INTRODUCTION

BACKGROUND. Before issuing decisions approving new and amended airport layout plans, airport sponsor applications for Airport Improvement Program (AIP) or Passenger Facility Charge (PFC) funding, or other Federal actions to support airport development projects,[1] the Office of Airports (ARP) must complete various environmental analyses. ARP must do so to satisfy the requirements of the National Environmental Policy Act (NEPA) and "special purpose laws" that apply to those Federal actions.

In April 2006, ARP published FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. That Order supplements *FAA Order 1050.1E, Environmental Impacts: Policies and Procedures*. While Order 1050.1E provides instructions for implementing NEPA to all FAA Lines of Business, Order 5050.4B focuses on airport actions under ARP's scope.

Order 5050.4B refers to Federal environmental requirements outside NEPA as "special purpose laws." The Order states that, besides NEPA, FAA must comply with those laws before FAA may approve a proposed Federal action. Paragraph 9.t of the Order defines the term "special purpose laws" as:

> "[The] Federal laws, regulations, executive orders, or departmental orders that are outside NEPA. FAA must often address special purpose law requirements in completing its environmental analyses of major Federal actions involving airports. For example, before deciding if an action qualifies as a categorical exclusion, the responsible FAA official must examine extraordinary circumstances, which are often based on these laws, regulations, or orders. FAA Order 1050.1E, Appendix A, provides more information on these items and how to address their requirements for all FAA organizations...." [2]

THE DESK REFERENCE'S PURPOSE. As a compendium, the Desk Reference summarizes applicable special purpose laws in one location for convenience and quick reference. Its function is to help FAA integrate the compliance of NEPA and applicable special purpose laws to the fullest extent possible. This integration should ensure that all environmental review procedures applicable to an airport action run concurrently rather than consecutively.

The Desk Reference includes information addressing ways to evaluate potential environmental impacts due to a proposed airport action, and when appropriate, its reasonable alternatives. It also provides information on mitigation measures. If a conflict between a special purpose law and this Desk Reference occurs, the special purpose law takes precedence and should be relied upon. When citing a legal requirement, the responsible FAA official or other user should cite the law, order, or

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[1] See FAA Order 5050.4B, paragraph 9.g.

[2] The preamble to Order 5050.4B, published in the Federal Register on May 18, 2006, instructs Order 5050.4B users to follow instructions in FAA Order 1050.1E, Appendix A, to comply with the special purpose laws until FAA issues the Desk Reference. Doing so allowed FAA to approve airport actions while ARP prepared the Desk Reference.

regulation specifying the requirement, not the summary or description in the Desk Reference.

ARP issues this Desk Reference to be more responsive to changes in the array of special purpose laws that are amended more often than NEPA and the CEQ regulations implementing NEPA. ARP believes the Desk Reference is the most flexible and quickest way to provide updated information in this changing legal and regulatory environment. To ensure rapid distribution, ARP has placed the Desk Reference on its web site.[3] ARP will use this web site to distribute future changes to this Desk Reference as needed.

Environmental assessments (EAs) that airport sponsors (or their consultants) prepare for FAA and the environmental impact statements (EISs) that FAA prepares are key parts of ARP's decision making process for airport actions. Therefore, responsible FAA officials must meet the requirements of Order 5050.4B when preparing those documents. In addition, ARP recommends that responsible FAA officials and other users refer to this Desk Reference for guidance to help integrate applicable special purpose laws with NEPA.

DESK REFERENCE ORGANIZATION.

ARP has organized each chapter of the Desk Reference in the same manner to provide consistency in the presentation of material. Each chapter is arranged according to the following headings:

1. INTRODUCTION AND DEFINITIONS.
2. APPLICABLE STATUTES AND IMPLEMENTING LAWS OR REGULATIONS.
3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.
4. PERMITS, CERTIFICATIONS, AND APPROVALS.
5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.
6. DETERMINING IMPACTS.
7. DETERMINING IMPACT SIGNIFICANCE.
8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

Sections 1 through 7 of each chapter apply to EAs and EISs as they relate to applicable special purpose laws and, as needed, the analysis of extraordinary circumstance related to categorical exclusions. Section 8 applies solely to EISs.

The Desk Reference addresses the 23 environmental impact categories listed in the following table.

[3] http://www.faa.gov/airports_airtraffic/

ENVIRONMENTAL IMPACT CATEGORY	CHAPTER
Air Quality	1
Biotic Resources	2
Coastal Barriers	3
Coastal Zone Management	4
Compatible Land Use	5
Construction	6
Section 4(f)	7
Federally-listed Endangered and Threatened Species	8
Energy Supplies, Natural Resources, and Sustainable Design	9
Environmental Justice	10
Farmlands	11
Floodplains	12
Hazardous Materials	13
Historic and Archeological	14
Induced Socioeconomic	15
Light Emissions and Visual Effects	16
Noise	17
Social Impacts	18
Solid Waste	19
Water Quality	20
Wetlands	21
Wild and Scenic Rivers	22
Cumulative Impacts	23

Besides other important information on a resource category, each chapter contains the significant threshold for that category, if FAA established one in FAA Order 1050.1E, Appendix A. The Desk Reference does not include a significance threshold for an environmental category if Order 1050.1E does not include one.

Often, the Desk Reference contains more information on how to evaluate an environmental category than Appendix A of Order 1050.1E does. ARP includes that added information because airport actions often disturb more physical area and involve more environmental categories than other FAA actions. ARP includes this information as a valuable aid to those who conduct comprehensive environmental analyses for airport actions. ARP also included that information because its staff has found the information helpful (Order 5050.4A, *Airports Environmental Handbook,* paragraph 47.e, contained much of that information). In other instances, analytical procedures or methods that have been developed since FAA published Order 5050.4A in 1985 may be helpful.

FAA Order 1050.1E, Appendix A, provides information on 18 impact categories, while the Desk Reference provides information on 23 categories noted in the table above. This is because the Desk Reference includes a specific chapter for each of these environmental categories:

- Biotic resources;
- Coastal barrier resources;
- Cumulative impacts;

- Environmental justice; and
- Federally-listed endangered and threatened species.

USING THE DESK REFERENCE.

The Desk Reference should assist responsible FAA officials and other users in meeting the requirements of the special purpose laws applicable to the No Action alternative, the proposed action, and, as fitting, reasonable alternatives. Conducting the analyses the special purpose laws require is a critical part in completing the interdisciplinary analyses NEPA requires for airport actions.

If there are instances where ARP staff or another user requires more information or has a question about a specific FAA policy, they should contact the lead environmental specialist in the Regional Airports Division office responsible for the proposed airport action. As needed, that specialist may contact Regional Counsel, the Office of Airports, Planning and Environmental Division (APP-400), or the Office of the Chief Counsel, Airports Environmental Law Division (AGC-600) for more information.

CHAPTER 1. AIR QUALITY

1. INTRODUCTION AND DEFINITIONS.

a. General. This chapter discusses requirements to conduct air quality analyses for airport development projects under the NEPA and Clean Air Act. Generally, detailed analysis is needed for a project that, due to its size, scope, or location has the potential to affect the attainment and maintenance of established air quality standards. Those standards are known as "National Ambient Air Quality Standards" and are present for six criteria pollutants. Although the requirements under NEPA and the Clean Air Act differ in certain respects, generally the same analysis fulfills requirements under both. NEPA is more rigorous in that it may require detailed analysis where it is not needed under the Clean Air Act's (CAA) general conformity provisions.

b. National Ambient Air Quality Standards. Pursuant to the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six "criteria" air pollutants: carbon monoxide (CO); lead (Pb);[1] nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) for both PM_{10} and $PM_{2.5}$, and sulfur dioxide (SO_2). Compliance with the NAAQS means the ambient outdoor levels of these air pollutants are safe for human health, the public welfare, and the environment. States are responsible for designating areas that are attainment, nonattainment, or maintenance for each of the criteria pollutants. States are required to develop EPA-approved plans, called State Implementation Plans (SIPs), to achieve or maintain the NAAQS within timeframes set under the Clean Air Act.

c. Attainment area. An attainment area is a geographical area where the levels of all criteria air pollutants meet the NAAQS.

(1) General conformity regulations do *not* apply to a Federal action located in an area that is designated attainment for all six criteria pollutants.

(2) depending upon the size of the airport and the nature of the project, it may still be necessary to conduct an air quality analysis for NEPA purposes. The NEPA analysis is needed to determine whether project emissions would potentially cause significant air quality effects (e.g. cause levels of pollution that would exceed the NAAQS).

d. Nonattainment area. A nonattainment area is a geographic area where the concentration of one or more of the criteria air pollutants is higher than the NAAQS. It is not uncommon for an area to have acceptable levels of five criteria pollutants but an unacceptable level for another. For example, the Washington, D.C.,

[1] Evaluation of criteria air pollutants extends to their regulated precursors: volatile organic compounds (VOCs) and nitrogen oxides (NOx) for ozone and SO_2, NOx, VOCs, and ammonia (ammonia is a precursor only when the state and/or EPA determines a need to analyze ammonia) for $PM_{2.5}$.

metropolitan area is simultaneously designated attainment for CO but nonattainment for 8-hour ozone.

(1) General conformity regulations *do* apply to a Federal action located in an area that is designated nonattainment for any of the six criteria pollutants.

(2) depending upon the size of the airport and the nature of the project, it is normally necessary to conduct an air quality analysis for NEPA purposes. The NEPA analysis is needed to determine whether project emissions would potentially cause significant air quality effects (e.g. cause levels of pollution that would exceed the NAAQS).

e. Maintenance area. This is an area previously designated "nonattainment" but re-designated as a "maintenance area"[under the CAA, States, not EPA designate area and EPA "promulgates" these designations 42 USC 7407(d)] because air pollution levels have improved above levels that would place the area in nonattainment status. An area may remain in maintenance status for up to 20 years before the re-designates the area as attainment.

(1) General conformity regulations *do* apply to a Federal action located in an area that is designated maintenance for any of the six criteria pollutants.

(2) Depending upon the size of the airport and the nature of the project, it is normally necessary to conduct an air quality analysis for NEPA purposes. The NEPA analysis is needed to determine whether project emissions would potentially cause significant air quality effects (e.g. cause levels of pollution that would exceed the NAAQS).

f. Direct emissions. Direct emissions are emissions caused by the Federal action that occur at the same time and place as the Federal action. They include emissions from temporary construction activities as well as emissions caused by operation of airport facilities and aircraft. Construction emissions may represent a high proportion of the total emissions a project causes and may trigger general conformity requirements in areas designated as severe nonattainment or maintenance areas for pollutants such as O_3 and serious nonattainment for PM_{10}. To report a proposed action's "total direct emissions" (see section 1.k. of this chapter), assess construction emissions separately as a category and in combination with other categories of operational emissions (e.g., aircraft, ground support equipment, on-airport access traffic) the proposed action would cause.

g. Indirect emissions. Indirect emissions are emissions caused by a proposed Federal action that occur later in time and/or at a distance from the proposed action. For General Conformity purposes (40 CFR Part 93, Subpart B) under the Clean Air Act (42 USC Sections 7409, 7410, 7502-7514 and 7571-7574), FAA must assess project-related emissions that are:

(1) reasonably foreseeable at the time of the General Conformity evaluation; and

(2) that FAA can practicably control through a continuing program responsibility.

(See *Air Quality Procedures for Civilian Airports and Air Force Bases*,[2] pg. 14, Section 2.1.5). Indirect emissions are added to direct emissions to determine the total direct and indirect emissions for the project.

h. Total direct and indirect emissions. This is the total level of emissions due to combining total direct emissions with total indirect emissions.

i. General Conformity. General Conformity refers to the requirements under Section 176(c) of the Clean Air Act (CAA) for federal agencies (other than FHWA and FTA) to show that their actions conform to the purpose of the applicable SIP. [3] Section 176(c) of the CAA states:

> "No department, agency, or instrumentality of the Federal government must engage in, support in any way or provide financial aid for, license or permit, or approve, any activity which does not conform to an approved State Implementation Plan (SIP)."

As a result, Federal agencies cannot fund or approve activities that do not conform to the SIP established for a nonattainment or maintenance area. Therefore, a Federal action in nonattainment or maintenance area must not:

(1) cause or contribute to NAAQS new violations;

(2) increase the frequency or severity of any existing NAAQS; or

(3) delay the timely attainment of a NAAQS, interim emissions decreases, or other milestones.

Note: EPA adopted regulations to implement this requirement at 40 CFR Parts 6, 51, Subpart W, and 93, Subpart B. Title 40 CFR Part 93, Subpart B is commonly known as the General Conformity Rule.

j. State Implementation Plan (SIP). This is a state's detailed description of the regulations, programs, and measures to be used in that state to reduce air pollution and fulfill its responsibilities under the Clean Air Act, as amended (CAA) to attain the NAAQS for all criteria pollutants within the legally required timeframes. The CAA requires each State to prepare and submit a SIP to EPA for approval. EPA's review process for SIPs includes opportunities for public comment.

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[2] http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/media/Handbook.pdf

[3] Section 176(c) of the CAA requires that EPA adopt regulations to ensure that projects sponsored by Federal agencies do not interfere with a State's ability to meet or maintain the NAAQS. To fulfill the CAA requirements, EPA promulgated the Transportation Conformity Regulations on November 24, 1993, and the General Conformity Regulations on November 30, 1993. The Transportation Conformity Regulations address transportation plans, programs, and projects funded under Title 23 USC or the Transit Act. The General Conformity Regulations are applicable to all other Federal projects and actions, including FAA actions for airport development.

k. Total net emissions. For purposes of general conformity, total direct and indirect emissions due to a proposed action's construction and operation in the future must be compared with the total direct and indirect emissions associated with the future no action/no build alternative to calculate the total net emissions of each criteria air pollutant and its precursors that a proposed action will cause. The total net emissions are then compared to the *de minimis* thresholds to determine whether a general conformity analysis and determination are needed.

Example: Total net emissions for CO in 2012 = (Future (2012) No Action CO emissions - Future (2012) CO emissions with the proposed airport action).

l. Regionally significant actions. If a proposed airport action's total direct and indirect emissions exceed 10 percent of a nonattainment or maintenance area's total emissions inventory for a particular criteria pollutant, it is a "regionally significant action." In such cases, FAA must prepare a General Conformity Determination even though the project's total net emissions are below *de minimis*. EPA designed the regional significance provision to address locating a large new project in a rural area having good air quality. Although no FAA project to date has qualified as regionally significant, project documentation for actions presumed to conform must include analysis to address this requirement.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
The National Environmental Policy Act, [42 USC Sections 4321-4347].	The Act establishes a national environmental policy and the Council on Environmental Quality (CEQ) to oversee the Act's implementation. The national policy encourages citizens to maintain productive and enjoyable relations between activities and the environment; to promote efforts preventing or removing damage to the environment and biosphere; to stimulate the health and welfare of man; and to enrich our understanding of the Nation's ecological systems and natural resources. Under NEPA FAA may have to prepare detailed air quality analysis for proposed projects and reasonable alternatives whose air quality emissions have the potential to cause violations of the National Ambient Air Quality Standards for the six criteria pollutants. The screening techniques and methodologies applicable to air quality assessments for airport projects are discussed in Chapter 2 of *Air Quality Procedures For Civilian Airports & Air Force Bases*, April 1997 (footnote 2 for web site.)	Council on Environmental Quality (CEQ)

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Clean Air Act (CAA), as amended [42 USC) Sections 7409, 7410, and 7502-7514	The Act requires establishing National Ambient Air Quality Standards (NAAQS) and designating attainment or nonattainment areas based on those NAAQS within a state. It also requires preparation of State Implementation Plans (SIPs) for EPA approval. In addition, the Act requires compliance with General and Transportation Conformity rules.	U.S. Environmental Protection Agency (EPA)
Section 176 (c) of the Clean Air Act, 42 USC 7571-7574; Determining Conformity of General Federal Actions to State or Federal Implementation Plans [40 CFR Part 93, Subpart B].	Procedures and criteria for determining if a proposed Federal action conforms to State (or Federal) air quality implementation plans. FAA is only required to demonstrate general conformity for the proposed airport action/preferred alternative.	EPA
Federal Presumed to Conform Actions Under General Conformity, 72 Federal Register 41565, dated July 30, 2007.[4]	List of FAA actions presumed to conform under 40 CFR Section 93.153(f)	FAA

b. Analytical guidance sources. We provide the following guidance sources to help FAA staff better understand how to plan, conduct, and use various air quality analyses and procedures.

GUIDANCE SOURCE	SUMMARY DESCRIPTION	ISSUING AGENCY
General Conformity Guidance: Questions and Answers, July 13, 1994 (with limited revisions of May 5, 2006)	This document provides 50 questions and answers to clarify how the General Conformity Rule should be applied.	EPA
General Conformity Guidance for Airports: Questions and Answers, September 25, 2002	This document provides answers to 39 questions to clarify the application of the General Conformity Rule to Federal actions involving airport development.	EPA and FAA

[4]http://a257.g.akamaitech.net/7/257/2422/01jan20071800/edocket.access.gpo.gov/2007/pdf/07-3695.pdf

GUIDANCE SOURCE	SUMMARY DESCRIPTION	ISSUING AGENCY
Air Quality Procedures for Civilian Airports and Air Force Bases (and Addendum of September 2004)	Commonly called the *FAA Air Quality Handbook*, this report provides technical information and recommended FAA guidelines and practices for conducting aviation-related air quality analyses in compliance with NEPA and the Clean Air Act. Figure 1 shows analysis thresholds for airport activity and whether a proposed airport action has the potential to cause air quality effects at various levels.	FAA/US Air Force

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. General. At airports, air pollutants and precursors of most concern include CO, NO_x, $PM_{10,}$ $PM_{2.5}$, HC, and sometimes, SO_x.[5] Since Federal actions to support airport development projects could increase levels or concentrations of the above pollutants, air quality impacts are often issues of concern in airport environmental documents.

(1) NEPA. Many airport actions are too small to require detailed air quality analysis. Whether an air quality assessment is required depends upon the nature of the project, the size of the airport and project, and the project area's air quality classification. See, section 6 of this chapter for more details about the screening criteria used to determine if an airport development project needs an air quality analysis. As noted in Figure 1 of the FAA/USAF *Air Quality Handbook*, such an assessment may be required under NEPA even in areas designated attainment for the pollutant(s) of concern. The protocol for air quality analysis for major airport development projects should be developed in close coordination with US EPA and State and local air quality agencies.

(2) CAA General Conformity. An airport action is subject to General Conformity requirements *only* if it would occur in a nonattainment or maintenance area. The first step is to determine if the proposed project is within a nonattainment or maintenance area. Next, FAA determines whether the proposed project is exempt or on the Presumed to Conform List. (See below). If the proposed project is not exempt or presumed to conform, FAA undertakes an "applicability analysis" for the proposed airport action. The analysis uses an "emissions inventory" of a *proposed airport action's* or a *preferred alternative's* future direct and indirect emissions and those of the future no action/no build alternative. FAA uses the analysis to determine if the net emissions caused by a proposed airport action or preferred alternative in a nonattainment or maintenance area exceed the applicable *de*

[5] Pollutant lead (Pb) is not normally a concern for airport projects, unless the chief source of Pb at the airport is the combustion of leaded aviation fuel used in piston-engine aircraft. See *Air Quality Procedures for Civilian Airports and Air Force Bases*, dated April 1997, pg. 11.

minimis thresholds. If so, then FAA must follow the procedures to demonstrate conformity and issue a "Conformity Determination" for that action. The following sections summarize how to determine whether General Conformity requirements apply to a proposed airport development action.

(a) Exempted actions. EPA identified the following Federal actions (Included here if they relate to airport actions) as exempt under the General Conformity Rule. EPA also provided illustrative examples of exempt actions in the preamble to the General Conformity Rule, noting that the exemptions were too numerous to list in the Rule. The actions are not subject to General Conformity requirements under 40 CFR Sections 93.153(c), (d), (e), and (f) because EPA determined that they have minimal (i.e., *de minimis*) emission levels. The actions are:

(1) Actions covered by the Transportation Conformity regulations (40 CFR Section 93.153(a));

(2) Actions having net total direct and indirect emissions below the *de minimis* levels specified for each criteria pollutant (40 CFR Section 93.153(c)(1));

(3) Air traffic control activities and adopting approach, departure, and enroute procedures for air operations. 58 FR 63214, 63229.

(4) Routine installation and operation of aviation navigational aids. 58 FR 63214, 63229.

(5) Actions included on an agency "presumed to conform" list (40 CFR Section 93.153(f));

(6) Actions specifically listed in the rule as exempt, including:

(a) routine maintenance and repair activities (40 CFR Section 93.153(c)(2));

(b) transfers of ownership of interests, land facilities, and real property (40 CFR Section 93.153(c)(2)(xiv));

(c) emissions from remedial or removal actions authorized under the Comprehensive Environmental Resource Compensation and Liability Act (CERCLA) (40 CFR Section 93.153(d)(5));

(d) actions responding to natural disasters or emergencies (40 CFR Section 93.153(d)(2));

(e) demonstrations improving air quality research or having no harmful environmental effects (40 CFR Section 93.153(d)(3); or:

(f) administrative, planning, enforcement, and inspection activities (40 CFR Sections 93.153(c)(6), 93.153(c)(xii), and inspection under 93.153(c)(v), respectively.

(b) Presumed to Conform actions. For General Conformity purposes, EPA regulations allow Federal agencies to develop a list of actions whose emissions are typically below the *de minimis* thresholds for the various criteria pollutants. These actions are known as "presumed to conform actions." This provision provides Federal agencies with another way to reduce unnecessary paperwork for actions that cause hardly any emissions. FAA has published a list of actions presumed to conform. See *Federal Presumed to Conform Actions Under General Conformity,* 72 *Federal Register* 41565, July 30, 2007. Federal agencies must demonstrate that presumed to conform actions are not regionally significant. See paragraph 1 (l) above.

b. Airport actions typically requiring an air quality assessment under NEPA or general conformity applicability analysis. For NEPA purposes, most major airport development projects (e.g., new airport, new runway, major runway extension) will require an air quality assessment if pollutant levels are likely to exceed the NAAQS. To help determine if it is necessary to examine NAAQS in these situations, discuss the issue with State or regional air quality staff (e.g., during scoping and other consultation). Sections 6.b((1) and (2) of this chapter discuss screening criteria that are helpful in determining if an assessment is needed.

c. Advisory determinations and planning activities not requiring an air quality or General Conformity analysis. The following actions would not alter air quality or they are advisory in nature (e.g., an airspace determination) and do not require an air quality analysis under NEPA or the CAA.

(1) FAA determinations in response to proposals submitted on Form 7460 (*Notices of Proposed Construction or Alteration* in an airport vicinity or Form 7480 (*Notices of Landing Area Proposal*)

(2) FAA approvals of noise compatibility programs under 14 CFR Part 150;[6]

(3) conditional approvals of airport layout plans.[7]

4. PERMITS, CERTIFICATIONS, AND APPROVALS. Airport projects, particularly those that involve stationary air pollutant sources, may be subject to permitting, certification, or approval under other provisions of the Clean Air Act or state or local law.

[6] Airport sponsors may not implement measures in an approved NCP until FAA complies with applicable environmental requirements.

[7] A conditional approval does not authorize an airport sponsor to build the project.

Note: Emissions from projects that require a NSR or PSD are not included in the calculation of total direct and indirect emissions under general conformity 93.153(d)(1).

a. New Source Review (NSR). Generally managed by State air quality agencies, the NSR program (Title I of the CAA at Parts C and D) is a means to control air emissions from new or modified stationary sources (e.g., boiler plant, electrical generating facility). New and modified stationary sources at airports such as airport power plants and painting and maintenance facilities are sometimes subject to requirements NSR Programs and Permitting. The NSR Program requires pre-construction reviews of air quality emissions and using air pollution control technology or other emission reduction strategies. The NSR Program is comprised of three permitting programs:

(1) minor sources located in attainment, unclassified, or designated nonattainment areas (minor source NSR);

(2) major stationary sources located in designated nonattainment areas (nonattainment NSR); and

(3) major sources located in attainment or unclassified areas (Prevention of Significant Deterioration or PSD).

In nonattainment areas, the NSR Permit Program applies only to construction projects that will cause potential emissions exceeding certain thresholds. For new sources the potential emissions must exceed the pollutant levels that make it a "major" source. "Major" source thresholds vary by pollutant and by the degree of nonattainment for the area in which the source is located (i.e., based on the sources potential to emit from 100 tons per year down to 10 tons per year). For modifications to existing major sources (a physical change to an airport or a change in its operations), the modification must cause a "significant" net increase in emissions to trigger the NSR requirements. Under this Program, the owner or operator of a new or modified major stationary source must install control technology that can provide the lowest, achievable emission rate and offset emission increases that are above baseline emission levels.

b. Prevention of Significant Deterioration (PSD). The PSD Program applies to new or modified major stationary sources located in areas meeting the NAAQS for at least one criteria pollutant. Maintenance areas are included in the Program. The PSD Program also applies to new or modified major sources of non-criteria pollutants regulated under the CAA, but it doesn't apply to hazardous air pollutants listed and regulated under Section 112 of the CAA. Under the PSD Program, a source is considered major if it is:

(1) in one of the 28 named source categories;

(2) emits or has the potential to emit 100 tons of a criteria pollutant yearly; or

(3) not in the named categories or has the potential to emit 250 tons per year of a PSD-regulated pollutant.

c. Indirect Source Review (ISR). An ISR is a process used to study and reduce emissions from new or modified facilities or structures serving mobile sources and emitting a primary pollutant listed earlier (see section 1.a of this chapter). These facilities include airport parking lots or garages or commercial or industrial developments. Nine states have ISR regulations (see FAA's *Air Quality Procedures for Civilian Airports & Air Force Bases*, Appendix J). When needed, the responsible FAA official must ensure airport environmental reviews include ISRs for the states and facilities noted in that Appendix. Consult AEE and APP-400 for methods and models addressing non-aviation air emission sources.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. Consultation with Federal, State, and local air quality and planning agencies. The U.S. EPA and State and local Air Quality and planning agencies have various duties and responsibilities in overseeing regional air quality, developing and managing SIPs, and enforcing the NAAQS. Regional, county, and municipal air quality agencies regulate and manage many activities in their respective areas. Metropolitan planning organizations (MPOs) and county and municipal planning and environmental agencies often work with these agencies to develop and revise the SIP. MPOs are a source of current population data for purposes of air quality analysis. These parties also work to develop construction and operational SIP budgets for aviation and surface transportation actions or other activities affecting local or regional air quality.

b. Early coordination with agencies is critical. FAA and the airport sponsor should coordinate a proposed air quality analysis with Federal, State and local agencies early in the environmental review process. That coordination helps to:

(1) identify the types of issues, required permits, and available information relevant to the project;

(2) obtain accurate air quality information and data on conditions in the project area that may address:

(a) air monitoring and meteorological data;

(b) the current and projected attainment, nonattainment, or maintenance status of the project study area.

(c) information on any non-Federal permitting requirements; or

(d) SIP-related information such as emissions budgets, prescribed emission reduction measures, and attainment time frames; and

(3) resolve air quality issues throughout the environmental review process.

c. Public participation. FAA must afford appropriate opportunities for public participation under NEPA. In addition, if a General Conformity Determination is required, FAA must issue a notice in the local media stating that a draft General Conformity Determination is available for review and comments. Later, FAA must notify the public when it issues its final General Conformity Determination.

6.. DETERMINING IMPACTS.

a. General. an airport action's air quality assessment predicts and examines additional emissions that airport construction and/or operation would cause. The assessment examines increased emissions from airport-related vehicular traffic, new facility construction, and/or expansion of an airport's power plant. FAA and the airport sponsor use the results of the assessment to determine the *net* air quality impacts[8] due to the proposed airport action and, when appropriate for NEPA, its reasonable alternatives. FAA's *Air Quality Handbook*, Appendix B, provides a useful project review checklist.

b. Applicability analysis and exempt and presumed to conform actions. FAA must determine if a proposed FAA action supporting airport development projects in designated nonattainment or maintenance areas will achieve the purpose of the applicable SIP.[9] To achieve that purpose, the action must meet and maintain the NAAQS.

(1) The first step in the analysis is to determine if the proposed action is located within a nonattainment or maintenance area. Next, determine whether the proposed action is specifically exempt or an action that FAA has determined is presumed to conform. If it is, no further air quality analysis is needed; except to demonstrate that an action presumed to conform is not regionally significant (see section 1.l. of this chapter).[10]

Note: FAA is the only agency to date to establish a presumed to conform list. *Federal Presumed to Conform Actions Under General Conformity,* 72 *Federal. Register* 41565, dated July 30, 2007.

(2) If the action is not exempt or presumed to conform, conduct an applicability analysis. That analysis allows FAA to determine if an action's total net emissions equal or exceed the established screening criteria emission rates known

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[8] Total Net emissions = (Future No Action emissions - Future proposed airport action emissions)

[9] The same requirements apply to a Federal Implementation Plan (FIP), which may be developed in the event that the State is unable to complete an approved SIP.

[10] 40 CFR Section 93.153(b).

as the *de minimis* thresholds. If the action's net emissions exceed the *de minimis* thresholds, a General Conformity Determination must be conducted.

c. General Conformity analysis and Determination. The General Conformity Rule is designed to prevent Federal agencies from taking actions that increase emissions that would violate the SIP. The conformity regulations provide detailed guidance concerning how conformity may be demonstrated for the various criteria pollutants. The Rule also identifies methods available to demonstrate conformity for the various criteria pollutants.

(1) when the total net direct and indirect emissions of an action located in an area designated nonattainment or maintenance exceed *de minimis* levels for one or more criteria pollutants, FAA must make a General Conformity Determination that may include more detailed air quality analysis;

(2) FAA uses that analysis to demonstrate how the action will conform with the purpose of the SIP (or FIP, if one exists) as part of a General Conformity Determination; and

(3) when a General Conformity Determination is needed, FAA must make that determination *before* the approving FAA official makes a decision on an action.

d. When to conduct an air quality analysis for NEPA purposes. For purposes of the NEPA analysis, the guidelines presented in Figure 1 of the FAA *Air Quality Handbook* are an important reference. Figure 1 shows analysis thresholds for airport activity.

(1) Actions at general aviation airports. If the proposed airport action would occur at an airport having a total of 180,000 general aviation and air taxi annual operations, an air quality analysis is required.

(2) Actions at commercial service airports. If the proposed airport action would occur at an airport having more than 1.3 million enplanements (2.6 million passengers) or more than 180,000 general aviation and air taxi annual operations, an air quality analysis is required.

(3) Actions serving a combination of operations and passengers. The *Air Quality Handbook* also includes a formula that combines operations and enplanements (see sections 6.d(1) and (2) of this chapter, respectively) to determine if an air quality analysis is needed.

(4) Actions that increase traffic coming to the airport and increase congestion at off-airport highway intersections. Section 2.1.5 and Figure 3, "Air Quality Analysis Guidelines and Thresholds," in the *Air Quality Handbook* address a special analysis for roadway intersections. The Section indicates that special intersection analysis and dispersion modeling for CO emission should be considered if the Level of Service (LOS) at the affected intersections is D, E, or F. Actions at these LOSs may cause carbon monoxide (CO) emissions that exceed the NAAQS.

e. Model for determining air quality impacts for CAA and NEPA purposes. The Emissions Dispersion Modeling System (EDMS) is the model FAA r*equires* for all airport-related air quality analyses. Sections 6.e.(1)-(3) of this chapter provide important information on the version of the model to use. Section 6.e(4) and (5) provide information on the two major elements of an air quality.

(1) Data and model version. The data and model version used should be the latest and most currently available when begining preparation of the air quality analysis for a proposed action;

(2) When FAA issues a new model version. if FAA issues a new version of EDMS after a project's air quality analysis has begun, the updated version may be used to provide additional disclosure concerning air quality, but use of the new model is not required.

(3) Major revision or addition to the analysis. Use of the new model should be considered carefully when there is a major revision or addition to the analysis (e.g. if baseline and/or forecast years are updated, thereby creating the potential for different impacts. [11]

(4) Emissions Dispersion Modeling System (EDMS). FAA *requires* the use of this model for assessing aviation-related air quality impacts except hazardous air pollutants.[12] The EDMS contains emission factors for aircraft engines, ground service equipment (GSE), motor vehicles, and other sources of emissions common to airports. To comply with FAA requirements, analysts *must* use the most current version of the model when preparing airport emission inventories and performing a dispersion analysis.

(5) Emissions inventory. Typically reported in *tons per year* or *kilograms per day*, an emissions inventory provides a gross sum of total emissions for the future no action and proposed action alternatives (or reasonable alternatives if needed). An inventory may include emissions of all criteria air pollutants, except for ozone (O_3). This is because ozone is a "secondary" pollutant (i.e., it forms in the atmosphere, usually on hot summer days and has two major precursors (volatile organic compound (VOCs) and nitrous oxide (NO_x)). Levels of those compounds are used to estimate ozone levels. Analysts use the inventory results to compare the alternative's total emissions to future no action emissions (see Question 20 of the *General Conformity Guidance for Airports, Questions and Answers*, dated Sept. 25, 2002).

(a) Actions requiring an emissions inventory. If a proposed airport action in a nonattainment or maintenance area is not exempt from CAA requirements nor presumed to conform (see sections 3.a.(2)(a) and (b) of this chapter), the responsible FAA official must ensure that FAA's environmental process includes an

[11] 63 Federal Register 18068, dated April 13, 1998.
[12] The current EDMS version (Version 5.0) is not capable of predicting hazardous air pollutants, but future versions are expected to provide that capability.

emissions inventory to assess potential effects for general conformity purposes. This inventory will allow FAA to conduct an applicability analysis to determine if the total net emissions a proposed airport action or preferred alternative would cause are above or below the applicable *de minimis* levels, (expressed annually, in "tons per year (tpy))."

(b) When the emissions inventory shows total net emissions are below *de minimis* levels. If total net emissions of the proposed airport action or alternative analyzed are below *de minimis thresholds*, and is determined not regionally significant, no further air quality analysis is needed. Therefore, the responsible FAA official may conclude the following:

(1) For NEPA purposes, The action and/or alternatives (if alternatives are evaluated) will not cause a significant air quality impact, since it is unlikely the pollutant concentration analyzed would exceed a NAAQS (See FAA *Air Quality Handbook*, pg. 14, Section 2.1.5)); and/or

(2) For General Conformity purposes. FAA need not conduct additional analysis or make a General Conformity Determination.

(c) When the emissions inventory shows total net emissions are above *de minimis* levels. The General Conformity Rule is designed to prevent Federal agencies from taking actions that increase emissions that would violate the SIP. The Rule also identifies methods available to demonstrate conformity for the various criteria pollutants. Consistent with the guidelines in the *Air Quality Handbook*, responsible FAA officials may use the analysis prepared for general conformity purposes to fulfill NEPA requirements. Doing so enables the officials to take a hard look at and disclose potential air quality impacts and identify alternative mitigation measures. If the total net emissions due to the proposed airport action exceed the *de minimis* thresholds or SIP emission budgets, FAA may demonstrate conformity by, among other things, conducting a dispersion analysis to determine if the action or alternative would violate any NAAQS.

(1) For CAA purposes. If the *proposed airport action* would occur in a nonattainment or maintenance area and its total net emissions exceed the applicable *de minimis* threshold(s) or SIP emission budgets, FAA may, among other things, conduct a dispersion analysis for general conformity purposes.

(2) For NEPA purposes. A dispersion analysis will also disclose whether the action has the potential to violate the NAAQS and cause a significant air quality impact under NEPA. Note that this analysis may be required depending upon the airport and the nature of the project, even if general conformity does not apply. See, the *Air Quality Handbook* and sections 6.d(1) and (2) of this chapter. The air quality impacts analysis under NEPA is broader than that required under general conformity, as it may include reasonable alternatives and cumulative impacts from actions FAA and other entities have or will undertake.

(3) Dispersion analysis. A dispersion analysis uses the emission inventory results combined with meteorological and other real world conditions to simulate the proposed airport action's pollutant concentration(s) over time and space. The results, expressed as *parts per million or milligrams/cubic meter,* are useful to identify potential air quality "hot-spots" and areas where NAAQS violations are likely to occur. A dispersion analysis is most commonly done for CO, but it is also suitable for other "local pollutants," including PM_{10}, NO_x, SO_2, and VOCs. Since the NAAQS are expressed as concentration levels, a dispersion analysis provides a direct means to determine if project-related emissions in the future have the potential to violate the NAAQS.

d. Integration of General Conformity and NEPA compliance. The release of NEPA and general conformity applicability analyses and documents should be synchronized to the fullest extent possible. 40 CFR Section 1500.2(c) states:

> "Federal agencies shall to the fullest extent possible:...(c) Integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively."

Although not required, the synchronized release of the draft General Conformity Determination and draft NEPA document helps make the environmental review process more efficient, facilitates public review and comment, and minimizes the risk of public confusion. Where a draft General Conformity Determination is not needed, the draft NEPA document should summarize and disclose the inventory and applicability analysis.

(1) Draft documentation. Under the General Conformity Rule, if requested, FAA must make its draft General Conformity Determination available for public review. FAA must place a prominent advertisement in a daily newspaper having general circulation and serving the project area. The advertisement must tell the public of the draft Conformity Determination's availability. It must also state FAA is providing the public 30 days to review the draft Determination and submit written comments on it. FAA must respond to all comments received on the draft Determination. If requested, FAA must make these comments publicly available within 30 days of the date FAA issues its final General Conformity Determination.

(2) Final documentation. FAA must make its final General Conformity Determination available to the public. Therefore, FAA should try to complete this Determination so that it can make it publicly available when FAA issues its Final EIS. FAA must publish a notice advertising the Final Determination's availability to the public in a daily newspaper of general circulation serving the project area. FAA must ensure the advertisement appears within 30 days of the date it issues its final General Conformity Determination. FAA must issue this final Determination *before* it approves the project (i.e., before issuing a ROD or other document signaling Federal approval for the airport sponsor to proceed with project construction).

e. Airport-related hazardous air pollutants (HAPs). EPA has identified roughly 25 individual HAPs that are associated with emissions from aircraft and airport

ground service equipment (GSE). However, EPA does not specify aircraft and airports in the definitions and categories of HAP sources in Section 112 of the CAA ("Hazardous Air Pollutants").[13] Nor has EPA established standards for HAPs. When compared with existing urban backgrounds, air quality monitoring studies near several large airports have not shown that increased HAP levels occur near those facilities. In fact, only a small percentage of an urban area's overall air pollution is attributable to airport emissions.[14] Nevertheless, due to the emission levels of unburned hydrocarbons and particulates near airports, EPA's National Air Toxic Program notes that airports are complex facilities that emit HAPs. Therefore, to comply with NEPA's disclosure requirements, FAA reports HAPs emissions in its environmental documents for information purposes only. FAA does not use that information to assess human health risks. The responsible FAA official should consider whether 40 CFR Section 1502.22, which addresses incomplete and unavailable information, applies to HAPS emissions for major airport development projects.

(1) For major projects normally requiring an EIS (e.g., new airport, new runway, major runway extension), the responsible FAA official should decide, in consultation with Federal, State, and local air quality agencies whether it is appropriate to conduct a HAPs emission inventory. This is, especially so when the action would occur in areas that are classified as nonattainment or maintenance for O_3 or particulate matter (PM).

(2) As needed, consult APP-400 to determine the HAPs FAA will analyze and the methodology FAA will use to conduct that analysis.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. The responsible FAA official should consider the following factors in consultation with agencies having jurisdiction or special expertise about air quality in the airport-affected area. FAA's *Air Quality Handbook*, Appendix B, provides a project Review checklist to help guide air quality analysts.

[13] Section 213 of the CAA "Aircraft Emission Standards" addresses aircraft emissions.

