

State Wetland Permitting Programs: Avoidance and Minimization Requirements



**Environmental Law Institute
March 2008**

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The Environmental Law Institute®
March 2008

Acknowledgements

This publication is a project of the Environmental Law Institute (ELI). Funding for this project was provided by a Wetland Program Development Grant from the U.S. Environmental Protection Agency. This report was authored by Sandra S. Nichols and Jessica Wilkinson, with valuable guidance and review by James McElfish and Annie Brock. We gratefully acknowledge the information and guidance provided by Wetlands Division staff, as well as Jon Kusler, Jean Christie, Arthur Feinstein, and state wetland program staff including Rick Ayella, Karen Chytalo, Dave Davis, Laura Fay, Elder Ghigiarelli, Roy Jacobson, Cyndi Karoly, Sue Lockwood, Pat Malone, Janet Morlan, Kenneth Murin, Carol Murphy, Doug Norris, Alan Quackenbush, Rick Savage, Gary Setzer, Amanda Sigillito, and Dan Spada. The Environmental Law Institute is responsible for the views and information contained in this report.

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The Federal Wetland Permitting Program: Avoidance And Minimization Requirements

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ISBN 978-1-58576-134-0, ELI Project No. 0624-01.

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Introduction

The Clean Water Act (CWA) prohibits the discharge of any dredged or fill material in “waters of the United States,” including wetlands, without a permit.¹ Wetlands are regulated under CWA § 404, which is administered by the U.S. Army Corps of Engineers (the Corps) with oversight by the U.S. Environmental Protection Agency (EPA).²

The basic intent of the § 404 permitting program is that no discharge shall be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment, or (2) the discharge would cause the nation’s waters to be significantly degraded. In order for a § 404 permit to be issued, it must be demonstrated that, to the maximum extent practicable, steps have first been taken to avoid impacts to wetlands and other aquatic resources, potential impacts have then been minimized to the extent appropriate and practicable, and finally that compensation will be provided for any remaining unavoidable impacts to the extent appropriate and practicable. This three-step sequential process of avoidance, minimization, and compensation is the process of mitigation, and is commonly referred to as the mitigation sequencing requirement of the Clean Water Act § 404 regulatory program. State wetland protection programs frequently adopt this regulatory process as well, but the specific steps required and their sequential nature vary among the different states. Some states mirror the federal approach quite closely, while others adopt innovative and regionally-distinctive approaches to mitigation. This report examines approaches to avoidance and minimization in state wetland regulatory programs.

Federal Requirements

In 1972, congress created the § 404 program with authority divided between the Corps and EPA. The Corps plays the lead role in the § 404 program through its authority to require and issue permits for the discharge of dredged or fill material in “waters of the United States.” EPA is responsible for developing and interpreting the substantive environmental criteria used by the Corps to evaluate permit applications—the § 404(b)(1) Guidelines (usually referred to simply as “the Guidelines”)—and maintains a review and comment role in the issuance of § 404 permits.³

Central to the Guidelines is the fundamental requirement for an alternatives analysis. “[N]o discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the environment, so long as the alternative does not have other significant adverse environmental consequences.”⁴

“[T]he application is required in every case (irrespective of whether the discharge site is a special aquatic site or whether the activity associated with the discharge is water dependent) to evaluate opportunities for the use of non-aquatic areas and other aquatic sites that would result in less adverse impact on the aquatic ecosystem.”⁵ Thus, applicants must demonstrate that for any discharge or fill activity there is no alternative site for the proposed that has less adverse environmental impacts. For special aquatic sites such as wetlands⁶, however, the Guidelines propose a more difficult test for avoidance with two presumptions. For proposed discharges to special aquatic sites there is a presumption that an alternative site that is not a special aquatic site exists and a presumption that such a site will experience less adverse environmental impacts on the aquatic ecosystem.⁷

These rebuttable presumptions clarify how to determine if discharges proposed for special aquatic sites meet the requirement that the practicable alternatives have less significant adverse impact on the environment and do not have other significant environmental impacts. If the applicant can rebut either of these presumptions, the project has been shown not to have a practicable alternative that is less environmentally damaging, and thus is no longer subject to denial for that reason. The Guidelines also require that “appropriate and practicable steps” be taken to minimize potential adverse impacts to the aquatic ecosystem before a discharge can be permitted.⁸

In 1990, EPA and the Corps clarified the process for complying with the mitigation requirements of the Guidelines, elaborating on the mitigation sequence and the rebuttable presumptions from EPA’s Guidelines in a Memorandum of Agreement (MOA).⁹ The Mitigation MOA clarifies that mitigation occurs in a three-part sequence: avoidance, minimization, and compensation.¹⁰

The Corps...first makes a determination that potential impacts have been avoided to the maximum extent practicable; remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable by requiring steps to minimize impacts and, finally, compensate for aquatic resource values.¹¹

The sequencing provisions are further described in the Mitigation MOA as follows:

1. **Avoidance:** The avoidance provisions are satisfied through the alternatives test spelled out in the § 404(b)(1) Guidelines (specifically, 40 C.F.R. § 230.10(a)). By approving permits only for the “least environmentally damaging alternatives,” the Corps seeks to avoid impacts.
2. **Minimization:** The minimization provisions are satisfied through the minimization procedures described in the § 404(b)(1) Guidelines (specifically 40 C.F.R. § 230.10(d)). Subpart H of the Guidelines further provides a broad array of possible methods for minimizing the impacts of a proposed activity.
3. **Compensation:** All remaining unavoidable adverse impacts must be addressed through “[a]ppropriate and practicable compensatory mitigation.” Compensation activities are specified in Subpart H of the Guidelines (specifically, 40 § C.F.R. 230.75).¹²

Significant attention has been paid over the past 20 years to improving compensatory mitigation in order to ensure that compensation is ecologically effective, self-sustaining, protected in perpetuity, has “assurances of long-term sustainability and stewardship,” and ultimately meets the § 404 program’s goal of no net loss of wetland acreage and function.¹³ This report focuses on the first two steps in the sequencing process which, to date, have received far less attention: avoidance and minimization. ELI has described the history and current status of federal avoidance and minimization requirements in a report entitled: *The Federal Wetland Permitting Program: Avoidance and Minimization Requirements*.

State Requirements

Many states have developed state wetland regulatory programs. Most of those regulatory programs have mitigation requirements. This study examines the avoidance and minimization components of existing state wetland regulatory programs in order to determine the requirements of state law and regulations, the applicable standards, if and how alternatives to the proposed action are evaluated, and whether there is a sequential relationship between avoidance, minimization, and compensatory mitigation. The findings of the study were analyzed using the federal process as a standard.

The study is limited to those states with wetland regulatory and permitting programs established by state laws and regulations. It does not include states whose wetland programs consist principally of the implementation of Clean Water Act § 401 water quality certification to approve, condition, or deny federal § 404 permits.¹⁴

Notes

1. 33 U.S.C. § 1311; CWA § 301. Waters of the United States means “(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section. (8)...” 33 C.F.R. § 328.3.

2. 33 U.S.C. § 1344; CWA § 404.

3. 40 C.F.R. § 230 et. seq.

4. *Id.* § 230.10(a).

5. RGL 93-02, Memorandum to the Field: Guidance on Flexibility of the 404(b)(1) Guidelines and Mitigation Banking (Aug. 23, 1993 – Dec. 31, 1998, Department of the Army and Environmental Protection Agency).

6. 40 C.F.R. § 230.41.

7. *Id.* § 230.10(a)(3).

8. *Id.* § 230.10(d).

9. Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines, § III.A (Feb. 6, 1990).

10. *Id.* § II.A.

11. *Id.* § II.C.

12. *Id.* § II.C. 3.

13. National Research Council, *Compensating for Wetland Losses Under the Clean Water Act*, National Academy of Sciences, at 9 (2001).

14. The study is limited to those states with state wetland regulatory programs because federal avoidance and minimization requirements apply directly to wetlands regulated under § 404. Nevertheless, state § 401 programs would provide a useful area for additional study, especially as applied to nationwide and general permits.

The State Programs

Twenty-one states regulate wetlands under state law: Connecticut, Florida, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, Vermont, Virginia and Wisconsin.¹ Although state requirements vary, of these 21 state wetland regulatory programs, only Florida's program does not have explicit "avoidance and minimization" procedures in state law or regulations.² See Appendix A for the sources of state avoidance and minimization requirements in state laws, regulations, and guidance documents.

Of the 20 state wetland regulatory programs that do have avoidance and minimization provisions, Connecticut, Maryland, New Jersey, and New York have separate avoidance and minimization requirements for tidal and inland wetlands. Massachusetts has separate standards for riverfront areas, for which it does not require minimization. In total, 25 avoidance and minimization requirements in 20 states' wetland regulatory programs are analyzed in this report.

Avoidance of Impacts

Avoidance is the first step in the sequencing process by which the Corps determines whether the proposed project is the least environmentally damaging practicable alternative (LEDPA).³ The LEDPA is identified by an evaluation of each alternative's direct, secondary, and cumulative impacts on the aquatic ecosystem⁴ and "other ecosystems."⁵ Essentially, an analysis of alternatives is fundamental to the federal permitting process.

The EPA Guidelines state:

...no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem so long as the alternative does not have other significant adverse environmental consequences.⁶

The universality of the requirement to evaluate opportunities for use of non-aquatic areas and other aquatic sites that would result in less adverse impact on the aquatic ecosystem was reiterated in a EPA and Army guidance memo in 1993.⁷

The regulations further establish two analytical presumptions that increase the burden on an applicant for a non-water dependent activity to demonstrate that no practicable alternative exists.⁸

The first presumption is that if the basic purpose of a project is not water dependent, "practicable alternatives that do not involve special aquatic sites are presumed to be available."⁹ "The second presumption is, 'where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem.'" ¹⁰ "The two presumptions hold unless the applicant proves otherwise."¹¹ "The standards for overcoming these presumptions and the other components of the alternatives analysis have been clarified by numerous administrative and legal decisions.

Thus, the federal avoidance requirement is that all practicable alternatives must be considered.¹² An alternative is considered practicable if it is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes."¹³

State Avoidance Requirements

Similar to the federal program, the states' avoidance requirements include an alternatives analysis, though they use a variety of terms to describe their respective standards. The standards are shown in Appendix B. Definitions of relevant terms are given in Appendix C.

Maine, Maryland's nontidal program, New Hampshire, New Jersey's freshwater program, Massachusetts, Michigan, Ohio, Oregon, Pennsylvania, Tennessee, Virginia, and Wisconsin incorporate the federal standard: all practicable alternatives must be considered and an alternative is practicable if it is "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes."¹⁴

Some states use the term "practicable," but do not mirror the federal definition. In New York's freshwater program, an alternative is the only practicable alternative if no other is physically or economically feasible.¹⁵ Illinois requires consideration of alternatives that are "practicable"¹⁶ and "feasible."¹⁷ Vermont

requires avoidance, minimization, and compensation, but it expresses its alternatives requirement simply as whether there is a “practicable” alternative site “owned, controlled, or available.”¹⁸

Connecticut and Minnesota use a “feasible and prudent” standard with differing definitions. New Jersey’s tidal program uses “feasible or prudent.” While Indiana and New York’s tidal program use “reasonable,” Rhode Island’s standard is “reasonably available.” North Carolina’s standard is practical and a lack of practical alternatives is shown by demonstrating that the basic project purpose cannot be practically accomplished in an economically viable manner which would result in less adverse impact to wetlands.

In Indiana, New Jersey’s freshwater program, Ohio, Oregon, Pennsylvania, and Tennessee, the range of alternatives that must be considered depends on the quality of the wetland being impacted. In Minnesota, for the majority of applications, the quality of the wetland is not a formally considered factor in analyzing avoidance and minimization alternatives. The quality of the wetland comes into play in two circumstances: 1) when the wetland is so degraded that a replacement wetland is certain to be better quality (this is the “sequencing flexibility” that is discussed further below), and 2) if the wetland is a “rare natural community” or contains certain other special considerations, then impacts cannot be authorized at all.¹⁹

Responsibility for the Alternatives Analysis

The states allocate the responsibility for conducting the alternatives analysis in different ways. Connecticut, the Massachusetts inland wetlands program, Minnesota, North Carolina, Pennsylvania, and Wisconsin all assign the responsibility for conducting the alternatives analysis to the state wetland regulatory agency.²⁰ Indiana, Maine, Maryland, Massachusetts’s river front program, Michigan, New Hampshire, New Jersey’s tidal wetlands program,²¹ New York, Ohio, Rhode Island, Tennessee, and Virginia place the responsibility with the applicant. Illinois, New Jersey’s freshwater program, and Oregon place the burden jointly on both the applicant and the state wetland regulatory agency. Vermont’s alternatives provisions are not explicit as to which entity bears the responsibility.

Exceptions to the Alternatives Analysis Requirement

Some states allow exceptions to the requirement to conduct an alternatives analysis as part of the wetland permitting process. Maryland’s tidal wetland program states only that an alternatives analysis *may* be required. Maine, Massachusetts, Michigan, Minnesota, and Vermont also have exceptions to the alternative analysis requirement. These exceptions are elaborated in Appendix B.

What Kinds of Alternatives must be Considered

Some states also further specify the meaning of alternatives. Based on their regulations or policy documents, 13 states with regulatory programs specify that alternative sites must be considered, as opposed to alternatives within the site for which the permit is being sought. States specify this requirement either expressly or by stating that the project proponent must consider alternatives that are not presently owned by the applicant. The states with these provisions include: Connecticut, Maine, Maryland’s nontidal program, Michigan, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont and Virginia. For the remaining seven states in this study, the program documents do not indicate whether the alternatives analysis must consider other sites.

Project Purpose

The first step towards completing a federal alternatives analysis is to define the project purpose. Defining the project purpose is critical, as it determines the set of site alternatives which must be considered. An overly-narrow purpose statement can be used to limit the range of alternatives that must be considered. Certain aspects of this determination have been controversial, such as who is ultimately responsible for defining the project purpose and how the water dependency test relates to project purpose.

In the federal program, the applicant has the responsibility to satisfy all the permitting requirements, including those dealing with site alternatives.²² The Corps then must make a finding of compliance or non-compliance with all requirements of the Guidelines.²³ Defining the purpose of the project is central to these determinations since it forms the basis for the rest of the alternatives analysis.

The states allocate the responsibility for defining project purpose in different ways. Connecticut, Indiana, Maine, Maryland,²⁴ Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio,²⁵ Oregon, Rhode Island, and Virginia all require the applicant to define the project purpose for the alternatives requirement. These states do not expressly define the agency's role in determining the project purpose. Michigan and Wisconsin are the only states that expressly require the agency to define the purpose of the project for the alternatives analysis. Illinois gives the responsibility of defining the project purpose to either the applicant or the agency. In contrast, Massachusetts, New Jersey's tidal wetland program, Pennsylvania, Tennessee, and Vermont do not define who is responsible for defining the project purpose. (See Appendix B.)

