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Legal Research Digests are issued to provide early awareness and encourage application of research results emanating from NCHRP Project 20-6, "Legal Problems Arising Out of Highway Programs." These Digests contain supplements and new papers that are periodically compiled as addenda to the treatise, *Selected Studies in Highway Law*, published by the Transportation Research Board.

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Highways and the Environment: Resource Protection and the Federal Highway Program

A report prepared under NCHRP Project 20-6, "Legal Problems Arising Out of Highway Programs," for which the Transportation Research Board is the agency conducting the research. The report was prepared by Michael C. Blumm. James B. McDaniel, TRB Counsel for Legal Research, was the principal investigator and content editor.

THE PROBLEM AND ITS SOLUTION

State highway departments and transportation agencies have a continuing need to keep abreast of operating practices and legal elements of specific problems in highway law. This report is a new paper, which continues NCHRP's policy of keeping departments up-to-date on laws that will affect their operations.

This paper will be published in a future addendum to *Selected Studies in Highway Law* (SSHL). Volumes 1 and 2 deal primarily with the law of eminent domain and the planning and regulation of land use. Volume 3 covers government contracts. Volume 4 covers environmental and tort law, inter-governmental relations, and motor carrier law. An expandable format permits the incorporation of both new topics as well as supplements to published topics. Updates to the bound volumes are issued by addenda. The 5th Addendum was published in November 1991. Addenda are published on an average of every three years. Between addenda, legal research digests are issued to report completed research. Presently the text of SSHL totals over 4,000 pages comprising 75 papers.

Copies of SSHL have been sent, without charge, to NCHRP sponsors, certain other agencies, and selected university and state law libraries. The officials receiving complimentary copies in each state are the Attorney General and the Chief Counsel and Right-of-Way Director of the highway agency. Beyond this initial distribution, the 4-volume set is for sale through the Transportation Research Board ($185.00).

APPLICATIONS

The foregoing research should provide reference material for use by transportation department administrators, planners, design and construction engineers, environmental specialists, right-of-way officials, and attorneys. The interaction between the Federal-Aid Highway Program and laws, which provide protection for the environment—both directly and indirectly—are topics of paramount concern to federal, state, and local transportation officials. Environmentally oriented restrictions on acquisitions, construction, and expansions of transportation facilities are hurdles that confront most planners and chief engineers on these projects.

Resource Protection and the Federal Highway Program focuses on the following: the current relationship between the Federal-Aid to Highway Programs and federal laws, regulations, and policies that protect wetlands, parklands, floodplains, and other natural resources; how a well-planned program can and should accommodate statutory environmental safeguards; and the use of mitigation measures.

This report does not discuss, at length, the National Environmental Policy Act, which was analyzed by *Legal Research Digest (LRD) No. 15,* "The Application of NEPA to Federal Highway Projects" (by Daniel R. Mandelker and Gary Feder) or The Clean Air Act, which will be the subject of a separate LRD scheduled to be published in early 1995.

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Highways and the Environment: Resource Protection and the Federal Highway Program

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INTRODUCTION

The Federal-Aid Highway Program (FAHP) supplies federal funding for highway construction and maintenance for some 920,000 miles of roads.[1] Although this constitutes only about 25 percent of the nation's total road mileage,[2] more than 80 percent of annual vehicle-miles traveled occur on FAHP roads.[3]

Congress substantially revised FAHP in 1991 when it enacted the Intermodal Surface Transportation Efficiency Act (ISTEA).[4] In addition to authorizing $121 billion for FAHP during 1992–97,[5] ISTEA expanded eligible highway projects to include both highway maintenance and congestion-alleviation projects.[6] States have always played a dominant role in FAHP,[7] and ISTEA increased state flexibility to decide whether to spend FAHP funds on highway construction, maintenance, or congestion alleviation.[8] ISTEA did not, however, relieve states from complying with all applicable federal environmental laws and regulations.[9] Thus, state highway officials must continue to ensure that their FAHP-funded projects satisfy a complicated array of federal environmental requirements.

This report includes discussion of most of the major environmental laws that affect the location, construction, and operation of federal-aid highways. It focuses especially on the laws protecting sensitive areas such as park lands, wetlands, floodplains, coastal zones, and federal land reserves, but it also considers the effects of laws of general applicability, like the Clean Water Act, the Safe Drinking Water Act, and the Endangered Species Act.[10] A final section examines how highways can be designed, constructed, and operated to minimize their impacts on sensitive environmental resources.

PARK LAND LAW

Aside from the National Environmental Policy Act (NEPA),[11] the most frequently litigated environmental statute in the federal highway context is Section 4(f) of the Department of Transportation (DOT) Act,[12] which prohibits DOT from using certain types of land (primarily publicly owned parks) for the construction of highway projects unless there is "no prudent and feasible alternative."[13] For example, between 1985 and 1987, there were 40 lawsuits filed against the Federal Highway Administration (FHWA) alleging violations of environmental statutes. Of those, 39 contained claims arising under NEPA or Section 4(f), or both.[14] The historical development of Section 4(f), the implementation of the statute by FHWA, and the judicial interpretations that have augmented the scope and force of the provision will be briefly examined in this section. Courts have played an instrumental role in creating a formidable set of substantive requirements on FHWA under Section 4(f), particularly by imposing a "constructive use" doctrine and the requirement of a "no action" alternative analysis.

A. Section 4(f) Provisions

In enacting Section 4(f), Congress declared as national policy that "special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."[15] To that end, the statute authorizes the secretary of transportation to approve a transportation project requiring the use of such land only if (1) there is no "prudent and feasible alternative to using that land," and (2) the program or project includes "all possible planning to minimize harm" to the park, refuge, or historic site.[16]

The watershed judicial interpretation of Section 4(f) occurred in the 1971 case *Citizens to Preserve Overton Park, Inc. v. Volpe*.[17] In *Overton Park*, the Supreme Court used Section 4(f) to overturn the secretary of transportation's approval of a six-lane expressway through a public park in downtown Memphis, Tennessee. First, the Court noted that the language of Section 4(f) amounts to a "plain and explicit bar to the use of federal funds for construction of highways through parks" and that the statute allows for exceptions to be granted only in "the most unusual situations."[18] Recognizing that it would always be less costly and less disruptive to use park lands instead of private lands for transportation projects, the Court held that in order to do so under Section 4(f), the secretary must show that the rejected alternatives would require costs or community disruption of "extraordinary magnitudes" or would present "unique problems."[19]

In the wake of *Overton Park*, federal courts have broadly interpreted the language of Section 4(f), especially regarding the requirement that there be a "use" of park land. At the same time, FHWA has modernized its Section 4(f) procedures in response to the barrage of litigation the statute has engendered.

B. Threshold Requirements—What Is "Use" and What Resources Are Protected?

Section 4(f) is triggered by proposed transportation projects that will involve the actual or constructive use of a publicly owned park, recreation area, wildlife or waterfowl refuge, or historic site.[20] There are several judicial and administrative interpretations of these two threshold requirements.

1. Actual Use of Protected Land

In *Overton Park*, there was no question that the proposed highway would have made a "use" of the park land it was intended to traverse, thereby invoking the protection afforded by Section 4(f). Indeed, it is beyond dispute that Section 4(f) applies to any highway project that proposes a physical taking of any portion of protected land. For example, in *Louisiana Environmental Society, Inc. v. Coleman*,[21] the Fifth Circuit held that the statute did not call for any consideration of whether or not a proposed actual use would be substantial; rather, Congress intended Section 4(f) to apply whenever park land was to be used, and therefore "any park use, regardless of its degree, invokes § 4(f)."[22] FHWA regulations recognize that for Section 4(f) purposes, "use" occurs "(1) When land is permanently incorporated into a transportation facility; (2) When there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes...or (3) When there is a constructive use of land."[23]

2. Constructive Use of Protected Land

More contentious than the issue of what constitutes actual use of park land have been the circumstances under which the effect of a transportation project amounts to "constructive use" of the protected lands sufficient to trigger Section 4(f).[24] Constructive use occurs where there is no actual taking of park lands, but the proposed project will nonetheless cause adverse impacts on neighboring property that is protected by Section 4(f).[25] The constructive-use doctrine initially emerged out of judicial decisions of the *Overton Park* era, which gave broad interpretation to the statute's "use" requirement by applying Section 4(f) to projects that bordered on protected lands.[26] Since that time, the doctrine has been both incorporated into FHWA 4(f) regulations[27] and expanded further by the courts.

The FHWA regulations recognize constructive use as occurring where "the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under section 4(f) are substantially impaired."[28] Thus, FHWA requires "substantial impairment" for a nonphysical taking of park land to trigger the statute.[29] Also, like FHWA's categorical inclusions and exclusions under NEPA,[30] FHWA has identified certain situations under which the constructive use doctrine of Section 4(f) categorically does or does not occur.[31]

The FHWA regulations also define constructive use as including "substantial impairment" of resources protected by Section 4(f) as a result of noise levels, vibration impact, restrictions on access, or "ecological intrusion."[32] On the other hand, FHWA identifies numerous situations where there is presumptively no constructive use, such as where (1) noise impacts would not exceed certain specified levels, (2) a project is approved or a right of way acquired before the affected property is designated to be protected by Section 4(f), or (3) a proposed project is concurrently planned with a park or recreation area.[33]

After the Ninth Circuit found a constructive use of Section 4(f) property in *Brooks v. Volpe*,[34] other courts followed, applying the constructive-use doctrine to a variety of situations where there would be no actual physical intrusion of protected land by the proposed highway project. For example, in *Monroe County Conservation Council v. Adams*,[35] the Second Circuit ruled that a proposed six-lane highway that would adjoin a public park constituted constructive use because the park would become "subject to the unpleasantness which accompanies the heavy flow of surface traffic" and because access to the park would become more difficult and hazardous.[36] In a number of other cases, federal courts have found constructive uses of park lands and historic sites based on increased noise levels,[37] impairment of access,[38] general unsightliness,[39] and other proximity impacts significant enough to "substantially impair" the protected resource.[40]

The Ninth Circuit recently ruled that the constructive-use doctrine does not apply where the construction of a new highway and a new park are jointly planned on a single parcel of land. In *Sierra Club v. Department of Transportation*,[41] the court held that a planned highway did not "use" a park where the highway and the park were to be developed concurrently. Looking at the legislative history of Section 4(f), the court determined that because Congress contemplated the possibility of joint development of parks and roads, it intended Section 4(f) to protect only already established parks and recreation areas.[42]

3. Resources Protected by Section 4(f)

a. Public Parks, Recreation Areas, and Refuges.—The language of Section 4(f) restricts the ability of FHWA to use for a transportation project "publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site)."[43] The statute potentially applies to all historic sites, but only to publicly owned parks, recreation areas, and refuges. Thus, where parks, recreation areas, and refuges are owned by private individuals, Section 4(f) does not apply.[44] This is true even where the land is held by a public interest group for the benefit of the public.[45] However, if a governmental body has any proprietary interest in the land at issue (such as fee ownership, a drainage easement, or a wetland easement), that land may be considered publicly owned.[46]

Where land is publicly owned, it can qualify for protection under Section 4(f) only if it is actually designated or administered[47] for "significant" park, recreation, or wildlife purposes.[48] When making this threshold determination, courts have held that FHWA "may properly rely on, and indeed should consider . . . local officials' views."[49] For example, in *Concerned Citizens on I-190*, the First Circuit held that FHWA was not required to make an independent determination as to whether the state lands involved in a highway project constituted "significant...recreation lands," but could rely on the conclusion of a local commission that no such land would be used by the highway.[50] FHWA regulations reflect this result, stating that consideration under Section 4(f) is not required where the officials with jurisdiction over the area determine that "the entire site is not significant."[51] If no such determination is made, the regulations presume the Section 4(f) land is significant.[52] The regulations also require that FHWA review the significance determination to ensure its reasonableness.[53]

(1) Multiple-Use Land Holdings.—Special problems may arise where land needed for a highway project is managed for several different purposes, including a use protected by Section 4(f). Where multiple-use lands are involved, FHWA has determined that Section 4(f) will apply only to those portions of lands that "function for, or are designated in the management plans of the administering agency as being for significant park, recreation, or wildlife and waterfowl purposes."[54] Where multiple-use public lands do not have current management plans, Section 4(f) will apply only to those areas that function primarily for purposes protected by Section 4(f).[55] Again, the federal, state, or local officials with jurisdiction over the land in question are responsible for making the determination as to which areas function as or are designated for purposes protected by Section 4(f), subject to FHWA oversight to ensure "reasonableness."[56]

Although most public lands administered by the Bureau of Land Management (BLM) under the Federal Land Policy and Management Act[57] are managed for multiple uses, designated "areas of critical environmental concern" (ACECs) are better thought of as dominant use lands. ACECs are lands where special management is required to protect (1) important historic, cultural, and scenic values, fish and wildlife resources, and other natural ecosystems, and (2) human life and property from natural hazards.[58] Development is not foreclosed on ACECs—they are not administered as wilderness areas[59]—and a range of multiple-use activities, including highways, are possible. But because BLM designates special management requirements of each ACEC on a case-by-case basis through its land planning process,[60] whether a highway project is consistent with the objectives of

a particular ACEC is a function of those objectives. Activities inconsistent with designated ACEC objectives will not be permitted, and BLM district managers will prevent or oppose activities taking place outside but threatening the integrity of ACEC-protected resources.[61] An ACEC designated for historic, recreation, or wildlife protection would also seem to trigger Section 4(f) procedures.

(2) Bodies of Water.—Because most of the land under navigable waters of the United States is owned by the states,[62] any such waters designated or used for significant park, recreational, or refuge purposes will qualify for protection under Section 4(f) because the underlying land is publicly owned.[63] As in the case of multiple-use lands,[64] Section 4(f) will apply only to those portions of lakes that function primarily for park, recreation, or refuge purposes, or are so designated by the appropriate officials.[65] Rivers are generally not subject to Section 4(f) requirements unless they are contained within the boundaries of a park or refuge to which Section 4(f) otherwise applies. However, federally designated wild and scenic rivers are protected by Section 4(f), and publicly owned lands in the immediate proximity of such rivers may also be protected, depending on how those lands are administered under the management plans required by the Wild and Scenic Rivers Act.[66] Where the management plan specifically designates the adjacent lands for recreational or other Section 4(f) purposes, or where the primary function of the area is for significant Section 4(f) activities, Section 4(f) will apply.[67]

b. Historic Sites.—Unlike park lands, historic sites need not be publicly owned to qualify for protection under Section 4(f). However, the site must be "of national, state, or local significance (as determined by the Federal, State or local officials having jurisdiction over the . . . site)."[68] Where historic sites will be affected as the result of a proposed highway project, the National Historic Preservation Act[69] works along with Section 4(f) to require avoidance or minimization of harmful impacts to historic sites. For example, under FHWA regulations, the "significance" of an historic site for Section 4(f) purposes generally is determined by whether the site is on or eligible for the National Register of Historic Places.[70] Because the National Register comprises many different types of historic resources,[71] courts have also applied Section 4(f) to a wide variety of historic sites.[72] If a particular site is not on or eligible for the National Register, Section 4(f) may still apply if FHWA determines that the application of the statute is "otherwise appropriate."[73]

The applicable regulations require that where a historic site might be affected by an FHWA project, that agency, in cooperation with the state highway department, must consult with the state's historic preservation officer to determine whether the site is on or eligible for the National Register.[74] If it is not, then Section 4(f) most likely does not apply.[75] However, the site may still be protected under the statute if it is of local significance, as determined by local officials having jurisdiction over the site.[76] Thus, the language of Section 4(f) can be read to require application where a local official (e.g., the mayor or the president of the local historical society) provides information indicating that a site that is not eligible for the National Register is nonetheless of local significance. According to FHWA, in such situations "FHWA may apply section 4(f)."[77]

Once a determination has been made that a site is eligible for inclusion on the National Register, Section 4(f) applies even where the state or local officials with jurisdiction over the area assert that the site is not "significant" to them. For example, in *Stop H-3 Association v. Coleman*,[78] the Ninth Circuit held that a finding by a state review board that the Moanalua Valley in Oahu was only of "marginal" local significance was inconsequential for Section 4(f) purposes because the secretary of the interior earlier had determined that the valley "may be eligible" for inclusion in the National Register.[79] The court also ruled that the secretary acted within his authority under the National Historic Preservation Act when he made the eligibility determination on his own initiative, without the concurrence of state or local officials.[80]

FHWA regulations recognize that Section 4(f) applies to all archeological sites on or eligible for inclusion on the National Register, including those discovered during construction. The regulations provide for an expedited Section 4(f) process in such circumstances.[81] However, the regulations also carve out an exception from the requirements of Section 4(f) where FHWA determines the archeological resource involved "has minimal value for preservation in place" and can be relocated without diminishing the significance of the resource.[82]

4. Standard of Review for Determination of Inapplicability

Nearly a quarter century ago, in *Citizens to Protect Overton Park v. Volpe*, the Supreme Court stated that the standard of judicial review under Section 4(f) was the Administrative Procedure Act's "arbitrary and capricious" test,[83] a standard the Court described as requiring "thorough, probing, in-depth review."[84] However, a number of courts subsequently ruled that when the secretary of transportation decides not to apply the requirements of Section 4(f) to a proposed project, those nonapplicability decisions are reviewable under a less deferential "reasonableness" test.[85] But because the decisions to apply the reasonableness test were based on an analogy to decisions not to prepare an environmental impact statement under NEPA,[86] and because the Supreme Court has clearly stated that arbitrary and capricious review is appropriate justification for agency decisions not to prepare supplemental environmental impact statements,[87] the proper standard of judicial review of agency decisions not to apply Section 4(f) may also be the arbitrary and capricious test.

In two recent decisions, the Sixth and the Tenth Circuits concluded that the deferential arbitrary and capricious standard was appropriate for decision making under Section 4(f).[88] However, in neither of those cases did the secretary deny the applicability of Section 4(f); the disputes concerned the secretary's conclusions in his 4(f) findings.[89] Moreover, both circuits concluded that courts reviewing 4(f) findings must determine that the secretary could have "reasonably" determined that there existed no feasible and prudent alternatives to the proposal.[90] Thus, there seems to be room for argument as to which standard of judicial review should be applied to an agency's alternatives analysis under Section 4(f).

C. Substantive Requirements of Section 4(f)

Once it has been established that a proposed project will actually or constructively use a resource protected under Section 4(f), the secretary of transportation may approve the project only if (1) there is no "feasible and prudent alternative" to the use of such land and (2) the project includes "all possible planning to minimize harm" to the protected property.[91]

1. Feasible and Prudent Alternatives

The seminal decision regarding the circumstances under which alternatives to a proposed project may be rejected as not "feasible and prudent" came from the

Supreme Court in the *Overton Park* case.[92] The Court noted that the "feasibility" exception allows for very little administrative discretion; it applies only if the secretary finds that "as a matter of sound engineering it would not be feasible to build the highway along any other route."[93] Because of the relative lack of discretion left to the agency regarding what is or is not feasible from an engineering perspective, most conflicts in this area arise when the secretary decides that alternatives are not "prudent" under Section 4(f).

The *Overton Park* Court recognized that when a highway project contemplates the use of park land rather than alternatives that would affect private holdings, the secretary need not completely ignore factors such as cost and community disruption in determining whether an alternative to park land use is not "prudent" under Section 4(f).[94] However, the Court went on to note that the very purpose behind Section 4(f) is to give "paramount importance" to the protection of park land; therefore, higher cost alone is not sufficient to declare an alternative imprudent. Rather, the Court held that an alternative to park land use will be prudent unless it involves "unique problems" resulting from "truly unusual factors," including cost or community disruption only where they reach "extraordinary magnitudes."[95]

In the nearly two-and-a-half decades since the *Overton Park* ruling, the Supreme Court has not decided another Section 4(f) case, leaving the circuit courts to further refine and expand the meaning of the broad directives set out in *Overton Park*. Until recently, the circuits have been fairly consistent in holding FHWA to a strict reading of the "unique problems" requirement. Thus, the courts have overruled the agency's rejection of alternate routes even where costs and community disruptions would be somewhat severe,[96] adhering to the guiding principle of *Overton Park* that when considering alternatives to the taking of park land, "cost is a subsidiary factor in all but the most exceptional cases."[97]

However, recently a line of cases has emerged indicating an increased judicial deference toward agency determinations that proposed alternatives are imprudent.[98] These cases do not require findings that the alternatives present "unique problems" as required by *Overton Park*; instead, they uphold FHWA determinations based on the cumulative effects of several individually insignificant drawbacks.[99] Moreover, in at least one case, a circuit court seemed to elevate the importance of cost considerations in the Section 4(f) analysis. *Eagle Foundation v. Dole*[100] involved a proposed four-lane expressway that would run through both a wildlife refuge and a historical site. FHWA rejected as imprudent each of 10 alternative routes that would have avoided the refuge because of the "cumulative drawbacks" presented by those routes, relying on the fact that all of the alternatives would be longer and more expensive to build.[101]

Judge Easterbrook for the Seventh Circuit upheld the FHWA's determination, first noting that the secretary's decision required deferential review. He then explained that in *Overton Park* the Supreme Court was merely being "emphatic" when it used the word "unique" to define the type of problems that must be present for an alternative to be imprudent.[102] What the Supreme Court really meant, according to Judge Easterbrook, was that "the reasons for using the protected land have to be good ones, pressing ones, well thought out."[103]

Despite the *Overton Park* dictum that costs were to be a factor in the Section 4(f) alternatives analysis only where they reached "extraordinary magnitudes," the *Eagle Foundation* court held that "[a] prudent judgment by an agency is one that takes into account everything important that matters."[104] Because every other alternative would cost at least $8 million more than the park land route, the court concluded that the secretary "could ask intelligently whether it is worth $8 million to build around the Hollow, in light of the other benefits and drawbacks of each course of action."[105] Although an additional $8 million would represent only a small fraction of the total cost of the highway, the court upheld the secretary's determination that the additional costs of the alternatives, when combined with other drawbacks—such as safety, aesthetic, and wildlife concerns—were sufficient to make them imprudent under Section 4(f).[106] This "cumulative drawbacks" approach upheld by the court in *Eagle Foundation* has become part of FHWA's official Section 4(f) planning. A recent FHWA policy paper stated: "[w]hen making a finding that an alternative is not feasible and prudent, it is not necessary to show that any single factor presents unique problems. Adverse factors such as environmental impacts, safety and geometric problems, decreased traffic service, increased costs, and any other factors may be considered collectively."[107]

Similarly, in *Hickory Neighborhood Defense League v. Skinner*,[108] the Fourth Circuit adopted the Seventh Circuit's interpretation of Overton Park, holding that the Supreme Court in that case used the word "unique" only for emphasis and "not as a substitute for the statutory word 'prudent.'"[109] Thus, the secretary's decision to use Section 4(f) land will be upheld as long as there is a "strong" or "powerful" reason to do so, and it is not necessary for the agency to expressly find "unique problems," as long as the record supports the conclusion that there were "compelling reasons" for rejecting the proposed alternatives.[110]

Circuits also differ as to what range of alternatives must be considered by FHWA in assessing whether or not "feasible and prudent" alternatives exist. The Ninth Circuit takes an expansive view of the alternatives analysis, usually requiring consideration of a no-build alternative, as well as consideration of other alternatives that might be very different than the proposed project.[111] For example, in *Stop H-3 Association v. Dole*,[112] the Ninth Circuit overruled the secretary's rejection of a no-build alternative, holding that the mere fact that the agency demonstrated an established transportation need did not automatically prove that the option of not building the highway was imprudent under *Overton Park*. Thus, the secretary still had to demonstrate that the no-build alternative presented truly unusual factors or would result in cost and community disruption of extraordinary magnitude.[113] Other circuit courts, however, appear more inclined to accept a decision by the secretary that only certain, limited alternatives will meet the goals of the agency. These courts have ruled that the no-build alternative is an inherently imprudent alternative to achieving those goals.[114]

2. All Possible Planning to Minimize Harm

The second half of the Section 4(f) process requires that FHWA undertake "all possible planning to minimize harm" to park land or other protected resources before the project may be approved by the secretary of transportation.[115] This minimization requirement must be addressed once it has been determined that a proposed project will actively or constructively use protected property and that there are no feasible and prudent alternatives to such use. At this point, Section 4(f)(2) requires the secretary to reconsider the available alternatives and undertake planning to minimize the adverse impacts of the project on park land, recreation areas, refuges, or historic sites.[116]

Courts have recognized that the "all possible planning" requirement places an affirmative duty on the secretary to minimize the damage to Section 4(f) property before approving any route using such property.[117] A leading case describing the

duty under Section 4(f)(2) is *Louisiana Environmental Society v. Coleman*,[118] in which the Fifth Circuit required the secretary to undertake a "simple balancing process which would total the harm to the recreational area of each alternate route and select the route which does the least total harm."[119]

Under this analysis, the secretary must first determine the amount of harm each alternative route inflicts on Section 4(f) property. Similar to the "feasible and prudent alternatives" directive of Section 4(f)(1), the agency must consider alternatives that would minimize harm to the protected property being used. However, courts have emphasized the differences between Subsections (1) and (2) of Section 4(f) and uniformly hold that considerations that might make an alternative imprudent under Subsection (1)—such as displacement of persons or businesses or failure to satisfy the project's purpose—are "simply not relevant" to the minimization determination.[120] Rather, "the only relevant factor in making a determination whether an alternative route minimizes harm is the quantum of harm to the park or historic site caused by the alternative."[121]

After assessing the amount of harm that would be caused by each alternative route through the park land, the secretary must select the route that does the least total harm to that property.[122] Any alternative that the secretary determines does not minimize harm may be rejected in favor of the planned route.[123] Correspondingly, the secretary is free to choose between alternatives that are determined to cause "equal damage."[124] Although the goal is to adopt the least damaging route, the Fifth Circuit in *Louisiana Environmental Society* made clear that the secretary may still reject a route that would actually minimize harm to Section 4(f) property, but "only for truly unusual factors other than its effect on the recreational area."[125] To reach this conclusion, the court held that Section 4(f)(2) contains an implied "feasible and prudent" exception like that of Section 4(f)(1), stating: "Since the statute allows rejection of a route which completely bypasses the recreational area if it is unfeasible or imprudent, it is totally reasonable to assume that Congress intended that a route which used the recreational area but had a less adverse impact could be rejected for the same reason."[126] Thus, a route that minimizes harm can be rejected if it is infeasible or imprudent; however, this determination must be based on "truly unusual" factors other than the route's impact on Section 4(f) areas.[127]

Courts have indicated willingness to strictly enforce the secretary's duty to ensure minimization of damage to Section 4(f) property in applying the "all possible planning to minimize harm" requirement of Section 4(f)(2). For example, in *Druid Hills Civic Association v. Federal Highway Administration*,[128] the secretary approved construction of a highway in Atlanta that would use park lands and historic sites, rejecting three alternatives for failing to minimize harm to Section 4(f) property. The Eleventh Circuit held that the administrative record was "significantly deficient" because it did not consider the types of impacts the rejected alternatives would cause, the characteristics of the property that would be affected, or the degree of harm that would occur.[129] Because the record contained only generalized and conclusory statements that the rejected alternatives would "adversely affect" certain historic districts, the court found that the secretary could not have had sufficient information to make any informed comparison of the relative harms anticipated by the various alternatives.[130] Thus, the court remanded the case to the secretary for more intensive consideration of the alternative impacts on the Section 4(f) properties at issue. Specifically, the court directed the secretary to assess the characteristics of the property that would be affected, the extent of any previous commercial development impacts on the historic districts, and the nature and quantity of harm that would accrue to the park or historic site involved.[131] The *Druid Hills* case indicates that when rejecting alternatives for failing to minimize harm under Section 4(f)(2), the secretary must provide a thorough and detailed discussion of the reasons underlying such rejections.

WETLANDS LAW

Wetlands (such as swamps, bogs, and marshes) in their natural condition provide many benefits including (1) food and habitat for fish and wildlife, (2) water quality improvement, (3) flood protection, (4) shoreline erosion control, (5) natural products like timber, fish, shellfish, cranberries, and wild rice for human use, and (6) substantial opportunities for recreation and aesthetic uses.[132] Wetlands also help to recharge groundwaters, alter flood flows, stabilize sediments, absorb chemical contaminants, remove nutrients, enhance aquatic and wildlife diversity, and provide unique areas for scientific, geological, and archeological research.[133]

According to the Council on Environmental Quality, wetlands are extremely productive sources of food protein, more productive than the most fertile farms.[134] Fully two-thirds of the commercially harvested fish in U.S. waters depend on wetlands for food or spawning and rearing grounds.[135] About one-third of species listed under the Endangered Species Act and half the nation's migratory bird species depend on wetlands for habitat.[136]

Unfortunately, wetlands also supply attractive sites for industrial, agricultural, and residential developments. And because wetlands—unlike other areas of the aquatic environment—may be privately owned, private wetland owners have had strong economic incentives to replace wetlands with airports, port facilities, soybean fields, and shoreline developments.[137] As a result, the coterminous United States, which once contained some 221 million acres of wetlands, had only 106 million acres left by the mid-1970s, as a result of sustained draining, dredging, filling, leveling, and flooding.[138] By the mid-1980s, wetland acreage had dropped to a little over 103 million acres.[139] Of the remaining wetlands, 95 percent (97.8 million acres) are freshwater, or inland, wetlands; 5 percent (5.5 million acres) are estuarine, or coastal, wetlands.[140] Average annual wetland destruction between 1974 and 1983 was 290,000 acres.[141] Ninety-eight percent of these wetland losses were freshwater wetlands; slightly over half were lost to agricultural uses.[142]

A. Section 404 of the Clean Water Act

The permitting authority that the U.S. Army Corps of Engineers holds over wetland development today is the direct descendent of Section 10 of the Rivers and Harbors Act of 1899.[143] Although that section vested broad power in the Corps to issue mandatory permits for the dredging, filling, or obstructing of navigable waters, Corps jurisdiction was not extended to wetlands until the passage of the Federal Water Pollution Control Act Amendments of 1972.[144] Section 404 of that act signaled the beginning of an active federal role in the regulation of wetland alteration and destruction. The act expanded the jurisdictional authority of the Corps permitting program to include wetlands by redefining "navigable waters" as all "waters of the United States."[145] The Corps initially refused to acknowledge the congressional expansion of its permitting authority in the 1972 Act and continued to base its jurisdiction on traditional tests of navigability. However, after some judicial prodding,[146] in 1977 the Corps amended its regulations, expressly

extending its permitting jurisdiction over wetland areas that are not navigable in fact or immediately adjacent to navigable waters.[147]

Section 404 authorizes the Corps to issue permits to projects that involve the "discharge of . . . dredged or fill material" into waters of the United States, including wetlands.[148] Thus, FAHP projects involving discharges into wetlands will require Section 404 permits unless they qualify for a specific statutory exemption.[149] Section 404 permits may be issued on an individual or general permit basis when they meet specified criteria.[150] General permits authorize activities on a generic basis where they are substantially similar in nature or are subject to duplicative regulatory controls and cause only minimal individual and cumulative environmental effects.[151] Individual permits are subject to public and interagency notice and comment, and other federal agencies, such as the Environmental Protection Agency (EPA), the Fish and Wildlife Service, and the National Marine Fisheries Service may administratively appeal wetland fills having "a substantial and unacceptable impact on resources of national importance."[152] In addition, EPA may veto Corps permits that have an unacceptable adverse effect on municipal water supplies, fish and wildlife habitat, and recreational areas.[153]

The initial Section 404 issue is whether there is federal jurisdiction over the area in question and the activity in question. Geographic jurisdiction depends on the definition of "waters of the United States," as used in the Clean Water Act, and the delineation of wetlands (included in the definition of "waters of the United States"). Jurisdiction over activities is a function of the scope of activities statutorily exempted from Section 404 regulation and the definition of the term "discharge" in the Clean Water Act.

1. Geographic Jurisdiction

a. Definition of "Waters of the United States."—The Clean Water Act defines "waters of the United States" simply as "navigable waters,"[154] a term that, under the Rivers and Harbors Act, had long been interpreted to be limited largely to bodies of water used to transport interstate and foreign commerce.[155] But the Clean Water Act's legislative history indicated that Congress intended a dramatic expansion of regulatory jurisdiction, to the fullest extent permitted under the Constitution's commerce clause.[156] The Corps was slow to interpret the term expansively, however, and it was not until 1977, after the Corps lost a lawsuit, that Section 404 regulations began to reflect the full geographic reach of the program.[157]

The Corps' 1977 regulations asserted federal regulatory jurisdiction over three geographic types of wetlands: (1) interstate wetlands; (2) wetlands adjacent to other "waters of the United States," and (3) intrastate, nonadjacent wetlands that "could affect interstate or foreign commerce."[158] Relying in part on legislative history of Section 404 indicating that Congress intended the term "navigable waters" to be given "the broadest possible constitutional interpretation,"[159] the Supreme Court in *United States v. Riverside Bayview Homes, Inc.*,[160] upheld the Corps' jurisdiction over wetlands adjacent to waters otherwise within federal reach under the Commerce Clause.

However, controversy remains over the Corps' ability to assert jurisdiction over nonadjacent "isolated wetlands" based on the possibility that those wetlands "could affect" interstate commerce. The Court's 1985 *Riverside Bayview* decision expressly declined to rule whether wetlands not connected with other waters were within the jurisdictional reach of the Section 404 program.[161] However, other courts have upheld Section 404 jurisdiction over isolated waters where there was a demonstrated effect on interstate commerce, such as where the site was visited by out-of-state residents for recreation or study and the discharge would affect such visits.[162] A 1985 EPA memorandum asserted jurisdiction over all isolated wetlands that could be used by migratory waterfowl,[163] which would effectively include all areas meeting the definition of a wetland. However, this "reasonable bird" interpretation of the reach of Section 404 jurisdiction has not been promulgated as a regulation, was rejected for that reason by one district court,[164] and has been narrowly interpreted in a recent Seventh Circuit case.