[14] GAO (2003) estimates about 0.5 percent, 2003.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
When a project or action exceeds one or more of the National Ambient Air Quality Standards (NAAQS).	The responsible FAA must determine if the air quality impacts of a proposed airport action (or if needed, its reasonable alternatives) would exceed a NAAQS for the timeframes used for the NEPA analysis. FAA's Air Quality Handbook (pg. 14) states: "In the action is in a nonattainment or maintenance area [and for this Desk Reference, an attainment area] it is assumed that a NAAQS assessment [i.e., emissions dispersion analysis] is not required for an airport or air base action, since it is unlikely the action's pollutant concentrations would exceed the NAAQS."

Adapted from: Table 7-1, FAA Order 5050.4B.

b. Mitigation. During the environmental review process, agencies having jurisdiction or special use expertise about air quality normally provide letters addressing air quality effects. Often, those letters include recommended measures to mitigate those effects under NEPA beyond those required to comply with applicable substantive requirements under the Clean Air Act. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the key information in those letters and cross-reference the appendix for further information. If FAA or the airport sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why the recommendation was not adopted. If feasible, provide an estimated schedule for undertaking required mitigation measures.

c. Reporting air quality findings. The environmental document should contain enough information, materials, and evidence to fulfill applicable NEPA, state or local regulations, and/or CAA requirements. FAA's *Air Quality Handbook*, Appendix B, provides a "Project Reviewer's Checklist" to help guide the developers and reviewers of an air quality analysis. If the proposed airport action requires or involves air quality mitigation measures as a condition of FAA approval or to mitigate the project's potential air quality impacts below the threshold of significance, the environmental assessment and Finding of No Significant Impact (FONSI) must identify those measures. Air quality environmental documentation should include:

(1) Evidence of agency coordination. The environmental document must contain evidence that interagency consultation with the proper air quality agencies has occurred.

(2) NEPA impact determination. Where detailed air quality analysis was conducted, the environmental document must contain a conclusion about potential

project-related impacts on air quality based on the results of an emissions inventory or a dispersion analysis, whichever is appropriate. If the emissions inventory indicates the proposed airport action or, if appropriate, a reasonable alternative's total net emissions are below *de minimis* levels, and there are no other unusual circumstances, the responsible FAA official may assume the proposed airport action or alternative would not cause a significant air quality effect (see FAA's *Air Quality Handbook*, section 2.1.5, pg. 14).

(3) General Conformity Determination. When issuing a draft or final General Conformity Determination, FAA must notify the appropriate EPA Region, State and local air quality agencies, the Metropolitan Planning Organization (MPO), the public, and, when applicable, Federal land management agencies. The environmental document for the proposed airport action should report the status of the Determination and include it as an appendix. The appendix should also include letters from the above agencies. The Determination will state the proposed airport action or the preferred alternative would not:

(a) cause or contribute to new violations of a NAAQS;

(b) increase the frequency or severity of an existing NAAQS violation; or

(c) delay the timely attainment of a NAAQS or any required interim emission decreases or milestones.

(4) Achieving General Conformity. Ways to achieve compliance with the General Conformity Rule include:

(a) documenting that planned emission increases are included in the existing SIP;

(b) persuading the State to include the emission increases in the SIP; or

(c) offsetting or mitigating emission increases from the project, provided the offsets are for the *entire* action, not just an incremental amount to attain levels below *de minimis* standards.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. After completing the applicable air quality analyses, use the following information, criteria, and guidelines as appropriate to determine the degree of the alternative's air quality impacts. For major airport development projects, it may also be appropriate to prepare a HAPs emission inventory and disclose the results in the EIS.

(1) If a dispersion analysis shows a criteria pollutant will exceed a NAAQS, a significant impact may occur.

(2) FAA must prepare an EIS if the responsible FAA official has information signaling significant air quality effects may occur and mitigation would not reduce impacts below the NAAQS. Further consultation with representatives from State or regional air quality officials, the MPO, and/or regional EPA air quality offices during EIS scoping will likely be needed. The responsible FAA official may wish to consider inviting some of those agencies to participate as cooperating agencies in preparing the EIS due to their expertise on air quality issues (e.g., analyses, alternatives to consider, or mitigation). As fitting, the EIS must contain information required under other parts of this chapter and the following:

(a) the results of interagency consultation completed to more precisely define unresolved issues and the necessary steps, analyses, or actions required to address them;

(b) the results of emission inventories or dispersion analysis;

(c) a description of necessary air quality mitigation measures;

(d) mitigation benefits or emission decreases;

(e) time frames for adopting the mitigation, and

(f) sponsor or State agency commitments to carry out the mitigation.

b. Mitigation. The EIS should describe any mitigation measures agencies with air quality expertise recommend. The EIS, Record of Decision (ROD) and/or General Conformity Determination must identify the air quality mitigation measures FAA requires as part of its project approval or to lessen the project's potential air quality impacts in accordance with the CAA. Mitigation measures required to fulfill General Conformity Rule requirements generally should also fulfill requirements applicable to major airport development projects. That assures all reasonable steps have been taken to minimize significant adverse air quality impacts under 49 USC Section 47106(c)(1)(B). FAA must analyze mitigation measures that Federal, State, and local air quality agencies recommend beyond those required under the CAA to assure FAA has fairly evaluated the potential environmental consequences to fulfill NEPA requirements.

The EIS and ROD should summarize the measures, emission reduction benefits, and the process for administering, monitoring, and enforcing the proposed mitigation. If feasible the EIS and/or ROD should include a schedule that lists clear timelines for implementing the mitigation.

CHAPTER 2. BIOTIC RESOURCES

1. INTRODUCTION AND DEFINITIONS.

a. Biotic Resources. For purposes of this desk reference, the term "biotic resources" means various types of flora (plants) and fauna (fish, birds, reptiles, amphibians, marine mammals, coral reefs, etc.) in a particular area. The term also means rivers, lakes, wetlands, forests, upland communities, and other habitat types supporting flora and aquatic and avian fauna.

b. National Environmental Policy Act (NEPA). A NEPA document's Biotic Resources chapter must address the effects on biotic resources due to a proposed action and its reasonable alternatives. The chapter must also address action-related effects and consequences on the affected area's *state-listed* rare or unique species or their habitats. However, the Biotic Resources chapter should not discuss action effects on *Federally-listed* endangered and threatened species. Instead, place that information in a separate chapter specifically addressing Federally-protected species (see Chapter 8 of this Desk Reference.)

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

When a Federal action would affect water resources, Section 662(a) of the Fish and Wildlife Coordination Act (FWCA), as amended (16 USC Section 662(a)) specifically requires consideration of biotic resources. To comply with that section, FAA must coordinate with the U.S. Fish and Wildlife Service (FWS) to assess the effects of proposed FAA actions on aquatic areas. Consultation with the National Marine Fisheries Service (NMFS) is needed for actions affecting anadromous fish species and marine mammals. Also, FAA or the airport sponsor, as appropriate, must consult with state wildlife agencies having jurisdiction over affected biotic resources.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
16 USC Section 662(a), Fish and Wildlife Coordination Act	When a Federally approved or financed action would affect a stream or water body, the responsible Federal agency must consult with the FWS.	FWS
Guidance for Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federally Landscaped Grounds, 60 Federal Register (FR) 40837 or 60 FR 40837	Provides guidance for interpreting and applying the Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federally Landscaped Grounds.	U.S. Environmental Protection Agency (EPA) (Office of the Federal Environmental Executive)
Executive Order 13112, *Invasive Species*, 64 FR 6183.	Paragraph 3f of attachment 2; U.S. Department of Transportation (DOT) Order 5610.1C.	Departments of the Interior (DOI), Commerce, Agriculture (USDA), and Transportation (DOT)
49 USC Section 47106(c)(1)(B)	When review of an application for an airport development action involving a new airport, a new runway, or a major runway extension indicates the action would have significant	FAA

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
	adverse effects on natural resources including fish and wildlife (among other environmental resources), the Secretary of Transportation may approve that application, but only after finding that no possible and prudent alternative exists and that every reasonable step has been taken to minimize the adverse effects.	
Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended by the Sustainable Fisheries Act, 16 USC Section 1855(b)(2) *et seq*.). See 50 CFR Part 600 for regulations implementing this Act	Prohibits actions that may affect "essential fish habitat" (EFH). Fisheries Councils throughout the country identify and describe fishery management plans to protect certain anadromous fish species. If an action would affect an EFH, an impact assessment on the affected EFH is needed. The assessment and any mitigation are done in consultation with NMFS.	NMFS
Migratory Bird Treaty Act of 1918, as amended, 16 USC Sections 703-711. See 50 CFR Part 10 for regulations implementing this Act	Actions that may take a migratory bird species are prohibited. If an action may take a migratory bird or affect its breeding habitat, consultation with the FWS is needed. If it is determined there are no feasible alternatives to taking the migratory bird or its nest, FWS must issue a permit for the taking. The permit will likely require mitigation.	FWS
Marine Mammal Protection Act of 1972, as amended, 16 USC Sections 1361-1421. See 50 CFR Part 18 for regulations implementing this Act	Actions that may take a marine mammal are prohibited. If an action may take a marine mammal, consultation with the NMFS must occur. Mitigation actions to minimize or avoid the potential take must be implemented.	NMFS
Executive Order 13089, *Coral Reef Protection*, 63 FR 32701.	Orders Federal agencies to preserve and protect the health, heritage, social, and economic value of the country's coral reef ecosystem and the marine environment	National Oceanic and Atmospheric Administration (NOAA)

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. FAA must evaluate any airport development action subject to FAA approval or funded under the Airport Improvement Program (AIP). In those instances, FAA must determine if the proposed action or its reasonable alternatives would significantly affect biotic resources. Typical airside actions that may cause those impacts include: new or expanded terminals or hangar facilities; building new or extended runways or taxiways; installing navigational aids (NAVAIDS) or expanding those facilities. Landside actions may include new or relocated access roadways, on-airport remote parking facilities or rental car lots.

4. PERMITS, CERTIFICATIONS, AND APPROVALS. Permits do not cover all airport actions affecting biotic resources. However, those actions that could affect migratory birds, fish,

marine mammals, or sea turtles[1] may require special permits. FAA or the airport sponsor, as fitting, must consult the FWS or NMFS to determine if permits issued under the Migratory Bird Treaty Act or the Marine Mammal Protection Act, respectively, are needed. Also, a U.S. Army Corps of Engineers (Corps) Clean Water Act Section 404 permit is required if proposed airport development would require dredging or filling navigable waters or wetlands, collectively known as "waters of the United States." (See Chapters 20 and 21 of this Desk Reference for information on how to analyze impacts to water quality and wetlands, respectively.)

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS. As noted earlier, under the FWCA, FAA must consult with the FWS when FAA is considering an airport action that would impound, divert, deepen, control, modify, pollute, dredge, or fill any watercourse, water body, or wetland. FAA also coordinates with FWS and state agencies about action impacts on potentially affected biotic resources that do not occupy those waters. If an action would affect tidally influenced waters, Essential Fish Habitat, marine and anadromous fishes, marine mammals or sea turtles, coordination with NMFS should occur. This interagency coordination provides multidisciplinary input critical to FAA's evaluation of action impacts. In addition, this consultation helps FAA determine the adequacy of potential mitigation measures.

6. DETERMINING IMPACTS. As needed, the environmental document contains an evaluation of action-related biotic resources impacts. Impact analyses at the population or community level may be necessary. Consult with FWS and other expertise agencies to determine the proper analyses.

a. Levels of analyses. If the proposed action or its reasonable alternatives would affect only previously disturbed airport property, populated areas, or farmland, the analyses would normally be minimal and straightforward. Impacts on undisturbed wildlife habitats require more analyses than that needed for already disturbed areas. Develop the analyses for the undisturbed areas in consultation with FWS and other agencies having expertise on the affected biotic resources and their habitats. Include construction impacts to ensure the NEPA document properly addresses temporary, constructed-related impacts on these resources.

b. State-listed species. The responsible FAA official must ensure the environmental document's Biotic Resources chapter addresses action impacts on ***state-listed*** endangered and threatened resources. However, if those species are also Federally-protected, the Biotic Resources chapter of the NEPA document should report that fact and refer the reader to the document chapter addressing Federally-listed endangered or threatened species (see Chapter 8 for information on those species).

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[1] See 50 CFR Section 10.13 for migratory species; Section 224.101(a) for anadromous fish species; Section 224.101(b) for marine mammal species; and Section 224.101(c) for sea turtles.

c. Evaluating impacts. To evaluate impacts to biotic resources, the environmental document must provide the following information:

(1) names and locations of water bodies or watercourses the action would affect. and

(2) an analysis of impacts and their consequences on common and unique biotic resources the no action, the proposed action, and any reasonable alternatives would cause.

Note: If the action would affect publicly-owned wildlife or waterfowl refuges of local, state, or national significance, refer to Chapter 7 of this Desk Reference for instructions on complying with Section 4(f). If the action may affect Federally-listed endangered and threatened species, refer to Chapter 8 for details.

d. Minor permanent habitat change determinations. The environmental document should provide the basis for determining the severity of permanent, minor habitat changes. Here, the environmental document should address each of the following criterion the no action, the proposed action and the reasonable alternatives (collectively called "alternatives") would cause.

(1) Does the affected habitat represent a small percentage of a particular habitat type commonly found in the affected area? Consult FWS and state wildlife personnel to help quantify the term "small percentage." or

(2) Does the habitat affected support a limited number of biotic resources commonly occurring in the affected area?

e. Major permanent habitat change determinations. Major permanent habitat change determinations are needed when an alternative would remove or disturb small tracts of sensitive, important habitat. Consultation with the proper resource agency is important here. The environmental document should address each of the following criterion for each alternative.

(1) Is the affected habitat critical to the area's ecological stability?

(2) Does the affected habitat support species or populations not commonly found in the affected or surrounding area?

(3) Does the affected habitat comprise a large percentage of a particular habitat type occurring in the affected or surrounding area? Consult FWS and state wildlife personnel to help quantify the term "large percentage." or

(4) Will the action permanently remove the affected area's biotic community from a portion of the habitat it currently uses or will the community leave the affected habitat for a long-term (i.e., 8-10 years)?

f. Actions involving coral reefs. If an FAA action would affect a part of a coral reef ecosystem, FAA should fund a study (subject to funding availability) to determine how the sponsor should carry out measures to monitor, manage, and restore the coral reef the

action would affect. This includes measures that would reduce impacts from action-related pollution or sedimentation.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. After completing the consultation and analyses discussed above, use the significance thresholds in column 1 of the following table. Consider factors in column 2 when determining if the action meets a threshold. The responsible FAA official should consider the following factors in consultation with agencies having jurisdiction or special expertise about the protection or management of the affected species. The official should complete added analysis for each reasonable alternative that would cause long-term habitat impacts (see section 6.e(4) of this chapter).

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
Consider scientific literature addressing the affected species and information from agencies having expertise addressing those species. Also review information on: • Action effects on population dynamics. • Action effects on sustainability and reproduction rates. • Natural and artificial mortality (aircraft strikes). • The minimum population size needed to maintain the affected populations.	• Consult the proper agency(ies) to determine if an area sufficient to sustain species **commonly** found in the affected area would remain if the alternative were implemented. • Determine if the action would affect habitat supporting floral or faunal species **not commonly** occurring in the affected area. If the action affects such habitat, consult the correct agency(ies) to determine if the action would affect a small tract of sensitive habitat needed for the survival or well-being of the affected biotic resource. Consider the locations of other nesting or breeding grounds relative to the affected area and if resource agencies suggest those areas could sustain the disturbed species.

From: Table 7-1, FAA Order 5050.4B.

b. Potential mitigation measures.

(1) Agency recommendations. During the environmental review process, FWS and other resource agencies normally provide letters addressing biotic resource impacts. Often, those letters include recommended measures to mitigate impacts. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If the sponsor or FAA does not adopt any recommended mitigation, the environmental document should explain clearly why the mitigation was not adopted.

(2) Possible mitigation. After the impacts to biotic resources have been determined, consider the following mitigation measures to reduce those impacts:

(a) erosion controls to protect bordering biotic resources;

(b) phasing various construction activities to avoid breeding, nesting, flowering, or pollination seasons;

(c) providing escape routes for mobile species;

(d) using landscape rehabilitation to restore or enhance existing, degraded habitat, or to create new habitat;

(e) changing design to minimize impacts on sensitive resources;

(f) buying adjoining habitat to create a preserve for displaced wildlife or to create a buffer zone; or

(g) adopting mitigation measures FWS or other resource agencies recommend and justify.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. When a significant impact to biotic resources would occur, FAA must prepare an EIS if mitigation will not reduce impacts below the significance threshold. The EIS should contain the information noted below as well as the applicable information discussed throughout this chapter.

b. Photographs. Aerial photographs and field survey(s) to help further define the extent or distribution of the affected biotic resources.

c. Resource importance. A description of the significance of affected biotic resources. As fitting, this should address the following issues:

(1) the species or communities the action would destroy or displace;

(2) the importance of affected species or communities to the impacted area;

(3) the species' range; and

(4) the locations of sites significant to those resources (e.g., breeding or nesting areas) relative to the location of the alternatives considered.

d. Other information. Refer the reader to other chapters discussing impacts to other resources (e.g., water quality, noise, and induced development, etc.) that could also affect the action area's biotic resources.

e. Mitigation. Describe proposed mitigation when FWS or other consulted agencies provide such recommendations. FAA should fully consider those measures and balance their benefits against those of the proposed action. Explain why FAA or the sponsor did not adopt any recommended measure. If feasible, provide an estimated schedule for undertaking accepted mitigation.

CHAPTER 5. COMPATIBLE LAND USE

1. INTRODUCTION AND DEFINITIONS.

a. General. The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport's noise impacts. Activities that may alter aviation-related noise impacts and affect land uses subjected to those impacts typically involve:

(1) airport development actions to accommodate fleet mix changes or the number of aircraft operations;

(2) air traffic changes; or

(3) new approaches to the airport made possible by new navigational aids.

b. Land use compatibility and noise. If the noise analysis described in Chapter 17 of this Desk Reference concludes that there is no significant noise impact, a similar conclusion usually may be made about compatible land uses. Also, if the action would cause noise impacts that affect land uses such as social or induced socioeconomic effects (e.g., community disruption, relocation impacts, etc.), analyze those effects in the context of the affected resource(s). Therefore, describe those impacts in the appropriate chapter of the environmental document that addresses those resources. To avoid duplicating that information, the document's Compatible Land Use chapter should cross-reference the pages in those chapters containing that information.

Note: Chapters 15 and 18 discuss induced socioeconomic and social impacts, respectively.

c. Land use compatibility not related to noise. Besides the effects of noise on land use compatibility, FAA should also assess the compatibility of land uses in the vicinity of an airport to ensure those uses do not adversely affect safe aircraft operations. Examples of such land uses that may adversely affect those operations include municipal landfills and wetland mitigation that attract wildlife species hazardous to aviation.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
49 USC Section 47106(a)(1) (Airport Improvement – Project grant application approval conditioned on satisfying project requirements)	Under this section, the Secretary of Transportation (the Secretary) may approve an application for a project grant. The Secretary may do so only if the project is consistent with the plans (existing when FAA approves the project) of public agencies authorized by the state to plan for development of the area surrounding the airport.	FAA

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
49 USC Section 47107(a)(10) (Airport Improvement – Project grant application approval conditioned on assurances on airport operations)	For airport actions, the Compatible Land Use chapter of the environmental document must include documentation to support the required airport sponsor's assurance under this section. That assurance must state that appropriate action, including adopting zoning laws, has been or will be taken to the extent reasonable. Such actions are needed to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including the landing and takeoff of aircraft. The assurance must be related to existing and planned land uses.	FAA
49 USC Sections. 47501 to 47510. (Noise Abatement) 14 CFR Part 150	These sections require the Secretary to: • establish a single system showing a highly reliable relationship between projected noise and surveyed reactions of individuals to noise; • establish a single system to determine the reaction of individuals (at or near airports) to noise resulting from airport operations; and • identify land uses that are normally compatible with various exposures of individuals to noise levels. Regulations at 14 Code of Federal Regulations (CFR) Part 150 provide this information.	FAA
49 USC Section 44718, Subsection (d) (Limitation on Landfill Construction)	Birds attracted to municipal solid waste landfill facilities (MSWLF) near airports pose aviation hazards. MSWLFs built after Congress enacted Public Law 106-181 (April 5, 2000) cannot be located within 6 miles of a public airport: • receiving Airport Improvement Program (AIP) grants; • chiefly serving general aviation aircraft; and • chiefly having regularly scheduled flights of aircraft with 60 seats or less. Note: The State of Alaska is exempt from this requirement.	FAA

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
40 CFR Section 258.10 (Criteria for Municipal Solid Waste Landfills; Airport Safety)	The Environmental Protection Agency (EPA) recognizes that MSWLFs often attract large numbers of birds because these facilities provide food and cover. As a result, birds using MSWLFs could cause potential threats to aircraft safety. This regulation requires the following minimum separations between the airport and MSWLF: • 5,000 feet for airports serving piston-powered aircraft; or • 10,000 feet for airports serving turbine-powered aircraft. In addition, the owner/operator of a new MSWLF within a 5-statute mile radius of any airport runway serving either aircraft type has certain duties. The owner/operator must: • notify the airport and FAA of the proposal; and • show and have proof in its operating manual that the MSWLF's design and use will not pose aviation hazards.	FAA
Interagency Memorandum of Agreement (MOA) of July 2003 addressing wildlife hazards and airports.	FAA, the U.S. Air Force (USAF), U.S Army Corps of Engineers (Corps), EPA, U.S. Fish and Wildlife Service (FWS), and the Department of Agriculture Wildlife Services (WS) signed this MOA. The MOA provides guidelines to these agencies on how they will cooperatively address wildlife habitats near public use airports	FAA, USAF, Corps, EPA, FWS, and WS

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. Airport development actions funded under the AIP and other airport actions subject to FAA approval, such as Airport Layout Plan (ALP) changes and Passenger Facility Charges (PFCs), have the potential to cause off-airport land use impacts. Typical actions causing such impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities, and rental car lots; significant changes in aircraft operations; and significant construction activity.

4. PERMITS, CERTIFICATES, AND APPROVALS. None. However, an airport sponsor filing a project grant application for airport development must provide the following assurances to FAA.

a. Consistency with local land use planning. The sponsor must provide a letter from the public agency authorized by the state to plan for the area surrounding the airport. To comply with 49 USC Section 47106(a)(1) (see the table in section 2 of this chapter), the letter should state that the proposed action is consistent with land use plans existing at the time FAA approves the project. An appendix to the environmental document must include the letter. If the state has not designated an agency, consult the Airport Planning and Environmental Division, APP-400, Regional Counsel or the Airports Environmental Law Division, AGC-600.

b. Land uses in the airport area. The sponsor must provide a written assurance verifying action has been or will be taken to restrict land uses next to or near the airport as discussed in 49 USC Section 47107(a)(10)), described in the table in section 2 of this chapter. An appendix to the environmental document must include evidence that the sponsor has provided the requisite assurance for the proposed action. This evidence may be a letter.

FAA must ensure information regarding the necessary assurances appears in an appendix to the environmental document.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES–ENVIRONMENTAL ANALYSIS.

a. General. When reviewing environmental documents, the responsible FAA official should ensure the land use compatibility issues noted below are addressed where appropriate.

b. Airport sponsor efforts to ensure compatible land uses. FAA recognizes that not all airport sponsors have land use control authority. FAA officials should contact the appropriate state and local planning organizations to encourage the development of appropriate compatible land use controls early in the project planning stage. Even airport

sponsors lacking jurisdictional control in the affairs of the community where the proposed airport action would occur are required, at a minimum, to use their best efforts to promote airport compatible land uses and zoning measures in airport-affected areas. These efforts focus on developing existing and future land uses next to or in the immediate vicinity of the airport that are compatible with airport operations. To do so, airport sponsors should work with land use authorities and review FAA's Airport Noise Compatibility Planning Toolkit for helpful information (e.g., buying land in fee or using its best effort to persuade local jurisdictions to impose airport-compatible zoning near the airport). It is FAA's responsibility to ensure that the assurances given by the airport sponsor regarding compatible land uses are reasonable.

(1) Land use assurances. The land use section of the environmental document should include documentation to support the required airport sponsor assurances noted in section 4.a. of this chapter.

(2) Landfills and other wildlife attractants. Due to aviation safety concerns, information regarding land uses that may attract wildlife is critical in FAA decision making. According to FAA AC 150/5200-33B, *Hazardous Wildlife Attractants on or near Airports*, these land uses often include:

(a) solid waste landfills;

(b) existing or proposed dredge spoil containment areas;

(c) wastewater treatment facilities;

(d) wetlands, wildlife refuges; or

(e) other land uses that attract wildlife that is hazardous to aviation.

Information regarding potential wildlife attractants is helpful in determining if incompatible land uses other than those related to noise are or would be near the proposed action. The environmental document's Compatible Land Use chapter should disclose the presence of any of these land uses within the distances referenced by FAA AC 150/5200-33B:

- 5,000 feet of an airport serving piston-powered aircraft;

- 10,000 feet of an airport serving turbine-powered aircraft; and/or

- 5 statute miles of a runway end and a landfill that could cause hazardous bird species to fly across the airport's approach or departure airspace.

6. DETERMINING IMPACTS.

a. Noise impacts on common land uses. Table 1 in 14 CFR Part 150, *Airport Noise Compatibility Planning*, and FAA's Airport Noise Compatibility Planning Toolkit, depict compatible land use guidelines for several land uses as a function of day-night average sound level (DNL) values (see Chapter 17, section 1.b for more information). The ranges of DNL values in Table 1 at the end of this chapter reflect the statistical variability of the responses of large groups of people to noise. However, note that a particular DNL level may not accurately assess an *individual's* perception of an actual noise environment. Compatible or noncompatible land use is determined by comparing the predicted or measured DNL values at a site to the values listed in Table 1.

b. Areas where the DNL 65 standard may not apply. Part 150 guidelines may be relied upon where the land uses specified in Table 1 are relevant to the value, significance, and enjoyment of the lands in question. However, FAA also recognizes that the guidelines do not adequately address the effects of noise on visitors to areas within a historic site, national park, or wildlife refuge protected under Section 4(f) of the DOT Act *and* where non-aircraft noise is very low and a quiet setting is a generally recognized feature or attribute of the site's significance (see Chapter 7 of this Desk Reference). Specifically, Part 150 land use categories:

(1) are not sufficient to determine the noise compatibility of areas within a national park or national wildlife refuge where noise is very low and a quiet setting is a generally recognized purpose and attribute, or to address noise effects on wildlife.

(2) may not be relevant to a wildlife refuge used for bird-watching; or

(3) bear little relevance to a historic village preserved specifically to evoke the atmosphere of rural life in an earlier era.

Note: See FAA Order 1050.1E, Appendix A, paragraphs 4.2c, 6.2h, 6.2i, 14.3, and 14.4b, and Chapter 17 of this Desk Reference for more information.

c. Noise impacts on wildlife habitat. Some airport projects could affect areas supporting wildlife or farm animals (e.g., refuges, farms, or ranches). Do not use Part 150 guidelines. They are based on human reactions to noise. As a result, guidelines should not be used to determine impacts on wildlife. Research shows aircraft noise causes inconsistent reactions and effects on various species according to the different life history stages of a species. For projects where aircraft noise impacts could affect wildlife or farm animals, review published studies addressing noise effects on the species of concern. If FAA expects the proposed activity would cause noise impacts on wildlife, the environmental document should cross-reference the environmental document's chapters discussing noise and/or biotic resources. This avoids repeating noise impact descriptions, their causes, the analyses used to determine impacts, the impacts, and their consequences.

d. Land use changes because of physical disturbances. Besides noise, physical land disturbances may alter existing land uses. For example, building a proposed runway may disrupt a community by taking or moving a highway or altering a wetland or biotic community. To avoid repeating information presented elsewhere in the environmental document, the document's Compatible Land Use chapter should simply state airport-related physical disturbance would change existing land uses (i.e., filling a wetland to develop a taxiway) and refer readers to those pages of the document addressing the affected resources.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. The noise analysis completed per Chapter 17 of this Desk Reference provides information related to an action's projected noise impacts. To avoid duplication, the environmental document's Compatible Land Use chapter should cross-reference (or summarize) the information in the document's Noise chapter addressing an alternative's effects on compatible land uses. In addition, the Compatible Land Use chapter should discuss any land uses not related to noise as discussed in section 1.c of this chapter.

ORDER.1050.1E THRESHOLD	FACTORS TO CONSIDER
See significance threshold for noise	The responsible FAA official determines if any alternative would have land use consequences such as: • community disruption; • business relocations; • induced socioeconomic impacts; • wetland or floodplain impacts; or • critical habitat alterations. Use the information from the factors addressing these specific issues to determine the severity of compatible land use effects.

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. During the environmental review process, the public agency authorized by the state to plan for the areas surrounding the airport normally provide a letter addressing land use effects. The letter may include recommended measures to mitigate those effects. An appendix to the environmental document should include a copy of the letter. The environmental document should summarize the most important information in that letter, accurately cross-reference the appendix and pages in that appendix for further information, and the status of any recommended mitigation measures.

If the airport sponsor or FAA determines that some or all of the recommended mitigation measures are not reasonable under the circumstances, the environmental document should clearly explain the sponsor's or FAA's rationale for not adopting the mitigation.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. When the noise analysis completed per instructions in Chapter 17 of this Desk Reference indicates that a significant noise impact, pursuant to NEPA, would occur over noise sensitive land uses within the DNL 65 dB contour, the analysis in an EIS should include a discussion of noise impacts on those areas. Review information in sections 6.b. and c. of this chapter for information on situations where the DNL 65 dB standard may not apply.

b. Mitigation. Any mitigation measures to be taken in addition to those associated with other land use controls should be discussed. FAA Advisory Circular 150/5020-1, *Noise Control and Compatibility Planning for Airports*, presents guidance for airport operators and planners to help achieve compatibility between airports and their surrounding areas. The EIS should describe proposed mitigation when the public agency the state authorized to plan for the areas surrounding the airport normally provides that information. FAA or the sponsor should fully consider the mitigation and balance its benefits against those of the proposed action.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that environmental consequences have been fairly evaluated (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106(c)(1)(B), FAA may not approve Federal funding for major airport development projects unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203.(b)(4). In accordance with NEPA and 49 USC Section 47106(c)(1)(B), an EIS must discuss and adopt reasonable mitigation measures recommended by the public planning agency or agencies having jurisdiction for the area surrounding the airport. If feasible, provide an estimated schedule for undertaking accepted mitigation.

TABLE 1. LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

Land Use	Yearly Day-Night Average Sound Level (L_{dn}) in decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	YES	NO (1)	NO (1)	NO	NO	NO
Mobile home parks	YES	NO	NO	NO	NO	NO
Transient lodgings	YES	NO (1)	NO (1)	NO (1)	NO	NO
Public Use						
Schools	YES	NO (1)	NO (1)	NO	NO	NO
Hospitals and nursing homes	YES	25	30	NO	NO	NO
Churches, auditoriums, and concert halls	YES	25	30	NO	NO	NO
Government services	YES	YES	25	30	NO	NO
Transportation	YES	YES	YES (2)	YES (3)	YES (4)	YES (4)
Parking	YES	YES	YES (2)	YES (3)	YES (4)	NO
Commercial Use						
Offices, business and professional	YES	YES	25	30	NO	NO
Wholesale and retail- building materials, hardware and farm equipment	YES	YES	YES (2)	YES (3)	YES (4)	NO
Retail trade-general	YES	YES	25	30	NO	NO
Utilities	YES	YES	YES (2)	YES (3)	YES (4)	NO
Communication	YES	YES	25	30	NO	NO
Manufacturing and Production						
Manufacturing, general	YES	YES	YES (2)	YES (3)	YES (4)	NO
Photographic and optical	YES	YES	25	30	NO	NO
Agriculture (except livestock) and forestry	YES	YES (6)	YES (7)	YES (8)	YES (8)	YES (8)
Livestock farming and breeding	YES	YES (6)	YES (7)	NO	NO	NO
Mining and fishing, resource production and extraction	YES	YES	YES	YES	YES	YES
Recreational						
Outdoor sports arenas and spectator sports	YES	YES (5)	YES (5)	NO	NO	NO
Outdoor music shells, amphitheaters	YES	NO	NO	NO	NO	NO
Nature exhibits and zoos	YES	YES	NO	NO	NO	NO
Amusements, parks, resorts, and camps	YES	YES	YES	NO	NO	NO
Golf courses, riding stables and water recreation	YES	YES	25	30	NO	NO

Numbers in parenthesis refer to notes; see continuation of Table 1 for notes and key.
NOTE: The designations in this table do not constitute a Federal determination that any use of land is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with local land use authorities. FAA determinations under Part 150 are guidelines and are not intended to substitute for land uses determined to be suitable by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

TABLE 1. LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

Key to Table 1	
YES	Land Use and related structures compatible without restrictions.
NO	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 dB must be incorporated into design and construction of structure.
Notes for Table 1	
(1)	Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2)	Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(3)	Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(4)	Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(5)	Land use compatible provided special sound reinforcement systems are installed.
(6)	Residential buildings require an NLR of 25.
(7)	Residential buildings require an NLR of 30.
(8)	Residential buildings not permitted.
(End of Table 1)	

CHAPTER 6. CONSTRUCTION IMPACTS

1. INTRODUCTION.

Airport construction may cause various environmental effects primarily due to dust, aircraft and heavy equipment emissions, storm water runoff containing sediment and/or spilled or leaking petroleum products and noise. In most cases, these effects are subject to Federal, State, or local ordinances or regulations. While the long-term impacts of the proposed action are usually greater than construction impacts, sometimes construction may also cause significant short-term impacts. Descriptions of the many construction impacts associated with airport actions are often covered in the descriptions of other environmental impact categories. Therefore, to avoid repeating information in chapters of an environmental assessment (EA) or environmental impact statement (EIS) that address a specific environmental resource, a document's construction impacts chapter, if one is prepared, should describe the general types and natures of construction-related impacts and the measures proposed to minimize potential, construction-induced adverse effects.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

At the Federal level, construction impacts often concern water and air quality effects and, to a lesser extent, noise. The National Pollutant Discharge Elimination System (NPDES) permitting program contained in 40 Code of Federal Regulations (CFR) Part 122 addresses construction disturbances of 1 acre or more. General Conformity regulations in 40 CFR Part 93, Subpart B, address construction effects in nonattainment or maintenance areas. See Chapters 1 and 20 of this Desk Reference for more information on evaluating project effects on air quality and water quality, respectively. For other resources, analyses done to meet Federal laws, regulations, and guidelines would govern how to assess construction effects on those resources.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
40 CFR, Part 122, NPDES	Part 122.26(a)(9) requires an NPDES permit for storm water discharges due to "small construction activity" (*i.e.*, disturbing 1 acre, but less than 5 acres). Part 122.26(a)(1)(ii) requires an NDPES permit for storm water discharges due to construction activities disturbing at least 5 acres of land. In both instances, the discharge must be covered under an NPDES industrial storm water permit, unless another individual or general NPDES permit already covers the construction discharge.	U.S. Environmental Protection Agency (EPA) or a state to which EPA has delegated NPDES authority.

Clean Air Act Section 176(c), 49 USC, Section 7401 *et. seq*., as amended	Include construction-related air quality emissions when a sponsor proposes an action in a nonattainment or maintenance area.	Federal Aviation Administration (FAA)
The National Environmental Policy Act (NEPA), 42 USC, Sections 4321-4347	NEPA's purposes are: • to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; • to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; • to enrich the understanding of the ecological systems and natural resources important to the Nation; and • to establish a Council on Environmental Quality.	Council on Environmental Quality (CEQ)

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

Building new airport facilities may cause temporary impacts to wildlife and fisheries habitats, water and air quality, ambient noise levels, historic resources, and local traffic patterns. Typical airport actions causing construction impacts include: airside activities (e.g., new or expanded terminal and hangar facilities, new airports or extended runways and taxiways, navigational aids [NAVAIDS], etc.) and landside activities (e.g., new or relocated access roadways and remote parking facilities and rental car lots).

4. PERMITS, CERTIFICATIONS, AND APPROVALS.

a. General. Construction equipment can increase off-site, ambient noise levels. In addition, exhaust from equipment, dust, or burning debris can degrade local air quality. The air quality analyses undertaken to comply with the disclosure requirements of the National Environmental Policy Act and substantive requirements of the Clean Air Act General Conformity regulations ***must*** include air quality emissions the project's construction activities would cause (refer to Chapter 1, Air Quality, for more information). Off-site local traffic patterns could be disrupted and cause air quality impacts as well. Erosion may degrade water quality. As a result, FAA should consider the concerns of agencies responsible for protecting local air or water quality or maintaining traffic flow. Environmental documents prepared for airport actions involving construction should

contain information on the status of the airport sponsor's efforts in getting any necessary permits.

b. NPDES storm water permit for construction. EPA notes excavating 1 acre or more often requires the operation of equipment (i.e., bulldozers, cranes, dump trucks, etc.) disturbing or removing trees or ground cover or filling or leveling land. According to EPA, these disturbances cause sediment runoff rates typically 10 to 20 times those of agricultural areas and 1,000 to 2,000 times the rates of forested areas.[1] As a result, substantial adverse water quality impacts could occur when airport construction disturbs 1 acre or more. The storm water regulation (found at 40 CFR Section 122.26) has two provisions regarding construction activity. One provision addresses a construction activity that would disturb 5 or more acres. Another provision addresses a "small construction activity," that is, a project disturbing 1 acre or more but less than 5 acres.

(1) In either instance, an airport sponsor must obtain an NPDES storm water discharge permit as outlined in 40 CFR Section 122.26(c).

(2) For a "small construction activity," compliance with NPDES requirements is not necessary if:

(a) the rainfall erosivity factor[2] is less than 5 during the period of construction activity; or

(b) stormwater controls are not needed based on an EPA approved "total maximum daily load" or an equivalent analysis that determines that such allocations are not needed to protect water quality. *See* 40 CFR Sections 122.26(b)(15)(i)(A) and (B).

(3) FAA does not require an airport sponsor to have an NPDES permit when it approves a project, when it accepts a sponsor's EA, or when it completes an EIS. However, if the sponsor receives the permit before the EA or EIS is finished, the EA or EIS should include a copy of the permit. In all cases, EAs and EISs should explain what the airport sponsor has done to obtain the permit and the status of the sponsor's NPDES storm water permit application. Provide letters from the permitting agency that indicate if there are any pending issues regarding permitting.

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[1] EPA Stormwater Phase 2 Final Rule, Construction Site Runoff Control, Minimum Control Measure, EPA Fact Sheet 2.6, January 2000; http://rvcog.org/pdf/rainstorming/subsection1.1.5.pdf

[2] Erosivity factor ("R" in the Revised Universal Soil Loss Equation): The rainfall erosivity factor is determined per Chapter 2 of *Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE),* pages 21–64, dated January 1997.

c. Air quality issues. Construction activity emissions due to the proposed or preferred alternative must be included as part of any analysis when calculating "direct emissions.

d. Agency letters. To determine the information needs of agencies concerned with construction-related impacts, contact the agencies listed in each of the chapters addressing those resources the proposed construction activities would affect. For example, when construction could degrade nearby water quality, consult with the resource agencies listed in Chapter 20, Water Quality.

5. REGULATORY COMPLIANCE PROCEDURES – ENVIRONMENTAL ANALYSIS.

Environmental documents should refer the reader to other chapters in an EA or EIS that address air quality or water quality in detail. The document's respective construction impact section should include proof that needed consultation has occurred. In particular, the section on construction impacts should include consultation with EPA or the appropriate State agency (when EPA has an approved NPDES program).