Water Dependency

Once the project purpose is established, the next step under the federal § 404 program is to determine whether the project is water dependent. In other words, it must be determined whether the project “requires access or proximity to or siting within [a wetland] to fulfill its basic purpose.”²⁶ This distinction is crucial because of the Guidelines' presumption that non-water-dependent projects have “practicable alternatives that do not involve [wetlands].”²⁷ If a project is not water dependent, then a practicable alternative must be chosen.

Connecticut, Illinois, Maine, Maryland, Michigan, Minnesota, New Jersey, New York, Ohio,²⁸ Pennsylvania, Rhode Island, Tennessee, Virginia, and Wisconsin require a water-dependency analysis. Appendix D details state water-dependency requirements. Connecticut and New York only require this step for tidal wetlands. Further, Indiana, Massachusetts, New Hampshire, North Carolina, Oregon, and Vermont do not require a water-dependency analysis under any circumstances. Of those states with a water-dependency requirement, Illinois, Ohio, and Wisconsin do not define the term. On the other hand, Connecticut's tidal wetland program, Pennsylvania, Rhode Island, Tennessee, and Virginia define a project as water-dependent using a standard very similar to the federal standard.²⁹

Consequences of Water Dependency

Of the states that require a water-dependency analysis, only a few base permitting decisions on whether the project is water dependent. Maryland and New Jersey require a finding of water-dependency to issue a permit for tidal wetlands. Connecticut prioritizes water-dependent uses of tidal wetlands by requiring the commissioner to consider whether the proposed site of a non-water-dependent activity would be more appropriate for a water-dependent activity. Similar to federal standards, New Jersey's freshwater program and Pennsylvania use the rebuttable presumption that there are alternatives to locating non-water-dependent projects in wetlands. For water-dependent projects, Illinois, Ohio,³⁰ and Wisconsin lower the alternatives analysis standard. Further, Michigan and Minnesota do not require an alternatives analysis for projects that are determined to be water dependent.

Practicability

On the federal level, after the Corps determines whether there are non-water-dependent alternatives, the agency makes a finding concerning the practicability of these alternatives.³¹ An alternative is considered to be “practicable” if it is “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes.”³²

Several states also require the consideration of alternatives based on whether they are “practicable.” These states include: Illinois, Maine, Maryland's nontidal program, Massachusetts, New Hampshire, New Jersey's freshwater program, New York's freshwater program, Ohio,³³ Oregon, Pennsylvania, Tennessee, Vermont, Virginia, and Wisconsin.

Availability

The first element in the federal definition of “practicability” is the concept of availability—an alternative is practicable if it is “available and capable of being done.”³⁴ Maine, Maryland's nontidal program, Massachusetts' nontidal program, New Hampshire, New Jersey, Pennsylvania, Tennessee, and Virginia use this same language to define “practicable.” Wisconsin's definition of practicable varies only slightly from the federal version, using “capable of being implemented,” instead of “capable of being done.”

Ohio and Oregon use slightly more elaborated versions, incorporating the same elements. Specifically, Oregon requires consideration of “practicable alternatives” that are available to the applicant. While Michigan does not use the word “practicability,” it defines its standards—“feasible and prudent”—the same way that the federal program and several states define “practicable.” In other words, Michigan uses the same elements in its scope of alternatives as the federal standard, without using the term “practicable.”

The EPA Guidelines establish that to be “available,” alternative sites need not be under the ownership of the applicant. The sites must merely be *reasonably* available for purchase, use, or management.³⁵ Some states do not use “availability” as a factor in determining “practicability.” These include Illinois and Vermont. Vermont does not define “practicable.” Other states have raised the “availability” standard by requiring applicants to demonstrate efforts to overcome obstacles to alternatives, such as by seeking zoning variances. Maryland’s nontidal program, Minnesota, and Oregon consider efforts to overcome obstacles to alternatives sites as a factor in the permit decision. Pennsylvania, Rhode Island, and Virginia require the applicant to demonstrate such efforts, and Illinois requires such an effort from either the state wetland regulatory agency or the applicant.

Feasibility

Another key phrase in the definition of “practicability”³⁰ is “capable of being done,” which EPA refers to as “feasibility.” Federal policy has established that an applicant’s unwillingness—or in some cases inability—to pursue an alternative does not render it infeasible. The Guidelines require the evaluation of feasibility “in light of overall project purposes.”³⁶ In essence, alternatives that do not satisfy the project purpose are not feasible. As noted above, 12 states use the federal standard or a close variation, including the federal standard for feasibility.

Apart from these states, Connecticut, Illinois, Michigan,³⁷ Minnesota, New Jersey’s tidal program, and Ohio also use “feasibility” as a factor. Ohio uses economic feasibility in its statutory definition of practicable. Illinois has its own set of factors for determining

if a “practicable and feasible alternative” exists. Both Connecticut and Minnesota include engineering principles in their definitions, and New York uses “feasible” to define “practicable,” but does not define “feasible.”

Minnesota and Ohio’s alternatives analysis requirements bears special emphasis because they contain factors that are not found in either other states or federal requirements. In addition to standard requirements, Minnesota’s determination of feasible and prudent alternatives requires consideration of: public health, safety, and welfare; social, economic, and environmental impacts; and whether it would create “truly unusual” problems.³⁸ For category 2 and 3 wetlands, Ohio requires a demonstration that there is no practicable alternative, based on technical, social, and economic criteria.³⁹

Cost

The cost aspect of practicability is a legitimate, but difficult, consideration that generally requires a case-by-case evaluation. The preamble to the federal Guidelines states “the mere fact that an alternative may cost more does not necessarily mean it is not practicable.”⁴⁰ The preamble further states, “Our intent is to consider those alternatives which are reasonable in terms of the overall scope/cost of the proposed project...”⁴¹ A joint Regulatory Guidance Letter issued by EPA and the Department of the Army further describes the distinction between cost and economics, and how discretion is to be applied concerning costs.⁴² The determination of an unreasonable expense should be considered in the context of the normal costs associated with a particular project type, rather than the financial circumstances of the applicant.⁴³ Debates over the issue of cost often revolve around capital costs, operating costs, or resources that have already been committed to the project. Federal applicants may not limit the scope of the alternatives analysis by spending money on their proposed site and then asserting that alternatives are not feasible. Also, increases in the project proponent’s costs do not necessarily render an alternative infeasible.

Like the federal requirement, Connecticut, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode

Island, Tennessee, Virginia, and Wisconsin all mention cost, finances, or economics as considerations in determining which alternatives must be considered.

Existing Technology

The federal Guidelines “practicability” requirement includes the consideration of existing technology.⁴⁴ These regulations state that discharge technology should be adapted to the needs of each site, and the applicant should consider: (a) Using appropriate equipment or machinery...; (b) Employing appropriate maintenance and operation on equipment or machinery...; (c) Using machinery and techniques that are especially designed to reduce damage to wetlands...; (d) Designing access roads and channel spanning structures... that will pass both low and high water flows, accommodate fluctuating water levels, and maintain circulation and faunal movement; and (e) Employing appropriate machinery and methods of transport of the material for discharge.⁴⁵

Maine, Maryland’s nontidal program, Massachusetts’ nontidal program, New Hampshire, New Jersey, Pennsylvania, Tennessee, and Virginia all use the federal definition of “practicability,” so “existing technology” is a consideration. Because Oregon’s and Ohio’s “practicability” definitions are very similar to the federal requirements, both states include consideration of “existing technology.” Similarly, Michigan mirrors the federal version and its inclusion of “existing technology,” although it uses the terms “feasible and prudent” rather than “practicable.” Wisconsin requires taking available technology into account. Both Connecticut and Minnesota include engineering principles in their definitions of “feasible,” and Illinois requires consideration of possible design modifications. Only Indiana, New York, North Carolina, Rhode Island, and Vermont do not expressly require consideration of technological factors.

Logistics

The final factor in the federal program that must be considered in determining practicable alternatives in the federal program is “logistics.”⁴⁶ “Logistics” include considerations such as site geography, the fill material proximity, or other specifics related to the proposed location. The states that use the federal definition of

practicability, as well as Oregon and Michigan that use close approximations, include “logistics” as a factor.

Choosing the Least Environmentally Damaging Alternative

In the federal process, once the practicable alternatives are identified based on the factors and standards described above, the Corps may only issue a permit for the proposed activity if it is the least environmentally damaging practicable alternative (the LEDPA).⁴⁷ There are occasions, however, when the Corps may find that the LEDPA will still cause too much harm to special aquatic resources to be allowed.⁴⁸ The Corps may deny a permit if it finds that the damage caused by the least damaging alternative would still be too significant, despite all practicable avoidance and minimization. Finally, during the alternatives analysis and identification of the LEDPA, the availability of compensation opportunities may *not* be taken into account.⁴⁹

Some states also have absolute criteria for alternative selection. Connecticut’s tidal wetland program, Maine, Massachusetts’ riverfront program, Minnesota, and New Hampshire will only grant a permit for the least environmentally damaging alternative. New York will only grant a project permit in freshwater wetlands if the proposal is the only practicable alternative that will accomplish the applicant’s objectives and if there is no practicable alternative on a site that is not a freshwater wetland or adjacent area. New York will only grant a project permit in tidal wetlands if the applicant proves the proposal is reasonable and necessary. New Jersey’s tidal wetland program will only grant a permit if the proposed project has no prudent or feasible alternative on a non-wetland site.

On the other hand, Minnesota places restrictions when permits cannot be issued. For example, Minnesota will not approve proposals that will impact rare natural communities, special fish and wildlife resources, or threatened and endangered species.⁵⁰ Also, filling to create upland for private development is prohibited in wetlands regulated by the Minnesota Dept. of Natural Resources under the Public Waters Permit Program.⁵¹

Avoidance and Minimization in State Wetland Regulatory Programs			
State	Avoid & min req'd	Sequence	Water dependency required
Federal	✓	✓	✓
Connecticut	✓	—	✓ (Tidal wetlands)
Florida	—	—	—
Illinois	✓	✓	✓
Indiana	✓	—	—
Maine	✓	✓	✓
Maryland	✓	✓	✓
Massachusetts	✓	✓ ¹	—
Michigan	✓	✓	✓
Minnesota	✓	✓	✓
New Hampshire	✓	✓	—
New Jersey	✓	—	✓
New York Inland	✓	✓	—
New York Tidal	✓	✓ ²	✓
North Carolina	✓	—	—
Ohio	✓	✓	✓
Oregon	✓	✓	—
Pennsylvania	✓	✓	✓
Rhode Island	✓	✓	✓
Tennessee	✓	—	✓
Vermont	✓	✓	—
Virginia	✓	✓	✓
Wisconsin	✓	✓	✓
Notes			
1. Massachusetts does not require sequencing in the riverfront area.			
2. While not specified in regulation, sequencing is required in practice. Personal communication with Roy Jacobson, NYS Department of Environmental Conservation Landscape Conservation Section Bureau of Habitat (Oct. 29, 2007).			
3. Ohio requires a water-dependency analysis by practice. Personal communication with Laura Fay, 401 Reviewer, Ohio Environmental Protection Agency (Dec. 11, 2007).			

Minimization

After applying the avoidance requirement outlined in the § 404(b)(1) Guidelines, the federal agencies must minimize impacts to aquatic resources.

...no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.⁵²

As a part of the permitting requirements, some minimization efforts can play a role in determining the LEDPA. On the other hand, it is also clear that minimization-type activities can also be used to reduce remaining significant impacts. Thus, minimization has a dual identity, applicable both pre- and post-LEDPA. For example, some minimization measures such as utilizing alternative project designs and construction methods can be used to inform the alternatives analysis.

The federal Guidelines list examples of how the unavoidable impacts may be minimized.⁵³ Actions to minimize the impacts of discharges include: changing the location of the discharge; changing the material to be discharged; controlling the material after discharge; changing the method of dispersion; changing the technology used; and changing the affects on plants, animals, and human uses.⁵⁴

All 20 states require minimization of impacts to wetlands, and distinguish minimization from compensatory mitigation. This includes those states that do not require avoidance and minimization to be pursued in sequence. (See next section). All of the states require minimization to be applied *before* compensatory mitigation, except for Tennessee, which does not clarify the required order of the analytical steps. Massachusetts's riverfront program does not require minimization. Connecticut and New Jersey's freshwater program have combined avoidance and minimization measures.

The majority of the states that require minimization do not define the term. The states that do define minimization are Indiana, Maryland's nontidal program, Minnesota, New Jersey's tidal program, North Carolina, Ohio, Oregon, Rhode Island, and Virginia. Only Minnesota, Ohio, Oregon, and Virginia prescribe procedures for minimization. Details on minimization requirements are in Appendix E.

Sequencing

Fifteen states require avoidance as the first step in the mitigation sequence: Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, and Wisconsin. Connecticut, Indiana, New Jersey, New York, North Carolina, and Tennessee do not require a sequential relationship between avoidance and minimization activities.

Conclusions

Twenty states have adopted avoidance and minimization requirements as part of the wetlands mitigation processes of their wetland permitting programs. While overall, the states' requirements largely mirror federal standards, some have added further details and others have chosen not to apply the same criteria. For example, states that do not require mitigation to be performed in a sequence risk missing opportunities to avoid impacts by allowing applicants to minimize or even compensate instead.

The sources of avoidance and minimization requirements vary from state to state, with some based in law and others based in regulations. Only a minority provide guidance documents on the avoidance and minimization processes. This review of the legal requirements for avoidance and minimization of impacts is a starting point for evaluating this aspect of state wetland permitting programs. The effectiveness of these requirements, however, depends not only on the stringency and clarity of the written requirements, but equally upon the way in which they are applied.