In *Hoffman Homes, Inc. v. EPA (Hoffman I)*,[165] the Seventh Circuit initially indicated that there could be no federal jurisdiction under the Commerce Clause to regulate isolated wetlands absent a showing of some connection to human commercial activity. The court held that the mere presence, or the potential presence, of migratory waterfowl in an isolated wetland had no effect on interstate commerce.[166] Subsequently, an *en banc* panel of the Seventh Circuit, in *Hoffman II*, granted EPA's petition for rehearing and vacated its *Hoffman I* opinion.[167] Then, in *Hoffman III*, the original panel upheld Clean Water Act jurisdiction over areas potentially used by migratory birds, but reversed EPA's conclusion that the area in question provided suitable bird habitat.[168] In contrast to *Hoffman Homes*, the district court in *Leslie Salt Co. v. United States*[169] found that former calcium chloride pits of a salt company were within Corps jurisdiction under Section 404 because there was a sufficient connection to interstate commerce from the potential use of the pits by migratory birds.

EPA has the authority to define the scope of "waters of the United States" for purposes of the Section 404 program, according to a 1979 opinion of the attorney general.[170] However, under a 1989 memorandum of agreement between EPA and the Corps, the Corps will make most of the jurisdictional determinations, although EPA reserved the right to determine jurisdiction in "special cases," determined either generically or on a project-specific basis.[171] Jurisdictional determinations by either agency are binding on the entire federal government.[172] The Corps' regulations authorize district engineers to make jurisdictional determinations, but the Corps is not required to make wetlands determinations on request.[173] Corps guidance suggests that oral determinations are not valid and that written jurisdictional determinations are valid for 3 years in most cases, and 5 years with appropriation information.[174] New information may, however, justify revised jurisdictional determinations.[175]

Written jurisdictional determinations are subject to judicial review on the administrative record, at least when the determination is negative.[176] The government has successfully resisted judicial review of affirmative jurisdictional determinations, claiming there is no final agency action until the applicant is granted or denied a permit.[177] However, EPA has a program to identify wetlands in advance of permit application, usually where federal, state, or local authorities are interested in particular projects.[178] Although this "advanced identification" project is not a substitute for individual permit review, it may be useful for FAHP projects by identifying both wetlands that may be suitable for development and those that are unsuitable.

b. Wetlands Delineation.—The question of what constitutes a "wetland" has been a persistent source of controversy. After a good deal of debate,[179] EPA and the Corps adopted identical language interpreting the Clean Water Act:

> The term 'wetlands' means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal

circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include swamps, marshes, bogs, and similar areas.[180]

This regulatory definition, which has been adopted by DOT,[181] means that a wetland is any area wet enough to be dominated by plants adapted to survive in water-logged soils.[182]

Water near the soil surface eliminates oxygen, and plants that can survive without oxygen for even short periods require special plant adaptations. Wetland vegetation consists of these plants.[183] Vegetation meeting these criteria and the soils necessary to produce it are reliable wetland indicators. However, the causative agent for both wetland soils and vegetation is hydrology—the presence of water. Hydrology is the best evidence of a wetland, but it is also the most unreliable because surface water characterizes many wetlands only during wet seasons.[184] Thus, wetlands delineation has focused on a complex set of criteria involving soils, vegetation, and hydrology, and those criteria have engendered widespread controversy.

During the 1980s, inconsistent application of wetlands parameters by various federal agencies inspired the Corps of Engineers to produce the 1987 Corps wetlands delineation manual,[185] a document that embraced a "multiple parameter" approach. That is, it required at least one positive indicator for each of the soils, vegetation, and hydrology parameters for a site to be considered a wetland.[186] For example, the vegetation parameter required that more than half of the area's dominant species be wetland vegetation. The hydrology parameter required saturation in major portions of the vegetative root zone (usually within 12 inches of the surface) during the growing season.[187] Because the 1987 manual was not mandatory for Corps field offices, and also because it excluded certain wetland areas with unusual vegetation, it was not widely adopted by other federal agencies with wetland responsibilities.[188]

In 1989, the Corps, along with EPA, the Fish and Wildlife Service, and the Soil Conservation Service, released a joint manual adopting a single technical approach for wetland identification.[189] This manual was mandatory for federal agencies, and it reduced the discretion of delineators by providing greater specificity of the field indicators necessary to satisfy the wetlands parameters.[190] For example, the 1989 manual stated that the hydrology parameter could be satisfied by 7 consecutive days of saturation within 6 to 18 inches of the surface during the growing season, rather than saturation during a percentage of the growing season.[191] Perhaps more significant, the 1989 manual allowed the field indicators of one parameter to satisfy other parameters in certain situations, thereby making it easier for an area to be identified as a wetland.[192] For example wetland hydrology was inferred from wetland vegetation and soils, under the premise that the vegetation and soils could have developed only under wet conditions.[193]

The 1989 manual was widely criticized by the regulated community, both because it seemed to increase the acreage subject to federal regulation and because it did so without providing for public notice and comment.[194] In 1991, the Bush Administration proposed changes to the manual that would have substantially changed the soil, vegetation, and hydrology criteria, thereby excluding large areas formerly considered wetlands.[195] For example, under the Bush proposal at least 21 consecutive days of saturation of the surface, or 15 consecutive days of water above the surface, would have been required to satisfy the hydrology criteria.[196] The proposed changes set off a firestorm of controversy. Environmentalists claimed it would exclude from federal protection roughly half the wetlands in the contiguous United States; these areas supplied an estimated $70 billion worth of sewage treatment, furnished habitat for around 200 species protected or being considered for protection under the Endangered Species Act, and provided a large portion of important wintering, resting, and breeding grounds for migratory waterfowl.[197] One field study in Idaho indicated that two-thirds of that state's wetlands would fail to meet the proposed new criteria.[198]

In response to the controversy, Congress moved to block the revision. The 1992 Energy and Water Development Appropriations Act prohibited the use of either the 1989 manual or the 1991 proposal without formal notice and comment rulemaking.[199] The Clinton Administration's 1993 wetlands plan called for continued use of the 1987 delineation manual pending completion of a National Academy of Sciences study on wetland classification for regulatory purposes.[200]

Two other initiatives of the Clinton wetlands plan will affect regulatory jurisdiction over wetlands. First, the plan disclaimed jurisdiction over wetlands that were drained and cropped prior to December 23, 1985, the date Congress enacted the swampbuster provisions of the Food Security Act,[201] which eliminated agricultural subsidies for farmers who clear and drain wetlands.[202] This eliminated jurisdiction over 53 million acres of "prior converted" wetlands.[203] Second, the Clinton plan gave the Soil Conservation Service authority to make wetlands determinations in farming areas.[204] Although an interagency agreement implementing this directive was signed on January 6, 1994,[205] the Soil Conservation Service's wetland identification procedures have been subsequently criticized by EPA for being inconsistent with the 1987 delineation manual.[206]

FHWA also has recognized the need for accurate and consistent wetlands evaluation techniques. In 1983, FHWA published a two-volume manual on wetland functional assessment for use by highway officials.[207] The manual, known as the Wetland Evaluation Technique (WET), was originally created only for state and federal highway officials, but was revised in 1991 to encourage use by other agencies.[208] The manual, which was sponsored by EPA, the Corps, and FHWA, describes itself as a "broad-brush approach" to wetland evaluation that is based on correlative predictors of wetland functions that can be gathered quickly.[209] Its purpose is to alert highway planners to the probability that a particular wetland performs specific functions and to provide information regarding the likely significance of those functions. Because WET is intended to provide a relatively fast preliminary assessment, its authors caution that the technique should not be used where questions regarding wetland functions must be answered definitively.[210]

2. *Jurisdiction Over Activities*

a. Definition of "Discharge."—Section 404 requires a permit for the "discharge" of dredged or fill material into waters of the United States.[211] What constitutes a discharge is not clear. For example, draining a wetland by discharging fill into the wetland has not been considered to require a permit, a conclusion recently affirmed by the Fifth Circuit.[212] However, regulatory guidance issued by the Corps indicates that, while draining a wetland may not require a permit because of the absence of a discharge, subsequent development activities on the drained wetland may well require a Section 404 permit, because the area may still satisfy the definition of wetland, which includes areas that under normal conditions contain a prevalence of vegetation adapted to live in wetland soils.[213]

Regulation of land-clearing activities, such as excavation, ditching, and channelization that destroy or damage wetlands, has also been uncertain. The Corps has traditionally regulated ditching activities where the material was deposited

on adjacent wetlands to create spoil piles or berms. But where the excavated material was nearly completely removed to surrounding uplands, the Corps has been inconsistent, with regulation varying among Corps districts.[214] Current Corps regulations define "discharge of dredged material" to exclude *de minimus* incidental soil movement occurring during normal dredging operations.[215] However, in *Avoyelles Sportsmen's League v. Marsh*, the Fifth Circuit ruled that discharges included redeposit of soil taken from wetlands during mechanized land-clearing activities.[216] Recently, to resolve a suit brought by the North Carolina Wildlife Federation,[217] the Corps and EPA issued new regulations that subject all mechanized land-clearing, ditching, channelization, and other excavation activities that destroy or degrade wetlands to Section 404 regulation.[218] The new rules clarify that placement of pilings constitute the discharge of fill material where they in effect replace aquatic areas or change the bottom elevation of the body of water or serve the same functional use as a solid fill foundation, altering the flow and circulation of waters.[219] However, linear projects—such as bridges—do not require Section 404 permits,[220] although they are regulated under the Rivers and Harbors Act.[221]

b. Exempt Activities.—The 1977 Amendments to the Clean Water Act created several exemptions from Section 404 to reduce the program's regulatory burden. First, Section 404(f) exempts six categories of minor discharges into wetlands associated with small-scale, relatively routine activities. Notably, no permits are required for (1) "normal" farming, ranching, and forestry activities, such as plowing, minor draining, and harvesting; (2) constructing or maintaining farm or stock ponds, irrigation ditches, or maintaining (not constructing) drainage ditches; (3) constructing temporary sedimentation basins on construction sites; and (4) constructing or maintaining farm, forest, or mining roads.[222] None of these exemptions is available if the discharge would change the use of the waters, impair the flow or circulation, or reduce their reach.[223] Thus, only routine activities with minor effects on waters are exempt; actions with greater effects require a permit. Whenever there will be significant discernible alteration to water flow or circulation, Corps regulations presume that a permit is required.[224]

The regulations implementing these exemptions construe the statute narrowly. They require that "normal" farming, ranching, or forestry activities must be part of an "established (i.e., on-going)" operation. Thus, activities that bring an area into agricultural use for the first time are not considered part of an established operation and are thus not eligible for an exemption.[225] Also, the regulations specify that the minor drainage exemption does not apply if the drainage converts wetlands into nonwetlands or "significantly modifies" any wetland area.[226] Narrow regulatory interpretations of the exemptions have been upheld consistently by the courts.[227]

The exemptions with greatest applicability to FAHP appear to be the maintenance of drainage ditches and the construction of temporary sedimentation basins on construction sites. Construction sites are defined in Corps regulations to include any site involving the erection of roads and support facilities where runoff is controlled through temporary sedimentation basins.[228] Case law interpreting the drain maintenance exemption has compared the size of the drain as originally designed with the drain as repaired and has suggested that periodic, regular maintenance is necessary to invoke the exemption.[229]

The second major category of activities exempted from the Section 404 permitting program is federal construction projects specifically authorized by Congress.[230] This exemption, authorized by Section 404(r), was included by Congress in the 1977 amendments out of concern that the executive branch would use Section 404 to veto federally funded water projects.[231] However, Section 404(r) has been rarely invoked and never judicially challenged. Further, it is clear from legislative history that this exemption is inapplicable to FHWA highway projects because Congress intended it to apply only to projects entirely planned, financed, and constructed by a federal agency.[232]

3. General Permits

The 1975 decision in *NRDC v. Callaway* forced the Corps to expand dramatically its Section 404 regulatory powers over wetlands.[233] In an attempt to reduce demands on limited Corps administrative resources, the Corps issued regulations in 1975 authorizing "general" permits for certain "clearly described categories of structures or work" that otherwise would require individual permits.[234] Following the Corps' lead, Congress, in the 1977 amendments, statutorily reduced the potential regulatory burden of Section 404 by authorizing the Corps to issue general permits on a state, regional, or nationwide basis.[235] General permits are effectively permits by rule.[236] Complying with the rules exempts certain categories of activities from the individual permit requirements that are "similar in nature" and result in only minimal adverse environmental effects.[237] General permits are valid for up to 5 years,[238] and nationwide permits are subject to compliance with Section 404(b)(1) guidelines.[239]

There are two types of general permits: nationwide and regional. Nationwide permits are promulgated by the Corps chief of engineers after public notice and comment;[240] regional permits are issued by Corps division or district engineers after notice and comment on a regional or statewide basis.[241] The nationwide program permits approximately 80 percent of the actions regulated by the Section 404 program; some 75,000 discharges were authorized by nationwide permits in 1990.[242]

a. Nationwide Permits.—The Corps revised the nationwide permit program in late 1991. The revised program came into effect on January 21, 1992.[243] There are now 36 nationwide permits, authorizing discharges associated with a broad scope of activities.[244] The most significant of the nationwide permits for FAHP are as follows: number 3, authorizing maintenance, repair, rehabilitation, or replacement of previously authorized fills;[245] number 12, authorizing backfill or bedding for utility lines;[246] number 14, authorizing minor road crossing fills that involve less than 200 cubic yards of fill below the ordinary high-water mark;[247] number 18, authorizing discharges of less than 25 cubic feet of fill and causing the loss of less than one-tenth of an acre of wetlands;[248] number 23, authorizing activities by other federal agencies that are categorically excluded from the environmental impact statement requirement of NEPA;[249] number 25, authorizing filling into construction form for pile supports and bridge and walkway footings;[250] number 26, authorizing fills of less than 10 acres above the headwaters of streams and in isolated waters;[251] number 27, authorizing wetland and riparian restoration and creation controlled by federal agencies;[252] and number 33, authorizing dewatering of construction sites meeting specified best-management practices.[253]

Many of these nationwide permits are subject to predischarge notification requirements, which allow the Corps and other agencies 30 days to review the proposed activity.[254] All activities authorized by nationwide permits must satisfy certain terms and conditions, including having appropriate erosion and siltation controls, preventing significant disruptions to the migration of indigenous aquatic life, and placing mats under heavy equipment in wetlands.[255] Nationwide permits

are unavailable for activities occurring in wild and scenic rivers (including study rivers) or tribal lands, activities affecting property listed on the National Register of Historic Places, or activities jeopardizing the continued existence of species listed under the Endangered Species Act or modifying their designated critical habitat.[256] District engineers have discretionary authority to modify any nationwide permit by requiring special case-by-case conditions or requiring an individual permit where an action would produce more than a minimal adverse effect on the aquatic environment.[257] States may also limit nationwide permits by denying or placing conditions on required water-quality and coastal zone certifications.[258]

The most controversial of the nationwide permits is number 26, which authorizes discharges into wetlands smaller than 10 acres and that are located above the "headwaters" of nontidal waters or in "isolated waters" not part of a surface tributary system.[259]

An estimated 40,000 discharges are authorized annually under this permit.[260] If the fill to be allowed under this nationwide permit would affect more than one acre of wetlands, however, the permittee is subject to a predischarge notification requirement.[261] On receipt of the predischarge notification, the district engineer must review the proposed fill and determine whether the nationwide permit applies or whether an individual Section 404 permit should be required.[262] The Clinton Administration's 1993 wetlands plan promised a Corps "field level review and evaluation" of nationwide permit 26 to make the authorization more sensitive to local conditions.[263] This regionalization may allow certain locally important types of wetlands, such as vernal pools in California and prairie potholes in the upper Midwest, to be excluded from the reach of nationwide permit 26.[264]

Courts have given narrow interpretations to the nationwide permit program. Where the Corps denies a permit applicant permission to fill wetlands under a general permit, courts will defer to the agency, affirming the decision as long as the Corps provides a rational explanation for the denial.[265] In *Industrial Highway Corporation v. Danielson*,[266] the court held that a Corps decision to prohibit a permit applicant from proceeding under nationwide permit 26 was not a "final agency action" and therefore was not judicially reviewable.[267] Further, the First Circuit has indicated that nationwide permit 26 could not be applied at all in Massachusetts because that state denied the requisite water-quality certification.[268]

b. Regional Permits.—Regional permits may be issued by the Corps division and district engineers.[269] Like nationwide permits, they may be subject to predischarge notification requirements and may impose specified conditions.[270] One kind of regional permit that the Corps regulations authorize is a programmatic permit, which is designed to eliminate duplication with other federal, state, or local regulatory programs.[271] These statewide regional permits should not be confused with authorized state Section 404 programs, which must be approved by EPA and which operate, subject to EPA veto, in lieu of the Corps' permit program.[272] Thus far, only Michigan has an approved Section 404 program.[273]

4. Individual Permits

When a discharge does not qualify for a general permit, an individual permit is required. Individual permits under Section 404 may be issued both before[274] and after a discharge into wetlands occurs.[275] The Corps encourages preapplication consultation, which enables Corps staff to advise applicants on studies and other information required to process an application.[276] Generally, applicants interested in obtaining a Section 404 permit must first submit an application to the local Corps district engineer,[277] who issues public notice,[278] determines whether a public hearing should be required,[279] and provides the appropriate level of NEPA analysis.[280] In reviewing a permit application, the Corps is required to consult with the Fish and Wildlife Service and the National Marine Fisheries Service to prevent damage to wildlife likely to be caused by the proposed activity.[281] Few permit applications are ultimately denied, although many applications are withdrawn. In 1990, for example, the Corps denied only six permits, but one-third of the applications were withdrawn for one reason or another.[282]

Interagency review of permits is a critical part of the Section 404 process. Corps regulations recognize that Section 404 permits are subject to review under a variety of federal laws, including NEPA, the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, the Wild and Scenic Rivers Act, the Coastal Zone Management Act, and the Clean Water Act's state water quality-certification process.[283] Satisfying these laws often requires more time than the 60 days within which the Corps' regulations aim to have most Section 404 permit decisions completed.[284] To expedite permit reviews, Congress enacted Section 404(q), which authorized the Corps to enter into memoranda of agreement (MOAs) with EPA, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service to minimize delays in permit reviews.[285] MOAs signed in 1992 limit the ability of EPA and the federal fish and wildlife agencies to invoke an interagency appeal process by which the federal reviewing agencies may administratively appeal objectionable permits to the assistant secretary of the army.[286] Permit elevations (and consequent processing delays) may now be invoked only where a discharge would have "a substantial and unacceptable impact on aquatic resources of national importance."[287] In the past, permit elevations occurred on approximately 15 percent of individual permits, generally taking 90 to 120 days.[288] The 1992 MOAs are designed to reduce the number of interagency elevations.[289]

Corps district and division engineers also have the authority to elevate permit decisions on their own motion under certain conditions.[290] Although Corps regulations anticipate quite a bit of interagency consultation, district engineers need not defer to the views of other agencies except where required by other statutory provisions,[291] such as in the case of state water-quality certifications and coastal zone conditions.[292] The regulations suggest that district engineers should make their permit decisions where other agencies have yet to grant their authorizations.[293] Permit decisions must be documented in a "statement of findings" or, where an environmental impact statement has been prepared, a "record of decision."[294]

One kind of Section 404 authorization is a "letter of permission."[295] This type of permit is issued through an abbreviated process that does not include a public notice, but does include fish and wildlife agency consultation.[296] Letters of permission may substitute for individual Section 404 permits for categories of activities approved by the district engineer after consultation with EPA, federal and state fish and wildlife agencies, and the state certifying agencies for water-quality and coastal zone programs.[297] The categorical list of activities included for letter of permission is subject to public notice and coastal zone and water-quality certification, but the particular discharges may be exempted from these requirements.[298]

5. Permit Standards

There are essentially two substantive standards Section 404 imposes on permitted activities, apart from the consultation process designed to produce compliance with the non-Section 404 standards mentioned earlier.[299] These are the Section 404(b) guidelines and the public interest review.

a. 404(b) Guidelines.—Section 404(b)(1) requires all Section 404 permits to be evaluated by criteria promulgated by EPA "in conjunction with" the Corps.[300] For many years, it was not clear whether these "guidelines" were binding or advisory,[301] but it is now settled that no Section 404 permit may be issued without satisfying the guidelines.[302] The Section 404(b) guidelines are the primary environmental criteria of the Section 404 permit process. However, because proposed discharges must satisfy both the guidelines and the public interest review, it is possible (although unlikely) for a proposal satisfying the guidelines to be denied a permit on public interest review grounds.[303]

(1) Basic Requirements.—Section 404(b) guidelines begin with the precept that no discharge into wetlands will be authorized if that discharge would have an "unacceptable adverse impact" on the aquatic ecosystem.[304] Thus, the guidelines prohibit discharges causing "significant degradation" to the waters of the United States,[305] a finding that to date has been seldom made.[306]

A more frequent cause for noncompliance with the guidelines is the requirement prohibiting discharge filling of wetlands where there exists a "practicable alternative" having a less adverse impact on the aquatic ecosystem.[307] The guidelines define a practicable alternative as one "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."[308] This means that even alternative sites not actually owned by the permit applicant may be considered to be practicable if the site could reasonably be obtained and used to fulfill the basic purpose of the proposed activity.[309] Further, in the case of wetlands and other "special aquatic sites," the guidelines establish a rebuttable presumption that practicable alternatives exist where the proposed activity is not "water dependent"[310]—that is, truly dependent on access to water, like a marina.[311] To rebut this presumption, an applicant must show there are no upland sites that could accommodate the project. Even for water-dependent projects, the guidelines require a showing that the proposed discharge is the least environmentally damaging among appropriate alternatives.[312] The guidelines completely prohibit permit issuance for certain types of discharges;[313] they forbid any discharge that would have significant adverse effects on human health or welfare, recreation, aesthetics, aquatic ecosystems, and wildlife dependent on aquatic ecosystems.[314] Finally, the guidelines stipulate that no discharges shall be permitted unless "appropriate and practicable" mitigation measures are implemented to minimize impacts on the aquatic ecosystem.[315]

Applying the guidelines to specific proposed discharges is often controversial because of the subjective nature of the determinations they require. The most frequently litigated issue under Section 404(b) guidelines involves whether there exist practicable alternatives to a proposed discharge that would have a less adverse impact on the wetland. Corps determinations under the guidelines are reviewed under the deferential arbitrary and capricious standard, and courts will uphold Corps decisions as long as they are reasonably supported by the administrative record.[316] Thus, the Corps is not required to conduct feasibility evaluations for every alternative site before determining that no practicable alternatives exist and may rely on an analysis of alternatives previously prepared by other agencies under NEPA.[317] Because the Corps has broad discretion in making the practicable alternatives determination under Section 404(b) guidelines, findings of no practicable alternatives are regularly upheld by the courts.[318]

Although the Corps must consider the applicant's view of a proposed project's purpose in applying the practicable alternatives test,[319] the Corps will independently evaluate the project's purpose in light of public interest and not rely exclusively on the applicant's perspective.[320] However, applicant costs and logistical difficulties may justify a finding of no practicable alternatives,[321] although one court held that additional cost alone would support a finding of no practicable alternatives only where the competing alternatives were reasonably equivalent in terms of technological feasibility, potential for environmental harm, and other relevant factors.[322]

(2) Mitigation.—To avoid significant degradation to waters of the United States, Section 404(b) guidelines require steps to minimize impacts, known as mitigation.[323] Mitigation has been controversial because the Corps and EPA frequently disagreed over how to interpret this requirement.[324] However, in 1990, the two agencies signed an MOA that largely adopted EPA's interpretation.[325] Under this agreement, the goal is "no overall net loss of [wetlands] values and functions."[326] However, the agreement does allow deviations from the "no net loss" goal where mitigation measures are not feasible or practicable or would accomplish only an inconsequential reduction of impacts.[327]

One of the most important changes wrought by the mitigation MOA is the adoption of mitigation "sequencing."[328] Under this concept, the Corps and EPA will prefer practicable alternatives that avoid losses or adverse impacts to wetlands and other aquatic areas. If losses or impacts cannot be avoided, they are to be minimized through project modifications. If there nevertheless remain wetland losses or other adverse impacts after project modifications, the MOA calls for compensatory, mitigation such as on-site or off-site restoration or creation of wetlands. Although the "no net loss" goal is based on wetland functions and values, not wetland acres, the MOA calls for a minimum one-for-one functional replacement to provide an adequate margin of safety in light of the uncertain success of wetland creation and restoration efforts.[329] Two limited exceptions to mitigation sequencing are provided in the 1990 MOA: (1) where necessary to avoid environmental harm, such as where necessary to protect an aquatic area from salt water intrusion; and (2) where EPA and the Corps agree that the proposed discharge will produce an insignificant environmental loss or an environmental gain.[330]

In 1992, the Bush Administration proposed to amend Section 404(b) guidelines to exempt Alaska from the requirement of mitigation sequencing.[331] However, the Clinton Administration's wetlands program scuttled this initiative.[332] A promising means of satisfying a mitigation requirement is through establishing "mitigation banks," a concept that received statutory endorsement in the 1991 enactment of ISTEA.[333] Mitigation banks are discussed in the penultimate section of this study.[334]

b. The Public Interest Review.—Corps regulations require all individual Section 404 permits to undergo public interest review.[335] The public interest review applies to all the regulatory programs implemented by the Corps, requiring the Corps to apply a general balancing scheme that weighs "[t]he benefits which reasonably may be expected to accrue from the proposal . . . against its reasonably foreseeable detriments."[336] In so doing, the Corps must evaluate both probable and cumulative impacts of the proposed activities on the public interest.[337] The

regulations state that the public interest review will consider all relevant factors in the balancing process, including the public and private need for the project, alternative locations and means of accomplishing the objective, conservation, aesthetics, recreation, and many other factors ranging from "energy needs" and "food and fiber production" to "considerations of property ownership."[338]

The Corps' public interest review regulations specify eight broad categories of wetlands that perform functions "important to the public interest...[constituting] a productive and valuable public resource, the unnecessary alteration or destruction of which should be discouraged as contrary to the public interest."[339] For these "important" wetlands,[340] the regulations impose a presumption of no discharge, and the Corps may not grant a Section 404 permit unless the benefits of the proposed alterations outweigh the damage to the wetlands resource.[341] Because the public interest review process is a fundamentally open-ended and discretionary task, courts afford substantial deference to Corps conclusions, generally upholding findings that proposed discharges are in the public interest as long as there exists reasonable support for the findings in the administrative record.[342] For example, in *Sylvester v. United States Army Corps of Engineers*,[343] the Ninth Circuit upheld the Corps' issuance of a Section 404 permit to fill wetlands necessary to construct a proposed golf course because of the importance of the golf course in making a resort project an economically viable facility. The court noted that Corps regulations allowed it to consider a wider range of facts in its public interest analysis than those required under the "reasonable alternatives" language of NEPA.[344] However, the public interest review does have its limits. One court overturned a district engineer's rejection of a fill for a shopping mall on socioeconomic grounds unrelated to the impact that the proposed project would have on the environment.[345]

6. Permit Vetoes

An unusual aspect of the Section 404 program is that Corps-issued permits are subject to EPA veto. Section 404(c) authorizes a veto where a proposed discharge would have an "unacceptable adverse effect on municipal water supplies, shellfish beds, and fishery areas (including spawning and breeding areas), wildlife or recreation areas."[346] EPA has promulgated detailed regulations specifying the procedure for Section 404(c) vetoes, including public notice and an opportunity for a hearing,[347] but the veto regulations contain almost no substantive standards. Instead, EPA uses Section 404(c) vetoes to enforce its interpretation of the substantive requirements in the Section 404(b) guidelines.[348]

There have been relatively few Section 404(c) vetoes—only 12 final vetoes as of mid-1992, although other projects have been stopped by threatened or proposed vetoes.[349] What little litigation there has been under Section 404(c) has mostly been deferential to EPA. In the leading case, the Second Circuit upheld EPA's veto of a permit for a mall project in Attleboro, Massachusetts, affirming EPA's interpretation that available practicable alternatives had to be measured by all available sites at the time the developer entered the real estate market.[350] To satisfy Section 404(b) guidelines, the developer had to demonstrate that no upland sites were available at that time. The Attleboro Mall case sanctioned EPA's use of the Section 404(c) veto to enforce the Section 404(b) guidelines.[351]

A case involving the Lake Alma Dam in Georgia was also deferential to EPA. The court ruled that EPA did not have to explain why the Corps' view that the impoundment would produce valuable habitat was erroneous; instead, EPA merely had to explain why its own position that the project would produce an unacceptable loss of wildlife habitat was rational.[352] Another case, this one involving a municipal water supply project on Ware Creek in James City County, Virginia, was initially not deferential to EPA. There the Fourth Circuit affirmed a district court reversal of an EPA veto on the grounds that there was no substantial evidence supporting EPA's determination that there were practicable alternatives to the project's flooding of 425 acres of wetlands.[353] A subsequent EPA veto—based not on the availability of practicable alternatives, but on unacceptable adverse environmental impacts—was also set aside by the district court, on the grounds that EPA gave insufficient attention to the need to satisfy municipal water supplies,[354] an express requirement in EPA's Section 404(c) regulations.[355] However, on appeal the Fourth Circuit reversed the district court, upholding EPA's veto on the grounds that the agency could veto the permit solely on the basis of the project's unacceptable adverse effects on the environment.[356]

B. Swampbuster Provisions of the Food Security Act

Although primarily intended as a disincentive to conversion of erodible lands and wetlands to agricultural use, the conservation provisions of the Food Security Act (FSA)[357] of 1985 may have implications for FAHP projects. The most important provisions of FSA are (1) the "swampbuster" provisions,[358] which prohibit federal subsidization of agricultural operators who convert wetlands to agricultural use, and (2) the Wetlands Reserve Program (WRP),[359] added in 1990,[360] which authorizes the secretary of agriculture to obtain conservation easements in up to 1 million acres of converted land for wetlands preservation and restoration purposes.[361]

FSA requires the secretary of agriculture to delineate wetlands,[362] but also requires the secretary of agriculture to consult with the secretary of the interior on identification of wetlands, determination of exemptions, promulgation of regulations, mitigation, and restoration of wetland values.[363] The Clinton Administration's wetlands plan assigns final delineation authority over wetlands in agricultural areas to the Department of Agriculture's Soil Conservation Service.[364] A January 6, 1994, interagency agreement between EPA, the Corps, the Fish and Wildlife Service, and the Soil Conservation Service allocates responsibilities among the agencies with respect to agricultural wetlands.[365]

The wetlands protection offered by the swampbuster provisions may prove to be highly theoretical because swampbuster and its regulations offer a number of exemptions for such areas that were converted to upland prior to the enactment of FSA, for disturbances having minimal effects, and for conversions that relied on misrepresentations by regulatory officials. In addition, graduated sanctions are also available.[366] The Clinton wetlands plan confirmed that agricultural wetlands destroyed prior to the enactment of FSA in 1985 will be exempt from Section 404 jurisdiction.[367] Further, the swampbuster program is administered by the Agricultural Stabilization and Conservation Service, which relies on local county commissions for implementation; some have charged that both the motivation and the expertise to administer the act effectively are lacking.[368]

The primary effect of both swampbuster provisions and WRP provisions on FAHP projects is to increase the likelihood that wetlands will be encountered either because a wetland has been protected or because it has been restored. FHWA regulations implementing the Wetlands Executive Order and DOT Order 5660.1A[369] require FAHP projects to avoid new construction in privately owned wetlands unless there is no practicable alternative. Even if construction is al-

lowed, all practicable mitigation measures must be taken.[370] Where federal conservation easements have been obtained under WRP, FAHP projects may have to satisfy Section 4(f) because a conservation easement constitutes a form of public ownership,[371] and WRP land is administered in part as migratory bird and wildlife habitat.[372] Under Section 4(f), it would not be necessary for an FAHP project to be in the WRP wetland for avoidance or mitigation to be necessary because constructive use is possible where substantial impairment of the wetland would occur.[373] Further, where WRP wetlands are encountered, they are likely to be significant and thus to trigger Section 4(f), because priority is given under WRP to acquiring permanent conservation easements that are of high value for protecting and enhancing migratory bird and wildlife habitat.[374] As a result, wetlands under WRP are likely to be functionally significant, and their importance is magnified by the fact that they are under a long-term or permanent conservation easement. Even if a WRP wetland does not trigger Section 4(f)—as might be possible if the Department of Agriculture does not claim that a primary function of a wetland is to serve waterfowl and wildlife refuge purposes—the prioritizing involved in selection of WRP lands increases the likelihood that the selected wetlands will serve important purposes and that increased resistance to the action or increased mitigation measures will be necessary under the Wetlands Executive Order.[375]

C. The Wetlands Executive Order and DOT Order 5660.1A

The Wetlands Executive Order[376] and the DOT order issued to ensure compliance with the executive order[377] impose additional limitations on FAHP projects in wetland areas.[378] These orders place procedural and substantive restrictions on federal actions in wetlands, including financial assistance, licensing activities, and acquisition and disposal of federal lands.[379] These restrictions can produce both direct and indirect constraints on FAHP projects.