6. DETERMINING IMPACTS.

a. General. To avoid repeating discussions and to reduce the bulk of an EA or EIS, the construction section of those documents should refer the reader to the chapters addressing the resources construction would affect (e.g., chapters on noise, air quality, water quality, biotic communities, etc.). The construction chapter, if one is prepared, should present only a general description of impacts that the EA or EIS does not discuss elsewhere. Generally, this would be a summary of specific construction-related impacts, and their expected durations and consequences (i.e., sedimentation increases would/would not smother fish eggs).

b. Mitigation. This construction chapter of the environmental document should discuss the measures the sponsor will take to minimize the impact of construction (e.g., proper muffling of equipment noise, dust control, detention basins, detours, etc.). At a minimum, the environmental document should discuss the specifications described in Item 156 of Advisory Circular (AC) 150/5370-10A, *Standards for Specifying Construction of Airports*.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. Significant construction impacts would most likely occur when unusual circumstances exist (e.g., excavating ecologically sensitive areas, construction-induced traffic congestion that would substantially degrade air quality). After completing the above analyses, use the findings and the significance threshold for the resource(s) construction would affect to determine the degree of construction impacts. A significant impact would

occur when the severity of construction impacts cannot be mitigated below FAA's threshold levels for the affected resource.

b. Mitigation. During the environmental review process, agencies having jurisdiction or special expertise about affected resources normally provide letters addressing impacts on those resources. Often, those letters include recommended measures to mitigate those effects. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in the appendix for further information.

(1) If the FAA or the sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why the recommendation was not adopted. If feasible, provide an estimated schedule for undertaking accepted construction mitigation.

(2) All on-site construction activities must be conducted in accordance with FAA AC 150/5370-10, *Standards for Specifying Construction of Airports*, and by using best management practices (BMPs). These measures must be considered throughout the preparation of plans and specifications for each construction project. The construction contractor should meet the adopted plans and specifications throughout the project construction period. Implementing these measures will prevent or minimize most potential construction-related impacts to the environment and surrounding community. FAA AC 150/5370-10, Item P-156, provides further information on potential mitigation measures.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. Sometimes, construction impacts alone due to airport construction may cause a significant impact identified and the impacts cannot be avoided or mitigated below the applicable significance threshold(s) for the affected resource. In those cases, FAA must prepare an EIS addressing the impacts. Where appropriate the EIS should contain a discussion of the concerns resource agencies identified and the reasons why impacts cannot be mitigated below an applicable threshold (e.g., where the Fish and Wildlife Service has prepared a Jeopardy Biological Opinion).

b. Mitigation. The EIS should describe proposed mitigation when expertise agencies provide that information. FAA should fully consider the mitigation and balance its benefits against those of the proposed action. If feasible, the EIS should also provide an estimated schedule for undertaking accepted mitigation and explain why the sponsor or FAA does not adopt any mitigation a resource agency recommends.

CHAPTER 8. FEDERALLY-LISTED ENDANGERED OR THREATENED SPECIES

1. INTRODUCTION AND DEFINITIONS.

a. General. The Biotic Resources chapter in Appendix A of Order 1050.1E combines information on Federally-listed endangered and threatened species and species not protected under the Endangered Species Act (16 USC Section 1531, *et. seq* (ESA)). However, this Desk Reference separates information on these species. The Office of Airports (ARP) has done that to highlight the specificity of the regulations implementing the ESA. Readers seeking information on species not protected under the ESA should review Chapter 2 of this Desk Reference.

b. The Endangered Species Act. To satisfy the Endangered Species Act of 1973, the Federal Aviation Administration (FAA) must determine if a proposed action under its purview would affect a Federally-listed species or habitat critical to that species (critical habitat). For purposes of this Chapter, the following definitions apply:

(1) Major construction activity. Under the ESA, a "major construction activity" is a construction project (or undertaking with similar physical impacts), which is, in NEPA terms, a major Federal action significantly affecting the quality of the human environment (50 CFR Section 402.02).

(2) Endangered species. Any species that either the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS) designates in danger of extinction throughout all or a significant portion of the species' range (16 USC Section 1532(6)).

(3) Threatened species. Any species that either FWS or NMFS states is likely to become an endangered species within the foreseeable future throughout all or a significant portion of the species' range (16 USC Section 1532(20)).

(4) Candidate species. Any species that either FWS or NMFS is considering for listing as "endangered" or "threatened", but has not yet been the subject of a proposed rule. These species have no legal status and do not have protection under the ESA. However, their inclusion is intended to alert Federal agencies of potential proposals or listings (50 CFR Section 402.12(d)).

Note: Candidate species are called "proposed species" throughout 50 CFR Part 402 *et seq*, except at 50 CFR Section 402.12(d). There, Section 402 refers to proposed species as "candidate species." However, due to years of familiarity within the Office of Airports with the term "candidate species," this Desk Reference uses the term "candidate species" as a synonym for "proposed species."

(5) Critical habitat. This is a designated area having physical and biological features essential to a listed species' survival. Examples include nesting grounds, migration

routes, wintering grounds, or other areas needed to support a life history stage. A species need not occupy an area for it to be critical habitat. When analyzing impacts that would affect areas within critical habitat boundaries, FAA (or the airport sponsor, or consultant, if FAA designates a non-Federal representative as noted below in section 1.b.(7) of this chapter) will informally consult with either FWS or NMFS. This allows FAA to focus on those areas within those boundaries the species specifically needs to sustain itself (16 USC Section 1532(5)(A)).

(6) Service Director. This is the FWS Regional Director or Field Supervisor, or the NMFS Service Director to whom the Secretary of the Interior or the Secretary of Commerce, respectively, has delegated the authority to protect Federally-listed endangered or threatened species (50 CFR Section 402.02).

Note: Consultation with the NMFS is required when the action may affect anadromous or marine fish species, marine mammals, or critical marine habitat.

(7) Designated non-Federal representative. A person or consultant a Federal agency designates to act as its representative and on its behalf during informal consultation. The person or consultant may also prepare a biological assessment (BA) on the agency's behalf, but the Federal agency remains responsible for the BA's content and effects finding (50 CFR Section 402.02).

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
The Endangered Species Act, 16 USC Section 1531-1544	Protects Federally-listed endangered or threatened species and their critical habitats.	FWS or NMFS
16 USC Section 1536(a)(2), also known as Section 7(a)(2)	Requires Federal agencies to consult with either the Secretary of the Interior or the Secretary of Commerce (Secretary), as appropriate, through their respective authorized designees.	FWS or NMFS
16 USC Section 1536(a)(3) and (4), also known as Sections 7(a)(3) and (4)	Requires Federal agencies to consult with the Secretary on any actions likely to adversely affect or jeopardize a Federally-listed species or its critical habitat.	FWS or NMFS

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
16 USC Section 1536(b), also known as Section 7(b)	Requires the Secretary to issue a written biological Opinion (Opinion) describing how the proposed Federal action would affect a Federally-listed species or critical habitat. The Secretary issues this Opinion after reviewing a BA and consulting as the Federal agency on the proposed action's impacts on the species. If the Secretary issues a Jeopardy Opinion, FAA cannot approve the action. In such cases, FAA can do so only if the airport sponsor changes the action enough to allow the Secretary to issue a No Jeopardy/Adverse Modification Opinion or obtains an exemption from the Endangered Species Committee.	FWS or NMFS
16 USC Section 1536(c), also known as Section 7(c)	Requires Federal agencies to request information from the Secretary on the presence of any Federally-protected species or critical habitat that may be near the proposed action.	FWS or NMFS
16 USC Section 1536(d), also known as Section 7(d)	Prevents a Federal agency or applicant seeking Federal approval from irreversibly or irretrievably committing resources that would effectively foreclose using reasonable and prudent alternatives. Such alternatives would avoid jeopardizing the continued existence of Federally-listed species or adversely modifying their critical habitats.	FWS or NMFS
50 CFR Part 402, Interagency Cooperation	Provides the procedures for agency coordination under Section 7 of the ESA, as amended.	FWS or NMFS

Note: FWS or NMFS critical habitat designations do not create wilderness areas, wildlife preserves, or wildlife refuges for purposes of 49 USC Section 303 (Section 4(f) of the U.S. Department of Transportation [DOT] Act) nor close the area to human access. Under the ESA, FAA approved or financed actions may occur in those habitats, provided the actions do not jeopardize the protected species' existence or the Secretary issues an exemption under 50 CFR Section 453.

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. Airport actions needing ESA compliance. The activities discussed below require FAA approval of an Airport Layout Plan (ALP) or a change to an ALP, or approval of financing for airport development. Compliance with the ESA is needed for these actions if the

responsible FAA official or Service Director determines the actions may affect Federally-listed endangered or threatened species or their critical habitats.

(1) Applying the ESA to a proposed action. To determine if the project's affected area contains any Federally-listed species or critical habitat, the responsible FAA official or FAA's non-Federal designee should review the list of Federally-designated endangered and threatened species it compiles or that the FWS or the NMFS, as appropriate, provides.

(2) Major construction actions causing direct impacts. Section 1.b.(1) of this chapter defines the types of activities the ESA would address. For airport actions, these activities normally include: airside development such as a new airport, a new or expanded terminal or hangar, a new or extended runway or taxiway, or installing navigational aids (NAVAIDS) Landside activities include building a new access road or moving one, a remote parking facility, or rental car lots.

(3) No species or critical habitat present. If a careful review suggests a project-affected area would not involve a Federally-listed species or its critical habitat, the environmental document should state that fact. Further consultation with either FWS or NMFS under the ESA is not needed, but consultation may be required for Biotic Resources the ESA does not protect (See Chapter 2 of this Desk Reference).

b. State-listed endangered or threatened species. Some airport actions do not affect Federally-listed species or their critical habitats, but they may affect state-listed endangered or threatened species. Although the ESA does not protect state-protected species or habitats, the responsible FAA official must ensure the environmental documents prepared for such airport actions address effects on state-protected resources. Chapter 2 of this Desk Reference provides more information.

4. PERMITS, CERTIFICATIONS, AND APPROVALS.

a. Sponsor-prepared correspondence. If an airport sponsor believes its proposed action may affect a Federally-listed species or critical habitat, the airport sponsor may request that FAA start early consultation with the Service Director. In this instance, the airport sponsor must certify in writing to FAA that it:

(1) has a definitive proposal outlining the action and its effects; and

(2) intends to implement its proposal, if authorized. (50 CFR Section 402.11(b)).

b. FAA-prepared correspondence. Usually, FAA must prepare the documents discussed below. This Desk Reference also provides information below and in sections 4.b.(4) and (5) of this chapter to help the responsible FAA official prepare the documents that are not normally needed, but that ESA regulations require for specific situations. The

responsible FAA official should review the following information to determine if it applies to the proposed action.

(1) Letter seeking the start of early consultation. The airport sponsor may request early consultation when it has reason to believe the action may affect Federally-listed species or critical habitat (see section 5.a.(1) of this chapter). To start this process, the responsible FAA official must prepare a letter to the Service Director seeking the start of early consultation. The letter must contain the information noted in section 4.a. of this chapter (50 CFR Sections 402.11(b) and (c)).

(2) Letter requesting information on Federally-listed or candidate species or critical habitat. This letter helps to determine if Federally-listed or candidate species or their critical or proposed habitats are in the project's affected area. FAA, or its non-Federal designee, must prepare the letter to the Service Director seeking the above information (50 CFR Section 402.12(c); see section 4.b.(4)) of this chapter).

(3) Letter requesting the start of formal consultation. FAA must prepare this letter to the Service Director requesting the start of formal consultation. FAA sends this letter after the BA is prepared and the FAA itself, or in consultation with the Service Director, determines whether the action would likely affect a Federally-listed species or alter critical habitat (50 CFR Section 402.14(c)). The letter must provide the following information pursuant to 50 CFR Sections 402.14(c)(1)-(6):

(a) a description of the major construction action FAA will consider;

(b) a description of the specific area the action may affect;

(c) a description of any Federally-listed species or critical habitat the action may affect;

(d) a description of the manner in which the action may affect any Federally-listed species or critical habitat and an analysis of any cumulative effects;

(e) any existing, relevant reports, including environmental impact statements, environmental assessments, or BAs or other information sources on the species; and

(f) any other relevant available information on the action, the affected listed species, or critical habitat.

(4) Letter notifying the Service Director of a non-Federal designee. If FAA decides to use a non-Federal designee to conduct *informal* consultation or to prepare the BA, FAA must prepare a letter to the Service Director giving notice of that decision. The letter must identify the non-Federal designee. If the airport sponsor is not the designee, FAA and the airport sponsor will select a consultant. When a designee will prepare a BA, the responsible FAA official must:

(a) provide guidance and supervision in preparing the BA;

(b) independently review and evaluate the BA's scope and content; and

(c) accept responsibility for compliance with Section 7 of the ESA (50 CFR Section 402.08).

(5) Letter notifying either FWS or NMFS of lead agency designation. When a proposed action involves more than one Federal agency, a designated lead agency may fulfill the required consultation or conference requirements. In this case, FAA and the other Federal agency(ies) will designate the agency that will meet those requirements. When FAA is the designated agency responsible for complying with the ESA, it must provide written notice to the Service Director. The notice must state that FAA is the designated lead agency for ESA purposes. In making this decision, FAA and the other Federal agency(ies) must consider the time sequence of agency involvement in the action, the magnitude of the agency's involvement, and the agency's relative expertise with respect to the action's environmental effects (50 CFR Section 402.07).

(6) FAA comments on the Service Director's draft biological Opinion. If FAA chooses to comment on the Service Director's draft Opinion, it may do so by filing a written request with the Service Director. The filing must occur at least 10 days before the end of the 45-day period the Service Director has to prepare the Opinion (see section 4.c.(4) of this chapter). Although FAA may review the entire Opinion, it may file comments addressing only the reasonable and prudent alternatives the Service Director proposes in the draft Opinion. If FAA submits comments on the draft Opinion within 10 days of the deadline, the Service Director is automatically entitled to a 10-day extension to the 45-day period the Service Director has to prepare the draft Opinion (50 CFR Section 402.14(g)(5)).

(7) Notifying the Service Director of FAA's final decision on an action. If the Service Director's Opinion states an action would jeopardize the continued existence of a Federally-listed species or adversely modify critical habitat, FAA must notify the Service Director of its final decision on an action. However, before making that decision, the airport sponsor and FAA should review the Opinion. This review is needed to determine if the airport sponsor will accept those requirements the Service Director deems necessary to avoid jeopardizing the affected Federally-listed species or critical habitat. If, after consulting with FWS or NMFS and FAA, the airport sponsor determines it cannot meet the requirements, FAA may notify the Service Director of the airport sponsor's desire to apply for an exemption under 50 CFR Part 453 (50 CFR Section 402.15).

c. Service Director documents. The Service Director must prepare certain documents in addition to those the airport sponsor or FAA prepares. The responsible FAA official must ensure the environmental document prepared for an action contains the appropriate correspondence record.

(1) Letter addressing the presence of Federally-listed or candidate species or critical habitats. The Service Director must send a letter to FAA or its non-Federal designee in reply to a request for information on Federally-listed or candidate species or designated or critical habitat that may be in the project area. The Service Director must respond within 30 days after receiving the notification of, or the request for, a species list (50 CFR Section 402.12(d)). When FAA or the airport sponsor provides a list, the Service Director shall either concur with or revise the list. When no list has been provided, the Service Director must provide written information to FAA or its non-Federal designee stating if species or critical habitats are present in the project area. In deciding if the species or habitats are present, the Service Director will use the best scientific and commercial data available (50 CFR Section 402.12(d)).

(2) Letter discussing the presence of candidate species. The ESA does not protect candidate species, but the Service Director often provides information on them. The Service Director does this to alert FAA and the airport sponsor that there is a chance the candidate species may be listed before the airport sponsor finishes the proposed project. It also tells FAA and the airport sponsor that FAA's continued oversight of the project requires FAA to meet ESA requirements if the candidate species is later listed as a Federally-protected species (50 CFR Section 402.10(d)).

(3) Service Director comments on a BA. The Service Director will provide written concurrence or non-concurrence with the findings presented in the BA. The Service Director must do so within 30 days after receiving the BA from FAA (50 CFR Section 402.12(j)).

(4) The biological Opinion. Based on information in the BA and other sources, the Service Director issues this Opinion. It provides the Service Director's findings regarding the severity of project-induced impacts on a Federally-listed species or critical habitat.

(a) The Service Director will issue a No Jeopardy Opinion or a Jeopardy Opinion within 45 days after the 90-day formal consultation period ends. The Opinion will:

(1) summarize the information on which the Service Director bases the Opinion;

(2) provide a detailed discussion of the action's impacts on Federally-listed species or critical habitat; and

(3) clearly state if the action is likely to jeopardize the continued existence of a Federally-listed species or destroy or adversely modify any critical habitat (50 CFR Sections 402.14(g)(5) and (h)).

(b) The 45-day Opinion preparation period may not be extended, unless FAA obtains the written consent of the airport sponsor to do so, or FAA or the airport sponsor submits written comments on the draft Opinion. When comments are submitted, a 10-day

extension period automatically occurs. FWS or NMFS may not issue its Opinion during the period FAA or the airport sponsor are reviewing the draft Opinion (50 CFR Section 402(g)(5)).

(c) The airport sponsor may request a copy of the draft Opinion from FAA, and submit its comments on the draft Opinion through FAA.

d. No Jeopardy Opinion. This Opinion means the Service Director determined that the action would not likely jeopardize the continued existence of a listed species or destroy or adverse modify critical habitat. Issuance of this Opinion ends the ESA process. The action may proceed, provided it would not cause an incidental take of protected species (50 CFR Section 402.14(h)(3); see section 4.f. of this Chapter).

e. Jeopardy Opinion. FWS or NMFS issues this Opinion if an action would jeopardize a Federally-listed species (50 CFR Section 402.14(h)(3)). "Jeopardizing a species" means the action would directly or indirectly reduce the likelihood of a species' survival and recovery (i.e., reduces the species' reproductive success, numbers, or distribution).

(1) In addition to the information noted in sections 4.c(4)(a)(1)-(3) of this chapter, the Jeopardy Opinion will contain conservation recommendations to help reduce or eliminate the proposed action's effects on a listed species or critical habitat. The Opinion will also contain recommended reasonable and prudent alternatives. These alternatives will consider:

(a) changes in project design;

(b) changes in construction schedules to avoid animal breeding seasons; and/or

(c) extra research or other measures to minimize adverse impacts on the Federally-protected species or habitat.

(2) In evaluating these alternatives, FWS or NMFS will consult FAA or the airport sponsor. If requested, FWS or NMFS will make the Opinion available to FAA so it may analyze the reasonable and prudent alternatives. If, after this review, no alternative is available, the Service Director will state to the best of his or her knowledge no reasonable and prudent alternative is known.

f. Incidental Take Statement (Statement). The ESA does not ban a taking if an airport sponsor complies with the Statement's conditions. Therefore, the Service Director issues this Statement when unintentional takings would not jeopardize the species' existence (50 CFR Section 402.14(i)). To ensure the incidental take does not jeopardize the species, the Service Director will issue this Statement with an Opinion. If the Service Director issues an Incidental Take Statement allowing unintentional taking or accidental killing, the airport sponsor *must* adhere to the Statement's terms and conditions. FAA must

include the Statement's conditions in any approvals or grants. The Service Director will include conditions in the Statement specifying:

(1) the allowable amount or extent of such incidental take of the species;

(2) those reasonable and prudent measures the Service Director considers necessary or appropriate to minimize the impact of that taking;

(3) the terms and conditions the airport sponsor must follow, including, but not limited to reporting requirements needed to implement the measures mentioned in section 4.f.(2) of this chapter; and

(4) the procedures that will be used to handle or dispose of any individuals of a species taken (50 CFR Section 402.14(i)).

5. REGULATORY COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. Types of consultation. FWS or NMFS, FAA, and/or the airport sponsor or its consultant (as non-Federal representatives) participate in the consultation. The following sections describe the various types of consultation and who is responsible for completing each. The consultation depends on the status of the affected species or habitat and the severity of impacts.

(1) Early consultation. This is an optional process an airport sponsor may choose when it has information indicating an action may affect Federally-listed species or critical habitat (50 CFR Section 402.11(b)). Here, the airport sponsor must:

(a) provide FAA with written certification that the airport sponsor intends to carry out the proposed action;

(b) provide an outline of the action and its effects on the protected species or habitat; and

(c) request that FAA begin early consultation with either the FWS or the NMFS.

FAA must make a written request to either FWS or NMFS seeking this consultation. That request must include the above information and a BA when the airport sponsor proposes a major construction action. Then, FAA would begin consulting with the Service Director to address the proposed action's potential effects on Federally-listed species or their critical habitat (50 CFR Section 402.11 (c)).

(2) Informal consultation. Informal consultation is another optional process. It includes all discussions, correspondence, or other information between the Service Director, FAA, or a non-Federal designee. Informal consultation is designed to help FAA determine if

formal consultation or a conference is needed. The informal consultation also provides an opportunity for the Service Director to recommend changes or modifications to the action that FAA and the airport sponsor could implement to avoid the likelihood of adverse effects to the Federally-listed species or critical habitat (50 CFR Section 402.13). Informal consultation may end if either of the following occurs:

(a) If the responsible FAA official determines the action is unlikely to adversely affect Federally-listed species or critical habitat. If the Service Director concurs, no further FAA responsibilities under the ESA are required (50 CFR Section 402.13(a)). At this stage, the Service Director may also suggest modifications to the action that an applicant could implement to avoid the likelihood of adverse effects to listed species or critical habitat (50 CFR Section 402.13(b)).

(b) If, during this consultation or the review of the BA, the responsible FAA official or the Service Director determines the action may affect Federally-listed species or designated critical habitat, formal consultation is necessary (50 CFR Section 402.14(b)(1)).

(3) Formal consultation. An action that may affect a Federally-listed species or adversely modify critical habitat triggers formal consultation. Therefore, FAA must review its actions at the earliest possible time. If the responsible FAA official determines an action may affect a protected species or critical habitat, FAA may begin formal consultation without first completing informal consultation. During formal consultation, the Service Director determines if an action's effects would jeopardize the Federally-listed species' continued existence or adversely change its critical habitat. To do so, the Service Director, FAA, and the airport sponsor work cooperatively to determine if any reasonable and prudent alternatives would allow the action to occur without jeopardizing the species' existence or adversely changing critical habitat (50 CFR Sections 402.14(a) and (b)). Within 45 days after concluding formal consultation, the Service Director will deliver a biological Opinion to FAA and the airport sponsor.

(a) When formal consultation is not needed. Formal consultation is not needed if either of the following conditions occurs:

(1) FAA determines, and the Service Director provides written concurrence, that informal consultation or the BA indicates the proposed action is not likely to adversely affect any Federally-listed species or critical habitat (50 CFR Section 402.14(b)(1)); or

(2) a preliminary biological Opinion issued after early consultation is confirmed as the final biological Opinion (50 CFR Section 402.14(b)(2)).

(b) Starting formal consultation. To begin this 90-day process, FAA must make a written request to the Service Director. For major construction actions, FAA may not file this request until it has reviewed the completed BA and sent it to the Service Director.

Note the Service Director may require formal consultation when no consultation has occurred for actions that may affect a Federally-listed species or critical habitat. In this case, the Service Director must file a written request with FAA explaining why formal consultation is necessary (50 CFR Sections 402.14(b)(2) and (c)).

(c) Extending formal consultation. Normally, formal consultation concludes within a 90-day period. However, that 90-day period may be extended for various reasons, including a Service Director's determination that more data would provide a better basis for preparing the biological Opinion.

(1) Actions involving only FAA and the FWS or the NMFS. Here, FAA and the Service Director may mutually agree to extend the consultation for a specified period.

(2) Actions involving an airport sponsor, FAA, and the FWS or the NMFS. In these instances formal consultation cannot be extended more than 60 days without the airport sponsor's consent. The Service Director will provide the airport sponsor a written statement describing the:

(a) reasons why a longer period is required;

(b) information that is required to complete the consultation; and

(c) the estimated date on which the consultation will be completed.

Note: If more information is needed, but FAA and the Service Director cannot agree on the duration of an extended period needed to obtain the data, the Service Director will develop a biological Opinion based on the best scientific and commercial data available at the time the Service Director prepares the Opinion.

(d) Terminating formal consultation. Usually, formal consultation ends when the Service Director issues the biological Opinion (i.e., typically within 45 days after FAA and the Service Director conclude formal consultation). However, FAA may end formal consultation if it determines:

(1) the proposed action is unlikely to occur; or

(2) the proposed action is unlikely to adversely affect a Federally-listed species or critical habitat, and the Service Director concurs with that determination.

In either case, FAA must provide written notice to the Service Director that it wishes to terminate formal consultation (50 CFR Section 402.14(l)).

(e) Re-initiating formal consultation. Re-initiating formal consultation is *required* and will be requested by FAA or the Service Director where FAA retains discretionary involvement over the action, or where it is authorized by law to do so if:

(1) the airport sponsor exceeds the amount or extent of the taking specified in the Incidental Take Statement;

(2) new information reveals an action's impacts may affect a Federally-listed species or critical habitat in a manner or to an extent not previously considered;

(3) the identified action is subsequently modified in a manner that causes an effect to the Federally-listed species or critical habitat that was not considered in the biological Opinion; or

(4) the identified action may affect a newly-listed species or newly-designated critical habitat (50 CFR Section 402.16).

b. Consultation requirements for actions involving candidate species or proposed critical habitat. If the Service Director informs FAA that only candidate species or proposed critical habitat may be present in the project area, a BA is not needed. Still, there may be a need to confer with the Service Director. This informal conference helps the Service Director, FAA, and the airport sponsor identify potential conflicts between the action and a candidate species or proposed critical habitat early in project planning. The conference gives the Service Director an opportunity to make advisory recommendations. These may help to minimize or avoid adverse effects that, if not mitigated, could jeopardize the candidate species' continued existence or destroy or adversely modify proposed critical habitat (50 CFR Sections 402.10 and 402.12(d)(1)).

Note: Describe impacts to candidate species in the environmental document's Biotic Resources chapter, not in the chapter on Federally-listed endangered and threatened species. Document preparers should include a note in the document's Federally-listed Endangered and Threatened Species chapter that the Biotic Resources chapter contains information on candidate species or proposed critical habitat. See Chapter 2 of this Desk Reference.

(1) Determining the need for a conference. To decide if an action warrants a conference, the responsible FAA official must decide if the proposed action would likely jeopardize the continued existence of any candidate species or cause the destruction or adverse modification of the proposed critical habitat.

(a) If the official determines the action is unlikely to jeopardize a candidate species or its habitat, FAA must notify the Service Director of that determination. In this instance, a conference is not needed, unless the Service Director requests one after reviewing FAA's decision and other available information.

(b) If the official determines the action is likely to jeopardize the candidate species or adversely modify proposed critical habitat, FAA should begin a conference with the Service Director. Sponsors should be involved in these conferences to the greatest extent practicable (50 CFR Section 402.10(c)).

(2) **Consultation requirements if a candidate species is later Federally-listed.** Sometimes, before an airport sponsor completes an action, FWS or NMFS lists a candidate species as a Federal endangered or threatened species or determines its habitat is designated critical habitat. In either instance, FAA *must* review the action to determine if formal consultation is needed (see section 5.a.(3) of this chapter).

6. DETERMINING IMPACTS. If information indicates that a major construction activity may affect Federally-listed endangered or threatened species or critical habitat, the responsible FAA official must ensure that a BA is prepared and completed before a construction contract is signed and construction begins (50 CFR Section 402.12(b)(2)).

a. The BA. FAA and the Service Director use the BA:

(1) to discuss the species present in the area of a major construction activity, the severity of the activity's impacts on the species or critical habitat, and measures that may be needed to protect the species or habitat; and

(2) to determine if formal consultation is needed.

b. When a BA is unnecessary. No BA is needed when a major construction activity involves any of the following:

(1) The Service Director tells FAA or the non-Federal designee that no known Federally-listed species or critical habitat occurs in the action's impact area;

(2) A Federally-listed species or critical habitat is in the action's impact area, but the action would not disturb land or water;

(3) The Service Director tells FAA or the non-Federal designee that only candidate species or proposed critical habitat occur in the action's impact area; or

(4) If conditions (1) or (3) occur, consultation with the Service Director may be needed. The consultation keeps FAA aware of the status of species or critical habitat. It also ensures that the FAA fulfills its responsibilities regarding Federally-listed species or critical habitat, should the candidate species or habitat be listed or designated during an action's environmental review process (50 CFR Section 402.12(d)(1)).

c. Preparing the BA. The BA must provide the Service Director with the best scientific and commercial data available during the consultation period. The information may include results of FAA, airport sponsor, or consultant conducted studies.

(1) To prevent delays in completing an action's overall environmental review process and ESA Section 7 compliance, the BA should be completed while the NEPA document is being prepared. This allows FAA to use the information in the BA during the NEPA process to determine if a major construction activity would significantly affect a

protected species or its critical habitat. It also helps to streamline the overall environmental review process.

(2) If a non-Federal designee prepares the BA, FAA must provide guidance and supervise the document's preparation because FAA is responsible for BA content (50 CFR Section 402.08). Therefore, the responsible FAA official must independently review the completed version.

(3) The BA should include information on candidate species *only* if they are found with Federally-listed species (50 CFR Section 402.12).

d. BA contents. The responsible FAA official may use discretion to determine the BA's content. For example, the official must consider the nature of the proposed action and any concerns the Service Director has noted. As appropriate, the FAA official should include some or all of the following information in the BA:

(1) the results of an on-site inspection of the project-affected area to determine the presence (including seasonal occupancy or use) of Federally-listed species or critical habitat;

(2) the views of recognized experts regarding the species of concern;

(3) a review of the literature and other information regarding the species of concern;

(4) an analysis of the action's effects on the species or habitat of concern, including consideration of cumulative effects, and the results of any related studies; and

(5) an analysis of alternate actions the FAA considered for the proposed action (50 CFR Section 402.12.(f)).

e. BA completion date. FAA or the designated non-Federal representative must complete the BA within 180 days after preparation of that document begins (i.e., receipt of or concurrence with the species list), unless the Service Director and FAA agree to a different period of time. FAA and the Service Director may extend this 180-day period, but before doing so, FAA must provide the airport sponsor a written statement. The statement must specify the proposed extension's estimated length and the reasons why the extension is needed. FAA must provide this letter to the airport sponsor before the 180-day period ends (50 CFR Section 402.12(i)).

f. Sending the BA to the Service Director. FAA must submit the BA to the Service Director for review. The Service Director will respond to FAA in writing within 30 days. That response will note if the Service Director concurs with the findings of the BA. FAA has the option of starting formal consultation concurrently with the submission of the BA (50 CFR Section 402.12(j)).

g. How FAA uses the BA. The responsible FAA official uses the BA to determine the degree to which a proposed major construction activity may affect a Federally-listed species or critical habitat. Based on that information, the official will determine whether formal consultation or a conference is required under 50 CFR Sections 402.14 or 402.10, respectively. Note that the Service Director must subsequently concur with the responsible FAA official's opinion about the need for formal consultation.

(1) No species listed or critical habitat. If a BA indicates there are no listed species or critical habitat present in the area, or it is unlikely that major construction activity would cause adverse effects, the responsible FAA official may recommend to the Service Director that no formal consultation is needed.

(2) No adverse effects. If a BA suggests that it is unlikely that the activity would cause adverse effects on a Federally-listed species or designated critical habitat, the responsible FAA official may recommend to the Service Director that no formal consultation is needed.

(3) Jeopardizing a candidate species. If a BA suggests the activity would not adversely affect a Federally-listed species or designated critical habitat, but it is likely to jeopardize candidate species or habitat important to that species, the responsible FAA official may recommend to the Service Director that no formal consultation is required. However, a conference may be needed to discuss project effects on candidate species.

g. How the FWS or NMFS uses the BA. The Service Director uses the BA:

(1) to determine if FAA should start formal consultation;

(2) as the basis for a biological Opinion; or

(3) as a basis for a preliminary biological Opinion (50 CFR Section 402.12.(k)(2)).

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. After completing the BA and the consultation process discussed earlier in this chapter, the responsible FAA official should consider the following factors in consultation with FWS or NMFS personnel to determine the degree of impact on Federally-listed species or their critical habitats.

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When the FWS or NMFS determines a proposed action would likely jeopardize a species' continued existence or destroy or modify a species' critical habitat.	The responsible FAA official should consider the information in the biological assessment prepared for the action and all of the information gleaned during the Section 7 consultation process discussed in this chapter. Based on that information, the official should consider the following factors: • *Critical habitat area*: Would sufficient critical habitat area remain in the project area to sustain the protected species? • *Reasonable and prudent alternatives:* Determine if any reasonable and prudent alternative exists that would then reduce adverse effects on the protected species or critical habitat. • *Agency input:* Use the expertise of FWS or NMFS personnel to help determine impact severity.

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. FWS or NMFS normally provide letters addressing effects on Federally-protected species or critical habitat. To meet ESA requirements efficiently and effectively during the environmental review process, FAA would use input from the appropriate Service Director to develop mitigation for impacts on protected species. An appendix to the environmental document should include copies of the FWS or the NMFS letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If FAA or the sponsor does not adopt any recommended reasonable or prudent alternative or mitigation, the environmental document should clearly explain why the recommendation was not adopted. Based on the level of effect, determine those measure(s) or action(s) that would lessen harm to the species or critical habitat. Note that each affected Federally-listed species or critical habitat may require a separate strategy. Examples of measures that may be considered include the following, provided they do not promote increases in populations of species hazardous to aviation:

(1) improving existing habitat;

(2) creating new habitat;

(3) buying private lands for preservation and management; and

(4) moving the protected species.

If feasible, provide an estimated schedule for undertaking accepted mitigation.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. When the responsible FAA official determines that the project effects meet or exceed the significant impact threshold and mitigation would not reduce those effects below the threshold, FAA must prepare an EIS to address these effects. In this instance, FAA may wish to request that the FWS or the NMFS, as appropriate, participate as a cooperating agency due to their respective expertise and jurisdiction regarding Federally-listed endangered or threatened species and critical habitats. Besides the information the BA contains, the EIS must provide the following material, as appropriate.

b. Added or expanded studies. These include results of any additional biological studies that would provide more information to enable the Service Director to modify his/her biological Opinion. The environmental document may incorporate a biological assessment by reference for an action that is very similar to the proposed action (50 Section 402.12(g)). When doing so, the responsible FAA official should provide a written certification that:

(1) the proposed action involves similar impacts to the same species and the same geographic area;

(2) No new species have been listed or proposed or no new critical habitat designated or proposed for the action area; and

(3) FAA has supplemented the biological assessment with relevant changes in information.

c. Mitigation. The EIS should describe proposed mitigation FWS or NMFS provide. FAA and the airport sponsor should fully consider the mitigation and balance its benefits against those of the proposed action. The EIS should include any project changes, reasonable and prudent alternatives, or mitigation measures not previously considered that would reduce adverse impacts and prevent jeopardizing the Federally-listed species or destroying or modifying critical habitat. It should explain why the sponsor or FAA did not adopt any mitigation FWS or NMFS recommends. If feasible, the EIS should provide an estimated schedule for completing accepted mitigation.

d. Exemption. If the airport sponsor wishes to use this provision, the EIS should include a statement from the airport sponsor (or FAA on the airport sponsor's behalf). The statement should indicate that the sponsor will request an exemption to Section 7(g) of the ESA. See 50 CFR Part 451 for more information on this rarely used provision.

CHAPTER 9. ENERGY SUPPLY, NATURAL RESOURCES, AND SUSTAINABLE DESIGN

1. INTRODUCTION. Airport development actions have the potential to change energy requirements or use consumable natural resources. To comply with the Council on Environmental Quality (CEQ) regulations mentioned in Section 2 of this chapter, Federal Aviation Administration (FAA) environmental documents must evaluate potential impacts on supplies of energy and natural resources needed to build and maintain airports. FAA policy supports developments displaying environmental sustainability.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
40 Code of Federal Regulations (CFR) 1502.16(e) and (f)	When reviewing the environmental effects of a proposed action and its reasonable alternatives assess each alternative's energy requirements, energy conservation, and the use of natural or consumable resources. Mitigation must also address needed mitigation measures.	CEQ
Executive Order 13123, *Greening the Government Through Efficient Energy Management* (64 Federal Register 30851, dated June 8, 1999)	Encourages each Federal agency to expand the use of renewable energy in its facilities and for its actions.	FAA

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. FAA must evaluate any airport development action subject to FAA approval or funding under the Airport Improvement Program (AIP) to determine if the proposed action would cause significant impacts on energy supplies or natural resources. Typical actions that could cause such impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, airfield lighting, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or moved access roadways, remote parking facilities and rental car lots; significant changes in air traffic and airfield operations; and significant construction activity.

b. FAA should study how the action sponsor proposes to conserve resources, use pollution prevention, minimize aesthetic effects, and address public (both local and traveling) sensitivity to these concerns. This approach satisfies National Environmental Policy Act of 1969, as amended (NEPA). NEPA requires agencies to…"use a systematic interdisciplinary approach, which will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making."

4. PERMITS, CERTIFICATIONS, AND APPROVALS. FAA does not require permits or certifications for these resources. However, FAA environmental documents should contain letters or other documents from local public utilities and suppliers addressing their capacities to provide energy and resources to build and operate the action.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS. Typically, local agencies or businesses may have information on available energy supplies and consumable natural resources. When preparing an environmental document, consultation with the following entities may be helpful:

a. Local utility companies may be sources of information on available and planned electrical, natural gas, water, and sewage capacities.

b. If unusual, fuel-consuming construction or operational circumstances are expected, local suppliers of consumable construction materials and aircraft or ground vehicle fuels may be valuable sources for information concerning the materials or fuels.

c. State or local agencies responsible for enforcing local rules, ordinances, or guidelines may have information on sustainability measures.

6. DETERMINING IMPACTS.

a. General. To determine action-related impacts on energy supplies and consumable natural resources, the environmental document should contain the following information, as needed:

(1) Utility impacts. Proposed major changes in stationary facilities may require large demands on local existing or planned utilities. Examples utility impacts include projected airport or terminal lighting or heating demands or water supply for terminal-related water usage and sewage disposal.

(2) Consumable materials. If scarce or unusual materials are needed to build the proposed action or a reasonable alternative, estimate the volumes of consumable construction material and their availability from local suppliers.

(3) Aircraft fuel consumption. The environmental document should discuss how proposed changes would affect existing aircraft fuel use.

(a) Would ground movement or run-up times for aircraft increase substantially without matching increases in operational efficiency? If yes, estimate increased aircraft fuel consumption.

(b) If flight changes incorporated for action-induce noise abatement purposes noticeably increase flight times, provide estimates of increased aircraft fuel consumption.

(c) If the action would substantially increase aircraft operations, (i.e. siting a new hub operation or a new air carrier or air cargo service) provide estimates of increased fuel consumption for operations related to the action.

(d) If the action would substantially increase the number of on-airport service vehicles or substantially alter the time needed for the existing service fleet to arrive at gates, provide estimates of increased fuel consumption these vehicles would cause.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. After completing the consultation and analyses discussed above, use the significance threshold in column 1 of the following table. Consider factors in column 2 when determining if an action meets a threshold. The responsible FAA official should consider the following factors in consultation with agencies having special expertise on energy or natural resources, or sustainability.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
When an action's construction, operation, or maintenance would cause demands that would exceed available or future (project year) natural resource or energy supplies.	• The action would cause a substantial demand on available energy or natural resource supplies. • When compared to future no action conditions, changes in aircraft movements or ground vehicle use would cause a statistically significant increase in fuel consumption. • Consumable natural resources necessary for construction are rare. • The action would not be consistent with smart growth requirements of the agency having jurisdiction over the area where the airport is located.