Notes

1. New Jersey and Michigan have assumed administration of the Clean Water Act § 404 program; as such, their avoidance and minimization provisions are required to meet the federal standards. 33 U.S.C § 1344(h); CWA § 404(h).
2. Florida's DEP and Water Management Districts do consider "eliminating and reducing" otherwise unpermissible adverse impacts. *See, e.g.*, Environmental Resource Permit Applicant's Handbook, Suwannee River Management District, § 12.2.1 et seq., at [://fl-suwanneeriver.civicplus.com/DocumentView.asp?DID=46](http://fl-suwanneeriver.civicplus.com/DocumentView.asp?DID=46). As the Florida DEP describes the requirement, "This is a different test from the 'Alternatives Analysis' used by Federal Agencies; it does not provide for considering an alternative site." Florida Department of Environmental Protection Summary of the Wetland and Other Surface Water Regulatory and Proprietary Programs at <http://www.dep.State.fl.us/water/wetlands/docs/erp/overview.pdf> (Oct. 1., 2007).
3. Certain minimization measures such as utilizing alternative project designs and construction methods can also be used to help identify the LEDPA.
4. 40 C.F.R. § 230.10(a).
5. Guidelines for Specification of Disposal Sites for Dredged or Fill Material, 45 Fed. Reg. 85336, 85339 (Dec. 24, 1980).
6. 40 CFR § 230.10(a).
7. RGL 93-02, Memorandum to the Field: Guidance on Flexibility of the 404(b)(1) Guidelines and Mitigation Banking (Aug. 23, 1993) – Dec. 31, 1998, Department of the Army and Environmental Protection Agency).
8. Plantation Landing Guidance, U.S. Army Corps Brigadier General Patrick Kelly (April 21, 1989).
9. 40 C.F.R. § 230.10(a)(3).
10. *Id.*
11. Guidance on Flexibility, *supra* note 7.
12. 40 C.F.R. § 230.10(a)(3).
13. 40 C.F.R. § 230.10(a).
12. *Id.* § 230.10(a)(2).
14. *Id.* While Michigan expresses its standard in terms of "feasible and prudent," it defines the standard in the same way as the federal definition for "practicable." MICH. ADMIN. CODE R. 281.922a(6).
15. N.Y. COMP. CODES R. & REGS. TIT. 6, § 663.5(f)(2).
16. ILL. ADMIN. CODE TIT. 17 §§ 1090.60(b).
17. 20 ILL. COMP. STAT. 830/3-4.
18. Vt. Wetland Rules § 8.5(b)(1).
19. MINN. RULES 8420.0548.
20. Generally, in these states, the regulatory agency is responsible for making the ultimate determination regarding alternatives, but for the most part, the determination is based on information and analysis provided by the applicant. *See, e.g.*, MINN. RULES 8420.0520, Subp. 1 stating, "The local government unit may not consider or approve a wetland replacement plan unless the local government finds that the applicant has demonstrated that the activity has complied with [the sequencing steps]." *See also*, MINN. RULES 8420.0520 Subp 2 stating, "An applicant may either submit the information required for sequencing analysis as part of a replacement plan application or apply for a preliminary sequencing determination from the local government unit before preparing a replacement plan. The local government unit may request additional information needed to make a determination." In practice, the alternatives analysis is often an iterative process between the applicant and the regulatory authority.
21. Although New Jersey's regulations require the agency to find that there are no alternatives, the responsibility for conducting the analysis lies with the applicant. Personal Communication with Susan Lockwood, Supervising Environmental Specialist NJDEP Division of Land Use Regulation (Oct. 5, 2007).
22. Guidelines for Specification of Disposal Sites, *supra* note 5 ("Consistent with the burden of proof under these Guidelines, where an applicant proposes to discharge in a special aquatic site it is his responsibility to persuade the permitting authority that both of these presumptions have clearly been rebutted in order to pass the alternatives portion of these Guidelines."); RGL 93-02, Guidance on Flexibility, *supra* note 7.

23. 40 C.F.R. § 230.12(a)(3)(iv); RGL 93-02, Guidance on Flexibility *supra* note 7, at 4.
24. While Maryland's laws and regulations are silent on this point, the application makes the applicant responsible for providing the project purpose. Personal communication with Amanda Sigillito, Chief, Nontidal Wetlands and Waterways Division, Maryland Department of the Environment (Sept. 13, 2007).
25. The director of environmental protection prescribed the form of the application for a general state isolated wetlands permit and for an individual state isolated wetland permit. ORC 611.026 (A) (1). By practice, applicants are required to provide a project description, to describe the need and project purpose, and a social and economic justification for each alternative. Personal communication with Laura Fay, 401 Reviewer, Ohio Environmental Protection Agency (Dec. 11, 2007).
26. 40 C.F.R. § 230.10(a)(3).
27. *Id.*
28. Ohio requires a water-dependency test by practice. Fay, *supra* note 25.
29. Whether it "requires access or proximity to or siting within [a wetland] to fulfill its basic purpose." *Id.*
30. Ohio requires a water-dependency analysis by practice. In Ohio, if a project is considered to be water dependant then only two alternatives for the project are required (the applicants preferred design and a minimal degradation design). The presumption is that there can not be a non-degradation design if the project is wtaer dependent. Fay, *supra*, note 25.
31. 40 C.F.R. § 230.10(a); RGL 93-02, Guidance on Flexibility *supra* note 7.
32. *Id.* § 230.10(a)(2).
33. Ohio defines practicable differently in code and in regulations.
34. 40 CFR § 230.10(a)(2).
35. "Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes." *Id.*
36. *Id.*
37. As explained above, Michigan defines "feasible and prudent" with the federal definition of "practicability."
38. Minn. Rules 8420.0520 Sub. 3 (C)(2).
39. OHIO ADMIN. CODE §§ 3745-1-54(D)(1)(b)(i), 3745-1-54(D)(1)(c)(i).
40. 45 Fed. Reg. 85339, *supra* note 5, Preamble.
41. *Id.*
42. RGL 93-02 Guidance on Flexibility, *supra* note 7.
43. *Id.* at 3(b).
44. 40 C.F.R. § 320.74.
45. *Id.*
46. *Id.* § 230.10(a)(2).
47. RGL 93-02, Guidance on Flexibility, *supra* note 7 at 3(a)(iii – v).
48. 40 C.F.R. § 230.10(c).
49. Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines, .§ II. C. 2 (Feb. 6, 1990); RGL 93-02 Guidance on Flexibility, *supra* note 7 at 3.
50. MINN. RULES 8420.0548.
51. MINN. RULES 6115.0190.
52. 40 C.F.R. § 230.10(d).
53. *Id.* § 230.70-77.
54. *Id.*

Appendix A

Sources of State Avoidance and Minimization Provisions

Federal

- United States Clean Water Act, 33 U.S.C. § 1344; CWA § 404
- Processing of Department of the Army Permits, 33 C.F.R. § 325 et seq.
- Section 404(b)(1) Guidelines, 40 C.F.R. 230 et seq.
- Department of the Army and Environmental Protection Agency, *Memorandum to the Field: Guidance on Flexibility of the 404(b)(1) Guidelines and Mitigation Banking* (RGL 93-02) (Dec. 24, 1980)
- *Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1)* (Feb. 6, 1990)
- *Memorandum of Agreement Between the Department of the Army and the Environmental Protection Agency Concerning Section 404(q) of the Clean Water Act* (Aug. 11, 1992)
- Department of the Army, *Army Corps of Engineers Standard Operating Procedures for the Regulatory Program* (Oct. 15, 1999)

Connecticut

- Inland Wetlands and Watercourses Act, CONN. GEN. STAT. § 22a-38(13)
- Inland Wetlands and Watercourses Regulations, CONN. AGENCIES REGS. § 22a-39-6.1 et seq.
- Tidal Wetlands Act, CONN. GEN. STAT. §§ 22a-28 et seq.
- Tidal Wetlands Regulations, CONN. AGENCIES REGS. §§ 22a-30-10 et seq.

Illinois

- Illinois Interagency Wetlands Policy Act, 20 ILL. COMP. STAT. 830/2-2 et seq.
- Implementation Procedures for the Interagency Wetlands Regulations, ILL. ADMIN. CODE TIT. 17 § 1090.10 et seq.

Indiana

- State Regulated Wetlands, IND. CODE § 13-18-22-5(a)(1)(B)
- Indiana Wetland Activity Permits, IND. ADMIN. CODE TIT. 327 R. 17-4-3(3)(8)(C)
- Indiana Department of Environmental Management Nonrule Policy Document, *Reasons for Denial* (April 13, 2007), <http://www.state.in.us/idem/rules/policies/#water>

Maine

- Natural Resources Protection Act, ME. REV. STAT. TIT. 38 § 480 et seq.
- Wetlands and Waterbodies Regulations, 06-096-310 CODE ME. R. § 1 et seq.

Maryland

- Maryland Nontidal Wetlands Protection Act, MD. CODE [ENVT.] § 5-902 et seq.
- Maryland Nontidal Wetlands Protection Regulations, MD. CODE REGS. 26.23.04.02(B)(1)
- Maryland Nontidal Wetlands and Waterways Permits, www.mde.state.md.us/Permits/WaterManagementPermits/water2.asp#3.17
- Maryland Tidal Wetland Regulations, MD. CODE REGS. 26.24.05.01 et seq.

Massachusetts

- Massachusetts Wetland Protection Act, MASS. GEN. LAWS ch. 131, § 40 (as amended by the Riverfront Protection Act)
- Wetlands Protection Act Regulations, 310 MASS. CODE REGS. 10.00 et seq.
- Inland Wetlands Replication Guidelines, www.mass.gov/dep/water/laws/replicat.pdf

Michigan

- Part 303, Wetlands Protection, of the Michigan Natural Resources and Environmental Protection Act, MICH COMP. LAWS. § 324.303 et seq.
- Wetland Protection Rules, MICH. ADMIN. CODE R. 281.921 et seq.
- Michigan Department of Environmental Quality, *Wetland Mitigation*, at www.michigan.gov/deq/0,1607,7-135-3313_3687-86447--,00.html.

Minnesota

- Minnesota Wetland Conservation Act, MINN. STAT. § 103G.001 et seq.
- Minnesota Wetland Conservation Act Regulations, MINN. R. 8420.0100 et seq.
- Wetland Regulation in Minnesota, www.bwsr.state.mn.us/wetlands/publications/wetlandregulation2.html

New Hampshire

- New Hampshire Dredge and Fill Program Regulations, N.H. CODE ADMIN. RULE [ENVT-WT] 101 et seq.

New Jersey

- New Jersey Freshwater Protection Act, N.J. STAT. § 13:9B-1 et seq.
- New Jersey Freshwater Protection Act Rules, N.J. ADMIN. CODE § 7:7A-1.1 et seq.
- New Jersey Coastal Zone Management Rules, N.J. ADMIN. CODE § 7:7E et seq.

New York

- New York Freshwater Protection Act, N.Y. ENVTL. CONSERV. § 24-0101 et seq.
- New York Freshwater Wetlands Protection Regulations, N.Y. COMP. CODES R. & REGS. TIT. 6, § 663.1 et seq.
- New York State Department of Environmental Conservation, *Freshwater Wetlands Permit Program: Standards for Issuance*, www.dec.ny.gov/permits/6273.html
- New York Tidal Wetlands Act, N.Y. ENVTL. CONSERV. § 25-0101 et seq.
- New York Tidal Wetlands Land Use Regulations, N.Y. COMP. CODES R. & REGS. TIT. 6, § 661.1 et seq.
- New York State Department of Environmental Conservation, *Tidal Wetlands Program: Application Procedures*, available at www.dec.ny.gov/permits/6357.html

North Carolina

- North Carolina Surface Water and Wetland Standards, 15A N.C. ADMIN. CODE 02H.1301 - .1305

Ohio

- Ohio Water Pollution Control Act, OHIO REV. CODE §§ 6111.02 – 6111.029
- Ohio Water Quality Standards, OHIO ADMIN. CODE §§ 3745-1-50 – 3745-1-54

Oregon

- Oregon Wetlands Act, OR. REV. STAT. § 196.600 et seq.
- Administrative Rules Governing the Issuance and Enforcement of Removal-Fill Authorizations within Waters of Oregon Including Wetlands, OR. ADMIN. R. §§ 141-085-0010 et seq.
- About Compensatory Mitigation for Wetland Impacts, www.oregon.gov/DSL/WETLAND/docs/fact6.pdf

Pennsylvania

- Dam Safety and Encroachment Regulations, 25 PA. CODE § 105.11 et seq.
- Commonwealth of Pennsylvania, Department of Environmental Protection *Wetlands Net Gain Strategy*, www.dep.state.pa.us/dep/deputate/water-mgt/wc/subjects/wwec/general/wetlands/NetGain.htm

Rhode Island

- Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act, R.I. FRESHWATER WETLANDS ACT RULES AND REGS.

Tennessee

- Tennessee Aquatic Resource Alteration Regulations, TENN. COMP. R. & REGS. § 12-4-7-.01 et seq.

Vermont

- Vermont Wetland Rules, VT. WETLAND RULES

Virginia

- State Water Control Law, VA. CODE § 62.1-44.1 et seq.
- Water Protection Permit Regulations, 9 Va. Admin. Code § 25-210 et. seq.
- DEQ Guidance Memorandum No. 04-2007: Guidance on Avoidance and Minimization Impacts to State Waters, <http://www.deq.virginia.gov/wetlands/pdf/gmem042007.pdf>

Wisconsin

- Wisconsin Water Quality Certification for Nonfederal Wetlands, WIS. STAT. § 281.36
- Wisconsin Water Quality Standards for Wetlands, WIS. ADMIN. CODE [N.R.] § 103
- Wisconsin DNR, *Wetland Compensatory Mitigation: Introduction*, at <http://www.dnr.state.wi.us/org/water/fhp/wetlands/mitigation/applicantguidance.shtml> (last visited May 30, 2007).

Appendix B Avoidance in State Wetland Regulatory Programs

State	Is avoidance the first step in a sequence?	Responsibility for alternatives analysis	Terms used to define the standard for alternatives ¹	Responsibility for determining the project purpose
Federal	Y	Agency	Practicable	Agency
Connecticut (tidal)	N	Agency	Feasible, further minimize adverse impacts, meet applicant's objective	Applicant
Connecticut (inland)	N	Agency	Feasible, prudent, meets applicant's purpose, would cause less or no environmental impact	Applicant
Illinois	Y	Agency or applicant	Practicable; feasible	Agency or applicant
Indiana	N	Applicant	Practical (for class III); reasonable (for Class II)	Applicant
Maine	N	Applicant	Less environmentally damaging, practicable	Applicant
Maryland (tidal)	Y	Applicant (if req'd)	Undefined	Applicant
Maryland (non-tidal)	Y	Applicant	Practicable	Applicant
Massachusetts (riverfront)	N	Applicant	Practicable and substantially equivalent economic	Undefined
Massachusetts (inland)	Y	Agency	Reasonable, available	Undefined
Michigan	Y	Applicant	Feasible and prudent	Agency
Minnesota	Y	Agency	Feasible and prudent	Applicant
New Hampshire	Y	Applicant	Practicable	Applicant
New Jersey (freshwater)	N	Both	Practicable	Applicant
New Jersey (tidal and estuarine)	N	Applicant	Prudent or feasible	Undefined
New York (freshwater)	Y	Applicant	Practicable alternative to accomplish applicant's objectives	Applicant
New York (tidal)	N	Applicant	Reasonable	Applicant
North Carolina	Y	Agency	Practical	Applicant
Ohio	Y	Applicant	Practicable	Applicant
Oregon	Y	Both	Practicable	Applicant
Pennsylvania	Y	Agency	Practicable	Undefined
Rhode Island	Y	Applicant	Alternatives which would not alter the natural character of freshwater wetlands	Applicant
Tennessee	N	Applicant	Practicable, which through avoidance and minimization would result in no net loss	Undefined
Vermont	Y	Undefined	Practicable site outside wetland; other site owned, controlled or available to satisfy the basic project purpose	Undefined
Virginia	Y	Applicant	Practicable, including design alternatives	Applicant
Wisconsin	Y	Agency	Practicable	Agency

Notes

1. State definitions of the terms are summarized in Table D.

2. Maine allows exceptions to the alternatives analysis requirement for health and safety; crossings by road, rail or utility lines; water dependent activities; expansion of facilities that cannot be moved that were constructed prior to 1996; mineral excavation and appurtenant facilities; or walkways. As the program is administered, however, Maine requires applicants to consider alternatives. Personal

communication with Jeff Madore, Maine DEP Land Resources Regulation, Division Director (Sept. 26, 2007).