The Wetlands Executive Order applies to all federal agencies and provides in pertinent part:

> [E]ach agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative. and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding the head of the agency may take into account economic, environmental and other pertinent factors.[380]

The executive order requires each agency to provide opportunity for timely public review of proposals for new construction in wetlands, even if an action's effects are not significant enough to require an environmental impact statement under NEPA.[381]

The restrictions imposed by the Wetlands Executive Order are less restrictive than the Section 4(f) restrictions.[382] For example, courts have held that the Wetlands Executive Order's requirement of "no practicable alternative" is less restrictive than Section 4(f)'s requirement of "no feasible alternative."[383] Further, the Wetlands Executive Order focuses primarily on construction in wetlands, while Section 4(f) can be triggered by "constructive use," which merely adversely affects wetlands.[384] Nevertheless, the Wetlands Executive Order applies to all wetlands,[385] not just publicly owned lands subject to certain uses.[386] Moreover, the Wetlands Executive Order applies not only to direct FAHP activities, such as construction and funding of projects in wetlands, but also to the actions of other federal agencies in disposing of federally owned wetlands or in granting easements or rights of way.[387] The executive order requires federal agencies to consider the effects of proposed actions on the "survival and quality" of wetlands[388] and directs them to consider, among other things, effects on (1) water supplies; (2) water quality; (3) flood hazards; (4) conservation and long-term preservation of existing flora and fauna species, and habitat diversity and stability of fish and wildlife; and (5) other uses in the public interest.[389] The executive order authorizes agencies to place restrictive covenants on land or to withhold land from disposal to protect wetlands.[390]

DOT Order 5660.1A crystallizes the requirements of the Wetlands Executive Order by providing definitions and specific procedures for applying the policies of the executive order to transportation projects. The DOT order embraces the intent of the executive order by stating that "[t]he policy of this order applies to any project located in or having an impact on wetlands."[391] The DOT order's definition of wetlands is similar in scope to the definition in the executive order, but provides more criteria for a wetlands determination.[392] Significantly, the DOT acknowledged that the wetlands ecosystem includes areas that affect or are affected by the wetland area, and that wetlands may be affected indirectly by activities outside the area exhibiting wetlands characteristics.[393] However, the importance of FHWA's acknowledging that actions outside of the wetlands area may affect wetlands is reduced by the fact the FHWA has limited its responsibilities under the executive order to impacts that are directly highway related, relying on other statutes for consideration of secondary impacts.[394]

The DOT order also limits the extent of reliance on economic considerations in making determinations under the executive order, noting that, while cost may be taken into account in determining that there is no practicable alternative, "[s]ome additional cost alone will not necessarily render alternatives or minimization measures impractical since additional cost would normally be recognized as necessary and justified to meet national wetland policy objectives."[395] Thus, under the DOT order, cost is a limited factor for determining (1) that there is no alternative to wetlands development and (2) what constitutes practicable mitigation measures in filling the requirement that all practicable measures to minimize harm to the wetlands must be undertaken.[396] However, some courts have gone further than the DOT order. For example, the Ninth Circuit stated that "present unavailability of sufficient financial resources to implement either alternatives or mitigative measures cannot be used as the sole, or even the major determinant to a finding of impracticability."[397]

The DOT order also establishes a number of procedural requirements. Among the most significant of these is a requirement that an environmental impact statement be prepared for any project that will have a significant impact on wetlands and that, prior to preparation of the statement, other agencies with expertise on wetland impacts must be consulted.[398] Before FHWA determines whether the impacts of new construction are significant, it must identify and evaluate the project's effects on wetlands, and the public and agencies with wetlands expertise must be given an opportunity to comment.[399] Results of this review must be reflected in the environmental impact statement or finding of no significant impact.[400] The DOT order reiterates the Wetlands Executive Order's requirement that federal agencies attach appropriate conditions or withhold property from transfer to protect wetlands.[401]

The Wetlands Executive Order and DOT Order 5660.1A are limited in that they apply only to federal activities, which are usually limited to assistance in construction. Neither order is applicable to state operation and maintenance activities.[402]

D. The Rivers and Harbors Act of 1899

Although originally enacted and interpreted to protect navigation and commerce, the Rivers and Harbors Act (RHA)[403] of 1899 has, since the late 1960s, been interpreted to require consideration of environmental impacts.[404] Section 13 of RHA,[405] which prohibits the deposit of refuse in navigable waters without a permit, was initially the key provision of the act for environmental purposes,[406] but this section has been completely subsumed by the Clean Water Act.[407] Sections 9 and 10 of RHA,[408] which apply to construction across navigable waters and to obstructions of navigable waters, are also made partially redundant by Section 404 requirements of the Clean Water Act,[409] because such projects will usually involve discharges of dredged or fill material. However, these sections of RHA may apply even if a Clean Water Act permit is not needed or where the Clean Water Act requirements are met by a nationwide permit. A Section 10 permit is required for structures affecting navigable waters, as well as structures in navigable waters.[410] For example, a Section 10 permit would be required for utility lines over navigable waters whether or not they involve fill,[411] for bridge or pier supports,[412] for bank stabilization projects,[413] and for tunnels under or affecting navigable waters.[414] Sections 9 and 10 provide more extensive protection of navigable capacity than the Clean Water Act provides.

Section 9 of RHA restricts the construction of bridges, causeways, dams, and dikes "over or in" navigable waters of the United States,[415] requiring the approval of the secretary of transportation for the construction of bridges and causeways over navigable waters[416] and the approval of the chief of engineers and the secretary of the army for the construction of dams or dikes.[417] The "over or in" language of Section 9 has been interpreted by the Corps to apply only to projects that "completely span" a navigable water,[418] and courts have generally upheld this definition as a reasonable administrative interpretation to differentiate the requirements of Sections 9 and 10.[419] Section 9 also requires that such structures receive congressional authorization or, if the navigable portions of a body of water are wholly within one state, the authority of the state legislature.[420] However, subsequent legislation and regulations have greatly eroded this requirement. Specific congressional approval of bridges is no longer necessary because the General Bridge Act of 1949 provides that the consent of Congress is granted for bridges approved by the secretary of transportation.[421] This authority has been delegated to the U.S. Coast Guard to the extent that it relates to locations and clearances of bridges and causeways.[422] Further, specific state approval will not usually be necessary, because where bridges are constructed by state or municipal agencies, primary authority will be presumed without proof.[423] However, dams and dikes still require congressional or state legislative approval.[424]

The first clause of Section 10 of RHA prohibits the creation of obstructions to the navigable capacity of waters of the United States unless the obstruction is affirmatively authorized by Congress.[425] The second and third clauses of Section 10 prohibit (1) the construction of piers, breakwaters, jetties, and other structures in waters of the United States and (2) alterations in the course, location, or capacity of navigable waters, "except on plans recommended by the Chief of Engineers and authorized by the Secretary of the Army."[426] Courts have interpreted the second and third clauses as exceptions to the first clause and as a delegation of authority over the navigable waters to the secretary of the army.[427] The secretary of the army has authority over a broad spectrum of obstructions. It is unlikely that congressional approval will be necessary for any project unless the secretary of the army refuses to grant permission or denies authority to do so.[428]

Although there are some Corps regulations pertaining solely to Sections 9 and 10 of RHA,[429] the general policies and procedural regulations that also apply to Section 404 permits apply to and form the bulk of the requirements for a Section 9 or 10 permit.[430] Permits under Sections 9 and 10 of RHA do not require compliance with EPA's Section 404(b) guidelines[431] unless a Section 404 permit is also required, but they still are subject to broad review. Like projects requiring Section 404 permits, projects under Sections 9 and 10 of RHA must satisfy the Corps' public interest review process, which involves consideration of a broad range of economic and environmental effects, including cumulative impacts.[432] This review involves balancing the need for the proposed structure, the practicability of alternatives, and the duration and extent of project effects.[433] Some factors that must be considered are effects on wetlands, floodplains, coastal zones, fish and wildlife, and water quality.[434] The review process also considers the views of expert comment agencies, mitigation measures, and other restrictions imposed by statute or executive order.[435] However, the same nationwide or regional general permits that exempt certain actions from individual permit requirements under Section 404 of the Clean Water Act[436] frequently exempt projects from the requirement of a separate permit under Section 10.[437] Activities permitted by a state-administered Section 404 program are authorized by a nationwide Section 10 permit.[438]

RHA Section 9 regulations pertaining to bridges and causeways are administered by DOT and are thus subject to different regulations than those imposed for Corps-regulated projects.[439] Matters pertaining to bridge and causeway locations and clearances have been delegated to the U.S. Coast Guard.[440] Coast Guard review focuses primarily on navigational impacts, although it also involves verification of compliance with applicable laws, regulations, and orders.[441] FHWA supplies environmental review. FHWA policy is to minimize floodplain impacts[442] and to provide for early public review and comment as part of the NEPA process when projects involve floodplain encroachments.[443] FHWA requires location studies, including, among other things, discussion of alternatives, risks associated with the action, impacts on floodplain values, support of incompatible floodplain development, and mitigation measures.[444] Projects involving floodplain encroachment must be found to be the only practicable alternative.[445] Although there is some public involvement and consideration of environmental impacts under FHWA regulations, this review is not as broad as the public interest review required of Corps-regulated projects. Thus, review for a Section 404 permit would not be redundant. Nevertheless, discharges associated with Coast Guard–approved bridges are authorized by nationwide permits.[446] Causeways and approach fills still require Section 404 permits and the attendant Corps review,[447] and bridges may become subject to this review if the Corps determines that they involve more than minimal adverse environmental effects or may be detrimental to the public interest.[448]

Although the importance of RHA regulation has been greatly diminished by Section 404 of the Clean Water Act, Sections 9 and 10 of RHA cannot be ignored because they impose additional permitting requirements and—in some cases where Section 404 review is not necessary—additional procedures for review of environmental impacts. Although FAHP projects will primarily encounter Sections 9 and 10 of RHA where bridges and causeways are involved,[449] Section 10 will apply even to actions more remote from the navigable waters if those actions will affect the location, condition, or capacity of navigable waters.[450] Further, courts have consistently recognized broad Corps discretion under RHA,[451] and

thus RHA might serve as an independent basis for a decision to deny a permit for an FAHP project.

FLOODPLAINS LAW

There is considerable overlap between the areas of wetland and floodplain regulation, and they are often treated together by legal commentators.[452] However, the protective policies at work are somewhat different. While increased interest in wetland regulation was prompted by concerns about conservation of a rapidly diminishing resource, regulation of floodplain development largely reflects governmental attempts to curtail property damage resulting from flooding.[453] Floodplain management occurs through several different overlapping federal laws, programs, and executive orders.[454]

Floodplains can be defined by (1) the presence of alluvial soils, (2) adjacency to a water body that is actively being shaped by the forces of water, either through erosion or sediment deposition, or (3) an estimate of the area required to carry off the runoff from precipitation of a given magnitude.[455] The definition used for most management purposes is based on the frequency of flooding in an area. The Floodplains Executive Order[456] defines floodplains as

> lowland and relatively flat areas adjoining inland and coastal waters, including flood prone areas of offshore islands, that are subject to a one percent or greater chance of flooding in any given year.[457]

The 100-year floodplain is used by the Federal Emergency Management Agency to establish management criteria in connection with the National Flood Insurance Program.[458] Other agencies, including DOT, the Corps of Engineers, and the Fish and Wildlife Service, use similar definitions.[459] Between 162 and 195 million acres of rural-nonfederal land are prone to flooding—this is up to 14 percent of total nonfederal land.[460]

Floodplains contain many of the nation's most prominent landscapes, including wetlands, fertile soils, a large number of endangered animal and plant species, and numerous archeological and historic sites of considerable importance.[461] Floodplains are an integral part of river systems because they clean away pollution, store floodwater, and have many recreation benefits.[462] The natural and cultural values of floodplains include both wetlands and agricultural lands that provide a variety of important flood and erosion control, water quality maintenance, groundwater recharge, wildlife habitat, and recreational, cultural, and scientific functions.[463] Although most of these values are not associated exclusively with floodplains, floodplain values are, according to an interagency task force report, "a specialized and important component of a larger set of resources and values.... [M]ost of the nation's earliest archeological and historic sites are found in floodplain areas which also provide unique opportunities for natural scientific study and research."[464]

If adequate safeguards are not employed, highways may adversely affect floodplain resources as a result of (1) increased runoff due to vegetation clearing, wetlands destruction, dune removal, and other development activities like paving; (2) interruption of surface groundwater movement; and (3) increased pollution.[465] Highway construction can affect water flows, making otherwise unaffected areas subject to flooding caused by runoff and erosion. On the other hand, highway bridges, embankments, and culverts may serve either to block or to increase water flows that can increase the severity of floods.[466] Highway structures can affect adjacent streambeds, causing degradation as a result of high flows, which may alter both the location and width of a streambed.[467] Poorly maintained highways can increase the accumulation of debris downstream,[468] which can exacerbate the severity of flooding. As the disastrous flooding of the Midwest in 1993 vividly illustrated, flooding can result in the loss of natural and cultural values, loss of life, and severe damage to regional economics. With careful planning, however, highways need not be a threat to floodplains.

A. The National Flood Insurance Program and the Unified National Program for Floodplain Management

The National Flood Insurance Program (NFIP)[469] provides subsidized flood insurance for owners of homes and businesses located in flood-prone areas and promotes planning to avoid future flood damage. Through NFIP, the federal government makes insurance available to communities at subsidized rates. In exchange for participation in the federal insurance program, communities must "adopt adequate floodplain ordinances with effective enforcement provisions consistent with Federal standards to reduce or avoid future flood losses."[470]

NFIP also advocated a "Unified National Program for Floodplain Management."[471] Through NFIP and the Unified National Program, Congress authorizes state and local governments to apply uniform standards to restrict development in land exposed to flood damage and to improve long-range land management and use of flood-prone areas.[472] NFIP's primary goal was to end the traditional cycle of building in flood-prone areas, followed by destruction, disaster relief, and rebuilding. In 1979, the U.S. Water Resources Council reported that "[t]he customary sequence of events generally continues to be (1) flooding, (2) flood losses, (3) disaster relief, (4) flood control projects attempting to modify the flood potential through provisions for storing, accelerating, blocking, or diverting flood waters, (5) renewed encroachment and development onto the floodplain and upstream watershed, (6) flooding, (7) flood losses, (8) disaster relief, (9) more projects, (10) more encroachment and development, *ad infinitum*."[473]

NFIP was originally administered by the Department of Housing and Urban Development. In 1978, Congress created the Federal Emergency Management Agency (FEMA), an independent agency, and gave it jurisdiction over NFIP.[474] NFIP requires FEMA to identify and publish information regarding all floodplain areas, including coastal areas, that have "special flood hazards."[475] FEMA's implementing regulations define the area of special flood hazards as areas that would be inundated by the occurrence of a 100-year flood.[476] Once a community notifies FEMA that it is in a flood-prone area and prepares preliminary maps of the floodplain, the community must then enact a basic planning ordinance before FEMA will make subsidized insurance available.[477]

Within NFIP, Congress called for the creation of a Unified National Program for Floodplain Management that would encourage state and local governments to minimize flood damage.[478] Under this directive, state and local governments are encouraged to make land use adjustments to constrict the development of land exposed to flood damage and to guide future construction away from areas threatened by flood hazards.[479] The Water Resources Council established the conceptual framework for a Unified National Program in 1976.[480] The program was revised and updated in 1979[481] and again in 1986 under the guidance of the Interagency Task Force on Floodplain Management.[482]

The Unified National Program framework consists of both "general" policy-based principles and "working" principles. The general principles discuss gov-

ernmental responsibility for managing floodplains and the necessary components of sound floodplain management. For example, the general principles assert that although the federal government has a fundamental interest in managing the nation's floodplains, the basic responsibility for floodplain regulation lies with state and local governments. The program calls for flood-loss reduction to be viewed in the larger context of floodplain management, rather than as an objective in itself.[483] The working principles include term definitions and set forth three basic strategies for achieving the objective of flood-loss reduction. The three strategies are as follows:

> (1) Modify susceptibility to flood damage and disruption. This includes action to avoid dangerous, uneconomic, undesirable, or unwise use of the floodplain.
>
> (2) Modify flooding. This includes traditional strategies, such as constructing dams, dikes, and levees, as well as channel alterations and land treatment measures.
>
> (3) Modify the impact of flooding on individuals and the community. This includes assisting communities in the preparatory, survival, and recovery phases of floods.[484]

The planning requirements of the Unified National Program and NFIP directly affect decisions concerning highway design and location. Where a comprehensive NFIP plan exists for an area, state and local highway departments, as well as FHWA, must consider the floodplain impacts of any proposed highway project.[485] Further, FHWA regulations implementing NFIP, the Unified National Program, and the Floodplains Executive Order place specific restrictions on highway projects in floodplains, prohibiting new projects that include a "significant encroachment" on floodplains unless there is no practicable alternative.[486] Because FHWA regulations specifically incorporate the Unified National Program, FHWA "essentially finds itself participating or requiring state highway agencies to participate in floodplain management planning."[487]

B. The Floodplains Executive Order

In an attempt to establish a coherent federal policy to protect against flood hazards and floodplain degradation, President Carter in 1977 issued Executive Order 11988. The order requires all federal agencies to evaluate the potential effects of their actions on floodplains and to avoid actions located in or adversely affecting floodplains unless there is no practicable alternative.[488] In 1978, the Water Resources Council (WRC) issued Floodplain Management Guidelines for implementing Executive Order 11988, defining "practicable" as "capable of being done within existing constraints."[489] The guidelines further explain that the practicability test will vary with each situation, but must include consideration of all "pertinent factors," such as environment, cost, or technology.[490] The guidelines set out an eight-step decision-making process for all federal agencies implementing the order.[491] As part of this process, an agency must first consult maps provided by state or local agencies to determine if a planned site is located within the floodplain and then assess the potential hazards based on the depth and velocity of the floodwaters to be expected at any particular location.[492]

The agency must consider practicable alternatives to floodplain development, include a no-action alternative, and identify the environmentally preferred alternative.[493] The agency is required to identify and quantify all direct and indirect impacts of the proposed action.[494]

Both DOT and FHWA have published regulations implementing Executive Order 11988. In DOT Order 5650.2, DOT applies the Floodplains Executive Order and WRC Floodplain Management Guidelines to "all elements of the Department," but leaves to each agency the option of issuing its own policies and procedures consistent with the DOT order.[495] The corresponding FHWA regulations are more specific than the DOT order and require that any proposed projects that would include a "significant encroachment"[496] on an area subject to flooding by the 100-year or "base" flood[497] shall not be approved unless FHWA finds that the proposed significant encroachment is the only practicable alternative. The regulations define "practicable" as "capable of being done within reasonable natural, social, or economic constraints."[498] A finding by FHWA of no practicable alternative must be supported by (1) the reasons why the proposed action must be located in the floodplain, (2) the alternatives considered and why they were not practicable, and (3) a statement indicating whether the action conforms to applicable state or local floodplain protection standards.[499] The regulations further require that if FHWA decides that encroachment by a project is unavoidable, the selected design must be supported by analyses of design alternatives.[500] The selected design must also be consistent with NFIP standards established by FEMA or local agencies.[501]

WATER QUALITY LAW

The nation's principal water quality law is the Clean Water Act, the goal of which is to preserve and restore the quality of all waters of the United States, including wetlands.[502] The permit requirements of the Clean Water Act, especially new stormwater regulations,[503] are of primary concern to highway managers. The Safe Drinking Water Act, which is focused mostly on drinking water standards and well injection regulation, is also a concern for highway projects because it prohibits FAHP projects where they would affect an aquifer designated as a sole source of drinking water.[504]

A. The Clean Water Act (Other Than Section 404)

The act's preservation and restoration goals are to be achieved through a complex intersection of ambient (environmental quality) and effluent (end-of-the-pipe) standards that all discharges from point sources must meet through a nationwide permit system. Point sources are those from "any discernible, confined and discrete conveyance" like pipes, ditches, and channels.[505] Nonpoint-source pollution, such as runoff from agricultural, silvicultural, and construction activities, is not subject to the national permit system, and its regulation is left largely to state initiatives.[506] FAHP projects may be subject to both point (especially stormwater discharges[507]) and nonpoint source regulation.

1. NPDES Permit Requirements

The Clean Water Act makes "the discharge of any pollutant by any person...unlawful" unless authorized by a permit.[508] Permits are issued consistent with national effluent limitations and state water-quality standards under the National Pollutant Discharge Elimination System (NPDES), established by Section 402 of the act.[509] NPDES permits are issued by EPA, or states approved for permitting authority by EPA, after an opportunity for a public hearing.[510]

Whether administered by a state or the federal government, the NPDES program requires permits for the discharge of "pollutants"[511] from any "point source"[512] into "waters of the United States."[513] A "discharge of a pollutant" is the addition of pollutants[514] to the waters of the United States from a point source, including additions of pollutants from "surface runoff which is collected or chan-

neled by man; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works."[515] Examples of pollutants include solid waste, filter backwash, sewage, heat, discarded equipment, rock, sand, and dirt.[516] Thus, when a construction project involves an addition of pollutants from a point source into water, an NPDES permit is required.[517] The next section, examining stormwater discharges, discusses more specifically the intersection between highway construction projects and NPDES permit requirements.

2. *Stormwater Discharges*

Section 301 of the Clean Water Act[518] requires EPA to regulate discharges from point sources into the waters of the United States.[519] EPA exercises this authority through the NPDES permit program.[520] Although EPA has not yet issued regulations for all categories of point source discharges, the agency has addressed some municipal and industrial stormwater discharges.[521] These regulations will affect FAHP projects. Other stormwater regulations are under development and may prove important in the future.[522]

Currently, sources for which EPA had not issued a stormwater permit before February 4, 1987, are subject to NPDES stormwater-discharge permit requirements only if they (1) are associated with industrial activity, (2) are from a municipal separate storm sewer serving a population of more than 100,000, or (3) contribute to a water-quality violation.[523] Section 402(p)(6) of the Clean Water Act required EPA to issue additional regulations concerning stormwater discharges by October 1, 1993,[524] and further, as of October 1994, all stormwater discharges are potentially subject to NPDES permit requirements.[525] Originally, the deadline for issuance of Section 402(p)(6) regulations was 1992; other stormwater discharges were also to become subject to regulation at that time.[526] But Congress changed both dates in the wake of *Natural Resources Defense Council v. EPA*,[527] which held that EPA did not have authority to ignore stormwater deadlines set by Congress.[528] However, EPA may fail to meet even the extended deadlines. Although the agency has established basic requirements for draft state stormwater permitting programs, it has set a deadline of April 3, 1995, for submittal despite the fact that EPA expects these plans to be essential to the development of Section 402(p)(6) state stormwater management programs, for which regulations were required by October 1993.[529]

Nearly all FAHP projects will involve stormwater discharges[530] from point sources, and they will require NPDES permits because EPA has defined "storm water discharge associated with industrial activity" to include discharges from construction activities.[531] In promulgating its 1990 regulations, EPA reasoned that construction activities are comparable to other industrial activities and can result in serious water quality impacts.[532] Further, EPA noted that "over a short period of time, construction sites can contribute more sediment to streams than was previously deposited over several decades."[533] In 1990, EPA attempted to exclude isolated construction operations that "result in the disturbance of less than five acres of total land area" from the definition of discharges "associated with industrial activity."[534] However, in 1992 the Ninth Circuit invalidated this exemption, finding EPA's departure from an earlier proposal for a 1-acre limit to be arbitrary and capricious.[535] As of mid-1993, EPA had yet to propose new rules or attempt to require permit applications from dischargers disturbing fewer than 5 acres. The agency has stated that the current regulations will remain in effect until it completes further rulemaking.[536]

Most FAHP projects require NPDES permits because they involve disturbance of 5 or more acres or will be "part of a larger common plan of development," and thus would not qualify for the exemption even if it had been upheld.[537] Further, because EPA considers discharges from mobile asphalt or concrete plants to be "associated with industrial activity," these discharges need their own NPDES permits, regardless of whether the site disturbs 5 or more acres.[538]

Once construction is completed, EPA will no longer consider stormwater discharges from public highways to be "associated with industrial activity"; therefore, completed highways will no longer require their own NPDES permits under the current stormwater regulations.[539] But highways will still contain point sources, such as storm drains, and may be subject to future NPDES requirements, as EPA and states expand their regulatory programs to include regulation of discharges from sources that have previously been exempt from regulation.[540] Even under current regulations, FAHP projects must address subsequent stormwater management requirements[541] and may have to provide additional infrastructure to conform to state or municipal stormwater-pollution prevention programs.[542]

There are three basic types of NPDES permits that may authorize stormwater discharges: general, group, and individual.[543] Requirements and availability of permits may vary from state to state because of differences in state authority and state-imposed requirements.[544] EPA expects the majority of stormwater discharges associated with industrial activity to be authorized under general permits because they reduce administrative burdens.[545] Unlike individual and group permits, general permits do not require a full NPDES application. Instead, they require the filing of a notification of intent (NOI) to be covered under a general permit issued by EPA or an authorized state.[546] EPA has issued general permits for a number of states, territories, and Indian lands.[547] These permits will probably serve as models for the development of general permits in states with general permitting authority.[548] State general permits are subject to EPA review;[549] therefore, state permits will likely contain restrictions similar to those in EPA's general permits.

General permits aim to reduce the administrative burden of processing permit applications,[550] and EPA-issued general permits contain a number of incentives to channel applicants into such permits. Nevertheless, these general permits may impose significant burdens on FAHP projects. The primary benefit of using an EPA general permit for construction activities is that a long application period is not necessary; discharges become authorized 2 days after an NOI is postmarked, unless the applicant is notified otherwise by EPA.[551] Further, if EPA later determines that an individual or different general permit is required, and an application is made in a timely manner, the general permit remains in effect until the appropriate permit is issued or denied.[552]

EPA's general construction permit requires NOIs to be submitted simultaneously by all known operators[553] at the time of initial filing. Operators who become involved with the project after the initial filing are also required to submit additional NOIs.[554] An operator filing an NOI under an EPA general permit must certify that a number of requirements have been met, and the general permit also imposes a number of recordkeeping and self-reporting requirements.[555]

Substantively, the most important requirement for an EPA general permit is the applicant's certification that a "storm water pollution plan" has been prepared for the site and that the plan is in accordance with the general permit and also with any approved state or local plans or permitting requirements for managing

stormwater, sediment, and erosion.[556] Among other things the plan must include (1) a site description, (2) a description of the intended sequence of major activities, (3) estimates of the total area that will be disturbed, (4) an estimate of the runoff coefficient of the site after construction, (5) a map indicating drainage patterns, areas of disturbance, slopes, and major controls identified in the plan, (6) controls that will be implemented for each major activity at the site, (7) a description of maintenance procedures, and (8) provisions for inspections of disturbed areas and of control measures.[557]

EPA's general permit for construction establishes certain minimum erosion and sediment controls, including requirements for rapid initiation of stabilization measures, provision of sediment basins, and use of silt fences or equivalent sediment controls.[558] The permit establishes minimum inspection schedules.[559] The contractors or subcontractors who will implement the plan's measures must be identified in the plan, and these parties must sign a certification that they are aware of the terms and conditions of the NPDES permit.[560]

General permits for construction may differ significantly from state to state and will not necessarily reflect the requirements of EPA general permits because EPA has chosen to take a flexible approach to implementation of general permits.[561] In some states general permits may not be available, and FAHP projects may be required to apply for an individual or group permit.[562] In any case, care must be taken to obtain the appropriate NPDES permit and to abide by its terms. This is best done by consulting with EPA's stormwater hotline or with the appropriate regional office of EPA.[563] Knowing or negligent violations of stormwater NPDES requirements or permit conditions are subject to criminal, civil, and administrative penalties.[564] False statements that are knowingly made on NPDES applications, records, or other documents are also subject to criminal penalties.[565]

3. Water Quality Standards

Water quality standards are legal expressions of permissible amounts of pollutants allowed in a defined water segment (referred to as an ambient water standard).[566] While effluent limitations are concerned with the permissible amount of pollutants from a particular source, ambient water standards are concerned with the amount of pollutants in an entire area of water. These standards are either quantitative (not less than 5 parts per million of dissolved oxygen) or descriptive (surface waters must be free from floating debris).[567] Common water quality parameters include temperature, turbidity, acidity, levels of nutrients, and presence of detrimental bacteria.[568]

States are primarily responsible for creating and implementing water quality standards.[569] Like state NPDES permit programs, state water quality standards are subject to EPA approval to ensure compliance with the objectives of the Clean Water Act.[570] Under the Clean Water Act, point sources subject to the NPDES program must meet not only technology-based effluent limitations,[571] but also "any more stringent limitation" necessary to achieve water quality standards.[572] Thus, each NPDES permit must contain discharge restrictions so that state water quality standards will not be violated.[573]

Highway construction activities may violate water quality standards, even when there is no violation of NPDES permit requirements as a result of nonpoint-source pollution (unchanneled runoff) not regulated by the permit system. The Ninth Circuit has ruled that even where nonpoint activities are consistent with applicable nonpoint regulations,[574] the Clean Water Act is violated where nonpoint runoff produces a water quality standards violation.[575] The same court later held that actions of federal agencies that result in water quality standards violations are subject to suits brought by citizens under the Administrative Procedure Act, even though such violations are not enforceable by the Clean Water Act's citizens' suit provision.[576]

When runoff from a highway project is channeled by a conveyance into waters of the United States, an NPDES permit is required for the discharge,[577] and NPDES limitations on the discharge must be designed to satisfy state water quality standards.[578] Where runoff from a highway project is unchanneled, it must be controlled, or mitigation steps must be taken to ensure state water quality standards are not violated.

4. Nonpoint-Source Regulation

Nonpoint-source pollution is undefined by the Clean Water Act, yet it is understood to be any source of water pollution or pollutants not associated with a discharge of pollutants from a point source.[579] Whereas point-source pollution is channeled "by a discernible, confined, and discrete" conveyance,[580] nonpoint-source pollution is unchanneled and uncollected.[581] Nonpoint-source pollution includes runoff from agriculture, silviculture, and construction activities.[582] Nonpoint sources produce a variety of pollutants including pesticides, sediments, organic wastes, nutrients, waste oils, and thermal pollution.[583] While a point source is easily identifiable, nonpoint sources of water pollution are difficult to quantify, identify, and control.[584] For this reason, nonpoint sources are not regulated by the NPDES program.[585]

In Section 208, the Clean Water Act encourages states to develop areawide management plans designed to control, to the extent feasible, nonpoint-source pollution.[586] In 1987, Congress added Section 319 of the Clean Water Act to strengthen state Section 208 programs controlling nonpoint-source pollution.[587] Section 319 requires states to develop a comprehensive nonpoint-source management plan, provides technical assistance to states to help develop their management plans, and makes available financial grants and other assistance to states that design innovative and effective programs for controlling nonpoint-source pollution.[588]

Despite this increased concern over nonpoint-source pollution, there is no national permit system governing nonpoint sources. However, as mentioned earlier,[589] a federal agency action causing nonpoint-source pollution producing a violation of state water quality standards is subject to judicial review under the Administrative Procedure Act.[590] In addition to state water quality standards, highway planners should be aware of erosion control guidelines adopted under ISTEA, in an effort to reduce nonpoint-source pollution caused by highway construction.[591]

B. The Safe Drinking Water Act

The Safe Drinking Water Act (SDWA)[592] deals with drinking water standards[593] and regulation of injection wells.[594] SDWA's protection of underground sources of drinking water produces a potential prohibition on FAHP funding in areas where a single aquifer is the sole or principal source of drinking water.[595] SDWA provides that the EPA administrator may designate an area a sole-source aquifer (SSA) if he or she determines that (1) it is the principal drinking water source for the area, and (2) if contaminated, the aquifer "would create a significant hazard to public health."[596] In January 1993, there were 58 designated SSAs, with a

number of petitions pending for further designations.[597] Notice of the SSA designation must be published in the *Federal Register*, and after publication, no commitment of federal financial assistance may be made for any project the EPA administrator determines may contaminate the aquifer through a recharge zone and result in a significant public health hazard.[598] This restriction, however, applies only to new commitments, and new commitments in the SSA area will be allowed in the absence of an adverse determination by the EPA administrator.[599] SDWA allows financial assistance for planning or designing the project so as to prevent contamination.[600]

SDWA does not require consultation by EPA to determine whether projects may contaminate an SSA, and general regulations have not been issued providing for consultation. Instead, EPA relies on interagency MOUs, signed on regional bases, with other federal agencies to provide for review. Consequently, entities seeking FAHP funding should consult with the appropriate FHWA division office or with the appropriate regional EPA office's groundwater protection division to determine if there is an SSA in an area and what its implications are for a project. In the case of the large Edwards SSA in Texas, EPA has issued more substantial regulations for review.[601] Recently the SSA protection clause has come under fire because federal agencies have failed to refer projects to EPA under the appropriate MOUs and because MOUs have not been signed with all federal agencies providing financial assistance. Because SDWA does not currently require federal agencies to refer projects to EPA for review, the Government Accounting Office has suggested that Congress should amend the SSA provision to make EPA review mandatory.[602]

COASTAL ZONE LAW

A. The Coastal Zone Management Act

The Coastal Zone Management Act (CZMA)[603] declares a national interest in the management of coastal zones, including areas bordering the Great Lakes, as well as the oceans.[604] CZMA authorizes financial assistance to the states for management and improvement of coastal zones[605] and requires federal activities,[606] permits and licenses,[607] and assistance[608] to be consistent with state coastal management programs (CMPs). CZMA encourages states to develop coastal zone management plans, which must be approved by the secretary of commerce,[609] who reviews the CMPs for compliance with the substantive and procedural requirements of CZMA and its implementing regulations.[610] After the secretary approves a CMP it becomes effective against federal actions (including funding), requiring federal consistency with the CMP.[611] CZMA's federal consistency provisions apply to FAHP actions within designated state coastal zones, and also to activities outside of coastal zones that are likely to affect a state's coastal zone.[612]

For projects affecting any land or water use or natural resource of the coastal zone, an application for federal funding must include the views of the state agency responsible for coastal zone management, and federal agencies must deny approval if a proposed project is inconsistent with enforceable polices of a state's CMP.[613] State consistency certifications are also necessary to obtain permits under the Clean Water Act or other federal laws.[614] Consistency with CMP should also be indicated in the final environmental impact statement or finding of no significant impact for FAHP projects.[615] Each state develops its own consistency review process,[616] and in the absence of an exemption, a state's objections will be determinative.[617] There are two exceptions to the consistency requirement, but these are limited and are available only where the secretary finds that the project (1) is consistent with the purposes of CZMA or (2) is necessary in the interest of national security.[618] These exceptions are rarely used. The exception for actions "consistent with the purposes of the CZMA" requires that there be no reasonable alternative,[619] and alternatives may involve major changes in design or location.[620]

B. The Coastal Barrier Resources Act

The purpose of the Coastal Barrier Resources Act (CoBRA),[621] enacted in 1982, is to minimize (1) loss of human life, (2) wasteful federal expenditures, and (3) damage to fish, wildlife, and other natural resources.[622] CoBRA created a Coastal Barrier Resources System that provides protection to coastal barriers along the shores of the Great Lakes and the Atlantic and Gulf coasts by restricting federal funding for development of these areas.[623]

For FAHP purposes, the key provisions of CoBRA are those that (1) define the system,[624] (2) limit federal expenditures,[625] and (3) establish exceptions to spending limitations.[626] The system includes "those undeveloped coastal barriers and other areas located on the coasts of the United States that are identified and generally depicted on the maps on file with the Secretary."[627] The system currently includes 560 units totaling 1.25 million acres, according to the Department of the Interior.[628] CoBRA's definition of "undeveloped coastal barriers" makes it clear that this term is meant to include only areas with few manmade structures where human activities do not significantly impede geomorphic or ecological processes,[629] but the Fourth Circuit has held that CoBRA's definition is "informational only" and that the statute's map designations are controlling.[630] The maps are on file and available for inspection in the offices of the director of the Fish and Wildlife Service and may also be found in other service offices.[631]

CoBRA states that "[N]o new expenditures or new financial assistance may be made available under authority of any Federal law for any purpose within the System, including, but not limited to...the construction or purchase of any road...or other facility."[632] However, assistance does not include "assistance for environmental studies, planning, and assessments that are required incident to the issuance of permits or other authorizations under Federal law."[633] Moreover, several exceptions to CoBRA's prohibition on federal assistance are available after consultation with the secretary of the interior,[634] two of which are particularly relevant for purposes of FAHP. Federal expenditures and financial assistance may be made available for "[t]he maintenance, replacement, reconstruction, or repair, but not the expansion, of publicly owned or publicly operated roads, structures, or facilities" that are (1) essential links in a larger network or system,"[635] or (2) consistent with the purposes of CoBRA.[636]

FISH AND WILDLIFE LAW

A. The Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires federal decision makers to consider fish and wildlife resources when balancing the costs and benefits of water projects. The Coordination Act stipulates that "wildlife conservation shall

receive equal consideration and be coordinated with other features of water-resource development...."[637] Section 662 of the Coordination Act establishes the procedure designed to implement the "equal consideration" requirement:

> [W]henever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted...or modified for any purpose whatever...by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency shall first consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State...with a view to the conservation of wildlife resources....[638]

The ends of the consultation process may include (1) alterations of water projects that reduce adverse effects on fish and wildlife, (2) mitigation measures aimed at compensating for unavoidable adverse effects,[639] or (3) studies designed to determine the extent of adverse effects and the best means of compensating for them.[640]

The Coordination Act contributes to the protection of wetlands and floodplains by requiring consultation with the Fish and Wildlife Service—or the National Marine Fisheries Service where marine species are involved—as well as the head of the appropriate state wildlife agency early in the planning process for projects that will "impound, divert, deepen, control or otherwise modify any stream or other body of water."[641] This consultation requires some form of response to the fish and wildlife agency's analysis of the project.[642] Coordination Act consultation may justify expenditures of project funds for the study and mitigation of negative wildlife impacts of highway construction.[643] However, it is important to note that "impoundments" of water less than 10 surface acres and federal land management activities are exempt from the Coordination Act's consultation requirement.[644]

Highway projects may be subjected to Coordination Act consultation as transportation planning is integrated with planning for water development programs.[645] Modifying a water body requires consultation both when FHWA approves a project for federal funding and when permits are obtained by the state from agencies like the Corps under the Clean Water Act.[646] The report of the Fish and Wildlife Service, National Marine Fisheries Service, or the state wildlife agency is an integral part of the documentation required for federal approval of projects.[647] Conservation measures adopted as a result of the consultation process may be included in project costs, but not the operation of wildlife facilities.[648]

The Coordination Act does not require that an agency's decision correspond with the view of the fish and wildlife agencies, only that these views be given serious consideration.[649] Most of the Coordination Act's procedural requirements can be satisfied through NEPA's review and commenting procedures. In addition, sanctions for noncompliance are relatively slight. Violation of any rule or regulation promulgated under the Coordination Act is a misdemeanor, punishable by a maximum fine of $500, or a maximum of 1 year in prison, or both.[650]

Although the Coordination Act does not require particular substantive outcomes, it does contain important process requirements. A federal-aid highway project that modifies a body of water, and is not subject to the exemptions of the Coordination Act, must expressly take into account the project's effect on fish and wildlife and include estimated costs of mitigating damage to fish and wildlife.[651] Thus, the consultation process of the Coordination Act may have important implications for highway construction by influencing the eligibility of projects for federal funding.