From Table 7-1, FAA Order 5050.4B.

b. Potential mitigation measures. During the environmental review process, local agencies or businesses may provide letters or information on energy or natural resource supplies or sustainability measures. Those letters may include recommendations to mitigate impacts. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If the sponsor or FAA does not adopt any recommended

mitigation, the environmental document should explain clearly why the recommendation was not adopted. Examples of mitigation measures may include:

(1) airfield design improvements that provide efficient aircraft operations;

(2) ground access improvements;

(3) energy and resource conservation designs;

(4) electric ground support equipment (GSE); or

(5) sustainability measures (skylights, energy conservation plans, solar heating or electricity, or using drought-resistant landscaping that will not attract wildlife hazardous to aviation (see FAA Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants on and near Airports)*.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. If the action's impacts exceed the significance threshold for this resource category, FAA may need to prepare an EIS. If it does, FAA should invite the Department of Energy (DOE) to become a cooperating agency during the NEPA process due to DOE's expertise on energy and consumable natural resources. DOE can aid FAA in determining if any added analyses are needed or determining the severity of action-induced energy or consumable resource impacts.

b. Information. Besides the information discussed previously, the EIS should contain the following as appropriate:

(1) any additional information needed to fully explain impact severity;

(2) information verifying coordination with DOE and other interested parties occurred; or

(3) a discussion of measures the sponsor will use to mitigate impacts (e.g., more efficient airfield design and operations, improved ground access, using renewable resources, etc.) not previously considered.

c. Mitigation. The EIS should describe proposed mitigation when agencies having expertise in energy, natural resource supply, or sustainable design issues provide that information. FAA or the sponsor should fully consider the mitigation and balance its benefits against those of the proposed action.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that environmental consequences have been fairly evaluated (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106 (c)(1)(B),

FAA may not approve a Federal funding for major airport development projects, unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203(b)(4). The EIS must discuss and adopt mitigation measures recommended by agencies having expertise in energy, natural resource supply, or sustainable design sciences in accordance with NEPA and 49 USC Section 47106(c)(1)(B). If feasible, provide an estimated schedule for undertaking accepted mitigation.

CHAPTER 11. FARMLANDS

1. INTRODUCTION AND DEFINITIONS.

a. General. Important farmlands include all pasturelands, croplands, and forests (even if zoned for development) considered to be prime, unique, or statewide or locally important lands as defined below:

(1) Prime farmland. This is land having the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimal use of fuel, fertilizer, pesticides, or products.

(2) Unique farmland. This is land used for producing high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture necessary to produce high quality crops or high yields of them economically.

(3) Statewide and locally important farmland. This is land that has been designated as "important" by either a state government (State Secretary of Agriculture or higher office) or by county commissioners or an equivalent elected body. The State Conservationist representing the Natural Resource Conservation Service (NRCS)[1] must agree with the designation.

b. Important farmland designations. NRCS has the final authority for designating important farmlands and keeps lists of important farmlands for each state. Usually, the lands are defined by their soil types, but sometimes, the designations are made independent of soil types. Instead they are mapped according to existing ground cover and use.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

The Farmland Protection Policy Act (FPPA) of 1984 (7 USC Sections 4201-4209) as amended, provides the statutory framework for considering important farmlands in Federal decisions.).

APPLICABLE STATUTE AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Farmland Protection Policy Act (FPPA), 7 USC 4201-4209 as amended by section 1255 of the Food Security Act of 1985, 16 USC 3801-3862	The FPPA regulates actions with the potential to convert existing important farmlands to non-agricultural uses.	NRCS
7 CFR Part 657, Prime and Unique Farmlands	Defines the purpose, general policy, and applicability of FPPA and provides guidelines for identifying important farmlands.	NRCS
7 CFR Part 658, Farmland Protection Policy	Provides guidelines for using FPPA criteria; lists the criteria and identifies how Federal agencies can seek NRCS assistance through	NRCS

[1] NRCS is an agency in the U.S. Department of Agriculture (USDA).

	formal consultation.	

APPLICABLE STATUTE AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Council on Environmental Quality's (CEQ) Memorandum on Analysis of impacts on Prime and Unique Agricultural Lands in Implementing the National Environmental Policy Act (NEPA). See 45 Federal Register 59189	CEQ sought information on existing and proposed regulations or directives the agency would use to preserve or mitigate effects of agency actions on prime and unique farmlands. CEQ also requested information on actions that would likely have significant impacts on these farmlands. Lastly, CEQ requested the names of officials responsible for carrying out an agency's agricultural land policies.	NRCS

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. Any airport development action funded under the Airport Improvement Program (AIP) or subject to FAA approval that would permanently convert an existing designated important farmland to a non-agricultural use is subject to FPPA coordination. Typical actions, which could involve such coordination include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, airfield lighting, navigational aids, NAVAIDS, etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities, and rental car lots, and any other actions that would result in important farmland conversion. FPPA does not apply to land already committed to "urban development or water storage" (i.e., airport developed areas), regardless of its importance as defined by NRCS. Therefore, when evaluating potential impacts on farmlands, evaluate only those areas designated as important and that are in active agricultural use or not yet developed.

4. PERMITS, CERTIFICATIONS, AND APPROVALS. Evidence of proper compliance under FPPA requires receiving a completed Farmland Conversion Impact Rating Form (AD-1006) or a completed Land Evaluation Site Assessment (LESA), if applicable. Either document must provide the numerical score of the proposed action as determined by an appropriate representative of the NRCS or state government. Sections 6 and 7 of this chapter provide more information on this form and its score.

5. ENVIRONMENTAL COMPLIANCE PROCEURES - ENVIRONMENTAL ANALYSIS. Airport development projects that would convert important farmland must be coordinated with the local NRCS field office. Consultation procedures involve the sponsors' preparation of appropriate portions of a USDA Farmland Conversion Impact Rating Form AD-1006 and submission to the NRCS field office for completion. Form AD-1006 contains a scoring system to determine the significance of potential project impacts. Scoring information should be supplied for each project alternative, if the alternative would involve important farmland.

6. DETERMINING IMPACTS.

a. Completing Form AD 1006. The sponsor, acting on FAA's behalf, should complete the section of Form AD 1006 labeled, "To be completed by the Federal Agency." Besides completing Parts I and III, include a location map. The map should show the proposed action and/or any reasonable alternative involving important farmland. Include information about the proposed action in Part III under "Site A." As necessary, place information about reasonable alternatives under "Site B," "Site C," etc. The sponsor should send the Form to the appropriate NRCS office.

b. NRCS Input. After receiving the sponsor's input to Form AD 1006, NRCS will provide "relative value" scores for sites under consideration. Scores range from 0 to 100 and represent the site's value for agricultural production. NRCS will complete Parts IV and V of the form. NRCS must respond to the sponsor within 10 days of receiving the Form, unless NRCS decides to visit the site. In that instance, NRCS will respond in 30 working days If NRCS determines the FPPA does not apply to the site, further analysis of project impacts on farmland is unnecessary. If NRCS fails to respond within the designated review periods, or if further delay would interfere with construction activities, the sponsor should inform FAA of that fact and continue as though the site were not farmland.

c. Further Sponsor input. On receiving NRCS's input, the sponsor will perform more analysis. Using the site assessment criteria in 7 CFR Section 658.5(b), the sponsor, on FAA's behalf, will calculate the "site assessment" score to determine each site's fitness for protection as farmland.

Note: Many states and local governments have developed LESA systems to evaluate land productivity and suitability for conversion to non-agricultural uses. As a result, these governments may have evaluated a site's agricultural fitness by using criteria similar to those in 7 CFR Section 658.5(b). Contact the appropriate state agricultural agency to determine if the LESA may be substituted for the score that would be derived via the "site assessment" criteria in Form AD 1006. When NRCS points out a local LESA is available, the sponsor must evaluate the site using local criteria to complete Part VI of Form AD 1006 instead of Federal criteria in 7 CFR Section 658.5(b).

d. Environmental document information. If the action requires completion of Form AD 1006, include a copy of the completed Form in an appendix to the environmental document.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. The responsible FAA official should consider the following information in consultation with NRCS or the state agency having jurisdiction over important farmland potentially affected. Total the NRCS's "relative value" score (i.e., 0 - 100) and the sponsor's "site assessment" score (i.e., 0-160). Use this sum (Form AD 1006, Part VI) to determine the severity of the expected farmland impacts. Impact severity increases as the total, combined score approaches 260 points. Total, combined scores below 160 do not require further analysis. Total, combined scores between 161 and 200 may have the potential to adversely affect important farmlands. They require considering alternatives or measures, such as reducing the acreage of important farmland converted, or finding land having lower relative value, to avoid converting the farmland.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
When the total combined score on Form AD 1006 ranges between 200 and 260, a significant impact would likely occur. Try to find practical factors, methods, or alternatives to lower the score. Total scores continuing to range between 200 and 260 are significant impacts.	None.

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. During the environmental review process, agencies having jurisdiction or special use expertise about important farmland normally provide letters addressing this resource. Often, those letters include recommended measures to mitigate project effects. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If the FAA or the sponsor did not adopt any recommended mitigation, the environmental document should clearly explain why the recommendation was not adopted.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. FAA must prepare an EIS if mitigation will not reduce impacts below the significance threshold noted in section 7 of this chapter. When the responsible FAA official determines that a significant impact is likely, FAA must prepare an EIS addressing project-induced farmland conversion impacts. The EIS must contain the following information as well as a copy of Form AD 1006 and the information discussed in preceding sections of this chapter.

(1) Impacts. An assessment of the action's impacts on the area's agricultural production;

(2) Compatibility. An analysis of the action's compatibility with state, local, and private farmland protection programs and policies;

(3) Disruption. A description of any disruption of the farming community that directly results when the proposed action changes farmland to non-agricultural use;

(4) Support services. An evaluation of how the farmland conversion will affect the viability of farm support activities.

b. Mitigation. The EIS should describe proposed mitigation when land use agencies provide that information. FAA should fully consider the mitigation and balance its benefits against those of the proposed action. Provide an estimated schedule for undertaking accepted mitigation. Explain why the sponsor or FAA did not adopt any mitigation measures agencies recommend. Those measures may include reducing the area of land removed from production, keeping as much land as possible for agricultural use by incorporating it into airport compatible land use plans, or similar efforts.

CHAPTER 12. FLOODPLAINS

1. INTRODUCTION AND DEFINITIONS.

a. Actions in floodplains. To meet Executive Order 11988, *Floodplains*, and the U.S. Department of Transportation (DOT) Order 5650.2, *Floodplain Management and Protection*, all airport development actions must avoid the floodplain, if a practicable alternative exists. If no practicable alternative exists, actions in a floodplain must be designed to minimize adverse impact to the floodplain's natural and beneficial values. The design must also minimize the potential risks for flood-related property loss and impacts on human safety, health, and welfare.

b. Floodplains or base floodplains. The Executive Order applies to "floodplains", while DOT's Order applies to "base floodplains." Review of the definitions for these terms suggests they are essentially the same. That is, floodplains or base floodplains are the lowlands and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, at a minimum, that are prone to the 100-year flood. To determine if an action encroaches on the base floodplain, use the applicable FEMA-developed Flood Insurance Rate Map (FIRM) or draft FIRM as the primary information source. FEMA publication No. 258, *How to Use a Flood Map to Determine Flood Risk for a Property*, provides information on interpreting FIRMs. If a FIRM is not available, use a Flood Hazard Boundary Map (FHBM) or contact the U.S. Army Corps of Engineers (Corps), the Tennessee Valley Authority (TVA), the National Resources Conservation Service (NRCS), the U.S. Geological Survey (USGS), or State or local floodplain management agencies for help in determining floodplain involvement.

c. The 100-year flood. This is a flood having a 1 percent chance of occurring in any given year. Zones A and V of a Flood Insurance Rate Map (FIRM) encompass the area comprising the 100-year floodplain.

d. Encroachment. This is an action within the limits of the base floodplain.

e. Significant encroachment. Based on DOT policy, a significant encroachment would occur when the encroachment would result in one or more of the following impacts:

(1) a high likelihood of loss of human life;

(2) substantial encroachment-associated costs or damage, including adversely affecting safe airport operations or interrupting aircraft services (e.g., interrupting runway or taxiway use, placing another facility such as a NAVAID out of service, placing utilities out of service, etc.); or

(3) a notable adverse impact on the floodplain's natural and beneficial floodplain values.

f. Practicable alternative. This is an alternative that is capable of being built within natural, social, and economic constraints (DOT Order 5650.2, paragraph 4.m.). Selection of this alternative is the Federal agency's responsibility. Note that the practicable alternative outside a floodplain must be selected if it is practicable, but that decision must be made after considering other factors (see 5.f. of this chapter). Note that a practicable alternative may include conducting a proposed action outside the floodplain, using other means to accomplish the same purpose as the action, or doing nothing. If no alternatives exist outside the floodplain, other sites within the floodplain may be more desirable due to lesser impacts. The agency shall explain why the action must be in the floodplain.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Executive Order 11988, *Floodplain Management*, May 24, 1977 (42 Federal Register (FR) 26951)	The objective of this Order is to preserve and restore the natural and beneficial values floodplains provide. The Order directs Federal agencies to take actions to reduce the risk of flood loss, minimize flood impacts on human safety, health, and welfare and restore and preserve floodplain natural and beneficial values. To do this, the Order bans approving activities in a floodplain unless: • no practicable alternative exists; and • measures to minimize unavoidable short-term and long-term impacts are included.	Federal Emergency Management Agency (FEMA) and FAA
DOT Order 5650.2, *Floodplain Management and Protection*	Contains DOT policies and procedures for carrying out Executive Order 11988.	DOT/ FAA
Federal Emergency Management Agency (FEMA) *Protecting Floodplain Resources: A Guidebook for Communities,* 1996	Provides guidance on how communities can avoid and minimize impacts to floodplains.	FEMA
Floodplain Management, Guidelines for Implementing Executive Order 11988, dated February 10, 1978 (43 FR 6030)	Provides guidance adopted by the Water Resources Council to assist agencies in preparing their regulations and procedures for implementing the Executive Order.	FEMA and the Interagency Task Force on Floodplain Management.

Federal Emergency Management Agency (FEMA), *Further Advice on Executive Order 11988 Floodplain Management*[1] [Note: Much of the information in this chapter is from this document. We include it as an aid in understanding the requirements of Executive Order 11988]	Provides guidance to Federal agencies by discussing specific and commonly occurring issues related to Executive Order 11988. It provides broad guidance in interpreting and using the Order.	FEMA and the Interagency Task Force on Floodplain Management.
State and local construction statutes	Provides area-specific regulations governing floodplain protection.	State and local agencies

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. FEMA notes the more fiscal control an agency has over the disbursement of grants and loans the greater its responsibilities and involvement are in meeting the requirements of the Executive Order. In fact, strictest protection measures are often warranted for actions located directly in floodplains.[2] As a result, the environmental analysis of a proposed airport development action must include discussions of potential floodplain impacts if they would occur in the base floodplain. Typical airport actions which could result in floodplain impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities and rental car lots; and significant amounts of construction/demolition activity.

a. Applicability. Among other things, improperly designed or constructed facilities in floodplains can increase upstream flood elevations, increase downstream peak flood flow volumes, or increase flood flow velocities. All of these increases have the potential to adversely affect people, their properties, and the environment. Therefore, FAA must meet the requirements of Executive Order 11988 and DOT Order 5650.2 when an action it approves or funds would occur within or affect the base floodplain. FAA must also comply

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[1] http://www.gsa.gov/gsa/cm_attachments/GSA_BASIC/FEDERAL_EMERGENCY_MANAGEMENT_AGENCY_R2F-a8-k_0Z5RDZ-i34K-pR.pdf

[2] Further Advice on Executive Order 11988 Floodplain Management, pg. 26

with these Orders when it approves a lease to a non-Federal entity for a facility either located in the floodplain or one that directly or indirectly affects that floodplain. Environmental documents prepared for those actions must contain the information this chapter requires.

Compliance with this chapter is not required if:

(1) The action and its reasonable alternatives would not occur in the base floodplain, or if applicable, its buffer areas;

(2) The action and its reasonable alternatives would not directly or indirectly support floodplain development; or

(3) The only part of the transportation action or a reasonable alternative involves relocating people to existing housing located in the base floodplain. Before moving people in these cases, FAA must inform the relocated people that the replacement housing is in the base floodplain and offer them alternative, comparable housing outside the base floodplain to anyone seeking it.

Based on one or more of these factors, the environmental document should contain a Statement that the action and its reasonable alternatives will not be in the base floodplain. As a result, no further floodplain analysis is needed (per FAA Order 1050.1E, Appx. A, paragraph 9.2b).

b. Land leases to a non-Federal entity. Paragraph 12.d of DOT Order 5650.2 requires FAA to meet certain terms when it leases or disposes of land located in a base floodplain to a non-Federal entity. As appropriate, the responsible FAA official should:

(1) ensure the conveyance document identifies the uses that Federal, State, or local floodplain regulations restrict;

(2) attach other restrictions to the conveyance document addressing the non-Federal party's and any successors' proposed property uses to ensure those uses are consistent with the DOT Order, except as prohibited by law; and

(3) withhold the transfer of the property.

c. Applying Executive Order 11988 to major improvements or existing structures located in the base floodplain. Sometimes, an airport sponsor may wish to undertake major airport improvements or repair airport structures or facilities located in the floodplain that have sustained damage due to flood, fire, or other hazards. To meet applicable requirements of the Executive Order, the airport sponsor and responsible FAA official should coordinate early in project planning. In meeting the responsibility to apply the Order's requirements to existing structures, the approving FAA official should consider the following factors when deciding if it is prudent to undertake the proposed improvements or repairs:

(1) would the proposed action increase the useful life of the damaged facility?

(2) would the proposed action maintain the investment at risk or increase the exposure of lives to flood hazard? and

(3) would the proposed action remove an opportunity to restore the natural and beneficial floodplain values?

4. PERMITS, CERTIFICATIONS, AND APPROVALS. Actions within a base floodplain (see 1.d. of this chapter) may require authorizations from the Corps, FEMA, and State or local agencies. Consultation with these agencies may be needed. These agencies are especially helpful in providing maps or other information delineating a floodplain of concern.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. General. As noted above, early consultation among FAA, the airport sponsor, FEMA and State and local governmental floodplain management agencies is important. It is often the most effective and efficient way to address floodplain issues or conflicts and develop ways to resolve them. The environmental document must identify the agencies responsible for floodplain protection, any Statements they make regarding an action's compliance with those regulations, and solutions developed to address floodplain issues.

b. Map sources. FIRMs, FHBMs, and Flood Insurance Studies are available from FEMA's Map Service Center. If FIRMs or FHBMs are not available, contact one of the other agencies identified in section 5.a. for flood hazard data.

c. When a sponsor selects a practicable alternative outside the floodplain after finding an encroachment would occur. Occasionally, an airport sponsor selects a location outside the floodplain after realizing the original location would encroach on the base floodplain. Here, the responsible FAA official must be sure the environmental document States the sponsor is no longer considering the original location because it encroached on the floodplain. In addition, the document should address the following information, as appropriate:

(1) the action would not adversely affect a floodplain's natural and beneficial values, property, or human life; and

(2) the action would not indirectly support floodplain development.

d. Factors to consider when evaluating practicable alternatives that avoid the floodplain. The responsible FAA official must ensure the practicable alternatives outside the base floodplain, including the No-Action Alternative, are evaluated. The policy in the DOT Order is to avoid, where practicable, encroachments by FAA actions. In considering site practicability, the responsible FAA official should address the following factors identified in

Section 3.A[3] of *Floodplain Management, Guidelines for Implementing Executive Order 11988*:

(1) compatibility for airport purposes (topography, wildlife habitat, aviation hazards, etc.);

(2) social considerations, including aesthetics, historical or cultural importance, and land use patterns;

(3) economic aspects, including the costs for buying the alternative site, the cost to complete the action there, and any associated relocation necessary for the action to proceed; and

(4) legal requirements (e.g., deeds, leases, and other legal documents).

e. Factors to consider when there is no practicable alternative outside the floodplain. When, after re-evaluating all impacts, factors, and public comments, the official determines that alternatives outside the base floodplain are not practicable, the environmental document must contain a discussion about the alternatives the official considered in reaching that determination. The discussion should State that FAA analyzed other alternatives and explain why locating the action in the floodplain is the only practicable alternative. The explanation should include how FAA balanced the environmental, social, economic and engineering factors when selecting the practicable alternative. When making this evaluation, the official may wish to use following information and include a discussion in the environmental document's floodplain section:

(1) important factors FAA considered when selecting the proposed action as the practicable alternative;

(2) reasons FAA intends to fund or approve an action in the base floodplain or in an area that would affect the floodplain;

(3) each alternative considered and important factors that may make the alternative impractical;

(4) how the proposed action would affect the floodplain's natural values and proposed measures to minimize potential floodplain harm; and

(5) if National Flood Insurance Program (NFIP) criteria (44 CFR Part 60.3.) are applicable to the action.

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[3] 43 FR at 6044.

f. Early public review of a finding of encroachment. Section 2(a)(4) of Executive Order 11988 and paragraph 7 of DOT Order 5650.2 require agencies to provide the public an opportunity for early public review of *any* plan or proposal that would encroach on the base floodplain. This ensures the public has an early opportunity to review a proposal in the base floodplain, even if the proposal does not require an environmental impact statement (EIS). The following sections summarize how to provide information to the public.

(1) an action encroaching on the base floodplain. FAA or the sponsor should tell the public the proposed action includes an encroachment by identifying the encroachment in a public hearing presentation (see section 1.d. of this chapter);

(2) an action significantly encroaching on the base floodplain. If a proposed action or a reasonable alternative includes a significant floodplain encroachment (see section 1.e. of this chapter), any public notices, notices of opportunity for a public hearing, public hearing notices, or notices of environmental document availability shall tell the public the proposed alternative includes a significant floodplain encroachment.

(3) Notice content. FEMA suggests that any notice contain the following information:[4]

(a) the proposed action's purpose;

(b) a description of the proposed action;

(c) a Statement that the airport sponsor is seeking FAA funding or approval of an action occurring in the base floodplain or an action that would affect that floodplain;

(d) the location of the proposed action (a map or another descriptor adequately defining the location is helpful);

(e) if hazards to aircraft safety exist, describe the type and extent of the hazard the action would involve;

(f) describe the affected floodplain's existing natural and beneficial values; and

(g) provide the name and telephone number of the responsible FAA official from whom the public may obtain information about the encroachment or to whom the public may send comments.

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[4] *Further Advice on Executive Order 11988 Floodplain Management*, pg. 9

g. Public notice of an agency's intent to authorize an action in the base floodplain. Paragraph 7(b) of the DOT Order requires that public notices identify significant encroachments. FEMA suggests that any final notice of an agency's intent to authorize an action in a floodplain (which could be the EIS, FONSI or ROD) include the following information[5]:

(1) a statement of the action;

(2) a statement about why the agency decided to fund or approve the action in the floodplain or in an area affecting the floodplain;

(3) a description of the important facts considered in arriving at the decision and the alternatives considered;

(4) a statement about how the action would affect or be affected due to its location in the floodplain;

(5) a list of measures that will be taken to minimize harm to the floodplain; and

(6) a statement that the action would be taken in compliance with State and local flood protection standards; and

(7) a map showing where the action would be located and where the map is available for review.

h. Floodplain finding. The FAA shall not select or approve a preferred alternative involving a significant encroachment, unless the responsible FAA official can make a written finding that the proposed significant encroachment is the only practicable alternative. The official should use his or her discretion when determining the practicability of an action that would significantly encroach on the base floodplain. This requires a careful balancing and application of environmental, social, economic, and engineering considerations. However, the official should give special weight to floodplain management concerns. The environmental document must include the following information or present it as an attachment:

(1) A description of why the proposed action must be located in the floodplain, including a discussion of reasonable alternatives and why they were not practicable; and

(2) A Statement indicating that the action conforms to applicable State and/or local floodplain standards.

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[5] *Further Advice on Executive Order 11988 Floodplain Management*, pg. 10

FAA must provide the above finding, within or together with a final EIS prepared for the proposed action, to State and area wide clearinghouses and other interested parties.

i. Using NEPA documents to meet public notice requirements for an action encroaching on a floodplain. FAA may use the NEPA process to meet the public notification requirements for an action encroaching on a floodplain.

(1) An actions involving a Finding of No Significant Impact (FONSI). The Notice of the FONSI's Availability (see Order 5050.4B, paragraph 807) as well as notification meeting the requirements described in sections 5.f.(1) & (2) of this chapter will meet the DOT Order's public notice requirements. The Notice should appear in a local newspaper of general circulation.

(a) A FONSI for an action involving an encroachment. The Notice should note the action involves an encroachment.

(b) A FONSI for an action involving a significant encroachment. The Notice should state the action involves an encroachment and contain the information noted in 5.f.(3)(a)-(g) of this chapter.

(2) An action requiring an Environmental Impact Statement. An EIS as well as notification meeting the requirements described in sections 5.f(1) & (2) of this chapter will meet the public notice requirements. For significant encroachments, the EIS should contain the information noted in sections 5.f.(3)(a)-(g) of this chapter.

6. DETERMINING IMPACTS.

a. General. When an airport action would occur in a base floodplain because there is no practicable alternative, the environmental document prepared for that action must address practicable alternatives considered, the action's direct and indirect floodplain impacts, and the action's potential to cumulatively affect the floodplain. The document must also name the State and/or local agencies having jurisdiction over the affected floodplain, summarize applicable local floodplain requirements, and briefly explain how the action would meet those requirements. The following sections consolidate information from DOT Order 5650.2 and provide information on how to assess floodplain effects. The environmental document must contain the appropriate information.

(1) Determining if a significant encroachment would occur. After determining the action must occur in the floodplain because there is no practicable alternative, determine the intensity of the encroachment and its impacts on the floodplain's natural and beneficial values. See section 1.e. of this chapter for more information about significant encroachments.

(2) Assessing impacts on human life and transportation facilities. Part of the significant encroachment definition in DOT Order 5650.2 includes impacts on human life and substantial encroachment-related costs or damage. This includes interruption of service on or loss of a vital transportation facility (e.g., runway, taxiway, NAVAID damage, etc.). Although these factors are parts of the definition, their involvement alone does not trigger a significant impact for NEPA purposes. Council on Environmental Quality (CEQ) regulations at 40 CFR 1508.14 State that "…economic or social effects, are not intended by themselves [emphasis added] to require preparation of an environmental impact Statement." As a result, FAA need not prepare an EIS for any action significantly encroaching on a floodplain but that does not have significant *environmental* effects. When a significant encroachment involves only a high likelihood of loss of human life or substantial encroachment-related costs or damage (see section 1.e.(2) of this chapter for examples), the responsible FAA official should ensure the environmental evaluation includes specific information addressing the proposed action's floodplain aspects. The document should include information showing that the approving FAA official has thoroughly considered the effects on human life and substantial encroachment-related costs and damage that would occur due to the action's floodplain location. The document should answer the following questions:

(a) Would flooding affect airport access roads thereby preventing passenger, visitor, or airport personnel from entering or exiting the airport?

(b) Would flooding affect aviation safety and the airport's use? To make this determination, address the loss or temporary shutdown of an airport facility (e.g., lighting, hangars, runways, taxiways, etc.). This discussion might address flood effects on the airport's ability to serve regional or national aviation demands, and the economic well-being of aviation-related businesses. For example, flood-induced closing of or damage to a runway at a major hub could disrupt regional passenger or cargo movements and adversely affect the area's economy.

(c) Would flooding cause flood-induced spills of hazardous material stored at the airport and their effects on human populations?

(3) Impacts to a floodplain's natural and beneficial values. Floodplains often support important ecological values benefiting the human and natural environment. Examples include a floodplain's capacity to: carry and store floodwaters; sustain agriculture, aquaculture, or aquatic or terrestrial organisms; provide for groundwater recharge; provide recreation opportunities; or maintain water quality. Note that secondary action-induced impacts on floodplains could also substantially reduce the floodplain's capacity to sustain these values.

(4) Factors to consider when assessing action impacts on a floodplain's natural and beneficial values. The responsible FAA official should use the following information in conjunction with other information in the environmental document addressing specific

resources when determining the intensity of impacts. Review section 7.a. of this chapter to decide the intensity of impacts.

(a) Agricultural activities. Floodplains are often valued due to their level topography and their fertile substrates. Would the proposed action or a reasonable alternative erode or contaminate floodplain substrate, thereby reducing the floodplain's agricultural value?

(b) Aquacultural activities. Due to their need for constant water supplies and specific water quality requirements, aquacultural activities often occur in or near floodplains. Would the proposed action or a reasonable alternative disrupt any of these activities?

(c) Aquatic or terrestrial organisms. Numerous aquatic and terrestrial species occupy floodplains due to their food, cover, and water. Would the proposed action or a reasonable alternative disrupt the floodplain's ability to provide needed food, cover, or water requirements needed to sustain the organisms?

(d) Flood control. Due to their expanse and obstructions, floodplains often slow flows or retain water, thereby lessening the probability of upstream or downstream flooding. Would the proposed action or a reasonable alternative cause flow alterations that result in unacceptable upstream or downstream flooding?

(e) Groundwater recharge. Waters flowing through floodplains often flow more slowly allowing water to seep through surface cracks and recharge aquifers. Would the proposed action or a reasonable alternative adversely affect aquifer recharge capabilities?

(f) Water quality. The natural flow of water over rough surfaces, through vegetation, and the natural biological and chemical processes found in floodplains reduce pollutant loads helping to maintain water quality. Would the proposed action or a reasonable alternative disrupt the floodplain's capacity to maintain desired water quality standards?

(5) Airport actions outside the base floodplain. Airport actions outside the base floodplain may adversely affect the floodplain's natural and beneficial values. As a result, FAA needs to assess those impacts as well. For example, action-related water quality impacts due to increased runoff from impermeable surfaces or changes in hydrologic patterns outside the floodplain may still affect aquatic or terrestrial populations using the floodplain. Review other chapters in the NEPA document to determine if an airport action outside a base floodplain would affect the floodplain's resources.

b. Floodplain protection standards. The environmental document should identify any State or local floodplain regulations and standards that must be met. This step is needed to provide information regarding whether the proposed action would conform to

applicable State or local floodplain regulations and standards. Identify the State and local agencies having jurisdiction. This is done normally via letters from FEMA, the Corps, or State or local agencies having jurisdiction for floodplain issues.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. After completing the analysis discussed in this chapter, use the findings to determine the degree of action-related, floodplain impacts. The responsible FAA official should consider the following factors in consultation with agencies having jurisdiction or special expertise about land use in the affected area.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
When notable adverse impacts on natural and beneficial floodplain values would occur.	For **NEPA** purposes, a significant impact would occur **only** when an action would cause notable adverse effects on the affected floodplain's natural and beneficial values (see last bullet below and section 6.a.(4) of this chapter). For transportation purposes, the responsible FAA official must decide if a significant encroachment would occur to comply with DOT Order 5650.2, paragraphs 7.b and 9. To do so, the official must decide if the action would cause: • a considerable probability of the loss of human life; • future, extensive damage or costs, including damage that would interrupt airport service or use of the proposed runway or other proposed airport facility; or • a notable, adverse effect on the affected floodplain's natural and beneficial values. Note: When a significant impact would not occur under NEPA, the responsible FAA official must ensure the environmental document discloses action-induced effects on human life, NAVAIDS, and transportation facilities. The official should ensure the document clearly states that those effects do not trigger a significant impact under NEPA.

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. If no practicable alternative outside the base floodplain exists, Executive Order 11988 and DOT Order 5650.2 require FAA to minimize action-induced impacts on the base floodplain and, where practicable, to restore and preserve natural and beneficial floodplain values that are adversely affected by the action. A FONSI or EIS prepared for an action that would encroach on the base floodplain should contain measures that would minimize the action's impacts on floodplains. During the environmental review process, agencies having floodplain jurisdiction or expertise normally provide letters addressing floodplain effects. Often, those letters include recommended measures to mitigate those effects. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in the appendix for further information. If the FAA or the sponsor does not adopt any recommended mitigation, the environmental document should clearly provide reasons why the mitigation was not adopted. In most cases, conceptual design as opposed to detailed engineering will be sufficient to help establish the adequacy of mitigation measures.

(1) Mitigation, in general. Mitigation measures may include:

(a) construction controls to minimize erosion and sedimentation;

(b) designing the facility to allow adequate flow circulation and preserve free, natural drainage;

(c) using pervious surfaces where practicable;

(d) controlling runoff;

(e) controlling waste and spoils disposal to prevent contaminating ground and surface water (e.g., control the use of pesticides, herbicides; maintain vegetative buffers to reduce sedimentation and delivery of chemical pollutants to the water body);

(f) employing land use controls (Executive Order 11988 directs Federal agencies to take floodplain management into account in evaluating land use plans and to require land and water resource use appropriate to the degree of hazard involved.).

Note: Any selected mitigation should not pose a wildlife hazard, see FAA Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*.

(2) Mitigation for human safety and substantial encroachment-related damages and costs. Mitigation measures should be developed to minimize impacts on human safety and minimize future damages or costs, including damages or costs to equipment, facilities, or structures. For example, if a proposed runway's elevation is below or at the 100-year flood elevation, consider raising the runway's elevation above the 100-year flood elevation to allow runway use during flooding.

(a) When building in the base floodplain, National Flood Insurance Program rules and regulations must be followed. This protects structures or facilities from flooding. It also minimizes changes in flood elevations that could harm the existing floodplain or upstream development. Measures such as building structures on piers are discussed in 44 CFR Section 60.3.

(b) When building in the base floodplain or repairing a facility already there, try to minimize flood damage to the proposed or existing facility. Include measures to protect the facilities or utilities from flood damage or to lessen potential flood damage. Design sufficient drainage to prevent flooding upstream or downstream structures and facilities.

(3) Mitigation for impacts to natural and beneficial floodplain values. Developing mitigation for such impacts requires understanding natural floodplain values and systems. Consulting with expertise agencies may be helpful. Here are a few examples of natural floodplain values and related mitigation.

(a) Agriculture. Reduce soil erosion in cultivated floodplains. Control herbicide, pesticide, or petroleum runoff from the airport.

(b) Aquaculture. Avoid planting non-native species that could compete with existing natural floodplain vegetation or attract wildlife hazardous to aviation. See FAA Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*.

(c) Aquatic or terrestrial organisms. To reduce effects on organisms using the floodplain, minimize disturbing floodplain vegetation or design floodgates to allow natural tide changes or natural stream flows.

(d) Flood control. Reduce fill volumes in floodplains. Design structures to preserve existing flows and water surface elevations. Minimize soil compaction. Restore natural contour elevations provided they do not raise existing water surface elevations.

(e) Groundwater recharge. Use porous surface material where possible. Remove loose soil and waste material to avoid contaminating ground or surface waters that may feed recharge areas.

(f) **Water quality.** Preserve floodplain or wetland buffers. Reduce fertilizer or pesticide runoff. Control discharges from pipes or sheet flow. Use erosion control measures, including construction control measures to minimize erosion.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. FAA must prepare an EIS if mitigation will not reduce impacts below the significance threshold noted in section 7 of this chapter. FAA's EIS must analyze any action-induced significant impacts on a floodplain's natural and beneficial values. When FAA prepares an EIS to address significant floodplain impacts, the responsible FAA official should consider inviting Federal, State, or local agencies having floodplain expertise or jurisdiction to be a cooperating agency. As needed, the EIS should contain the information in items 8.b–d as well as that already discussed in this chapter.

b. Other impact areas. Normally, when a significant floodplain impact would occur, impacts to the floodplain's natural and beneficial values and induced development are involved. To avoid repeating information presented in other EIS chapters, the floodplain chapter should summarize those impacts and refer the reader to the specific pages of the EIS addressing the affected resources that provide more detail on the impact. Accurate cross-referencing is a must. For example, the floodplain chapter would note how changes to a wetland affects the wetland's flood storage capacity. As a result, water the wetland would normally retain for a given period would move more quickly to the floodplain. The EIS would note that action-induced changes to the wetland's flood storage would cause downstream flooding.

c. Practicability of alternatives. Discuss other considerations about the practicability of alternatives, if any were considered.

d. Mitigation. Include measures to minimize harm to the floodplain and, where practicable, to restore or preserve affected natural and beneficial floodplain values not previously considered. Include sponsor commitments to comply with special flood-related design criteria or protective conditions FAA, resource, or floodplain agencies determine necessary.

e. Floodplain finding. See section 5.h. of this chapter.

CHAPTER 13. HAZARDOUS MATERIALS

1. INTRODUCTION AND DEFINITIONS.

a. General. Federal, State, and local laws regulate hazardous materials use, storage, transport, or disposal. These laws may extend to past and future landowners of properties containing these materials. In addition, disrupting sites containing hazardous materials or contaminates may cause significant impacts to soil, surface water, groundwater, air quality and the organisms using these resources. Therefore, airport sponsors purchasing or developing land for airport purposes may encounter hazardous materials contamination. The environmental document should disclose and analyze information about hazardous materials.

b. Terms and definitions. Generally, the terms "hazardous materials," "hazardous waste," and "hazardous substances" are associated with industrial wastes, petroleum products, dangerous goods or other contaminates. But these terms have very precise and technical meanings that are used for consistency and legal purposes

(1) Hazardous wastes. Regulations developed pursuant to the Resource Conservation and Recovery Act (RCRA) at 40 CFR Part 261, Subpart C, define this term. Hazardous wastes are solid wastes that are ignitable, corrosive, reactive, or toxic (sometimes called “characteristic wastes”). In addition, Subpart D contains a list of specific types of solid wastes that the EPA has deemed hazardous (sometimes called “listed wastes”).

(2) Hazardous substances. Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. § 9601(14)) defines this term broadly. It includes hazardous waste, hazardous air pollutants, hazardous substances designated as such pursuant to the Clean Water Act and the Toxic Substances Control Act and elements, compounds, mixtures, solutions, or substances listed in 40 CFR Part 302 that pose substantial harm to human health or environmental resources. It should be noted that, pursuant to CERCLA, hazardous substances do *not* include any petroleum or natural gas substances and materials.

(3) Hazardous materials. According to 49 CFR Part 172, Table 172.101, these are any substances or materials commercially transported that pose unreasonable risk to public health, safety, and property. They include hazardous wastes and hazardous substances as well as petroleum and natural gas substances and materials. As a result, the term "hazardous materials" represents hazardous wastes and substances in this Desk Reference.

c. Environmental Due Diligence Audit (EDDA). An EDDA is a systematic investigation of real property to determine if activities involving hazardous materials have occurred at a site or resulted in environmental contamination. An EDDA is also a form of pre-acquisition protection against CERCLA/RCRA liability and a defense in lawsuits addressing contaminated lands. If the Phase I EDDA indicates that the land is, was, or has the potential for such activities or occurrences, a Phase II EDDA attempts to verify and identify the existence of the materials. If necessary, a Phase III EDDA will delineate the amounts or

limits of hazardous materials or contamination and provide preliminary clean-up plans and cost estimates, if applicable. Personnel specializing in performing EDDAs should conduct the investigations due to the potential liabilities and risks associated with these assessments. FAA Order 1050.19, *Environmental Due Diligence Audits in the Conduct of FAA Real Property Transactions*, provides more information on EDDAs. .