3. Massachusetts allows exceptions to the alternatives analysis for projects in the waterfront area when the applicant can show that the riverfront area does not play a role in the protection of water supply, groundwater, flood control, shellfish, wildlife habitat, fisheries or preventing storm damage or pollution; mosquito control,

Must applicant demonstrate effort to overcome obstacles to alternatives?	Exceptions to requirement for alternatives analysis?	Does required range of alternatives alter depending on the wetland?
N	N	N
N	N	N
N	N	N
Y (or agency)	N	N
N	N	Yes: Depends on category of wetland
N	Y ²	N
N	May be required	N
It is a factor	N	N
N	Y ³	Yes: The scope of alternatives under consideration shall be commensurate with the type and size of the project
N	Y ⁴	N
N	Y ⁵	N
It is a factor	Y ⁶	Yes: If wetland is severely degraded and replacement would improve public value
N	N	N
Y	N	Yes: Higher for wetlands of exceptional resource value – must show compelling public need or extraordinary hardship to applicant
N	N	N
N	N	N
N	N	N
N	N	Yes: proposals for larger projects or affecting higher quality wetlands must consider off-site alternatives, not just on-site
Must explain choice	N	Yes: Waters with limited aquatic life and habitats and limited navigation, fishing and public recreation uses; small in size; temporary impacts
Y	N	Yes: Projects in exceptional value wetlands must be water dependent
Y	N	N
N	N	Analysis designed to achieve no net loss in the circumstances
N	Y ⁷	N
Y	N	N
N	N	Y

maintenance and improvement of agricultural, aquaculture land, cranberry bogs, or any project authorized by special act before 1973; government public works projects in existence in 1996, work related to wastewater treatment plants, and minor activities.

4. Massachusetts gives discretion in whether or not an alternative analysis should be conducted for projects up to 5,000 feet that impact inland wetlands.

5. Michigan allows an exception to the alternatives analysis requirement if activity is primarily dependent on being located in a wetland.

6. Minnesota allows an exception to the alternatives analysis requirement if project is water dependent.

7. Vermont allows an exception to the alternatives analysis requirement if impact is only minimal.

Appendix C

Definitions of State Alternative Standards Terms

The Federal Program defines practicable as available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Connecticut, for inland wetlands, defines feasible as able to be constructed or implemented consistent with sound engineering principles; prudent is economically or otherwise reasonable in light of the social benefits to be derived from the proposed activity.

Illinois requires consideration of the following factors in determining if a practicable and feasible alternative exists: 1) whether a modification in the size, scope, configuration or density and all alternatives that would have less adverse impact have been considered; 2) whether the basic purpose would still be accomplished if the project were modified and whether the purpose is defined too narrowly; and 3) whether the agency or applicant has made reasonable attempts to overcome obstacles.

Indiana considers a proposal to be without a reasonable alternative if: (1) a local executive issues a resolution stating that the wetland activity is without reasonable alternative to achieve a legitimate use proposed by the applicant on the property; (2) a local government entity that has authority over the proposed use of the property issues a permit or other approval stating that the wetland activity is without reasonable alternative to achieve a legitimate use proposed by the applicant on the property on which the wetland is located; or (3) the department determines the wetland activity is without reasonable alternative to achieve the legitimate use proposed by the applicant on the property on which the wetland is located.

Maine requires consideration of the following factors in determining whether a practicable alternative exists: 1) other sites that would avoid wetland impact; 2) reducing the size, scope, configuration or density of the project as proposed, thereby avoiding or reducing the wetland impact; 3) developing alternative project designs; and 4) the need for the proposed alteration. Practicable is defined as that which is available and feasible considering cost, existing technology and logistics based on the overall purpose of the project.

Maryland, for nontidal wetlands, requires consideration of the following factors in evaluating whether there is a practicable alternative: 1) whether the basic project purpose can be accomplished using other sites in the same general area that would avoid or result in less adverse impact on nontidal wetlands; 2) whether a reduction in scope, configuration, or density and all alternative designs that would result in less adverse impact on the nontidal wetland and would accomplish the same basic purpose of the project; 3) whether the applicant has made a reasonable attempt to remove or accommodate constraints such as inadequate zoning; and 4) the economic value of the proposed regulated activity in meeting a demonstrated public need in the area and the ecological and economic value associated with the wetland.

Practicable is that which is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Massachusetts defines practicable and substantially equivalent economically as available and capable of being done after taking into consideration costs, existing technology, proposed use, and logistics, in light of overall project purposes.

Michigan defines an alternative as feasible and prudent if it is available and capable of being done after taking into consideration cost, existing technology, and logistics; areas not presently owned by the permit applicant that could reasonably be obtained, expanded, or managed in order to fulfill the basic purpose of the proposed activity.

Minnesota defines feasible and prudent as that which: 1) is capable of being done from an engineering point of view; 2) is in accordance with accepted engineering standards and practices; 3) is consistent with reasonable requirements of the public health, safety, and welfare; 4) is an environmentally preferable alternative based on a review of social, economic, and environmental impacts; and 5) would create no "truly unusual" problems.

New Hampshire defines practicable as available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

New Jersey defines practicable as available and capable of being carried out after taking into consideration cost, existing technology, and logistics in light of overall project purposes, and may include an area not owned by the applicant which could reasonable have been or be obtained, utilized, expanded, or managed in order to fulfill the basic purpose of the proposed activity.

New York defines a proposed activity as the only practicable alternative if no other is physically or economically feasible.

North Carolina requires a lack of practical alternatives to be shown by demonstrating that, considering the potential for a reduction in size, configuration or density of the proposed project and all alternative designs that the basic project purpose cannot be practically accomplished in an economically viable manner which would result in less adverse impact to wetlands.

Ohio's code defines practicable as available and capable of being executed with existing technology and without significant adverse impacts on the economic feasibility of the project in light of overall project purposes and in consideration of the relative environmental benefit. The regulations define practicable as available and capable of being done after taking into consideration cost, existing technology and logistics in light overall and basic project purposes.

Oregon defines practicable alternative as one that is capable of being done or accomplished after taking into consideration the cost, existing technology and logistics with respect to the overall project purpose and is on a site that is available to the applicant (could reasonably be obtained, utilized, expanded, or managed).

Pennsylvania defines practicable as that which is available and capable of being carried out after taking into consideration construction cost, existing technology and logistics; an area not presently owned by the applicant that could reasonably be obtained, utilized, expanded or managed to fulfill the basic purpose of the project is practicable.

Rhode Island defines reasonably available as properties which, either in whole or in part, can be acquired without excessive cost, taking individual circumstances into account, or, in the case of property owned or controlled by the same family, entity, group of affiliated entities, or local, state or federal government, may be obtained without excessive hardship.

Tennessee defines practicable alternative as one that is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purpose.

Virginia defines practicable as available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose.

Wisconsin defines practicable as available and capable of being implemented after taking into account cost, available technology and logistics in light of overall project purposes.

Appendix D Water Dependence in State Avoidance and Minimization Requirements

State	Are there provisions on water dependency?	Definition	Regulatory consequences? (permit denial?)	Requirement that applicant prove w-d or overcome presumption that there are non-w-d alternatives?	Requirement to select least damaging alternative?
Federal	Y	Requires access or proximity to or siting with a wetland to fulfill its basic purpose	Presumption that non-water-dependent projects have practicable alternatives	Y	Y
Connecticut (tidal)	Y	Those uses and facilities which require direct access to, or location in, marine or tidal waters and which therefore cannot be located inland ¹	Finding of non-water-dependency could lead to permit denial	N	Y
Connecticut (inland)	N	n/a	N	N	N
Illinois	Y	n/a	If water dependent can issue permit, with restrictions, in spite of impact to wetland	Applicant or agency	N
Indiana	N	n/a	N	N	N
Maine	Y	A use which cannot occur without access to surface water	N ²	Y	Y
Maryland (tidal)	Y	A temporary or permanent structure or activity, which by means of its intrinsic nature or operation, requires location in or over state or private wetlands	It is a factor	N	N
Maryland (non-tidal)	Y	An activity for which the use of surface water would be essential to fulfill a basic purpose of the proposed project	N	N	N
Massachusetts (riverfront)	N	n/a	N	N	Y
Massachusetts (inland wetlands generally)	N	n/a	N	N	N
Michigan	Y	Requires a location within the wetland and wetland conditions to fulfill its basic purposes	If water dependent, no need for alternatives analysis	Y	N
Minnesota	Y	wetland features, functions, or values are essential to fulfill the basic project purpose	If water dependent, no need for alternatives analysis	N	Y
New Hampshire	N	n/a	n/a	N	Y
New Jersey (freshwater)	Y	cannot physically function without direct access to the body along which it is proposed; regardless of economic advantages	Could result in permit denial	Y	N

State	Are there provisions on water dependency?	Definition	Regulatory consequences? (permit denial?)	Requirement that applicant prove w-d or overcome presumption that there are non-w-d alternatives?	Requirement to select least damaging alternative?
New Jersey (tidal and estuarine)	Y	cannot physically function without direct access to the body of water along which it is proposed; regardless of economic advantages	Required finding	Y	
New York (freshwater)	N	n/a	n/a	N	
New York (tidal)	Y	---	Is a factor in permit decision	N	N
North Carolina	N	n/a	n/a	N	N
Ohio	Y ³	n/a	Must analyze only applicants' preferred alternative and a minimal degradation alternative	N	N
Oregon	N	n/a	n/a	N	Y
Pennsylvania	Y	project requires access or proximity to or siting within the wetland to fulfill the basic purposes of the project	For exceptional value wetlands	For all but exceptional wetlands	Y
Rhode Island	Y	Requires access to freshwater wetlands as a central part of its primary purpose	N	Y	N
Tennessee	Y	Activity that requires location in or adjacent to surface waters or wetlands in order to fulfill its basic purpose (also, "wetlands dependent")	N	N	
Vermont	N	n/a	N	N	N
Virginia	Y	Require access or proximity to or siting within the wetland to fulfill the projects' basic purpose	Higher standard for alternatives analysis		Y
Wisconsin	Y (wetland)	---	Department can limit the scope of alternatives	N	N

¹ Connecticut Coastal Management Act.

² Although regulations allow the agency to remove the requirement to conduct an alternatives analysis for water-dependent projects, Maine always requires applicants to consider alternatives. Personal communication with Jeff Madore, Maine DEP Land Resources Regulation, Division Director (Aug. 15, 2007).

³ By practice, Ohio requires a water-dependency analysis. Personal communication with Larua Fay, 401 Reviewer, Ohio Environmental Protection Agency (Dec. 11, 2007).

Appendix E Minimization in State Wetland Regulatory Programs

State	Minimization of impacts required?	Definitions for minimization	Exceptions to the minimization requirement	Minimization as a step distinct from compensation	Minimization required before compensation?	Procedures provided for determining minimization
Federal	Y	N	N	Y	Y	Includes: changing the location of the discharge, changing the material to be discharged, controlling the material after discharge, changing the method of dispersion, changing the technology used, changing the affects on plants, animals, and human uses.
Connecticut	Y	—	N	Y	Compensatory mitigation not mentioned	N
Illinois	Y	—	N	Y	Y	N
Indiana	Y	Practicable and appropriate	N	Y	Y	N
Maine	Minimize the amount of wetland used	—	Undefined	Y	Y	N
Maryland	Y	In the nontidal program: Reduce adverse impacts to nontidal wetlands to the greatest practicable and reasonable degree	N	Y	Y	N
Massachusetts	Y (not in river-front)	—	N	Y	N	N
Michigan	Y (before considering mitigation)	—	N	Minimization includes protection of wetlands on site not impacted by the project	Y	N
Minnesota	Y	limiting the degree or magnitude of the wetland activity or its implementation	N	Y	Y	modify the size, scope, configuration, or density of the project; remove or accommodate site constraints; confine impacts
New Hampshire	Y	—	N	Y	Y	N
New Jersey (freshwater)	Y	—	N	Y	Y	N
New Jersey (tidal and estuarine)	Y	minimum feasible alteration or impairment of natural tidal circulation, contour, or natural vegetation	N	Y	Y	N
New York (freshwater)	Y	—	Reasonable effort for wetlands that only provide some wildlife and open space benefits	Y	Y	N
New York (tidal)	Y	—	N	Y	N	N

State	Minimization of impacts required?	Definitions for minimization	Exceptions to the minimization requirement	Minimization as a step distinct from compensation	Minimization required before compensation?	Procedures provided for determining minimization
North Carolina	Y	Any remaining isolated classified wetlands must be able to continue to support the existing uses and the discharges must have been required due to the particular project requirements	N	Y	Y	N
Ohio	Y	Unavoidable impacts are reduced to the maximum extent practicable	N	Y	Y	Shall evaluate: spatial requirements; location of existing structural or natural features; overall and basic purpose and how it relates to placement, configuration, or density; sensitivity of design to natural features; and direct and indirect impacts.
Oregon	Y	Limiting the degree or magnitude of the action and its implementation;	N	Y	Y	For example, bio-engineered and non-structural streambank stabilization techniques where technically feasible, suitable and environmental preferable
Pennsylvania	Y	—	N	Y	Y	N
Rhode Island	Y	Scale, location, design	N	Y	Y	Y
Tennessee	Y	—	N	Y	N	N
Vermont	Y	—	N	Y	Y	N
Virginia	Y	that would avoid or result in less adverse impacts	N	Y	Y	Reducing the size, scope, configuration, or density of the proposed project; spatial or dimensional changes to structure lay-out, site-engineering changes, low impact development techniques; directional drilling, low-pressure tires, converting impacts to temporary, relocating construction staging
Wisconsin	Y	N	N	Y	Y	N

Appendix F

Summaries of State Avoidance and Minimization Requirements

Connecticut Inland Wetlands

Avoidance

Connecticut requires avoidance and minimization as part of the permit process for regulated activities in inland wetlands. CONN. GEN. STAT. § 22a-38(13). The inland wetland regulatory program provides guidelines and factors for the commissioner of environmental protection to consider in making permit decisions and does not articulate mitigation requirements as a sequence. CONN. GEN. STAT. § 22a-41.

The commissioner must consider feasible and prudent alternatives that meet the applicant's purpose and would cause less or no environmental impact to wetlands or watercourses. CONN. GEN. STAT. § 22a-41(a)(2). The alternatives to the proposed action which might enhance environmental quality or have a less detrimental effect, and which could feasibly attain the basic objectives of the activity are relevant facts and circumstances to be considered by the commissioner in the permit decision. CONN. AGENCIES REGS. § 22a-39-6.1. "Feasible" means "able to be constructed or implemented consistent with sound engineering principles." Conn. Gen. Stat. § 22a-38(17). "Prudent" means "economically or otherwise reasonable in light of the social benefits to be derived from the proposed regulated activity provided cost may be considered in deciding what is prudent and further provided a mere showing of expense will not necessarily mean an alternative is imprudent." CONN. GEN. STAT. § 22a-38(18). While the commissioner is required to consider alternatives, the Inland Wetlands and Watercourses Act explicitly places the burden for showing entitlement to a permit with the applicant.¹ CONN. GEN. STAT. § 22a-41(b)(2).

