which must include detailed information such as survival rates, hydrology data, and vegetative cover, as specified by regulation.⁶⁴ This annual reporting obligation places the burden of proof on the permittee to demonstrate progress and compliance. Importantly, the MDE retains the right to inspect any mitigation project at any time, ensuring that reported data can be verified through on-the-ground

⁵⁶ Md. Code Ann., Envir. § 5-910(b). This section of the Code outlines what kind of regulations are included in the requirement to develop said regulations.

⁵⁷ Md. Code Ann., Envir. § 5-910(c)(3).

⁵⁸ Md. Code Regs. 26.23.02.01.

⁵⁹ Md. Code Regs. 26.23.02.06(B)(2).

⁶⁰ Md. Code Regs. 26.23.02.06(C). This part of the section of the Code specifically covers the Mitigation Banking Agreement.

⁶¹ Md. Code Regs. 26.23.02.06(E)

⁶² Md. Code Ann., Envir. § 5-911. This section of the Code specifically addresses the enforcement of Nontidal Wetlands Mitigation requirements. *See also*, Md. Code Regs. 26.23.04.04.

⁶³ *Id*.

⁶⁴ Id.

site visits.⁶⁵ The regulation also includes provisions for bonding, requiring permittees to secure a surety bond in a format approved by the state.⁶⁶ This financial assurance ensures that should the permittee default on their mitigation obligations, the state has recourse to complete or maintain the project using those funds.

B. New Jersey

As previously mentioned, New Jersey is one of two states that has assumed full regulatory responsibility for the regulation of wetlands from the federal government, meaning they largely have State systems for the mitigation of NTW impacts. New Jersey is notable as the only state in this analysis that does not rely on the federal framework for its compensatory mitigation programs.

1. How New Jersey Defines Mitigation of NTW

In New Jersey, nontidal wetlands mitigation is a regulatory mechanism designed to compensate for the unavoidable adverse impacts of development activities on freshwater wetlands, transitional buffer zones (called transition areas), and state open waters.⁶⁷ This framework is rooted in the New Jersey Freshwater Wetlands Protection Act and operationalized through detailed rules codified in the New Jersey Administrative Code (N.J.A.C.) Title 7, Chapter 7A. The state's approach is comprehensive, balancing environmental preservation with practical development needs.

At its core, mitigation in New Jersey aims to restore or replicate the ecological functions and values lost due to permitted disturbances.⁶⁸ When a proposed development cannot avoid impacting regulated wetlands or their adjacent areas, the applicant is required to engage in mitigation efforts that ensure ecological equivalency, if not enhancement.⁶⁹

2. What Activities Require Mitigation, and Which Are Exempt in New Jersey

In New Jersey, regulated actions include a range of disruptive activities such as excavation, drainage alteration, dumping or discharging materials, driving pilings, and the destruction of vegetation in a manner that alters wetland character.⁷⁰ If such activities are likely to adversely impact NTWs, New Jersey mandates appropriate mitigation efforts.⁷¹ The New Jersey Mitigation Technical Guidance (NJMTG) further outlines the types of activities that may require permits or authorizations from the Department of Environmental Protection (DEP) when they are likely to disturb wetlands.

New Jersey's regulations mirror the FWPA in many respects, particularly regarding activities that disturb water tables, place obstructions, or result in the destruction of wetland vegetation. New Jersey specifically highlights that activities which modify the vegetation, values,

⁶⁵ Id.

⁶⁶ *Id*.
⁶⁷ N.J. Stat. § 13:9B-13.

 $^{^{68}}$ Id.

⁶⁹ Id.

⁷⁰ N.J. Stat. § 13:9B-3, *see also* N.J. Admin. Code § 7:7A-2.2.

⁷¹ N.J. Stat. § 13:9B-13.

or functions of a wetland through water alteration or obstruction placement will require mitigation.⁷² Additionally, New Jersey extends mitigation requirements to activities within transition areas—such as soil excavation, the erection of structures, and the destruction of plant life—acknowledging the ecological importance of these buffer zones adjacent to wetlands.⁷³

Despite these regulatory frameworks, both the FWPA and NJAC provide exemptions for certain activities that do not significantly alter wetland or transition area characteristics. Such exemptions include normal farming, silviculture, and ranching activities, harvesting of forest products under an approved plan, and activities in coastal wetlands or predating the FWPA's enactment.⁷⁴ However, these exemptions are not absolute, activities involving the discharge of dredged or fill material, or changes in wetland use or flow patterns, remain regulated.⁷⁵ Similarly, activities such as minor property maintenance, temporary structure placement, and limited farm operations are exempt from mitigation requirements, provided they follow best management practices and do not introduce new uses or impair wetland functions.⁷⁶

3. Compensatory Mitigation Programs New Jersey Utilizes

New Jersey's approach to wetland mitigation is grounded in both statutory and regulatory frameworks. The DEP has the power to require applicants whose projects impact NTWs to implement mitigation strategies that restore, create, or enhance NTWs of equal ecological value.⁷⁷ These efforts may be conducted on-site or, if on-site mitigation is deemed infeasible, off-site.⁷⁸ Importantly, the DEP will only evaluate mitigation proposals after a full review of the initial permit application, ensuring mitigation is not prematurely considered without an understanding of the project's overall impact.⁷⁹

Where on-site mitigation is not possible, a structured approach for off-site alternatives is provided by New Jersey. These alternatives include mitigation activities on private land with developmental restrictions, protection of valuable off-site transition or upland areas, the purchase of credits from approved mitigation banks, or—only as a last resort—the donation of land with potential ecological benefit as determined by the Wetlands Mitigation Council.⁸⁰ The regulatory

⁷² N.J. Admin. Code § 7:7A-2.2.

⁷³ N.J. Admin. Code § 7:7A-2.3. This section of Maryland regulations specifically discusses the unique regulations of transition areas. "Transition area" means an area of land adjacent to a freshwater wetland that minimizes adverse impacts on the wetland or serves as an integral component of the NTW's ecosystem. Activities such as soil disturbance, filling, structural erection, pavement placement, and alteration of vegetation are regulated when conducted within transition areas adjacent to freshwater wetlands. However, certain routine or minimal-impact activities—such as normal property maintenance, limited gardening, and minor temporary construction-related disturbances—are not regulated, provided they avoid adverse environmental effects and occur outside conservation-restricted areas. Additional exemptions apply for specific farming and forestry activities as set forth in N.J.A.C. § 7:7A-2.4, with confirmation of exemption status available upon request pursuant to § 7:7A-2.6.

⁷⁴ N.J. Stat. § 13:9B-4.

⁷⁵ Id.

⁷⁶ N.J. Admin. Code § 7:7A-2.2 through 2.4.

⁷⁷ N.J. Stat. § 13:9B-13(b).

⁷⁸ N.J. Stat. § 13:9B-13(c).

⁷⁹ N.J. Stat. § 13:9B-13(b), see also, N.J. Admin. Code § 7:7A-11.6.

⁸⁰ Id.

criteria for such mitigation proposals are elaborated on through regulation, ensuring consistency, ecological integrity, and enforceability in the DEP's assessment process.

New Jersey further defines general mitigation requirements, mandating that mitigation must be in-kind and provide full ecological compensation.⁸¹ Although the DEP may approve outof-kind mitigation under certain circumstances, New Jersey emphasizes proportionality, typically requiring a 2:1 mitigation ratio for out-of-kind mitigation unless a lower ratio can demonstrably yield equivalent ecological value.⁸² At no point, however, can the mitigation ratio fall below 1:1.⁸³ Long-term ecological success is a central requirement, and mitigation efforts must demonstrate a high probability of sustained functionality.⁸⁴

New Jersey also distinguishes between temporary and permanent disturbances. Temporary impacts require restoration to the area's previous topographic and ecological state or, alternatively, enhancement via the addition of NTW acreage.⁸⁵ For smaller-scale disturbances, New Jersey prescribes a hierarchy of preferred mitigation strategies, beginning with mitigation banking and descending through onsite mitigation, offsite mitigation, in-lieu fee contributions (ILF), upland preservation, and finally, land donation.⁸⁶ Larger disturbances reverse the hierarchy, giving priority to on-site and off-site mitigation before turning to mitigation banking, ILF, and other indirect methods.⁸⁷

a) New Jersey's Mitigation Banking System

New Jersey's wetland mitigation strategy includes the establishment of a State Wetlands Mitigation Bank.⁸⁸ While the bank exists within the DEP, it operates independently under the management of the seven-member Wetlands Mitigation Council.⁸⁹ This council oversees the

⁸⁹ N.J. Stat. § 13:9B-14(b). The New Jersey Freshwater Wetlands Mitigation Council is comprised of seven members: one representative from the Department of Environmental Protection (DEP) and six public members appointed by the Governor with the Senate's advice and consent. These public members are selected based on recommendations from recognized organizations and institutions to ensure diverse representation and expertise. Specifically, two members are recommended by building and development organizations, two by environmental and conservation organizations, and two are affiliated with institutions of higher education within New Jersey. The two members recommended by building and development organizations provide practical insights into construction practices and industry standards, ensuring that mitigation strategies are implementable and sensitive to development realities. The two members representing environmental and conservation organizations advocate for ecological preservation and help ensure that mitigation efforts adequately compensate for environmental impacts and support long-term wetland health. The two academic members, drawn from institutions of higher education within the state, contribute research-based perspectives and scientific expertise, informing the Council's decisions with best practices in wetland science and policy. Together with the Department of Environmental Protection representative, these members review proposed mitigation contributions, advise the Department on mitigation policy, and oversee the state's In-Lieu Fee Program, helping to ensure that development and environmental preservation remain in careful balance.