2. APPLICABLE STATUTES AND IMPLEMENTENTING REGULATIONS.

The statutory framework related to hazardous materials in Federal Aviation Administration (FAA) actions, projects, and decisions is mainly contained in the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), and the Community Environmental Response Facilitation Act (CERFA). This table summarizes these laws.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
CERCLA, 42 USC Section 9601, *et. seq.* In particular, see Sections 101, 102, 103, 105, 107, 120.	Defines hazardous substances. Requires notifying the public about hazardous substance releases exceeding reportable quantities. Establishes criteria for recovery, clean-up, and response plans. Defines individual and joint liabilities of potentially responsible parties. Limits liability under the "innocent landowner" and "due diligence" provisions if a landowner: • has not contributed to the contamination of a property; • uses the property in accordance with good commercial or customary practices; and • has conducted all appropriate inquiry into the previous ownership. Requires Federal agencies to comply with CERCLA at facilities they own.	U.S. Environmental Protection Agency (EPA)
CERFA [P.L. 102-426](amended portions of CERCLA)	As conditions of a sale, release, or transfer of Federal lands or facilities used to store hazardous materials or where a release or disposal of hazardous materials has occurred, Federal agencies must: • identify those lands or facilities; and • complete waste or contaminate clean-up of these lands or facilities.	FAA
Oil Pollution Act of 1990, 33 USC, Section 2701 *et seq.*	Provides for recoupment of removal costs and damages for discharges of oil and other petroleum products.	EPA
RCRA, 42 USC Section 6901 *et seq*., [P.L. 94-580] Sections 3001, 3010	Defines hazardous wastes. Establishes procedures hazardous materials manufacturers must follow regarding hazardous material production, use, and disposal. These are called the "cradle to grave" provisions.	EPA
Toxic Substances Control Act (TSCA) [15 USC, Sections 2601-2692]	The Act regulates the introduction of new chemicals or those that already exist. Subchapters 2 through 4 address asbestos, indoor radon, and lead exposure. 15 USC Section 2605 addresses polychlorinated biphenyls (PCBs)	EPA

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
40 CFR Part 761	This CFR section addresses the use and disposal of PCB products and items containing that chemical.	EPA

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. General. Federal actions funded under the Airport Improvement Program (AIP) or any airport project subject to FAA approval has the potential to involve or affect hazardous materials. Typical actions which could incur impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities, and rental car lots; and significant changes in aircraft operations or construction activity.

b. RCRA and CERCLA. The passage of RCRA and CERCLA generally focused attention on the use, storage, and disposal of hazardous materials and the environmental threats caused by mishandling these materials. At times, hazardous materials may be used or stored on an airport. As a result, an airport may be included in the universe of facilities to which RCRA and CERCLA apply. However, for environmental analysis purposes, the primary objectives are to identify and evaluate sites, facilities, or properties where hazardous materials (including environmental contamination) could hinder or affect an airport project. Doing so allows FAA to disclose compliance with RCRA, CERCLA, and other related laws and regulations.

c. Airport sponsor responsibilities. An airport sponsor should, to the extent possible, avoid hazardous waste sites and environmentally contaminated property. If avoidance isn't possible, the sponsor should minimize the use of contaminated property as much as possible. Doing so avoids or lessens the potentially excessive clean-up costs and legal liabilities. To help protect the sponsor from the costs or the liability associated with hazardous materials or contamination, the sponsor should hire a competent specialist to complete an EDDA *before* acquiring any land for airport purposes. FAA Advisory Circular (AC) 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*, and FAA Order 1050.19, *Environmental Due Diligence Audits in the Conduct of FAA Real Property Transactions,* provide FAA guidance on this.

d. FAA responsibilities. Before authorizing any airport development action involving land disturbance or land ownership changes, FAA should ensure the airport sponsor has completed the appropriate level EDDA or other similar investigation. This helps to verify if the action would involve a hazardous waste site or contaminated property. Operators at FAA facilities must also comply with all applicable regulations pertaining to the use, storage and disposal of hazardous materials as outlined in FAA Order 1050.10B, *Prevention, Control and Abatement of Environmental Pollution at FAA Facilities*; 1050.14A, *Polychlorinated Biphenyls (PCB) in the National Airspace System*; Order 1050.15A, *Underground Storage Tanks at FAA Facilities*; Order 1050.18, *Chlorofluorocarbons and Halon Use at FAA Facilities*; and AC 150/5320-15, *Management of Airport Industrial Wastes*.

4. PERMITS, CERTIFICATIONS, AND APPROVALS. The environmental document prepared for an airport project should disclose required CERCLA or RCRA permits, certifications, or regulatory approvals as appropriate. This information helps to inform the decision maker and public about possible construction concerns, the extent of analyses needed, or the types of necessary mitigation. Examples of that information include all or some of the following items:

a. Requirements. A description of the applicable requirements and a summary of the regulatory processes applicable to the project.

b. Conflicts. Issues that may cause potential conflicts or that may delay the regulatory processes noted in section 4.a. of this chapter.

c. Timeframes for obtaining approvals needed to develop sites containing hazardous materials or contamination. These times should include authorizations, prerequisites, and permits for disturbing, transporting, or processing hazardous materials and other regulated substances.

d. Commitment. A statement from the sponsor verifying that it commits to addressing hazardous material issues in accordance with applicable Federal and state requirements.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES – ENVIRONMENTAL ANALYSIS.

a. Required consultation. A number of Federal and state agencies is involved in regulating hazardous materials and contamination. Early consultation with these agencies during the NEPA process aids in collecting necessary data and promotes compliance with applicable laws.

(1) EPA. Regional EPA offices have information on hazardous substances. EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is a computer database. It identifies sites on the National Priority List (NPL) and other areas used to, store, transport, or dispose hazardous materials. Other EPA-managed databases include the Resource Conservation and Recovery Information System (RCRIS) and the Emergency Response Notification System (ERNS).

(2) United States Coast Guard (USCG). The USCG operates the National Response Center (NRC) to help in or conduct hazardous spill clean-ups throughout the United States. In being the nation's single reporting point for all spills, the NRC maintains a comprehensive list of those mishaps.

(3) United States Geological Survey (USGS). The USGS has aerial photographs that may be helpful in determining past land uses that occurred at a particular site.

(4) United States Department of Agriculture (USDA). The USDA has extensively mapped and gathered data on the nation’s regional geological features and soil types. This information is useful in determining soil types, soil characteristics, or past land uses.

(5) State agencies. RCRA encourages individual states to manage hazardous wastes within their borders. To promote this, EPA has delegated hazardous waste-related management responsibilities to EPA-certified state and local governments. FAA urges airport sponsors and operators planning land purchases or transfers to contact the appropriate state agency early in the planning process to determine the extent of state requirements that must be met regarding hazardous materials and/or environmental contamination.

(6) Local government agencies. Information at the local level is valuable when tracing past uses of real property. Local soil conservation offices may provide historical photographs and information on soil types at a desired site. Local fire departments or fire districts often have data on hazardous materials that have been used at a specific location.

6. DETERMINING IMPACTS.

a. General. The environmental evaluation should include the level of analysis needed to disclose the likely use of hazardous materials or contamination associated with the action. This information is useful in evaluating potential conflicts between the proposed airport action and these laws. In this way, applicable permits, certifications, and approvals are identified, the necessary clean-up and remediation measures are noted, and unresolved problems or issues are disclosed.

Determining an impact can be done by using information contained in available FAA publications, collected by trained and experienced personnel following standard investigatory procedures, or revealed in EDDAs and similar examinations of the project site.

b. FAA publications and materials. FAA has issued useful information to help airport sponsors and others address hazardous materials issues.

(1) To identify and characterize airport projects likely to involve the use of hazardous materials and other regulated substances see:

(a) FAA Order 1050.10B, *Prevention, Control and Abatement of Environmental Pollution at FAA Facilities*; or

(b) FAA Advisory Circular (AC) 150/5320-15, *Management of Airport Industrial Wastes*.

(2) To assess real property for signs of hazardous materials and contamination see:

(a) FAA Order 1050.19, *Environmental Due Diligence Audits in the Conduct of FAA Real Property Transactions*; or

(b) FAA AC 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*.

c. Site investigation. Due to dangers of exposure, liability issues, and other factors, personnel trained and experienced in evaluating hazardous material or contaminated sites

should conduct this investigation. These specialists can determine if hazardous materials or contamination exists or has existed on the proposed site. At a minimum, these evaluations should consist of a review of the following information sources concerning a property's current and previous uses:

(1) a detailed search of Federal, State, and local records addressing the use, storage, disposal, or discharge of hazardous materials, petroleum products, or other regulated substances on the property or any adjacent properties;

(2) aerial photographs, maps, and other current or historic documents that could reveal earlier uses on the subject property or adjacent facilities;

(3) visual, on-site inspections of the property, including any buildings, structures, or equipment and a similar visual inspection of adjacent properties;

(4) interviews of owners, employees, tenants, and other individuals knowledgeable about the current and former uses of the property;

(5) reviews and evaluations of contamination assessments, remedial action plans, sampling and test results of physical or environmental media (i.e., soil, surface water, ground water, building materials), and any other environmental investigations that the owners, operators, or regulatory agencies have conducted.

d. Contents of environmental documents. NEPA documents prepared for an airport action requiring FAA approval and/or AIP funding and that would occupy hazardous sites or use hazardous materials and generate hazardous wastes should include the following information. The amount of emphasis placed on each topic should be commensurate with the proposed action's scope.

(1) If a contaminated site is adjacent to or on the proposed airport site. Identify known, suspected, or potential contaminated sites on or adjacent to the proposed action.

(a) provide the name, location, and owner/operator of the site or facility;

(b) provide the type and extent of contamination at the location(s);

(c) provide the distance and direction of the contaminated site from the proposed action;

(d) provide the regulatory status of the project site including the contamination assessment process and clean-up activities; or

(e) if the planned airport action would occupy a contaminated site, describe the impact and the resolution of the problem or conflict. Indicate how the corrective actions comply with applicable Federal, State, and local regulations.

(2) If a proposed project would involve hazardous materials. Airport sponsors and their contractors are responsible for the appropriate management and use of hazardous

materials and wastes. Environmental documents that involve airport actions that may use these materials should include the following sponsor provisions:

(a) users and those who handle hazardous materials will do so according to applicable regulations; and

(b) the person or entity responsible for handling the hazardous material will take immediate corrective action, including notifying the National Response Center, if there is an accidental release or other incident that can endanger people or environmental resources.

(3) Dealing with potential spills. If the proposed action would involve hazardous materials, briefly describe the methods that would be used to ensure compliance with RCRA, CERCLA, and other applicable Federal and State regulations. If needed, describe the methods that would be employed to control spills and other unauthorized releases of hazardous materials during construction and operational of the proposed action. As necessary, see FAA AC 150/5320-15, *Management of Airport Industrial Wastes* for detailed information on dealing with hazardous wastes and industrial chemicals typically used on airports.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. After completing the investigations, evaluations, and analyses noted earlier, and after considering the use of hazardous materials or contamination associated with the project, use the following guidelines to determine the level and significance of impact.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
The action involves a property on or eligible for the National Priority List (NPL).	Not all property within an NPL site is contaminated. Therefore, there may be areas within the NPL's boundaries that are "clean."
The sponsor would have difficulty meeting applicable local, state, or Federal laws and regulations on hazardous materials.	The project requires extraordinary measures (i.e., connection to new water supplies, relocation of residents, etc.) to mitigate project-related disturbances of contaminates that would endanger the health and/or safety of citizens or their air and/or water supply(ies).
There is an unresolved issue regarding hazardous materials.	The action would affect a site known or suspected to be contaminated. Consequently, the impacts of that contamination may not be fully revealed and necessary corrective actions may be needed.

From: Table 7-1, FAA Order 5050.4B

b. Mitigation. During the environmental review process, agencies having special expertise on hazardous materials in the airport-affected area may provide letters addressing those materials or their effects. Often, those letters include recommended measures to mitigate the effects. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If FAA or the sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why the recommendation was not adopted. If feasible, the environmental document should include an estimated schedule for undertaking accepted mitigation.

(1) The EA or EIS should describe the measures, the benefits and requirements, the responsible parties, the process for implementing and enforcing required measures, and a schedule for carrying out those measures. Those measures may include spill response plans, clean-up and remedial actions, pollution prevention initiatives, and any other activities that are intended or designed to meet the requirements of Federal and state laws.

(2) The environmental document should include a provision that all necessary corrective actions and reporting requirements will be fulfilled if previously unknown contaminants are discovered during construction or a spill occurs during construction.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. Section 7 of this chapter describes the conditions and criteria by which an airport development action involving hazardous materials or environmental contamination may cause a significant impact. When FAA determines that a significant impact is likely, it must prepare an EIS further addressing the potential impacts associated with the proposed action.

b. EIS content. The EIS should contain the following information in addition to the materials developed and presented in other sections of this Chapter:

(1) the results of interagency consultations undertaken to more precisely define any unresolved issues and the necessary steps, analyses, and/or actions required to address them.

(2) the results of additional investigations, clean-up, or remedial actions or other initiatives required to insure that the action is implemented, constructed, and/or operated in compliance with Federal and state regulations.

(3) evidence verifying the airport sponsor has undertaken all necessary actions and precautions needed to obtain regulatory approval of the action; and

(4) evidence that the airport sponsor commits to implement all necessary actions and precautions noted in section 8.b.(3) of this chapter.

c. Mitigation. Any mitigation measures agencies having special expertise on hazardous materials in the airport-affected area should be discussed. FAA or the sponsor

should fully consider the mitigation and balance its benefits against those of the proposed action.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that environmental consequences have been fairly evaluated (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106(c)(1)(B), FAA may not approve a Federal funding for major airport development projects, unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203(b)(4). In accordance with NEPA and 49 USC Section 47106(c)(1)(B), an EIS must discuss and adopt mitigation measures recommended by agencies having special expertise on hazardous materials in the airport-affected area.

If feasible, provide an estimated schedule for undertaking accepted mitigation.

CHAPTER 14. HISTORIC PROPERTIES

1. INTRODUCTION AND DEFINITIONS.

a. General. This chapter summarizes the requirements of Section 106 of the National Historic Preservation Act (NHPA) for ease of reference. In case of doubt concerning the proper interpretation of Section 106 as implemented by 36 CFR Part 800, the responsible FAA official should contact the Planning and Environmental Division, APP-400, the Airports & Environmental Law Division in the Office of Chief Counsel (AGC-600), or Regional Counsel.[1]

b. Historic property. A historic property is, "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior" (36 CFR Section 800.16(l)). Properties or sites having traditional religious or cultural importance to Native American Tribes and Hawaiian organizations may qualify. To qualify, a property must meet the criteria for eligibility under 36 CFR Section 60.4.

c. Consultation. Section 106 of the NHPA, as implemented through 36 CFR Part 800, is intended to require Federal agencies to consider the effects of their undertakings on historic properties. In doing so, FAA must consult with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) if one exists.[2] The regulations protecting historic and cultural properties also require consultation and information exchanges with interested parties. As a result, the identification of historic resources, analysis of potential effects, and consultation is often a "critical path" element in managing the environmental review project. Starting consultation early in the environmental review process is a best management practice for an airport action that may affect historic properties.

d. Undertaking. This is a project or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency (36 CFR Section 800.16(y)). An undertaking is an activity that:

(1) the agency carries out;

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[1] Notably, the regulations have been amended three times in the past several years (1999, 2001, and 2004), with the current regulations having taken effect on August 5, 2004. The Advisory Council on Historic Preservation (ACHP) amended the regulations due to both changes in the underlying law (1992) and court challenges to the validity of the regulations. For instance, in *National Mining Ass'n v. Slater*, 167 F. Supp. 2d (D.D.C. 2001), the role of the ACHP was challenged. This resulted in a determination that ACHP's role is only advisory. The current regulations reflect the court's decision; however, there may be other new provisions that require legal interpretation. For more information on Section 106 case law, please see the *Federal Historic Preservation Case Law, 1966-2000* at www.achp.gov/pubs-caselaw.html.

[2] A THPO is the tribal officer who assumes the responsibility of the SHPO for purposes of Section 106 compliance on tribal lands per Section 101(d)(2) of the NHPA. The THPO is appointed by the tribe's chief governing authority or is designated by tribal ordinance or preservation program.

(2) is carried out by or on behalf of a Federal agency;

(3) is carried out with Federal assistance; or

(4) requires a Federal permit, license, or approval.

For purposes of the Airports program, an undertaking is an action that constitutes a Federal action for purposes of NEPA as defined in FAA Order 5050.4B, paragraph 9.g. These actions include, but are not limited to, any airport development project funded under the Airport Improvement Program (AIP) or Passenger Facility Charge Program (PFC) or subject to unconditional FAA approval to be depicted on an airport layout plan (ALP).

e. Integrating the Section 106 and NEPA processes. Title 36 CFR Section 800.8 encourages Federal agencies to integrate the Section 106 and NEPA processes. This integration is intended to streamline these "procedurally rich" processes, reduce paperwork, avoid repeating information, and coordinate public input. Section 7 of this chapter provides more information on this.

.2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

a. General. The primary Federal law protecting nationally important historic properties is the National Historic Preservation Act of 1966, as amended (NHPA). NHPA establishes the Advisory Council on Historic Preservation (ACHP) and the NRHP. Sections 106 and 110 are two sections of this law having the greatest bearing on airport actions. The following table outlines these sections and other laws and regulations that apply to historic or archeological resources.

Note: Paragraphs 3.b.(1) and (2) of this chapter provide more information on Sections 106 and 110 of the NHPA. The chapter does not discuss other sections of the NHRP because airport actions do not normally involve those sections.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Section 106 of the NHPA	Requires Federal agencies having direct or indirect jurisdiction over proposed undertakings to consider the undertakings' effects on properties listed in or eligible for listing in the NRHP. The agencies must consult with the SHPO or THPO when deciding if an undertaking has the potential to affect NRHP resources. If an undertaking has the potential to do so, further consultation is needed to determine if the effects would be adverse. When a Federal agency determines an undertaking has the potential to adversely affect NRHP resources, the agency must notify the ACHP of that finding. For Federal airport actions, FAA is responsible for meeting the requirements of Section 106 and 36 CFR, Part 800. The project sponsor or an environmental contractor acting on FAA's behalf may aid FAA during the Section 106 review process, but	ACHP

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
	FAA is responsible for meeting Section 106 and the regulations implementing it.	
36 CFR, Part 800 implementing Section 106	The regulations implementing Section 106 are at 36 CFR, Part 800. Among other things, these regulations describe the procedures for consulting, analyzing effects, and documenting those effects.	ACHP
Sections 110(f) and 110(k) of the NHPA	**Section 110(f):** This section requires that Federal agencies plan and impose measures necessary to minimize the direct or indirect effects of undertakings on National Historic Landmarks (NHLs). NHLs are buildings, sites, districts, or structures that the Secretary of the Interior designates as historically significant.[3] When undertakings would adversely affect NHLs, agencies shall invite the ACHP to participate in consultation. **Section 110(k):** Some applicants seeking Federal approval or funding have intentionally caused adverse effects on NHRP-listed or eligible properties to avoid Section 106 requirements in the past. Section 110(k) prevents Federal agencies from issuing grants or approving undertakings to parties who have intentionally harmed protected resources. Agencies facing such situations may approve or fund actions involving parties causing the damage *only* if the agencies, after consulting with the ACHP, determine circumstances justify the destructive actions.	ACHP
Archaeological Resources Protection Act of 1979 (ARPA)	This Act requires Federal agencies to obtain a special permit to excavate or remove any archaeological resources that are located on U.S.-owned public lands or lands that Federally-recognized Native American tribes control. This Act protects all archaeological resources, including those that are not historic properties.	Individual Federal land management agencies
Archeological and Historic Preservation Act of 1974 (AHPA)	This Act requires the survey, recovery, and preservation of significant archaeological, historical, and scientific data when a Federally-approved or Federally-funded action may destroy or cause irreparable loss of such data.	Individual Federal land management agencies
Native American Graves Protection and Repatriation Act (NAGPRA)	The discovery of human remains or cultural items on Federal or tribal lands triggers this Act. The Act provides for the inventory, protection, and return of cultural items to affiliated Native American groups.	National Park Service (NPS)

[3] There are over 2500 NHLs in the nation. More than half are privately owned. See http://www.cr.nps.gov/nhl/ and 36 CFR Part 65 for more information.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
	Note that NAGPRA applies only to Native American human remains and cultural materials on Federal or Native American lands.	
49 U.S.C, Section 303.c, formerly Section 4(f) of the U.S. Department of Transportation Act.	Though not a historic preservation law, Section 4(f) of the DOT Act (recodified as 49 USC Sections 303.c and d) may apply to FAA actions adversely affecting NRHP-listed or eligible properties. Section 4(f) does not allow the approving FAA official to approve a transportation program or project that would use a historic site of national, state, or local significance, unless: • the official finds there is no prudent or feasible alternative that avoids using the historic site; and • the project includes all possible planning to minimize harm to the site resulting from the use. (Chapter 7 of this Desk Reference provides information on Section 4(f)).	FAA

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. General. Typical airside actions that could affect NRHP-listed or eligible resources include building or expanding terminal and hangar facilities, runways and taxiways, and installing navigational aids (NAVAIDS). Landside actions that may affect these resources include building or moving access roadways, remote parking facilities, and rental car lots, or other types of activities requiring any other construction.

b. Timing. The responsible FAA official should start the Section 106 process as early as possible in the environmental review for major airport development projects. An *early* start of the 106 process is usually needed to effectively and efficiently complete Section 106's procedures, consultation, and analyses. Early knowledge about the presence of historic properties in an undertaking's area of potential effect (APE) (see paragraph 5.d of this chapter) and prompt consultation are critical. Doing so helps the sponsor and FAA identify and consider the widest range of alternatives or measures to avoid or lessen the undertaking's possible adverse effects on NRHP-listed or eligible properties. Most importantly, the responsible FAA official must ensure FAA has started and is well into completing the requirements of 36 CFR Part 800 when it issues a draft EA or EIS. The official must do so to ensure the final EA or EIS proves FAA has met Section 106 requirements.

(1) Grant awards or ALP approvals. FAA cannot award a grant for an airport action or unconditionally approve an ALP or an ALP revision until it *completes* the Section 106 process. However, FAA may authorize or issue funds for non-destructive planning activities related to an undertaking before completing the Section 106 process.

(2) Leasing airport property. Before an airport sponsor may convert land dedicated to airport use (i.e. aeronautical activities and airline services) to non-aeronautical, revenue producing use (e.g., concessions, providing public shelter, ground transportation,

food, or personal service businesses) under a long-term lease, the sponsor must obtain ARP approval. In addition, ARP must release the sponsor from its federal grant assurance obligations addressing the uses of the land. FAA may not approve leases for airport properties to a non-Federal party until FAA completes the Section 106 review process. This ensures leases protect or preserve historic properties that may be present on the property to be leased.

4. PERMITS, CERTIFICATIONS, AND APPROVALS.

a. Section 106. This section does not require formal permits, certifications, or approvals. However, FAA documentation should demonstrate it has completed all of the following requirements.

(1) FAA has consulted with the parties noted in 36 CFR Section 800.2;

(2) FAA has notified or provided ACHP the opportunity to participate in consultation as appropriate under 36 CFR Part 800;[4] and

(3) FAA has conducted the process in a reasonable and good faith manner.

b. Archaeological concerns on Federal or Native American lands. The Archaeological Resources Protection Act (16 USC Sections 470aa – 470mm) requires that a person wishing to exhume or remove archeological resources from Federal or Native American lands must first obtain a permit from the relevant land management agency or tribe. Therefore, a sponsor whose project requires removing buried archeological resources from units of the national park system, the national wildlife refuge system, or the national forest system must obtain a permit before removing or excavating those resources. See 43 CFR Part 7 for more details.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. Starting the process. The first step in the Section 106 process requires the responsible FAA official to determine if the proposed action is an "undertaking" as defined in 36 CFR Section 800.16(y) (see Section 1.d. of this chapter). If the official determines the action is not an undertaking, then Section 106 does not apply. If the official determines an undertaking exists and that it may affect properties on or eligible for inclusion in the NRHP, the responsible FAA official must determine if an undertaking:

(1) does not have the potential to affect protected historic properties;

(2) would not adversely affect NRHP-listed or eligible historic properties; or

(3) would adversely affect NRHP-listed or eligible historic properties.

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[4] The criteria ACHP uses to determine if it will become involved address undertakings that: a) have substantial impacts on important historic properties; b) present important questions of policy or interpretation; c) have the potential for presenting procedural problems; or d) present issues of concern to Indian tribes or organizations or Native Hawaiian organizations.

b. Section 106 consultation. If the responsible FAA official determines the undertaking has the potential to affect an NRHP-listed or eligible property, the official must begin consulting with various parties having critical roles in the Section 106 process. Agency consultation must include:

(1) the State Historic Preservation Officer (SHPO);

(2) Native Americans or Native Hawaiian organizations if resources important to them may be in the project area. Contact with a Tribal Historic Preservation Officer (THPO) may be needed;

(3) the airport sponsor;

(4) representatives of local governments having jurisdiction over the area involved in the undertaking;

(5) individuals and organizations having legal or economic interests in the historic properties the undertaking may affect; or

(6) the public in the APE having an interest in historic properties (see section 5.d. of this chapter).

Section 106 requires the FAA to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on undertakings (36 CFR Section 800.1). FAA must take into account ACHP's opinions in reaching a final decision. Although FAA must present evidence that it considered ACHP's opinion, FAA is not bound to that opinion and may or may not revise its initial finding.

c. Area of potential effect (APE). If an undertaking has the potential to affect NRHP-listed or eligible historic properties, then FAA, in consultation with the SHPO (or THPO when appropriate), identifies the APE. The APE is the geographic area or areas in which an undertaking may directly or indirectly affect the character of historic resources. Note that it is *not* necessary to know if any historic properties occur in the APE to describe it.

d. Identifying properties. After defining the APE, FAA reviews the NRHP to determine if properties already listed in the NRHP occur in the APE. FAA must also determine if the APE contains any properties that may be eligible for NRHP listing. Historical research, archaeological or historic architectural surveys, and consultation with the SHPO, tribes, other traditional communities, and local historic groups are methods used to identify NRHP-eligible properties. Once FAA through this consultation identifies these properties, the responsible FAA official, through more consultation with the SHPO (or THPO when appropriate), evaluates the eligibility of properties using NRHP's criteria at 36 CFR Section 60.4. If any property meets one or more of these criteria, the responsible FAA official, in consultation with the SHPO (or THPO when appropriate), determines if the property is eligible for listing in the NRHP. If the SHPO or THPO do not concur with FAA's eligibility determination, FAA must seek a formal eligibility determination from the Keeper of the NRHP at the NPS. NPS Bulletin 15, *How to Apply National Register Eligibility Criteria,*

and 36 CFR Section 800.4(c) provide more guidance on how agency personnel evaluate NRHP eligibility.

e. Tribal and Hawaiian consultation. FAA must make a reasonable and good faith effort to consult with Native American tribes and Native Hawaiian organizations when defining the APE and identifying properties within it. This helps to identify historic properties in areas located off tribal lands that may have religious and cultural significance to tribal members. Due to the sovereignty of Federally-recognized tribes,[5] consultation with these tribes must occur in a "government-to-government" manner. That consultation is needed to comply with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, and FAA Order 1210.20, *American Indian and Alaska Native Tribal Consultation Policy and Procedures*. FAA Order 5050.4B, paragraph 303, provides more information on this issue.

(1) The APE. The responsible FAA official must consult tribal or Hawaiian officials to determine if the APE contains resources important to Native American tribes or Native Hawaiian organizations. This is a critical step because an APE may contain religious or cultural resources important to these peoples, even if they do not live within APE.

(2) Traditional Cultural Properties (TCPs). TCPs are import to a community's history, cultural practices, and beliefs and help maintain the continual cultural identity of Native American tribes, Hawaiian organizations, and other traditional communities. TCPs are normally, but not always, eligible for inclusion in the NRHP. NPS Bulletin 38, *Identifying Traditional Cultural Places*, provides guidance on NRHP criteria to determine if a TCP qualifies as a Section 106-protected TCP. FAA must consider an undertaking's effects on NRHP-eligible or listed TCPs.

f. No Properties Affected determination. FAA is responsible for determining if the undertaking would or would not affect any historic properties. An effect would occur when an undertaking would change the characteristics qualifying a historic resource for inclusion in or its eligibility for the NRHP. To make a No Properties Affected Determination, the responsible FAA official, in consultation with the SHPO (or THPO, when appropriate), must determine the undertaking would not affect NRHP-listed or eligible historic resources properties in the APE. Here, FAA must notify the SHPO (or THPO, when appropriate) of that finding. To do so, the responsible FAA official must send to the SHPO (or THPO, when appropriate) the following documentation noted in 36 CFR Section 800.11 (d) and provided here for convenience.

- A description of the undertaking. Specify the Federal involvement and its APE. As necessary, include photographs, maps and drawings;
- a description of the steps taken to identify historic properties, including efforts to seek information as discussed in 36 CFR Section 800.4(b); and

[5] See *Federal Register* Vol. 67, No. 134, pgs. 46327 – 46333, dated July 12, 2002 for a list of Federally-recognized tribes. The Bureau of Indian Affairs is responsible for revising the list.

- the basis for determining that there are no properties present or affected.

Note: National Park Service Bulletin 44, *Guidelines for Evaluating and Documenting Historic Aviation Properties*, may be helpful in assessing impacts on historic aviation facilities.

(1) When the SHPO (or THPO) agrees with the finding. If the responsible FAA official finds "no historic properties affected", the official must send the documentation noted above to the SHPO (or THPO, when appropriate). FAA must notify other consulting parties of the finding, including Native American tribes and Native Hawaiian organizations, when appropriate. The responsible FAA official must make the documentation it sent to the SHPO/THPO on the finding available to the public. The SHPO (or THPO, when appropriate) has 30 days to review the finding, provided FAA has provided the required documentation to them. If the SHPO (or THPO) does not object, or does not respond, FAA has fulfilled its Section 106 responsibilities. The environmental document prepared for the undertaking should contain the finding, proof of consultation, and the documentation supporting this finding.

(2) When the SHPO (or THPO) objects to the finding. If the SHPO (or THPO, when appropriate) objects to FAA's finding within 30 days of receiving it, FAA will consult with the SHPO (or THPO, when appropriate) to resolve the disagreement or send the finding's documentation (see 36 Section 800.11(d)) to the ACHP for its review and comment. The ACHP must respond within 30 days of receiving the documentation. If ACHP does not respond in 30 days after receiving the documentation, FAA has fulfilled its Section 106 responsibilities.

(a) If ACHP objects to FAA's finding, but FAA and the sponsor alter the undertaking to address ACHP's concerns, FAA has met its Section 106 responsibilities.

(b) If FAA does not alter its original finding, FAA can proceed with the project but *only* after sending the ACHP, the SHPO (or THPO) and the consulting parties documentation on FAA's final decision. This documentation shows how FAA considered the ACHP's opinion.

(3) To the fullest extent possible draft environmental assessments and impact statements should summarize the FAA's NHPA Section 106 finding and cross-reference the pages of the appendix containing the supporting evidence and documentation reflecting consultation. See 40 CFR section 1502.25.

g. Assessing adverse effects. The responsible FAA official applies the adverse effect criteria in 36 CFR Section 800.5 to the historic properties in the project's APE. The official must do this in consultation with the SHPO (or THPO) and other consulting parties, including Native American tribes and Native Hawaiian organizations, as appropriate. If FAA finds an undertaking would affect an NRHP-listed or eligible property, the responsible FAA official must notify the consulting parties.

(1) Criteria of adverse effect. An undertaking would adversely affect a property if it changes the characteristics of the historic property that qualify the property for inclusion in the NRHP. Diminishing the integrity of the historic property's location, setting, design,

workmanship, feeling, or association could cause these effects. Per 36 CFR Sections 800.5(a)(1) and (2), an undertaking causing any of the following would adversely affect a historic property.

(a) Physical destruction or damage to all or part of the property;

(b) Alteration of a property in ways that is not consistent with the Secretary of the Interior's standards for treating historic properties (see 36 CFR Part 68). This criterion applies to activities:

(1) involving restoring, rehabilitating, repairing, maintaining, or stabilizing the property;

(2) providing handicap access to the property; or

(3) remediating hazardous materials;

(c) isolating the property from its surrounding settings or altering the characteristics of those settings, when those characteristics contribute to qualifying the property for the NRHP;

(d) moving a property from its historic location;

(e) introducing visual, audio, or atmospheric elements that are out of character with the property or that would diminish the integrity of the property's setting when the setting contributes to the property's historical significance.

Note: For noise-related impacts, a *quiet setting* (i.e., DNL below 60 dB) must be one of the **recognized** characteristics making the property eligible for or listed on the NRHP.

(f) neglecting property to a level that destroys the property or allows it to deteriorate; or

(g) approving the transfer, lease, or sale of a property without including contract assurances to preserve the property's historically significant features.

(2) Results of applying the criteria of adverse effect. After applying the criteria of adverse effect, the responsible FAA official, in consultation with the SHPO (or THPO, when appropriate) makes one of these determinations.

(a) No Adverse Effect determination. The responsible FAA official makes this determination when the analysis shows the undertaking would not trigger any of the adverse effect criterion noted in Sections 5.g(1)(a)–(g) of this chapter. The official may also determine that imposing certain conditions on the undertaking would avoid those effects.

(1) SHPO/THPO agrees with the finding. The responsible FAA official must send documentation on the determination as described in 36 CFR Section 800.11(e)) (presented here for convenience) to the SHPO (or THPO, when appropriate). The official

must also send the information to consulting parties, unless the information must remain confidential (see Section 5.h of this chapter).

- a description of the undertaking by specifying the Federal undertaking. Include the APE and photographs, maps, and drawings as necessary;

- a description of steps taken to identify historic properties;

- a description of the affected historic properties, including information on the properties' characteristics that make them eligible for the NRHP;

- a description of the undertaking's effects on historic properties;

- an explanation of why the criteria of adverse effect did not apply to the undertaking, including any conditions or future actions to avoid, minimize, or mitigate adverse effects; and

- copies of summaries of views that the public and consulting parties provided.

(2) Distributing the information to the SHPO (or THPO) and consulting parties. These entities have 30 days from the date they receive the documentation to review FAA's determination. After the 30-day review period, FAA can proceed with the project if the SHPO (or THPO, when appropriate) agrees with the Determination or if no consulting party has objected to it.

(3) When the SHPO (or THPO) or a consulting party object to a No Adverse Effect Determination. If the SHPO (or THPO, when appropriate) or a consulting party disagrees with FAA's determination within the allotted period, FAA must either consult with the party to resolve the disagreement or ask the ACHP to review the finding. The ACHP has 15 days to respond. During this period ACHP may issue an opinion to FAA. That opinion is advisory in nature. FAA must consider the opinion and determine if it will include the opinion in the undertaking. If the ACHP does not respond within the 15-day review period, then FAA has fulfilled its Section 106 responsibilities.

(4) To the fullest extent possible, draft environmental documents should summarize the NHPA Section 106 finding and cross-reference supporting materials and evidence contained in an appendix to the environmental document. See 40 CFR Section 1502.25.

(b) Adverse Effect Determination. The responsible FAA official would make this Determination if information and consultation suggest the undertaking would trigger one of the adverse effect criterion in Sections 5.g(1)(a)–(g) of this chapter.

(1) Notifying the SHPO/THPO and consulting parties. The responsible FAA official must notify the SHPO/THPO and consulting parties of an Adverse Effect Determination. To do so, the official must send information described in 36 CFR

Section 800.11(e) (presented in Section 5.g(2)(a)(1)of this chapter for convenience) to those entities unless the information must remain confidential (see paragraph 5.h of this chapter).

(2) Notifying the ACHP. FAA must also notify the ACHP of an Adverse Effect Determination. To do so FAA must send documentation described in 36 CFR Section 800.11(e) to the ACHP (see Section 5.g(2)(a)(1) of this chapter). Failure to do so is a *serious procedural flaw* because it denies the ACHP an opportunity to take part in the resolution of adverse effects and forecloses ACHP participation in consultation (36 CFR Section 800.16(j)). Failure to complete this step may provide ACHP with good cause to annul the Memorandum of Agreement addressing the adverse effects.

(3) Inviting or requesting ACHP consultation. Besides providing the documentation 36 CFR Section 800.11(e) requires, the responsible FAA official must invite the ACHP to participate in the 106 process in the following circumstances (36 CFR Section 800.6(1):

(a) when the agency official wishes the Council to participate (36 CFR Section 800.6(a)(1)(i)(A));.

(b) when an undertaking would adversely affect a National Historic Landmark (36 CFR Section 800.6(a)(1)(i)(B));

(c) when FAA will prepare a Programmatic Agreement (36 CFR Section 800.6(a)(1)(i)(C)); or

Note: If any of the above scenarios occur, ACHP must tell FAA if it will take part in the 106 process within 15 days of receiving the FAA's documentation and invitation to participate (36 CFR Section 800.6(a)(1)(iii)).

(d) if the responsible FAA official and SHPO/THPO cannot agree on how to resolve adverse effects, the responsible FAA official shall request the ACHP to join the consultation (36 CFR Section 800.6(b)(v)). In this case, the responsible FAA official must provide the information noted in 36 CFR Section 800.11(g).

(4) ACHP decision to enter consultation. As noted above, the ACHP may choose to enter the consultation process. When the ACHP decides to do so, it must notify the responsible FAA official or the FAA Administrator, and consulting parties. Appendix A of 36 CFR Part 800 has more information about the ACHP's participation in the consultation process.

(5) If FAA and the SHPO (or THPO), and/or ACHP fail to resolve adverse effects. FAA, the SHPO (or THPO, when appropriate), and/or ACHP may decide further consultation will not be productive. In this case, consultation may be terminated (36 CFR Section 800.7(a)). This Desk Reference does not provide information on this rare situation. If termination is seriously being considered, the responsible FAA official should review carefully 36 CFR Section 800.7 for specific instructions. The official should also *immediately* notify APP-400 and Regional Counsel if the approving FAA official is considering this procedure.

h. Confidentiality. Section 304 of the NHPA, as amended, allows the FAA Administrator to withhold information from the public, if the Secretary of the Interior and the Administrator decide disclosing the information would cause any of the following events. Review 36 CFR Section 800.11(c) for more details on this special procedure.

(1) cause a significant invasion of privacy.

(2) risk harm to the historic resource. or

(3) impede use of a traditional religious site.

i. Memorandum of Agreement (MOA). If FAA and the SHPO (or THPO, when appropriate) agree on how to resolve adverse effects, FAA and SHPO (or THPO, when appropriate) will prepare and sign an MOA. The MOA clearly specifies the conditions that will allow the proposed action to proceed. The MOA describes ways to avoid, minimize, or mitigate the undertaking's adverse effects on NRHP properties (Table 1 of this chapter provides helpful information on MOA content). The MOA becomes effective when the signatories discussed below sign it. However, the sponsor (or another party listed in the MOA) who is responsible for implementing any of the measures in the MOA need not begin carrying out those measures until the approving FAA official issues a decision on the undertaking. This is because FAA cannot unconditionally approve an ALP depicting an undertaking or approve a grant to construct the undertaking until FAA completes the Section 106 process (36 CFR 800.1(c)).[6] It is only then that the sponsor has received FAA authorization to begin the undertaking the ALP depicts. Per FAA Order 5050.4B, paragraph 202.c(2), the sponsor may begin the project after those approvals occur. The sponsor may not begin any undertaking that would adversely affect historic resources until FAA unconditionally approves a new or revised ALP or it approves a grant to construct the undertaking.

Note: Table 1 of this chapter provides information on preparing the MOA.

(1) Signatories. As signatories, FAA, the SHPO (or THPO, when appropriate), and ACHP (when it participates) have sole authority to execute, amend, or terminate an MOA (36 CFR Section 800.6(c)(1)).

(a) The approving FAA official and the SHPO (or THPO) must sign the MOA for the MOA to meet 106 requirements;

(b) If a SHPO terminates consultation, ACHP may enter into an MOA with FAA (36 CFR 800.7(a)(2));

(c) If the undertaking is on tribal land, the THPO must sign the MOA in lieu of the SHPO. However the SHPO will sign the MOA if a tribe does not have a THPO and the undertaking would affect tribal land; and/or

[6] FAA may issue those approvals only after it completes the environmental review process (issuing an EA and its Finding of No Significant Impact or an EIS and its Record of Decision).

(d) ACHP, if it is participating in the process.

(2) Invited signatories. The approving FAA official may invite other parties to sign the MOA. Typically, these parties would be representatives of Native American tribes or Native Hawaiian organization who attach religious or cultural significance to the affected historic resources off tribal lands. An invited signatory may also be a party having a role in carrying out the MOA's terms and conditions (i.e., airport sponsor). Invited signatories have the same rights as the signatories (may amend or terminate the MOA). However, their refusal to sign the MOA does not prevent the MOA from being finalized (36 CFR Section 800.6(c)(2)(iv)).