The commissioner is further required to consider alternatives which might enhance environmental quality or have a less detrimental effect, and which could feasibly attain the basic objectives of the activity. CONN. AGENCIES REGS. § 22a-39-6.1(b)(ii). The provision goes on to list some examples that should be considered including the alternative of taking no action, postponing action pending further study, and requiring actions of a different nature which would provide similar benefits with different environmental impacts, such as using a different location for the activity. CONN. AGENCIES REGS. § 22a-39-6.1(d)(ii).

Minimization

Minimization of impacts is one of the purposes of the Inland Wetlands and Watercourses Statute that the commissioner is required to carry out and one of the factors for the commissioner to consider in making permit decisions. CONN. GEN. STAT. §§ 22a-36, 22a-39. The commissioner must consider any mitigation measures that could prevent or minimize pollution or other environmental damage, when irreversible or irretrievable loss of wetland or watercourse resources is possible. CONN. GEN. STAT. § 22a-41(a)(4)(A). Finally, the requirement for the commissioner to consider technical mitigation measures in deciding on permits for regulated activities impacting inland wetlands is similar to a minimization requirement. CONN. GEN. STAT. § 22a-41(a)(4); CONN. AGENCIES REGS. § 22-39-6.1(e).

Connecticut Tidal Wetlands Law

Avoidance

Connecticut requires avoidance and minimization for permits for regulated activities in tidal wetlands. CONN. GEN. STAT. §§ 22a-28 et seq. The tidal wetland regulatory program provides guidelines and factors for the commissioner of environmental protection to consider in making permit decisions and does not articulate mitigation requirements as a sequence. CONN. AGENCIES REGS. §§ 22a-30-10, 22a-30-11.

In permitting for all regulated activities in tidal wetlands, the commissioner must make a finding that there is no technically feasible alternative that will meet the applicant's objectives and minimize adverse impacts. CONN. AGENCIES REGS. § 22a-30-10(b)(1). When a permanent structural erosion control measure is proposed, the commissioner must make a finding that it is "demonstrated to be unavoidable and necessary to protect infrastructural facilities, water-dependent uses and existing inhabited structures." CONN. AGENCIES REGS. § 22a-30-10(d)(3). Connecticut further requires an alternatives analysis for the erection of water-dependent industrial and commercial facilities. The commissioner must find that there is no feasible alternative for accomplishing the applicant's objective which further minimizes adverse impacts. CONN. AGENCIES REGS. § 22a-30-11(b)(6)(F).

Water dependency

Connecticut has a policy of prioritizing water-dependent uses of the shorefront in the Coastal Management Act.² CONN. AGENCIES REGS. § 22a-30-10(h). The Connecticut Coastal Management Act defines water-dependent use.³ CONN. GEN. STAT. § 22a-93(16). Water-dependent uses are further promoted by restricting structural erosion control measures unless they are needed to protect water-dependent uses. CONN. AGENCIES REGS. § 22a-30-11(d)(3). When a proposed activity is not a water-dependent use of tidal wetlands, the commissioner must verify that it is not more appropriate to put a water-dependent use at that site. CONN. AGENCIES REGS. § 22a-30-10(h)(1). The exception to this priority is for industrial and commercial facilities. Water-dependent industrial and commercial facilities can only be constructed when there is no alternative which accomplishes the applicant's objective which is technically feasible and which further minimizes adverse impacts. CONN. AGENCIES REGS. § 22a-30-11(b)(6)(F).

Minimization

For tidal wetlands, Connecticut has bound minimization up with avoidance within the requirement to consider alternatives. CONN. AGENCIES REGS. § 22a-30-10(b)(1). To protect water-dependent uses Connecticut requires the commissioner to impose conditions to minimize adverse impacts on such uses. CONN. AGENCIES REGS. § 22a-30-10(h)(2). Connecticut further requires the commissioner to minimize in specific cases.⁴

Illinois

Illinois requires avoidance and minimization as part of approving individual projects and as part of the agency planning process. 20 ILL. COMP. STAT. 830/2-2(4); 20 ILL. COMP. STAT. 830/3-4. The state wetland mitigation policy defines the compensation sequence as avoidance, through an alternatives analysis, and then compensation. 20 ILL. COMP. STAT. 830/3-1.

In the impact evaluation for each project action involving a wetland, state agencies must document that no feasible alternatives exist and must follow the sequence, in order of priority, to first avoid, then minimize, and finally to consider compensation. 20 ILL. COMP. STAT. 830/3-4. A wetland action report for

actions that require coordination under the wetland review process must include a discussion of alternative actions considered and supporting justification for the selected alternative if it is likely to have an adverse wetland impact. ILL. ADMIN. CODE TIT. 17 § 1090.50(a)(1)(F). If no alternative exists to an activity that will have adverse impacts to wetlands, the department will approve the action with restrictions. ILL. ADMIN. CODE TIT. 17 § 1090.50(a)(2)(B). If practical alternatives do exist, the action shall not be permitted as proposed. ILL. ADMIN. CODE TIT. 17 § 1090.50(a)(2)(C).

The department can only approve a wetland impact determination if it finds that the activity is either: 1) water dependent and has no other practicable alternatives; or 2) is not water dependent and that the alternative designs and alternative sites are not available. ILL. ADMIN. CODE TIT. 17 § 1090.60(a)(1). The department must also find that the activity minimizes alteration or impairment of the wetland. ILL. ADMIN. CODE TIT. 17 § 1090.60(a)(2). In considering whether a practicable alternative exists, the department shall consider whether: 1) a modification in the size, scope, configuration, or density of the project and all alternative designs that would result in less adverse impact have been considered; 2) the basic purpose of the project would still be accomplished if the project is modified and if the basic purpose has been so narrowly defined as to disqualify all but a single site; and 3) the agency or applicant has made reasonable attempts to remove or accommodate constraints such as inadequate zoning. ILL. ADMIN. CODE TIT. 17 § 1090.60(b). It is presumed that a practicable alternative that does not adversely impact a wetland exists. ILL. ADMIN. CODE TIT. 17 § 1090.60(c). It is the responsibility of the agency or applicant to demonstrate that practicable alternatives do not exist. ILL. ADMIN. CODE TIT. 17 § 1090.60(c).

Agency action plans must include procedures to minimize the destruction of wetlands caused or encouraged by state supported construction, land management, technical assistance, educational and other activities. 20 ILL. COMP. STAT. 830/2-2(a)(4).

Indiana

An individual permit from the Indiana Department of Environmental Management is required to authorize a wetland activity in a Class II⁵ or III⁶ wetland in the state of Indiana. IND. CODE § 13-18-22-3. An applicant for a permit for activities in a Class III wetland must demonstrate that the wetland activity is without practical alternatives and will be accompanied by taking steps that are practicable and appropriate to minimize potential adverse impacts on the wetland. IND. CODE § 13-18-22-5(a)(1)(B); IND. ADMIN. CODE TIT. 327 R. 17-4-3(3)(8)(C); Indiana Department of Environmental Management Nonrule Policy Document, *Reasons for Denial* (April 13, 2007). In order to get a permit for activities in a Class II wetland, the applicant must demonstrate that the wetland activity is without reasonable alternative. IND. CODE § 13-18-22-5(a)(1)(A); IND. ADMIN. CODE TIT. 327 R. 17-4-3(3)(8); Indiana Department of Environmental Management Nonrule Policy Document, *Reasons for Denial* (April 13, 2007). The applicant must also include the purpose and description of the activity in the application. IND. ADMIN. CODE TIT. 327 R. 17-4-3(3)(3). A wetland activity is considered to be without reasonable alternative if: (1) a local executive issues a resolution stating that the wetland activity is without reasonable alternative to achieve a legitimate use proposed by the applicant on the property; (2) a local government entity that has authority over the proposed use of the property issues a permit or other approval stating that the wetland activity is without reasonable alternative to achieve a legitimate use proposed by the applicant on the property on which the wetland is located; or (3) the department determines the wetland activity is without reasonable alternative to achieve a legitimate use proposed by the applicant on the property on which the wetland is located. IND. ADMIN. CODE TIT. 327 R. 17-4-8.

Indiana expressly interprets its avoidance and minimization requirements to be equivalent to the federal requirements in 40 CFR 320. Indiana Department of Environmental Management Nonrule Policy Document, *Reasons for Denial* (April 13, 2007).

Maine

Avoidance

A permit from the Maine Department of Environmental Protection is required to conduct regulated activities in wetlands in the state of Maine. ME. REV. STAT. TIT. 38 § 480-C(1); 06-096-310 CODE ME. R. § 2. The applicant must include an alternatives analysis that analyzes whether there is a less environmentally damaging practicable alternative to the proposed alteration, which meets the project purpose. 06-096-310 CODE ME. R. § 9(A). An applicant for a permit for a regulated activity in a freshwater wetland must avoid altering freshwater wetlands to the extent feasible considering cost, existing technology and logistics, based on the overall purpose of the project and must limit the area to be altered to minimum amount necessary to complete the project. ME. REV. STAT. TIT. 38 § 480-X(3)(A).

The considerations for determining whether a practicable alternative exists include: 1) using other sites that would avoid wetland impact; 2) reducing the size, scope, configuration or density of the project as proposed, thereby avoiding or reducing the wetland impact; 3) developing alternative project designs; and 4) demonstrating the need for the proposed alteration. 06-096-310 CODE ME. R. § 9(A). The department shall not permit the activity if there is a practicable alternative that would be less damaging to the environment. 06-096-310 CODE ME. R. § 5(A). Exceptions to this requirement include projects that are water dependent.⁷ 06-096-310 CODE ME. R. § 5(A)(3).

Practicable is available and feasible considering cost, existing technology and logistics based on the overall purpose of the project. 06-096-310 CODE ME. R. § 3(R). A water-dependent use is one which cannot occur without access to surface water. 06-096-310 CODE ME. R. § 3(W). The department may only grant a permit with compensation for wetland losses only the losses were unavoidable. ME. REV. STAT. TIT. 38 § 480-Z.

Minimization

Maine requires that the amount of wetlands to be altered be kept to the minimum amount necessary. 06-096-310 CODE ME. R. § 5(B). Even if a project has no practicable alternative and the applicant has minimized the proposed alteration as much as possible, the application will be denied if the activity will have an unreasonable impact on the wetland. 06-096-310 CODE ME. R. § 5(D).

Maryland Nontidal Wetlands and Waterways

Avoidance

In order to engage in regulated activity in a nontidal wetland in Maryland, an applicant must get a permit from the Maryland Department of the Environment. A permittee must take all necessary steps to first avoid and then minimize losses of nontidal wetlands. MD. CODE [ENVT.] § 5-909; MD. CODE REGS. 26.23.04.02(B)(1). Mitigation shall be considered only if the permittee demonstrates to the department's satisfaction that losses are unavoidable and necessary. MD. CODE [ENVT.] §§ 5-909, 9-510.

In order to issue a permit, the department must find that the applicant has demonstrated that the regulated activity is water dependent and requires access to the nontidal wetland as a central element of its basic function or is not water dependent and has no practicable alternative. MD. CODE [ENVT.] § 5-907(a)(1). The applicant must further demonstrate to the satisfaction of the department that practicable alternatives have been analyzed and that there are none. MD. CODE [ENVT.] § 5-907(b). In evaluating whether there is a practicable alternative, the department shall consider: 1) whether the basic project purpose can be accomplished using other sites in the same general area that would avoid or result in less adverse impact on nontidal wetlands; 2) whether a reduction in scope, configuration, or density and all alternative designs that would result in less adverse impact on the nontidal wetland would accomplish the same basic purpose of the project; 3) whether the applicant has made a reasonable attempt to remove or accommodate constraints such as inadequate zoning; and 4) the economic value of the proposed regulated activity in meeting a demonstrated public need in the area and the ecological and economic value associated with the wetland. MD. CODE [ENVT.] § 5-907(b). Maryland's nontidal program requires the applicant to provide the alternatives analysis and to define the project purpose.⁸

Avoid means to refrain from conducting an activity that may adversely impact a nontidal wetland. MD. CODE REGS. 26.23.04.01(10). Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. MD. CODE REGS.

26.23.04.01(69). Water-dependent activity means an activity for which the use of surface water would be essential to fulfill a basic purpose of the proposed project. MD. CODE REGS. 26.23.04.01(88).

Minimization

In addition to the findings above, the department must also find that the applicant has shown that the activity will minimize alteration or impairment of the wetland. MD. CODE [ENVT.] § 5-907(a)(2). Minimize means to reduce adverse impacts to nontidal wetlands to the greatest practicable and reasonable degree. MD. CODE REGS. 26.23.04.01(58).

Maryland Tidal Wetlands

In order to engage in regulated activities in a tidal wetland in Maryland, project proponents must acquire a license or a permit. MD. CODE REGS. 26.24.02.01(A). Maryland's tidal program requires the applicant to provide an alternatives analysis and to define the project purpose.⁹ Applicants are required to demonstrate to the Maryland Department of the Environment that proposed impacts to tidal wetlands are necessary and unavoidable. Maryland Department of the Environment, *Water Management Permits*, at <http://www.mde.state.md.us/Permits/WaterManagementPermits/water2.asp#3>.¹⁷ (last visited May 5, 2007). The application review process first eliminates and then reduces impacts through avoidance and minimization. MD. CODE REGS. 26.24.05.01(B)(1); *Water Management Permits*. An alternatives analysis may be required as part of this process. *Water Management Permits*. In evaluating an application, the department will consider the degree to which dredging and filling activities can be avoided or minimized, whether alternatives for disposal of dredged material have been explored, and the degree to which the proposed activity is water dependent. MD. CODE REGS. 26.24.02.03(B). Water dependent is defined as a structure or activity, which by reason of its intrinsic nature or operation, requires location in or over wetlands. MD. CODE REGS. 26.24.01.02(B)(62). Mitigation is only considered after the applicant demonstrates that the alteration of tidal wetlands cannot be avoided. MD. CODE REGS. 26.24.05.01(B)(1).

Massachusetts

Avoidance

For projects in inland wetlands, the Massachusetts Wetlands Protection Act requires the issuing authority to consider the availability of reasonable alternatives as part of sequencing, for enumerated “limited projects.”¹⁰ 310 MASS. CODE REGS. 10.53. The Massachusetts Inland Wetlands Replication Guidelines clarify that the sequence must be applied as a series of steps, beginning with avoidance. Massachusetts Department of Environmental Protection, *Massachusetts Inland Wetland Replication Guidelines*, Bureau of Resource Protection Wetlands and Waterways Program, March 2002.