⁸¹ N.J. Admin. Code § 7:7A-11.2.

⁸² Id.

⁸³ Id.

⁸⁴ Id.

⁸⁵ N.J. Admin. Code § 7:7A-11.8.

⁸⁶ N.J. Admin. Code § 7:7A-11.9.

⁸⁷ N.J. Admin. Code § 7:7A-11.10

⁸⁸ N.J. Stat. § 13:9B-14.

administration of the bank and ensures that mitigation efforts align with state ecological goals.⁹⁰ Applicants whose activities impact wetlands may satisfy their mitigation requirements by purchasing credits from approved mitigation banks if the department determines such mitigation is appropriate.⁹¹ The DEP determines the number of credits required based on the ecological functions and values lost due to a proposed project.⁹²

The process for establishing a mitigation bank requires a detailed application to the DEP. Prospective bank sponsors must demonstrate how their site will function ecologically, outline long-term maintenance and financial assurances, and secure the site's protection.⁹³ New Jersey further requires that a developmental hold be placed on the land before any credit sales to ensure the site remains preserved and viable for mitigation purposes. Only after satisfying these regulatory steps can the mitigation bank begin selling credits.⁹⁴

b) Onsite/Offsite Permittee Responsible Mitigation

New Jersey has established specific requirements for wetland mitigation efforts involving the restoration, creation, or enhancement of NTWs. When an applicant opts to restore or create NTWs as a form of compensatory mitigation, the DEP mandates a 2:1 ratio—meaning that for every acre of NTW disturbed or lost, two acress must be created or restored.⁹⁵ This ratio reflects the state's commitment to not just replacing, but exceeding, the ecological value of what is impacted. Importantly, when such mitigation involves new creation or restoration, the applicant must also establish a surrounding transition area, which serves as a buffer to protect the NTW.⁹⁶ However, this transition area does not count toward the required mitigation acreage.⁹⁷ For mitigation through enhancement, which typically involves improving the functionality or ecological value of an existing but degraded wetland, the DEP does not impose a fixed ratio. Instead, it evaluates enhancement proposals on a case-by-case basis to determine how much enhancement work is necessary to fully offset the ecological impact of the proposed disturbance.⁹⁸

c) In-Lieu Fee Mitigation Programs

New Jersey's wetland mitigation framework includes an In-Lieu Fee (ILF) program as a "third-party compensatory mitigation option for unavoidable impacts to wetlands,".⁹⁹ This mechanism allows permittees to satisfy mitigation obligations by making a financial contribution instead of directly restoring, creating, or enhancing wetlands. These funds are managed by the Wetlands Mitigation Council, which retains 10 percent of each contribution as an administrative fee to cover operational costs associated with managing the ILF program.¹⁰⁰

⁹² Id.

⁹⁰ N.J. Stat. § 13:9B-14.

⁹¹ N.J. Admin. Code § 7:7A-11.14.

⁹³ N.J. Admin. Code § 7:7A-11.26.

⁹⁴ N.J. Admin. Code § 7:7A-11.25.

⁹⁵ N.J. Admin. Code § 7:7A-11.12.

⁹⁶ Id.

⁹⁷ Id.

⁹⁸ *Id*.

⁹⁹N.J. Admin. Code § 7:7A-11.23(a).

 $^{^{100}}$ Id.

New Jersey further details how monetary contributions to the ILF program can satisfy mitigation requirements.¹⁰¹ If the DEP determines that such a contribution is appropriate, applicants must either (1) obtain approval from the Wetlands Mitigation Council for individual permits, based on the projected costs of restoring or creating wetland areas of equal ecological value, or (2) use a codified formula if applying under a general permit.¹⁰² Different formulas apply to single-family property owners and other categories of applicants.¹⁰³ The DEP also adjusts contribution amounts annually based on changes in the Consumer Price Index for Urban Consumers, ensuring the monetary value of mitigation remains consistent with economic conditions.¹⁰⁴

To access ILF funds for mitigation projects, applicants must first submit a conceptual grant proposal identifying the project's location, proposed wetland activities (preservation, creation, enhancement, or restoration), requested funding, number of credits expected, and a detailed budget.¹⁰⁵ Upon approval, the applicant must submit a more comprehensive full proposal.¹⁰⁶ If that proposal is accepted by the DEP, it is forwarded to the EPA for review before the DEP finalizes a contractual agreement.¹⁰⁷

d) Land Donation

New Jersey permits mitigation through participation in a Land Donation Program as one of the lowest-tier options in the state's mitigation hierarchy. This method is only used when other more direct forms of mitigation (e.g., creation, restoration, mitigation banking, or in-lieu fee contributions) are not feasible.¹⁰⁸ Once the DEP determines that land donation is an appropriate mitigation method, the applicant must apply to the Wetlands Mitigation Council to have a specific parcel approved for donation.¹⁰⁹ Approval is contingent on the parcel's ability to fully compensate for the ecological loss caused by the permitted disturbance, meaning it must have the potential to serve as a meaningful and sustainable component of the wetland ecosystem.¹¹⁰

In reviewing such parcels, the Council evaluates a range of ecological, hydrological, and spatial factors on a case-by-case basis, as outlined in subsection (d) of the regulation.¹¹¹ These may include the parcel's connectivity to existing protected areas, the presence of sensitive species or habitats, and its long-term preservation value.¹¹² Notably, if the parcel is already being donated or restricted for another governmental obligation, the applicant must also enhance or restore wetlands on the donated land for it to be approved as mitigation.¹¹³ If this additional enhancement is not

 113 Id.

¹⁰¹ N.J. Admin. Code § 7:7A-11.16.

 $^{^{102}}$ Id.

 $^{^{103}}$ Id.

 $^{^{104}}$ *Id*.

¹⁰⁵ N.J. Admin. Code § 7:7A-11.24.

 $^{^{106}}$ *Id*.

 $^{^{107}}$ Id.

¹⁰⁸ N.J. Admin. Code § 7:7A-11.15.

 $^{^{109}}$ Id.

¹¹⁰ Id. ¹¹¹ Id.

 $^{^{112}}$ Id.

possible, the parcel is disqualified from serving as mitigation under the program.¹¹⁴ This ensures that land donations offer independent and additive ecological value rather than simply fulfilling overlapping regulatory requirements.

e) Upland Preservation

In the context of nontidal wetlands mitigation, upland preservation refers to the permanent protection of upland areas from disturbance or development.¹¹⁵ This is typically achieved by transferring the property to a charitable land conservancy and executing legal instruments—such as conservation restrictions or easements—that ensure the land remains undeveloped.¹¹⁶ Although these uplands are not wetlands themselves, preserving them supports the ecological function and integrity of adjacent or nearby wetlands.

This form of mitigation is typically considered a lower-tier option because it does not directly replicate the ecological functions of NTW.¹¹⁷ As a result, the DEP exercises significant discretion in determining whether a proposed upland preservation project will provide meaningful ecological value to an NTW system.¹¹⁸ The DEP evaluates various site-specific factors to assess the upland area's ability to support and enhance the surrounding wetland ecosystem, such as its proximity to NTWs, its role in supporting biodiversity, and its capacity to buffer or protect adjacent wetlands.¹¹⁹

Given its indirect benefits, the DEP imposes a higher threshold for mitigation through upland preservation. The minimum area eligible for this type of mitigation is 5 acres—larger than required for other forms of mitigation—reflecting the need for a broader landscape to yield sufficient ecological value.¹²⁰ Furthermore, if the preserved upland is located adjacent to an NTW, it must meet applicable transition area requirements.¹²¹

¹¹⁴ *Id*.

