

Matrix of Major Environmental Laws and Regulations
Provisions Related to Components of an Indirect and Cumulative Impact Analysis^{1,2}

Law or Regulation/ Analysis Component	Council on Environmental Quality NEPA Implementing Regulations	Federal Highway Administration Regulations	USACE Regulatory Permit Program Regulations	Clean Water Act Section 404(b)(1) Guidelines	Fish and Wildlife Coordination Act ³	Endangered Species Act and Section 7 Regulations	National Historic Preservation Act Section 106 Regulations
Definitions							
Indirect Impacts	Those effects caused by the action and occurring later in time or farther removed in distance, but still reasonably foreseeable. 40 CFR 1508.8	Some guidance available.	X	Effects that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the material. 40 CFR 230.11(h)(1)	X	Indirect effects are those that are caused by the proposed action and are later in time, but still reasonably certain to occur. 50 CFR 402.02	Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. 36 CFR 800.5(a)(1)
Cumulative Impacts	Those impacts on the environment, which result from the incremental impact of the action when added to other past present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. 40 CFR 1508.7	Some guidance available.	X	Changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill materials. 40 CFR 230.11(g)(1)	X	Cumulative effects are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. 50 CFR 402.02	Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. 36 CFR 800.5(a)(1)
Reasonably Foreseeable	Some guidance available.	Some guidance available.	X	X	X	Some guidance available.	X
Mitigation	“(a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments.” 40 CFR 1508.20	Some guidance available.	“Consideration of mitigation will occur throughout the permit application review process and includes avoiding, minimizing, rectifying, reducing, or compensating for resource losses.” 33 CFR 230.4(r)	“[A]ppropriate and practicable steps... which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.” 40 CFR 230.10(d)	Some guidance available.	“Reasonable and prudent measures refer to those actions the Director believes necessary or appropriate to minimize the impacts, i.e., amount or extent, of incidental take.” 50 CFR 402.02	“Resolve adverse effects...[by seeking] ways to avoid, minimize or mitigate the adverse effects.” 36 CFR 800.6(b)

¹ “X” indicates that this component of indirect and cumulative impact analysis is not addressed in any provision of law, regulation or guidance.

² Environmental justice (EJ) is another important consideration for indirect and cumulative impacts, but is not included in this table because although EJ is inspired by anti-discrimination laws, its application in the NEPA process is based on Executive Order 12898 rather than provisions of law or regulation that are the subject of this table. Considerations of indirect and cumulative impacts under the EJ Executive Order are discussed in the text of this report, p. 34.

³ No regulations for implementing the Fish and Wildlife Conservation Act currently exist.

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Environmental Standards							
Applicable Resource	All	All	Wetlands and Floodplains in particular, all others in general	Waters of the US	Any Stream Or Other Body Of Water	Listed Species Or Critical Habitat	Historic properties that are listed on or eligible for inclusion in the National Register of Historic Places.
Evaluation Standard	Significance of impact as measured by Context and Intensity 40 CFR 1508.27	Best overall public interest based upon a balanced consideration of the need for safe and efficient transportation; of the social, economic, and environmental impacts of the proposed transportation improvement; and of national, State and local environmental protection goals. 23 CFR 771.05(b)	<p><u>As to Wetlands:</u> Comply with 404b1 Guidelines, the benefits outweigh the damage to the wetlands and there is no practicable alternative. 33 CFR 320.4(b)</p> <p><u>As to floodplains:</u> Avoid to the extent practicable long and short term significant adverse impacts associated with the occupancy and modification of floodplains, as well as the direct and indirect support of floodplain development whenever there is a practicable alternative. 33 CFR 320.4(l)</p> <p><u>As to all:</u> “The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest.” 33 CFR 320.4(a)</p>	Discharges of dredged or fill material, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem. 40 CFR 230.10	“conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof...” 16 USC 662(a)	“insure that any 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 [critical] habitat...” ESA Section 7(a)(2)	“An adverse affect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property...” 36 CFR 800.5(a)(1)

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Assessment Limits							
Temporal Boundary	Some guidance available.	X	X	X	X	X	X
Spatial Boundary	Some guidance available.	X	“[T]he particular wetland site for which an application is made will be evaluated with the recognition that it may be part of a complete and interrelated wetland area.” 33 CFR 320.4(3)	An aquatic ecosystem, which means “waters of the US, including wetlands, that serve as habitat for interrelated and interacting communities and populations of plants and animals.” 40 CFR 230.3(c)	X	Action area means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. 50 CFR 402.02	“Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.” 36 CFR 800.16(d)
Methods of Analysis							
Level of Detail	“Impacts shall be discussed in proportion to their significance. There shall be only brief discussion of other than significant issues. As in a finding of no significant impact, there should be only enough discussion to show why more study is not warranted.” 40 CFR 1502.2 “When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.” 40 CFR 1502.22	Some guidance available.	Some guidance available.	“The level of documentation should reflect the significance and complexity of the discharge activity.” 40 CFR 230.6(b)	Some guidance available.	“...each agency shall use the best scientific and commercial data available.” ESA Section 7(a)(2), 16 USC 1536	Documentation standards are specified in 36 CFR 800.11.
Identify Impacts	Some guidance available.	X	X	“Cumulative effects attributable to the discharge of dredged or fill material in waters of the United States should be predicted to the extent reasonable and practical.” 40 CFR 230.11(g)(2)	Some guidance available.	“Effects of the action refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline.” 50 CFR 402.02	“The agency official shall make a reasonable and good faith effort to carry out appropriate identification efforts... within the area of potential effects.” 36 CFR 800.4(b)(1)