B. The Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA),[652] enacted in 1918, is primarily concerned with regulating hunting of migratory birds, but it also has implications for FAHP projects because of its "take" restrictions. MBTA provides that "except as permitted by regulations...it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, ...any migratory bird...nest, or eggs."[653] The list of birds protected under MBTA is extensive, consisting of hundreds of species, including among them many common species of scavenger and songbirds and many species that one would not normally consider to be migratory.[654] The regulations define "take" to mean to "pursue, hunt, shoot, wound, kill, trap, capture, or collect" or to attempt such actions.[655]

Although originally considered just a hunting regulation statute, MBTA has been given a broader interpretation since the 1970s.[656] Courts have interpreted MBTA's language to apply to any activity that can kill or otherwise take birds, even if there is no intent to do so.[657] A take could thus occur where an FAHP project resulted in direct mortality of protected birds—for example, where birds are killed by construction equipment or by toxic substances released during construction. When such a take is unavoidable, a permit must be obtained from the Fish and Wildlife Service.[658] Because of the strict liability imposed under MBTA, permits should be sought even when take is a mere possibility. Regulations do not provide a permit specifically for take of migratory birds incidental to actions unrelated to take and therefore a "special purpose permit," which sets out additional requirements including a requirement that the applicant show compelling justification for the permit, will be needed.[659] Permits will normally not be obtainable where take of nests containing eggs or young are involved because such take is normally avoidable through seasonal restrictions. Permits may also impose a number of recordkeeping and reporting requirements.[660] Permit conditions, such as dates, times, and places, are to be strictly construed.[661]

The penalty provisions for take under MBTA are modest[662] and are weakened by the lack of a citizen suit provision,[663] but the Coordination Act may also result in injunctions against actions that would produce violations.[664] If MBTA is given a broad interpretation, take would occur where FAHP projects result in pollution that kills birds, where construction results in the destruction or removal of nests or eggs, or perhaps even where construction destroys habitat necessary to support a bird population at its current level. Injunctions might be issued to prevent such actions.[665] However, the Ninth Circuit recently rejected MBTA claims based on habitat destruction, reasoning that MBTA's definition of take "describes physical conduct of the sort engaged in by hunters and poachers."[666] Further, the court reasoned that MBTA regulations,[667] unlike the Endangered Species Act[668] and its regulations, "make no mention of habitat modification or destruction."[669] If the Ninth Circuit's construction of MBTA's take prohibition is widely adopted, the Coordination Act's applicability to FAHP projects would be limited to situations where there were direct mortalities of migratory birds.

C. The Endangered Species Act

The Endangered Species Act of 1973 significantly strengthened prior federal attempts to halt and reverse the rate of species extinction. To help achieve this goal, the Endangered Species Act requires that each federal agency take measures to ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened

species or result in the destruction or adverse modification of a habitat area critical to the species' existence.[670]

Critics of the Endangered Species Act have branded the Coordination Act the "pit bull of environmental laws" for its alleged failure to properly balance species protection against development activities.[671] However, a recent study by Oliver Houck disputes this charge of inflexibility. After an exhaustive review of Section 7 consultation, Houck concluded that the Endangered Species Act, despite charges to the contrary, "has accommodated the overwhelming majority of human activity without impediment."[672]

The Endangered Species Act is subdivided into three principal areas. First, Section 4 requires the identification and listing of imperiled species, as well as their critical habitat.[673] Second, Section 7, the most important provision for FAHP purposes, prohibits agency actions from jeopardizing listed species or adversely modifying designated critical habitat.[674] Section 7 also requires agencies to undertake affirmative programs for the conservation of listed species. Finally, Section 9 prohibits all persons, including all federal, state, and local governments, from taking listed species of fish and wildlife.[675]

1. Listing Species

The natural starting point for analyzing the Endangered Species Act is Section 4, which establishes the procedures and substantive criteria for the listing of threatened and endangered species.[676] The act divides the responsibility for listing between the secretaries of the interior (terrestrial and freshwater species) and commerce (marine species).[677] Listing is a critical function because it triggers important duties and prohibitions under the Endangered Species Act, including designation of critical habitat,[678] agency consultation to avoid jeopardy,[679] takings limitations,[680] and preparation of habitat conservation[681] and recovery plans.[682] The ultimate importance of listing is underscored in one commentator's wry remark that "Listed species receive these protections...unlisted species do not."[683]

The act defines "species" broadly to include any "species or any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature."[684] The authority to list "distinct population segments" allows the secretaries to list distinct vertebrate populations, even if the species itself is abundant in other ranges.[685] The American bald eagle, for example, is listed as endangered in some geographic areas and threatened in others, but not listed at all in other areas.[686] A species is "endangered" where it is in "danger of extinction throughout all or a significant portion of its range."[687] A species is "threatened" if it is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."[688]

The act gives the public the authority to submit petitions requesting a listing to the relevant secretary.[689] After receiving a public petition, the secretary must, to the maximum extent practicable, determine within 90 days whether a petition presents "substantial" biological data to indicate that the petitioned action may be warranted.[690] Listing decisions must be made "solely on the basis of the best scientific and commercial data available."[691] This means that economic costs are not a permissible basis for refusing to list a species.[692] The factors the secretaries may take into account in a listing decision are (1) the present or threatened destruction, modification, or curtailment of the species' habitat or range, (2) overuse of the species for commercial, recreational, scientific or educational purposes, (3) disease or predation, (4) the inadequacy of existing regulatory mechanisms, and (5) other natural or manmade factors.[693]

Despite this broad mandate for listing and a fixed time frame for considering petitioned species, as of 1991 only 651 domestic species were listed as threatened or endangered, whereas more than 3,000 were identified as potentially eligible.[694] At the present rate of listing, the Department of the Interior will need 43 years to protect species currently under consideration.[695]

2. Designating Critical Habitat

Congress recognized the connection between the loss of habitat and species extinction in enacting the Endangered Species Act,[696] acknowledging that "economic growth and development untempered by adequate concern and conservation" contributes to species extinction.[697] As a result, the Endangered Species Act's broad definition of "critical habitat" includes all areas that "contain physical or biological features [that are] essential to the conservation of the species" and that "may require special management considerations or protection."[698] Implementing regulations state that the attributes essential for making a critical habitat determination include population growth, food and water resources, shelter, breeding and recovery sites, and habitats that are representative of the historic distribution of the species.[699] Designation of critical habitat is therefore not only required under the Endangered Species Act, but is "specifically designed to facilitate species recovery."[700]

The directive to designate critical habitat is tempered by the requirement under Section 4 that the secretary make such designations only "to the maximum extent prudent and determinable."[701] Congress has noted, for example, that it would be imprudent to disclose the location of a listed species if doing so would allow unscrupulous collectors to bring it into further jeopardy.[702] Although Congress cited no other instances in which designation of critical habitat would be imprudent, this exception has become prominent agency justification for avoiding the designation of critical habitat.[703]

Prior to 1978, only biological factors could be taken into account in designating critical habitat.[704] However, in 1978, responding to criticism of development interests, Congress amended Section 4 to require the secretary to consider the economic impacts of designating a particular area as critical habitat. Thus, in contrast to listing decisions, the Endangered Species Act requires that the secretary make a critical habitat designation based not only on the "best scientific data available" but on economic and other "relevant" impacts.[705] Consequently, areas fitting the basic definition of critical habitat may be denied this status where the secretary determines that designation is not necessary to prevent extinction and that "the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat."[706]

Whether critical habitat has been designated may well be the crucial factor in determining whether a species is jeopardized by agency actions. In *National Wildlife Federation v. Coleman*, for example, the Fifth Circuit emphasized that "the relevant consideration is the area determined by the Secretary of Interior as critical habitat for the [Mississippi Sandhill] crane."[707] In the absence of the critical habitat designation, it would have been difficult for the court to find jeopardy and overturn both the agency and the district court.[708]

3. Agency Consultation

For FAHP purposes, Section 7 is the most important of the Endangered Species Act provisions. When invoked, Section 7 limits federal agencies in two respects. First, and most important, Section 7(a)(2) requires interagency consultation with the secretary of the interior to ensure agency action "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat."[709] Second, to comply with Section 7(a)(1), federal agencies must (in consultation with the secretary) "utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered species and threatened species."[710] The obligation to consult with the appropriate secretary to avoid jeopardy consumes a significant amount of agency resources and is increasingly the subject of court challenges.[711]

a. Federal Agency Actions Subject to Consultation.—A preliminary inquiry involves the scope of Section 7(a)(2) consultation requirements and whether particular FAHP projects fall within its ambit. The substantive mandate of Section 7(a)(2) explicitly includes all federal agencies and "any action authorized, funded, or carried out."[712] The Supreme Court broadly interpreted this language in *Tennessee Valley Authority v. Hill*,[713] and not surprisingly, it has been given equal breadth in the Fish and Wildlife Service and National Marine Fisheries Service regulations. The regulations define "action" to include "(1) activities intended to conserve listed species or their habitat; (2) promulgation of regulations; (3) granting of licenses, contracts, leases, easements, right-of-way, permits, or grants-in-aid; or (4) actions directly or indirectly causing modifications to the land, water, or air."[714] Moreover, Section 7 applies not only to activities and programs undertaken directly by the federal government, but also to nonfederal activities that require federal authorization or assistance.[715]

A potential loophole—one that has yet to be judicially challenged—concerns the validity of the regulatory provisions limiting Section 7 application actions involving "discretionary Federal involvement or control."[716] Where a federal agency is mandated to undertake an action, apparently neither the substantive nor the procedural requirements of Section 7 apply.[717] For purposes of FAHP, however, this provision may have only limited consequence. Highway construction, for example, may be mandatory, but siting is discretionary.

b. The Consultation Process.—Consultation between development agencies and the secretary is a critical component of Section 7. Not only is consultation procedurally required, but in most instances, the process can resolve potential conflicts between the agency action and the species.[718] Agencies that comply with Section 7 procedural requirements generally will be found in compliance with its substantive requirements as well.[719]

Agencies contemplating actions subject to Section 7 must request from the Fish and Wildlife Service or the National Marine Fisheries Service information concerning the presence of listed or proposed species in the action area under consideration. If such species may be present, the development agency must then conduct a biological assessment to identify species likely to be affected by the federal action.[720] "Formal consultation" is required where the development agency determines during the course of its evaluation that a proposed action is likely to adversely affect listed species or critical habitat.[721]

If a proposed action is likely to jeopardize a species *proposed* for listing or result in the destruction or adverse modification of *proposed* critical habitat, a "conference" with the Fish and Wildlife Service or National Marine Fisheries Service is required.[722] The implementing regulations define a "conference" as informal discussions between the action agency and the consulting agency "regarding the impact of an action on proposed species or proposed critical habitat and recommendations to minimize or avoid the adverse effects."[723] Unlike formal consultation, however, the regulations impose no limitation on the action agency's commitment of resources during the conference process.[724] The conference is intended "to assist the Federal agency and any applicant in identifying and resolving potential conflicts at an early stage in the planning process."[725]

Initial contact with the consulting agency is likely to be informal. Although the regulations distinguish between formal and informal consultation, the latter is simply a term used to describe all communications between the appropriate secretary and the development agency prior to formal consultation. Informal consultation is optional and contains no disclosure requirements. For these reasons, it is the preferred method of communication. Moreover, according to recent studies, nearly 90 percent of all consultations under the Endangered Species Act "are disposed of informally and without fanfare."[726]

c. The Action Area.—Before either informal or formal consultation can have any meaningful impact, agencies must take the preliminary step of determining the "action area" affected by the proposed undertaking. This responsibility in the first instance lies with the development agency.[727] If the consulting agency disagrees with the definition, the two agencies will usually try to negotiate a resolution. The consulting agency cannot force the development agency to enter into consultation if the development agency declines to do so on the basis of the limited scope of the action area.[728]

Because the action area sets the framework for subsequent analysis required by the consultation process, its accurate identification is critical both for protection of species and for compliance with the Endangered Species Act.[729] An "action area" contains all areas that may be "affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."[730] Moreover, federal agencies must take into account the "cumulative effects" of future actions by state or private activities that are reasonably certain to occur within the action area.[731] Future federal actions, however, are expressly excluded, apparently because such actions ultimately will be subject to Endangered Species Act Section 7 consultation requirements if and when they are actually proposed.[732] Agencies must also consider the "effects of the action" itself. This involves considering "the proposed action in light of historical perspective and other contemporaneous actions."[733] This provision was given broad effect in *National Wildlife Federation v. Coleman*, where the Fifth Circuit enjoined construction of a federally funded highway project because the DOT failed to adequately consider the effect of future private development on the endangered Mississippi sandhill crane.[734]

d. The Biological Assessment.—Section 7 requires the development agency to prepare a "biological assessment" if listed species are likely to be present in an action area.[735] The Fish and Wildlife Service regulations require this assessment for any federal action proposing "major construction activity."[736] The regulations define "major construction activity" as "a construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment," as referred to in the NEPA.[737] Thus, any time an FAHP project requires an assessment under NEPA, a biological assessment is also required under Section 7. This assessment, in fact, may be done in conjunction with the development agency's compliance with NEPA.[738]

A biological assessment is simply "the information prepared by or under the direction of the development agency concerning listed and proposed species and designated and proposed critical habitat that may be present in the action area and an evaluation [of] the potential effects on such species and habitat."[739] It is primarily designed to help agencies evaluate the impact of the proposed project and to determine whether formal consultation is required in the case of listed species or habitat or whether a conference is required in the case of proposed species or habitat.[740]

Although the development agency possesses considerable discretion as to the information to include in the biological assessment, it should usually include the results of any on-site inspections, views of recognized experts, literature reviews, an analysis of the effects of the proposed action, and alternative courses of action.[741]

An agency's failure to make a formal request inquiring whether any listed species were present in the action area and its subsequent failure to prepare a biological assessment are not *de minimis* violations of the Endangered Species Act.[742] In *Thomas v. Peterson*,[743] the Ninth Circuit required the Forest Service to follow the statute's procedural mandates, even though the Forest Service was aware of listed species in the action area and had already undertaken studies regarding the effect of proposed road construction and timber harvesting on those species.[744] According to the court, these acts did not "constitute a substitute for the preparation of the biological assessment required by the Endangered Species Act."[745]

When a development agency finds potential jeopardy—through a biological assessment, informal consultation, or other means—it must either inquire of the consulting agency whether any listed or proposed species or critical habitat may be present within the action area, or it must provide the consulting agency with written notification of any listed or proposed species or critical habitat that it believes may be present within the action area.[746] The consulting agency must respond within 30 days by providing a species list where requested or by concurring in or revising the species list provided by the development agency.[747] During this process, the Endangered Species Act prohibits development agencies from making any irreversible or irretrievable commitment of resources.[748]

e. Formal Consultation.—The Endangered Species Act regulations require formal consultation if the development agency determines that a proposed action is likely to "adversely affect" listed species or critical habitat.[749] No formal consultation is necessary where an agency determines, after completing a biological assessment or after informal consultation with the secretary, that its actions are not likely to adversely affect any listed species or critical habitat.[750] The secretary must concur in writing with this determination.[751] During this process, the consulting agency reviews all relevant information, evaluates the current status of the listed species or critical habitat, examines the effects of the action (including the cumulative effects on both listed species and critical habitat), and formulates a biological opinion.[752] Regulations require this opinion to include (1) a summary of the information forming the basis of the opinion, (2) a detailed discussion of the action's effects on the species or its critical habitat, and (3) the consulting agency's opinion as to whether the action is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of its critical habitat.[753] In essence, the consulting agency may reach only two conclusions. It may issue a "no jeopardy" opinion and issue findings that the proposed action is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. Or it may determine that the proposed action will result in jeopardy. This finding, of course, ends the matter. However, when the consulting agency determines that the agency action has potential jeopardy, it must also include reasonable and prudent alternatives that would allow the project to continue.[754]

Under the Endangered Species Act, the development agency remains free to decide if and how to proceed in the face of this advice by the consulting agency.[755] Although the development agency may not act arbitrarily, a departure from the consulting agency's suggestions does not violate the Endangered Species Act if the agency takes "alternative, reasonably adequate steps to insure the continued existence"[756] of listed species. An intermediary step in the process is the preparation and circulation of a draft biological opinion to the development agency and others during the consultation process.[757] Although similar in nature to a draft environmental impact statement issued pursuant to NEPA, there is no opportunity for public review of the biological opinion until it is final.[758]

4. The Affirmative Conservation Mandate

Section 7(a)(1) imposes an additional duty to "conserve" listed species in consultation with the secretary.[759] This duty requires all federal agencies to "conserve" endangered species. Because the Endangered Species Act defines "conservation" in terms of species recovery, recovery plan elements would seem to be powerful limits, if not mandates, for agency action.[760] However, courts have interpreted the affirmative obligation imposed by Section 7(a)(1) as allowing agencies "some discretion" in fulfilling these responsibilities.[761] Moreover, agencies clearly view the conservation requirement under Section 7(a)(1) differently than the consultation requirement of Section 7(a)(2). For example, unlike Section 7(a)(2), neither the Fish and Wildlife Service nor the National Marine Fisheries Service has adopted regulations to assist federal agencies in carrying out the affirmative conservation obligation.[762] In fact, the implementing regulations specifically indicate that conservation recommendations included in a biological opinion are strictly "advisory and are not intended to carry any binding legal force."[763] Without the guidance that can only come from the consulting agency in the form of a biological opinion, development agencies apparently will be given considerable judicial leeway as to how to fulfill Section 7(a)(1) development conservation mandate.[764]

5. The Taking Prohibition

Section 9 of the Endangered Species Act makes it unlawful for any "person" (including all federal, state and local government entities) to "take" listed species of fish or wildlife.[765] Violation of this provision may form the basis for a civil injunctive suit by the federal government or any other "person" under the Endangered Species Act's citizen suit provision.[766]

Section 9(a) creates a series of "prohibited acts" with respect to endangered species, but not threatened ones.[767] Section 9(a)(1)(B), for example, declares that "it is unlawful for any person or governmental agency to "take" any "endangered species of fish or wildlife" anywhere "within the United States."[768] Although the Endangered Species Act does not ban the taking of threatened species, Section 4(d),[769] grants the consulting agency the discretionary authority to extend any of the "prohibited acts" of Section 9(a)(1) to a threatened wildlife species. Indeed, the implementing regulations have done so with nearly all threatened species

through a blanket rule.[770] Thus, threatened species have virtually the same protection against taking as endangered species.

The Endangered Species Act defines "take" to include "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[771] The prohibited acts of "harass" and "harm" are of particular concern for FAHP, because they are the only terms that explicitly include the effects of habitat modification and land use actions. According to implementing regulations, the term "harass" means "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering."[772] The regulations define "harm" to mean "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife...."[773] Because land-use actions of highway construction often involve the destruction of habitat that may arguably impair the essential behavioral patterns of breeding, feeding, and sheltering, takings claims are always of concern.[774]

PUBLIC LAND MANAGEMENT LAW

A. National Wildlife Refuge Administration Act

The National Wildlife Refuge Administration Act consolidated various lands and land interests administered by the secretary of the interior for the conservation of fish and wildlife into the National Wildlife Refuge System.[775] The Refuge Act severely restricts the alienation of lands or interests in lands administered under the refuge system. No transfer or disposal of refuge land can occur, unless the secretary of the interior determines (with the approval of the Migratory Bird Conservation Commission)[776] that the land is no longer needed for the purposes for which the refuge system was established.[777] If such a determination is made, the secretary must receive payment of the initial payment price or the fair market value, whichever is greater.[778]

The secretary of the interior may grant a right-of-way easement across refuge system lands if the secretary determines that the use is "compatible" with the purpose for which the refuge was established.[779] The act requires the secretary to subordinate all human uses of the refuges to the welfare of resident and migratory wildlife populations.[780] Hunting, grazing, developing minerals, farming, logging, and recreating are allowable refuge uses; however, the secretary can permit such uses only as long as they are "compatible" with wildlife populations.[781] This is a difficult standard to implement, because much depends on the use proposed and the particular values and wildlife populations of the refuge at issue.[782] If a use is found to be compatible, and an easement is granted, the secretary must collect the fair market value for such an easement or the fair market rental value for the use of the right of way.[783] "If any federal, state, or local agency is exempted from such payment by any other provision of Federal law," that agency must compensate the secretary by any other means agreeable to the secretary.[784] Examples of suitable compensation include making other lands available and loaning equipment and personnel. The secretary may waive such alternate forms of compensation if they are impracticable or unnecessary.[785]

In addition to the land-use implications of the Refuge Act, Section 4(f) of the DOT Act is triggered by the construction of federal-aid highways within the refuge system because wildlife, recreation, and possibly historic values are involved.[786] As discussed earlier, the secretary of transportation may approve a highway project in a wildlife refuge only if there is no prudent and feasible alternative to using that land and the project includes all possible planning to minimize harm to the refuge.[787]

B. Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act authorizes the designation, either by Congress or a state legislature and the secretary of the interior, of rivers of remarkable wild, scenic, or recreational value as part of the wild and scenic river system.[788] The goal of the act is to preserve rivers within the system in their free-flowing condition and to protect both the river and its immediate environment for the benefit and enjoyment of present and future generations.[789] The Act's most substantial restrictions apply to water resources projects, mining and mineral leasing on federal lands, and disposition of lands already in the public domain.[790] However, all federal agencies must review their activities and cooperate with each other to ensure their actions will not adversely affect the values of protected rivers.[791]

Rivers and river segments can be designated wild and scenic either by congressional designation or by a state action with the secretary of the interior's approval.[792] Designated rivers become components of the system and are managed by the agency that had prior jurisdiction over the area.[793] The level of protection given to a river varies depending on the river's classification as wild, scenic, or recreational.[794]

Rivers that are part of the wild and scenic system—as well as those that are being considered as additions—carry significant consequences for land and water developers. Once Congress or the secretary of the interior considers a river or river segment a potential addition to the system, the act prohibits all federal agencies from assisting in the construction of water resources projects that "would have a direct and adverse effect on the values for which such river might be designated."[795] The Act does not prohibit developments above or below a listed potential river segment that will not invade the area or unreasonably diminish its preservational values.[796] Listing a river segment as a potential addition also withdraws the area within a quarter mile on each side from "entry, sale, or other disposition under the public land laws" for the requisite study period of three fiscal years.[797] Rivers nominated by states are not entitled to the statutory protections given to congressionally designated study rivers, even if the states apply to the secretary of the interior for inclusion.[798]

Designation of a river as part of the system is only the beginning of the management and protection of the area. Substantial administrative effort remains before management of the river segment assumes final form.[799] Wild or scenic river areas often contain considerable private land, and land management agencies may purchase or condemn lands or easements to achieve the federal purposes.[800] The agencies also must classify each designated segment and promulgate a land-management plan based on this classification.[801] The management plan must be specifically designed to protect and enhance the values that caused the particular river segment to be included in the system[802] and should be completed within three years of designation.[803] Although the agencies must give protection primary emphasis, the command is to be carried out "without...limiting other uses that do not substantially interfere with public use and enjoyment of these values."[804] This is a flexible standard similar to that governing the national wildlife refuge system:[805] all uses may be allowed, but only to the extent that they do

not interfere with the primary purpose behind the establishment of the area.[806] Despite this flexibility, the act prohibits Federal Energy Regulatory Commission hydroelectric licenses on protected rivers, and Congress specifically pointed to timber harvesting and road construction as activities that have a propensity to be contrary to the purposes of the wild and scenic river system.[807]

In addition to the land-use restrictions the act and river management plans place on a wild and scenic river, Section 4(f) of the DOT Act should apply as well. Section 4(f) applies to river corridors in the system that have wildlife, recreation, or historic values.[808] The secretary of transportation may approve a highway project in a designated river area subject to Section 4(f) restrictions only if there is no prudent and feasible alternative to using that land and the project includes all possible planning to minimize harm to the values of the river area.[809]

C. National Forest Management Act

The National Forest Management Act (NFMA)[810] requires the secretary of agriculture to develop and maintain a comprehensive and detailed inventory of all national forest system lands and renewable resources.[811] The secretary must promulgate land and resource management plans to carry out the act. These plans must be coordinated with state, local, and other federal agencies[812] and provide for public participation at all stages.[813] The secretary must also ensure land-use plans comply with multiple-use and sustained-yield objectives of earlier legislation.[814] NFMA plans must be prepared in accordance with Section 1604(g), which establishes detailed criteria for forest plan regulations, ranging from diversity of plant and animal communities to clearcutting standards.[815]

The main focus of NFMA is timber management: where timber may be harvested, how much timber may be cut, and how harvesting is to be done.[816] The act directs the Forest Service to ensure forest plans comply with NEPA[817] and management plans provide for preservation of wildlife, water quality, and other values directly related to wetlands and floodplains.[818] These values come into play when a federal land manager plans for or decides to permit a highway use.[819]

Section 1608 governs the national forest transportation system and states that unless there is a necessity for a permanent highway, roads constructed on national forest system lands in connection with a timber contract or other permit or lease must be designed to be temporary, with the goal of re-covering these roads with vegetation within 10 years from the termination of their use.[820] A temporary forest road can be designated as a permanent forest highway through a consultation procedure between the Forest Service, FHWA, and cooperators where appropriate; the state highway administration represents the state and county interests.[821] A forest road designated as a forest highway must meet the following criteria: (1) It is under the jurisdiction of a state or local government agency and open to public travel, (2) it provides a connection between a safe public road and the renewable resources of the forest that are essential to the local, regional, and national economy, and (3) it serves other local needs, such as schools, mail delivery, relief from traffic generated by use of the national forest, or access to private property within the national forest.[822] If the consulting parties decide there is a need for a permanent highway through forest system lands, the decision must be supported by an NEPA analysis[823] and be in compliance with all NFMA regulations.[824] Additionally, if forest system land has use as a public park, recreation lands, or wildlife and waterfowl refuges or has historical value, Section 4(f) will apply and the secretary of transportation can authorize federal funding for the road only if there is no prudent and feasible alternative to using the land and the project includes all possible planning to minimize harm to the values of the land.[825]

D. Federal Land Policy and Management Act

The Federal Land and Policy Management Act (FLPMA)[826] requires the secretary of the interior to develop and maintain land-use plans for federal public lands.[827] FLPMA states that public lands must be managed in a manner that will protect water resources, wildlife habitat, and other wetland-floodplain associated resources.[828] The act designates "areas of critical environmental concern"; these areas are to receive special management to protect and prevent irreparable damage to their environmental values.[829]

Along with environmental concerns, the act also instructs the secretary to manage with a view toward multiple uses for public lands.[830] FLPMA authorizes either the Department of the Interior or the Department of Agriculture (when Forest Service lands are at issue) to grant rights of way over federal lands.[831] FLPMA lists seven categories of purposes for which BLM and the Forest Service may grant or renew rights of way.[832] These include all forms of transportation, transmission, storage, and distribution. Oil and gas pipelines, water pipelines, and "facilities constructed and maintained in connection with commercial recreation facilities in the National Forest System" are exceptions from the acceptable uses for a right of way over federal lands.[833] A right of way for these activities is outside the authority of FLPMA. Authorization for a right of way must come from another relevant statute, such as the Mineral Leasing Act.[834] An applicant for a right-of-way permit must submit to the relevant secretary all pertinent facts about the use, or the intended use, of the right of way.[835]

FLPMA has many restrictions on rights of way designed to minimize permanent environmental damage to public lands. For example, rights of way, including those for highway purposes, may be granted only if there are appropriate safeguards for protecting water quality, wildlife habitat, aesthetic values, and other environmental concerns.[836] Holders of a right-of-way permit must also comply with air- and water-quality standards, and meet more stringent state standards if they exist for health, safety, and environmental protection.[837] To further minimize the environmental impact of granting a right-of-way permit, the secretary concerned must specify right-of-way boundaries and limit the size of a right of way to areas necessary for the project to avoid unnecessary environmental damage.[838] The secretary must also "require location of the right-of-way along a route that will cause least damage to the environment, taking into consideration feasibility and other relevant factors."[839]

In addition to the mandatory conditions, the secretary may impose such terms and conditions as he or she deems necessary to promote efficient land management and protect federal interests, other public land users, lives, and other affected interests.[840] FLPMA authorizes the secretary to prescribe conditions regarding "extent, duration, survey, location, construction, maintenance, transfer or assignment, and termination of a right-of-way."[841]

Despite the congressional directives to give priority to the designation and protection of areas of critical environmental concern and to comply with pollution control standards, the remainder of FLPMA's land-use planning provisions are phrased in vague language.[842] Much is left to the BLM's administrative discretion. This, coupled with the frequent shifts in agency policy, has led to considerable

uncertainty in the planning process.[843] When wetland-floodplain values are at issue, additional constraints are imposed on the federal land manager's discretion by Executive Order Nos. 11,990 and 11,998,[844] as well as Section 4(f) when wetlands or floodplains are part of a public park, recreation area, or have wildlife and waterfowl values of national, state, or local significance.[845]

E. Wilderness Act

The Wilderness Act establishes the Wilderness Preservation System, which protects designated federal lands from settlement, mechanized activities, and commercial development.[846] The act declares that certain areas will be maintained in a state of nature untainted by permanent human influence.[847] Wilderness areas are dedicated to recreational, scenic, scientific, conservation, and historical uses.[848]

Once Congress declares an area wilderness, very few commercial or commodity uses are allowed.[849] No permanent roads are permitted in any wilderness area, except by presidential determination.[850] Thus, for wetlands and floodplains in wilderness areas, there is near total protection from highway development.[851]

Possible additions to the system, or wilderness study areas, impose certain constraints on land use, which continue until Congress makes final decisions or the areas are otherwise released from study.[852] The statutes governing Forest Service and BLM management of wilderness study areas differ considerably, but judicial interpretation has lessened these differences.[853] Courts have required the Forest Service to refrain from actions that might harm wilderness values without first promulgating an environmental impact statement.[854] *Parker v. United States* is the leading case, extending protection to an area contiguous to an official study area.[855] Although there have been several courts who have not taken as strict a view of wilderness-study-area management standards,[856] the *Parker* line of cases holds that wilderness study areas in national forests and BLM lands cannot be used in such a manner as to preclude later wilderness designation, at least without full disclosure of the environmental consequences.[857]

Because the building of permanent roads is inconsistent with the objectives of the Wilderness Act, highway development is severely limited. In addition to the Wilderness Act's restraints on highway development, Section 4(f) of the DOT Act will apply when public lands containing wildlife, recreation, or historic values are involved.[858]

F. Land and Water Conservation Act

The Land and Water Conservation Fund Act[859] draws funds from a number of sources, including user fees, to help ensure adequate outdoor recreational resources for present and future generations.[860] The act authorizes the secretary of the interior to provide financial assistance to states to aid in their planning, acquisition, and development of outdoor recreation resources.[861] This is a matching-fund system, and federal payments cannot exceed 50 percent of the project costs.[862]

States seeking funding under the act must engage in comprehensive planning and seek public participation when developing activities and projects.[863] Each comprehensive outdoor recreation plan must specifically address wetlands within the state as an important outdoor recreation resource, or alternatively, the state can submit a wetlands priority plan developed in consultation with the state fish and wildlife agency.[864] These plans must be coordinated with other federal agencies to ensure consistency in policies and actions.[865] Land acquired or developed with federal assistance provided under the act may not be used for nonrecreational purposes unless the secretary of the interior finds that conversion is consistent with a comprehensive state plan and the state substitutes equivalent recreational properties.[866] Consequently, this restriction, as well as Section 4(f) restrictions,[867] applies to highway construction when public recreational lands are involved.[868]

G. Water Bank Act

The Water Bank Act[869] creates a program under which the Department of Agriculture may lease farmland on a 10-year renewable basis for the purpose of preserving wetland areas during critical times of their life cycle.[870]

Under agreements authorized by the act, landowners agree not to farm, drain, fill, burn, or otherwise destroy wetlands they own.[871] In exchange, the owners receive annual payments from the Department of Agriculture to compensate for the restrictions imposed on the use of the land.[872] At other times, farming operations not destructive to the wetland may be conducted.[873]

The act requires the secretary of agriculture to consult with the Department of Interior, and also with state and local officials,[874] to develop a water bank program designed to improve wildlife habitat, water quality, subsurface moisture, and flood control; to reduce erosion; and to promote comprehensive and total water-management planning.[875]

Although the Water Bank Act does not create enforceable standards requiring protection of wetlands by federal agencies,[876] it does create a publicly owned interest in lands containing wildlife values. This makes Section 4(f) of the DOT Act applicable.[877] As a result, the secretary of transportation may approve a highway project in a designated water bank area only if there is no prudent and feasible alternative to using such land and only if the project includes all possible planning to minimize harm to the wetland values of the area.[878]

MITIGATING HIGHWAY IMPACTS ON SENSITIVE LANDS

The Council on Environmental Quality (CEQ) defines mitigation as actions that avoid, minimize, reduce, rectify, or compensate for the adverse effects of development.[879] The 1990 MOA on Wetland Mitigation between EPA and the Corps consolidates these categories of mitigation into three general types: avoidance, minimization, and compensation. It interprets the CEQ regulation and Section 404(b) guidelines to establish a mitigation priority scheme, called "sequencing."[880] Sequencing requires developers first to avoid wetland losses, then to minimize losses and adverse impacts, and finally to employ compensation only after exhausting all practicable avoidance and minimization efforts.[881]

ISTEA specifically authorized the use of FAHP for wetlands mitigation and erosion control. FAHP projects must, however, satisfy FHWA regulations requiring mitigation of encroachments on floodplains and wetlands. A number of types of mitigation measures are available to highway planners, and many mitigation measures have been tested in the field. Mitigation banking has been endorsed in the Clinton Administration's wetlands plan. FAHP planners may find mitigation banks attractive.