¹¹⁵ N.J. Admin. Code § 7:7A-11.1.

¹¹⁶ Id.

¹¹⁷ N.J. Admin. Code § 7:7A-11.13

 $^{^{118}}$ *Id*.

¹¹⁹ N.J. Admin. Code § 7:7A-11.13(b). When evaluating whether an area qualifies for upland preservation as part of nontidal wetlands mitigation, the Department considers a range of ecological and regulatory factors. These include the size and configuration of the upland area in relation to nearby freshwater wetlands or State open waters, and how preserving the uplands would benefit those water bodies. The Department also assesses the site's ecological diversity, whether the uplands fall within the same watershed management area as the impacted wetlands, and if they are adjacent to wetlands of exceptional resource value or critical habitat. Other relevant factors include proximity to trout maintenance waters or public drinking water sources, adjacency to public lands or conservation areas, and the presence of unique or regionally rare wetland types. The Department also takes into account how the proposed preservation area relates to surrounding land uses and development, whether it has been designated for preservation under an approved watershed management plan, and whether the site is free from solid or hazardous waste or water or soil pollution, as contaminated sites are not suitable for wetland ecosystem protection. ¹²⁰ *Id*.

¹²¹ Id.

4. How New Jersey Monitors and Enforces Compensatory Mitigation Programs

New Jersey's monitoring and enforcement mechanisms for wetland mitigation are contained entirely within regulatory provisions, rather than state law, and vary by the type of mitigation used. For onsite or offsite restoration, creation, or enhancement of wetlands, within 60 days of completing mitigation (or as otherwise directed), the mitigator must submit a construction completion report including as-built plans, photographic evidence, and explanations of any deviations from the approved plan.¹²² Annual post-construction monitoring reports are then required—typically for five years—detailing progress toward ecological goals, including vegetation and hydrological assessments.¹²³ A project is deemed successful if it meets the stated goals, achieves hydrophytic vegetation, and includes a properly recorded conservation restriction.¹²⁴ If unsuccessful, the DEP may mandate corrective actions such as replanting, relocation, or extended monitoring, with non-compliance subject to enforcement.¹²⁵

Other forms of mitigation are monitored through tailored regulatory frameworks. For upland preservation, the mitigator must record a conservation restriction, transfer the land in fee simple to an approved entity, and provide a maintenance fund.¹²⁶ Similarly, the Land Donation Program also requires prior parcel approval, proper recording of transfer and restrictions, and provision of a maintenance fund to the receiving agency or conservancy.¹²⁷ Mitigation banking involves a longer-term commitment: operators must monitor the site during and after construction until all credits are sold or the site is transferred.¹²⁸ Additionally, for Mitigation Banks, annual progress reports are required, and the DEP may alter the banking agreement if the operator falls behind schedule.¹²⁹ Upon conclusion, the operator must demonstrate project success, properly transfer the site, and fund its long-term maintenance.¹³⁰

The In-Lieu Fee (ILF) Program aligns with federal requirements.¹³¹ These include rigorous standards for baseline ecological data collection, performance metrics, monitoring schedules, and reporting obligations.¹³² Together, these rules ensure that ILF-funded projects are not only implemented correctly but also tracked and evaluated to guarantee long-term ecological performance.

C. Ohio

Ohio is another state with an interesting compensatory mitigation framework which provides useful insights. Although similar to states like Pennsylvania, which haven't officially

¹²² N.J. Admin. Code § 7:7A-11.12(e).

¹²³ N.J. Admin. Code § 7:7A-11.12(f)-(g).

¹²⁴ N.J. Admin. Code § 7:7A-11.12(h), (j).

¹²⁵ N.J. Admin. Code § 7:7A-11.12(i).

¹²⁶ N.J. Admin. Code § 7:7A-11.13(d).

¹²⁷ N.J. Admin. Code § 7:7A-11.15(e).

¹²⁸ N.J. Admin. Code § 7:7A-11.25.

¹²⁹ Id.

¹³⁰ *Id*.

¹³¹ N.J. Admin. Code § 7:7A-11.23(c).

¹³² Id.

signed onto the 2008 Mitigation Rule, it differs in that Ohio references the 2008 Mitigation Rule directly in its code, providing clear guidance to permittees and developers.

1. How Ohio Defines Mitigation of NTW

Ohio does not rely on a single, standalone definition of "non-tidal wetland mitigation" but rather frames its protection of nontidal wetlands through antidegradation principles outlined in the Ohio Administrative Code (OAC) and the Ohio Revised Code (ORC). Under Ohio's antidegradation policy, any proposed lowering of existing water quality in wetlands—even if indirect—triggers a thorough review process designed to ensure that (1) wetland functions such as water storage, habitat provision, and water quality maintenance are protected, and (2) any loss of these functions is justified by a social or economic necessity and appropriately offset by responsible measures.¹³³

In Ohio, "compensatory mitigation," refers to restoring, creating, enhancing, or sometimes preserving wetlands to offset any remaining damage once all feasible measures to avoid and minimize harm have been taken.¹³⁴

2. What Activities Require Mitigation, and Which Are Exempt in Ohio

Ohio largely outlines what kinds of activities will require mitigation through the use of definitions. Ohio specifically defines the terms "Fill Material" and "Filling," clarifying what qualifies as fill and distinguishing normal farming or maintenance activities from more impactful wetland fills, thus determining when a permit and mitigation may be required.¹³⁵ Building on that foundation, Ohio further mandates that any discharge of dredged or fill material resulting in the functional impairment of nontidal wetlands must be authorized through a permit, complete with a proposed mitigation plan unless it can be shown that such mitigation is not necessary.¹³⁶

Further broadening the scope, Ohio stipulates that not only direct but also indirect and cumulative impacts to nontidal wetlands can trigger a mitigation requirement.¹³⁷ Under this rule, any net loss of wetland acreage or decrease in wetland functions—including groundwater exchange, nutrient removal, habitat provision, and more¹³⁸—gives rise to compensatory mitigation obligations.

A variety of activities, permit applications, and specific discharges are exempt from this rule's requirements. For example, discharges from existing facilities operating before July 1, 1993,

¹³³ Ohio Admin. Code 3745-1-05(C).

¹³⁴ Ohio Admin. Code 3745-1-50(C).

¹³⁵ Ohio Rev. Code Ann. § 6111.02.

¹³⁶ Ohio Rev. Code Ann. § 6111.028.

¹³⁷ Ohio Admin. Code 3745-1-54(B)(1).

¹³⁸ *Id.* Wetlands provide a variety of important ecological functions and services, which may include facilitating groundwater exchange through recharge and discharge, removing or transforming nutrients, and retaining sediments or contaminants. They also offer critical water storage capacity, contribute to sediment and shoreline stabilization, and support the maintenance of biodiversity, as defined in rule 3745-1-50 of the Administrative Code. In addition to their ecological value, wetlands serve recreational, educational, and research purposes, and often provide essential habitat for threatened or endangered species.

remain exempt so long as any increase in flow is not tied to a facility modification.¹³⁹ Certain production or treatment capacity expansions and permit extensions that remain within previously authorized limits also fall outside the rule's scope.¹⁴⁰ In addition, communities with combined sewer overflows may extend sanitary sewer lines or add industrial users if they meet the necessary planning and capacity conditions.¹⁴¹ Exemptions likewise apply to discharges covered by general National Pollutant Discharge Elimination System (NPDES) permits and to minor heating discharges that raise waterbody temperatures by less than one degree Fahrenheit.¹⁴² Where no substantial discharge changes have occurred since July 1, 1993, the rule does not cover initial whole effluent toxicity limits.¹⁴³ Industrial user expansions or domestic sewage sources that fit within the design capacity of Publicly Owned Treatment Works are also exempt, as are NPDES permits for coal mining sites that meet pollution abatement standards.¹⁴⁴

3. Compensatory Mitigation Programs Ohio Utilizes

Ohio categorizes its wetlands into three types (Category 1, 2, and 3), each reflecting different levels of ecological function and habitat value. Category 1 wetlands are generally isolated, low in native biodiversity, and offer limited functions; Category 2 wetlands have moderate ecological and hydrological attributes; and Category 3 wetlands display high levels of diversity and functional importance.¹⁴⁵ Depending on the wetland's category, Ohio requires different mitigation ratios, with forested isolated wetlands subject to higher ratios than non-forested wetlands.¹⁴⁶ Additionally, Ohio outlines a general compensatory mitigation hierarchy and sets the specific ratios each program must follow.¹⁴⁷

Any permittee affecting a protected wetland must conduct on-site mitigation unless they demonstrate that there is no practicable alternative with fewer adverse effects, that steps have been taken to minimize impacts, that lowering water quality is necessary for significant social or economic development, and that stormwater controls and other category-specific requirements will be met.¹⁴⁸ For further details on how Ohio's program handles mitigation based on wetland category, one can consult ORC Ann. 6111.022 through 6111.024.¹⁴⁹

¹³⁹ Ohio Admin. Code 3745-1-05(B)(2).