(3) Concurring parties. The approving FAA official may invite any of the consulting parties to sign the MOA. These parties do not have any of the signatories' rights, and their refusal to sign the MOA does not prevent the MOA from being finalized.

j. ACHP must receive a copy of the MOA or final EIS. FAA *must* send to the ACHP a copy of the signed MOA or final EIS, if FAA is using the procedures in 36 CFR Section 800.8 (see Section 7 of this chapter). It must also send any substantive changes or additions to the documentation noted in 36 CFR Section 800.11(e) if needed. FAA must do so *before* it approves a proposed undertaking having an adverse effect on historic properties (36 CFR Section 800.6(b)(1)(iv)). *Failure to do so could prompt the ACHP to determine FAA has foreclosed ACHP's opportunity to comment on an undertaking.* A determination that foreclosure has occurred is significant because that signifies the ACHP has concluded the agency failed to comply with Section 106 (36 CFR Section 800.16(j)).

k. Programmatic Agreement (PA). A PA is a special type of agreement. It presents the terms and condition FAA and the ACHP have agreed upon to resolve adverse effects due to complex situations or multiple undertakings. Sections 5.k(1)(a)-(c) of this chapter identify situations where a PA may be useful.[7]

(1) Consider using a PA when:

(a) an undertaking's effects would be similar and repetitive;

(b) an undertaking is complex, wide in scope, and FAA is unable to fully determine an undertaking's effects before approving it; or

(c) other circumstances warrant a departure from the normal Section 106 process.

(2) Preparing the PA. For airport undertakings having characteristics noted in Sections 5.k(1)(a)–(c) of this chapter, FAA may develop and negotiate a PA with the ACHP (36 CFR Section 800.4(b)). When preparing the PA, the responsible FAA official must consult with the SHPO (or THPO, when appropriate), responsible for protecting historic

[7] Other situations not associated with typical airport actions may be suitable for a PA. See 36 CFR 800.14(b)(iii) or (iv)

resources in the state where the undertaking would occur. FAA and the ACHP may agree to invite other parties to be consulting parties because a PA uses the same consultation process noted earlier for an MOA. Those parties may sign the PA as consulting parties. If an agency cannot develop a PA for complex or multiple undertakings, follow the provisions in 36 CFR Part 800 subpart B for each individual undertaking.[8]

l. FAA's post-approval Section 106 responsibilities. An MOA is a legally binding document. It commits an agency by statute and regulation to carry out an undertaking according to the terms and conditions set forth in the MOA (36 CFR Section 800.6(c)). Therefore, FAA must ensure the airport sponsor (or any other party the MOA or PA specifically names) fulfills the measures in the MOA (36 CFR 800.6(c)). Failure to do so means FAA has not met its Section 106 responsibilities for the undertaking.

m. Phasing the Section 106 process. FAA may phase the identification of historic properties in some instances. Normally, phasing would occur when a project includes reasonable alternatives encompassing large land areas or where property access is restricted (see 36 CFR Part 800.4(b)(2)). FAA may also phase identification of historic properties if it does not have adequate information to evaluate the potential effects of project alternatives on historic properties.

(1) Undertakings encompassing large areas. Here, the responsible FAA official evaluates each reasonable alternative's potential to affect NRHP-listed or eligible properties. The official does this based on background research, consultation with the SHPO/THPO and other parties, or results of field investigations. FAA must identify NRHP-listed or eligible properties, evaluate the proposed project's effects on them, and resolve any adverse effects on those properties. FAA should complete this part of the Section 106 review process *before* issuing an EA and its Finding of No Significant Impact, or an EIS and its Record of Decision.

(2) Undertakings involving restricted access. Sometimes, owners of land where project-affected resources occur deny access to their land. In this instance, FAA may delay final identification of historic properties and project effects on them until after the EA or EIS is completed. In these cases, the MOA or PA must clearly stipulate the delay in final identification and impact evaluation. The MOA or PA must describe how FAA will complete its identification of NRHP properties and how it will evaluate project effects on those properties. FAA or the SHPO/THPO must sign the MOA (or PA), *before* issuing a Finding of No Significant Impact or a Record of Decision.

6. DETERMINING IMPACT SIGNIFICANCE. After considering the analysis of effects on historic properties, including intensity and context, FAA will determine if an EIS is appropriate. Advice from the SHPO (or THPO, when appropriate) and ACHP may help the

[8] This Desk Reference does not discuss preparing PAs for national or regional agency programs because airport projects rarely involve these programs. Consultation for national or regional agency programs involves the National Conference of State Historic Preservation Officers, Indian tribes, or Hawaiian organizations. See 36 CFR Section 800.14(b)(2) for more information.

responsible FAA official make this determination, but the ultimate decision to prepare an EIS is FAA's responsibility.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
Regulations at 36 CFR Section 800.8(a) state that an adverse effect determination does not automatically trigger a finding of significant impact. Therefore, an EIS is not always required.	When an action adversely affects a protected property, the responsible FAA official should consult with and seek more input from the SHPO (or THPO). Consider alternatives that would avoid adverse effects on NRHP listed or eligible property. Also, consider mitigation that will lessen the adverse effects.

From: Table 7-1, FAA Order 5050.4B.

7. INTEGRATING SECTION 106 and NEPA. Title 36 CFR Section 800.8 encourages Federal agencies to integrate Section 106 and NEPA. This is intended to: streamline requirements; reduce paperwork; avoid redundant information; and coordinate public input. To integrate the processes, the responsible FAA official *must closely follow* the instructions at 36 CFR Section 800.8. In addition, FAA consultation with the SHPO, (or THPO, when appropriate), consulting parties, the public, and perhaps the ACHP is critical. The steps below summarize the steps for integrating Section 106 and NEPA.

a. Environmental assessment content. An EA prepared for an undertaking must contain specific information to verify that FAA has completed the Section 106 process. Depending on the level of effect, the EA must contain the documentation noted in Sections 5.f, 5.g(2)(a)(1), and 5.g(2)(b) of this chapter. Besides that documentation, the EA must contain the following information, as appropriate. If needed, follow the steps in 36 CFR Sections 800.8(c)(2) and (3) addressing review of the EA and resolution of objections, if any.

(1) Correspondence showing the responsible FAA official consulted with the SHPO (or THPO when appropriate) to define the APE. The EA must include information showing that FAA conferred with consulting parties or members of the public having knowledge of resources in the APE or concerns about the undertaking's effects.

(2) Correspondence from the SHPO (or THPO when appropriate) addressing FAA's finding that no properties are in the APE, or the undertaking would not affect existing properties in the APE. Include proof that FAA notified the consulting parties of this finding.

(3) Correspondence from the SHPO (or THPO when appropriate) and other consulting parties on the FAA's No Effect or No Adverse Effect Determination. Provide input from consulting parties and ACHP, if it is participating.

(4) Correspondence from the SHPO, (or THPO when appropriate), other consulting parties, and the ACHP, if it is taking part in project consultation, showing their concurrence on FAA's efforts to resolve the undertaking's adverse effects on historic properties.

(5) A copy of the signed MOA or PA clearly describing how FAA will resolve the adverse effects on historic properties.

b. Finding of No Significant Impact (FONSI) content for Section 106 purposes. The FONSI prepared for the undertaking should include the MOA or PA as an attachment. The FONSI should summarize the measures noted in the MOA or PA to avoid, minimize, or mitigate the effects.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT. FAA makes the final decision to prepare an EIS for airport actions. When FAA prepares an EIS to address significant impacts on historic properties, the responsible FAA official should consider inviting ACHP to be a cooperating agency. Information developed for and during the Section 106 consultation process should be sufficient for EIS purposes. During the EIS process, FAA may determine the undertaking would adversely affect Section 106-protected properties. After consulting the SHPO (or THPO when appropriate) and agreeing on ways to resolve the adverse effects, FAA may or may not need to prepare an MOA (see sections 8.a and b of this chapter). In addition, follow the steps in 36 CFR Sections 800.8(c)(2) and (3) addressing review of draft or final EISs and resolution of objections, if any.

a. An MOA is needed. If FAA is *not* using the NEPA process as described in 36 CFR Section 800.8, the final EIS should contain a copy of the signed MOA to meet Section 106 requirements.

b. An MOA is not needed. If FAA *is* using the process described in 36 CFR Section 800.8, FAA's EIS and its Record of Decision must contain measures to avoid, minimize or mitigate the adverse effects the undertaking would cause. FAA need not prepare a MOA (36 CFR Section 800.8.c.(4)(i)(A) in this case.

TABLE 1. SOME USEFUL INFORMATION FOR PREPARING AN MOA.

1.	Think ahead to ensure the MOA addresses all of the undertaking's foreseeable impacts.
2.	Describe the undertaking's physical location and clearly state where it will physically disturb existing conditions. Make sure the MOA addresses the entire undertaking.
3.	A resource's noise or visual setting may be one of the *recognized* characteristics making the resource eligible for the NRHP. An undertaking may alter that setting. Therefore, when appropriate, the Area of Potential Effect may extend beyond an undertaking's area of physical disturbance.
4.	For most airport projects, identify FAA as the lead agency responsible for ensuring the MOA's provisions are met.
5.	Assign duties to signatories and invited signatories.
6.	Use active voice. Passive voice does not clearly convey the party responsible for completing the MOA's requirements.

7.	Include provisions to which the signatories have agreed.
8.	Structure the MOA logically.
9.	Write the MOA so any reader may understand it.
10.	Provide complete citations for all laws, regulations or references. Include all statutory authorities.
11.	Use consistent terminology. Use terms consistent with statutory or regulatory definitions. Define terms specific to the undertaking that the applicable statutes or regulations do not define.
12.	Provide the date the MOA would become effective.

Adapted from the Advisory Council on Historic Preservation and the Univ. of Nevada, Reno, *Introduction to Section 106, Participants Handbook,* March 2001, page. 67.

CHAPTER 15. INDUCED SOCIOECONOMIC IMPACTS

1. INTRODUCTION AND DEFINITIONS.

a. General. FAA must evaluate a proposed airport project to determine the project's potential to cause induced or secondary socioeconomic impacts on surrounding communities. When FAA determines a potential for such impacts exists, the environmental document should describe how the proposed project would affect communities by addressing the following factors, as needed.

(1) shifts in patterns of population movement and growth;

(2) public service demands;

(3) changes in business and economic activities; or

(4) other factors identified by the public.

b. Examples of the induced socioeconomic impacts due to airport development. Certain airport development projects could have impacts on an affected area's socioeconomic characteristics. Socioeconomic impacts are linked to impacts to other resource categories through cause-and-effect relationships. Induced socioeconomic impacts can be significant when significant impacts in resource categories linked to socioeconomic impacts occur. For example, airport projects causing noise changes or requiring more land could cause local land use changes. As a result, the changes in the distribution of residents and their housing requirements could occur. These changes could, in turn, cause impacts that alter demands on fire and police protection, educational or utility services, businesses, and job opportunities in the airport area and other areas to which the residents relocate.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Council on Environmental Quality (CEQ) Regulations Implementing NEPA, 40 CFR Part 1500 *et seq.*	Section 1508.27(b) requires Federal agencies to consider a proposed action's impact significance by considering the impact's intensity and context. Section 1508.8 addresses indirect impacts (effects), which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water	CEQ

	and other natural systems, including ecosystems.	

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. Typical airport actions which could cause direct or indirect social and economic impacts include: airside/landside expansion such as new or expanded terminal and hangar facilities; new or extended runways and taxiways; navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use; new or relocated access roadways; remote parking facilities; rental car lots; a significant increase or change in aircraft operations; and significant amounts of construction/demolition activity.

4. PERMITS, CERTIFICATIONS, AND APPROVALS.

This impact category does not require Federal permits, certifications, or approvals. But the environmental document should contain evidence of coordination with potentially-affected jurisdictions and other interested parties located in the affected area. The evidence should provide information, substantive comments, or opinions concerning the existing and projected socioeconomic environment in the affected area. It should provide meaningful data on existing local population distributions, infrastructure, utilities, and economic factors that will form the basis for analysis.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES – ENVIRONMENTAL ANALYSIS. When preparing an environmental document for an airport project having the potential to cause social and economic effects, the following entities often provide important information that facilitates socioeconomic evaluations.

a. Local planning commission's housing departments and business organizations. Examples include the Chamber of Commerce and Economic Development Agency.

b. Public service utilities or local departments responsible for maintaining water, gas, and electrical supplies and infrastructure improvements.

6. DETERMINING IMPACTS.

a. General. Airport projects may require the acquisition of land or cause effects that alter existing land uses. For example, noise effects may cause the relocation of housing or other noncompatible land uses. Effects due to that relocation may cause substantial changes in the area's tax base and the relocation of businesses due to reduced sales levels. In addition, increases in utility demands may occur in the areas to which the displaced families move.

b. Document content. If needed, the environmental assessment should contain a chapter addressing induced socioeconomic impacts. It should focus on project-induced shifts in population movement patterns, public service demands, and business and

economic activities. Often, impacts discussed in chapters addressing noise impacts, changes in land uses, and social impacts lead to induced socioeconomic impacts. As a result, the induced socioeconomic impacts chapter should summarize information in chapters on other resource categories linked to socioeconomic impacts. The socioeconomic chapter should also summarize information from the entities noted in sections 5.a. and b. of this chapter and contain an appendix providing the correspondence from them. Determining project-induced secondary impacts will typically require the following steps:

(a) identifying effects due to changed land use, noise levels, and direct social impacts (see Chapters 5, 17, and 18, respectively, of this Desk Reference);

(b) setting up the geographic scope and time frame for the analysis;

(c) identifying and characterizing project-induced effects and affected people, businesses, or other entities (i.e. neighborhoods, services, businesses and other economic activities).

(d) defining a baseline condition for those affected.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. Environmental document chapters addressing noise, land use, and social impacts are useful in determining the severity of induced socioeconomic impacts. If those chapters identify significant impacts, significant induced socioeconomic impacts could also occur. Determining the significance of induced impacts will typically require the following steps:

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
None.	Induced impacts will normally not be significant, except where there are also significant impacts in other categories, especially noise, land use, or direct social impacts. In such instances an EIS may be needed.

From Table 7-1, Order 5050.4B

b. Potential mitigation measures. During the environmental review process, Federal, state, or local agencies may provide letters recommending measures to mitigate induced socioeconomic impacts. Potential mitigation may include:

(1) working with local officials to promote the economic vitality of the area;

(2) assisting local businesses with relocations; or

(3) helping to meet changed public service demands.

FAA and the sponsor should fully consider mitigation recommendations and balance their benefits against those of the proposed action. If FAA or the sponsor does not adopt any mitigation recommended, the environmental assessment (EA) should explain why the recommendation was not adopted. If feasible, the EA should provide an estimated schedule for undertaking accepted mitigation.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. Refer to the information analyzed in completing other sections of this chapter. In addition, evaluate the respective chapters dealing with noise, land use, social impacts, or other impacts causing induced socioeconomic effects. If a significant impact in one or more of these areas occurs, discuss how these impacts would affect the project area's economic and social characteristics. For example, if airport operations would cause noise impacts requiring the relocation of residential areas, describe how changes in the neighborhood would affect local businesses, public services and taxes in the area where people now live and the area(s) to which they will move.

b. Mitigation. The EIS should describe proposed mitigation when agencies provide that information. FAA and the sponsor should fully consider the mitigation and balance its benefits against those of the proposed action. If FAA or the sponsor does not adopt any mitigation recommended, the EIS should explain why the recommendation was not adopted. If feasible, provide an estimated schedule for undertaking accepted mitigation.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that environmental consequences have been fairly evaluated (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106 (c)(1)(B), FAA may not approve a Federal funding for major airport development projects, unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203(b)(4). The EIS must discuss and adopt mitigation measures agencies recommend in accordance with NEPA and 49 USC Section 47106(c)(1)(B). If feasible, provide an estimated schedule for undertaking accepted mitigation.

CHAPTER 16. LIGHT EMISSIONS AND VISUAL EFFECTS

1. INTRODUCTION AND DEFINITIONS.

a. Light emissions. Airport-related lighting facilities and activities could visually affect surrounding residents and other nearby light-sensitive areas such as homes, parks or recreational areas. If there is a potential for airport lighting to disturb these sensitive land uses, the responsible FAA official should ensure the environmental document examines those effects. If potential light emissions or visual effects exist, the official should evaluate measures to lessen those as well. This helps promote a "good-neighbor" policy while protecting the resource.

b. Visual effects. Visual, or aesthetic, effects are inherently more difficult to define and assess because they involve subjectivity. Visual effects deal broadly with the extent to which airport development contrasts with the existing environment, architecture, historic or cultural setting, or land use planning. It is important to determine if a community or a jurisdictional agency considers visual effects from the proposed action objectionable.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
There are no Federal statutory or regulatory requirements for adverse effects. State, regional, or local requirements may apply to airport-related light emissions or visual effects.	No Federal regulations govern light emissions or visual intrusions. However, FAA will consider potential effects to properties, and people's use of properties, covered by Section 4(f) of the U.S. Department of Transportation (DOT) Act, Section 6(f) of the Land and Water Conservation Fund Act (LWCF), and Section 106 of the National Historic Preservation Act (NHPA). See Chapters 7 and 14 of this Desk Reference, respectively, for more information.	None

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. Light emissions. Airport facilities and operations cause light emissions that can affect visually sensitive land uses in an airport area. The characteristics of many runway lighting systems create potential sources of annoyance to nearby residents in the airport vicinity if light is directed towards light-sensitive land uses. Disturbing emissions may emanate from the following sources associated with a proposed action: airfield and apron lighting, visual navigational aids (NAVAIDS), terminal lighting, employee/customer parking lighting, both airborne and ground-based aircraft operations, and roadway lighting.

b. Visual effects. The appearance and other visual qualities of airport development projects are largely related to an action's purpose or size, and locations of needed facilities or equipment on the airfield. Consistency with FAA and other relevant design standards and compatibility with existing structures are also important factors.

4. PERMITS, CERTIFICATIONS, AND APPROVALS. No permits, certifications, or approvals from Federal agencies are needed for light emissions or visual effects. However, State, regional, local agency and Tribe approvals may be needed. If this is the case, the environmental document should identify the necessary approvals and summarize any issues that may delay or bar any approval.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES – ENVIRONMENTAL ANALYSIS.

a. Light emissions. When potential lighting effects exist, airport sponsors should consult local residents and the owners or operators of potential light-sensitive sites. As part of these discussions, airport operators should discuss possible lighting effects and ways to minimize these effects without risking aviation safety or efficiency. The environmental document should contain records of all relevant communications with consulted parties.

b. Visual effects. Early consultation with State, regional, or local art or architecture councils, tribes, or other organizations having an interest in airport-associated visual effects may be helpful. For example, the visual sighting of aircraft or aircraft lights at night, particularly at a distance that is not normally intrusive, may cause an adverse visual effect. The environmental document should contain records of all relevant communications with consulted parties.

6. DETERMINING IMPACTS.

a. General. General and specialized lighting systems are essential parts of airport operations. General lighting is needed for safe ground movement of aircraft and vehicles. Special lighting systems, like lead-in lights, beacons, approach lights, and omni-directional lights, are needed for safe, efficient aircraft navigation and operations. The responsible FAA official should give special consideration to light emissions and visual effects to historic properties, national or state parks, recreation areas or other visually sensitive areas. To the extent light emissions and visual effects are relevant to other resource categories covered by DOT Section 4(f), the LWCF Section 6(f), and NHPA Section 106 (see chapters 7 and 14, respectively), those effects should be discussed in the relevant sections of an EA or EIS.

b. Information needs to determine lighting and visual effects. If there is a potential for airport-related lighting or visual effects on nearby residents or other light sensitive areas, the environmental document should evaluate those effects. This assessment should provide the following information as necessary.

(1) Light emissions.

(a) A brief description of proposed airport-related lighting. Include the purpose of the lighting, installation method (pole or ground-mounted), beam angle, intensity, flashing sequence, color of lighting, and any other important information.

(b) A map showing the locations of homes or other light-sensitive sites in the airport vicinity relative to the proposed lighting system.

(c) A description of lighting system effects on residents and light-sensitive sites in the airport area. The responsible FAA official should give attention to lighting systems emitting flashing, “white” light such as strobes. These systems often cause the greatest annoyance to surrounding residents and other light-sensitive areas.

(d) Any measures proposed to minimize light intrusion on nearby residents and light-sensitive sites. Measures include shielding, baffles, making angular adjustments, or other fixes.

(2) Visual effects. FAA encourages airport sponsors to consider design arts in a project's preliminary design stage. The environmental document should contain this information to the extent it is available. As practical, highlight design factors that will complement and support establishing functional, efficient, and safe airport operations while meeting local, cultural, and architectural heritage considerations. Examples of design art and architecture at airports include the following measures.

(a) Design considerations that would reduce the adverse effects of visual encroachments into residential or recreational areas or that disrupt scenic vistas. Architectural treatments of facilities that reflect light so the light blends in with nearby architectural styles. Painting or shielding structures, such as landing aid supports, reduce visual impact.

(b) Actions involving extensive earthmoving may visually disrupt the landscape. Standard design and engineering principles often lessen erosion or provides acceptable drainage or prevents other landscape effects. Extra care in slope design and plantings (that do not attract hazardous wildlife) would help minimize adverse visual and other environmental effects.

(c) Moving streams or other waters into channels designed to reflect the natural characteristics of the existing stream. This is often more aesthetically pleasing and less costly than installing concrete sluiceways. Bank stabilization with plantings that do not attract hazardous wildlife may improve the appearance of disturbed areas and control erosion.

(d) New facilities or major terminal expansion may provide excellent ways to recognize and reflect an area’s notable architectural, cultural, or ethnic assets. Consider

these assets when developing outside designs, landscaping, or architectural treatments for facilities or terminals

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. In some airport actions, airport lighting or visual effects may disturb natural resources or add unwanted aesthetic effects on man-made, historic, or cultural resources. After completing the analysis discussed in earlier sections of this chapter, apply the following information to determine the degree of effect on nearby residents or other light-sensitive areas or habitats. The visual impact discussion will normally address design, art, architecture, or landscape architecture to mitigate adverse visual effects or encourage enhancement of the environment. Consultation with expertise agencies is important when determining the level of light-related or visual effects. The environmental document should contain a record of any relevant communications.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
None established.	**For light emissions:** When an action's light emissions create annoyance to or interfere with normal activities. **For visual effects:** When consultation with Federal, State, or local agencies, tribes, or the public shows these effects contrast with existing environments and the agencies state the effect is objectionable.

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. During the environmental review process, agencies having jurisdiction or special use expertise on various light-sensitive resources (i.e., natural, man-made, historic, or cultural resources, parklands, etc.) may provide letters addressing lighting or visual effects on those resources. Those letters may include recommended measures to mitigate those effects. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If the FAA or the sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why the recommendation was not adopted. If feasible, provide an estimated schedule for undertaking accepted mitigation.

c. Examples of mitigation measures. In addition to the recommendations agencies make, the following mitigation measures may be useful.

(1) Light emissions. Potential mitigation may include the following measures to lessen light emissions on surrounding light-sensitive land uses:

(a) shielding lighting fixtures with top visors;

(b) angling fixtures toward the base of the mounting poles;

(c) Directional lighting; or;

(d) using minimal pole heights or reduced wattage bulbs.

(2) Visual effects. FAA encourages airport sponsors to use the principles of good design, art, and architectural treatment to blend airport facilities with surrounding areas. FAA Order 5100.38C, *Airport Improvement Program Handbook*, paragraph 304, provides guidelines for treating and promoting design, art, and architectural objectives in airport aid projects.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. FAA must prepare an EIS if mitigation will not reduce light emissions or visual effects to levels that do not significantly affect man-made, historic, or cultural resources. Further agency consideration may focus on previously unconsidered mitigation measures and alternatives. To avoid repeating information that another section of the EIS provides on light emissions, the EIS Light Emissions section should refer the reader to the chapter(s), if those chapters discuss lighting or visual intrusions on a on a particular resource. If those chapters do not address those lighting or visual effects, that information must appear in the EIS's Light Emissions chapter.

b. Light emissions. It is possible the responsible FAA official will decide that a special lighting study is necessary. The study may be appropriate in locales where high intensity strobe lights shine directly into homes or other sensitive areas or habitats. Those studies should assess lighting systems, alternative light locations, or mitigation measures not considered previously.

c. Visual effects. This impact discussion will normally address the use of design, art, architecture, or landscape architecture principles. These principles help lessen project-induced visual effects or enhance the visual environment. The responsible FAA official may encourage, but not require, an airport sponsor to use design, art, or architectural principles to reduce project-related visual effects. Because FAA cannot force the sponsor to do so, the FAA official must discuss the need for more information with the sponsor, when appropriate. The sponsor must agree that more analysis is needed. The responsible FAA official should note extensive, detailed design concepts are not usually developed until the EA or EIS is completed.

d. Mitigation. The EIS should describe proposed mitigation when expertise agencies provide that information. FAA and the airport sponsor should fully consider the mitigation and balance its benefits against those of the proposed action.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that environmental consequences have been fairly evaluated (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106 (c)(1)(B), FAA may not approve a Federal funding for major airport development projects, unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203(b)(4). The EIS must discuss and adopt mitigation measures recommended by agencies having expertise in accordance with NEPA and 49 USC Section 47106(c)(1)(B).

If needed, the EIS should explain why the sponsor or FAA did not adopt any mitigation the public agency authorized by the state to plan for the areas surrounding the airport land use agencies recommend. If feasible, provide an estimated schedule for undertaking accepted mitigation.

CHAPTER 17. NOISE

1. INTRODUCTION AND DEFINITIONS.

a. Airport noise. When evaluating proposed airport projects, airport noise is often the most controversial environmental impact FAA examines. Airport development actions that change airport runway configurations, aircraft operations and/or movements, aircraft types using the airport, or aircraft flight characteristics may affect existing and future noise levels. FAA's noise analysis primarily focuses on how proposed airport actions would change the cumulative noise exposure of individuals to aircraft noise in areas surrounding the airport.

Besides using noise levels to determine compatible land use, airport noise may be a concern when determining potential effects on several other environmental resources as well. As noted later in this chapter, these resources may include, but are not limited to, Section 4(f)-protected resources and historic and cultural sites. Therefore, the supplemental noise analysis may be appropriate on a case-by-case basis depending upon resource affected. Use the noise results from this chapter, and instructions in the chapter specifically addressing a particular resource to determine the severity of noise impacts on the resource of concern.

b. Day Night Average Sound Level (DNL). DNL is the standard Federal metric for determining cumulative exposure of individuals to noise. In 1981, FAA formally adopted DNL as its primary metric to evaluate cumulative noise effects on people due to aviation activities.

(1) Past and present research by the Federal Interagency Committee on Noise (FICON) verified that the DNL metric provides an excellent correlation between the noise level an aircraft generates and community annoyance to that noise level;[1]

(2) DNL is the 24-hour average sound level in decibels (dB). This average is derived from all aircraft operations during a 24-hour period that represents an airport's average annual operational day;

(3) It is important to note that due to the logarithmic nature of noise, the *loudest* noise levels control the 24-hour average; and

(4) DNL adds a 10 dB noise penalty to *each* aircraft operation occurring during nighttime hours (10 p.m. to 7 a.m.). DNL includes that penalty to compensate for people's

[1] *Federal Interagency Review of Selected Airport Noise Analysis Issues*, 1992, page 3-1.

heightened sensitivity to noise during this period.[2] This penalty contributes heavily to an airport's overall noise profile.

c. Community Noise Equivalent Level (CNEL). While DNL is the primary metric FAA uses to determine noise impacts. FAA accepts the CNEL when a state requires that metric to assess noise effects.

(1) Only California requires use of CNEL;

(2) Like DNL, CNEL adds a 10 dB penalty to each aircraft operation between 10:00 p.m. and 7:00 a.m.; and

(3) CNEL adds a 5 dB penalty for each aircraft operation during evening hours (7:00 p.m. to 10:00 p.m.). This evening noise penalty accounts for people's sensitivity to noise during evening hours when they may be outside and fewer noise producing activities occur.

d. The Schultz Curve. The Schultz Curve relates specific DNL levels to the percent of people in a community whom those noise levels highly annoy. The Curve provides a widely-accepted dose-response relationship between cumulative environmental noise and a health and welfare parameter, annoyance (Federal Interagency Committee on Noise FICON, 1992). Like other Federal agencies that have established Federal land use guidelines for noise, FAA used the Schultz curve, when it designated the DNL 65 dB contour as the cumulative noise exposure level above which residential land uses are not compatible.

e. Supplemental metrics. FAA uses supplemental metrics chiefly in EISs to help describe noise impacts for specific noise sensitive locations or situations. Section 8.d. of this chapter describes supplemental metrics.

f. 14 CFR Part 150 land use compatibility guidelines. FAA established land use compatibility guidelines relative to certain DNL noise levels in 14 Code of Federal Regulations (CFR) Part 150. Chapter 5, Table 1 of this Desk Reference provides a copy of the Part 150 Land Use Compatibility guidelines.

(1) Different local land use compatibility standards. Although residential land uses are considered compatible with noise exposure levels below DNL 65 dB under 14 CFR Part 150:

> "The responsibility for determining the acceptable and permissible land uses …rests with the local authorities...Part 150 is not intended to substitute federally determined land uses for

[2] The 10 dB penalty in the Integrated Noise Model means that noise from 1 aircraft operating between 10:00 p.m. and 7:00 a.m. counts as 10 operations.

> those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses. " -14 CFR Part 150, Table 1.

As a result, environmental documents may include noise contours below DNL 65 dB in addition to the required contours of DNL 65, 70, and 75 dB resulting from aircraft operations. Lower noise contours may be included for purposes of identifying proposed mitigation measures, provided the local land use planning jurisdiction has adopted a land use compatibility standard less than DNL 65 dB. (An airport sponsor's action to adopt such standards is sufficient where the sponsor has land use control jurisdiction). Absent a local standard, these contours may be included in the environmental document for informational/disclosure purposes, if the airport sponsor desires.

(2) Additional analysis under 1992 Federal Interagency Committee on noise recommendations. Where an airport development project has a potentially significant impact on noise sensitive areas in the DNL 65 dB and greater noise contours, the EIS noise analysis must also consider the DNL 60 dB contour. Further analysis is required in these circumstances to evaluate potential increases of DNL 3 dB and greater over noise sensitive areas between DNL 65 and 60 dB and potential mitigation measures. See, paragraph 8(b)(2), below for more details.

(3) Use of supplemental noise analysis. When planning and conducting the noise analysis for an airport development action, environmental specialists must consider the full context in which the airport action is occurring. Environmental specialists must be cognizant that Part 150 guidelines are not relevant and supplemental noise analysis is appropriate in the following circumstances.

(a) Areas within a historic site or national park or wildlife refuge where non-aircraft noise is very low and a quiet setting is a generally recognized feature or attribute of the site's significance. The DNL 65 dB level at which residential land uses are compatible does not adequately address noise impacts on visitors to unique areas characterized by low ambient noise levels and where quiet settings are a generally recognized feature and attribute of their significance. As a result, supplemental noise analysis is appropriate in certain circumstances. For example, environmental specialists must be cognizant that Part 150 guidelines do not adequately address the effects of noise on visitors to areas within a historic site or national park or wildlife refuge protected under Section 4(f) of the DOT Act where non-aircraft noise is very low and a quiet setting is a generally recognized feature or attribute of the site's significance. See Chapter 7 of this Desk Reference for information on Section 4(f), recodified as 49 USC Section 303.

(b) Aviation effects on wildlife. The responsible FAA officials should not use Part 150 guidelines to determine aviation noise impacts on wildlife. This is because those guidelines focus on human responses to noise. Instead, the officials, whenever possible, should use available, published information that addresses the effects of noise on the species of concern.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATION	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
49 USC Section 44715, Controlling Aircraft Noise and Sonic Boom	Authorizes FAA, after consulting with the U.S. Environmental Protection Agency (EPA), to prescribe standards and regulations to measure, control, and reduce aircraft noise.	FAA and EPA
49 USC Sections 47101 (a)(2), (c) and (h), Airport Improvement Policies.	Establishes a national policy to minimize current and projected noise impacts on nearby communities resulting from building and operating aviation facilities. This section also states it is in the public interest to recognize the effects of airport capacity expansion projects on aircraft noise and to reduce noncompatible land uses around airports. This section also requires the Secretary of Transportation to consult with the Secretary of the Interior and the EPA Administrator about projects involving new airports, new runways or major runway extensions that may cause significant environmental impacts.	FAA
49 USC Sections 47501-47510, Noise Abatement	Requires the Secretary of Transportation to issue regulations establishing a system for measuring and assessing noise impacts on individuals near airports. The regulations must also identify land uses normally compatible with various exposures of individuals to noise. FAA published these regulations at 14 CFR Part 150.	FAA

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. A proposed airport development action's environmental analysis normally addresses potential noise impacts. Typical airport actions that could cause noise impacts include: new or extended runways and taxiways; navigational aid (NAVAID) installation; land purchases for airport-related uses; substantial amounts of airport construction or demolition activities; and substantial changes in aircraft operations involving numbers of aircraft, aircraft types, new or revised approach or departure profiles or tracks; or new or relocated airport access roadways.

a. Applicability. Research has shown aircraft noise may exceed levels that make certain noise sensitive land uses noncompatible with airport operations (e.g., residences, schools, churches, hospitals, etc.; (see FAA Order 5050.4B, paragraph 9.n)). As a result, FAA assesses the effects of airport development that has the potential to cause aircraft noise outside an airport's boundaries. For most actions, FAA need not do a noise analysis for airport actions whose DNL 65 dB contour lies entirely within airport boundaries. However, as noted above, context should be considered in determining what type of noise

analysis is appropriate. In these instances, the responsible FAA Official should contact the Planning and Environmental Division (APP-400) for further guidance.

b. Airport actions FAA must assess. FAA must conduct a noise analysis for the airport actions listed below.[3]

(1) General aviation-related actions. Projects that would involve more than:

(a) 90,000 annual (247 average daily operations) piston-powered aircraft operations in Approach Categories A through D (i.e., landing speed < 166 knots); or

(b) 700 annual jet-powered aircraft operations (about 2 average daily operations) during the period the environmental document covers.

Note: These levels of piston-powered or jet-powered general aviation operations have been shown to produce a DNL 60 dB contour less than 1.1 square miles in area and extending no more than 12,500 feet from the start of takeoff roll. The resulting maximum DNL 65 dB contour would be 0.5 square mile and would not extend more than 10,000 feet from the start of takeoff roll. The Cessna Citation 500 and other jet aircraft producing noise levels less than or equal to the Beech Baron 58P may be counted as propeller aircraft, not jets.

(2) Actions involving a new airport location, a new runway, a major runway extension, or runway strengthening. A noise analysis is needed for these projects when they would:

(a) serve Airplane Design Groups I and II, if forecast operations exceed those noted in section 3.b(1) of this chapter;

(b) serve Airplane Design Groups III through VI;

(c) be highly controversial because of noise; or

(d) would serve special aircraft (e.g., helicopters) and those aircraft would fly over noise sensitive areas.

(3) Actions at existing heliports or airports. A noise analysis is needed at these facilities when forecasted helicopter operations for the period the analysis covers would exceed 10 operations per day (annual basis) and hover times exceed 2 minutes.

Note: Helicopter operations typically cause a DNL 60 dB contour having an area less than 0.10 square mile and not extending more than 1,000 feet from the helicopter pad. This finding applies to Sikorsky S-70 models having a maximum gross takeoff weight of 20,244 pounds, or any other helicopter of less weight or causing equal or lower noise levels.

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[3] FAA Order 1050.1E, Appendix A, paragraph 14.6a

4. PERMITS, CERTIFICATES, AND APPROVALS. No permits, certificates, or approvals are needed.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES – ENVIRONMENTAL ANALYSIS.

a. Required consultation. As needed, the responsible FAA official should ensure consultation with the entities noted below occurs. An appendix to the environmental document should include proof of that coordination.

(1) Federal or state agencies, Federally-recognized tribes or Native Hawaiian organizations that have expressed noise concerns;

(2) local governments having jurisdiction over land uses and having concerns about project-related noise.

(3) aviation entities (e.g., airport users, pilots, owners of on-airport businesses, etc.) who have expressed concerns about noise due to project-related changes in airport operations or flight procedures;

(4) citizen groups having an interest in aircraft noise issues and who have expressed concerns about airport development (see *Community Involvement Manual*, FAA-AEE-90-03, August 1990, if needed); or

(5) the National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), and the Bureau of Land Management (BLM), as needed, to coordinate the issue of project-related noise over resources these agencies manage.

6. DETERMINING IMPACTS. The responsible FAA official needs to consider how airport actions may change future operations and the levels of aircraft noise affecting communities in areas surrounding the airport. The official must also consider noise from non-aviation sources for purposes of cumulative impacts analyses. Those noise sources include, but are not limited to, project-related construction activities and/or surface transportation, other projects in the area. To determine surface transportation impacts, the Federal Highway Administration's (FHWA) *Procedures for Abatement of Highway Traffic Noise and Construction* Noise (23 CFR Part 772) or a method a state transportation agency recommends may be used.

a. Aircraft noise. FAA has established a standard process to evaluate aircraft noise impacts. The responsible FAA official must use that process to assess an airport action meeting one of the criterion in section 3.b.(1)-(3) of this chapter. This process includes noise models, land use compatibility, noise impact thresholds, and supplemental noise analysis. The following sections discuss those issues.

b. Noise screening models. FAA has identified the following two noise screening models to help determine if a detailed noise analysis using the Integrated Noise Model

(INM) is needed to properly assess a proposed action's noise effects (see section 6.c of this chapter).

(1) Area Equivalent Method (AEM). The AEM is a mathematical process that estimates changes in the area of the existing DNL 65 dB contour. It is a screening tool used to determine if further analysis using the more detailed INM is needed. Review the following information to determine if using the AEM is appropriate for a proposed action.

(a) The AEM may be used for proposed actions that would change the *area*, but not the *shape* of the DNL 65 dB contour. Such actions typically include those that would not require:

(1) a change in existing air traffic ground tracks or flight profiles;

(2) an increase numbers of daily operations;

(3) changes in fleet mix; or

(4) changes in operation times.

(b) Do not use the AEM for actions that would change the *shape* of the noise contour that would result from changes to *existing* air traffic flight tracks or flight profiles.

(c) If the AEM is appropriate for use, the AEM analysis should compare the future condition without the proposed action (i.e., no action/no build alternatives) to the future condition with the proposed action and reasonable alternatives.

(d) If the AEM calculation shows an increase of *17 percent or more* in the area within the DNL 65 dB contour, or if the proposed action or reasonable alternative is not suitable for AEM, then the proposed action or reasonable alternative must be analyzed using the INM to determine if significant noise impacts would result.

(2) Air Traffic Noise Screening Model (ATNS). When the AEM is not appropriate, the ATNS may be a usable screening tool to quantify project-related changes in noise exposure that air traffic changes above 3,000 feet above ground level (AGL) would cause. Air traffic changes above this altitude are normally categorically excluded, but when they occur over noise sensitive areas they may be highly controversial on environmental grounds. That controversy may constitute an extraordinary circumstance requiring FAA to prepare an environmental assessment (EA). ATNS results showing noise sensitive areas receiving a 5 dB change due to a proposed action or reasonable alternative are helpful in determining the magnitude of change over those areas when use of the AEM is not allowed. Contact the Office of Environment and Energy (AEE) for ATNS software and user manuals.

c. The Integrated Noise Model, the model for detailed noise analysis. FAA requires the use of the Integrated Noise Model (INM) for airport development actions requiring a detailed noise analysis. INM is an average-value-model designed to estimate long-term average effects using average annual input conditions. It also provides information on other, pre-defined supplemental noise metrics (see sections 8.d.(1)-(4) of this chapter).

(1) INM input. INM model input data vary by project. Airport-specific data are needed to accurately represent factors that are critical to a proposed action's noise analysis (i.e., project-specific flight tracks, aircraft fleet mix, standard and user defined aircraft profiles, and terrain characteristics). AEE manages the INM. Therefore, AEE *must* provide written approval for requested changes to INM input files, procedures, aircraft substitutes, any standard, or default data (see footnote 6 for further information).

(2) INM, the required model. INM is FAA's *required* noise model for assessing airport development] projects when:

(a) the AEM or ATNS shows more detailed information is needed; or

(b) based on experience, the responsible FAA official knows that a particular airport project requires a detailed noise analysis (i.e., new airport, new runway, changed runway configurations, highly controversial).