A. ISTEA, Wetlands Mitigation, and Erosion Control

ISTEA authorized the use of federal transportation funds for wetlands mitigation efforts consistent with all applicable federal laws and regulations.[882] The conference report on the act stated, "[m]itigation efforts should be undertaken through application of guidelines promulgated pursuant to Section 404(b)(1) of the Federal Water Pollution Control Act and relevant interagency Memoranda of Agreement."[883] Section 404(b)(1) guidelines prohibit discharges into aquatic ecosystems, including wetlands, if there is a practicable alternative to the discharge.[884] The guidelines require appropriate and practicable steps be taken to minimize potential adverse impact on the aquatic ecosystem.[885] ISTEA funds can be used to carry out mitigation measures required to comply with these guidelines.[886] ISTEA's wetlands protection goal is, to the extent practicable, to mitigate adverse effects on wetlands through protection, restoration, or creation of similar types of wetlands.[887]

The current MOA between the Corps and the EPA states that the practice of mitigation banking[888] may be an acceptable form of compensatory mitigation, depending on the specific circumstances.[889] In 1992, FHWA and EPA signed an MOU in response to the passage of ISTEA. In it, EPA agreed to provide expertise in the form of technical reviews, advice, consultation, and technical assistance in the planning and reviewing of national highway programs.[890] FHWA agreed to provide transportation expertise on transportation-related environmental matters. Both agencies agreed to exchange personnel on a temporary basis to help alleviate confusion over the environmental implications of ISTEA.[891]

The Clinton Administration's 1993 wetlands plan endorsed mitigation banking wholeheartedly, but subjects its use to two preconditions: (1) satisfying the Mitigation MOA's required "sequencing"[892] and (2) completing mitigation prior to permit issuance.[893] Corps' guidance issued concurrently with the Clinton plan emphasizes that banking credits will be made available only after a demonstration that the adverse effects associated with a project have been avoided and minimized "to the extent practicable" and requires mitigation banks "generally" to be in place before banked credits can be used to offset wetland losses.[894] The guidance also stressed that banked sites should generally be in the same watershed as the wetlands losses and required formal written agreements with federal banks.[895] All use of banked credits must be authorized and enforced by the Section 404 permit process.[896]

Section 1057 of ISTEA requires the secretary of transportation to develop erosion control guidelines for states to follow when carrying out FAHP projects.[897] These guidelines will not preempt more stringent state requirements for erosion control.[898] In addition, the secretary's guidelines must be developed to conform with Section 319 of the Clean Water Act and coastal nonpoint-source pollution control guidelines under Section 6217(g) of the Omnibus Budget Reconciliation Act of 1990.[899] Current guidelines for federal-aid highway projects, originally established in 1974, make it FHWA policy to minimize erosion and sediment damage to highways and adjacent properties and to abate pollution of surface and groundwater resources.[900]

On March 1, 1993, FWHA proposed guidelines to implement Section 1057.[901] The proposal relies heavily on volume III of the American Association of State Highway and Transportation Officials' (AASHTO) 1992 publication *Erosion and Sediment Control in Highway Construction*.[902] The proposal stated that each state highway agency should apply guidelines in the AASHTO publication, or more stringent state guidelines, in establishing specific standards and practices for erosion control.[903]

B. FHWA Floodplain Mitigation Regulations

FHWA regulations on floodplains seek to minimize the impact of highways on floodplains.[904] They forbid FAHP actions involving any "significant encroachment" of a floodplain unless FHWA determines the encroachment is the only "practicable alternative."[905] "Significant encroachment" includes FAHP construction, rehabilitation, or repair activities within the 100-year floodplain that would (1) result in a significant potential for interruption of transportation in an emergency, (2) involve a significant probability of flooding due to the activity, or (3) produce a significant adverse impact on natural and beneficial floodplain values.[906] A "practicable alternative" is one that is "capable of being done within reasonable natural, social, and economic constraints."[907] The regulations require FHWA determination to be included in a final EIS or a finding of no significant impact and to explain (1) the reasons why the activity must take place in the floodplain, (2) the alternatives considered and the reasons why they were not practicable, and (3) whether the activities conform to applicable state and local floodplain zoning.[908]

FHWA floodplain regulations emphasize avoiding floodplain impacts, the priority type of mitigation under the CEQ regulations.[909] When there is no practicable alternative to an encroachment, the regulations employ the second priority type of mitigation—minimization—by requiring design studies specifying a number of design standards.[910] Also employing minimization mitigation are FHWA regulations requiring FAHP activities to minimize erosion, sediment damage, and pollution of surface and groundwater.[911] The regulation requires permanent erosion and sediment control measures to be installed at the earliest practicable time consistent with good construction practices and forbid stockpiling or disposal of pollutants, including sediment, where they might be susceptible to being washed into a watercourse.[912]

C. FHWA Wetlands Mitigation Regulations

FHWA wetlands mitigation regulations also emphasize avoidance as the preferred mitigation,[913] a policy driven by the Wetlands Executive Order, DOT Order 5660.1A, and Section 4(f).[914] Where there are no practicable alternatives to construction in wetlands, and where all practicable measures to minimize harm to wetlands have been employed, the regulations authorize compensatory mitigation. Where public wetlands are lost, FAHP money may fund functional replacement of wetlands.[915] Where private wetlands are directly affected by an FAHP project, the regulations authorize compensatory mitigation, which may include wetlands with equivalent functions but may not include maintenance costs or compensation for loss of privately owned wildlife habitat that is not wetlands.[916] The regulations require that such acquisitions constitute "a reasonable public expenditure when weighed against other social, economic, and environmental values, and the benefit realized is commensurate with the proposed expenditure."[917] The policy is to give priority to enhance existing wetlands or creation of new wetlands within the highway corridor,[918] a policy that at least one recent study questions.[919] The regulations do, however, authorize mitigation measures outside the highway right of way where there are "sufficiently compelling reasons

and sufficient justification...."[920] If replacement wetlands are authorized, the regulations prefer restoring or creating new wetlands, rather than purchasing interests in existing privately owned wetlands.[921]

FHWA regulations, which adopt the Army Corps of Engineers' definition of wetland,[922] allow acquisition of less-than-fee interests,[923] require that transfers of acquired wetlands from state highway agencies to natural resource agencies be conditioned on the lands continuing to serve the purpose of the acquisition,[924] and authorize acquisition of replacement wetlands only where consistent with state law.[925] However, FAHP funds are not available for maintenance or management of wetland areas,[926] and FHWA's wetlands mitigation policy does not authorize mitigation of privately owned uplands valuable for wildlife habitat that are damaged by FHWA projects.[927]

Because highway drainage ditches have frequently been used by neighboring landowners to drain adjacent wetlands, FHWA, prompted by a National Wildlife Federation lawsuit, agreed to consider nonhighway drainage structures erected within highway rights of way to be an encroachment of the right of way. Such encroachment of nonhighway uses can be considered a breach of the state's highway maintenance obligations, warranting sanctions.[928]

D. Types of Highway Mitigation

There are essentially five types of mitigation designed to reduce adverse effects of highway location, construction, and operation.[929] These are location modifications, design modifications, construction measures, operational conditions, and right-of-way measures and replacement land.

1. Location Modifications

The most complete form of mitigation is total avoidance of the wetland or floodplain area. Short of this, the highway may be located within a wetland, floodplain, or other sensitive land so that potential impacts are less severe. The location may also be modified to minimize the amount of land taken. Also, interchanges and other access points to a highway may be limited so the incentive for secondary development is reduced.

2. Design Modifications

The basic highway design may be altered to lessen adverse impacts. For example, culverts may be included to maintain necessary water flows; the highway may be built on a structure, such as a viaduct, instead of on an embankment; and supporting piers and footers can be hydrodynamically designed to reduce interference with natural flows. Techniques are available to prevent accumulation of debris around bridge piers and other highway structures. When an embankment is used, drainage pipes can be included to maintain better surface flow. In addition, the use of special materials for the embankment may leave the water flow undisturbed and reduce the possible depression of the water table. If runoffs and spills present a problem, drainage facilities can be designed to capture the runoff and carry it to a proper disposal site. Dredge and fill materials can be used and disposed of in ways that reduce negative impacts. If stream or channel modifications are necessary, the modified channel can be reconstructed so that normal ecological functions can be maintained. The unauthorized drainage of wetlands can be prevented by adding ditch blocks and by design modifications making drainage into the highway right of way difficult.

3. Construction Measures

Most construction impacts are temporary, but they may interrupt normal stream flows and produce excessive amounts of sediment in waters near the construction site. Construction activities and equipment can disturb sensitive bottom lands. Undesirable sedimentation can be avoided by using filter fabrics or sedimentation ponds that allow the sediment to precipitate from the water column. Specific restraints in a construction contract may force contractors to limit construction activities in sensitive areas, reducing the severity of potentially adverse impacts. The contract may also limit the contractor's flexibility in disposing of dredge and waste materials so that these materials are not deposited in wetland areas. The contractor may be prohibited from working at certain times of the year, such as when anadromous fish are passing through the construction area during their migration season. Other restraints may be placed on the contractor when environmentally necessary.

4. Operational Conditions

FHWA may require a state to carry out special maintenance and enforce operational limitations in sensitive areas as a condition for highway approval. For example, FWHA may require a state to prohibit use of highway drainage ditches by adjoining landowners. If environmentally relevant, a state could be asked to exclude trucks and other types of vehicles from the highway. States could also be encouraged to control development in wetland areas adjacent to the highway.

5. Right-of-Way Measures and Replacement Land

Frequently, wetlands within the highway right of way can be preserved if the highway is properly designed. Highway borrow pits sometimes become small lakes or ponds, augmenting the wetland area. Careful selection of new vegetation as well as plans for revegetation can restore or enhance existing wetlands. If wetland or floodplain areas must be used, the effected lands can often be replaced through the purchase of additional wetland areas fulfilling similar ecological functions. Although this does not make up for the lost wetland area, it at least ensures that some wetlands are permanently preserved in public ownership. Also, there are ways existing upland areas can be turned into wetlands, thus creating new wetland areas.

These and other measures have been used to help mitigate adverse impacts of highways constructed in wetland and floodplain areas. If one is willing to spend enough money, the worst consequences of locating a highway in a wetland or floodplain can be avoided in almost every case. For purposes of administering the FAHP, the important issue typically does not relate to the technical feasibility of a particular mitigation measure, but whether FHWA can or should insist on the use of a particular measure and whether FHWA can finance this measure out of the Federal Highway Trust Fund as part of the project cost.

E. FAHP Wetlands Mitigation in Practice

A 1992 FHWA-sponsored study of wetland mitigation efforts of state departments of transportation analyzed 17 projects in 14 states and compared the re-

sults with natural control wetlands to evaluate the effectiveness of mitigation in terms of wetland functions and values.[930] The report found that only a few of the projects resulted in full replacement of all lost wetland functions.[931] The report concluded that mitigation type—whether wetlands were enhanced, restored, or created—was less a factor in determining mitigation success than (1) the level of effort at the planning stage, (2) the inclusion of certain design elements, and (3) the precision of plan implementation.[932]

The mitigation study regarded the analysis of the functions fulfilled by the existing wetlands to be the key planning activity in successful mitigation projects. Identifying these functions through interagency negotiations and developing a conceptual plan with well-defined goals and objectives were often lacking in the mitigation projects studied. The report found that a detailed plan, including construction sequencing and monitoring, is essential for mitigation success.[933]

The report also found that locating mitigation wetlands near surface water and other wetlands was critical to a successful mitigation project. Wetlands connected hydrologically to other bodies of water enhanced wetlands functions; isolated wetlands produced fewer biological and water quality functions.[934] Because hydrology is the driving force of wetlands, the report recommended gradual slopes and shallow water depths.[935] The report determined that a key factor in mitigation effectiveness is a top dressing of some type of topsoil in the wetlands' substrate because of the organic matter and nutrients in topsoil.[936]

The report criticized the emphasis interagency groups negotiating mitigation agreements have placed on obtaining more than one acre of new wetlands for each acre lost.[937] Greater than 1:1 ratios were a product of the perceived high risk of mitigation failure, but the report concluded that this risk could be substantially reduced by careful planning and design, a commitment to implementation, and undertaking corrective action when warranted.[938] The report endorsed the following: (1) baseline studies of wetland functions, (2) realistic mitigation goals, (3) design features aimed at producing broad wetland values, (4) thorough monitoring both during construction and several years thereafter, and (5) a commitment to remedial measures where necessary.[939]

The report found the policy of emphasizing wetlands replacement within the highway corridor to be counterproductive. Not only are such wetlands subject to highway disturbances, hazards, and runoff, but the constraints of the corridor encourage creation of narrow, steepsided basins with straight borders, reducing mitigation effectiveness. Moreover, corridor wetlands are often smaller than one acre and isolated from other surface waters, further reducing their value. The report recommended siting studies that evaluate a variety of on-site and off-site areas and that examine factors such as hydrology, soils, and connection to existing water sources.[940]

The report also criticized the overemphasis on enhancing existing wetlands by excavating to produce open water areas to improve waterfowl habitat. Although the risk of failure of such projects is relatively low because the hydrology is well established, the report warned that too much attention to waterfowl habitat enhancement can produce significant losses to other impact wetland values provided by natural, mature wetlands, such as water-quality maintenance and habitat for other species.[941]

The report endorsed the concept of functional replacement of the lost wetlands, an emphasis on baseline monitoring and site selection studies, commitments to construction monitoring, remediation funding at the outset of the project, and postconstruction management generally of three to five years.[942] The report also included an eight-factor design plan for all mitigation projects.[943]

CONCLUSION

This study indicates that federal-aid highway projects must satisfy a diverse array of federal provisions aimed at protecting sensitive environmental resources, such as park lands, wetlands, floodplains, water quality, fish and wildlife, coastal zones, and federal lands. These substantive environmental protections can affect the location, construction, and operation of federal-aid highways. Although the number and complexity of these requirements may seem daunting, most are location specific and all should be revealed through the NEPA process.[944] NEPA regulations contain several directives aimed at requiring environmental evaluations under NEPA to discuss and evaluate federal requirements, such as those discussed in this report[945] prior to undertaking any FAHP activity that would produce adverse environmental impacts or limit the choice of reasonable alternatives.[946] Thus, highway planners have the means to ensure all FAHP projects are designed to comply with the nation's environmental laws.

NOTES

[1]U.S. DOT, Intermodal Surface Transportation Efficiency Act of 1991: A Summary 7 [hereinafter *ISTEA Summary*].

[2]*See* U.S. DOT, Federal Highway Administration, HIGHWAY STATISTICS, 1991, at 130 (22 percent of nation's road miles covered by the pre-ISTEA federal-aid system of 850,000 miles; ISTEA increased the system to 920,000 miles; just under 25 percent of total road miles are now in the federal-aid system).

[3]*Id.* at 196.

[4]Pub. L. No. 102-240 (Dec. 18, 1991), 105 Stat. 1915-2069 (1991).

[5]*Id.* tit. I. *See ISTEA Summary*, *supra* note 1, at 7 & table I.

[6]*See* 23 U.S.C. §§ 103(d), 133(b) (eligible projects include "reconstruction, rehabilitation, resurfacing, restoration, and operational improvements"); *ISTEA Summary*, *supra* note 1, at 11 (describing a $6 billion program funding state projects to improve air quality and reduce traffic congestion).

[7]*See* Edward V.A. Kussy, *Wetland and Floodplain Protection and the Federal-Aid Highway Program*, 13 ENVTL. L. 161, 164, 166 (1982).

[8]*See ISTEA Summary*, *supra* note 1, at 8-9 (describing a new block grant program for the states, the Surface Transportation Program).

[9]23 U.S.C. §§ 103(d)(13), 133(b)(11). The legislative history of ISTEA made specific reference to the National Environmental Policy Act, the Clean Water Act, and the Endangered Species Act, as well as any applicable regulations. Conf. Rep. on ISTEA, H.R. Rep. No. 102-404, at 305, *reprinted in* 1991 U.S. CODE CONG. & ADMIN. NEWS 1685.

[10]The scope of this study is substantially the same as Ed Kussy's 1981 study, see Kussy, *supra* note 7, except this study does not consider the National Environmental Policy Act (NEPA), because NEPA was examined in an earlier NCHRP study. *See* Daniel R. Mandelker & Gary Feder, THE APPLICATION OF NEPA TO FEDERAL HIGHWAY PROJECTS (NCHRP study no. 15, Sept. 1990).

[11]42 U.S.C. §§ 4331 *et seq.* *See* Mandelker & Feder, *supra* note 10.

[12]DOT Act of 1966, Pub. L. No. 89-670, 80 Stat. 931-50 (1966). Although the original § 4(f) has been slightly revised and recodified at 49 U.S.C. § 303(c) (1982), Congress did not intend any substantive change in the law, and the provision is still universally referred to as "4(f)." *See* DOT Act of 1983, Pub. L. No. 97-449, § 1(a), 96 Stat. 2413 (1983) (stating that the recodification was made without substantive change).

[13]49 U.S.C. § 303(c)(1) (1988).

[14]United States DOT, Federal Highway Administration, AN ANALYSIS: THE EFFECTS OF ENVIRONMENTAL LAWSUITS ON PROGRAM OPERATIONS 9 (1988) [hereinafter FHWA Environmental Lawsuit Analysis].

[15]49 U.S.C. § 303(a) (1988).

[16]*Id.* § 303(c).

[17]401 U.S. 402 (1971).

[18]*Id.* at 411.

[19]*Id.* at 413.

[20]For complete discussion of federal historic preservation requirements, see Richard W. Bower, LEGAL ASPECTS OF HISTORIC PRESERVATION IN HIGHWAY AND TRANSPORTATION PROGRAMS (NCHRP Digest 138, Dec. 1982), supplemented by Ross D. Netherton (NCHRP study no. 20, May 1991).

[21]537 F.2d 79 (5th Cir. 1976).

[22]*Id.* at 84.

[23]23 C.F.R. § 771.135(p) (1993).

[24]*See* FHWA Environmental Lawsuit Analysis, *supra* note 14, at 25-26. The study identified constructive use as "the most troublesome issue" facing FHWA in environmental cases "coming to the forefront as a basis for plaintiff's complaints."

[25]For discussions of constructive use, see Barbara Miller, Comment, *Department of Transportation's Section 4(f): Paving the Way Toward Preservation*, 36 AM. U. L. REV. 633, 646 (1987); Kussy, *supra* note 7, at 244; Comment, *Protecting Public Parkland from Indirect Federal Highway Intrusion*, 62 IOWA L. REV. 960 (1976).

[26]*See, e.g.*, Brooks v. Volpe, 460 F.2d 1193, 1194 (9th Cir. 1972) (holding that the encirclement of a public campground by a proposed highway is a "use" within the meaning of § 4(f)); Conservation Society v. Secretary of Transportation, 362 F.Supp. 627, 639, *aff'd*, 508 F.2d 927 (2d Cir. 1974) (finding a § 4(f) "use" where a highway would border on a protected backwoods area).

[27]23 C.F.R. § 771.135(p) (1993).

[28]*Id.* § 771.135(p)(2).

[29] FHWA regulations offer the following circular definition: "Substantial impairment occurs only when the protected activities, features, or attributes of the resource are substantially diminished." *Id.*

[30]23 C.F.R. §§ 771.115-.117.

[31]*Id.* §§ 771.135(p)(4) (constructive use occurs), (p)(5) (constructive use does not occur).

[32]*Id.* §§ 771.135(p)(4)(i)-(v).

[33]*Id.* §§ 771.135(p)(5)(i)-(ix).

[34]460 F.2d 1193 (9th Cir. 1972).

[35]566 F.2d 419 (2d Cir. 1977).

[36]*Id.* at 424.

[37]*See, e.g.*, Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 202-03 (D.C. Cir. 1991); Coalition Against a Raised Expressway, Inc. v. Dole, 835 F.2d 803, 811-12 (11th Cir. 1988); Monroe County Conservation Council v. Adams, 566 F.2d 419, 424 (2d Cir. 1977). *But cf.* Communities, Inc. v. Busey, 956 F.2d 619, 624 (6th Cir. 1992) (plaintiffs did not show how "mere noise" from passing aircraft amounted to § 4(f) constructive use of nearby historic neighborhoods); Sierra Club v. United States Dept. of Transp., 753 F.2d 120, 130 (D.C. Cir. 1985) (increased noise from commercial jet airplanes resulting from airport expansion would not amount to constructive use); Arkansas Community Org. for Reform Now v. Brinegar, 398 F.Supp. 685, 693 (E.D. Ark. 1975), *aff'd*, 531 F.2d 864 (8th Cir. 1976) (park users would not be substantially affected by increased noise from adjacent highway).

[38]Monroe County Conservation Council v. Adams, 566 F.2d 419, 424 (2d Cir. 1977); Brooks v. Volpe, 460 F.2d 1193, 1194 (9th Cir. 1972). *But see* Falls Road Impact Committee, Inc. v. Dole, 581 F. Supp. 678 (E.D. Wis. 1984) (limitation on direction from which park can be approached for a period of 80 to 100 days does not amount to constructive use).

[39]Coalition Against a Raised Expressway, Inc. v. Dole, 835 F.2d 803, 812 (11th Cir. 1988) (in addition to noise impacts, raised highway would impair view of river); Citizen Advocates for Responsible Expansion, Inc. v. Dole, 770 F.2d 423, 439 (5th Cir. 1985) (highway expansion project would cause "tremendous" aesthetic and visual intrusion on nearby park and historic buildings); Louisiana Envtl. Society, Inc. v. Coleman, 537 F.2d 79, 85 (5th Cir. 1976) (project

would block view of lake from nearby homes).

[40]Mullin v. Skinner, 756 F.Supp. 904, 924-25 (E.D.N.C. 1990) (high-rise bridge project at island would constructively use public beach because it could cause future high-density development); Stop H-3 Association v. Coleman, 533 F.2d 434, 445 (9th Cir. 1976), *remanded sub nom,* Stop H-3 Association v. Lewis, 538 F.Supp. 149 (D. Hawaii 1982) (proposed highway passing near an historic petroglyph rock was constructive use of historic site); Conservation Society of Southern Vermont v. Secretary of Transp., 362 F.Supp. 627, 639 (D. Vt. 1973) (constructive use found where proposed highway would border a protected backwoods area).

[41]948 F.2d 568 (9th Cir. 1991).

[42]*Id.* at 574.

[43]49 U.S.C. § 303(c) (1988).

[44]National Wildlife Fed'n v. Coleman, 529 F.2d 359, 370 (5th Cir. 1976); *see also* United States DOT, Federal Highway Administration, Memorandum: Section 4(f) Policy Paper 3 (1987 (rev'd. 1989)) [hereinafter FHWA 4(f) Policy Paper] (noting that although section 4(f) would not apply in such a situation, FHWA policy is to "strongly encourage the preservation of such privately owned lands").

[45]National Wildlife Federation v. Coleman, 529 F.2d 359, 370 (5th Cir. 1976) (land acquired by the Nature Conservancy for future use as a wildlife refuge was not "publicly owned" at time of project approval).

[46]FHWA 4(f) Policy Paper, *supra* note 44, at 3.

[47]*See* Mullin v. Skinner, 756 F.Supp. 904, 924 (E.D.N.C. 1990) (holding that ocean-front beaches declared by the state supreme court to be held in the public trust were not thereby "designated or administered, formally or informally" for a § 4(f) purpose).

[48]49 U.S.C. § 303(c) (1988) (protected property must be "of national, State, or local significance"); *see also* Concerned Citizens on I-190 v. Secretary of Transp., 641 F.2d 1, 7 (1st Cir. 1981) (stating that whether "significant" recreational lands are involved is threshold question under § 4(f)).

[49]Concerned Citizens on I-190 v. Secretary of Transp., 641 F.2d 1, 7 (1st Cir. 1981); *see also* Pennsylvania Envtl. Council, Inc. v. Bartlett, 454 F.2d 613, 623 (3d Cir. 1971).

[50]641 F.2d at 7.

[51]23 C.F.R. § 771.135(c) (1993).

[52]*Id.*

[53]*Id.*

[54]*Id.* § 771.135(d); *see also* FHWA 4(f) Policy Paper, *supra* note 44, at 214.

[55]FHWA 4(f) Policy Paper, *supra* note 44, at 14.

[56]23 C.F.R. § 771.135(d) (1993).

[57]43 U.S.C. § 1701 *et seq.*

[58]*See id.* § 1702(a).

[59]45 Fed. Reg. 57,318, 57,321 (1980) (ACEC guidelines) (*citing* FLPMA's legislative history).

[60]*Id.* at 57,321, 57,326-28.

[61]*Id.* at 57,322, 57,328.

[62]*See* Submerged Lands Act of 1953, 43 U.S.C. §§ 1301-1315 (1988); Pollard v. Hagen, 44 U.S. 212 (1845).

[63]*See* Kussy, *supra* note 7, at 245-46. Kussy pointed out that the federal government's navigational servitude over navigable waters may also give federal officials jurisdiction to make determinations of "significance" under § 4(f). *Id.*

[64]*See supra* notes 54-56 and accompanying text.

[65]FHWA 4(f) Policy Paper, *supra* note 44 , at 16.

[66]*Id.* at 15.

[67]*Id.*

[68]49 U.S.C. § 303(c) (1988).

[69]16 U.S.C. §§ 470-470w-6. NHPA authorizes the secretary of the interior to maintain and expand a National Register of Historic Places and authorizes states to designate a state historic preservation officer to inventory the state's historic sites and to nominate eligible properties for the National Register. *Id.* § 470a(b)(3). For a thorough treatment of NHPA, see Charlotte R. Bell, *Protecting the Built Environment: An Overview of Federal Historic Preservation Law,* 15 ENVTL. L. REP. (Envtl. L. Inst.) 10,354 (1985); Bower & Netherton, *supra* note 20.

[70]23 C.F.R. § 771.135(e) (1993).

[71] NHPA provides that the National Register should contain "districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture." 16 U.S.C. § 470a(a)(1)(A).

[72]*See* Communities, Inc. v. Busey, 956 F.2d 619, 624 (6th Cir. 1992) (applying § 4(f) to Old Louisville, an area of architectural and historic significance); Coalition Against a Raised Expressway v. Dole, 835 F.2d 803, 811 (11th Cir. 1988) (city hall and railroad terminal); Benton Franklin Riverfront Trailway & Bridge Comm. v. Lewis, 701 F.2d 784, 788 (9th Cir. 1983) (historic bridge); Arizona Past & Future Found., Inc. v. Lewis, 722 F.2d 1423, 1425 (9th Cir. 1983) (archeological sites); Nashvillians Against I-440 v. Lewis, 524 F. Supp. 962, 980 (M.D. Tenn. 1981) (historic roadway); Stop H-3 Ass'n v. Coleman, 533 F.2d 434, 445-46 (9th Cir. 1976) (Hawaiian petroglyph rock).

[73]23 C.F.R. § 771.135(e) (1993).

[74]*Id.*; *see also* 36 C.F.R. § 800.4 (1993) (regulations under NHPA § 106 requiring consultation with state historic preservation officer where federal undertaking will "potentially affect" a historic site).

[75]23 C.F.R. § 771.135(e) (1993).

[76]49 U.S.C. § 303(c) (1988).

[77]FHWA Policy Paper, *supra* note 44, at 11.

[78]533 F.2d 434 (9th Cir.), *cert. denied*, 429 U.S. 999 (1976).

[79]*Id.* at 440-45.

[80]*Id.* at 444. For a detailed discussion of the *Stop H-3* case that is highly critical of the powers afforded to "small opposition groups" by § 4(f), see Roger Nober, Note, *Federal Highways and Environmental Litigation: Toward a Theory of Public Choice and Administrative Reaction,* 27 HARV. J. ON LEGIS. 229, 257-262 (1990).

[81]23 C.F.R. § 771.135(g)(1) (1993).

[82]*Id.* § (g)(2); *see* Town of Belmont v. Dole, 766 F.2d 28, 31-33 (1st Cir. 1985) (upholding FHWA's "archeological regulation" as consistent with the preservationist purposes of § 4(f)).

[83]401 U.S. 402, 416 (1971).

[84]*Id.* at 415.

[85]*See* Coalition Against a Raised Expressway (CARE) v. Dole, 835 F.2d 803, 810-811 (11th Cir. 1988); Citizen Advocates for Responsible Expansion v. Dole, 770 F.2d 423, 441 (5th Cir. 1985); Adler v. Lewis, 675 F.2d 1085, 1092-93 (9th Cir. 1982).

[86]*See* CARE, 835 F.2d at 811.

[87]Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 375-76 (1989).

[88]Communities, Inc. v. Busey, 956 F.2d 619, 623 (6th Cir. 1992); Committee to Preserve Boomer Lake Park v. Dept. of Transportation, 4 F.3d 1543, 1549 (10th Cir. 1993).

[89]*See Communities*, 956 F.2d at 621; *Boomer Lake Park*, 4 F.3d at 1550.

[90]*Communities*, 956 F.2d at 624; *Boomer Lake Park*, 4 F.3d at 1549.

[91]49 U.S.C. § 303(c) (1988).

[92]401 U.S. 402 (1971).

[93]*Id.* at 411.

[94]*Id.* at 412.

[95]*Id.* at 412-13.

[96]*See, e.g.,* Stop H-3 Ass'n v. Dole, 740 F.2d 1442, 1451-52 (9th Cir. 1984) (alternate route requiring dislocation of 1 church, 4 businesses, and 31 residences, as well as an additional expense of $42 million, did not amount to cost or community disruption of extraordinary magnitude), *cert. denied*, 471 U.S. 1108 (1985); Louisiana Envtl. Soc'y Inc. v. Coleman, 537 F.2d 79, 87 (5th Cir. 1976) (no cost or community disruption of extraordinary magnitude where alternative would involve displacement of 377 families, 1508 persons, 21 businesses, and 2 churches); Coalition for Responsible Regional Development v. Brinegar, 518 F.2d 522, 526 (4th Cir. 1975) (alternative site for bridge not rendered imprudent solely because of state's potential inability to finance the alternative site).

[97]*See, e.g.,* Coalition for Responsible Regional Development v. Brinegar, 518 F.2d 522, 526 (4th Cir. 1975).

[98]*See, e.g.*, Communities, Inc. v. Busey, 956 F.2d 619 (6th Cir. 1992).