 $^{^{140}}$ Id.

¹⁴¹ Id.

 $^{^{142}}$ *Id*.

 $^{^{143}}$ *Id*.

¹⁴⁴ Ohio Admin. Code 3745-1-05.

¹⁴⁵ Ohio Admin. Code 3745-1-54(C). This portion of the code specifically addresses the definitions of different wetlands categories for Ohio.

¹⁴⁶ Ohio Rev. Code Ann. 6111.022-.024, .027.

¹⁴⁷ Ohio Admin. Code 3745-1-54(E).

¹⁴⁸ Ohio Admin. Code 3745-1-54(D)(1)(a-c).

¹⁴⁹ Ohio Rev. Cod Ann. 6111.022-.024. Proposed activities involving the filling of isolated wetlands in Ohio are subject to varying levels of review under Ohio Revised Code §§ 6111.022–6111.024, based on the wetland's classification and size. A Level One Review applies to the filling of Category 1 or 2 isolated wetlands of ½ acre or less, requiring a general state permit and the submission of a pre-activity notice. If the Ohio Environmental Protection Agency (EPA) does not object within 30 days, the project may proceed, provided appropriate mitigation—preferably on-site, off-site, or through a mitigation bank—is proposed. Level Two Review applies to the filling of Category 1 wetlands over ½ acre or Category 2 wetlands between ½ and 3 acres, requiring an individual permit and additional documentation, such as an analysis of practicable on-site alternatives and

a) Ohio's Mitigation Banking System

Ohio specifically allows government agencies, private entities, and public organizations to establish such mitigation banks.¹⁵⁰ These banks must adhere to the 2008 Mitigation Rule, which lays out the framework for developing a mitigation banking instrument (MBI) and ensuring compliance with performance standards, monitoring requirements, and long-term management obligations.¹⁵¹

Before selling any credits, a mitigation bank must have an approved MBI detailing its objectives, site selection and protection, baseline conditions, credit determination, work and maintenance plans, performance standards, monitoring protocols, and financial assurances.¹⁵² This plan is reviewed by an interagency review team (IRT) convened by the district engineer.¹⁵³ The bank must also prepare a "prospectus" for public and IRT review, providing a concise overview of the bank's purpose, location, ecological suitability, and feasibility.¹⁵⁴ After addressing any feedback, the sponsor submits the final MBI, which includes the proposed service area, accounting procedures, default and closure provisions, and a credit release schedule tied to specific milestones.¹⁵⁵ Only once approved by the district engineer may the bank begin selling credits, at which point legal responsibility for compensatory mitigation shifts from the permittee to the bank sponsor.¹⁵⁶

b) Ohio's In-Lieu Fee Mitigation Program

Ohio's in-lieu fee programs operate similarly to mitigation banks in that they sell compensatory mitigation credits to permittees needing to offset unavoidable impacts to wetlands and other aquatic resources. However, the key distinction is that in-lieu fee sponsors—often governmental or nonprofit entities—generally undertake restoration or enhancement projects after collecting fees, whereas mitigation banks typically have some or all of their restoration work in place before credits are sold. In Ohio, both public and private entities are eligible to become in-lieu fee sponsors.¹⁵⁷ In addition, Ohio established the Surface Water Improvement Fund, which receives fees from in-lieu fee programs and directs them toward broader water quality protection and restoration initiatives, at the discretion of the director.¹⁵⁸

¹⁵⁶ Id.

stormwater controls. The Ohio EPA must determine that no feasible alternative exists, the wetland is not regionally rare or home to threatened species, and that mitigation is adequate. Level Three Review governs the filling of Category 2 wetlands larger than 3 acres and all Category 3 wetlands, and includes a full antidegradation review. Permits at this level are only issued if the applicant demonstrates that the project will not interfere with the attainment or maintenance of water quality standards. Across all levels, mitigation must follow a preferred hierarchy, with options ranging from on-site restoration to in-lieu fee programs, and deviations from this order require justification and approval by the director.

¹⁵⁰ Ohio Rev. Code Ann. § 6111.025(A).

¹⁵¹ Ohio Admin. Code 3745-1-54(E)(1)(a).

^{152 33} C.F.R. § 332.8.

¹⁵³ Id.

¹⁵⁴ *Id*.

¹⁵⁵ Id.

¹⁵⁷ Ohio Rev. Code Ann. § 6111.025(A).

¹⁵⁸ Ohio Rev. Code Ann. § 6111.0382.

Ohio's in-lieu fee programs are required to comply with federal requirements and standards.¹⁵⁹ Sponsors must develop a "prospectus" that demonstrates the program's technical feasibility, ecological suitability, proposed service area, and long-term management strategy.¹⁶⁰ Approval of the prospectus entails creating a program instrument that is subject to public and interagency review, detailing everything from site selection criteria and credit determination to maintenance plans and financial assurances.¹⁶¹ Once the final in-lieu fee instrument is approved by the district engineer, the sponsor establishes a program account for collected fees and submits project proposals for the use of those funds.¹⁶²

c) Ohio's Permittee Responsible Mitigation Program

Under Ohio law, permittee-responsible mitigation (PRM) is considered the third most preferred compensatory mitigation approach—following mitigation banking and in-lieu fee programs—yet it must still meet federal standards.¹⁶³ However, Ohio imposes additional requirements beyond these federal standards. At the core of PRM is the obligation for a permittee to prepare a robust mitigation plan as part of the permit application.¹⁶⁴ This plan must show that the mitigation site will be protected long-term and that appropriate management measures will be in place to safeguard against degradation or loss of wetland functions.¹⁶⁵

Once a permittee undertakes a PRM plan, Ohio generally requires them to reestablish (restore) wetlands unless restoration is impracticable.¹⁶⁶ If restoration is not feasible, wetland establishment (creation) and rehabilitation (enhancement) may be allowed.¹⁶⁷ Only if none of those approaches is feasible can a permittee use wetland preservation, but that option is strictly limited to high-quality wetlands and requires showing imminent threat, appropriate stewardship arrangements, and protective measures like upland buffers.¹⁶⁸ When a permittee does pursue restoration or creation, the replacement of wetlands must be of equal or higher quality than the one impacted, and any enhancement must improve or repair existing wetland functions.¹⁶⁹ Ohio has also developed specific formulas to guide rehabilitation and preservation requirements, ensuring that PRM programs consistently support the goal of no net loss of wetland functions and values.¹⁷⁰

4. How Ohio Monitors and Enforces Mitigation Programs

Ohio provides performance standards and monitoring that apply to all forms of compensatory mitigation within the state.¹⁷¹ Under Ohio's regulatory framework, permittees must

¹⁵⁹ Ohio Admin. Code 3745-1-54(E)(1)(b).

¹⁶⁰ 33 C.F.R. § 332.8(c).

¹⁶¹ *Id*.

¹⁶² *Id*.

¹⁶³ Ohio Admin. Code 3745-1-54(E)(1)(c).

¹⁶⁴ Ohio Rev. Code Ann. § 6111.027.

¹⁶⁵ Ohio Admin. Code 3745-1-54(F). This covers a majority of the requirements Ohio adds onto the federal requirements for PRMs.

 $^{^{166}}Id.$

¹⁶⁷ *Id*.

¹⁶⁸ *Id*.

 $^{^{169}}$ Id.

¹⁷⁰ *Id*.

¹⁷¹ Ohio Admin. Code 3745-1-54(F)(8)-(9).

meet performance standards to demonstrate the ecological success of their compensatory wetland mitigation projects. These standards may be drawn from the "Guidelines for Wetland Mitigation Banking and In-Lieu Fee Programs in Ohio," version 2.0, or from other criteria deemed acceptable by the director.¹⁷² To verify that these standards are being met, the permittee must conduct ecological monitoring—encompassing hydrologic characteristics, vegetation communities, and soil conditions—and submit annual reports.¹⁷³ Monitoring must continue for at least five years for non-forested wetlands and at least ten years for forested wetlands, though the director may waive or shorten the required timeframe if the wetland is shown to be meeting performance goals.¹⁷⁴ If more time is needed, the director can grant an extension of up to two years.¹⁷⁵

If, at the end of the designated monitoring period, a mitigation project fails to meet its performance standards, the permittee must compensate for this shortfall.¹⁷⁶ Typically, this involves purchasing mitigation credits from a wetland mitigation bank or using an in-lieu fee program, when available.¹⁷⁷ If credits are not available, the permittee may propose alternate compensatory mitigation for the director's consideration.¹⁷⁸

D. Pennsylvania

Pennsylvania represents a convergent theme between itself and Ohio, implementing the federal compensatory mitigation framework through joint permitting efforts, rather than through the inclusion or reference in law or regulation within the state as Ohio does. This fact represents the value of analyzing how Pennsylvania has structured its compensatory mitigation programs.