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Evaluate Impacts	Some guidance available.	X	“The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Evaluation of the probable impact which the proposed activity may have on the public interest requires a careful weighing of all those factors which become relevant in each particular case. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments.” 33 CFR 320.4	Although all requirements in Section 230.10 must be met, the compliance evaluation procedures will vary to reflect the seriousness of the potential for adverse impacts on the aquatic ecosystems posed by specific dredged or fill material discharge activities. 40 CFR 230.10	Some guidance available.	“...in consultation with and with the assistance of” the Services. ESA Section 7(a)(2) Informal Consultation if the project “may affect” listed species. 50 CFR 402.13 Formal Consultation if the project is “likely to adversely affect” listed species. 50 CFR 402.14	‘...the agency official shall apply the criteria of adverse effect to historic properties within the area of potential effects.’ 36 CFR 800.5(a) The Section 106 consultation requirement is incorporated throughout 36 CFR Part 800.
Does the law grant the resource agency approval authority over the analysis?	No	Yes	Yes, although other federal agency determinations are entitled to substantial consideration.	Yes, but the determination that the Guidelines are met is always a matter of judgment.	No	No, consultation with the Services is a procedural requirement but compliance with the law is decided by the action agency.	No, ACHP opinions on adverse effect findings are advisory and do not require Federal agencies to reverse their findings. Section 106 consultation is procedural, and agreement is the goal but is not required.
Mitigation							
Does the law or regulation require mitigation for a project’s adverse impacts?	No, but identification, discussion of potential measures and responsibility for their implementation is required.	Yes, but the requirement is limited by certain parameters.	Yes, but the requirement is limited by certain parameters.	Yes, but the requirement is vague and highly discretionary.	No, but there is a requirement for consultation.	No, but reasonable and prudent measures must be taken to minimize the incidental take impacts.	No, but there is a requirement for consultation, which includes seeking ways to mitigate adverse affects.

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Mitigation Parameters	<p>Consideration of mitigation measures with alternatives and environmental consequences. 40 CFR 1502.14(f), 1502.16(e-h)</p> <p>“State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.” 40 CFR 1508.2(c)</p>	<p>“Measures necessary to mitigate adverse impacts will be incorporated into the action and are eligible for Federal funding when the Administration determines that: (1) The impacts for which the mitigation is proposed actually result from the Administration action; and (2) The proposed mitigation represents a reasonable public expenditure after considering the impacts of the action and the benefits of the proposed mitigation measures. In making this determination, the Administration will consider, among other factors, the extent to which the proposed measures would assist in complying with a Federal statute, Executive Order, or Administration regulation or policy.” 23 CFR 771.105(d)</p>	<p>“Mitigation should be developed and incorporated within the public interest review process to the extent that the mitigation is found by the district engineer to be reasonable and justified. Only those measures required to ensure that the project is not contrary to the public interest may be required” 33 CFR 320.4(r) and “all mitigation will be directly related to the impacts of the proposal, appropriate to the scope and degree of those impacts, and reasonably enforceable.” 33 CFR 320.4(r)</p>	<p>Appropriate and practicable steps which will minimize potential adverse impacts on the aquatic ecosystem. 40 CFR 2301.10(d)</p>	<p>Some guidance available.</p>	<p>“Reasonable and prudent measures, along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes.” 50 CFR 403.14(i)(2)</p> <p>“The Service may provide with the biological opinion a statement containing discretionary conservation recommendations. Conservation recommendations are advisory and are not intended to carry any binding legal force.” 50 CFR 402.14(j)</p>	<p>“The agency official shall consult with the SHPO/THPO and other consulting parties to seek ways to avoid minimize or mitigate the adverse effects.” 36 CFR 800.6(b)(1)(i)</p> <p>“If the agency official and the SHPO/THPO agree on how the adverse effects will be resolved, they shall execute a memorandum of agreement.” 36 CFR 800.6(b)(1)(iv)</p>
Is the mitigation requirement applicable to indirect or cumulative impacts?	<p>Yes, in terms of the requirement for a discussion of potential mitigation measures.</p>	<p>Discretionary</p>	<p>Discretionary</p>	<p>Discretionary</p>	<p>No</p>	<p>No, but indirect and cumulative impacts are taken into account in determining whether a project will likely to jeopardize the continued existence of any endangered or result in the destruction or adverse modification of [critical] habitat.</p>	<p>Discretionary</p>