[99]*See* Eagle Foundation v. Dole, 813 F.2d 798 (7th Cir. 1987); Hickory Neighborhood Defense League v. Skinner, 910 F.2d 159 (4th Cir. 1990).

[100]813 F.2d 798 (7th Cir. 1987).

[101]*Id.* at 803; *see also* Committee to Preserve Boomer Park v. Dept. of Transportation, 4 F.3d 1543, 1550 (10th Cir. 1993); *Hickory Neighborhood Defense*, 910 F.2d at 163.

[102]*Eagle Foundation*, 813 F.2d at 804.

[103]*Id.* at 805.

[104]*Id.*

[105]*Id.* at 808.

[106]*Id.* at 803.

[107]FHWA 4(f) Policy Paper, *supra* note 44, at 4.

[108]910 F.2d 159 (4th Cir. 1990).

[109]*Id.* at 163.

[110]*Id.*

[111]*See, e.g.,* Stop H-3 Ass'n v. Dole, 740 F.2d 1442, 1455-56 (9th Cir. 1984) (requiring full consideration of a no-build alternative, including possibility of increasing bus transit on existing highway rather than constructing new interstate); Benton Franklin Riverfront Trailway & Bridge Comm. v. Lewis, 701 F.2d 784, 789-90 (9th Cir. 1983) (requiring consideration of rehabilitating a historic bridge for a bicycle trail as an alternative to its destruction); Coalition for Canyon Preservation v. Bowers, 632 F.2d 774, 785 (9th Cir. 1980) (requiring consideration of an improved two-lane road as an alternative to a four-lane highway).

[112]740 F.2d 1442 (9th Cir. 1984), *cert. denied*, 471 U.S. 1108 (1985).

[113]*Id.* at 1455.

[114]*See, e.g.,* Hickory Neighborhood Defense League v. Skinner, 910 F.2d 159, 164 (4th Cir. 1990) (holding that alternatives that would not fulfill the transportation needs of the project were properly rejected as imprudent); Ringsred v. Dole, 828 F.2d 1300, 1304 (8th Cir. 1987) (holding that a parkway was not a prudent alternative to a freeway because it would not effectuate the purposes of the project and was therefore "by definition, unreasonable"); Druid Hills Civic Ass'n v. Federal Highway Admin., 772 F.2d 700, 715 (11th Cir. 1985) (upholding rejection of no-build option for failure to meet the need for a highway project); Louisiana Envtl. Soc'y Inc. v. Coleman, 537 F.2d 79, 85 (5th Cir. 1976) (finding no-build alternative to destruction of an historic bridge imprudent because it would not fill the need for a new highway).

[115]49 U.S.C. § 303(c) (1982).

[116]*See* Adler v. Lewis, 675 F.2d 1085, 1095 (9th Cir. 1982) ("Inquiry under subsection (2) of section 4(f) requires a balancing of the harm to the site by the proposed project, with the harm to the same site by another alternative or a plan to implement mechanisms to diminish that particular harm").

[117]Monroe County Conservation Council, Inc. v. Volpe, 472 F.2d 693, 701 (2d Cir. 1972).

[118]537 F.2d 79 (5th Cir. 1976).

[119]*Id.* at 86.

[120]Druid Hills Civic Ass'n Inc. v. Federal Highway Admin., 772 F.2d 700, 716 (11th Cir. 1985); Adler v. Lewis, 675 F.2d 1085, 1095 (9th Cir. 1982) (quoting Louisiana Envtl. Soc'y Inc. v. Coleman, 537 F.2d 79, 86 (5th Cir. 1976)).

[121]*Druid Hills*, 772 F.2d 700, 716 (11th Cir. 1985).

[122]Louisiana Envtl. Soc'y v. Coleman, 537 F.2d 79, 86 (5th Cir. 1976).

[123]*Id.* See also Maryland Wildlife Fed'n v. Dole, 747 F.2d 229, 236 (4th Cir. 1984) (stating that the judiciary should not read a conclusion of "equal harm" into the secretary's weighing process where the record does not indicate such a finding).

[124]*Maryland Wildlife Fed'n.*, 747 F.2d at 236.

[125]*Louisiana Envtl. Soc'y*, 537 F.2d at 86.

[126]*Id.*

[127]*See* Druid Hills Civic Ass'n v. Federal Highway Admin., 772 F.2d 700, 716 (11th Cir. 1985) (citing *Louisiana Envtl. Soc'y*, 537 F.2d at 86).

[128]772 F.2d 700 (11th Cir. 1985).

[129]*Id.* at 718.

[130]*Id.* at 717.

[131]*Id.* at 718.

[132]U.S. Environmental Protection Agency, AMERICA'S WETLANDS: OUR VITAL LINK BETWEEN LAND AND WATER 4-5 (1988).

[133]Paul R. Adamus et al, WETLAND EVALUATION TECHNIQUE 5-72 (1991) (tech. rep. WRP-DE-2, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS).

[134]Council on Environmental Quality, OUR NATION'S WETLANDS 21 (1978).

[135] See Michael C. Blumm and D. Bernard Zaleha, *Federal Wetlands Protection Under the Clean Water Act: Regulatory Ambivalence, Intergovernmental Tension, and a Call for Reform*, 60 COLO. L. REV. 695, 697 (1989).

[136] Thomas E. Dahl & Craig E. Johnson, WETLANDS: STATUS AND TRENDS IN THE COTERMINOUS UNITED STATES, MID-1970S TO MID-1980S at 3 (U.S. Fish and Wildlife Service 1991).

[137]Blumm & Zaleha, *supra* note 135, at 697.

[138]Dahl & Johnson, *supra* note 136, at 3, 8.

[139]*Id.* at 8.

[140]*Id.*

[141]*Id.* at 1.

[142]*Id.* at 1-2, 15.

[143]33 U.S.C. § 403 (1988).

[144]*Id.* §§ 1251-1387.

[145]*Id.* § 1362(7).

[146]*See* United States v. Holland, 373 F.Supp. 665 (M.D. Fla. 1974) (examining the legislative history of the 1972 Amendments and concluding that they extended federal jurisdiction to all waters that might affect commerce); National Resources Defense Council, Inc. v. Callaway, 392 F.Supp. 685 (D.D.C. 1975) (ordering the Corps to revise its regulations to reflect the mandate of the 1972 Amendments).

[147]33 C.F.R. § 328.3 (1993). For a detailed treatment of the history of wetland regulation under § 404, see Blumm & Zaleha, *supra* note 135, at 699-710.

[148]33 U.S.C. § 1344(a) (1988).

[149]*See infra* notes 222-232 and accompanying text.

[150]*See infra* notes 233-242 and accompanying text.

[151]33 C.F.R. § 323.2(h) (1993).

[152]Memorandum of Agreement Between the Department of the Army

and the Environmental Protection Agency Concerning Section 404(q) of the Clean Water Act, § IV (Aug. 11, 1992).

[153]33 U.S.C. § 1344(c) (1988).

[154]*Id.* § 1362(7).

[155]*See* Blumm & Zaleha, *supra* note 135, at 703-04.

[156]*See id.* at 704 nn.51-52.

[157]*See id.* at 705-06.

[158]33 C.F.R. § 328.3(a) (1992). This definition is identical to the EPA definition of "waters of the United States" at 40 C.F.R. § 230.3(s).

[159]H.R. Rep. No. 92-911, at 131 (1972); S. Conf. Rep. No. 92-1236, at 144 (1972), *reprinted in* 1972 U.S. CODE CONG. & ADMIN. NEWS 3668, 3776, 3822.

[160]474 U.S. 121 (1985).

[161]*Id.* at 131 n.8.

[162]*See, e.g.*, U.S. v. Byrd, 609 F.2d 1204 (7th Cir. 1979).

[163]Memorandum of Francis S. Blake, General Counsel, to Richard E. Sanderson, Acting Assistant Administrator (Sept. 12, 1985), discussed in Virginia S. Albrecht & David Issacs, *Wetlands Jurisdiction and Judicial Review*, 7 NAT. RESOURCES AND ENVT. no. 1 (ABA) 29, 31 (Summer 1992).

[164]Tabb Lakes Ltd. v. United States, No. 89-2905, 20 ENVT. L. REP. (ELI) 20,008 (4th Cir. 1989) (rejecting the Corps' use of migratory birds to assert jurisdiction because of the absence of any formal rule establishing birds as a basis for jurisdiction); *see also* 715 F. Supp. 726 (E.D. Va. 1988).

[165]961 F.2d 1310 (7th Cir. 1992), *order vacated*, 975 F.2d 1554 (7th Cir. 1992).

[166]*Id.* at 1321.

[167]975 F.2d 1554 (7th Cir. 1992).

[168]Hoffman Homes v. EPA Administrator, No. 90-3810 (7th Cir. July 19, 1993). The Seventh Circuit's decision may affect the outcome of an isolated wetland case pending before the North Dakota District Court. In that case, United States v. Sargent County Water Resources District, the state of North Dakota is challenging federal authority to regulate isolated wetlands that are considered vital breeding and resting grounds for migratory birds. *See DOJ Says Water Act Upholds Federal Jurisdiction Over Isolated Wetlands*, INSIDE EPA, March 19 1993, at 17.

[169]22 Envtl. L. Rep. 20361 (N.D. Cal. 1992). *See also* Leslie Salt Co. v. U.S., 896 F.2d 354, 360 (9th Cir. 1990) ("The commerce clause power, and thus the Clean Water Act, is broad enough to extend the Corps' jurisdiction over local waters which may provide habitat to migratory birds").

[170]43 Op. Att'y Gen. 15 (1979).

[171]Memorandum of Agreement Between the Dept. of the Army and the EPA Concerning the Determination of Geographic Jurisdiction of the Section 404 Program and the Application of Exceptions Under § 404(f) of the Clean Water Act at 1-2 (Jan. 19, 1989) [hereinafter 1989 Jurisdiction MOA].

[172]*Id.* at 5.

[173]33 C.F.R. § 325.9 (1993).

[174]Corps Regulatory Guidance Letter, RGL 90-06, 57 Fed. Reg. 6591 (Feb. 26, 1992).

[175]*Id.* at 6592.

[176]*See* Golden Gate Audubon Soc'y v. U.S. Army Corps of Engineers, 717 F. Supp. 1417 (N.D. Cal. 1988); National Wildlife Fed'n v. Hanson, 623 F. Supp. 1539 (E.D.N.C. 1985).

[177]Avella v. U.S. Army Corps of Engineers, No. 89-10064, 20 Envt. L. Rep. (ELI) 20,920 (S.D. Fla.), *aff'd*, 916 F.2d 721 (11th Cir. 1990); Lotz Realty Co. v. U.S., 757 F. Supp. 692 (E.D. Va. 1990); *see* Margaret N. Strand, *Federal Wetlands Law*, 23 ENVIRON. L. REP. (ELI) 10,185, 10,192, 10,309 (1993) (three-part article).

[178]40 C.F.R. § 230.80 (1993).

[179]*See* Kussy, *supra* note 7, at 168-73, describing a number of competing wetlands definitions over a dozen years ago.

[180]40 C.F.R. § 230.3(t) (1992) (EPA definition); 33 C.F.R. § 328.3(b) (Corps definition). *See also* the similar statutory definition in the Food Security Act of 1985, 16 U.S.C. § 3801(a)(16).

[181]*See* 23 C.F.R. § 777.11(b) (1993).

[182]*See* Timothy D. Searchinger, *Wetlands Issues 1993: Challenges and a New Approach*, 4 MD. J. CONTEMP. LEGAL ISSUES 13 (1992-93).

[183]*Id.* at 19-20.

[184]*See* Lauranne P. Rink, *Wetland Delineation, paper no. 3, in* WETLAND ISSUES IN RESOURCES DEVELOPMENT IN THE WESTERN UNITED STATES at 3-2 (Rocky Mt. Mineral Law Found., Mineral Law Series no. 4, 1993).

[185]U.S. Army Corps of Engineers, CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL (1987), *reprinted in* WETLANDS DESKBOOK at 493-663 (Envtl. Law Inst. 1993).

[186]Rink, *supra* note 184, at 3-6.

[187]*See id.*

[188]Searchinger, *supra* note 182, at 20-21.

[189]U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Soil Conservation Service, FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS (1989).

[190]*See* Searchinger, *supra* note 182, at 21.

[191]*See id.*

[192]*See* Michael C. Blumm & Barry Needleman, *Wetlands Law: "No Net Loss" and Its Decline*, 3 RIVERS 122, 125 (Apr. 1992).

[193]Rink, *supra* note 184, at 3-6.

[194]According to one estimate, the 1989 manual doubled the number of acreage subject to regulation. *See Administration Reaches Consensus on Definition of Protected Wetlands*, 22 ENVT. REP. (BNA) 1020 (Aug. 8, 1991). For a sampling of the criticism levied against the 1989 manual, see *Southern States, Irked by EPA Wetland Policy, Pave Way For Change*, 11 INSIDE EPA WEEKLY REP. no. 32, at 1 (Aug. 10 1990); Virginia S. Albrecht, *Are All Wetlands Created Equal? Bring Standards Back to Reality*, 13 NAT'L WETLANDS NEWSLETTER no. 5, at 6-7 (Sept.-Oct. 1991); *Wetlands Conservation: Hearings Before the Subcommittee on Fisheries and Wildlife Conservation and Environment of the House Committee on Merchant Marine and Fisheries on H.R. 1330*, 101st Cong., 1st Sess., at 367-79 (1991) (statement of the National Association of Realtors).

[195]56 Fed. Reg. 40,446 (Aug. 14, 1991).

[196]*Id.* at 40,452. For a comparison of the 1987, 1989, and 1991 approaches to wetlands delineation, see the chart in NAT'L. WETLANDS NEWSLETTER, Sept./Oct. 1991, at 5.

[197]*See* Environmental Defense Fund et al., HOW WET IS A WETLAND? THE IMPACTS OF THE PROPOSED REVISIONS TO THE FEDERAL WETLANDS DELINEATION MANUAL 28-30, 44, 54-57, 61-62 (1992).

[198]*See* Blumm & Needleman, *supra* note 192, at 126.

[199]Pub. L. No. 102-104, 105 Stat. 510, 578 (1991).

[200]*See* White House Office of Environmental Policy, *Protecting America's Wetlands: A Fair, Flexible, and Effective Approach* 15 (Aug. 24, 1993) [hereinafter Clinton Wetlands Plan]. The Clinton plan apparently left to the discretion of EPA and the Corps of Engineers whether to revise delineation practices after the National Academy of Sciences study, but promised that any changes will be preceded by field testing and an opportunity for public comment. *Id.* For an evaluation of the Clinton plan, *see*

Michael C. Blumm, *The Clinton Wetlands Plan: No Net Gain in Wetlands Protection*, 9 J. LAND USE & ENVTL. L. 203 (1994).

[201]16 U.S.C. §§ 3821-24; *see infra* notes 357-375 and accompanying text.

[202]Clinton Wetlands Plan, *supra* note 200, at 11. The plan's disclaimer was effectuated by rules promulgated one day later. 58 Fed. Reg. 45,008, 45,003-38 (August 25, 1993) (to be codified at 40 C.F.R. § 110.1 and scattered sections of 40 C.F.R.).

[203]*See* Blumm, *supra* note 200, at 218.

[204]Clinton Wetlands Plan, *supra* note 200 , at 11.

[205]59 Fed. Reg. 2920 (January 19, 1994).

[206]*See* Blumm, *supra* note 200, at 219-20 (*citing* INSIDE EPA, Jan. 14, 1994, at 5-6).

[207]Paul R. Adamus & Lauren T. Stockwell, WETLAND EVALUATION TECHNIQUE (Federal Highway Administration 1987).

[208]Adamus, *supra* note 133.

[209]*Id.* at 2.

[210]*Id.* at 3.

[211]33 U.S.C. § 1344(a). *See also* 33 C.F.R. §§ 323.2(d) (Corps' definition of discharge); 323.3 (discharges requiring permits).

[212]Save Our Community v. EPA, 971 F.2d 1155 (5th Cir. 1992) (dissolving an injunction against a landfill operator that prevented the removing of water from artificially created ponds).

[213]*See* Regulatory Guidance Letter 86-9, § 4 (Aug. 27, 1986), *reprinted in* WETLANDS DESKBOOK, *supra* note 185, at 286-87. This guidance expired in 1988. See Regulatory Guidance Letter No. 90-7, 58 Fed. Reg. 17,210, 17,211 (April 1, 1993) (definitions of "farmed wetlands" and "normal circumstances"). *See also* 33 C.F.R. § 328.3(b) (Corps definition of wetlands); 40 C.F.R. § 230.3(t) (EPA definition).

[214]*See* discussion in 57 Fed. Reg. 26,894 (June 16, 1992) (regulatory preamble).

[215]33 C.F.R. § 323.2(d) (1993).

[216]715 F.2d 879, 922 (5th Cir. 1983).

[217]North Carolina Wildlife Federation v. Tullock, Civ. No. C90-713-CIV-3-BO (E.D.N.C. 1992). *See* 14 NAT'L WETLANDS NEWSLETTER no. 4, at 16 (July/Aug. 1992).

[218]58 Fed. Reg. 45,008, 45,035-36 (August 25, 1993) (to be codified at 33 C.F.R. § 323.2(d)).

[219]*Id.* at 45,036 (to be codified at 33 C.F.R. § 323.3(c)).

[220]*Id.* (to be codified at 33 C.F.R. § 323.3(c)(2)).

[221]*See infra* notes 403-451 and accompanying text.

[222]33 U.S.C. § 1344(f)(1) (1988).

[223]*Id.* § 1344(f)(2).

[224]33 C.F.R. § 323.4(c) (1993).

[225]*Id.* § 323.4(a)(1)(ii).

[226]*Id.* § 324.4(a)(1)(iii)(C)(2).

[227]*See* U.S. v. Akers, 785 F.2d 814, 819 (9th Cir. 1986); U.S. v. Huebner, 752 F.2d 1235, 1240-41 (7th Cir. 1985); Blumm & Zaleha, *supra* note , at 722.

[228]33 C.F.R. § 323.4(a)(4) (1993).

[229]U.S. v. Sargent County Water Dist., No. A3-88-175 (D.N.D. Apr. 6, 1992); U.S. v. Stearns County, No. 3-89-0616 (D. Minn. Mar. 15, 1990; Oct. 2, 1990), discussed in Strand, *supra* note , at 10,208-209.

[230]33 U.S.C. § 1344(r) (1988); 33 C.F.R. § 323.4(d) (1993).

[231]*See* Edward Thompson, *Section 404 of the Federal Water Pollution Control Act Amendments of 1977: Hydrologic Modification, Wetlands Protection, and the Physical Integrity of the Nation's Waters*, 2 HARV. ENVTL. L. REV. 264, 284-86 (1977).

[232]*See* Blumm & Zaleha, *supra* note, at 723.

[233]392 F. Supp. 685 (D.D.C. 1975); *see supra* notes - and accompanying text.

[234]40 Fed. Reg. 31,320, 31,322 (1975); *see also* Thomas Addison & Timothy Burns, *The Army Corps of Engineers and Nationwide Permit 26: Wetlands Protection or Swamp Reclamation?*, 18 ECOLOGY L.Q. 619, 630 (1991).

[235]33 U.S.C. § 1344(e) (1988).

[236]*See* Strand, *supra* note, at 10,210.

[237]33 U.S.C. § 1344(e); *see also* 33 C.F.R. § 323.2(h) (1993).

[238]33 U.S.C. § 1344(e)(2).

[239]33 C.F.R. § 330.5(b)(3). On the § 404(b) guidelines, see *infra* notes - and accompanying text.

[240]33 C.F.R. § 330.5(b).

[241]*Id.* § 325.2(e)(2).

[242]Lawrence R. Liebsman & Philip T. Handemann, *Regulatory Standards for Permits Under Section 404*, 7 NAT'L RESOURCES & ENVT. no. 1, at 12, 56 (Summer 1992).

[243]56 Fed. Reg. 59,110 (Nov. 22, 1991).

[244]*See* 33 C.F.R. § 330, App. A (1993). Activities covered by nationwide permits include fish and wildlife harvesting, bank stabilization, minor road crossing fills, cranberry production activities, and cleanup of hazardous and toxic waste. *Id.* For a listing of all 36 nationwide permits, see Strand, *supra* note 177, at 10,211-12.

[245]33 C.F.R. § 330, app. A § B.3.

[246]*Id.* § 330, app. A § B.12.

[247]*Id.* § 330, app. A § B.14.

[248]*Id.* § 330, app. A § B.18.

[249]*Id.* § 330, app. A § B.23.

[250]*Id.* § 330, app. A § B.25.

[251]*Id.* § 330, app. A § B.26.

[252]*Id.* § 330, app. A § B.27.

[253]*Id.* § 330, app. A § B.33.

[254]*See id.* § 330.1(e).

[255]*Id.* § 330, app. A.

[256]*Id.* §§ 330.4(f)-(8), 330, app. A § C.7-.8, .11-.12.

[257]*Id.* §§ 330.4(e), 330, app. A § C.13(d).

[258]*Id.* §§ 330.4(c) and (d); App. A § C.10, .11.

[259]*Id* § 330, App. A § B.26. *See also id.* §330.2(d)-(e) (defining "headwaters" and "isolated waters").

[260]*See* Blumm & Zaleha, *supra* note 135, at 726; *see also* Jan Goldman-Carter, *Nationwide Permit 26: The Wetlands Giveaway*, 11 NAT'L WETLANDS NEWSL. no. 6, at 4 Nov.-Dec. 1989).

[261]33 C.F.R. § 330, App. A (26)(b) (1993).

[262]*Id.* § 330.5(d). In making this determination, the district engineer is to consider EPA's § 404(b) guidelines. *Id.*

[263]Clinton Wetlands Plan, *supra* note 200, at 14.

[264]*See* Blumm. *supra* note 200, at 234-35.

[265]*See, e.g.*, O'Connor v. Corps of Engineers, 801 F. Supp. 185, 189 (N.D. Ind. 1992).

[266]796 F. Supp. 121 (D.N.J. 1992).

[267]*Id.* at 126-30.

[268]United States v. Marathon Development Corp., 867 F.2d 96 (1st Cir. 1989) (finding that permit 26 could not be applied in Massachusetts, because the state had denied water quality certification that was requisite to the granting of a federal permit).

[269]33 C.F.R. §§ 325.2(e), 325.3(b) (1993).

[270]*Id.* § 325.5(c).

[271]*Id.* § 325.5(c)(3).

[272]33 U.S.C. §§ 1344(g)-(h) (1988).

[273]*See* Strand, *supra* note 177, at 10,315-16.

[274]33 C.F.R. § 325.8 (1993).

[275]The regulations require the Corps to issue retroactive "after the fact" permits for discharges that were unpermitted and illegal when made unless the district engineer determines that: "(i) ...restoration... has been completed that eliminates current and future detrimental impacts...

(ii)... legal action is appropriate... (iii) a Federal, state, or local authorization... has already been denied, [or] (iv) enforcement litigation... has been initiated...." *Id.* § 326.3(e).

[276]*Id.* § 325.1(b).

[277]*Id.* § 325.1.

[278]*Id.* § 325.3.

[279]*Id.* §§ 325.2(a)(5), 327.4(a).

[280]*See id.* §§ 230.1-.26.

[281]*Id.* § 320.4(c).

[282]Liebsman & Handemann, *supra* note 242, at 13.

[283]The applicability of these laws, as well as others, to the 404 permit process are discussed in some detail in the Corps' regulations. *See* 33 C.F.R. § 320.3 (1993).

[284]*See id.* § 325.2(d)(3).

[285]33 U.S.C. § 1344(q) (1988).

[286]Memorandum of Agreement Between the Department of the Army, and the Environmental Protection Agency, Concerning Clean Water Act Section 404(q) (Aug. 11, 1992); Memorandum of Agreement Between the Department of the Army, and the Department of Commerce, Concerning Clean Water Act Section 404(q) (Aug. 11, 1992); Memorandum of Agreement Between the Department of the Army and the Department of the Interior, Concerning Clean Water Act Section 404(q) (Dec. 21, 1992).

[287]*Id.* § IV.1.

[288]Terry Schley & Linda Winter, *New 404q MOA: Diluting EPA's Role*, 14 NAT'L WETLANDS NEWSLETTER no. 6, at 8 (Nov./Dec. 1992).

[289]*See* Michael L. Davis & Royal C. Gardiner, *Recognizing the Corps' Commitment*, 15 NAT'L WETLANDS NEWSLETTER no. 2, at 9 (Mar./Apr. 1993).

[290]33 C.F.R. §§ 325.8(b), (c) (1993).

[291]*Id.* §§ 325.2(a)(3)-(6), 325.8(b).

[292]*See id.* §§ 325.2(b)(1), (2).

[293]*Id.* § 325.2(d)(4).

[294]*Id.* § 325.2(a)(6).

[295]*Id.* § 325.5(b)(2).

[296]*Id.* § 325.2(e)(1).

[297]*Id.* § 325.2(e)(1)(ii).

[298]*Id.*

[299]*See supra* notes 283-294 and accompanying text.

[300]33 U.S.C. §§ 1344(b)(1) (1988).

[301]*See* Blumm & Zaleha, *supra* note 135, at 711, 736, recounting the controversy over the guidelines.

[302]33 C.F.R. § 323.6(a) (1993).

[303]*Id.* § 320.4(b). *See* Buttery v. U.S., 690 F.2d 1170, 1180 (5th Cir. 1982); Shoreline Assoc. v. Marsh, 555 F. Supp. 169, 172 (D. Md. 1983), *aff'd*, 725 F.2d 677 (4th Cir. 1984).

[304]40 C.F.R. § 230.1(c) (1993).

[305]*Id.* § 230.10(c).

[306]*See* Strand, *supra* note 177, at 10,291. *See generally* Robert Uram, *The Evolution of the Practicable Alternatives Test*, 7 NAT'L RESOURCES & ENVT. (ABA) no. 1, at 15 (Summer 1992); Oliver A. Houck, *Hard Choices: The Analysis of Alternatives Under Section 404 of the Clean Water Act and Similar Environmental Laws*, 60 COLO. L. REV. 773 (1989). *But see* James City County v. EPA, 12 F.3d 1330, 1335-39 (4th Cir. 1993) (upholding an EPA veto on "significant degradation" grounds).

[307]40 C.F.R. § 230.10(a) (1993).

[308]*Id.* § 230.10(a)(2).

[309]*Id.* § 230.10(a)(2). *See also* Bersani v. Robichaud, 850 F.2d 36, 43 (2d Cir. 1988) (upholding EPA's "market entry" interpretation of the practicable alternatives requirement, which provides that available alternative development sites may be considered as of the time the permit applicant enters the market for the site, rather than at the time for which the permit is applied).

[310]One court recently held that a public water supply project was "water dependent." James City County, Va. v. EPA, 758 F. Supp. 348 (E.D. Va. 1990), *aff'd*, 955 F.2d 254 (4th Cir. 1992). Special aquatic sites are defined as areas "possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values...[a]reas significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region." 40 C.F.R. § 230.3(q-1) (1993). These sites include wetlands, sanctuaries and refuges, mud flats, and coral reefs. *Id.* §§ 230.40-.45.

[311]*Id.* § 230.10(a)(3):

> Where the activity associated with a discharge which is proposed for a special aquatic site...does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise.

[312]*See* Corps Regulatory Guidance Letter, RGL 92-2, Water Dependency and Cranberry Production, 58 Fed. Reg. 17,217 (April 1, 1993).

[313]40 C.F.R. § 230.10(b) (1993) (prohibiting discharges causing or contributing to violations of state water-quality standards, violating applicable toxic effluent standards, jeopardizing any endangered species, or violating any requirement protecting a marine sanctuary).

[314]*Id.* § 230.10(c).

[315]*Id.* § 230.10(d).

[316]*See* Town of Norfolk v. United States Army of Engineers, 968 F.2d 1438, 1448 (1st Cir. 1992). *See also* Environmental Coalition of Broward County, Inc. v. Meyers, 831 F.2d 984, 986 (11th Cir. 1987) (upholding issuance of a fill permit, noting that deference to Corps' determinations is "particularly appropriate in the case of complex environmental statutes such as the Clean Water Act.").

[317]Town of Norfolk v. United States Army Corp of Engineers, 968 F.2d 1438, 1448 (1st Cir. 1992).

[318]*See* Holy Cross Wilderness Fund v. Madigan, 960 F.2d 1515, 1528 (10th Cir. 1992) (upholding Corps rejection of several alternatives to a proposed water diversion project as too speculative and uncertain); Sylvester v. United States Army Corps of Engineers, 882 F.2d 407 (9th Cir. 1989) (holding that the Corps gave adequate consideration to possible alternative sites for a resort project golf course); Friends of the Earth v. Hintz, 800 F.2d 822 (9th Cir. 1986) (upholding Corps' conclusion that alternative sites for a log export sorting yard were either too costly or logistically infeasible); Louisiana Wildlife Fed'n v. York, 761 F.2d 1044 (5th Cir. 1985) (affirming consideration by the Corps of only those alternatives that would fulfill the applicant's stated purpose of increasing soybean production).

[319]Louisiana Wildlife Federation v. York, 761 F.2d 1044, 1048 (5th Cir. 1985); National Audubon Society v. Hartz Mountain Development Corp., 14 Envtl. L. Rep. (ELI) 20,724, 20,730-32 (D.N.J. 1983).

[320]*See* Department of the Army, Permit Elevation, Plantation Landing Resort, Inc. (Apr. 21, 1989); U.S. Army Corps of Engineers, Headquarters Findings, Hartz Mountain 404(q) Elevation (July 25, 1989); Department of the Army, Permit Elevation, Old Cutler Bay associates (Sept. 13, 1990); U.S. Army corps of Engineers, Headquarters Review and Findings, Twisted Oaks Joint Venture Permit 404(q) Elevation (March. 15, 1991).

[321]Sylvester v. U.S. Army Corps of Engineers, 882 F.2d 407, 409 (9th Cir. 1989); Friends of the Earth v. Hintz, 800 F.2d 822, 833-34 (9th Cir. 1986).

[322]Friends of the Earth v. Hall, 693 F. Supp. 904, 946-47 (W.D. Wash. 1988).

[323]40 C.F.R. § 230.10(d) (1993).

[324]*See* Margot Zollen, *The Mitigation Agreement—A Major Development in Wetland Regulation*, 7 NAT'L RESOURCES & ENVT. no. 1 (ABA), at 19 (Summer 1992).

[325]55 Fed. Reg. 9210 (Mar. 12, 1990).

[326]*Id.* at 9211, § II.B.

[327]*Id.*

[328]The term "sequencing" was derived from the definition of mitigation in the Council on Environmental Quality's NEPA regulations, which defined the term to include avoiding, minimizing, and rectifying impacts; reducing impacts over time; and compensating for impacts. 40 C.F.R. § 1508.20 (1992). "Sequencing" means taking mitigation steps in the order listed in the CEQ regulation.

[329]55 Fed. Reg. at 9212-13, § III.B; *see* Zollen, *supra* note 324, at 21.

[330]55 Fed. Reg. at 9212, § II.C.

[331]57 Fed. Reg. 52,716 (Nov. 4, 1992).

[332]Clinton Wetlands Plan, *supra* note 200, at 24; *see* Blumm, *supra* note 200, at 211-12.

[333]*See* Pub. L. No. 102-240 § 1006(d)(13), 105 Stat. 1914, 1926 (1991).

[334]*See infra* notes 882-896 and accompanying text.

[335]33 C.F.R. § 320.4 (1993).

[336]*Id.* § 320.4(a)(1).

[337]*Id.*

[338]*Id.*

[339]*Id.* § 320.4(b)(1).

[340]*Id.* § 320.4(b)(2) identifies the following "important public function" wetlands:

(i) wetlands which serve significant biological functions, including food chain production, general habitat and nesting, spawning, rearing and resting sites for wildlife; (ii) wetlands set aside for study of the aquatic environment or as sanctuaries or refuges; (iii) wetlands the destruction or alteration of which would affect detrimentally natural drainage...sedimentation patterns...or other environmental characteristics; (iv) wet-lands which are significant in shielding other areas from wave action, erosion, or storm damage...; (v) wetlands which serve as valuable storage areas for storm and flood waters; (vi) wetlands which are ground water discharge areas; (vii) wetlands which serve significant water purification functions; and (vii) wetlands which are unique in nature or scarce in quantity to the region or local area.

[341]*Id.* § 320.4(b)(4).

[342]*See* Town of Norfolk v. United States Army of Engineers, 968 F.2d 1438, 1454-55 (1st Cir. 1992) (upholding Corps public interest review deter-mination that a proposed landfill would have an insignificant effect on wetlands); Holy Cross Wilderness Fund v. Madigan, 960 F.2d 1515, 1528 (10th Cir. 1992) (finding sufficient evidence on the record that the Corps evaluated the private and public need for a water diversion project).

[343]882 F.2d 407 (9th Cir. 1989).

[344]*Id.* at 410.

[345]Mall Properties v. Marsh, 672 F. Supp. 561 (D. Mass. 1987) (holding that the Corps impermissibly rejected a permit for a mall in North Haven, Connecticut, on the basis of the economic effects on nearby New Haven, Connecticut).

[346]33 U.S.C. § 1344(c).

[347]40 C.F.R. § 231.

[348]Strand, *supra* note 177, at 10,296.

[349]*See* William B. Ellis, *Section 404(c): Where Is the Balance?*, 7 NAT'L RESOURCES & ENVT. no. 1 (ABA) 25, 63-64 (Summer 1992) (provides a listing of all final vetoes as of Apr. 1992).

[350]Bersani v. Robichaud, 850 F.2d 36 (2d Cir. 1988), *cert. denied*, 489 U.S. 1089 (1989).

[351]*See generally* Klein, *Bersani v. EPA: The EPA's Authority Under the Clean Water Act to Veto Wetland-Filling Permits*, 19 ENVTL. L. 389 (1989); Blumm & Zaleha, *supra* note 135, at 742-44; Houck, *supra* note 306, at 804-07.

[352]City of Alma v. U.S., 744 F. Supp. 1546 (S.D. Ga. 1990).

[353]James City County, Virginia v. U.S. Environmental Protection Agency, 955 F.2d 254 (4th Cir. 1991).