1. How Pennsylvania Defines Mitigation of NTW

Pennsylvania defines mitigation for NTW as a comprehensive, sequential process aimed at preventing net environmental loss.¹⁷⁹ In Pennsylvania, mitigation begins with efforts to avoid impacts on wetlands and then to minimize those impacts through project design modifications and restoration activities.¹⁸⁰ Only after these steps have been fully pursued can any remaining, unavoidable impacts be addressed through compensatory mitigation. In this final phase, the law requires that any lost wetland functions or acreage be replaced through activities such as restoration, creation, enhancement, or—in certain cases—preservation.¹⁸¹ This structured approach ensures that if a project unavoidably impacts NTW, the replacement actions are sufficient to fully offset the loss, thereby maintaining the overall environmental integrity of Pennsylvania's aquatic resources.

¹⁷² *Id*.

¹⁷⁴ Id.

- ¹⁷⁵ Id.
- ¹⁷⁶ Id.

¹⁷⁷ Id.

¹⁷⁸ Id.

¹⁷³ Id.

¹⁷⁹ 25 Pa. Code § 105.1.

¹⁸⁰ *Id*.

¹⁸¹ 25 Pa. Code § 105.20a.

What Activities Require Mitigation, and Which Are Waived in 2. Pennsylvania

Under Pennsylvania law, any discharge of dredged or fill material into the Commonwealth's regulated waters generally requires a permit, unless it involves routine farming practices such as plowing or seeding.¹⁸² The statutory definitions of "discharge of dredged material" and "discharge of fill material" (as well as "dredged material" and "dredge") underscore that depositing, disposing of, or placing any material in regulated waters-whether for construction, site development, or other uses—can trigger the need for a permit and, in turn, require compensatory mitigation for wetlands impacts.¹⁸³ The Clean Streams Law grants the Department of Environmental Protection (DEP) broad authority to regulate discharges that cause or threaten pollution, including sewage, industrial waste, and other potentially harmful substances.¹⁸⁴ Likewise, under the Dam Safety and Encroachments Act and its implementing regulations, any construction, operation, or modification of dams, water obstructions, or encroachments in wetlands must be permitted and may require mitigation if wetland functions or acreage are affected.¹⁸⁵

Permittees must replace the affected wetland area, functions, and values at a minimum 1:1 ratio; for unpermitted activities where mitigation is not possible, the ratio increases to 2:1.¹⁸⁶ Replacement wetlands must typically be sited adjacent to the impacted area or otherwise within the same watershed.¹⁸⁷ The DEP's "Design Criteria for Wetlands Replacement" guide is used to assess whether these replacements adequately compensate for lost functions.¹⁸⁸ Pennsylvania further coordinates state and federal requirements through a joint permitting process, meaning Pennsylvania integrates much of the federal framework-even though mitigation banking or inlieu fee programs are not explicitly defined in state regulations.¹⁸⁹ By adopting federal standards through its broad definition of "mitigation," Pennsylvania ensures alignment with nationwide compensatory mitigation practices, thereby promoting a consistent and effective approach to wetlands conservation.

Under Pennsylvania's regulatory framework, a range of minor or low-impact activities are exempt from the usual permitting requirements, including small dams in narrow streams, certain water obstructions within limited drainage areas, some aerial crossings, and routine agricultural practices.¹⁹⁰ These waivers also extend to specific pre-1979 structures, small outfalls, or bridges and culverts where the drainage area is under five square miles.¹⁹¹ However, if the DEP determines that an otherwise waived activity presents a significant risk to safety, health, property, or the environment, it can revoke the waiver and require a permit.¹⁹² This approach allows Pennsylvania to streamline approvals for negligible impacts while retaining the ability to regulate more closely if unforeseen environmental or public health concerns arise.

¹⁸² 35 Pa. Stat. Ann. § 691.202.

¹⁸³ 25 Pa. Code § 105.1.

¹⁸⁴ 35 Pa. Stat. Ann. § 691 et seq.

¹⁸⁵ 25 Pa. Code § 105.20 et seq.

¹⁸⁶ 25 Pa. Code § 105.20a.

¹⁸⁷ Id.

¹⁸⁸ Id.

¹⁸⁹ 25 Pa. Code § 105.24.

¹⁹⁰ 25 Pa. Code § 105.12. ¹⁹¹ Id.

¹⁹² Id.

3. Compensatory Mitigation Programs Pennsylvania Utilizes

Pennsylvania's approach to compensatory mitigation starts with a broad definition of "mitigation," which encompasses a hierarchy of avoiding, minimizing, and rectifying impacts before turning to compensatory measures. When avoidance, minimization, and rectification are insufficient, compensatory mitigation requires replacing or providing substitute resources for the impacted environment.¹⁹³ Wetlands, in particular, are recognized for a wide range of vital functions—such as serving as habitat for aquatic and terrestrial species, helping maintain natural drainage and filtration processes, and providing recreational opportunities.

In practice, Pennsylvania's regulatory framework requires that applicants include a mitigation plan whenever their project involves wetland impacts.¹⁹⁴ This plan must adhere to the state definition of "mitigation," which emphasizes avoiding and minimizing impacts before proceeding to compensate for unavoidable losses. Activities in Exceptional Value (EV) wetlands¹⁹⁵ are subject to heightened standards: they must have no adverse impact, be water-dependent, present no practicable alternative, and comply with more rigorous water quality and resource protection requirements.¹⁹⁶ For non-EV wetlands, the threshold is "no significant adverse impact," and applicants must still demonstrate that all adverse effects have been minimized, no practicable alternatives exist, and water quality standards will not be violated.¹⁹⁷

a) Pennsylvania's Mitigation Banking System

Pennsylvania's approach to non-tidal wetland mitigation relies on the concept that environmental impacts can be offset through the replacement or provision of alternative resources. Although this method is not formally described in state statutes, the definition of mitigation has been interpreted to include various compensatory measures. In practice, the state works closely with federal authorities to ensure its program is consistent with broader mitigation guidelines.¹⁹⁸ This collaborative effort underscores Pennsylvania's reliance on a shared framework, even though the state's system is not expressly grounded in federal rules.

Within this framework, two permits guide the construction and operation of mitigation banks. The Water Obstruction and Encroachment Compensation Permit establishes the terms for

¹⁹³ 25 Pa. Code § 105.1.

¹⁹⁴ 25 Pa. Code § 105.20a.

¹⁹⁵ 25 Pa. Code § 105.17(1). Under Pennsylvania law, wetlands are designated as exceptional value if they meet certain criteria reflecting their ecological or hydrological importance. This includes wetlands that serve as habitat for threatened or endangered species, are hydrologically connected to such habitats, or lie within ½ mile of them. Wetlands are also classified as exceptional value if they are located along wild trout streams, exceptional value waters, designated scenic rivers, or within floodplains of such waterbodies. Additional qualifying features include wetlands that protect public or private drinking water supplies or are situated in areas recognized for their natural significance, such as state-designated wild areas, federal wilderness areas, or National Natural Landmarks.
¹⁹⁶ 25 Pa. Code § 105.18a.

¹⁹⁷ 25 Pa. Code § 105.24.