For proposed projects¹¹ in the riverfront area the applicant must prove by a preponderance of the evidence that there are no practicable and substantially equivalent economic alternatives to the proposed project with less adverse effects on the interests elaborated in the statute.¹² 310 MASS. CODE REGS. 10.58(4)(C), 10.58(4)(C)(3), 10.58(6). An alternative is practicable and substantially equivalent economically if it is available and capable of being done after taking into consideration costs, existing technology, proposed use, and logistics, in light of overall project purposes. MASS. GEN. LAWS ch. 131, § 40; 310 MASS. CODE REGS. 10.58(4)(C)(1). Available and capable of being done means the alternative is obtainable and feasible. 310 MASS. CODE REGS. 10.58(4)(C)(1). The four factors to be considered are costs, existing technology, the proposed use, and logistics. MASS. GEN. LAWS ch. 131, § 40; 310 MASS. CODE REGS. 10.58(4)(C)(1)(a-d). Finally, the scope of alternatives that must be considered can change depending on the type and size of the project. MASS. GEN. LAWS ch. 131, § 40; 310 MASS. CODE REGS. 10.58(C)(2).

Minimization

Along with alternatives and mitigation measures, the issuing authority is required to consider the extent to which adverse impacts of proposed “limited projects” are minimized when it issues the order of conditions for projects in inland wetlands. 10 MASS. CODE REGS. 10.53(3).

Michigan

Avoidance

As a state that has been delegated the administration of the federal CWA § 404 program, Michigan’s law and regulations must meet the federal standards.¹³ Under Michigan’s Wetland Protection Act regulations, in determining whether a permit for a regulated activity in a wetland should be granted the department of environmental management must consider whether feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity are available. MICH. STAT. § 324.30311(2)(b). The department shall not issue a permit unless the applicant shows either that the proposed activity is water dependent or that there is no feasible and prudent alternative. MICH. STAT. § 324.30311(4); MICH. ADMIN CODE R. 281.922a(2), (6). If an activity is not primarily dependent upon being located in the wetland, it is presumed that a feasible and prudent alternative exists and that such an alternative will have less adverse impact on aquatic resources. MICH. ADMIN CODE R. 281.922a(7), (8).

An activity is primarily dependent upon being located in a wetland only if the activity requires a location within the wetland and wetland conditions to fulfill its basic purpose. MICH. ADMIN CODE R. 281.922a(5). The applicant is required to define the purpose for which the permit is sought, but the department must independently evaluate if it has been appropriately and adequately defined and shall process the application based on the department’s determination. MICH. ADMIN CODE R. 281.922a(4). The applicant must not define the purpose so narrowly that the alternatives analysis is limited. MICH. ADMIN CODE R. 281.922a(4). An alternative is feasible and prudent if it is available and capable of being done after taking into consideration cost, existing technology, and logistics and if it would have less adverse impact on the aquatic resources. MICH. ADMIN CODE R. 281.922a(6). This includes areas not presently owned by the permit applicant that could reasonably be obtained, expanded, or managed in order to fulfill the basic purpose of the proposed activity. MICH. ADMIN CODE R. 281.922a(9). An alternative may also be considered feasible and prudent even if it does not accommodate incidental components of the project or if it entails higher costs or reduced profits, if determined to be reasonable by the department. MICH. ADMIN CODE R. 281.922a(10),(11).

Minimization

Michigan regulations state that prior to considering mitigation, the department must make an alternatives determination and determine that the applicant has used all practical means to minimize impacts to wetlands, which may include protection of wetlands on the site not impacted by the proposed activity. MICH. ADMIN CODE R. 281.925(2).

Minnesota

Avoidance

Minnesota requires applicants to show efforts to avoid wetlands. MINN. R. 8420.0100; Minnesota Board of Soil and Water Resources, *Wetland Regulation in Minnesota*, at <http://www.bwsr.state.mn.us/wetlands/publications/wetlandregulation2.html> (last visited May 1, 2007). In order to drain or fill wetlands an applicant must have an approved replacement plan. MINN. STAT. § 103G.222(1)(a); MINN. R. 8420.0510(1). The local government unit may not approve a wetlands replacement plan unless it finds that the applicant has complied with the replacement principles. MINN. R. 8420.0520(1). Replacement is guided, first by the principle of avoiding the impact, then by minimizing the impact, then rectifying, reducing, and compensating. MINN. STAT. § 103G.222(1)(b). Minnesota clarifies that avoidance, minimization and replacement are a sequence. MINN. R. 8420.0100, 8420.0102. Applicants may also apply for a preliminary sequencing determination before preparing a replacement plan. MINN. R. 8420.0520(3).

The sequencing requirement can be altered if the wetland has been degraded to the point where replacement would result in a gain in public value; if preservation of the wetlands would result in a degradation to its ability to function because of surrounding land uses; or if the only feasible and prudent site for replacement has greater ecosystem function. MINN. R. 8420.0520(7a)(B). Sequencing flexibility can only be implemented if alternative sites have been considered and the proposed replacement wetland is certain to provide equal or greater functions and public values as determined based on a functional assessment reviewed by the technical evaluation panel using a methodology approved by the board. MINN. R. 8420.0520(7a)(A).

Unless the local government determines that the project is wetland dependent the applicant must provide an alternatives analysis. MINN. R. 8420.0520(3). A project is wetland dependent if wetland features, functions, or values are essential to fulfill the basic project purpose. MINN. R. 8420.0520(3)(B)(1).

The local government unit must find that the applicant's alternatives analysis is done in good faith. MINN. R. 8420.0520(3)(C)(1). The local government determines whether any proposed feasible and prudent alternatives are available that would avoid impacts to wetlands. MINN. R. 8420.0520(3)(C)(2). An alternative is feasible and prudent if it: 1) is capable of being done from an engineering point of view; 2) is in accordance with accepted engineering standards and practices; 3) is consistent with reasonable requirements of public health, safety, and welfare; 4) is an environmentally preferable alternative based on a review of social, economic, and environmental impacts; and 5) would create no "truly unusual" problems.

The local government must also determine that there are no environmentally preferable alternatives that would avoid the impact for proposals in type 3,¹⁴ type 4,¹⁵ and type 5¹⁶ wetlands. MINN. R. 8420.0520(3)(C)(3).

In evaluating alternatives, the local government unit shall consider several enumerated factors. MINN. R. 8420.0520(3)(C)(4). It must consider whether the basic project purpose can be reasonably accomplished using one or more other sites in the same general area that would avoid wetland impacts. MINN. R. 8420.0520(3)(C)(4)(a). An alternative site may not be excluded only because it includes or requires an area not owned by the applicant that could reasonably be obtained, used, expanded, or managed to fulfill the basic purpose of the proposed project. MINN. R. 8420.0520(3)(C)(4)(a). The government shall consider the general suitability of alternative sites considered by the applicant and whether reasonable modification of the size, scope, configuration, or density of the project would avoid impacts to wetlands. MINN. R. 8420.0520(3)(C)(4)(b,c). It shall also consider efforts by the applicant to accommodate or remove constraints on alternatives imposed by zoning standards or infrastructure, including requests for conditional use permits, variances, or planned unit developments

and the physical, economic, and demographic requirements of the project. MINN. R. 8420.0520(3)(C)(4)(d, e). Economic considerations alone do not make an alternative not feasible and prudent. MINN. R. 8420.0520(3)(C)(4)(e).

If the local government unit determines that a feasible and prudent alternative exists that would avoid impact to wetlands it shall deny the replacement plan. MINN. R. 8420.0520(3)(C)(5).

Minimization

The second principle that must be applied in approving replacement plans is whether the applicant has minimized the impact by limiting the degree or magnitude of the wetland activity or its implementation. MINN. STAT. § 103G.222(1)(b)(2). The applicant must demonstrate to the government unit's satisfaction that the activity will minimize impacts to wetlands and the government must consider the spatial requirements of the project, factors that dictate the placement or configuration of the project, the purpose of the project, the sensitivity of the design to features of the site, the value, function, and spatial determination of the wetlands on the site, individual and cumulative impacts. MINN. R. 8420.0520(4)(A). Further, the government must consider the applicant's efforts to modify the size, scope, configuration, or density of the project; remove or accommodate site constraints; confine impacts; and otherwise minimize impacts. MINN. R. 8420.0520(4)(A)(7). If the applicant fails to amend a proposal to satisfy the local government within 30 days of a finding of failing to comply with the minimization requirements, the statement of objections shall constitute a denial. MINN. R. 8420.0520(4)(B).

New Hampshire

For approval of an application to alter wetlands, New Hampshire requires that applicants provide evidence demonstrating that potential impacts have been avoided to the maximum extent practicable and that unavoidable impacts are minimized. N.H. CODE ADMIN. RULE [ENVT-WT] 302.03 (a). "Practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. N.H. CODE ADMIN. RULE [ENVT-WT] 101.68. Compensatory mitigation is required to address impacts that remain

after avoidance and minimization measures have been addressed. N.H. CODE ADMIN. RULE [ENVT-WT] 302.03(b). Applicants must demonstrate by plan and example that the alternative proposed is the one with the least impact to wetlands. N.H. CODE ADMIN. RULE [ENVT-WT] 302.04(a)(2).

For minimum impact projects, the applicant must demonstrate by plan and example that he has considered whether there are alternatives with less wetland impacts. N.H. CODE ADMIN. RULE [ENVT-WT] 302.04(b). For any projects in wetlands, if there is a practicable alternative that would have less adverse impact on the area and environments under the jurisdiction, the department shall not grant the permit. N.H. CODE ADMIN. RULE [ENVT-WT] 302.04(c).

New Jersey Freshwater Wetlands

As a state that has been delegated the administration of the federal CWA § 404 program, New Jersey's law and regulations must meet the federal standards.¹⁷ In order to get a freshwater wetlands permit to engage in regulated activity in a freshwater wetland, applicants must avoid and minimize; the two requirements are bound together. New Jersey clearly states that compensatory mitigation is to be considered after the alternatives analysis and other steps in approving the permit. N.J. ADMIN. CODE § 7:7A-7.1(b).

There is a rebuttable presumption that there are practicable alternatives to non-water-dependent projects that do not involve wetlands, and that would have less of an impact on the aquatic ecosystem. N.J. STAT. § 13:9B-10(a); N.J. ADMIN. CODE § 7:7A-7.4. Practicable alternatives are available and capable of being carried out after taking into consideration cost, existing technology, and logistics in light of overall project purpose, and may include an area not owned by the applicant which could reasonably have been or be obtained, utilized, expanded, or managed in order to fulfill the basic purpose of the proposed activity. N.J. STAT. § 7:7A-1.4; N.J. ADMIN. CODE §§ 7:7A-7.2(b), 13:9B-10(a). In considering cost to determine if an alternative is practicable, the department shall consider the acquisition history of the property as a whole, and the amount, nature, and date of investment that the applicant has made in the property as a whole. N.J. ADMIN. CODE § 7:7A-7.2(c)(1)(i). An alternative shall not be excluded from consideration under this provi-

sion merely because it includes or requires an area not owned by the applicant. N.J. ADMIN. CODE § 7:7A-7.2(c)(2).

The applicant can rebut these presumptions by demonstrating that the basic project purpose cannot reasonably be accomplished using another site in the general region, that an alternative design would not accomplish the basic purpose of the project, and that the applicant has made reasonable attempts to remove or accommodate constraints such as inadequate zoning. N.J. STAT. § 13:9B-10(b); N.J. ADMIN. CODE 7:7A-7.4(c). In order to receive a permit for a regulated activity in a wetland of exceptional resource value, the applicant must also demonstrate a compelling public need for the proposed activity greater than the need to protect the wetland that cannot be met by other projects or that denial of the permit would impose an extraordinary hardship on the applicant. N.J. STAT. § 13:9B-10(c); N.J. ADMIN. CODE § 7:7A-7.5(a).

In the application, the applicant must include the basic purpose of the proposed activity, including whether it is water dependent. N.J. STAT. § 7:7A-10.6(a)(1). Water dependent is defined as an activity that cannot physically function without direct access to the body of water along which it is proposed. N.J. STAT. § 7:7A-1.4. An activity that can function on a site not adjacent to the water is not considered water dependent regardless of the economic advantages that may be gained from a waterfront location. N.J. STAT. § 7:7A-1.4. The applicant must include an alternatives analysis including a description of all alternatives considered that could minimize impacts and the reasons for rejecting each, that allows the department to evaluate all potential alternatives. N.J. STAT. § 7:7A-10.6(b). The applicant must also describe ways to minimize the impacts of the project. N.J. STAT. § 7:7A-10.6(b)(3).

The department will only issue the permit if the regulated activity has no practicable alternative which would have a less adverse impact on the aquatic ecosystem or would not involve freshwater wetlands and would not have other significant adverse environmental consequences. N.J. ADMIN. CODE § 7:7A-7.2(b).

New Jersey Tidal and Estuarine Wetlands

As a state that has been delegated the administration of the federal CWA § 404 program, New Jersey's law and regulations must meet the federal standards.¹⁸ For wetlands not regulated under the Freshwater Wetlands Act, New Jersey's Coastal Zone Management Rules require avoidance in the form of an alternatives analysis and minimization of certain impacts. N.J. ADMIN. CODE § 7:7E-3.27(c). In order to issue a permit for development in a coastal wetland, the DEP must find that the proposed development is water dependent, has no prudent or feasible alternative on a non-wetland site, and will result in minimum feasible alteration or impairment of natural tidal circulation, contour, or natural vegetation. *Id.* Water dependent means development that cannot physically function without direct access to the body of water along which it is proposed. N.J. ADMIN. CODE § 7:7E-1.8(a). The regulation further explains the term water dependent, gives a test, and examples of activities that are or are not water dependent. *Id.*

New York Freshwater Wetlands

Avoidance

The New York Freshwater Wetlands Act requires that the applicant for a regulated activity on mapped¹⁹ inland wetlands or adjacent areas²⁰ avoid and minimize impacts, before proposing compensatory mitigation, as part of the permit application process.²¹ *Freshwater Wetlands Permit Program: Application Procedures*, New York Department of Environmental Conservation *available at* <http://www.dec.ny.gov/permits/6277.html>. The proposed activity must be the only practicable alternative that could accomplish the applicant's objectives and have no practicable alternative on a site that is not a freshwater wetland or adjacent area. N.Y. COMP. CODES R. & REGS. TIT. 6, § 663.5(e)(2). A proposed activity is the only practicable alternative if no other is physically or economically feasible. N.Y. COMP. CODES R. & REGS. TIT. 6, § 663.5(f)(2).

The applicant has the burden of demonstrating that the proposed activity will be in accord with the policies and provisions of the Freshwater Wetlands Protection Act. N.Y. ENVTL. CONSERV. § 24-0703(4).

Minimization

In New York, applicants for regulated activities in delineated wetlands must²² minimize degradation to, or loss of, any part of the wetland or its adjacent area and must minimize any adverse impacts on the functions and benefits that the wetland provides. N.Y. COMP. CODES R. & REGS. TIT. 6, § 663.5(e)(2).