(3) Model version. The INM is the model FAA requires for all noise analysis. The data and model version used should be the latest and most currently available when the responsible FAA official begins preparing the analysis for a proposed action. If FAA issues a new version of INM after a project's noise analysis has begun, the updated version may be used to provide additional disclosure concerning noise, but use of the new model version is not required. However, the official should carefully consider using the new version when there is a major revision or addition to the analysis or project (e.g., if baseline and/or forecast years are updated, thereby creating the potential for different impacts).

(4) INM output. The INM produces noise contours used to prepare noise graphics for NEPA analyses.[4] The INM program includes tools for comparing contours and commercial Geographic Information Systems (GIS) to show various land uses relative to current, future no action, and future project noise levels.

(5) Grid points. INM calculates project-induced noise changes at a specific site or "grid point." Grid points help the responsible FAA official determine if project noise at a specific location would occur over noise sensitive land uses (e.g., hospitals, schools,

[4] INM is also used to generate noise exposure maps for Noise Compatibility Programs under 49 USC Section 47503, which addresses those maps.

churches, etc.) and the level of that noise impact. Such information is often helpful in designing mitigation or improving the public's understanding of a project's noise effect.

Note: The Noise Integrated Routing System (NIRS) is a model that provides information to evaluate aviation noise changes over large areas that result from *regional air traffic changes*. Those changes affect expansive areas and are not normally due to an airport project. Do ***not*** use NIRS for airport projects.

f. Noise analysis. The responsible FAA official should determine the data needed to accurately predict a project's noise impacts. The following sections address the information needed to accurately estimate those impacts.

(1) Study years. FAA should coordinate appropriate timeframes for the noise study with the airport sponsor before the noise analysis begins. The study years must be consistent with the timeframes FAA will examine for other environmental impact categories in the NEPA study. Sometimes those study years may be the same as those used in available a Noise Compatibility study conducted under Part 150 or in the airport sponsor's planning document (e.g., Master Plan). Normally, time frames assessed in NEPA documents include:

(a) The existing condition (normally the last 12 consecutive months of available data);

(b) Future year without the proposed project (i.e., no action/no build alternative);

(c) The future year of anticipated project implementation (project opening year);

(d) Another future year, normally, 5 to 10 years beyond the projected year of project implementation. In some cases, this may be the outer year of an airport sponsor's Master Plan. Additional timeframes may be desirable for a particular project.

(2) Noise contours analyzed. Use the INM to develop the DNL 65, 70, and 75- dB noise contours. Normally, the following noise contour sets are needed as discussed below:

(a) the existing DNL 65, 70, and 75 dB contours;

(b) the future DNL 65, 70, and 75 dB contours without the proposed action (i.e., the no action/no build alternative);

(c) the future DNL 65, 70, and 75 dB contours for the proposed action; and

(d) the future DNL 65, 70, and 75 dB contours for each reasonable alternative.

Note: In some circumstances, additional contours may be shown

(3) Noise compatibility evaluation. The noise contours developed should be compared to land use information and population data. This provides information on potential noise levels people in the affected area would experience. Normally, the following information should be quantified for each set of contours described above. The contours should be depicted on maps to show noise sensitive areas and other land uses within the action's noise impact area.

(a) The number of residences or people living within each noise contour at or above DNL 65 dB. Per FICON, in some circumstances, an evaluation of the 60 DNL may be needed as discussed in section 6.f.(4) of this chapter. This includes the net increase or decrease in the number of residences or people exposed to that noise level.

(b) The locations and numbers of noise-sensitive land uses (e.g., schools, churches, hospitals, and parks) within each contour at or above DNL 65 dB.

(c) The area (square miles or acres) of general land use classifications within each of the above noise contours (optional).

(d) Mitigation measures in effect or proposed and their relationship to the alternatives analyzed.

g. Noise monitoring. Noise monitoring data may be included in an EA or EIS at the discretion of the responsible FAA official for information or disclosure purposes only. Noise monitoring is *not* required for FAA NEPA noise evaluations. FAA does *not* use monitoring data to calibrate the INM.

h. Surface transportation noise. Some airport development has the potential to cause surface transportation noise impacts. Those impacts may result from:

(1) new, expanded, or re-aligned airport access roads;

(2) increased airport automobile or truck activity;

(3) increased vehicle speeds; or

(4) other surface-transportation related actions.

Therefore, a proposed action's surface transportation plan should be reviewed to determine if it would change traffic noise in the affected area. If any of surface transportation impacts potentially exist, conduct a noise analysis using accepted highway noise methodologies (i.e., FHWA's *Procedures for Abatement of Highway Traffic Noise and Construction* Noise (23 CFR Part 772)).

i. Construction noise. Review the proposed airport development to determine if potential construction noise impacts would occur. Activities that may cause construction noise impacts include blasting, demolition, construction equipment operation, use of

temporary haul routes, and temporary re-routing of vehicles. If a construction noise analysis is needed, the FHWA method noted in paragraph 6.h. of this chapter may be appropriate.

j. Environmental document information. The environmental document must contain information to enable reviewers to understand the basic assumptions and results of the noise analysis. Use tables and figures to help summarize information. Place the details about the analysis (model input detailed assumptions, etc.) in an appendix to the EA or EIS. Generally, the environmental document's text should include the following information:

(1) Forecast activity data. Airport sponsors provide these data. They address forecast aircraft activity, for the alternatives being analyzed.

(a) The data must be for the periods noted in section 6.f.(1)(a)-(d) of this chapter;

(b) The sponsor's forecast must be consistent with the Terminal Area Forecast (TAF). To be consistent with the TAF, the sponsor's 5-year forecast should be within 10% of the TAF. A 10-year forecast should be within 15% of the TAF (per FAA Order 5050.4B, paragraph 706.b.(3)); and

(c) FAA must approve the forecasts.

(2) Base maps. These maps show the existing airport, the proposed airport development's runway alignments and designations, and the area near the airport. Usually, the Airport Layout Plan (ALP) is sufficient, but a 7.5-minute "quadrangle map" overlain with the airport's facilities provides a useful base map. This information should also include a noise and land use inventory that satisfies the FAA guidelines in Program Guidance Letter 03-02, *Determining Justification of Projects for the Noise Set-Aside Based on Currency of Noise Exposure Maps*.[5]

(3) Flight track maps. These maps show generalized arrival and departure tracks on noise contour maps. They depict aircraft positions relative to land uses or other features in the airport vicinity.

(4) Noise exposure maps. These maps show DNL contours superimposed on land uses in the airport vicinity. The maps must clearly and prominently show noise sensitive land uses such as residences, schools, hospitals, churches, etc., relative to the DNL 65, 70, and 75 dB contours. The environmental documents should provide separate maps for each of the following airport layouts:

(a) the existing airport;

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[5] http://www.faa.gov/airports_airtraffic/airports/aip/guidance_letters/media/PGL_03-02.doc

(b) the future airport without the proposed action;

(c) the future airport with the proposed action; and

(d) the future airport for each reasonable alternative.

ARP recommends using data that are no more than 3 years old to ensure model input data accurately reflect conditions at the airport. The responsible FAA official must independently and periodically review these files during the environmental review process to verify they accurately reflect the airport's current and forecast: activity, aircraft fleet mix, runway use, and flight track use. Sensitivity analyses may be necessary to assure the accuracy and validity of the data used.

(5) Noise exposure data tables. These tables describe land uses and provide the number of noise sensitive land uses in each contour (DNL 65, 70, and 75 dB) for the scenarios mentioned in sections 6.j.(4)(a)–(d) of this chapter. The responsible FAA official uses these data and data concerning the level of projected noise increase to determine if any alternative would cause a significant noise increase (DNL 1.5 dB or greater) over noise sensitive land uses.

Note: Due to the physics of sound energy, a clearly perceptible noise change normally occurs when a DNL 3 dB increase occurs within the DNL 60 to 65 dB contour or a DNL 5 dB increase occurs in the DNL 45–60 dB contour.

k. Noise analysis duties of the responsible FAA official. The responsible FAA official must complete the following duties to provide an acceptable noise analysis:

(1) Ensure AEE approves changes to INM input data files or changes in flight profiles for noise abatement departure procedures (NADPs). The environmental document must include a copy of AEE's approval if the sponsor proposes use of modifications to the INM.[6] If noise abatement take-off procedures are proposed, the two recognized noise abatement departure profiles (NADPs) are the "Close-in Community NADP" and "Distant Community NADP." FAA Advisory Circular 91-53A, *Noise Abatement Departure Profiles*, provides information on these NADPs.

(2) Ensure the administrative record includes an electronic copy of model input files and input documentation.

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[6] INM users should review Appendix B of the INM Users Guide for detailed instructions on submitting requests to modify INM input files, flight profiles, or other factors. Users should send their requests to the responsible FAA official in the regional Airports Division Office or the Airports Planning and Programming Division, APP-400. The official or APP-400 will forward the request to AEE. AEE will send its response to the FAA office (the regional Airports office or APP-400) that sent the request. This ensures proper coordination occurs between the model user and FAA.

7. DETERMINING IMPACT SIGNIFICANCE.

a. Significant impact. Use the information obtained during the analysis completed to meet other sections of this chapter and the thresholds in the following table to determine if an action would cause a significant effect. Local land use compatibility standards do not alter this threshold for NEPA purposes.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
- **For most areas:** When an action, compared to the no action alternative for the same timeframe, would cause noise sensitive areas located at or above DNL 65 dB to experience a noise increase of at least DNL 1.5 dB. An increase from DNL 63.5 dB to DNL 65 dB over a noise sensitive area is a significant impact.	ARP reminds the responsible FAA official that for NEPA purposes, DNL 3 dB impacts over residential areas between the DNL 60 and 65 dB contours do not cause significant adverse noise impacts. However, the potential for mitigating noise in those areas should be weighed, including consideration of the same range of mitigation options available at DNL 65 dB and higher and eligibility for Federal funding.
- For national parks, national wildlife refuges and historic sites, including traditional cultural properties where a quiet setting is a generally recognized feature: The DNL 65 dB level at which residential land uses are compatible does not adequately address noise impacts on visitors to these areas. As a result, relevant and/or supplemental noise analysis is appropriate in certain circumstances. Responsible FAA officials must be cognizant that Part 150 guidelines do not adequately address the effects of noise on visitors to areas within a historic site or national park or wildlife refuge protected under Section 4(f) of the DOT Act (see Chapter 7 of this Desk Reference for information on Section 4(f), recodified as 49 USC Section 303) and where non-aircraft noise is very low and a quiet setting is a generally recognized feature or attribute of the site's significance.	

From: Table 7-1, FAA Order 5050.4B

b. Mitigated Finding of No Significant Impact (FONSI). If sufficient mitigation that would reduce all potentially significant noise impacts below threshold levels measures is included as part of a project and the sponsor has made binding commitments to carry out those measures within its authority, then an EIS is not necessary (absent significant impacts in other categories). In such cases, FAA may conclude the action by issuing a FONSI. The FONSI or FONSI/Record of Decision (ROD) must list the measures FAA has made a condition

of project approval, including those the sponsor will be required to carry out through grant assurances or other means.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. A potentially significant noise impact often has corresponding impacts on land uses. FAA must prepare an EIS, if mitigation will not reduce impacts below the noise thresholds in section 7 of this chapter. Preparers should avoid repeating information presented in the EIS's Compatible Land Use chapter. As appropriate, preparers should refer the reader to either the EIS's Noise chapter or the Compatible Land Use chapter, depending on how the preparers have addressed noise and compatible land use issues.

b. Information needed when FAA determines a significant noise impact. The EIS should include information discussed in earlier sections of this chapter in the EIS. It should also include the following information as needed.

(1) Refined information. If the sponsor prepared an EA, revise the text and graphics as needed to meet EIS requirements. The EIS must thoroughly explain significant noise impacts. Sometimes, a more complete description of the noise events contributing to the DNL contours with added tables charts, aerial photographs, maps, or metrics is sufficient. In other cases, supplemental analyses may include using metrics other than DNL (see section 8.d of this chapter for supplemental analysis information).

(2) The DNL 60 dB contour. Where an airport development project has a potentially significant impact on noise sensitive areas (i.e., a DNL 1.5 dB or more noise increase within the DNL 65 dB noise contour), the EIS noise analysis must depict the DNL 60 dB contour as well. Further analysis is required in this circumstance to evaluate potential increases of DNL 3 dB and greater between DNL 65 and 60 dB and potential mitigation measures.

This information helps to further disclose potential project-related noise changes in the airport area.[7] Additional contours are optional, as discussed in paragraph 1f, above. Provide figures showing noise sensitive land uses within the DNL 60 dB contour and the DNL exposure level for each of the following scenarios.

[7] FAA has adopted the recommendation of FICON to examine DNL 3 dB or greater noise increases within the DNL 60-65 dB contour where a project has significant impacts. A DNL 3 dB increase in this contour causes a 3 percent increase in the percentage of people highly annoyed (FICON, 1992, Technical Report, Section 3, pg. 3-17.

(a) the future no action alternative;

(b) the proposed action; and

(c) each reasonable alternative.

Information on addressing the following items for each of the scenarios noted above is helpful.

(1) The locations and numbers of other noise-sensitive land uses such as homes, schools, churches, hospitals, or public parks in the DNL 60 to 65 dB contour where a DNL 3 dB noise increase could occur. [Also include the number of residences or people living within the DNL 60-65 dB contour where the project would cause a DNL 3 dB increase.

(2) To the extent appropriate and practicable FAA should consider the same range of mitigation options that are potentially available at DNL 65 dB, including eligibility for federal funding for mitigation. Where possible, FAA and the airport sponsor should consider operational noise abatement measures. The environmental document should describe the operational noise abatement measures and their benefits. An airport sponsor's or FAA's consideration of measures to mitigate impacts within the DNL 60 to 65 dB contour does not mean either party is committing to carrying out that mitigation.

(3) **Impacts on people.** As needed, discuss designated land uses that might contribute noise impacts higher than airport-related noise, on the affected population.

(a) include information on climate and how it affects the types of housing construction in the affected area and how that construction affects the housings' sound insulation capabilities;

(b) include information on lifestyles of affected populations and how projected airport-induced noise would affect their indoor and outdoor activities (i.e., would noise interfere with speech or sleep).

(c) include information on background or ambient noise levels that may be helpful when addressing noise in rural areas.

(4) **Non-aviation noise.** Include an analysis of non-aviation noise sources such as project-related construction or roadway noise. Give special attention to construction noise near noise sensitive areas.

c. **Supplemental noise analysis.** FICON (1992) noted that supplemental metrics are useful in addressing various public concerns and to help the public better understand noise impacts. As a result, FAA sometimes uses supplemental noise information to describe aircraft noise impacts for specific noise-sensitive locations or situations. The responsible FAA official should consider the following factors when developing a supplemental noise

analysis. However, *before* making a decision about the supplemental metrics or the analysis, the responsible FAA official *must* consult the Office of Environment and Energy (AEE) and obtain AEE's approval on the appropriate supplemental noise analysis.

(1) Community concerns. When designing a supplemental noise analysis, consider community concerns and the types and nature of community activities potentially affected. Tailor the analysis to enhance reader understanding of important facts concerning noise affecting populations. The analysis designed depends on the circumstances for each project. No single supplemental analysis is preferred. Based on prior analyses, the following issues may concern a community.

(a) Sleep disturbance. FICON's 1992 report focused on a dose-response relationship the U.S. Air Force's Armstrong Laboratories developed. The following equation provides an estimated percentage of people awakened at a particular SEL.[8]

$$\% \text{ awakening} = 0.0087 \times (\text{SEL} - 30)^{1.79}$$

Note: SEL is the sound exposure level. See section 8.d.(1) of this chapter for more information.

(b) Speech interference. FICON recommends using a cumulative A-weighted metric limited to the affected time period (L_{eq}) or time-above (TA) (see section 8.d.(2) of this chapter). FICON also provides a table addressing noise levels and speech interference (see FICON, 1992, Technical Appendix, Section 3, pg. 3-9).

(c) Parks, wildlife refuges, and historic properties. The responsible FAA official should, in consultation with appropriate land management agencies, consider using a supplemental noise analysis for locations within a proposed action's study area. Such locations may include segments of or entire reaches of a national park, a national wildlife refuge, and a historic property (including traditional cultural properties) that is characterized by a low noise setting and where a quiet setting is a generally recognized purpose and attribute of the resource of concern.

(2) Data to use. The INM provides supplemental metric data. When the responsible FAA official determines supplemental analyses are needed, use the same database and INM model version used to develop DNL contours.

d. Supplemental noise metrics. FAA uses supplemental metrics chiefly in EISs to help further describe aircraft noise impacts for specific noise-sensitive locations or situations experiencing a significant noise effect. The metrics are also helpful in developing

[8] Federal Interagency Committee on Aviation Noise (FICAN). 1997. *Effects of Aviation Noise on Sleep Disturbance.*

mitigation for that effect. FAA also uses supplemental metrics to aid the public's understanding of significant noise impacts. The following metrics may be used to provide more information to help the public understand project noise on issues of community concern (see section 8.c.(a)-(c) of this chapter). Review Table 17.1 at the end of this chapter for guidance on the metric to use when evaluating the activity or response of concern.

(1) SEL (sound exposure level). This is a measure of a noise event's physical energy. It takes into account the noise's level and duration and is referenced to a standard duration of one second.

(2) TA (Time Above). This is a single event metric. It provides the number of minutes an aircraft's noise level is louder than another noise level during a given period, Examples include the duration an aircraft is louder than the ambient noise or louder than the level above which speech interference may occur. TA may include information ranging from time above a specific noise level at a specific point, to the time above multiple levels (in 10 dB increments) throughout an area at specified grid points.

(3) L_{max} (maximum sound level). This is the loudest sound measured at a location during an aircraft's operation. It is useful for determining detectable noise changes. A 3 dB increase in L_{max} is "barely perceptible," while a 5dB increase in L_{max} is "clearly perceptible." L_{max} may also be used to assess noise on animals.[9]

(4) L_{eq} (equivalent sound level). This is the average noise level during a designated period (normally less than 24 hours). For example, L_{eq8} is used to determine the level of total noise during an 8-hour school day. It is helpful in determining if aircraft noise would or would not disturb classroom instruction, and, consequently, a need to include noise level reduction measures as project mitigation.

(5) Audibility. This is a time-based metric developed the National Park Service developed to evaluate effects of aircraft noise on natural quiet in Grand Canyon National Park and other units of the National Park System. The Integrated Noise Model now has the capability to model audibility.

b. Mitigation. Any mitigation measures to be taken in addition to those associated with other land use controls should be discussed. FAA Advisory Circular 150/5020-1, *Noise Control and Compatibility Planning for Airports*, presents guidance for airport operators and planners to help achieve compatibility between airports and their surrounding areas. The EIS should describe proposed mitigation when land management agencies provide that

[9] Federal Interagency Committee on Noise (FICON), 1992, *Federal Agency Review of Selected Airport Noise Analysis Issues*, Technical Appendix B, page B-10.

information. FAA or the sponsor should fully consider the mitigation and balance its benefits against those of the proposed action.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that that the agency has fairly evaluated environmental consequences (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106(c)(1)(B), FAA may not approve Federal funding for major airport development projects, unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203(b)(4). In accordance with NEPA and 49 USC Section 47106(c)(1)(B), an EIS must discuss and adopt mitigation measures recommended by the agencies that a State authorizes to plan for the area surrounding the airport. Sections 8.b(1)-(3) of this chapter provide examples of noise mitigation measures for a proposed airport action. If feasible, provide an estimated schedule for undertaking accepted mitigation. Where there is a DNL 1.5 dB or more increase in noise over noise sensitive areas within the DNL 65 dB or greater noise level, there should be further analysis. This analysis is needed to determine whether there noise increase of DNL 3 dB or higher over noise sensitive areas within the DNL 60–65 dB noise contour. Measures to mitigate these impacts should be considered for purposes of NEPA, including:

(1) Operational measures. Some common operational mitigation measures include:

(a) changes in flight tracks or runway usage;

Note: New or revised flight procedure changes at less than 3,000 feet AGL may route air traffic over noise-sensitive areas not previously overflown. These procedures must be examined, even if they affect fewer people than the no action. This analysis is needed to determine if the proposed procedures would cause a significant impact to the newly affected community. Mitigation to the area newly affected should be included where appropriate. Be sure to assess impacts due to the mitigation. This analysis is needed to ensure mitigation does cause more severe impacts than unmitigated impacts.

(b) voluntary noise abatement procedures; or

(c) changes in airport operations acceptable to airport users that do not interfere with interstate commerce.

(2) Land-use related measures. Some common land use mitigation measures include:

(a) Buying land or land interests such as air rights, easements, and development rights. These measures establish airport-compatible uses of the affected properties;

(b) Building noise barriers or acoustic shielding that does not attract wildlife hazardous to aviation. (See FAA Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports;* or.

(c) Sound insulating affected structures having noise sensitive uses (i.e., private residences, hospitals, churches, public buildings, or other structures accommodating those uses)

(3) **Construction measures.** Common construction mitigation measures include:

(a) limiting the time of day when machinery may operate, blasting may occur, or trucks operate on streets traversing noise sensitive areas; or

(b) recommending the use of muffled heavy equipment.

TABLE 17.1 Suggested Metrics to Determine or Describe Noise Impacts. This table is intended to guide analysts who evaluate a project's noise effects. In addition to DNL, the table provides information on other metrics that may further disclose and explain those effects.

POSSIBLE HUMAN RESPONSE	CORRESPONDING AVERAGE, CUMULATIVE NOISE METRIC	CORRESPONDING SINGLE EVENT METRIC	TIME AIRCRAFT HEARD ABOVE A PARTICULAR NOISE LEVEL	THE NUMBER OF EVENTS THAT WILL OCCUR ABOVE PARTICULAR NOISE METRIC
Community annoyance – How people psychologically respond to a given noise.	**DNL** - Average Day-Night Sound Level. ***L_{eq}** - Equivalent Sound Level.	***Lmax** – Maximum Sound Level. ***SEL** - Single Exposure Level.	***Time Above** - Typically, 60 or 65 dB. Above these levels, noise would interfere with normal conversational levels.	***N_x –** Numbers of events specified at each sound level.
Sleep disturbance - Sound levels causing sleep arousal.	***Nighttime L_{eq}** (10:00 p.m. - 7:00 a.m.= typical sleeping hours)	***SEL -** (Federal Interagency Committee on Aviation Noise (FICAN), 1997, uses SEL to predict the percentage of people an SEL would awaken.		
Speech interference - Intruding noise levels that may mask normal conversational speech levels and reduces listener understanding.	***L_{eq} daytime** (7:00 a.m. to 10:00 p.m. = typical activity hours)	***L_{max} or SEL**		
School learning –Noise level and that could adversely affect classroom activities. This information is used to determine the level of noise level reduction needed to reduce or	***School hour L_{eq}** (vary) ***L_{eq}** - 45 dB interior sound level goal.	***SEL** used to determine the interior noise level reduction (NLR). The minimum standard is 5 dB SEL. SEL is favored for analytical		

eliminate that interference.	goal.	purposes over Preferred Speech Interference Level[2]		
Park visitor annoyance – Noise level that would interfere with visitor enjoyment and appreciation of natural quiet. May vary by season or time of day.	***L_{eq}** (based on of park operation or visitor hours. (varies)	**Lmax**	**TAA** - Time Above Ambient sound levels.[3]	

* = Supplemental metrics used to further explain and disclose noise impacts. See section 8.d. of this chapter for more information.

[1] No required supplemental metrics. Selecting supplemental metrics is done case-by-case

[2] PSIL is arithmetic average sound pressure levels for the 500, 1,000, and 2,000-hertz octave bands.

[3] Often, local ambient (background) measurements are helpful.

CHAPTER 18. SOCIAL IMPACTS

1. INTRODUCTION AND DEFINITIONS.

a. General. FAA must evaluate proposed airport development actions to determine if they would cause social impacts. This evaluation should include effects on health and safety risks to children, and socioeconomic impacts. Those impacts include moving homes or businesses; dividing or disrupting established communities; changing surface transportation patterns; disrupting orderly, planned development; or creating a notable change in employment.

b. The "human environment." CEQ regulations at 40 CFR 1508.14 state that the "human environment" addresses the relationship of people with their natural and physical environments. Since changes to either of those environments typically do not occur without affecting people, Section 1508.14 requires that environmental documents prepared for Federal actions address social impacts.

c. Children's Environmental Health Risks and Safety Risks. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, defines the risks to children's safety that are attributable to products or substances that the child is likely to touch or ingest. Examples include the air we breathe, the food we eat, the water we drink or use for recreation, and the soil we use to grow food. Environmental documents should assess project-related impacts with the potential to have a disproportionate effect on children's environmental health or safety.

d. Socioeconomic impacts. The principal impacts to consider are associated with relocating or disrupting a residential or business community, transportation capability, planned development, or employment. Environmental documents should provide information on:

(1) The individuals and families (e.g., numbers and characteristics) an action would displace.

(2) The effects of that displacement on the neighborhood and housing to which the displaced people are likely to move, including information on the capability of the neighborhood to provide adequate relocation housing for the families the action would displace. If needed, the environmental document should describe any special relocation advisory services available for interpreting benefits or other assistance available for affected non-English speaking minorities.

(3) The businesses an action would displace.

(4) The effects of moving the businesses to other areas. Include information on the areas' abilities to provide replacement or new buildings or other features associated

with the affected businesses. If needed, the environmental document should describe any special relocation advisory services available for interpreting benefits or other assistance available for affected non-English speaking minorities.

Note: Chapter 10 presents information on Environmental Justice impacts.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Council on Environmental Quality (CEQ) Regulations Implementing NEPA (40 CFR Section 1500 *et. seq.)*	Section 1502.1 states that the Federal government must fully and fairly discuss significant environmental impacts and the reasonable alternatives that avoid or minimize those effects on the human environment. Section 1508.27 requires Federal agencies to consider the significance of the impacts from a proposed action by considering the intensity and context of the impacts	CEQ
Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC Section 4601, *et. seq.*) (PL 91-646 amended by the Surface Transportation and Uniform Relocation Act Amendments of 1987, Title IV of PL 100-17, and PL 105-117) and 49 CFR Part 24 (Implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970)	FAA must meet 49 CFR Part 24 requirements if an airport action involving FAA approval or funding would require purchasing real property or displacing people or businesses.	FAA
Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*	Children may suffer disproportionately from health risks and safety risks. As a result, consistent with their missions and as practicable, Federal agencies must make child protection a high priority. To do so, they must assess project-related impacts disproportionately affecting children's environmental health or safety. The Secretary of Transportation is a member of the Task Force responsible for carrying out this Executive Order. This group provides the President with strategies and recommendations to protect child health and safety.	Task Force on Health Risks and Safety to Children

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. Airport actions. The environmental analysis of a proposed airport projects must include discussions of potential social impacts. Typical airport actions that could cause social impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities and rental car lots; a significant increase or change in aircraft operations; and significant amounts of construction/demolition activity.

4. PERMITS, CERTIFICATES, AND APPROVALS.

a. Coordination evidence. Typically, FAA needs no formal Federal permits, certifications, or approvals when social impacts occur. The environmental document should contain evidence showing the airport sponsor has coordinated with affected municipal jurisdictions or appropriate social and/or transportation agencies located in the affected area.

b. Documented information. The environmental document should provide the following information and any substantive comments or opinions addressing these issues as needed:

(1) the availability of comparable replacement housing;

(2) the proposed action's consistency with local land-use and transportation planning objectives;

(3) the capacities of existing public service providers, infrastructure, utilities, and local economics sustaining an affected area's quality of life; or

(4) project-related impacts having the potential to have a disproportionate effect on children's environmental health or safety.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. Required consultation. Consultation with the following entities, as necessary, is often important when addressing an affected community's concerns about children's environmental health and safety and other socioeconomic effects.

(1) Local governments with jurisdiction over lands the action would physically or audibly affect. FAA's current 14 Code of Federal Regulations Part 150 criteria are helpful in determining land uses compatible with project-related noise levels.

(2) Local planning commissions and housing departments.

(3) Local business organizations and agencies such as the Chamber of Commerce or Economic Development Agency.

(4) Local agencies responsible for administering employment programs.

(5) Local transportation agencies. Contact these agencies when an airport action has the potential to affect the Level of Service (LOS) rating of local roads.

(6) Aviation groups, fixed base operators, and other on-airport businesses the proposed action would displace.

(7) Citizen groups having an interest in airport development (see FAA Advisory Circular 150/5050-4, *Citizen Participation in Airport Planning*). or

(8) Local public health agencies with jurisdiction over the affected area.

b. **More information.** The following Federal offices may also provide information.

(1) the U.S. Department of Housing and Urban Development's (HUD) Office of Community Planning Development provides information on local or regional social resources;

(2) the Sustainable Community Task Force provides information to local organizations on sustainable community development.

(3) the Task Force on Health and Safety Risks to Children provides recommendations to protect child health.

6. DETERMINING IMPACTS.

a. **General.** The environmental document should evaluate the proposed development's effects on the social and economic characteristics of affected communities. Focus on evaluating shifts in population, public service demands, roadway capacity, businesses, and economics. The environmental document should include information in sections 8.b-e of this chapter, as appropriate.

b. **Housing.** If the action would affect residential areas, include the following information.

(1) Provide the estimated number of households the action would displace. Include information such as owner/tenant status, estimated housing values, and rental rates of properties to be acquired.

(2) Provide the characteristics of the displaced households. As fitting, report the number of residents per household, the number of elderly or disabled people affected, family income levels, and race.

(3) Describe special relocation advisory services that will be provided to help elderly, disabled, minority, and/or low-income populations.

(4) Describe the physical and social impacts on the neighborhood(s) abandoned because of the proposed action and the reasonable alternatives.

(5) Include a survey addressing the estimated number of comparable replacement housing units in the area where displaced people would move. The information would provide data on the comparable replacement housing needed for the families the action would displace. Include the following information as necessary.

(a) Available price ranges and rental rates. This information is helpful in determining if affordable housing prices exist in area to which displaced residents would likely move.

(b) Identify the lack of available, acceptable replacement housing. If adequate supplies of comparable replacement housing are not available, consider starting "housing of last resort" procedures.

(d) Clearly state if the sponsor has the authority and is prepared to implement any necessary "last resort housing" provisions.

(6) In areas that would provide comparable replacement housing, describe the effects of project-related relocation residential influxes on the areas' neighborhoods. Also, discuss the abilities of those neighborhoods to meet increased service demands the proposed action would cause. Examples include the abilities to meet demands due to increased school populations, increased utility use, or demand placed on fire or police departments.

(7) Describe the benefits and services to which the displaced residents are entitled under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 49 CFR Part 24. See FAA Order 5100.37A *Land Acquisition and Relocation Assistance for Airport Projects* (or subsequent revisions),

(8) Estimate the cost and time required to relocate displaced residents in an orderly, humane manner.

(9) Include information on social issues obtained during public hearings conducted for the proposed action.

(10) Estimate changes in residential real estate taxes due to changes in the make up of neighborhoods in the areas residents leave and to which they move.

c. **Business effects.** If an action would affect businesses, include the following information as needed.

(1) Estimate the numbers, types, and sizes of businesses, farms, or non-profit organizations the proposed airport action would displace. Estimate the number of jobs and the income levels lost due to relocating or permanently closing those businesses.

(2) Identify the relocation's effects on the local economy and neighborhoods supporting the relocated or closed businesses. A survey and evaluation of the availability of replacement commercial or industrial sites able to accommodate the displaced businesses or organizations would be helpful. Identify those businesses or organizations occupying property that would remain adjacent to the real property acquired for the project. Determine if the businesses or organizations would experience substantial economic injury due to relocating or closing other businesses.

(3) Discuss the ability of local agencies and the sponsor to provide adequate relocation services for displaced businesses. As needed, describe special services that the agencies or sponsor would provide to aid relocated business owners. Also, if FAA determines the remaining business owners would suffer economic injury because of project-related acquisition of adjacent real property, discuss the airport sponsor's intent to provide services to businesses that are not displaced.

(4) Estimate expected costs and the time frames needed to relocate displaced businesses.

(5) Describe the benefits and services to which the displaced residents are entitled under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. See 49 CFR Part 24 and FAA Order 5100.37A (or subsequent revisions).

d. Transportation effects. Project-related changes to the local transportation system may cause social impacts. Provide information on the action's potential to reduce the LOS of airport access roads or of roads in the areas immediately surrounding the airport. Discuss any unacceptable changes in roadway LOS. Contact local, state, and Federal transportation management agencies for information on LOS.

(1) Estimate the number of daily vehicular trips that would occur on primary roads serving the airport.

(2) Describe the ability of the existing road network to meet estimated traffic demand. Describe changes to the system needed to accommodate traffic demands the action would cause. Include traffic re-routing, changes to street configurations or dimensions, and changes to land use patterns resulting from effects on traffic systems.

(3) Provide substantive comments from local, state, or Federal traffic management agencies. Summarize objections or concerns the agencies provide and describe how the sponsor will address those concerns.

(4) If project-related traffic patterns would cause air quality effects, refer the reader to the environmental document's Air Quality chapter addressing those patterns.

e. Children's health and safety risks. Environmental documents should identify and assess environmental health and safety risks that could disproportionately affect children.

(1) The Environmental Protection Agency's website provides information on the President's Task Force on Environmental Health Risks and Safety to Children.[1] The website includes information on asthma, unintentional injuries, lead-based developmental disorders, childhood cancer, and building and retrofitting schools. The Task Force has produced the *National Children's Study*, which examines the influence of environmental factors on children's health and development. Consult these sources as needed.

(2) Identify risks to child health or to safety that are attributable to products or substances that a child is likely to touch or ingest (e.g., air, food, drinking water, recreational waters, soil, or products they might use or to which they may be exposed).

(3) Provide substantive comments from local public health agencies about those risks or other substantive objections or concerns social agencies provide. Describe how the sponsor will address those concerns.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. The responsible FAA official should consider the following factors in consultation with agencies having jurisdiction or special expertise about land use in the airport-affected area.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
For **socioeconomic issues**: When an action would cause: • Extensive relocation, but sufficient replacement housing is unavailable. • Extensive relocation of community businesses that would cause severe economic hardship for affected communities.	A significant impact would not occur when controversy exists because property or business owner are dissatisfied with the amount of money an owner would receive due to relocation.

[1] http://yosemite.epa.gov/ochp/ochpweb.nsf/content/whatwe_tf_proj.htm#1

• Disruption of local traffic patterns that substantially reduce the Levels of Service of roads serving the airport and its surrounding communities. • A substantial loss in community tax base. For **Children's Health & Safety Risks:** An action causing disproportionate health and safety risks to children may indicate a significant impact.	

From: Table 7-1, FAA Order 5050.4B.

b. Potential mitigation measures. The environmental assessment (EA) should describe proposed mitigation when state and/or local agencies provide that information to address social impacts. FAA and the sponsor should fully consider the mitigation and balance its benefits against those of the proposed action. If FAA or the sponsor does not adopt any mitigation recommended, the EA should explain why. If feasible, provide an estimated schedule for undertaking accepted mitigation.

(1) Relocation impacts. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended), and 49 CFR Part 24 provide guidance on mitigation.

(2) Surface transportation. Surface transportation mitigation often includes roadway design changes to provide adequate LOS and roadway connections. FAA and the sponsor should work with appropriate traffic management agencies to develop the means to maintain acceptable LOS on those roadways that the project would affect.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. The U.S. Supreme Court has ruled that a Federal agency need not prepare an EIS when a proposed action does not affect the physical environment, but causes only social or socioeconomic impacts.[2] However, when FAA must prepare an EIS to assess impacts on the physical environmental, the EIS prepared for that action must address social impacts. The EIS should contain the following information in addition to that discussed in other sections of this chapter.

b. Housing impacts. Fragmenting neighborhoods or communities is likely to cause stress to affected people. As noted above, the EIS should mention this, while pointing out that such stress is not considered a significant impact for NEPA purposes. If sufficient

[2] *Metropolitan Edison Company v. PANE, People Against Nuclear Energy*; 460 U.S. 766 (1983).

decent, safe, and sanitary housing is not available, provide an analysis of efforts made to address this issue. If needed, include "housing of last resort" provisions required in Section 206(a) of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. If relocation would substantially disrupt a community, provide reasons why the project cannot avoid the disruption.

c. Business impacts. For business relocations causing substantial economic hardships, explain these effects and the reasons why the project cannot avoid them. When business relocation causes a loss of local jobs, explain the effects on the local economy resulting from job losses. Explain why those losses cannot be avoided.

d. Controversy. Disclose controversy arising because of inadequate replacement housing.

e. Secondary effects. Refer the reader to the EIS chapter on Induced Socioeconomic Effects (see Chapter 15) for detailed analysis of any secondary or induced effects the project would cause.

f. Environmental Justice. Refer the reader to the EIS Chapter on Environmental Justice for discussions on this topic (see Chapter 10).

g. Potential mitigation measures. The EIS should describe proposed mitigation when State or local agencies provide that information to address social impacts. The EIS should describe proposed mitigation when land management agencies provide that information. FAA or the sponsor should fully consider the mitigation and balance its benefits against those of the proposed action.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that environmental consequences have been fairly evaluated (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106(c)(1)(B), FAA may not approve a Federal funding for major airport development projects, unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203(b)(4). In accordance with NEPA and 49 USC Section 47106(c)(1)(B), an EIS must discuss and adopt mitigation measures recommended by State or local agencies. If feasible, provide an estimated schedule for undertaking accepted mitigation.

CHAPTER 19. SOLID WASTE

1. INTRODUCTION AND DEFINITIONS.

a. General. Construction, renovation, or demolition of most airside projects produces debris (e.g., dirt, concrete, asphalt) that must be properly disposed. In addition, new or renovated terminal, cargo, or maintenance facilities may involve construction, renovation, or demolition that produces other types of solid waste (bricks, steel, wood, gypsum, glass). Therefore, airport sponsors should follow Federal, state, or local regulations that address solid waste. Doing so reduces the environmental effects of airport-related construction or operation. This chapter provides information on how alternatives under consideration could increase solid waste in an area. It also discusses how to address the effects of any increased waste volume and ways to mitigate those effects.

b. Solid waste defined. The Solid Waste Disposal Act notes the term "solid waste" includes garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or an air pollution control facility (42 USC Section 6903(27)). According to that Act, solid waste also includes solid, liquid, semisolid or contained gaseous material resulting from industrial, commercial, mining, agricultural, or community activities. See 42 USC Section 6903 for more detailed information. When using this Desk Reference, notice the term, "solid waste" does not include hazardous waste. Please see Chapter 13 of this Desk Reference for information on addressing hazardous waste or materials.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
The Solid Waste Disposal Act (SWDA) of 1965 (42 USC Sections 6901 *et Seq.*) (now stated in subtitle D of the Resource Conservation and Recovery Act (RCRA))	Section 6901(b)(2) states the disposal of solid waste in or on the land without careful planning and management can present a danger to human health and to the environment. The Act provides safeguards to reduce that danger.	State or local agencies responsible for managing solid waste.
40 CFR, Part 258.10, Solid Wastes - Airport Safety	Addresses restrictions on municipal solid waste landfills (MSWLF) relative to airports.	EPA
FAA AC 150/5200-33, *Hazardous Wildlife Attractants on or near Airports*	Declares that a sanitary landfill located within 10,000 feet of a runway serving turbo-powered aircraft or within 5,000 feet of a runway serving piston-powered aircraft is incompatible with airports.	FAA

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. Airside development (e.g., building or rehabilitating runways, taxiways, and their associated items) typically produces construction debris. Terminal development often produces similar streams. Refuse can also result from construction workers, passengers, and airport workers using the terminal building. Personnel and activities in air cargo facilities may produce solid waste as well. In addition, solid waste may also occur during construction and operations of access roadways, parking facilities, rental car lots, or because of other on-airport activities. Activities needed to maintain airside and landside facilities produce yet other sources of waste. As a result, when a proposed airport project would cause or change a solid waste stream, the environmental analysis section of the Environmental Assessment (EA) or Environmental Impact Statement (EIS) should discuss how the potential, associated solid waste would be handled and disposed properly to minimize environmental effects. This analysis should also determine whether local disposal facilities have the capacities to hold solid waste volumes the proposed airport facilities would produce during their construction or operation.