¹⁹⁸ Stream and Wetland Regulatory Program – Compensatory Mitigation, Commonwealth of Pennsylvania Department of Environmental Protection, Mitigation Banking,

https://www.pa.gov/agencies/dep/programs-and-services/water/bureau-of-waterways-engineering-and-wetlands/stream-and-wetland-regulatory-program/compensatory-mitigation/banking.html.

running a compensatory mitigation bank, allowing the bank sponsor to offer mitigation credits to applicants who need to offset their project impacts.¹⁹⁹ The Water Obstruction and Encroachment Compensation Site Construction Permit grants the authority to construct and maintain the actual site where credits are generated.²⁰⁰ Together, these instruments ensure that, once a mitigation site is approved and credits are transferred, they can be used to satisfy third-party compensatory obligations. Because of Pennsylvania's alignment with federal guidelines and its broad definition of mitigation, purchasing credits from a mitigation bank fulfills the state's wetland mitigation requirements in practice.

b) Pennsylvania's In-Lieu Fee Program (PIESCES)

Pennsylvania's in-lieu fee program provides a flexible option for offsetting wetland impacts when on-site mitigation is not suitable or when mitigation banks are unavailable. Known as the Pennsylvania's Integrated Ecological Services, Capacity Enhancement and Support Program (PIESCES), it allows permit applicants to fulfill aquatic resource compensation requirements by making a payment to a centralized fund rather than undertaking their mitigation projects.²⁰¹ Although not formally included in state statutes, the program's framework is presented in detail on the state's official website and functions under the general authority granted to the responsible agency.²⁰²

Prospective participants begin by submitting a permit application and indicating their intent to utilize the in-lieu fee program.²⁰³ Program administrators then assess whether the proposed impacts and project details meet the eligibility conditions.²⁰⁴ When an application is approved, the required number of credits is calculated, and the applicant pays into the fund.²⁰⁵ This payment relieves the applicant of direct mitigation responsibilities and shifts that responsibility to the program itself.²⁰⁶ The resulting permit specifies the timing of payment, making it clear that failure to pay within a designated window may lead to modification, suspension, or revocation of the permit.²⁰⁷

Once payment is successfully deposited, PIESCES invests these funds in future restoration or enhancement projects designed to maintain and improve aquatic resources in appropriate service areas.²⁰⁸ In this way, the program consolidates smaller or isolated impacts into larger, more comprehensive conservation efforts. By streamlining administrative and financial obligations,

 208 Id.

¹⁹⁹ Id.

²⁰⁰ Id.

²⁰¹ Stream and Wetland Regulatory Program – Compensatory Mitigation, Commonwealth of Pennsylvania Department of Environmental Protection, PIESCES,

https://www.pa.gov/agencies/dep/programs-and-services/water/bureau-of-waterways-engineering-and-wetlands/stream-and-wetland-regulatory-program/compensatory-mitigation/piesces.html.

 $^{^{202}}$ Id.

 $^{^{203}}$ *Id*.

²⁰⁴ Id. ²⁰⁵ Id.

 $^{^{205}}$ Id. 206 Id.

 $^{^{207}}$ Id.

Pennsylvania's in-lieu fee program supports more efficient, coordinated mitigation while still ensuring that the overall goal of preserving and restoring wetlands is achieved.

c) Pennsylvania's Permittee Responsible Mitigation Program

Pennsylvania's permittee-responsible mitigation approach relies on the premise that applicants will undertake and oversee all aspects of restoring, establishing, enhancing, or preserving aquatic resources. Although not formally stated in state statutes, this strategy is reflected in the guidance provided on the state's official website.²⁰⁹ By encouraging pre-application consultations, the program helps applicants identify appropriate sites, develop comprehensive plans, and incorporate best practices before proceeding with the permit application process.²¹⁰ The mitigation plan itself typically includes objectives, site selection criteria, work plans, performance standards, and long-term management strategies, ensuring that all key elements are addressed from the outset.²¹¹

Once the mitigation plan is submitted, the reviewing agency evaluates it to ensure the proposed activities effectively offset the anticipated wetland impacts.²¹² If approved, the applicant receives a permit with conditions that outline the responsibilities for constructing and monitoring the project over time.²¹³ Under this framework, the permittee retains accountability for ensuring the mitigation site meets performance standards and remains ecologically viable in the long run. Pennsylvania also makes available a variety of resources—ranging from geospatial datasets to plant community classification guides—to assist permittees in designing and implementing successful projects that bolster the state's aquatic ecosystems.

4. How Pennsylvania Monitors and Enforces Compensatory Mitigation Requirements

Pennsylvania's compensatory mitigation programs rely on a consistent system of monitoring and enforcement to ensure that all forms of wetland offset projects meet their intended ecological goals. Under the mitigation banking program, sponsors are required to conduct regular evaluations of their sites and submit monitoring reports to demonstrate compliance with established performance standards.²¹⁴ In addition, the responsible agency conducts its own

²⁰⁹ Stream and Wetland Regulatory Program – Compensatory Mitigation, Commonwealth of Pennsylvania Department of Environmental Protection, Permittee Responsible Mitigation, https://www.pa.gov/agencies/dep/programs-and-services/water/bureau-of-waterways-engineering-and-

wetlands/stream-and-wetland-regulatory-program/compensatory-mitigation/permittee-responsible-mitigation.html. ²¹⁰ Id.

 $^{^{211}}$ *Id*.

 $^{^{212}}$ Id.

 $^{^{213}}$ *Id*.

²¹⁴ Stream and Wetland Regulatory Program – Compensatory Mitigation, Commonwealth of Pennsylvania Department of Environmental Protection, Mitigation Banking,

https://www.pa.gov/agencies/dep/programs-and-services/water/bureau-of-waterways-engineering-and-wetlands/stream-and-wetland-regulatory-program/compensatory-mitigation/banking.html.

inspections to verify the accuracy of these reports.²¹⁵ If deficiencies are identified, sponsors may be required to implement corrective actions, and non-compliance can result in penalties.²¹⁶

The in-lieu fee program follows a similar oversight structure, where collected funds must be directed toward suitable projects that effectively replace the functions and values lost due to permitted impacts.²¹⁷ Officials monitor these projects throughout their development and implementation, tracking performance against predefined benchmarks and reporting on progress.²¹⁸

Meanwhile, permittee-responsible mitigation places the onus for monitoring and maintenance directly on the applicant. They are expected to gather and submit data on vegetation, hydrology, and overall site stability at specified intervals.²¹⁹ Should any issues arise, the permittee may be subject to site inspections and further review.²²⁰ If performance standards are not met, corrective actions may be mandated, and continued non-compliance can lead to penalties, emphasizing the importance of diligent stewardship in all aspects of mitigation.²²¹

E. Virginia

Virginia is similar to Maryland regarding its implementation of the functional aspects of the 2008 Mitigation Rule without the direct inclusion of its text within any Virginia law or regulation. However, Virginia does rely on the federal framework for the approval of mitigation banking and in-lieu fee programs. This mix of implementation and mirroring of the federal framework allows Virginia to provide useful insight into mitigation programs.

1. How Virginia Defines Mitigation of NTW

Under the Virginia Water Protection Permit Program regulations, which govern NTWs, mitigation is defined as the process of sequentially avoiding and minimizing impacts to the maximum extent practicable and then compensating for any remaining unavoidable impacts of a proposed action.²²² This definition establishes a three-step hierarchy that requires impacts to be first avoided, then minimized, and finally offset through compensatory measures.²²³ The same regulatory framework defines "compensation" or "compensatory mitigation" as the actions taken to offset the unavoidable loss of aquatic resources—specifically, through the restoration

https://www.pa.gov/agencies/dep/programs-and-services/water/bureau-of-waterways-engineering-and-

²¹⁵ *Id*.

²¹⁶ Id.

²¹⁷ Stream and Wetland Regulatory Program – Compensatory Mitigation, Commonwealth of Pennsylvania Department of Environmental Protection, PIESCES,

https://www.pa.gov/agencies/dep/programs-and-services/water/bureau-of-waterways-engineering-andwetlands/stream-and-wetland-regulatory-program/compensatory-mitigation/piesces.html. ²¹⁸ Id.

²¹⁹ Stream and Wetland Regulatory Program – Compensatory Mitigation, Commonwealth of Pennsylvania Department of Environmental Protection, Permittee Responsible Mitigation,

wetlands/stream-and-wetland-regulatory-program/compensatory-mitigation/permittee-responsible-mitigation.html.²²⁰ Id.

 $^{^{221}}$ Id.

²²² Va. Code Ann. § 62.1-44.15:21.

²²³ Id.

(reestablishment or rehabilitation), establishment (creation), enhancement, or, in certain circumstances, preservation of these resources, or even through an out-of-kind measure that provides other environmental benefits—all aimed at addressing adverse impacts that remain after all practicable avoidance and minimization measures have been implemented.²²⁴

2. What Activities Require Mitigation, and Which Are Exempt in Virginia

In Virginia, activities that result in the degradation of wetlands—such as excavation, draining, filling, dumping, or other modifications that significantly alter the physical, chemical, or biological characteristics—trigger a requirement for compensatory measures.²²⁵ These measures are designed to offset adverse impacts by restoring, reestablishing, rehabilitating, or even enhancing wetland functions and acreage. Projects like large-scale natural gas transmission pipelines also fall under these requirements²²⁶, ensuring that any unavoidable loss of wetland benefits is counterbalanced through appropriate mitigation efforts.