New York Tidal Wetlands

The New York Tidal Wetlands Act requires a permit to conduct a regulated activity in tidal wetlands. N.Y. ENVTL. CONSERV. § 25-0401; N.Y. COMP. CODES R. & REGS. TIT. 6, § 661.8. An applicant must avoid or minimize impacts to the wetland. New York State Department of Environmental Conservation, *Tidal Wetlands Program: Application Procedures*, available at www.dec.ny.gov/permits/6357.html. While the regulations do not specify the order, by practice, New York's tidal wetland program requires avoidance and minimization prior to considering mitigation.²³ The applicant must prove that the proposed activity is reasonable and necessary, taking into account such factors as reasonable alternatives to the proposed regulated activity and the degree to which the activity requires water access or is water dependent. N.Y. COMP. CODES R. & REGS. TIT. 6, § 661.9. The applicant determines the project purpose and must also provide a statement as to the feasible alternatives to the proposed activity on a site that is not tidal wetlands or adjacent area or by means that do not affect tidal wetlands. N.Y. COMP. CODES R. & REGS. TIT. 6, § 661.12.

North Carolina

North Carolina requires permits for discharges from regulated activities that will impact isolated wetlands not regulated under Section 404 of the federal Clean Water Act. 15A N.C. ADMIN. CODE 02H.1301. In order to issue such a permit, the agency must determine that the activity has no practical alternative and will minimize adverse impacts. 15A N.C. ADMIN. CODE 02H.1305(d).

To find a lack of practical alternatives, the applicant must demonstrate that the basic project purpose cannot practically be accomplished in an economically viable manner which would avoid or result in less adverse impact to wetlands, considering the potential for reducing the size, configuration, or

density or alternatives designs for the project. 15A N.C. ADMIN. CODE 02H.1305(e). To demonstrate minimization of discharges, the applicant must show that any remaining isolated classified surface waters or wetlands are able to continue to support the existing uses after project completion or that the discharges were required due to the particular requirements of the project or the location. 15A N.C. ADMIN. CODE 02H.1305(f).

Ohio

Avoidance

Ohio's Isolated Wetlands Permitting program applies to wetlands that are not regulated under the Federal Clean Water Act. OHIO REV. CODE § 6111.02(F). Ohio has incorporated mitigation sequencing requirements into its antidegradation rule for wetlands.²⁴ OHIO ADMIN. CODE § 3745-1-54(D).

For category 1²⁵ wetlands, the applicant must demonstrate that there is no practicable alternative which would have less adverse impact on the wetland ecosystem. OHIO ADMIN. CODE § 3745-1-54 (D)(1)(a)(i). For category 2²⁶ and category 3²⁷ wetlands, the applicant must show there is no practicable alternative, based on technical, social and economic criteria, which would have less adverse impact on the wetland ecosystem, so long as the alternative does not have other significant adverse environmental impacts as determined through an off-site and on-site alternatives analysis. OHIO ADMIN. CODE §§ 3745-1-54(D)(1)(b)(i), 3745-1-54(D)(1)(c)(i). Less damaging upland alternatives are presumed to be available for category 2 and category 3 wetlands, unless clearly demonstrated otherwise. OHIO ADMIN. CODE §§ 3745-1-54 (D)(1)(b)(i), 3745-1-54(D)(1)(c)(i).

Alternatives analysis is defined as a systematic review and evaluation of practicable alternatives including avoidance, minimization, and/or compensatory mitigation for impacts to a wetland. OHIO ADMIN. CODE § 3745-1-50(A). Avoidance is defined as the first step in the alternatives analysis and means that the applicant must demonstrate that alternatives which fulfill the basic project purpose and have less impacts to the wetland are not practicable, so long as the alternative does not have any other significant adverse environmental consequences. OHIO ADMIN. CODE § 3745-1-

50(C). The Ohio code defines practicable as available and capable of being executed with existing technology and without significant adverse impacts on the economic feasibility of the project in light of overall project purposes and in consideration of the relative environmental benefit. OHIO REV. CODE § 6111.02(K). The regulations define practicable as available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall and basic project purposes. OHIO ADMIN. CODE § 3745-1(GG). The regulations further state: available means an alternative which is obtainable for the purpose of the project; basic project purpose means the generic function of the project; and overall project purpose means the basic project purpose plus consideration of costs and technical and logistical feasibility. OHIO ADMIN. CODE § 3745-1(GG).

Minimization

Minimization is defined as the step in the alternatives analysis when unavoidable impacts are reduced to the maximum extent practicable. OHIO ADMIN. CODE § 3745-1(W). For category 1 wetlands, the applicant must demonstrate that storm water and water quality controls will be installed. OHIO ADMIN. CODE § 3745-1-54 (D)(1)(a)(ii). For category 2 and category 3 wetlands, the applicant must show that appropriate and practicable steps have been taken to minimize potential adverse impacts on the wetlands ecosystem. OHIO ADMIN. CODE §§ 3745-1-54 (D)(1)(b)(ii), 3745-1-54(D)(1)(c)(ii). For category 2 and category 3 wetlands, the applicant shall minimize all potential adverse impacts foreseeable caused by the project and each application shall include an evaluation of: the spatial requirements of the project; the location of existing structural or natural features that may dictate the placement or configuration of the proposed project; the overall and basic purpose of the project and how the purpose relates to the placement, configuration or density of the project; and the sensitivity of the site design to the natural features of the site, including topography, hydrology, and existing flora and fauna; and direct and in-direct impacts. OHIO ADMIN. CODE §§ 3745-1-54(D)(1)(b)(ii), 3745-1-54(D)(1)(c)(ii).

Oregon

1. Avoidance

Oregon requires an alternatives analysis for both the wetland planning and permitting processes. The permitting process also includes avoidance and minimization. Wetland areas may only be designated for development if practicable, less damaging alternatives, including alternative locations, are not available. OR. REV. STAT. § 196.681(c). Individual permits are required for removal or fill in areas subject to a wetland conservation plan and such permits may only be issued if the Department of State Lands ensures that the project is properly designed to minimize the need for alterations to waters of the state and to minimize impacts. OR. REV. STAT. § 196.682. The applicant must include a description of the purpose and need of the project and an alternatives analysis that evaluates all practicable methods to minimize and avoid impacts such as impeding flow, increasing flow, relocating water, or causing flooding. OR. REV. STAT. § 196.25(11)(b)(F); OR. ADMIN. R. §§ 141-085-0025(3)(e),(g). A practicable alternative is one that is capable of being done and is on a site that is available to the applicant (could reasonably be obtained, utilized, expanded, or managed). OR. ADMIN. R. § 141-085-0025(3)(j). Practicable is defined as capable of being accomplished after taking into consideration the cost, existing technology and logistics with respect to the overall project purpose. OR. REV. STAT. § 196.800 (11); OR. ADMIN. R. § 141-085-0010(166). The alternatives analysis requirement standard is lower for projects in waters with limited aquatic life and habitats and limited navigation, fishing, and public recreation, that are small in size, or that only cause temporary impacts. *Id.*

The department must evaluate information submitted by the applicant and conduct its own investigation to determine that the project is the practicable alternative with the least adverse effects on water resources and navigation, fishing, and public recreation uses. OR. ADMIN. R. § 141-085-0029. The department must consider the availability of practicable alternatives to the project, the availability of alternative sites, and whether the applicant has provided all practicable mitigation. OR. REV. STAT. § 196.825(3). This mitigation requirement includes considering appropriate

steps to mitigate—avoid, minimize, rectify, reduce, or compensate—reasonably expected adverse impacts on the above-mentioned resources. OR. ADMIN. R. § 141-085-0029(7). Oregon emphasizes that mitigation is a sequential process. OR. REV. STAT. § 196.800 (10); OR. ADMIN. R. § 141-085-0010(129); Oregon Department of State Lands Wetlands Program, *Just the Facts... About Compensatory Mitigation for Wetland Impacts*, (Nov. 2004). In this determination the department will consider the type, size, and relative cost of the project, the condition of the water resources, and navigation, fishing and public recreation uses as depicted in the application. OR. ADMIN. R. § 141-085-0029(5). The basic project purpose, logistics, use of available technology and what constitutes a reasonable project expense are the most relevant factors in determining the most practicable alternative, not the financial capabilities of the applicant. *Id.* The applicant bears the burden of providing the information necessary to make this determination. *Id.*

While no water-dependency determination is required under the Wetlands Program, all of the state's estuaries have comprehensive plans and zoning through the statewide planning program requirements and Oregon Coastal Management Program (OCMP). Those plans set water dependent use requirements for lands adjacent to estuaries. The removal-fill program is part of the OCMP so, in effect, Oregon cannot issue a fill permit for an area that is zoned for only water dependent uses. The effect of the estuary planning and zoning requirements is that Oregon rarely issues permits for work in estuaries. Personal Communication with Janet Morlan, Wetlands Program Manager, Oregon Division of State Lands (Oct. 2, 2007).

2. Minimization

If the department determines that the project cannot be accomplished without adverse impacts to water resources and/or navigation, fishing, and public recreation uses, the department shall then consider whether limiting the degree or magnitude of the removal fill and its implementation can minimize adverse impacts. OR. REV. STAT. § 196.682(d); OR. ADMIN. R. § 141-085-129(7)(b). This includes, for example, streambed stabilization technique, where feasible, suitable, and preferable. OR. ADMIN. R. § 141-085-129(7)(b). Minimizing is limiting the degree or magnitude of the action and its implementation. OR. REV. STAT. § 196.800(10).

Pennsylvania

Avoidance

Pennsylvania defines mitigation as the sequential process of avoiding, minimizing, and compensating for impacts to wetlands under a state or federal program. Commonwealth of Pennsylvania, Department of Environmental Protection, *Wetlands Net Gain Strategy*, App. C-3. In order to get a permit for a dam, water obstruction, or encroachment affecting an exceptional value wetland, the applicant must affirm and the department must find that the project is water dependent and that there is no practicable alternative. 25 PA. CODE § 105.18a(a).

For other wetlands, the department must find that adverse environmental impacts are avoided or reduced to the maximum extent possible and that there is no practicable alternative. 25 PA. CODE § 105.18(b). There is a rebuttable presumption that there is a practicable alternative to a non-water-dependent project which should have less adverse impact on the wetland. 25 PA. CODE § 105.18(b)(3)(i). To rebut the presumption, an applicant for a permit under this chapter shall demonstrate with reliable and convincing evidence and documentation, and the department will issue a written finding that the basic project purpose cannot be accomplished otherwise, and that a reduction in size, scope, configuration or density or alternative designs would not accomplish the basic purpose of the project. 25 PA. CODE § 105.18(b)(3)(ii).

An alternative is practicable if it is available and capable of being carried out after taking into consideration construction cost, existing technology and logistics. 25 PA. CODE §§ 105.18a(a)(3), 105.18a(b)(2). An area not presently owned by the applicant, which could reasonably be obtained, utilized, expanded, or managed to fulfill the basic purpose of the project shall be considered a practicable alternative. 25 PA. CODE §§ 105.18a(a)(3), 105.18a(b)(2).

In reviewing a permit for construction or substantial modification of a dam or reservoir, water obstruction or encroachment, the department will make a determination of impact, based on, among other factors, the extent to which the purpose of the project is water dependent. 25 PA. CODE § 105.14(b). Water depen-

dency is based on the demonstrated unavailability of any alternative location, route or design, and the use of location, route or design to avoid or minimize the adverse impact of project. 25 PA. CODE § 105.14(b)(7). A project is water dependent when it requires access or proximity to or siting within the wetland to fulfill the basic purposes of the project. 25 PA. CODE § 105.18a(a)(2).

Minimization of adverse impacts is part of the department's consideration of impacts in the permit review process. 25 PA. CODE § 105.14(b)(7).

Rhode Island

Avoidance

Rhode Island requires that any activity which may alter any freshwater wetlands be accompanied by a permit from the Department of Environmental Management. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 5.01. Applicants must demonstrate that all probable impacts to freshwater wetlands functions and values have been avoided to the maximum extent possible. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 10.02(D)(1). Applicants must consider and address the following factors: whether the primary proposed activity is water-dependent, or whether it requires access to freshwater wetlands as a central element of its primary purpose; whether areas on the same or other properties owned or controlled by the applicant, or reasonably available to the applicant, could be used to achieve the project purpose without altering any freshwater wetlands; whether alternative designs, layouts or technologies could be used to reduce impacts; whether the applicant has made any attempts to avoid alterations to freshwater wetlands; and whether feasible alternatives that would not alter the natural character of the the freshwater wetlands would adversely affect public health, safety, or environment. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 10.02(D)(1).

A property is reasonably available if, in whole or in part, it can be acquired without excessive cost, taking individual circumstances into account, or... may be obtained without excessive hardship. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 10.02(D)(1)(c). Identical avoidance and minimization requirements apply to applicants who request a preliminary deter-

mination. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 9.02(D)

If impacts cannot be avoided, the applicant must demonstrate that there the impacts have been reduced to the extent possible. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 10.02(D)(2). To meet the minimization requirement, applicants must consider and address the following: whether the scale of the project could be reduced and still meet the project purpose; whether the proposed project is necessary at the proposed location or whether another location within the site could meet the project purpose; whether there are feasible alternative designs that would still achieve the project purpose; and whether a reduction in the scale or a relocation of the proposed project could result in adverse consequences to public health, safety, or the environment. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 10.02(D)(2).

Reasonably available is defined as properties which, either in whole or in part, can be acquired without excessive cost, taking individual circumstances into account, or, in the case of property owned or controlled by the same family, entity, group of affiliated entities, or local, state or federal government, may be obtained without excessive hardship. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 10.02(D)(1)(c).

Rhode Island enumerates a long list of methods for avoiding or minimizing impacts when constructing on housing lots, wetland crossings, or subdivision. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. §§ 9.02(D)(3), 10.02(D)(2).

Applicants submitting an application to alter for a significant alteration (as opposed to simply a request for preliminary determination required for "insignificant alterations"²⁸) must meet the higher standards of documenting impacts and efforts to avoid, eliminate, or reduce impacts to certain enumerated review criteria. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. §§ 10.02.

Minimization

If all impacts cannot be avoided, applicants must demonstrate in writing that any probable impacts to wetlands have been reduced to the maximum extent possible. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 10.02(D). The regulations lay out consider-

ations the applicant must address to demonstrate that the proposed project meets or exceeds the review criteria. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. §§ 9.02(D)(2), 10.02(D). Applicants must consider and address whether the proposed scale, location, or design of the project could be altered and still meet the project purpose. *Id.* Rhode Island enumerates a long list of methods for avoiding or minimizing impacts. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 9.02(D)(3).

Tennessee

Tennessee requires an applicant for an aquatic resource alteration permit to design project proposals to avoid impacts, minimize them, or provide mitigation so that the project would result in no net loss. TENN. COMP. R. & REGS. §§ 12-4-7-.04(5)(a), 12-4-7-.04(6)(c). The applicant must assess the practicable alternatives for the planned activity with a brief summary in the application. TENN. COMP. R. & REGS. §§ 12-4-7-.01, 1200-4-.04(5)(a), 1200-4-.04(5)(b). Practicable alternative is defined as one that is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purpose. TENN. COMP. R. & REGS. § 12-4-7-.03(28).