[354]James City County v. EPA, 23 ENVIRON. L. REP. (ELI) 20,228 (E.D. Va. Aug. 5, 1992), *rev'd* 12 F.3d 1330 (4th Cir. 1993).

[355]40 C.F.R. § 231.1(a) (1993).

[356]James City County v. EPA, 12 F.3d 1330, 1335-39 (4th Cir. 1993).

[357]Pub. L. No. 99-198, 99 Stat. 1504 (1985) (codified as amended at 16 U.S.C.A. §§ 3801-3862 (West 1985 & Supp. 1993).

[358]16 U.S.C. §§ 3821-24 (1988 & Supp. IV 1992).

[359]16 U.S.C. §§ 3837-3837f (Supp. IV 1992).

[360]Conservation Program Improvements Act, Pub. L. No. 101-624, Title XIV, § 1438 (1990).

[361]The conservation provisions of FSA also include restrictions on agricultural uses of highly erodible lands, 16 U.S.C. §§ 3811-3813 (1988 & Supp. IV 1992), general conservation reserve provisions that establish contractual restrictions on the uses of sensitive land (which can include wetlands). 16 U.S.C.A. §§ 3831-3836 (West 1985 & Supp 1993).

[362]16 U.S.C. § 3822 (1988 & Supp. V 1992).

[363]*Id.* at § 3823.

[364]Clinton Wetlands Plan, *supra* note 200, at 11.

[365]Interagency Memorandum of Agreement Concerning Wetlands Determinations for Purposes of Section 404 of the Clean Water Act and Subtitle B of the Food Security Act, 59 Fed. Reg. 2920 (Jan. 19, 1994).

[366]*See* 16 U.S.C. § 3822 (Supp. IV 1992); 7 C.F.R. § 12.5(b) (1994).

[367]*See* Clinton Wetlands Plan, *supra* note 200, at 11; 58 Fed. Reg. 45,036 (Aug. 25, 1993) (to be codified at 33 C.F.R. § 328.3(a)(8)).

[368]*See generally* Anthony N. Turrini, *Swampbuster: A Report from the Front*, 24 IND. L. REV. 1507 (1991); Dalana W. Johnson, *Saving Wetlands from Agriculture: An Examination of Section 404 of the Clean Water Act and the Conservation Provisions of the 1985 and 1990 Farm Bills*, 7 J. LAND. USE & ENVTL. L. 299 (1992).

[369]*See infra* notes 376-402 and accompanying text.

[370]*See* 23 C.F.R. § 777 (1993).

[371]*See supra* note 46 and accompanying text; FHWA 4(f) Policy Paper, *supra* note 44, at 7.

[372]Section 4(f) (now 49 U.S.C. § 303 (1988)) applies to use of land from a significant publicly owned "park, recreation area, or wildlife and waterfowl refuge" or from any significant historic site and bars approval of a use unless there is "no feasible and prudent alternative" and the action includes "all possible planning to minimize harm." 23 C.F.R. § 771.135(a) (1993). Land within wetlands conservation easements should be subject to § 4(f) because it has prominent wildlife and waterfowl refuge purposes, *see* 7 C.F.R. § 703.10 (1993), and because land is normally considered a wildlife and waterfowl refuge if "officials having jurisdiction over the land determine that one of its major purposes or functions" is such. Section 4(f) Policy Paper, *supra* note 44, at 13.

[373]*See* 23 C.F.R. § 771.135(p) (1993).

[374]*See* 16 U.S.C. § 3837(d) (1988); 7 C.F.R. § 703.10 (1993).

[375]*See infra* notes 376-402 and accompanying text.

[376]Exec. Ord. No. 11990, 42 Fed. Reg. 26,961 (May 24, 1977).

[377]DOT Order 5660.1A (Aug. 24, 1978), 43 Fed. Reg. 45,285 (1978) (also implementing sections of the DOT Act, NEPA, the Clean Water Act, the Fish and Wildlife Coordination Act, the Coastal Zone Management Act, and the Water Bank Act).

[378]*See* Kussy, *supra* note 7, at 213-18.

[379]*See, e.g.*, Exec. Ord. 11990 § 1, 42 Fed. Reg. 26,961, 26,961 (May 24, 1977); DOT Order 5660.1A § 7, 43 Fed. Reg. 45,285, 45,286-87 (Sept. 29, 1978). The restriction on licensing activities applies to licensing of public actions or actions on federal property but does not extend to licensing private actions on private property. *See* Exec. Ord. 11990 § 1(b), 42 Fed. Reg. at 26,961.

[380]Exec. Ord. 11990 § 2, 42 Fed. Reg. 26,961, 26,962 (May 24, 1977).

[381]*Id.*

[382]*See supra* notes 91-131 and accompanying text. "Section 4(f)" refers to 49 U.S.C. § 303 and 23 U.S.C. § 138; *see* 23 C.F.R. § 771.107(e) (1993).

[383]*See, e.g.*, National Wildlife Federation v. Adams, 629 F.2d 587, 591-592 (9th Cir. 1980); Ashwood Manor Civic Ass'n v. Dole, 619 F.Supp. 52, 84-85 (E.D. Pa. 1985), *aff'd*, 779 F.2d 41 (3d Cir. 1985), *cert. denied*, 475 U.S. 1082 (1986).

[384]*See* 23 C.F.R. § 771.135(p) (1992). However, § 4(f) may also be implicated where significant wetlands on publicly owned land are involved where the area's purposes include serving as a wildlife or waterfowl refuge. *See* 4(f) Policy Paper, *supra* note 44, at 13.

[385]The Wetlands Executive Order defines "wetlands" as:

> those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does [sic] or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

Exec. Ord. 11990 § 7(c), 42 Fed. Reg. 26,961, 26,964 (May 24, 1977).

[386]*See* 49 U.S.C. § 303 (1988).

[387]*See* Exec. Ord. 11,990 § 4, 42 Fed. Reg. at 26,962-63.

[388]*Id.* § 5, 42 Fed. Reg. at 26,963.

[389]*Id.*

[390]*Id.* at § 4, 42 Fed. Reg. at 26,962.

[391]DOT Ord. No. 5660.1A § 7, 43 Fed. Reg. 45,285, 45,286 (Sept. 29, 1978).

[392]*Compare* DOT Ord. No. 5660.1A § 4, 43 Fed. Reg. at 45,286 (wetlands defined as lowlands covered with shallow and sometimes temporary or intermittent waters. This includes, but is not limited to, swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, and tidal overflows, as well as estuarine areas and shallow lakes and ponds with emergent vegetation. Areas covered with water for such a short time that there is no effect on moist-soil vegetation are not included in the definition, nor are the permanent waters of streams, reservoirs, and deep lakes) *with* the Wetlands Executive Order definition, *supra* note 385. DOT was attempting to embrace a uniform wetlands classification system under development by the Fish and Wildlife Service.

[393]DOT Ord. No. 5660.1A § 4(a), 43 Fed. Reg. at 45,286.

[394]*See* Kussy, *supra* note 7, at 216.

[395]DOT Ord. No. 5660.1A at § 5, 43 Fed. Reg. at 45,286.

[396]*See* DOT Ord. No. 5660.1A §§ 5, 7(g), 43 Fed. Reg. at 45,286, 45,287. *See also* text accompanying note 380. Mitigation includes enhancing, creating, or replacing wetlands. FAHP funding may be available for mitigation purposes both on federal lands, see 23 C.F.R. § 712, (1993), and on private lands, see *id.* § 777.

[397]National Wildlife Federation v. Adams, 629 F.2d 587, 592 n.7 (9th Cir. 1980).

[398]DOT Ord. No. 5660.1A § 7(c), 43 Fed. Reg. at 45,286. Comments from expert agencies and other agencies involved in a project are not binding on FHWA, but may nevertheless be determinative. *See* Kussy, *supra* note 1, at 217. *See also* Michael C. Blumm & Stephen R. Brown, *Pluralism and the Environment: The Role of Comment Agencies in NEPA Litigation*, 14 HARV. ENVTL. L. REV. 277 (1990).

[399]DOT Ord. No. 5660.1A § 7(b), 43 Fed. Reg. at 45,286.

[400]*Id.* § 6(d), 43 Fed. Reg. at 45,286.

[401]*Id.* § 7(e), 43 Fed. Reg. at 45,286.

[402]*See* Kussy, *supra* note 7, at 217.

[403]33 U.S.C. §§ 401-467n (1988 & Supp. II 1990).

[404]Kussy, *supra* note 7, at 203; David L. Hankey, *Sections 9 & 10 of the Rivers and Harbors Act of 1899: The Erosion of Administrative Control by Environmental Suits*, 1980 DUKE L. J. 170, 181-183.

[405]33 U.S.C. § 407 (1988).

[406]Robert V. Percival et al., ENVIRONMENTAL REGULATION LAW, SCIENCE, AND POLICY 874-876 (1992).

[407]Federal Water Pollution Control Act 33 U.S.C. §§ 1251-1387 (1988) (particularly relevant are §§ 301 and 402, 33 U.S.C. §§ 1311, 1342). *See also* Termination of Discharge Permit Program under 33 U.S.C. § 407 (1988).

[408]33 U.S.C. §§ 401, 403 (1988).

[409]33 U.S.C. § 1344 (1988); 33 C.F.R. § 323 (1993). In addition to the specific requirements of part 323 for discharges of dredged or fill material, a § 404 permit requires adherence to the same general Department of the Army (DA) policies and procedures that apply to DA permits under §§ 9 and 10 of RHA including, among other things, public interest review and protection of (1) wetlands, (2) water quality, (3) fish and wildlife, and (4) historic, cultural, scenic, and recreational values. *See id.* §§ 323.1, 320.4, 325.1.

[410]*See id.* § 322.5(a).

[411]*See id.* § 330 App. A § B.12 (nationwide permit under § 404 but not RHA § 10).

[412]*Id.* App. A § B.25 (nationwide permit for § 404 but not RHA § 10).

[413]*See id.* App. A § B.13 (nationwide permit only for small projects with minimal environmental impacts).

[414]*Id.* § 222.3(a).

[415]16 U.S.C. § 401 (1988). Under RHA, "navigable waters" has a more restricted meaning than under the Clean Water Act but broader than actual navigability. "Navigable waters" are defined by RHA regulations as "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce." Once determined to be navigable, the entire surface of the body of water is considered navigable even if actual navigable capacity is impeded. 33 C.F.R. § 329.4 (1993).

[416]33 U.S.C. § 401 (1988). *See also* 33 C.F.R. §§ 114-115 (1993) (Coast Guard review for navigational impacts); 23 C.F.R. § 650 (1993) (FHWA review for floodplain impacts); *id.* § 771 (FHWA environmental impact procedures).

[417]33 U.S.C. § 401 (1988). The regulations authorize Corps district engineers to make determinations for intrastate navigable waters, *see* 33 C.F.R. § 321.3(b) (1993), and the assistant secretary of the army (civil works) to make determinations for

interstate navigable waters. *Id.* at § 321.3(a). The regulations governing § 9 permits are found at 33 C.F.R. § 321 (1993). *See also id.* § 320 (general COE regulations providing for public interest review and consideration of environmental impacts).

[418]33 C.F.R. § 321.2 (1993).

[419]*See, e.g.,* Hart and Miller Area Envtl. Group, Inc. v. Corps of Engineers, 621 F.2d 1281, 1291 (4th Cir.) (upholding § 10 permit for 4700-foot-long dike extending into a bay that was 7 miles wide), *cert. denied,* 449 U.S. 1003 (1981); *but see* Citizens Committee for the Hudson Valley v. Volpe, 302 F.Supp. 1083 (S.D.N.Y. 1969) (applying dictionary definitions of dike and causeway), *aff'd,* 425 F.2d 97 (2d Cir.), *cert. denied,* 400 U.S. 949 (1970).

[420]33 U.S.C. § 401 (1988).

[421]*Id.* § 525.

[422]33 C.F.R. § 114.01(c) (1993).

[423]*Id.* § 115.05.

[424]*See id.* § 321.3(c).

[425]33 U.S.C. § 403 (1988).

[426]*Id.*

[427]*See, e.g.,* United States v. Republic Steel Corp., 362 U.S. 482, 488 (1960).

[428]*See e.g.,* Wisconsin v. Illinois, 278 U.S. 367 (1929)(water withdrawal for sewage purposes barred in absence of congressional authorization where secretary first issued conditional permit and then denied permit request).

[429]33 C.F.R. §§ 321, 322 (1993).

[430]*Id.* §§ 320, 325.

[431]*See* 33 U.S.C. § 1344(b) (1988); 40 C.F.R. § 230 (1993).

[432]33 C.F.R. § 320.4 (1993).

[433]*Id.* at § 320.4(a)(2).

[434]*Id.* at § 320.4.

[435]*See id.* §§ 320.4(a)(3), 320.4(r).

[436]*See id.* § 330 App. A (1993) (listing nationwide permits and conditions).

[437]*See id.* § 322.3(a).

[438]*Id.* § 330 App. A § B.24.

[439]*See id.* §§ 114-115 (1993).

[440]*Id.* § 114.01(c).

[441]*Id.* § 115.60.

[442]23 C.F.R. § 650.103 (1993).

[443]*Id.* § 650.109.

[444]*Id.* § 650.111.

[445]*Id.* § 650.113. *See also* 23 C.F.R. § 771 (1993) (environmental impact procedures).

[446]33 C.F.R. § 330 App. A § B.15, B.25 (1993).

[447]*See id.* § 330 App. A § B.15.

[448]*See id.* § 330.4(e)(2). However, full review is not necessary when the initial action is authorized by a nationwide permit; the Corps may simply impose additional conditions on a specific activity and then restore nationwide permit authorization. *Id.* at § 330.4(e)(3).

[449]*See supra* note 415 and accompanying text.

[450]33 U.S.C. § 403 (1988); 33 C.F.R. § 322.3(a) (1993). *See also supra* note 410 and accompanying text.

[451]*See, e.g.,* United States v. Alaska, 112 S.Ct. 1606 (1992) (traces legislative and judicial history and upholds conditioning of RHA § 10 permit on a state's disclaimer of rights to additional submerged lands that would otherwise result from alteration of coastline).

[452]*See* Kussy, *supra* note 7, at 182-84. Kussy described three primary factors behind the tendency to group floodplain and wetland regulation together: (1) The physical overlap of the two areas—wetlands are frequently found in floodplain areas, (2) the problems associated with both floodplains and wetlands are generally caused by development, and (3) the types of regulations imposed—restrictive land use controls and imposition of design restraints—are similar in both areas. *Id.* at 183.

[453]*Id.*

[454]For a thorough discussion of the evolution of floodplain management and the existing Unified National Program, see INTERAGENCY TASK FORCE ON FLOODPLAIN MANAGEMENT, A STATUS REPORT ON THE NATION'S FLOODPLAIN MANAGEMENT ACTIVITY (L.R. Johnson Associates, 1989) [hereinafter Interagency Task Force Report].

[455]*Id.* at 1-2.

[456]*See infra* notes 488-501 and accompanying text, for a discussion of the Floodplains Executive Order.

[457]Exec. Order No. 11,988, § 6(c), 42 Fed. Reg. 26,951 (May 24, 1977).

[458]42 U.S. § 4121 (1988 & Supp. IV 1992), 44 C.F.R. § 59.1 (1993) (definition of "base flood").

[459]*See* Kussy, *supra* note 7, at 185.

[460]*Interagency Floodplain Task Force, supra* note 454, at 1-3.

[461]*Id.* at 2-1.

[462]President's Comm'n on American Outdoors (1987) (quoted in *Interagency Floodplain Task Force, supra* note 454, at 2-1).

[463]*Interagency Floodplain Task Force, supra* note 454, at 2-1 to 2-18.

[464]*Id.* at 2-18 to 2-19.

[465]*Id.* at 2-18.

[466]Kussy, *supra* note 7, at 186.

[467]*Id.* at 187.

[468]*Id.* at 186-87.

[469] NFIP was established by the National Flood Insurance Act of 1968 (title 13 of the Housing and Urban Development Act of 1968), Pub. L. No. 90-448, 82 Stat. 476 (1968) (codified at 42 U.S.C. §§ 4001-4127 (1988)).

[470]*Id.* § 4002(b) (1988).

[471]42 U.S.C. § 4001(c) (1988). *See infra* notes 478-487 and accompanying text.

[472]42 U.S.C. § 4001(c) (1988).

[473]U.S. Water Resources Council, A UNIFIED NATIONAL PROGRAM FOR FLOOD PLAIN MANAGEMENT at II-3 (Sept. 1979).

[474]Section 202 of Reorg. Plan No. 3, 43 Fed. Reg. 41,943 (1978), 92 Stat. 9808 (1978).

[475]42 U.S.C. § 4101(a).

[476]44 C.F.R. § 59.1 (1993) ("area of special flood hazard is the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year").

[477]*Id.* § 59.22. For a detailed treatment of the operation of NFIP, see Oliver A. Houck, *Rising Water: The National Flood Insurance Program and Louisiana,* 60 TUL. L. REV. 61, 73-76 (1985).

[478]42 U.S.C. § 4001(c) (1988).

[479]*Id.* § 4001(e) (1988).

[480]U.S. WATER RESOURCES COUNCIL, A UNIFIED NATIONAL PROGRAM FOR FLOOD PLAIN MANAGEMENT (1976).

[481]U.S. WATER RESOURCES COUNCIL, A UNIFIED NATIONAL PROGRAM FOR FLOOD PLAIN MANAGEMENT (1979).

[482]*See* Task Force Report, *supra* note 454.

[483]*Id.* at 5-5.

[484]*Id.* at 5-6.

[485]23 U.S.C. § 134 (1988); *see also* Kussy, *supra* note 7, at 220.

[486]23 C.F.R. §§ 650.101-115 (1993). *See infra* notes 495-501 and accompanying text.

[487]Kussy, *supra* note 7, at 223.

[488]Exec. Order No. 11,988, 42 Fed. Reg. 26,951 (1977); *see also* FEDERAL EMERGENCY MANAGEMENT AGENCY, FURTHER ADVICE ON EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT 3 (1987) [hereinafter FEMA Advice].

[489]*Id.* at 27.

[490]*Id.* FEMA further explains that practicable alternatives can include carrying out the proposed action outside of the floodplain, accomplishing the same objective using other means, or taking no action at all. *Id.*

[491]Under WRC guidelines, FHWA and other federal agencies must do the following:

(1) Determine if a proposed action is in the base floodplain.

(2) Provide for public review.

(3) Identify and evaluate practicable alternatives to locating a project in the base floodplain.

(4) Identify the impacts of the proposed action.

(5) Minimize threats to life and property and to natural and beneficial floodplain values; restore and preserve natural and beneficial floodplain values.

(6) Reevaluate alternatives.

(7) Issue findings and a public explanation.

(8) Implement the action.

FEMA Advice, *supra* note 488, at 3-4.

[492]*Id.* at 38-39.

[493]*Id.* at 39.

[494]*Id.* at 40.

[495]44 Fed. Reg. 24,678 (Apr. 6, 1979). *See also,* Kussy, *supra* note 7, at 222-23.

[496]"Significant encroachment shall mean a highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction- or flood-related impacts:

(1) A significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route,

(2) A significant risk, or

(3) A significant adverse impact on natural and beneficial floodplain values."

23 C.F.R. § 650.105(q) (1993).

[497] FHWA regulations define the "base floodplain" as the area having a one percent chance of being exceeded in any given year. *Id.* § 650.105(b).

[498]*Id.* § 650.105(k).

[499]*Id.* § 650.113.

[500]*Id.* § 650.115(a).

[501]*Id.* § 650.115(a)(5).

[502]33 U.S.C. §§ 1251(a) (Clean Water Act goals), 1362(7) (definition of navigable waters as "waters of the United States").

[503]*See infra* notes 518-565 and accompanying text.

[504]*See infra* notes 592-602 and accompanying text.

[505]33 U.S.C. § 1362(14) (1988).

[506]*See infra* notes 579-591 and accompanying text.

[507]*See infra* notes 530-542 and accompanying text.

[508]33 U.S.C. § 1311(a) (1988); *see* 2 William H. Rodgers, ENVIRONMENTAL LAW: AIR AND WATER 372 (1986).

[509]33 U.S.C. § 1342 (1988). *See also id.* §§ 1311 (effluent limitations), 1313 (water-quality standards).

[510]*Id.* §§ 1342(a)(1) (federal permits) and 1342(b) (state programs).

[511]33 U.S.C. § 1342 (1988); 40 C.F.R. § 122.1(b) (1993).

[512]"Point Source" is defined as "any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container,...from which pollutants are or may be discharged." 40 C.F.R. § 122.2 (1993).

[513]*Id.*

[514]"Discharge" is defined in conjunction with "discharge of a pollutant," which means "any addition of any pollutant to navigable waters from any point source." 33 U.S.C. § 1362(12) (1988). *See* NWF v. Gorsuch, 693 F.2d 156, 165-175 (D.C. Cir. 1982) (deference given to the EPA's interpretation of "addition" with regard to NPDES permits; an addition of a pollutant from a point source requires the point source to introduce the pollutant into the water from the outside world; because dam-induced pollution is produced by changes in water conditions, not substances added to water, dams are not subject to NPDES permit requirements). *See also* Avoyelles Sportsmen's League, Inc. v. Marsh, 715 F.2d 897, 922-923 (5th Cir. 1983) (the word "addition," as used in the definition of the term "discharge," may reasonably be understood to include a "redeposit" of a fill material destroying wetlands).

[515]33 U.S.C. § 1362(12) (1988); 40 C.F.R. § 122.2 (1993).

[516]*Id.*

[517]*See* 2 Rodgers, *supra* note 508, at 372-446 for in-depth account of the NPDES permitting process.

[518]33 U.S.C. § 1311 (1988).

[519]"Point Source" is defined as "any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, ... from which pollutants are or may be discharged." 40 C.F.R. § 122.2 (1992). "Waters of the United States" are defined broadly and include discharges to interstate wetland areas. *See id.* EPA has expressed the intent to embrace the broadest possible interpretation of the term "point source." National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges; Final Rule, 55 Fed. Reg. 47,990, 47,997 (Nov. 16, 1990) [hereinafter NPDES Storm Water Rule].

[520]33 U.S.C.A. § 1342 (West 1986 & Supp. 1993).

[521]*See, e.g.*, 40 C.F.R. § 122.26 (1993); NPDES Storm Water Rule, *supra* note 519.

[522]*See* 33 U.S.C.A. § 1342(p) (West 1986 & Supp. 1994).

[523]*Id.* § 1342(p)(2).

[524]*See id.* § 1342(p)(6)(requiring establishment of (1) priorities, (2) requirements for state stormwater management programs, and (3) deadlines).

[525]*See id.* § 1342(p)(1).

[526]*See* 33 U.S.C. § 1342(p) (1988), *amended by* Water Resources Development Act of 1992, Pub. L. No. 102-580, Tit. 3, § 364, 106 Stat. 4797, 4862.

[527]966 F.2d 1292 (9th Cir. 1992).

[528]*See id.* at 1300. *See also* Water Resources Development Act of 1992, Pub. L. No. 102-580, § 364, 106 Stat. 4797, 4862 (1992).

[529]*See* National Pollutant Discharge Elimination System Application Deadlines, General Permit Requirements and Reporting Requirements for Storm Water Discharges Associated With Industrial Activity; Final Rule, 57 Fed. Reg. 11,394, 11,399 (Apr. 4, 1992) [hereinafter NPDES Deadlines].

[530]EPA has defined "storm water" as "stormwater runoff, snow melt runoff, and surface runoff and drainage." 40 C.F.R. § 122.26(b)(13) (1993).

[531]*See id.* at § 122.26(14); 33 U.S.C. §§ 1342(p)(2)-(4) (1988 & Supp. 1992).

[532]NPDES Storm Water Rule, *supra* note 519, at 48,033.

[533]*Id.* at 48,033.

[534]*See id. See also* 40 C.F.R. § 122.26(b)(14)(x) (1993).

[535]Natural Resources Defense Council v. EPA, 966 F.2d 1292, 1305-1306 (9th Cir. 1992).

[536]*See* National Pollutant Discharge Elimination System; Storm Water Discharges; Permit Issuance and Permit Compliance Deadlines for Phase I Storm Water Discharges; Final Rule, 57 Fed. Reg. 60,444, 60,446 (Dec. 18, 1992).

[537]*See* 40 C.F.R. § 122.26 (1993).

[538]*See* Final NPDES General Permits for Storm Water Discharges from Construction Sites, 57 Fed. Reg. 41,175, 41,176 (Sept. 9, 1992) [hereinafter EPA General Permits]

[539]*See* NPDES Storm Water Rule, *supra* note 519, at 48,009.

[540]*See* 33 U.S.C.A. §§ 1311, 1342(p) (1986 & Supp. 1994).

[541]*See, e.g.,* EPA General Permits, *supra* note 538, at 41,183 (requirement for EPA general construction permit).

[542]Discharges from municipal storm sewers in large- and medium-size municipalities (serving populations of 100,000 or more) are already subject to their own NPDES stormwater permit requirements, see 40 C.F.R. § 122.26(a)(1) (1992), and the NPDES stormwater program may expand rapidly in the next few years. *See supra* note 519.

[543]*See* 40 C.F.R. § 122.26(c) (1992).

[544]*See* NPDES Deadlines, *supra* note 529, at 11,399, 11,405.

[545]*See* NPDES Storm Water Rule, *supra* note 519, at 48,002; NPDES Deadlines, *supra* note 529, at 11,399.

[546]*See* 40 C.F.R. §§ 122.26(c)(1), 122.26(c)(1)(ii) (1992) (individual application requirements including full NPDES application, with some special requirements and exemptions for construction discharges); *id.* at § 122.26(c)(2) (group application requirements—the primary advantage of group permits is that most members of the group will not have to submit quantitative data); *id.* at § 122.28 (general permit requirements). The contents of a notice of intent can vary from case to case depending on requirements set out in the relevant general permit, the regulations require the "submission of information necessary for adequate program implementation, including at a minimum, the legal name and address of the owner or operator, the facility name and address, type of facility or discharges, and the receiving stream(s)." *Id.* at § 122.28(b)(2)(ii).

[547]Final NPDES General Permits for Storm Water Discharges from Construction Sites, 57 Fed. Reg. 41,175 (Sept. 9, 1992).

[548]*See* Thompson Publishing Group, STORMWATER PERMIT MANUAL App. 1 at 701 (Oct. 1992).

[549]*See* 40 C.F.R. § 123.44 (1993).

[550]NPDES Storm Water Rule, *supra* note 519, at 48,002; NPDES Deadlines, *supra* note 529, at 11,399.

[551]EPA General Permits, *supra* note 538, at 41,180. States may have different specifications for when discharge becomes authorized and may even require receipt of notification of inclusion. *See* 40 C.F.R. § 122.28(b)(2)(iv) (1993).

[552]EPA General Permits, *supra* note 538, at 41,180.

[553]"Operators" are the parties who either individually or taken together have (1) "operational control over the site specifications (including the ability to make modifications in specifications)," and (2) "the day to day operational control of those activities at the site necessary to ensure compliance with plan requirements and permit conditions." EPA General Permits, *supra* note 538, at 41,190.

[554]*Id.*

[555]*Id.* at 41,218-22.

[556]*Id.* at 41,180. EPA references several documents that may assist permit applicants in developing stormwater pollution prevention plans: U.S. EPA, STORM WATER MANAGEMENT FOR CONSTRUCTION ACTIVITIES: DEVELOPING POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES (1992); METRO. WASHINGTON COUNCIL OF GOVERNMENTS, A CURRENT ASSESSMENT OF URBAN BEST MANAGEMENT PRACTICES (March 1992). 57 Fed. Reg. at 41,183.

[557]*Id.* at 41,220-21.

[558]*Id.* at 41,220.

[559]*Id.* at 41,221.

[560]*Id.* at 41,221-22.

[561]*See, e.g.,* NPDES Deadlines, *supra* note 529, at 11,404-07; 40 C.F.R. §§ 122.28, 123.25, 123.44 (1993).

[562]*See* NPDES Deadlines, *supra* note 529, at 11,399. *See also* Thompson Publishing Group, STORMWATER PERMIT MANUAL §§ 230-233 (March 1993) (listing states and their permitting authority and discussing state permitting options).

[563]The NPDES stormwater hotline number is (703) 821-4823. *See* EPA General Permits, *supra* note 538, at 41,176. Listings of EPA regional offices and the names and numbers of some of the stormwater staff can also be found in the *Federal Register*. *See, e.g., id.* at 41,186.

[564]*See* 33 U.S.C. § 1319 (1988 & Supp. II 1990).

[565]*Id.* at § 1319(c)(4) (up to 2 years and $10,000 fine).

[566]2 Rodgers, *supra* note 508, at 243.

[567]*Id.*

[568]*Id.* at 245.

[569]33 U.S.C. § 1313 (1988).

[570]33 U.S.C. § 1313(a)(3)(C) (1988); Mississippi Comm'n on Natural Resources v. Costle, 625 F.2d 1269, 1276 (5th Cir. 1980) (Clean Water Act allows EPA to translate broad statutory guidelines into specifics that can be used to evaluate state standards, and administrator reasonably interpreted act as allowing him to disapprove state water-quality standard).

[571]33 U.S.C. § 1311(b)(2)(A) (1988).

[572]*Id.* § 1311(b)(1)(C) (1988).

[573]*See* 2 Rodgers, *supra* note 508, at 252.

[574]*See infra* notes 579-591 and accompanying text, for further discussion of nonpoint source regulation.

[575]Northwest Indian Cemetery Protective Ass'n v. Peterson, 795 F.2d 688, 697 (9th Cir. 1986), *rev'd on other grounds*, 485 U.S. 439 (1988) (adherence to best management practices does not automatically ensure that state water-quality standards are being met).

[576]Oregon Natural Resources Council v. U.S. Forest Service, 834 F.2d 842, 850-51 (9th Cir. 1987) (although the citizen suit provision of the Clean Water Act is applicable only to point sources and cannot be used to enforce state water-quality standards when nonpoint-source pollution is at issue, state water-quality standards are enforceable by citizens against federal agencies under the Administrative Procedure Act). *See* 5 U.S.C. §§ 701-706 (1988) ("[a] person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof").

[577]*See supra* notes 508-517 and accompanying text.

[578]*See* 2 RODGERS, *supra* note 508, at 252.

[579]*See id* at 124. *See also* Oregon Natural Resources Council v. U.S. Forest Service, 834 F.2d 842, 849 (9th Cir. 1987).

[580]*See supra* note 505 and accompanying text; 40 C.F.R. § 122.2 (1993).

[581]Appalachian Power Co. v. Train, 545 F.2d 1351, 1373 (4th Cir. 1976).

[582]*See* 2 RODGERS, *supra* note 508, at 124.

[583]*Id.*

[584]*Id.* at 143.

[585]Oregon Natural Resources Council v. U.S. Forest Service, 834 F.2d 842, 849 (9th Cir. 1987).

[586]33 U.S.C. § 1288(b)(2) (1988).

[587]*Id.* § 1329 (1988).

[588]*Id.* § 1329(h) (1988); Robert D. Fentress, Comment, *Nonpoint Source Pollution, Groundwater, and the 1987 Water Quality Act: Section 208 Revisited?* 19 ENVTL. L. 807 (1989).

[589]*See supra* note 576 and accompanying text.

[590]Oregon Natural Resources Council v. U.S. Forest Service, 834 F.2d 842, 851 (9th Cir. 1987).

[591]*See infra* notes 897-903 and accompanying text for a discussion of erosion control guidelines and highway construction.

[592]42 U.S.C. §§ 300f to 300j-26 (1988).

[593]*See id.* at §§ 300g to 300g-6.

[594]*See id.* at §§ 300h to 300h-5.

[595]*See id.* at § 300h-3(e). SDWA also provides for designation of critical aquifer protection areas subject to additional restrictions on funding that might contribute to degradation, *see id.* at § 300h-5, and provides for state wellhead protection programs that may impose additional requirements on federal as well as state and local agencies. *See id.* at §§ 300h-7(a) to 300h-7(k).

[596]*Id.* The designation of an SSA can be made on the administrator's own initiative or on petition from any person. *Id.* at §§ 300h-3(a), 300h-3(e).

[597] *See* U.S. Environmental Protection Agency, DESIGNATED SOLE SOURCE AQUIFERS NATIONALLY (Jan. 1983) (fact sheet showing general locations of SSAs, and listing (1) designated aquifers, (2) pending petitions, and (3) *Federal Register* citations that can be referred to for detailed information about an aquifer and about appropriate EPA contacts).

[598]42 U.S.C. § 300h-3(e).

[599]*Id.*

[600]*Id.*

[601]*See* 40 C.F.R. §§ 149.100-.111 (1992).

[602]*See Drinking Water: Failure to Refer Highway Project to EPA Indicates Weakness in Program, GAO Reports*, 23 BNA ENV'T REP. 1918 (Nov. 27, 1992). *See also* U.S. General Accounting Office, Projects That May Damage Sole Source Aquifers Are Not Always Identified (1992).

[603]16 U.S.C. §§ 1451-1464 (1988 & Supp. IV 1991).

[604]*See id.* at §§ 1451-1452. *See also id.* at § 1453(1) (definition of "coastal zone).

[605]*See, e.g., id.* at §§ 1454, 1455.

[606]*Id.* at § 1456(c)(1)-(c)(2).

[607]*Id.* at § 1456(c)(3).

[608]*Id.* at § 1456(d).

[609]With one exception, the secretary has delegated his functions under CZMA to the assistant administrator for Coastal Zone Management of the National Oceanic and Atmospheric Administration. *See* 15 C.F.R. §§ 923.2(b), 923.2(c) (1992).

[610]*See* 16 U.S.C. § 1455(d). *See also* 15 C.F.R. § 923.3 (1992).

[611]16 U.S.C. § 1456. *See also* 15 C.F.R. §§ 930.1-930.145 (1992). There are 35 states and territories eligible for CMP approval; 29 of these have approved plans. *See* Tim Eichenberg and Jack Archer, *The Federal Consistency Doctrine: Coastal Zone Management and "New Federalism,"* 14 ECOLOGY L.Q. 9, 30 (1987).