Virginia's approach includes a range of exemptions for activities deemed to have minimal ecological impact. For example, wetlands classified as having minimal ecological value²²⁷ are generally exempt from mitigation requirements. Similarly, routine agricultural and silvicultural practices, residential gardening, lawn maintenance, and certain construction or maintenance activities such as those involving farm or stock ponds, roads for mining equipment, or stormwater management facilities created on dry land are not subject to the same mitigation obligations.²²⁸ These exemptions are intended to focus mitigation efforts on activities with more significant ecological consequences while allowing low-impact uses to proceed without additional regulatory burdens.

Additionally, in Virginia, any activity involving the withdrawal of water from wetlands requires a permit.²²⁹ This stipulation reflects the understanding that altering a wetland's hydrology can have far-reaching consequences, including shifts in water levels, degradation of habitat quality, and broader impacts on water purification and flood control functions. By mandating permits for water withdrawal, the regulatory framework ensures that such actions are carefully scrutinized and managed.

3. Compensatory Mitigation Programs Virginia Utilizes

. When such impacts do occur, compensatory mitigation is required to maintain a no-net-loss of wetland acreage and function.²³⁰ This compensatory effort can involve restoring or creating

 $^{^{224}}$ *Id*.

²²⁵ Va. Code Ann. § 62.1-44.15:20; see also, 9 Va. Admin. Code § 25-210-50.

²²⁶ Va. Code Ann. § 62.1-44.15:21.

²²⁷ 9 Va. Admin. Code § 25-210-10. Under Virginia law, "isolated wetlands of minimal ecological value" are defined as wetlands that lack a surface water connection to other state waters, are smaller than one-tenth of an acre, and are not located within a FEMA-designated 100-year floodplain. These wetlands must also not be forested, support no listed threatened or endangered species, and not be identified as rare or significant natural communities by the Virginia Natural Heritage Program.

²²⁸ 9 Va. Admin. Code § 25-210-60.

²²⁹ Va. Code Ann. § 62.1-44.15:22.

²³⁰ 9 Va. Admin. Code § 25-210-116(A).

wetlands, enhancing existing wetland areas, or even preserving wetland resources, as well as employing out-of-kind measures that yield comparable ecological benefits.

To guide the extent of these compensatory measures, Virginia typically applies a set of established mitigation ratios that differ based on the type of wetland affected—forested, scrubshrub, emergent, or conversion impacts.²³¹ The preservation of upland buffers or wetlands can also be factored in when paired with other mitigation strategies such as wetland creation or the purchase of credits.²³² A hierarchy of preferred mitigation methods further shapes how these requirements are met, with the purchase of mitigation bank credits considered the highest priority, followed by in-lieu fee programs, and lastly permittee-responsible mitigation.²³³ This approach ensures that unavoidable wetland losses are consistently offset through well-defined and ecologically effective measures.

a) Virginia's Mitigation Banking System

In Virginia, mitigation banking allows for compensatory measures to be arranged in advance of development activities through the sale or purchase of credits at approved mitigation sites. These banks are established under a transparent, collaborative process involving both state and federal agencies, and they operate according to formal agreements that outline their obligations and procedures.²³⁴ By consolidating compensatory efforts in a single, well-managed location, mitigation banks can offer greater ecological benefits than isolated, permittee-responsible projects.

Once a permittee has made all reasonable efforts to avoid and minimize impacts to wetlands, purchasing credits from a mitigation bank becomes the preferred way to satisfy any remaining compensatory requirements.²³⁵ To use a bank, the permittee must demonstrate that the bank is both approved and environmentally preferable to other options, submit proof that credits are available, and ensure the proposed purchase meets all applicable standards.²³⁶ A registry of approved banks in Virginia helps guide permittees to suitable options within the same watershed, and when that is not possible, there is a pathway to obtain credits outside the primary service area, provided additional credits are acquired and certain canopy requirements are met.²³⁷

b) Virginia's In-Lieu Fee Program

An in-lieu fee mitigation program in Virginia is operated by a nonprofit or governmental entity that offers credits to those whose authorized activities affect wetlands or streams, then uses the funds generated to undertake consolidated mitigation at designated sites.²³⁸ As an additional

mitigation#:~:text=Compensatory%20Mitigation%20Requirement%3F-

²³¹ What is My Compensatory Mitigation Requirement, Virginia Department of Environmental Quality, https://www.deq.virginia.gov/permits/water/compensatory-

[,]Wetlands,for%20other%20surface%20water%20impacts%20such%20as%20open%20waters%20when%20necessa ry,-Streams.

²³² Va. Code Ann. § 62.1-44.15:21.

²³³ 9 Va. Admin. Code 25-210-116(C).

²³⁴ Va. Code Ann. § 62.1-44.15:23.

²³⁵ Va. Code Ann. § 62.1-44.15:23(B).

²³⁶ 9 Va. Admin. Code 25-210-116(E).

²³⁷ Va. Code Ann. 62.1-44.15:23.

²³⁸ 9 Va. Admin. Code 25-210-10.

option, the state maintains a dedicated Wetland and Stream Replacement Fund, which can receive contributions from permittees to fulfill compensatory requirements once all practicable avoidance and minimization measures have been exhausted.²³⁹ This Fund may purchase mitigation bank credits promptly after receiving a contribution; if credits cannot be reasonably secured within a specified timeframe, the resources may be directed toward wetland creation, enhancement, protection, or other water quality improvement projects deemed acceptable.²⁴⁰

Beyond the state-managed Fund, in-lieu fee mitigation programs can also be established by third parties, subject to a public notice and review period, as well as approval by the USACE.²⁴¹ These programs must demonstrate a commitment to preventing a net loss of wetland acreage and functions, submit each proposed site for state review, provide regular reports on received contributions and completed mitigation and ensure fees are adequate to offset losses.²⁴² When an in-lieu fee option is available in the same watershed as the impacted area, it is generally regarded as a preferred method of compensation.²⁴³ Permit applicants intending to use this approach must detail the amount and type of credits to be purchased, provide evidence that the credits are available, and supply all required information to the relevant authorities.²⁴⁴

Once the proposal is approved, permittees can contract directly with the in-lieu fee sponsor or contribute to the Wetland and Stream Replacement Fund.²⁴⁵ This arrangement allows for an organized, collective approach to offsetting impacts, consolidating mitigation activities in locations where they can be most effectively managed.

c) Virginia's Permittee Responsible Mitigation Programs

This compensatory approach can include wetland creation or restoration, with the goal of replacing lost acreage and functions. In certain circumstances, other methods, such as out-of-kind measures with water quality or habitat benefits, may also be considered if they adequately address the ecological losses.

Before implementing such a project, the permittee must present a comprehensive plan that details the proposed mitigation site's objectives, location, existing conditions, and conceptual design for achieving functional wetland replacement.²⁴⁶ This plan typically includes information on local hydrology, soil characteristics, planting schemes, construction schedules, and strategies for controlling undesirable species.²⁴⁷ Once this conceptual plan is approved, a more detailed final plan is submitted, specifying the anticipated wetland impacts, site access procedures, monitoring protocols, and final protective mechanisms.²⁴⁸ These protective measures, which can include

²⁴⁰ Id.

²⁴² Id.

- ²⁴⁵ 9 Va. Admin. Code 25-210-116.
- ²⁴⁶ 9 Va. Admin. Code 25-210-80.

²³⁹ Va. Code Ann. 62.1-44.15:23.1.

²⁴¹ 9 Va. Admin. Code 25-210-116(D).

²⁴³ 9 Va. Admin. Code 25-210-116(B), (C).

²⁴⁴ 9 Va. Admin. Code 25-210-80(B)(1)(m)(4).

 $^{^{247}}$ Id.

²⁴⁸ Id.

recorded instruments or conservation easements, help ensure the mitigation site remains intact and functioning as intended.

Permittee-responsible mitigation can follow different approaches, ranging from watershedbased strategies to on-site, in-kind compensation, or even off-site, out-of-kind efforts. When other options like mitigation banks or in-lieu fee programs are available, permittees may need to demonstrate that their proposed plan is environmentally advantageous.²⁴⁹ This flexibility allows for a tailored response to the specific circumstances of each project, as long as the permittee can show that wetland acreage and functions will be effectively replaced or enhanced in a manner consistent with established guidelines.