Tennessee defines water-dependent activities as those that require location in or adjacent to surface waters or wetlands in order to fulfill its basic purpose. TENN. COMP. R. & REGS. § 12-4-7-.03(37). Minimization is required for any proposed activities that, including compensatory mitigation, will not result in no net loss, as described above.

Vermont

Vermont's Conditional Use Review Standards include avoidance and minimization, as part of a sequence. VT. WETLAND RULES § 8.5. Vermont presumes that any adverse effect other than a minimal impact, on any protected functions of wetlands is undue, and will deny the application, unless the mitigation standards are met. Vermont defines mitigation as avoidance, minimization, and where appropriate, compensation. VT. WETLAND RULES § 2.16. A conditional use that will have an adverse effect can only be permitted if the proposed activity cannot possibly be located outside the wetland or on another site owned, controlled,

or available to satisfy the basic project purpose. VT. WETLAND RULES § 8.5(b)(1). Further, practicable measures must be taken to avoid adverse impacts and if avoidance cannot practicably be achieved, the use must be planned to minimize adverse impacts on the protected functions. VT. WETLAND RULES §§ 8.5(b)(2), (b)(3).

Virginia

Avoidance

The State Water Control Act and Water Protection Permit regulations incorporate the federal Clean Water Act and Mitigation Sequencing Guidelines. VA. CODE § 62.1-44.15:5; 9 Va. Admin. Code § 25-210-115(A); *Guidance Memorandum No. 04-2007, DEQ Guidance on Avoidance and Minimization Impacts to State Waters*, (I), Commonwealth of Virginia Department of Environmental Quality Division of Water Quality, (Feb. 6, 2004). The applicant must demonstrate that practicable alternatives that meet the applicant's purpose have been evaluated, that the proposed activity is the least environmentally damaging²⁹ practicable alternative, and must document the project purpose and a mitigation plan with a narrative description of measures taken to first avoid and then minimize impacts. VA. CODE § 16.1-44.15:5(D), VA. ADMIN. CODE §§ 25-210-115(A), 25-210-80(B)(1)(e), 25-210-80(B)(k)(4); *Guidance Memorandum No. 04-2007, DEQ Guidance on Avoidance and Minimization Impacts to State Waters*, (II)(B), Commonwealth of Virginia Department of Environmental Quality Division of Water Quality, (Feb. 6, 2004). "Practicable" is defined as available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes. VA. ADMIN. CODE § 25-210-10. The regulations enumerate measures to avoid and minimize, including reducing the size, scope, configuration, or density of the proposed project. VA. ADMIN. CODE § 25-210-115(A). Virginia also applies the federal requirement to consider alternatives that are not presently owned by the applicant but which could reasonably be obtained, utilized, expanded or managed. *Guidance Memorandum No. 04-2007, DEQ Guidance on Avoidance and Minimization Impacts to State Waters*, (II)(B), Commonwealth of Virginia Department of Environmental Quality Division of Water Quality, (Feb. 6, 2004).

Water dependency

Virginia follows the federal requirements for water dependency, defining the term as activities that require access or proximity to or siting within the wetland to fulfill [the project's] basic purpose. *Guidance Memorandum No. 04-2007*, (II)(A), Commonwealth of Virginia Department of Environmental Quality Division of Water Quality, (Feb. 6, 2004). The agency must give full consideration to the applicant's stated purpose when making a water dependency determination and if the project is found to be non-water dependent, than the burden of showing that there is no practicable alternatives is higher. *Guidance Memorandum No. 04-2007*, (II)(A), Commonwealth of Virginia Department of Environmental Quality Division of Water Quality, (Feb. 6, 2004).

Minimization

As described above, Virginia requires minimization to the maximum extent practicable and provides measures for minimization. Virginia defines minimization as lessening impacts by reducing the degree or magnitude of the proposed action and its implementation, and requires it as the second step in the mitigation sequence. VA. ADMIN. CODE § 25-210-10. It provides minimization measures, described above. The Guidelines give further detail on methods for minimization including spatial or dimensional changes to structure lay-out, site-engineering changes, low impact development techniques, directional drilling, low pressure tires, converting impacts to temporary, and relocating construction staging. *Guidance Memorandum No. 04-2007, DEQ Guidance on Avoidance and Minimization Impacts to State Waters*, (II)(C)(1-2), Commonwealth of Virginia Department of Environmental Quality Division of Water Quality, (Feb. 6, 2004).

Wisconsin

Avoidance and minimization is one of the basic concepts of the new wetlands law in Wisconsin. Wisconsin DNR, *Wetland Compensatory Mitigation: Introduction*, at <http://www.dnr.state.wi.us/org/water/fhp/wetlands/mitigation/applicantguidance.shtml> (last visited May 30, 2007). Wisconsin requires a water quality certification for dredged or fill material discharged into a wetland that is not federally defined wetland. WIS. STAT. § 281.36(2)(a). The applicant must demonstrate that all appropriate and practicable measures will be taken to avoid and minimize adverse impacts on the wetland before the department may consider a mitigation proposal in reviewing the application. WIS. STAT. § 281.37(2)(b).

In deciding whether to certify a proposal, the department must consider whether it is wetland dependent, and consider practicable alternatives to the proposal which will avoid and minimize adverse impacts to the wetlands and will not result in other significant adverse environmental consequences. WIS. ADMIN. CODE [N.R.] § 103.08(3).

A certification may be issued if there are no practicable alternatives which would avoid adverse impacts, all practicable measures to minimize adverse impacts to the functional values of the affected wetlands have been taken, and, including mitigation, there will be no significant adverse impacts to wetland functional values, water quality or other significant adverse environmental impacts. WIS. ADMIN. CODE [N.R.] § 103.08(4)(a). If the activity is wetland dependent or the wetlands are below a certain size or of a certain type, the department can limit the scope of the alternatives analysis at a pre-application meeting. WIS. ADMIN. CODE [N.R.] § 103.08(4)(c).

Wisconsin defines practicable as "available and capable of being implemented after taking into account cost, available technology and logistics in light of overall project purposes." WIS. ADMIN. CODE [N.R.] § 350.03(23).

Notes

1. When an applicant is denied a permit the commissioner or the wetlands agency must propose the types of alternatives which the applicant may investigate, "provided this subdivision shall not be construed to shift the burden from the applicant to prove that he is entitled to the permit or to present alternatives to the proposed regulated activity." CONN. GEN. STAT. § 22a-41(b)(2).
2. "To give high priority and preference to uses and facilities which are dependent upon proximity to the water or the shorelands immediately adjacent to marine and tidal waters."
3. "Water-dependent uses' means those uses and facilities which require direct access to, or location in, marine or tidal waters and which therefore cannot be located inland, including but not limited to: Marinas, recreational and commercial fishing and boating facilities, finfish and shellfish processing plants, waterfront dock and port facilities, shipyards and boat building facilities, water-based recreational uses, navigation aides, basins and channels, industrial uses dependent upon water-borne transportation or requiring large volumes of cooling or process water which cannot reasonably be located or operated at an inland site and uses which provide general public access to marine or tidal waters." CONN. GEN. STAT. § 22a-92(a)(3).
4. When permitting the placement of pipes and cable, appropriate erosion and sedimentation controls are required to minimize impacts on water quality and the surrounding areas. CONN. AGENCIES REGS. § 22a-30-11(b)(4). For the erection of water-dependent and commercial facilities, the facilities must be designed to minimize the destruction of indigenous wetland vegetation. CONN. AGENCIES REGS. § 22a-30-11(b)(6)(C). Additionally for erection of water-dependent industrial and commercial facilities, there must be no feasible alternative for accomplishing the applicant's objective which further minimizes adverse impacts. CONN. AGENCIES REGS. § 22a-30-11(b)(6)(F).
5. Class II wetlands include isolated wetlands that are less than 50% disturbed, are not otherwise impaired as habitat or for hydrologic function, and rare and ecologically important wetlands that are more than 50% disturbed or are impaired for habitat or hydrologic function. IND. ADMIN. CODE TIT. 327 § 17-1-3 (2).
6. Class III wetlands include isolated wetlands that are at most minimally disturbed and support more than minimal habitat and hydrologic function or are a rare and ecologically important type. IND. ADMIN. CODE TIT. 327 § 17-1-3 (3).
7. This exception is not applied. Madore, *supra*, note 9.
8. Personal communication with Amanda Sigillito, Chief, Nontidal Wetlands and Waterways Division, Maryland Department of the Environment (Sept. 13, 2007).
9. *Id.*
10. Limited projects include an enumerated list of agricultural, public works, water front, water supply etc. activities. 310 MASS. CODE REGS. 10.53(3)(a – s). Sequence is discretionary for projects that propose to alter less than 5000 square feet of bordering vegetative wetlands. 310 MASS. CODE REGS. 10.55(4)(b).
11. This section does not apply to mosquito control, maintenance and improvement of agricultural, aquaculture land, cranberry bogs, or any project authorized by special act before 1973. MASS. GEN. LAWS ch. 131, § 40. Exceptions to the requirement to apply performance standards including the alternatives analysis include government public works projects in existence in 1996, work related to wastewater treatment plants, and minor activities identified in 310 MASS. CODE REGS. 10.02(2)(b)(1). 310 MASS. CODE REGS. 10.58(6).
12. MA lists the purposes for protection of the riverfront area. Mass. Gen. Laws ch. 131, §. None of the general performance standards apply when the applicant can show that the riverfront area does not play a role in the protection of water supply, groundwater, flood control, shellfish, wildlife habitat, fisheries or preventing storm damage or pollution. 310 MASS. CODE REGS. 10.58(3),(4).
13. 33 U.S.C § 1344(h); CWA § 404(h).
14. "Inland shallow fresh marshes in which soil is usually water-logged early during a growing season and often covered with as much as six inches or more of water. Vegetation includes grasses, bulrushes, spikerushes, and various other marsh plants such as cattails, arrowheads, pickerelweed, and smartweeds. These marshes may nearly fill shallow lake basins or sloughs, or may border deep marshes on the landward side and are also common as seep areas on irrigated lands". MINN. R. 8420.0110(54a)(C).
15. "Inland deep fresh marshes in which soil is usually covered with six inches to three feet or more of water during the growing season. Vegetation includes cattails, reeds, bulrushes, spikerushes, and wild rice. In open areas, pondweeds, naiads, coontail, water milfoil, waterweeds, duckweeds, water lilies, or spattedocks may occur. These deep marshes may completely fill shallow lake basins, potholes, limestone sinks, and sloughs, or may border open water in such depressions." MINN. R. 8420.0110(54a)(D).
16. "Inland fresh water, shallow ponds, and reservoirs in which water is usually less than ten feet deep and is fringed by a border of emergent vegetation similar to open areas of type 4 wetlands." MINN. R. 8420.0110(54a)(E).
17. 33 U.S.C § 1344(h); CWA § 404(h).
18. *Id.*
19. All freshwater wetland maps in New York are complete. N.Y. FRESHWATER WETLANDS PROTECTION ACT § 24-0703; N.Y. COMP. CODES R. & REGS. TIT. 6, § 663. Final maps can be amended following regulatory requirements. N.Y. FRESHWATER WETLANDS PROTECTION ACT § 24-0301(6); N.Y. COMP. CODES R. & REGS. TIT. 6, § 664.
20. Wetlands in Adirondack State Park are exempted from the permit requirements, as are activities regulated by the Public Service Law, and land-uses approved prior to 1975. N.Y. COMP. CODES R. & REGS. TIT. 6, § 663(m,n,o). Wetlands in the Adirondack Park are regulated separately. N.Y. FRESHWATER WETLANDS PROTECTION ACT §§ 24-0801 – 0805; N.Y. ADIRONDACK PARK AGENCY ACT § 27; N.Y. COMP. CODES R. & REGS. TIT. 6, § 664.
21. Localities may enact their own wetlands protection laws which must be as stringent as the New York Freshwater Wetlands Protection Act. N.Y. FRESHWATER WETLANDS PROTECTION ACT § 24-0501(1).
22. The minimization standard for Class IV (those which provide some wildlife and open space benefits and may provide other benefits) wetlands is "must make a reasonable effort to minimize degradation." N.Y. COMP. CODES R. & REGS. TIT. 6, § 663.5(e).
23. Personal communication with Roy Jacobson, NYS Department of Environmental Conservation Landscape Conservation Section Section Bureau of Habitat (Oct. 29, 2007).
24. Antidegradation rules apply to all proposed filling of isolated wetlands, though for proposed filling of smaller and lower quality (subject to level one or two review) the code requires consideration of alternatives on-site. OHIO REV. CODE §§ 6111.022(C), 6111.023(B), 6111.024(B)(2).

25. (a) Wetlands assigned to category 1 support minimal wildlife habitat, and minimal hydrological and recreational functions as determined by an appropriate wetland evaluation methodology acceptable to the director. Wetlands assigned to category 1 do not provide critical habitat for threatened or endangered species or contain rare, threatened or endangered species. (b) Wetlands assigned to category 1 may be typified by some or all of the following characteristics: hydrologic isolation, low species diversity, a predominance of non-native species (greater than fifty per cent areal cover for vegetative species), no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions. (c) Wetlands assigned to category 1 may include, but are not limited to, wetlands that are acidic ponds created or excavated on mined lands without a connection to other surface waters throughout the year and that have little or no vegetation and wetlands that are hydrologically isolated and comprised of vegetation that is dominated (greater than eighty per cent areal cover) by species including, but not limited to: *Lythrum salicaria*; *Phalaris arundinacea*; and *Phragmites australis*. OHIO ADMIN. CODE § 3745-1-54(C)(1).

26. (a) Wetlands assigned to category 2 support moderate wildlife habitat, or hydrological or recreational functions as determined by an appropriate wetland evaluation methodology acceptable to the director or his authorized representative. (b) Wetlands assigned to category 2 may include, but are not limited to: wetlands dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions. OHIO ADMIN. CODE § 3745-1-54(C)(2).

27. (a) Wetlands assigned to category 3 support superior habitat, or hydrological or recreational functions as determined by an appropriate wetland evaluation methodology acceptable to the director or his authorized representative. (b) Wetlands assigned to category 3 may be typified by some or all of the following characteristics: high levels of diversity, a high proportion of native species, or high functional values. (c) Wetlands assigned to category 3 may include, but are not limited to: wetlands which contain or provide habitat or threatened or endangered species; high quality forested wetlands, including old growth forested wetlands, and mature forested riparian wetlands; vernal pools; and wetlands which are scarce regionally and/or statewide including, but not limited to, bogs and fens. OHIO ADMIN. CODE § 3745-1-54(C)(3).

28. R.I. FRESHWATER WETLANDS ACT RULES AND REGS. § 9.01(B)(1).

29. The standard requires the proposed activity is the least environmentally damaging to water quality and fish and wildlife resources. VA. ADMIN. CODE § 25-210-115(A).

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