[612]*See* 15 C.F.R. §§ 930.95-.98 (1993). *See also* Kussy, *supra* note 7, at 205-207. The state's CMP must list the types of activities subject to consistency review and must also identify the general geographic areas outside of coastal zones where federal assistance will be subject to review. 15 C.F.R. § 930.95.

[613]16 U.S.C. § 1456(d).

[614]16 U.S.C. § 1456(c)(3); 15 C.F.R. § 930.57 (1992). *See also* Kussy, *supra* note 7, at 207.

[615]*See* 23 C.F.R. 771.133 (1993) (requiring EIS to reflect compliance with other legal requirements).

[616]15 C.F.R. § 930.94 (1993).

[617]*See id.* at §§ 930.97-.98.

[618]*Id.* at § 930.120. The regulations implementing these exceptions are found at *id.* §§ 930.121-.122.

[619]*See id.* at § 930.121.

[620]*See* Eichenberg & Archer, *supra* 611, at 44.

[621]16 U.S.C. §§ 3501-3510 (1988 & Supp. III 1991).

[622]*Id.* at § 3501(b).

[623]*Id.*

[624]16 U.S.C § 3503.

[625]*Id.* at § 3504.

[626]*Id.* at § 3505.

[627]*Id.* at § 3503(a).

[628]Advisory Guidelines, 57 Fed. Reg. 52,730, 52,730 (Nov. 5, 1992) [hereinafter Advisory Guidelines].

[629]16 U.S.C. § 3502(1).

[630]Bostic v. United States, 753 F.2d 1292, 1294 (4th Cir. 1985).

[631]16 U.S.C. § 3503(b). *See also* 13 C.F.R. § 116.41 (1993).

[632]16 U.S.C. § 3504(a).

[633]*Id.* at § 3502(3)(C).

[634]*Id.* at § 3505(a). Consultation has been delegated to the Fish and Wildlife Service, which issues an opinion as to whether an exception applies. *See* Advisory Guidelines, *supra* note 628 at 52,732. The Fish and Wildlife Service guidelines list the appropriate regional offices for consultation. *Id.* at 52,733.

[635]16 U.S.C. § 3505(a)(3).

[636]*Id.* at § 3505(a)(6)(F).

[637]16 U.S.C. § 661 (1988).

[638]16 U.S.C. § 662(a) (1988). *See also* Carol A. Clayton, Note, *Environmental Protection Under the Fish and Wildlife Coordination Act: The Road Not Taken*, 2 VA. J. NAT. RESOURCES 53 (1982) (a useful discussion on the strengths and weaknesses of the Coordination Act).

[639]*See* Michael D. Zagata, *Mitigation By "Banking" Credits—Louisiana Pilot Project*, 7 NAT'L WETLANDS NEWSLETTER no. 3, at 9 (May-June 1985). This article provides useful information regarding the practice of mitigation banking in relation to the Coordination Act.

[640]Michael C. Blumm, *Fulfilling the Parity Promise: A Perspective on Scientific Proof, Economic Cost, and Indian Treaty Rights in the Approval of the Columbia Basin Fish and Wildlife Program*, 13 ENVTL. L. 103, 110 (1982).

[641]16 U.S.C. § 662(a) (1988).

[642]Washington State Dept. of Fisheries v. F.E.R.C., 801 F.2d 1516, 1519 (9th Cir. 1986) (failure to consider and respond to the results of a consultation is a violation of the Coordination Act).

[643]Kussy, *supra* note 7, at 208.

[644]16 U.S.C. § 662)(h) (1988).

[645]Kussy, *supra* note 7, at 208-209.

[646]*Id.* at 209.

[647]*Id.*

[648]16 U.S.C. § 662(d) restricts costs attributable to the development and improvement of wildlife to (1) land acquisition, (2) facilities as specifically recommended in water resource project reports, (3) project modifications, and (4) modification of project operations; specifically excludes the operation of wildlife facilities.

[649]County of Bergen v. Dole, 620 F. Supp. 1009, 1063 (D.N.J.), *aff'd*, 800 F.2d 1130 (3rd Cir. 1986) (quoting Sierra Club v. Alexander, 484 F. Supp. 455, 470 (N.D.N.Y. 1980)).

[650]16 U.S.C. § 666a (1988).

[651]16 U.S.C. § 662(f) (1988) (mitigation may include land acquisition).

[652]16 U.S.C. §§ 703-712 (1988 & Supp. IV 1992).

[653]*Id.* at § 703. *See also* 50 C.F.R. § 10.12 (1993) (defining "migratory bird" and "take").

[654]*See id.* § 10.13.

[655]*Id.* § 10.12.

[656]*See generally* George C. Coggins & Sebastian T. Patti, *The Resurrection and Expansion of the Migratory Bird Treaty Act*, 50 U. COLO. L. REV. 165 (1979); Craig D. Sjostrom, Comment, *Of Birds and Men: The Migratory Bird Treaty Act*, 26 IDAHO L. REV. 371 (1990).

[657]*See, e.g.*, United States v. FMC Corp., 572 F.2d 902 (2d Cir. 1978)

(fines imposed under MBTA for bird poisonings from wastewater pond); United States v. Corbin Farm Service, 444 F.Supp. 510 (E.D. Cal.) (misdemeanor conviction and penalties for bird deaths due to pesticide spraying), *aff'd*, 578 F.2d 259 (9th Cir. 1978).

[658]*See* 50 C.F.R. § 21.11 (1993) (general permit requirement).

[659]The general procedures and requirements for obtaining a permit under MBTA are found at 50 C.F.R. § 13 (1993); the "special purpose permit" requirements are found at *id.* § 21.27.

[660]*See, e.g., id.* § 21.27(c)(1).

[661]*Id.* § 13.42.

[662]*See* 16 U.S.C. § 707(a), (c) (misdemeanor with $500 fine and maximum of six months forfeiture of vehicles or equipment used).

[663]*See* Sjostrom, *supra* note 656, at 377-380.

[664]*Id.* at 377-379.

[665]*See* Defenders of Wildlife v. EPA, 688 F.Supp. 1334 (D. Minn. 1988) (injunction against EPA registration of strychnine as taking under MBTA and other statutes) *rev'd in part, aff'd in part* 882 F.2d 1294 (8th Cir. 1989) (no private right of action under MBTA, and APA review precluded by FIFRA procedures for review).

[666]Seattle Audubon Soc'y v. Evans, 952 F.2d 297, 302 (9th Cir. 1991).

[667]*See* 50 C.F.R. § 10.12 (1993).

[668]16 U.S.C. §§ 1531-1544 (1988). The Endangered Species Act's "take" definition includes the terms "harm" and "harass" as well as the terms found in the MBTA's definition of "take." *Id.* at § 1532(19). *See also* 50 C.F.R. § 17.3 (1992) (regulatory definition of harm under Endangered Species Act, including habitat modification or destruction that kills or injures wildlife).

[669]952 F.2d at 302-03.

[670]16 U.S.C. § 1536(a)(2); *see also* Kussy, *supra* note 7, at 210.

[671]*See* Oliver A. Houck, *The Endangered Species Act and Its Implementation by the U.S. Departments of Interior and Commerce*, 64 U. COLO. L. REV. 277, 279 n.9 (1993) (quoting Timothy Egan, "Strongest U.S. Environmental Law May Become Endangered Species," N.Y. TIMES, May 26, 1992, at A1, A13 (quoting Donald Barry of the World Wildlife Fund)).

[672]Houck, *supra* note 671, at 279, 317-21. For a similar perspective, which shows the administrative flexibility inherent in the Endangered Species Act's consultation provisions in the context of two highly publicized controversies in the Pacific Northwest, see Steven A. Daugherty, *Threatened Owls and Endangered Salmon: Implementing the Consultation Requirements of the Endangered Species Act*, 14 PUB. LAND L. REV. 203 (1993).

[673]16 U.S.C. § 1533.

[674]*Id.* § 1536.

[675]*Id.* § 1538.

[676]*Id.* § 1533.

[677]*Id.* § 1532(15).

[678]*Id.* § 1533(a)(3)(A)(1).

[679]*Id.* § 1536(a)(4).

[680]*Id.* § 1538(a)(1).

[681]*Id.* § 1539(a)(2)(A).

[682]*Id.* § 1533(f).

[683]Houck, *supra* note 671, at 281.

[684]16 U.S.C. § 1532(16).

[685]Daniel J. Rohlf, THE ENDANGERED SPECIES ACT: A GUIDE TO ITS IMPLEMENTATION AND PROTECTIONS 37 (Stanford 1989).

[686]Rohlf, *supra* note 685, at 37. Rohlf, however, also noted with dismay that the grizzly bear has not received equal treatment. Though abundant in Alaska and Canada, grizzlies are clearly threatened in the coterminous United States—occupying less than 1 percent of its former range. *Id.* at 38.

[687]16 U.S.C. § 1532(6).

[688]*Id.* § 1532(20).

[689]*Id.* § 1533(b)(3)(A).

[690]*Id.*

[691]*Id.* § 1533(b)(1)(A).

[692]*See* Houck, *supra* note 671, at 281; *see also* J.B. Ruhl, *Section 4 of the ESA—The Cornerstone of Species Protection Law*, 8 NAT'L RESOURCES & ENV'T. (ABA) 26, 27 (Summer 1993).

[693]16 U.S.C. §§ 1533(a)(1)(A)-(E).

[694]Houck, *supra* note 671, at 285 nn.54-55.

[695]*Id.* at 292.

[696]*See id.* at 296.

[697]*See* James C. Kilbourne, *The Endangered Species Act Under the Microscope: A Closeup Look From a Litigator's Perspective*, 21 ENVTL. L. 499, 507 (1991) (citing Act of Dec. 28, 1973, Pub. L. No. 93-205 § 2(a)(1), 87 Stat. 884 (codified at 16 U.S.C. § 1531(a)(1)).

[698]16 U.S.C. § 1532(5)(A) (1988).

[699]50 C.F.R. § 424.12(b). Houck, however, accused the Departments of the Interior and Commerce of exercising a skilled slight of hand in essentially removing the prohibition on the destruction or modification of critical habitat as a separate consideration from the Endangered Species Act. Under regulatory definitions in effect, "a substantial amount of habitat modification could occur' without appearing to violate the Act." Houck, *supra* note 671, at 299 (*quoting* Kilbourne, *supra* note 697, at 541).

[700]Rohlf, *supra* note 685, at 56 n.108; at 49-50, nn.70-76.

[701]16 U.S.C. § 1533(a)(3).

[702]Rohlf, *supra* note 685, at 50-51 nn.82-83; Houck, *supra* note 671, at 302.

[703]Rohlf, *supra* note 685, at 51; Houck, *supra* note 671, at 302-07.

[704]Kilbourne, *supra* note 697, at 510.

[705]16 U.S.C. § 1533(b)(2); Kilbourne, *supra* note 697 , at 510.

[706]16 U.S.C. § 1533(b)(2). This exclusionary process, however, is rarely used. Instead, according to Houck, the secretary of the interior limits the scope of the critical habitat by simply minimizing its importance. Houck, *supra* note 671, at 297.

[707]529 F.2d 359 at 374 (5th Cir.), *cert. denied*, 429 U.S. 979 (1976).

[708]*See* Houck, *supra* note 671, at 308-09.

[709]16 U.S.C. § 1536(a)(2). Under Endangered Species Act implementing regulations, the secretary of the interior has delegated this responsibility to the Fish and Wildlife Service. Similarly, the secretary of commerce has delegated this responsibility to the National Marine Fisheries Service. 50 C.F.R. § 424.11 (1993).

[710]16 U.S.C. § 1536(a)(1).

[711]*See* Kilbourne, *supra* note 697, at 525-26.

[712]16 U.S.C. § 1536(a)(2).

[713]437 U.S. 153, 173 (1978).

[714]50 C.F.R. § 402.02 (1993). *See also* 16 U.S.C. § 1536(7)(a)(2).

[715]*See, e.g.*, National Wildlife Federation v. Coleman, 529 F.2d 359 (5th Cir. 1976) (FAHP project); Riverside Irrigation District v. Andrews, 758 F.2d 508 (10th Cir. 1985) (dam construction by non-federal developer requiring a § 404 dredge and fill permit).

[716]50 C.F.R. § 402.03 (1993).

[717]Kilbourne, *supra* note 697, at 529. Although no court has ruled on this provision, in Florida Key Deer v. Morris, Civ. No. 90-10038 (S.D. Fla. 1990), the Department of the Interior attempted to exempt the Federal Emergency Management Agency (FEMA) from § 7 consultation on the theory that FEMA exercises no "discretionary" involvement or control of local floodplain zoning. *See* Houck, *supra* note 306, at 323; Kilbourne, *supra* note 697, at 529-30 n.145. However, the *Key Deer* litigation was subsequently dismissed following Monroe County's abandonment of the chal-

lenged road project. *See* Florida Key Deer v. Board of County Commissioners, 772 F. Supp. 601, 602 (S.D. Fla. 1991).

[718]*See* Houck, *supra* note 671, at 331.

[719]*See* Thomas v. Peterson, 753 F.2d 754, 764 (9th Cir. 1985); Rohlf, *supra* note 685, at 105.

[720]16 U.S.C. § 1536(c); *see also* 50 C.F.R. § 402.12 (1993).

[721]50 C.F.R. § 402.14(a) (1993).

[722]*Id.* § 402.10(a); *see also* Kilbourne, *supra* note 697, at 536.

[723]50 C.F.R. § 402.02 (1993).

[724]*See* William H. Satterfield et al., *Who's Afraid of the Big Bad Beach Mouse?*, 8 NAT'L RESOURCES & ENVT. (ABA) 13 (Summer 1993).

[725]*Id.* (*citing* 50 C.F.R. § 402.10(a)).

[726]Houck, *supra* note 671, at 318 n.11; *see also* Rohlf, *supra* note 685, at 114-16 (claiming that too often the secretary and the development agencies can agree on "no adverse effect" without formal recognition of their consultation and with no explanation).

[727]Kilbourne, *supra* note 697, at 533.

[728]*Id.*

[729]*See id.*, at 533.

[730]50 C.F.R. § 402.02 (1993).

[731]*Id.*

[732]Kilbourne, *supra* note 697, at 532 (citing 51 Fed. Reg. 19,926, 19,933 (June 3, 1986)).

[733]*See* Kilbourne, *supra* note 697, at 532-33; *see also* 50 C.F.R. § 402.02.(1993).

[734]National Wildlife Fed. v. Coleman, 529 F.2d 359, 373-75 (5th Cir. 1976).

[735]16 U.S.C. § 1536(c).

[736]*Id.*; *see also* 50 C.F.R. § 402.12(b)(1) (1993).

[737]50 C.F.R. § 402.02 (1993).

[738]Kilbourne, *supra* note 697, at 537.

[739]50 C.F.R. § 402.02 (1993).

[740]*Id.* § 402.12(a); Kilbourne, *supra* note 697, at 536 n.170; Rohlf, *supra* note 685, at 109.

[741]50 C.F.R. § 402.12(f) (1993); *see also* Kilbourne, *supra* note 697, at 181.

[742]Thomas v. Peterson, 753 F.2d 754, 763 (9th Cir. 1985).

[743]*Id.*

[744]Kilbourne, *supra* note 697, at 537-38.

[745]Thomas v. Peterson, 753 F.2d 754, 763-64 (9th Cir. 1985).

[746]50 C.F.R. § 402.12(c) (1993). *See* Kilbourne, *supra* note 697, at 537 n.179.

[747]Kilbourne, *supra* note 697, at 537 n.179.

[748]16 U.S.C. § 1536(d).

[749]50 C.F.R. §§ 402.14(a), (b). This change was made as part of the 1986 revision to the consultation regulations.

[750]*Id.* § 402.14(b)(1).

[751]*Id. See also* Rohlf, *supra* note 685, at 114.

[752]*See* 50 C.F.R. §§ 402.14(g)(1)-(8).

[753]50 C.F.R. §§ 404.14(h)(1)-(3).

[754]16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.14(h)(2)(3). *See also* Houck, *supra* note 671, at 359-69, where he reviewed the "reasonable and prudent alternatives" of 99 opinions of the Fish and Wildlife Service between 1986 and September 1992. Included in this list are several projects involving highway construction. Houck has on file copies of these biological opinions.

An even more recent controversy involves the California gnatcatcher, a songbird that was added to the federal list of threatened species not long ago. On June 11, 1993, over the objection of its own field staff, the Fish and Wildlife Service approved an FAHP project involving the construction of a 19-mile toll road through one of the largest remaining parcels of habitat for the gnatcatcher. *See* NRDC Amicus (Fall 1993), at 53. In July, however, the Fish and Wildlife Service reopened the public comment period on its proposed definition of legal taking of the gnatcatcher. 23 E.L.R. 10,568 (Sept. 1993).

[755]50 C.F.R. § 402.15(a) (1993).

[756]Tribal Village of Akutan v. Hodel, 859 F.2d 651, 660 (9th Cir. 1988).

[757]*See* Houck, *supra* note 671, at 326.

[758]*Id.*, at 326. Houck also indicated that "without public participation, findings of 'no jeopardy' are far easier to reach." *Id.*

[759]*See id.*, at 327 n.333; Kilbourne, *supra* note 697, at 569.

[760]Houck, *supra* note 671, at 350 (citations omitted).

[761]Pyramid Lake Paiute Tribe v. United States Dep't of Navy, 898 F.2d 1410, 1416-19 (9th Cir. 1990).

[762]Kilbourne, *supra* note 697, at 565.

[763]50 C.F.R. § 402.14(j); *see also* Kilbourne, *supra* note 697, at 565 n.311.

[764]*See* Houck, *supra* note 671, at 328. *See, e.g., Pyramid Lake*, 898 F.2d at 1419 (9th Cir. 1990).

[765]16 U.S.C. § 1538.(1988).

[766]*Id.* § 1540(g).

[767]*Id.* § 1538(a).

[768]*Id.* §§ 1538(a)(1)(A)-(G).

[769]*Id* § 1533(d).

[770]50 C.F.R. § 17.31(a) (1993).

[771]16 U.S.C. § 1532(19).

[772]50 C.F.R. § 17.3 (1993).

[773]*Id.*

[774]*See, e.g.*, Palilia v. Hawaii Department of Land and Natural Resources, 639 F.2d 495 (9th Cir. 1981), *aff'g*, 471 F. Supp. 985, 988 (D. Haw. 1979).

[775]16 U.S.C. §§ 668dd-668ee (1988).

[776]See *id.* §§ 715-715r (1988), the Migratory Bird Conservation Act, which established the Conservation Commission, whose membership consists of the secretaries of the interior (chairman), transportation, and agriculture; two senators appointed by the president of the Senate; and two representatives appointed by the speaker of the house.

[777]16 U.S.C. § 668dd(a)(2)(A) (1988).

[778]*Id.* § 668dd(a)(2)(B)(i) (1988).

[779]*Id.* § 668dd(d)(1)(B) (1988). See 50 C.F.R. §§ 29.21-22 (1993), supplying a detailed account of the application procedures and requirements for a right of way.

[780]16 U.S.C. § 668dd(d) (1988).

[781]2 GEORGE C. COGGINS, PUBLIC NATURAL RESOURCES LAW §14.03 (1993).

[782]*Id.*

[783]16 U.S.C. § 668dd(d)(2) (1988).

[784]*Id.*

[785]*Id.*

[786]49 U.S.C. § 303(c) (1988).

[787]See *supra* note 16 and accompanying text.

[788]16 U.S.C. §§ 1271-1287 (1988 & Supp. 1993).

[789]*Id.* § 1271 (1988).

[790]Kussy, *supra* note 7, at 230.

[791]*Id. See also* 16 U.S.C. § 1283(a) (1988) (directing managing agencies to enter into cooperative agreements, where appropriate, to aid in the administration and management of federal lands within the wild and scenic river system).

[792]2 Coggins, *supra* note 781, at § 15.02(2)(a).

[793]*Id.*

[794]Kussy, *supra* note 7, at 230. See 16 U.S.C. § 1273(b) (1988), classifying rivers as:

(1) Wild river areas—those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

(2) Scenic river areas—those rivers or sections of rivers that are free of

impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

(3) Recreational river areas—those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

[795]16 U.S.C. § 1278(b) (1988).

[796]*Id.*

[797]*Id.*

[798]2 Coggins, *supra* note 781, at § 15.02(3).

[799]*Id.* § 15.02(4)(a).

[800]*Id.*

[801]*Id.*

[802]16 U.S.C. § 1281(a) (1988).

[803]*Id.* § 1274(d)(1) (Supp. 1993).

[804]*Id.* § 1281(a) (1988).

[805]See *supra* notes 781-785 and accompanying text.

[806]2 Coggins, *supra* note 781, at § 15.02(4)(b)(iv).

[807]16 U.S.C. § 1283(a) (1988).

[808]Kussy, *supra* note 7, at 231.

[809]See *supra* note 16 and accompanying text.

[810]16 U.S.C. §§ 1600-1614 (1988 & Supp. 1993).

[811]*Id.* § 1603 (1988). For a symposium on federal forest law and policy, see 17 ENVTL. L. no. 3 (1987).

[812]16 U.S.C. § 1604(a) (1988).

[813]*Id.* § 1604(d) (1988).

[814]*Id.* § 1604(e) (1988) (in particular the Multiple-Use Sustained-Yield Act of 1960, 16 U.S.C. §§ 528-531 (1988)).

[815]2 Coggins, *supra* note 781, at § 13.05(3)(b)(ii), referring to 16 U.S.C. § 1604(g) (1988).

[816]2 Coggins, *supra* note 781, at § 13.05(3)(b)(i).

[817]16 U.S.C. § 1604(g)(1) (1988).

[818]Kussy, *supra* note 7, at 235, referring to 16 U.S.C. § 1604(g)(3)(A) (1988).

[819]*Id.*

[820]16 U.S.C. § 1608(b) (1988); see also 23 C.F.R. § 660.101 et seq. (1992) (FHWA regulations for the construction of forest highways).

[821]23 C.F.R. §§ 660.105(a)-(a)(1) (1992).

[822]*Id.* §§ 660.105(b)-(b)(3) (1992).

[823]36 C.F.R. § 219.12 (1992); see also Northwest Indian Cemetery Protective Ass'n v. Peterson, 764 F.2d 581 (9th Cir. 1985), *rev'd in part*, 485 U.S. 439 (1988) (Forest Service EIS on proposed timber sales and road construction in an area vulnerable to water pollution through siltation was determined to be deficient for failing to adequately discuss probable impacts of the proposal; the Ninth Circuit also determined that state nonpoint source water pollution standards must be met by activities contemplated by the plan; the Supreme Court reversed on other grounds, leaving the EIS and water pollution holdings intact).

[824]Sierra Club v. Cargill, 732 F. Supp. 1095 (D. Colo. 1990) (Forest Service's vague assurances that it would replant cuts in the Bighorn National Forest in seven years were violations of NFMA's statutory prescription to use best efforts to assure that replanting occurs in five years).

[825]See *supra* note 16 and accompanying text.

[826]43 U.S.C. §§ 1701-1784 (1988 & Supp. 1993).

[827]*Id* § 1712(a).

[828]*Id* § 1701(a)(8).

[829]*Id* § 1711(a); *see supra* notes 57-61 and accompanying text.

[830]*Id* § 1712(b)(1).

[831]*Id* § 1761(a).

[832]*Id.*

[833]*Id.*

[834]Exxon Corp. v. Lujan, 970 F.2d 757, 759-760 (10th Cir. 1992) (right of way for a carbon dioxide pipeline fell under the authority of the Mineral Leasing Act, not FLPMA).

[835]43 U.S.C. § 1761(b)(1) (1988).

[836]*Id.* § 1765(a).

[837]*Id.*

[838]*Id.* § 1764(a).

[839]*Id.* § 1765(b)(v).

[840]*Id.* § 1765(b)(i).

[841]*Id.* § 1764(c).

[842]2 Coggins, *supra* note 781, at § 13.04(3)(c) (1993).

[843]*Id.*

[844]See Kussy, *supra* note 7, at 236; see also *supra* notes 376-402, 488-501 and accompanying text, for a discussion on the implications of Wetlands Executive Order No. 11,990 and the Floodplains Executive Order No. 11,998.

[845]See *supra* notes 43-53 and accompanying text.

[846]16 U.S.C. § 1131 (1988).

[847]2 Coggins, *supra* note 781, at § 14.04(1).

[848]16 U.S.C. § 1133(b) (1988).

[849]2 COGGINS, *supra* note 781, at § 14.04(4)(a).

[850]16 U.S.C. §§ 1133(c), (d)(4) (1988).

[851]Kussy, *supra* note 7, at 236.

[852]16 U.S.C. 1132(b) (1988).

[853]2 Coggins, *supra* note 781, at § 14.04(3).

[854]*See id.* at § 14.04(3)(a), discussing California v. Block, 690 F.2d 753 (9th Cir. 1982); Sierra Club v. Peterson, 717 F.2d 1409 (D.C. Cir. 1983); Northwest Indian Cemetery Protective Association v. Peterson, 764 F.2d 581 (9th Cir. 1985) (cases establishing that no permanently harmful developments can take place on wilderness-study-area lands without strict compliance with environmental standards and promulgation of an EIS).

[855]Parker v. United States, 448 F.2d 793 (10th Cir. 1971), *cert denied*, 405 U.S. 989 (1972).

[856]2 COGGINS, *supra* note 781, at §14.04(3)(a), discussing Wilson v. Block, 708 F.2d 735, 753 (D.C. Cir. 1983) (court held that a ski area expansion into a roadless area was not prohibited because the area was neither designated as nor contiguous to a primitive area); NWF v. Coston, 773 F.2d 1513 (9th Cir. 1985) (court refused to require an EIS on a Forest Service policy statement contemplating accelerated development of technically qualifying areas).

[857]2 Coggins, *supra* note 781, at § 14.04(2)(c)(ii)(A).

[858]See *supra* notes 43-61 and accompanying text.

[859]16 U.S.C. §§ 460*l* to 460*l*-11 (1988).

[860]16 U.S.C. § 460*l* (1988). *See* Robert L. Glicksman & George C. Coggins, *Federal Recreational Land Policy: The Rise and Decline of the Land and Water Conservation Fund*, 9 COLUM. J. ENVTL. L. 125 (1984) (in-depth treatment of the Land and Water Conservation Fund).

[861]16 U.S.C. § 460*l*-8(a) (1988).

[862]*Id.* § 460*l*-8(c).

[863]*Id.* § 460*l*-8(d); See also Johnson v. Morton 456 F.2d 68, 71 (5th Cir. 1972), *cert. denied*, 409 U.S. 887 (1972) (useful discussion of the procedural steps necessary to qualify for federal financial assistance).

[864]16 U.S.C. § 460*l*-8(d)(4) (1988).

[865]*Id.* § 460*l*-8(g); See Exec. Order No. 11,237 30 Fed. Reg. 9433 (July 29, 1965) (providing greater detail about the interagency coordination process).

[866]16 U.S.C. § 460*l*-8(f)(3) (1988). See also Friends of Shawangunks, Inc. v. Clark, 754 F.2d 446 (2nd Cir. 1985) (court found that a conversion occurred when a conservation easement funded by the act was amended to allow the construction of private golf facilities).

[867]See *supra* notes 43-53 and accompanying text.

[868]Kussy, *supra* note 7, at 227.

[869]16 U.S.C. §§ 1301-1311 (1988).

[870]Kussy, *supra* note 7, at 226.

[871]16 U.S.C. § 1303(2) (1988). For a more in-depth view of how the Water Bank Act is administered, see 7 C.F.R. § 752.1 et seq. (1993).

[872]16 U.S.C. § 1304 (1988).

[873]Kussy, *supra* note 7, at 226.

[874]16 U.S.C. § 1309 (1988).

[875]*Id.* § 1301 (1988).

[876]EDF v. Froeklke, 473 F.2d 346, 355 (8th Cir. 1972).

[877]Kussy, *supra* note 7, at 227.

[878]See *supra* note 16 and accompanying text.

[879]40 C.F.R. § 1508.20.

[880]Memorandum of Agreement on Mitigation Between the Dept. of Army and EPA Concerning the Determination of Mitigation Under the Clean Water Act § 404(b)(1) Guidelines (Feb. 6, 1990). *See supra* notes 325-330 and accompanying text.

[881]Mitigation MOA, *supra* note 880, at 3.

[882]Intermodal Surface Transportation Act of 1991, Pub. L. No. 102-240, 105 Stat. 1914, 1926 (1991) (codified at 49 U.S.C. §§ 101 note (1988)) [hereinafter ISTEA], discussed *supra* notes 4-9 and accompanying text. *See also* H.R. Conf. Rep., No. 102-404, 102d Cong., 1st Sess. 305 (1991), 1991 U.S. Code Cong. & Admin. News 1679, 1685, which explains that "Federal law and regulations" includes but is not limited to the Endangered Species Act, the National Environmental Policy Act, the Federal Water Pollution Act, and applicable regulations promulgated under these statutes.

[883]H.R. Conf. Rep., *supra* note 882, at 305. *See supra* notes 300-330 and accompanying text.

[884]40 C.F.R. § 230.10(a) (1993); *see supra* note 307 and accompanying text.

[885]*Id.* § 230.10(d).

[886]ISTEA, *supra* note 882, 105 Stat. at 1926.

[887]H.R. Conf. Rep., *supra* note 882, at 305.

[888]*See* David M. Soileau, David W. Fruge, James D. Brown, *Mitigation Banking: A Mechanism for Compensating Unavoidable Fish and Wildlife Habitat Losses*, 7 NAT'L WETLANDS NEWSLETTER no. 3, at 11-13 (May-June 1985). This article provides useful information regarding the practice of mitigation banking.

[889]H.R. Conf. Rep., *supra* note 882, at 305.

[890]Memorandum of Understanding Between the U.S. Environmental Protection Agency and the Federal Highway Administration, 22 Envtl. L. Rep. (Envtl. L. Inst.) 10,686, 57 Fed. Reg. 34,606 (Aug. 5, 1992).

[891]*Id.*

[892]*See supra* notes 328-330 and accompanying text.

[893]Clinton Wetlands Plan, *supra* note 200, at 16-17.

[894]Regulatory Guidance Letter, RGL 93-2, 58 Fed. Reg. 47,719, 47,721 (Mar. 1, 1993).

[895]*Id.* at 47,721-22.

[896]*Id.* at 47,722.

[897]ISTEA, *supra* note 882, 105 Stat. at 2002 (codified at 23 U.S.C. § 109 note (1988)).

[898]*Id.*

[899]*Id.* Section 319 of the Clean Water Act is codified at 33 U.S.C. § 1329 (1988). Section 6217(g) of the Omnibus Budget Reconciliation Act of 1990 is codified at 16 U.S.C. § 1455(b) (1988).

[900]23 C.F.R. § 650.203 (Mar. 1, 1993).

[901]58 Fed. Reg. 11,814 (1993).

[902]*Id.*

[903]*Id.*

[904]15 C.F.R. § 650.103 (1993).

[905]*Id.* § 650.113.

[906]*Id.* §§ 650.105(a), (b), (c), (e), (o), (q).

[907]*Id.* § 650.105(k).

[908]*Id.* § 650.113.

[909]40 C.F.R. § 1508.20; *see supra* notes 328-330 and accompanying text.

[910]15 C.F.R. §§ 650.111, 650.115, 650.117 (1993).

[911]*Id.* § 650.203.

[912]*Id.* §§ 650.209(a), (e).

[913]*Id.* § 777.3. *See also* § 712.606.

[914]*See supra* text accompany notes 376-402 (Wetlands Executive Order) and DOT Order No. 5660.1A), 11-131 (§ 4(f)) and accompanying text.

[915]15 C.F.R. §§ 712.601-.606.

[916]*Id.* §§ 777.11(f), (g), (i).

[917]*Id.* § 777.5(a).

[918]*Id.* § 777.9(a).

[919]*See infra* text preceding note 940.

[920]15 C.F.R. § 777.9(b).

[921]*Id.* § 777.9(b)(2).

[922]*Id.* § 777.11(b); *see supra* note 180 and accompanying text.

[923]*Id.* § 777.11(c).

[924]*Id.* § 777.11(e).

[925]*Id.* § 777.11(h).

[926]*Id.* § 777.11(g).

[927]*Id.* § 777.11(i).

[928]*See* Kussy, *supra* note 7, at 249-50.

[929]The section on types of highway mitigation is adapted, with only minor editorial changes, from Kussy, *supra* note 7, at 251-53.

[930]Allen Crabtree et al., 1 EVALUATION OF WETLAND MITIGATION MEASURES (FHWA-RD-90-083, May 1992).

[931]*Id.* at 174.

[932]*Id.*

[933]*Id.* at 174-75.

[934]*Id.* at 175.

[935]*Id.* at 176-77.

[936]*Id.* at 177.

[937]*Id.* at 180-81.

[938]*Id.* at 179.

[939]*Id.* at 181.

[940]*Id.* at 179-80.

[941]*Id.* at 179, 181.

[942]*Id.* at 186-89.

[943]The eight factors were (1) boundary delineation of the proposed mitigation site; (2) identification of water supply sources and connections to existing ground and surface water; (3) determination of final grade excavation likely to support the desired plant community, based on hydrological studies; (4) use of gradual, continuous slopes no steeper than 10:1 and preferably flatter than 20:1 or 30:1; (5) incorporation of meandering shoreline configurations wherever possible; (6) use of a layer of topsoil at least 6 inches thick; (7) selection of plants that are adaptable to the proposed hydrology and substrate; and (8) provision of a minimum of a 75-foot buffer of woody or unmowed vegetation that can be included as part of the mitigation project without increasing its size. *Id.* at 187-88.

[944]*See* Mandelker & Feder, *supra* note 10.

[945]*See, e.g.*, 40 C.F.R. §§ 1501.7(a)(6) (scoping), 1502.16(c) (environmental consequences), 1502.19(a) (EIS circulation), 1502.2(a) (CEQ referrals), 1508.27(b)(10) (definition of environmental significance).

[946]*Id.* § 1506.1(a).

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