(1) Mitigation through the Watershed Method (High Preference)

Under this method, the permittee selects and designs an off-site mitigation project within the same watershed, focusing on locations that will deliver the greatest ecological benefit for the area as a whole. By examining authorized impacts and potential restoration or protection opportunities at a watershed level, this approach supports the long-term sustainability and improvement of aquatic resources rather than simply replacing lost acreage on a one-to-one basis.²⁵⁰ The project often involves enhancing or restoring sites that are strategically chosen for their potential to offset functional losses and bolster overall watershed health.²⁵¹ This method is favored because it aligns with broader guidance promoting watershed-based planning, ensuring that mitigation activities address systemic issues and produce measurable ecological gains. As a result, a watershed-based project is prioritized over on-site options when it can offer greater net benefits for wetland functions and aquatic resources in the region.²⁵²

(2) On-Site and In-Kind Mitigation Methods

This method involves the permittee conducting mitigation on or adjacent to the impact site, with the same kind of resource (e.g. creating/restoring the same wetland type that was impacted). On-site, in-kind mitigation ensures the replacement resource is in close proximity to the impact, which can benefit local interests and directly replace lost functions in that location.²⁵³ Virginia ranks this option below a watershed approach PRM – meaning it's usually considered if a suitable off-site watershed-based project is not available or practicable.²⁵⁴ While on-site mitigation can reduce stakeholder concerns by keeping compensation local, it may be limited by site conditions; therefore, DEQ still evaluates if it is ecologically preferable on a case-by-case basis.

(3) Off-Site or Out-Of-Kind Mitigation Methods (Low Preference)

²⁴⁹ 9 Va. Admin. Code 25-210-116(B)(1)-(2).

²⁵⁰ 9 Va. Admin. Code 25-210-116 et seq.

²⁵¹ Id.

²⁵² Id.

²⁵³ *Id*.

²⁵⁴ Id.

This is a permittee-responsible project either located away from the impact site (off-site) or involving a different type of resource/ecosystem than what was impacted (out-of-kind). It is the least preferred PRM option and generally the last resort in the mitigation hierarchy.²⁵⁵ Off-site/out-of-kind mitigation might be proposed when neither a watershed-focused site nor on-site in-kind compensation is feasible or sufficient.²⁵⁶ For example, a permittee might restore a different stream in the same river basin (out-of-kind, if the impact was to a wetland) or at a farther location, which could be acceptable only if it meaningfully replaces lost functions. DEQ will scrutinize such proposals to ensure they are practicable and provide adequate ecological compensation relative to other options.²⁵⁷

4. How Virginia Monitors and Enforces Mitigation Requirements

Virginia's approach to monitoring and enforcing compensatory mitigation follows the federal framework that sets measurable ecological performance standards and employs phased oversight to ensure projects meet their restoration goals.²⁵⁸ At the heart of this framework is a requirement for regular reporting, financial assurances, and site protection instruments that collectively safeguard the integrity of mitigation sites.²⁵⁹ Whether a project involves a mitigation bank, an in-lieu fee program, or permittee-responsible efforts, the entities carrying out the work must submit monitoring reports over multiple years to demonstrate progress toward defined ecological benchmarks.²⁶⁰ Oversight bodies may require corrective actions—such as replanting, managing invasive species, or adjusting hydrology—if interim goals are not met, and can ultimately enforce compliance through suspending credit sales, tapping financial guarantees, or taking legal steps as needed.²⁶¹

Mitigation banks operate under instruments that establish clear performance milestones, with credits only released in stages once specific ecological conditions are met. A designated interagency review team provides ongoing guidance and oversight, examining monitoring data and recommending any necessary adaptive management.²⁶² In-lieu fee programs follow similar requirements, although credits are sold before project implementation; in these cases, sponsors must demonstrate that collected funds are quickly channeled into wetland restoration or enhancement.²⁶³ If a sponsor fails to meet deadlines or achieve performance standards, regulatory authorities may suspend additional credit sales until obligations are fulfilled.²⁶⁴

Permittee-responsible mitigation likewise incorporates performance standards and monitoring schedules into project-specific plans. The permittee is responsible for demonstrating successful restoration outcomes, often backed by financial assurances that cover potential shortfalls.²⁶⁵ Monitoring typically continues for a defined period, with reports submitted at

²⁶¹ *Id*.

 265 Id.

²⁵⁵ Id.

²⁵⁶ Id.

²⁵⁷ Id.

²⁵⁸ 9 Va. Admin. Code 25-210-116.

²⁵⁹ 33 C.F.R. § 332.5-332.6.

²⁶⁰ Id.

²⁶² Id.

²⁶³ Id. ²⁶⁴ Id.

scheduled intervals to document the site's development and address any emerging issues.²⁶⁶ If performance standards remain unmet at the end of the monitoring term, authorities can mandate further remedial steps, prolong the monitoring period, or apply enforcement measures.²⁶⁷ Across all three pathways—banking, in-lieu fee, and permittee-driven efforts—the consistent emphasis on measurable goals, transparent reporting, and enforceable safeguards is designed to ensure that wetlands impacted by permitted activities are ultimately restored or replaced in a meaningful and lasting manner.

III. Conclusion

As Delaware explores options for implementing a state-run compensatory mitigation program for NTW, examples from surrounding states reveal a range of financial, regulatory, and policy-based incentives that could guide program design. In Maryland, for instance, the state maintains a Nontidal Wetland Compensation Fund that serves as an in-lieu fee program administered by the MDE.²⁶⁸ This program enables developers to pay into a centralized fund when on-site mitigation is impractical, with those funds used by the state to complete mitigation projects at ecologically significant sites. Such a model offers developers financial predictability and regulatory clarity while allowing the state to coordinate large-scale, watershed-based restoration efforts—an approach that could be especially useful in Delaware, where ecological connectivity and land-use efficiency are priorities. Similarly, Virginia's mitigation framework prioritizes the use of approved mitigation banks and ILF programs, supported by a regulatory preference hierarchy that incentivizes their use by streamlining permitting when applicants choose those options over permittee-responsible mitigation.²⁶⁹

From a policy perspective, other states align their mitigation programs with broader environmental goals, creating incentives through integration with state planning efforts and landuse strategies. New Jersey, for example, effectively channels development away from sensitive freshwater wetlands through a combination of strict permitting under the Freshwater Wetlands Protection Act and the availability of in-lieu fee and mitigation banking options vetted by the NJDEP's Mitigation Council.²⁷⁰ Developers often find participation in these state-overseen programs more efficient than attempting individualized mitigation, especially when guided by clear mitigation ratios and ecological performance standards.²⁷¹ Pennsylvania incorporates federal mitigation requirements into its joint permitting process with the Army Corps, indirectly incentivizing applicants to utilize mitigation banks or watershed-based mitigation opportunities where available.²⁷² These examples suggest that if Delaware were to adopt a formal ILF program or strengthen its reliance on centralized mitigation, a clear policy tie to state conservation strategies could encourage broad participation while improving long-term ecological outcomes.

²⁶⁶ Id.

²⁶⁷ Id.

²⁶⁸ See *supra* Part II.A.3. Compensatory Mitigation Programs Maryland Utilizes, pp. 6-8.

²⁶⁹ See *supra* Part II.E.3. Compensatory Mitigation Programs Virginia Utilizes, pp. 27-31.

²⁷⁰ See *supra* Part II.B.3. Compensatory Mitigation Programs New Jersey Utilizes, pp. 11-15. ²⁷¹ *Id.*

²⁷² See *supra* Part II.D.3. Compensatory Mitigation Programs Pennsylvania Utilizes, pp. 22-25.

In terms of administrative structure and funding, Ohio offers useful insights for states with evolving or limited federal jurisdiction over isolated wetlands.²⁷³ Ohio's program applies state-level permitting and mitigation rules for isolated wetlands no longer protected under federal CWA jurisdiction, with mitigation often facilitated through state-recognized mitigation banks.²⁷⁴ Importantly, Ohio supplements its permitting program with federal wetland program development grants, helping to support staff and oversight costs.²⁷⁵ A Delaware-managed mitigation program could benefit from similar funding strategies to build internal capacity while maintaining a high standard of oversight and ecological performance. Across the region, the most effective programs couple regulatory requirements with programmatic efficiency—offering clear approval pathways, predictable costs, and alignment with regional watershed goals. By modeling its program on these tested frameworks, Delaware could create a regulatory environment in which developers are encouraged to avoid and minimize impacts to NTW, and then efficiently meet mitigation requirements through a centralized, state-administered option that advances public conservation objectives.

²⁷³ See *supra* Part II.C.3. Compensatory Mitigation Programs Ohio Utilizes, pp. 17-20.

²⁷⁴ *Id*.

²⁷⁵ Id.