4. PERMITS, CERTIFICATIONS, AND APPROVALS. State and local agencies are often responsible for and have the most knowledge about solid waste issues in an airport area. The airport sponsor should consult those officials for information on potential impacts the solid waste would cause and how to handle waste to minimize those impacts. Those agencies also provide valuable information on how to handle and dispose of airport-generated solid waste in an environmentally-safe manner. The agencies would also indicate if the alternatives under consideration would produce material that municipal solid waste landfills (MSWLF) would not accept or if the waste volume would exceed the capacities of planned or existing disposal facilities that are being considered for use. The sponsor should provide assurances that it will meet applicable solid waste disposal requirements. Environmental documents should contain records of all relevant communications with the consulted agencies.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. Environmental documents prepared for airport actions involving airfield, terminal, or cargo facility development may require consideration of solid waste resulting from building or operating the facilities. As appropriate, analysts should consider the following factors for each reasonable alternative and include the information in the environmental document. This information helps the decision maker determine if local disposal facilities will accept the potential types or volumes of solid waste the alternatives under consideration would produce.

b. Quantity. As needed, the environmental document should:

(1) Provide estimated quantities of solid waste each reasonable alternative would likely cause during its construction or operation. Base those quantities on existing design plans. Be aware that some airport projects produce more solid waste during construction than during operation or maintenance activities.

(2) Summarize disposal methods that will be used to handle the reported volumes of solid waste products. and

(3) Disclose if airfield or landside construction or terminal construction or operation would overload receiving solid waste facilities.

c. Compliance. As needed, the environmental document should

(1) describe how the sponsor would control project-related solid waste to comply with applicable regulations;

(2) summarize how the sponsor would transport, contain, and control project-related solid waste; or

(3) indicate if the disposal of solid waste from any reasonable alternative would violate any local, state, or Federal regulations.

d. Other. As needed, the environmental document should summarize critical information gleaned from consulting with responsible solid waste agencies. For example, the environmental document should note if current, available MSWLF capacity is lacking. If it is, point out whether planned MSWLF expansion or construction would be timely and provide the needed capacity to handle solid waste the alternatives under consideration would generate.

6. DETERMINING IMPACTS. After completing the consultation and analysis discussed above, use the information to determine the potential level of solid waste impacts the alternatives under consideration would cause.

7. DETERMINING IMPACT SIGNIFICANCE. Use the following information to determine if a significant impact could occur. Consider the factors in the right-hand column when determining if an action would cause a condition calling for more information or analysis as part of an environmental document.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
None.	The responsible FAA official should determine if an alternative under consideration would cause any of the following conditions: • Project-generated solid waste would exceed available landfill (MSWLF) or incineration capacities or require extraordinary effort to meet applicable solid waste permit conditions or regulations. • Local, State, or Federal agencies determine that substantial unresolved waste disposal issues exist and may require more analyses.

From: Table 7-1, FAA Order 5050.4B.

a. Indirect effects. If solid waste would adversely affect another resource, refer the reader to the section of the environmental document discussing the affected resource. For example, solid waste disposal could contaminate water quality. The environmental document's water quality section would discuss that impact in detail.

b. Potential mitigation measures. During the environmental review process, agencies having responsibility for solid waste disposal in the affected area may provide letters addressing the project's effects on waste disposal. Often, those letters include recommended measures to mitigate those effects. The mitigation should focus on measures that would most effectively reduce demands on existing or proposed waste storage facilities. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If the FAA or the sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why the recommendation was not adopted.

Potential mitigation measures may include the sponsor working with on-airport businesses and waste handlers to develop and complete the following measures to reduce project-related solid waste demand on MSWLF receiving that waste:

(1) source reduction strategies such as recovering, recycling, or composting;

(2) building or modifying source recovery facilities; or

(3) finding markets for recovered, recycled, or composted products or other wastes that are usable for producing energy or other activities.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. In rare instances, FAA may need to prepare an EIS to address significant solid waste impacts. Generally, more information or analysis is needed as part of an EIS only if problems are anticipated with respect to meeting the applicable local, State, Tribal, or Federal laws and regulations on solid waste management. The decision to do so would occur after FAA and the airport sponsor consult with the agencies responsible for managing solid waste in the affected area and evaluating project-induced environmental impacts (using information from section 6 of this chapter). In addition to the information presented about other affected resources, the EIS should include:

(1) information that may result from extra consultation with the responsible solid waste management agencies;

(2) extra measures that would minimize solid waste impacts and enable solid waste agencies to give their approval to the project; or

(3) the sponsor's agreement with or acceptance of required mitigation measures to show resolution of conflict involving solid waste.

b. Mitigation. FAA and the airport sponsor should fully consider mitigation agencies recommend and balance its benefits against those of the proposed action and explain why the sponsor or FAA does not adopt any recommended mitigation. If feasible, the EIS should also provide an estimated schedule for undertaking accepted mitigation.

CHAPTER 20. WATER QUALITY

1. INTRODUCTION AND DEFINITIONS.

a. General. Many of the nation's airports are located near waterways. This is because years ago when many airports were built, the cheapest, flattest, and most desirable lands suitable for airports were located near waterways. As a consequence, today's airport activities may cause water quality impacts due to their proximity to waterways. In particular, construction activities or seasonal airport anti-icing/deicing activities are major concerns.

Construction often causes sediment-laden runoff to enter waterways. Biological and chemical breakdown of deicing chemicals in airport runoff can cause severe dissolved oxygen demands on receiving waters. Operations or maintenance are other activities that may affect water quality. Airport-related water quality impacts can occur from both point and non-point sources at airports. If not properly controlled, the resultant water quality impacts may adversely affect animal, plant, or human populations. Therefore, FAA must evaluate project-related discharges, especially those having the potential to affect navigable waterways, municipal drinking water supplies, important sole-source aquifers, or protected groundwater supplies.

b. Point sources. These are stormwater or other types of discharges from wastewater treatment plants, sanitary sewer systems, collection basins, or other water collection devices that flow through a conveyance (pipe) and discharge to a waterway. The states and the U.S. Environmental Protection Agency (EPA) issue National Pollutant Discharge Elimination System (NPDES) permits authorizing point source discharges into navigable waters of the United States under Section 402 of the Clean Water Act (CWA) (33 USC Section 1342).

c. Non-point sources. These include stormwater runoff from runways, taxiways, aprons, outdoor storage areas, or construction areas that do not flow through conveyance systems. Federal permits are not necessary for non-point source discharges.

d. Runoff pollutants. Point source and non-point source runoff may contain pollutants such as metals, oils, greases, hazardous materials, solids, hydrocarbons, pesticides, and herbicides. During dry weather, pollutants can accumulate on impermeable surfaces, but during storms they are washed into creeks, streams, lakes, or other waters causing potential water quality impacts.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

a. General. The principal statutory framework for considering water quality in Federal decisions is contained in the CWA. The following chart provides information on this and other important laws that protect surface water, groundwater, and aquatic systems:

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Federal Water Pollution Control Act, as amended by the Clean Water Floodplains and Floodways Act of 1977 (CWA), 33 USC Chapter 26	Chapter 26 provides Congress' mandate for developing comprehensive solutions to prevent, reduce, or remove pollution in waters of the United States. Section 401 of the Clean Water Act, 33 USC Section 1341, addresses state issuance of water quality certificates. Section 402 of the Clean Water Act, 33 USC Section 1342, addresses issuance of NDPES permits, while Section 404 of the Act, 33 USC Section 1344, focuses on dredge and fill permits in navigable waterways including wetlands.	EPA or State or tribal water quality agencies
CWA, Section 311, as amended by the Oil Pollution Act of 1990, 33 USC Section 1252 *et seq*.	Requires owners or operators of above ground facilities storing oil or oil-based products to prepare spill response plans.	EPA
Safe Drinking Water Act, as amended (SDWA), 42 USC Section 300.f, *et seq.,* also known as the Public Health Service Act	Prohibits Federal agencies from funding actions that would contaminate a sole source aquifer or its recharge area.	EPA
40 CFR Parts 142 and 149	Part 142 provides regulations addressing national primary drinking water supplies. Part 149 provides regulations addressing sole source aquifers.	EPA
Fish and Wildlife Coordination Act of 1980, 16 USC Section 661, *et seq*.	Requires Federal agencies to consult with the Fish and Wildlife Service (FWS) for any action that would alter (impound, divert, drain, or control) a stream or other body of water.	FWS

3. APPLICABILITY TO AIRPORT DEVELOPMENT PROJECTS. Building airport facilities may temporarily or permanently affect surface waters, groundwater, or drinking water supplies. As a result, when an airport sponsor requests FAA action to support an airport development project, FAA must evaluate the proposed project's potential water quality impacts. Examples of airside airfield development projects that may cause water quality impacts include building or expanding terminals or hangars, building new or extended runways and taxiways, and installing navigational aids (NAVAIDS). Landside development that may alter water quality includes building or moving airport access roads, remote parking facilities, and rental car lots.

4. PERMITS, CERTIFICATIONS, AND APPROVALS.

a. General. There are various water quality permits, certifications, and approvals that may be required to build and operate airport projects. The responsible FAA official must ensure the water quality chapter of the environmental document discloses any known problems in obtaining them.

b. Water quality certificates (WQC). Airport sponsors needing the authorizations or permits noted in subsections 4.b(1) and (2) below must obtain a water quality certificate (WQC). The responsible FAA official must ensure the environmental document prepared for any action involving those authorizations or permits contains information about the status of, and any known problems in obtaining, the WQC. That information is an indicator of potential concerns about WQC issuance that may require further airport sponsor and/or FAA effort to mitigate adverse water quality effects to obtain the certificate. A WQC is required for:

(1) An airport sponsor seeking an NPDES permit from the EPA or a state under Section 402 of the CWA; and

(2) An airport sponsor seeking a permit under Section 404 of the CWA from the U.S. Army Corps of Engineers (Corps) or a state authorized to issue this permit for filling or dredging navigable waters, including jurisdictional wetlands (See Chapter 21 of this Desk Reference.

c. NPDES permits. The environmental document prepared for <u>any</u> proposed airport action having a point source discharge to a navigable waterway or that would disturb at least 1 acre should include information on the status of the NPDES permit needed for that action, as described above in section 4.a of this chapter. It should also include any comments the permit-issuing agency provides. A copy of the NPDES permit is not needed for FAA's approval of an airport layout plan or grant, but the environmental document prepared for the action should discuss any difficulties the issuing agency may have noted about permit issuance. An appendix to the environmental document should contain a copy of the letter from the permit agency or a copy of the permit, if the permit is issued before the document is completed.

Note: 40 CFR Sections 122 through 124 provide more details on NPDES stormwater permits. See Chapter 6, of this Desk Reference (Construction Impacts) for a discussion on stormwater permits and construction activity.

d. Agency opinions on safe drinking water supplies. An airport action has the potential to affect a public drinking water supply, a sole source aquifer, or a Comprehensive State Groundwater Protection Program (CSGWPP). To comply with Section 1424(e) of the Safe Drinking Water Act, the approving FAA official may not approve funds for any action if the EPA Administrator determines the action would contaminate a sole source aquifer. As a result, the environmental document should summarize important opinions from EPA and the state, local, or tribal water quality agencies regarding these impacts and cross-reference the appendix containing the correspondence the agencies or tribe provide.

e. Oil response plan. Environmental documents addressing airport actions having above ground facilities to store or handle oil or oil-based products should include information on the status of an oil recovery response plan. See Section 112(a)(2) of the Oil Pollution Act) for more information, if needed.

f. Other information. The environmental document should contain information from agencies having expertise on water quality issues. This includes comments on the adequacy of proposed mitigation measures, best available technologies (BATs), and best management practices (BMPs). The environmental document should summarize important information these letters contain and cross-reference the appendix and pages where the letters discussing the particular information may be found.

Note: BATs and BMPs typically are parts of the NPDES permit process. BATs refer to the best technology available to minimize water quality impacts resulting from point source discharges. Bacterial decomposition of glycol in stormwater runoff is an example of a BAT. BMPs are schedules of activities, maintenance procedures, and management practices implemented to minimize point source discharge impacts. Examples include using good housekeeping procedures, training personnel in the proper use and handling of chemicals, or using high-pressure water to remove paint from an aircraft instead of solvent-based paint removers.

5. PROCEDURES FOR COMPLIANCE WITH STATUTORY, REGULATORY AND OTHER REQUIREMENTS - ENVIRONMENTAL ANALYSIS.

a. Required consultation. Congress has delegated to each state the primary responsibility for protecting and managing water quality within a state's legal boundaries. Early consultation concerning the topics noted below will improve FAA's evaluation of an action's water quality impacts and identify any additional information necessary to make judgments about the significance of impacts. It will also ensure the environmental document addresses agency concerns and avoid delays due to the lack of that information. The environmental document's water quality chapter shall reflect the results of consultation with regulating and permitting agencies and with agencies that must review permit applications, such as the FWS, which may have specific concerns. It should also summarize and appropriately address agency concerns or comments and cross reference pertinent material in the appendix.

(1) Water quality standard concerns. Contact the state agency having the authority to enforce water quality standards and/or issue WQCs.

(2) NPDES permit concerns. When an airport action would involve a point source discharge, a point source stormwater discharge, or disturb at least 1 acre, contact the state agency or EPA regional office responsible for issuing NPDES permits.

(3) Groundwater protection. When an action may affect a sole source aquifer, contact the state, tribal and local government agencies responsible for developing and managing a Comprehensive State Groundwater Protection Program (CSGWPP) and the EPA regional office responsible for reviewing that program.

(4) Aquatic populations or communities. When an action would affect fish, shellfish, or wildlife populations, contact the FWS and the respective state fishery or wildlife agency.

Note: Consult the National Marine Fisheries Service (NMFS) regional office for actions that may affect anadromous fish or marine mammals. Anadromous fish are fish that live in the ocean but spawn in freshwater (e.g., salmon, shad).

6. DETERMINING IMPACTS.

a. General. Determine if building, operating, or maintaining the proposed airport development action would affect project area surface water, groundwater, or drinking water sources. The responsible FAA official should pay particular attention to potential physical (e.g., temperature changes, siltation, and turbidity) and chemical (e.g., changes in oxygen or nitrogen levels, pH, etc.) impacts associated with the proposed action.

b. Potential impacts. Actions, such as aircraft and runway deicing/anti-icing, storage tank operation, or firefighting training activities have the potential to chemically affect the project area's water quality. As needed, describe impacts addressing the following issues:

(1) violations of conditions or terms contained in an existing WQC or existing NPDES permit;

(2) adverse effects on the water quality of sensitive aquatic habitats, including but not limited to, wetlands or critical habitats for Federally or state-protected species;

(3) threats to the integrity of public drinking water supplies; and

(4) other areas of concern that water quality agencies identify.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. After completing the analysis discussed in earlier paragraphs, use the findings to determine the proposed action's degree of impact. For most airport actions, significant impacts can be avoided by design considerations, controls during construction, and other mitigation measures. When the environmental document and appropriate consultation demonstrate that water quality standards can be met, no special water quality problem exists, and no difficulty is anticipated in obtaining permits, it may be assumed that there would be no significant impact on water quality. The responsible FAA official should consider the following factors in consultation with agencies having jurisdiction or special expertise on water quality effects.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
When an action has the potential to exceed water quality standards, there are water quality problems that cannot be avoided or satisfactorily mitigated, or there would be difficulty in obtaining a permit or authorization, there may be a significant impact.	The responsible FAA official should also consider if a proposed action or a reasonable alternative would adversely affect a public drinking water supply, sole source aquifer, or waters of national significance (e.g., wild and scenic rivers, national refuges, etc.).

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. During the environmental review process, Federal, state, tribal, or local agencies having permitting or regulatory authority over water quality issues sometimes provide letters addressing those issues. Those letters include measures recommended to mitigate water quality effects for purposes of NEPA that are not required for the certificate or permit. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If the FAA of the sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why. In addition, the environmental document should clearly describe the measures the sponsor will carry out to:

(1) meet WQC terms or the conditions of any applicable NPDES permits;

(2) protect public drinking water supplies or comply with applicable CSGWPPs;

(3) develop oil response plans designed to contain any potential spills of oil or oil-based products associated with the proposed action;

(4) meet any other substantial water quality concerns that water quality agencies identify; or

(5) use BMPs or BATs.

Note: 40 CFR Section 112 and 40 CFR Section 112.20(h) present regulations for oil pollution prevention and the contents of a facility response plan, respectively.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. FAA must prepare an EIS if mitigation will not reduce water quality impacts below the significance impact threshold in paragraph 7 above. In addition to the information discussed above, to the extent possible the EIS should contain the following information.

(1) The results of added, project-specific, water quality studies FAA and Federal, state, or local water quality agencies agree on during EIS scoping or during the EIS process.

(2) A Memorandum of Agreement (MOA) between the Department of Transportation (DOT) and the Department of the Army (Army) contains a provision for elevating disputes concerning dredge and fill permit applications ("Section 404 permit applications") with the Army. Use of this provision typically occurs when an Army District Engineer is considering denial of a Section 404 permit or requiring conditions that would cause substantial, unacceptable conditions to DOT agencies (e.g., habitat attractive to wildlife hazardous to aviation). Therefore, if an airport action involves a Section 404 permit process that requires the responsible FAA official to elevate permit decisions to Army headquarters, contact the Airport Planning and Environmental Division (APP-400). APP-400 will help the responsible FAA official comply with the provisions of the MOA. APP-400 will also provide the follow-up actions that may be needed at the Washington, D.C., headquarters level to resolve differences. The EIS should contain the results of any dispute resolution process.

b. Mitigation. The EIS should identify and describe any mitigation measures that Federal, state, tribal, or local agencies having permitting or regulatory authority over water quality issues recommend for purposes of NEPA in addition to those required as a condition on any water quality permit or license. FAA and the airport sponsor should fully consider the recommended mitigation and balance its benefits against those of the proposed action. The document should explain why the sponsor or FAA has not adopted any mitigation agencies have recommended. If feasible, the EIS should include an estimated schedule for the airport sponsor to undertake accepted mitigation.

CHAPTER 21. WETLANDS

1. INTRODUCTION AND DEFINITIONS.

a. Nonjurisdictional wetlands. Nonjurisdictional wetlands do not involve navigable waters because they are not connected to or adjacent to navigable waters of the United States (U.S.). Dredge and fill activities in these wetlands do not require U.S. Army Corps of Engineers (Corps) approvals, but these wetlands are natural resources FAA must assess under NEPA. In addition, two other documents provide direction and instruction on assessing impacts of Federal actions on these nonjurisdictional wetlands. Executive Order 11990, *Protection of Wetlands*, sets the standard for a Federal agency action involving any wetland. The U.S. Department of Transportation (DOT) developed and issued DOT Order 5660.1A, *Preservation of the Nation's Wetlands* to provide more guidance to DOT agencies regarding their actions in wetlands. The DOT Order governs the Federal Aviation Administration's (FAA's) actions. The Order defines wetlands 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, tidal overflows, 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. The wetlands ecosystem includes those areas which affect or are affected by the wetland area itself; e.g., adjacent uplands or regions up and down stream. An activity may affect the wetlands indirectly by impacting regions up or down stream from the wetland or by disturbing the water table of the area in which the wetland lies. "

b. Jurisdictional wetlands. Section 404 of the Clean Water Act (CWA) governs the dredging and filling of navigable waters of the U.S. The term, "navigable waters of the U.S." includes wetlands connected or adjacent to navigable waters of the U.S. Navigable waters of the U.S. are those waters that are subject to the ebb and flow of the tide and/or are used, have been used in the past, or may be susceptible to use to transport interstate or foreign commerce (see 33 CFR Section 329.4). In carrying out Section 404, the Corps uses 33 CFR Parts 320 through 330 to define wetlands under its jurisdiction. To conduct dredge or fill activities in these wetlands, the Corps must issue a permit authorizing those activities. Wetlands under the Corps' jurisdiction are:

> "[A]reas that surface or groundwater inundate or saturate at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include swamps, marshes, bogs, and similar areas."

c. Wetland delineation standards. The definitions presented above include three basic elements: hydrology, vegetation, and soil type. A qualified wetland delineation specialist should evaluate the proposed site's characteristics to determine if an airport development action affects an area meeting either of the above definitions. The delineation must follow the *Corps of Engineers Wetland Delineation Manual* (Technical Report Y-87-1). The Corps, the U.S. Environmental Protection Agency (EPA) and other Federal agencies use this manual to standardize wetland delineations and to govern the procedures for Federal actions affecting those ecosystems.

d. Practicable alternative. Executive Order 11990, *Protection of Wetlands*, and DOT Order 5660.1A, *Preservation of Wetlands*, requires Federal agencies to avoid wetlands when a practicable alternative avoiding a wetland exists (See section 2 of this chapter). A practicable alternative is an alternative that is possible (i.e., feasible), after considering the alternative's:

(1) safety aspects;

(2) ability to meet the action's transportation objectives; and

(3) ability to meet accepted design, engineering, environmental, economic, or any other applicable factors.

Note: Some additional cost alone does not necessarily make an alternative [or minimization measure] impractical, since such cost may be recognized as necessary and justified to meet national wetlands policy objectives.

e. New construction. This term includes any draining, dredging, channelizing, filling, diking, impounding, and related activities, any structures or facilities. According to DOT Order 5660.1A, *Preservation of the Nation's Wetlands*, paragraph 4.b, this term does not include routine repairs and maintenance of existing facilities. For new construction in wetlands, FAA should provide the public and agencies with special interest in wetlands appropriate opportunity for early review of the proposal.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
Executive Order 11990 - *Protection of Wetlands*, (42 FR 26961, 1977)	Requires Federal agencies to "avoid to the extent possible the long-term and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative."	DOT
DOT Order 5660.1A - *Preservation of the Nation's Wetlands*, dated August 24, 1978	Provides DOT agencies with instructions on how to carry out Executive Order 11990.	DOT
Clean Water Act (Federal Water Pollution Control Act, as amended, 33 USC 1251, *et seq*. (P.L. 92-500)). See 40 CFR Parts 110-112, 116, 117, 122, 125, 129, 130, 131, 136, and 403 for regulations implementing this Act	Maintains and restores the physical, biological, and chemical integrity of the nation's waters.	EPA/Corps
CWA Section 404, 33 USC 1344. See 33 CFR Parts 320-330 for Corps regulations implementing the Act. See 40 CFR Part 230 for Environmental Protection Agency's (EPA)	States the Corps or those states delegated authority to run the Section 404 permit program are responsible for regulating placing dredged or fill material in U.S. waters, including jurisdictional wetlands.	Corps/State Environmental Agencies

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
404(b)(1) guidelines.		
Rivers and Harbors Act of 1899, 33 USC 401, et seq., 30 Stat. 1151	This law protects the navigability of waters used for commerce.	Corps
Rivers and Harbors Act of 1899, Section 10, 33 USC 403	Regulates building any obstacle (i.e., jetty, breakwater, wharf pier, boom, bulkhead, etc.) in any port, harbor, canal, navigable water, or other U.S. waters located outside fixed harbor lines or in areas where no harbor line exists.	Corps
Fish and Wildlife Coordination Act, as amended, 16 USC 661, *et seq*.	When processing requests for Federal approval of or financing actions in wetlands or waterways, this Act requires Federal agencies to consider U.S. Fish and Wildlife Service (FWS) and state wildlife agency comments on action impacts on wildlife. For purposes of the Act, the term "wildlife" includes birds, fish, mammals, etc. and vegetation on which they depend.	FWS/State Wildlife Agencies

Note: Regulations for Section 404 permitting are at 33 CFR Part 323. Regulations on dams and dikes in navigable waters are at 33 CFR Part 321. Regulations for other work affecting navigable waters are at 33 CFR Part 322. Regulations addressing seaplane operations are at 33 CFR Section 322.5(j).

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. General. If a proposed airport development action involves wetlands, the environmental document prepared for that action must include discussions of potential wetland impacts. Examples of airport actions that could cause wetland impacts include: airside development associated with new or expanded terminal and hangar facilities; new or extended runways and taxiways; and installing navigational aids (NAVAIDS). Examples of landside activities include new or relocated airport access roadways or on-airport remote parking or rental car facilities.

b. Actions affecting wetlands. An airport action affects a wetland if it:

(1) requires building a structure, facility, or other development in a wetland;

(2) requires dredging, filling, draining, channelizing, diking, impounding, or other direct effects on a wetland;

(3) requires disturbing the water table of an area in which a wetland is located; or

(4) indirectly affects a wetland because it impacts areas upstream or downstream of the wetland or it introduces secondary development that would affect a wetland.

Note: Contact the Corps, FWS, or State or local natural resource agency if uncertainty exists about whether an area is a wetland.

c. Actions not affecting wetlands. If an action would not involve wetlands, the environmental document need not meet the requirements of this chapter. The document should simply state the action would not affect a wetland.

d. FAA alternatives analysis. To comply with Section 404 guidelines, Executive Order 11990, and DOT Order 5660.1A, the responsible FAA official must consider practicable alternatives that would avoid affecting wetlands. If the sponsor proposes an action in a wetland, but later the sponsor decides to select an alternative that avoids the wetland or FAA will approve a location that avoids the wetland, the environmental document should explain how the location achieves the purpose and need while avoiding wetland impacts.

e. Determining if FAA may categorically exclude an airport action involving a wetland. If an airport action that is normally categorically excluded (Order 5050.4B, Tables 6-1 and 6-2) involves wetland dredging or filling, the responsible FAA official must determine if an action affects a nonjurisdictional or jurisdictional wetland. If the action involves a *nonjurisdictional* wetland, the action's design must meet the design standards defined in a General Permit (General Permits include Nationwide Permits (NWP), Regional General Permits and State Program General Permits) that would have applied had the action involved a jurisdictional wetland. If the action involves a *jurisdictional* wetland, the action's design must meet the design standards that would qualify the action for a General Permit. Whether the action involves a nonjurisdictional or jurisdictional wetland, the responsible FAA official must determine if the action involves an extraordinary circumstance (see Paragraph 304 of FAA Order 1050.1E or Table 6-3 of FAA Order 5050.4B). The official must then decide if the action still qualifies as a categorical exclusion. If the action qualifies for a categorical exclusion, an EA or EIS is not needed.

Note: In some areas, such as FAA's Great Lakes Region, state agencies have assumed some of the Corps' general permit program responsibilities. Contact the appropriate Corps office for information about similar state programs to ensure the sponsor completes the applicable permit process.

4. PERMITS, CERTIFICATIONS, AND APPROVALS.

a. Sponsor's statement. To satisfy the Orders protecting wetlands, the responsible FAA official should ensure there are no practicable alternatives that would avoid placing the airport action in a wetland (see section 1.d of this chapter). For example, many airport development actions require construction of a facility at a specific location to ensure safe, efficient airport or aircraft operations. In other instances, airport design criteria such as runway wind coverage are essential for safe aircraft operations. In both cases, avoiding a wetland may not be practicable. As a result, when a sponsor proposes an action that would unavoidably involve a wetland, the sponsor should provide the FAA with an analysis explaining why the wetland is the only practicable location for the proposed action. FAA will consider this information in its independent evaluation of alternatives (see 40 CFR Section 1506.5).

b. Sponsor's assurance. When the sponsor determines the action must occur in a wetland, it should also provide FAA information on how the action's design would include all practicable measures to minimize unavoidable wetland impacts. FAA will consider this information in its independent evaluation of the measures that will be used to minimize harm to wetlands (See 40 CFR Section 1506.5).

c. Clean Water Act, Section 404 permit. Issuance of this permit is not needed to complete the environmental document, but the environmental document must contain information on the status of the sponsor's Section 404 permit application. To approve an airport action in wetlands or waterways that does not qualify for a General Permit, the responsible FAA official must have reasonable assurance from the Corps verifying that the requirements can be met. The reasonable assurance could be made via a statement, memo, letter, or other correspondence. The environmental document should contain information verifying the sponsor has started consulting with the Corps. The NEPA document must report the status of the Section 404 permit application process. FAA's approval of the action does not remove a sponsor's need to get a Section 404 permit.

Note: Some states require the sponsor to get state permits authorizing work in wetlands. Permit issuance is not needed to complete the environmental document, but that document must contain information on the status of the sponsor's state wetland permit application. FAA approval does not remove a sponsor's need to get a state permit from the proper state agency.

d. Agency letters. An appendix to the environmental document should contain any correspondence containing Federal or State agency opinions on action-related wetland impacts. Correspondence often can identify potential issues the environmental document should address.

(1) The responsible FAA official or sponsor should forward to the Corps copies of comments about wetland impacts received during the NEPA process.

(2) As part of the NEPA and 404 processes, the responsible FAA official should ensure that any comments about 404 permit issues are addressed during consultations with the Corps District Engineer responsible for the affected wetland.

(3) As part of the NEPA process addressing wetland impacts, the responsible FAA official should ensure the environmental document includes the concerns of the state agency responsible for permitting actions affecting wetlands and a discussion on how the sponsor will address those concerns.

Note: See Chapter 2 of this Desk Reference for Fish and Wildlife Coordination Act requirements (16 USC Section 662(a)) when an action affects water resources, which include wetlands.

e. Wetland banking. If the sponsor, FAA, and the permitting agency agree that wetland banking is suitable mitigation for unavoidable wetland impacts, the environmental document should contain a copy of any agreement on the use of a wetland bank. To comply with FAA's Wetland Banking Strategy of July 1996, this agreement should verify the following facts about the specific number of credits bought in the bank:

(1) the bank will meet defined wetland success criteria;

(2) a specific number of credits will be withdrawn from the bank's total credit allotment to compensate for action-related impacts;

(3) the sponsor's purchase of these credits satisfies some or all of its wetland mitigation requirements for the proposed action; and

(4) the mitigation will not create or worsen wildlife hazards to aviation.

Note: For further information about mitigation banking, see the *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks,* 60 FR 58605 (November. 28, 1995).

g. FAA's finding under Executive Order 11990 and DOT Order 5660.1A. For new construction actions located in wetlands, the approving FAA official should make a written finding in an EA, its FONSI, the Final EIS, or the ROD. In summary, the environmental document should contain information verifying the following facts:

(1) There is no practicable alternative to the construction; and

(2) The action includes all practicable measures to minimize harm to wetlands that construction would cause. In considering practicable measures, FAA may take into account economic, environmental, transportation, and other pertinent factors.

Note: See section 6.e of this chapter for information on the extent of mitigation the NEPA document should contain.

5. ENVIRONMENT COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. Required consultation. Early consultation with the agencies listed below during the environmental review process may provide the sponsor with an opportunity to consider other locations that do not involve wetlands or waterways. This effort also alerts the sponsor and FAA to problems the consulted agencies may have regarding a proposed action's design. If there is no practicable alternative to avoiding an action affecting a wetland, consultation allows the sponsor to:

(1) notify the agencies of that fact and explain why other alternatives are not practicable;

(2) try to resolve issues about the action's use of the wetland; and

(3) include ways to minimize the proposed action's unavoidable impacts.

Failing to address and resolve these issues may alter the start of the action and its completion because the necessary permits could be either denied or delayed. As noted earlier, NEPA documents for airport actions requiring wetland dredging or filling should provide reasonable assurances that the sponsor consulted with Federal and state agencies responsible for permitting actions affecting wetlands. These reasonable assurances should be included in an appendix to the environmental document as a memo, letter, or other correspondence.

Note: See Chapter 2 of this Desk Reference for Fish and Wildlife Coordination Act requirements (16 USC Section 662(a)) when an action affects water resources, which include wetlands. Often agencies having concerns for aquatic organisms in wetlands will provide comments. If another section of the environmental document addresses impacts on a resource occurring in the affected wetland, the environmental document's wetlands chapter should summarize those effects and provide the page numbers of the document or the appendices where the reader would find the detailed information on the affected resource.

b. Roles of various agencies and the public during wetland consultation. Besides the Corps, various agencies often have jurisdiction over wetlands. The following information identifies different entities and their areas of concern:

(1) The U. S. Fish and Wildlife Service (FWS). As noted earlier, compliance with the Fish and Wildlife Coordination Act requires consultation with FWS when an action would affect a wetland or water body. This consultation focuses on how the action would affect habitats and the corresponding environmental consequences to wildlife. See Chapter 2 of this Desk Reference for more information.

(2) The National Marine Fisheries Service (NMFS). NMFS is responsible for protecting wetlands or waters that sustain marine mammal and marine fish communities. Contact NMFS when an action would affect tidal wetlands, estuaries, or marine ecosystems. Chapter 2 of this Desk Reference presents information on the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended (16 USC Section 1801, *et seq*.).

(3) The Natural Resource Conservation Service (NRCS). NRCS (formerly the Soil Conservation Service) delineates agricultural wetlands. The Food Security Act Manual is to be used to delineate agricultural wetlands whereas delineation of non-agricultural wetlands follows the Corps of Engineers Wetland Delineation Manual. Contact NRCS for actions that would affect agricultural wetlands.

(4) EPA. Under Section 404(b) of the CWA, EPA may object to the Corps' issuance of a 404 permit. Consultation with EPA is important to ensure the sponsor's proposal addresses EPA's concerns.

(5) Other Federal agencies. Besides the agencies noted above, contact with other agencies may be needed. Ask the agencies discussed above if they know of other Federal agencies that may have an interest in a proposed action's effect on wetlands.

(6) State wetland agencies and State wildlife agencies. Besides complying with Federal wetland laws and regulations, compliance with state wetland requirements is often necessary to get state approval of a proposed action. In addition, under the Fish and Wildlife Coordination Act, FAA needs to consult with the state agency having administration over the wildlife resources. Contact the state agency having jurisdiction over the affected wetlands and the agency having administration over the state's affected wildlife. Use the procedures in Executive Order 12372 (this replaces A-95 Clearinghouse instructions) if you need information about contacting appropriate state agencies.

(7) Public involvement. Public involvement helps FAA recognize the issues concerning the public and resource agencies. Such involvement promotes efficient environmental review processes and avoids delays in completing the processes that would occur when those processes omit evaluating wetland impacts or other information needed for wetland-related approvals or permits. If FAA is not preparing an EIS for an action involving a wetland, the responsible FAA official should ensure the public has an early opportunity to review the action (Executive Order 11990, section 2(b)).

c. Timely permit issuance. The Corps, EPA, FWS, NRCS, and NMFS are Federal agencies that might have wetlands concerns. In addition, most states have at least one agency responsible for protecting wetlands. There are local natural resource agencies that may have responsibility or concern for protecting wetlands. Also, the public may have concerns. These interested parties often have conflicting missions or differing ideas on how to minimize wetland impacts. Addressing any concerns early in the planning and environmental processes may avoid delays in action approval or construction. Experience shows that substantial interaction among sponsors and these agencies facilitates permitting or approval processes.

d. Integrating Section 404 permitting and NEPA. Integrating Section 404 permitting and NEPA increases the likelihood that one NEPA document will contain the information and findings needed for Corps and FAA decisions (40 CFR Section 1500.5(h)). It also strengthens efficient and consistent consideration of public concerns. In addition, integrating these processes increases the likelihood the agencies will make their respective decisions on the proposed action at similar times. To properly integrate the 404 and NEPA processes, it is essential the sponsor meet early with the Corps FAA, and other parties interested in the action's effects on wetlands.

Note: For guidance on integrating these processes, review the following as needed: 33 CFR Part 320, General Regulatory Policies; 33 CFR Part 25, Appendix B, the NEPA implementing procedures for the regulatory program; Corps Pamphlet EP 1145-2-1, dated May 1985, and 40 CFR Part 1500.

e. Actions involving leases, easements, right-of-ways, or disposal. When Federally-owned wetlands or portions of them are proposed for lease, easement, right-of-way, or disposal to a non-Federal public or private party, FAA should do the following to comply with DOT Order 5660.1A, paragraph 7.e and FAA Order 1050.1E, Appx. A, paragraph 18.4c:

(1) ensure the conveyance references those uses restricted by relevant Federal, State, or local wetland regulations;

(2) attach other appropriate restrictions on how the grantee or property purchaser and any successor may use the properties, except where prohibited by law; or

(3) withhold the properties from disposal.

6. DETERMINING IMPACTS.

a. General. After determining there are no practicable alternatives that avoid a wetland, unavoidable wetland impacts should be analyzed. Various wetland models have been developed to assess effects on wetland hydrology, vegetation, or soil. Analysts use the results of these models as aids in determining an action's impacts on wetland functions and values. Consult the local Corps district office to determine the methods to assess wetland functions and values.

b. Information needed to determine wetland effects. If the proposed action would affect a wetland, and no practicable alternative that avoids the wetland exists, the environmental document must provide the following information.

(1) A description of the location, types, and extent of wetlands the action and its alternatives would affect. Contact the FWS, Corps, or State or local agencies responsible for wetlands in the affected area for information, if needed.

(2) A description of potential impacts on the following wetland resources as appropriate.

(a) water quality;

(b) effects on water supply and the capability to recharge that supply;

(c) interference with surface or subsurface water flows;

(d) the levels of siltation or sedimentation the action would cause;

(e) the disruption of the affected wetland's biotic community; or

(f) the effects of storm hazards, floods, or the ability to store storm runoff or storm flows.

Note: If another section of the environmental document addresses impacts on a resource occurring in the affected wetland (for example, secondary or induced impacts, construction, etc.), the wetlands chapter should summarize those effects and provide the page numbers of the document or the appendices where the reader would find the detailed information on the affected resource.

c. A wetland in coastal zones. A wetland in or adjacent to a coastal area may be subject to state coastal zone management program. Therefore, if this situation applies to the proposed action or a reasonable alternative, the environmental document's wetlands chapter should summarize information about coastal wetland resources and refer the reader to the coastal zone resources chapter for more details. See Chapter 4 of this Desk Reference for information on assessing impacts on coastal zone resources.

d. Section 4(f) Applicability to wetlands. Section 4(f) of the DOT Act may apply if wetlands are publicly owned lands. See Chapter 7 of this Desk Reference for information on assessing impacts to Section 4(f) resources.

e. Mitigation. The environmental document should include a description of conceptual measures the sponsor proposes to mitigate unavoidable wetland impacts. A comprehensive, completed mitigation plan is not necessary for FAA's purposes. However, sponsors should note that, as the Section 404 permitee, it will likely be required to develop a detailed plan satisfactory to the Corps to comply with the applicable Section 404 permit including both individual and General Permits. Mitigation may include some of the following measures:

(1) changes to action design, construction, or operation;

(2) pavement runoff collection to prevent direct discharges to sensitive wetland areas;

(3) provisions to treat waste;

(4) special construction controls; or

(5) compatible land use development.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. The responsible FAA official should consider the following thresholds and factors in consultation with agencies having jurisdiction or special expertise on wetlands.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
When an action would: • Adversely affect a wetland's function to protect the quality or quantity of a municipal water supply, including sole source aquifers and a potable water aquifer. • Substantially alter the hydrology needed to sustain the affected wetland's values and functions or those of a wetland to which it is connected. • Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare. The last term includes cultural, recreational, and scientific public resources or property important to the public. • Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands. • Promote development of secondary activities or services that would affect the above functions. Be inconsistent with applicable State wetland strategies.	None.

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. During the environmental review process, agencies having jurisdiction of or expertise on wetlands normally provide letters addressing an action's effects on those resources. Often, those letters include recommended measures to mitigate those effects. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters

and accurately cross-reference the appendix and pages in that appendix for further information. If the FAA or the sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why the mitigation was not adopted.

(1) The NEPA document should include a description of conceptual measures the sponsor proposes to mitigate unavoidable wetland impacts. A comprehensive, completed mitigation plan is not necessary for FAA's purposes. However, sponsors should note that, as the Section 404 permitee, they will likely be required to develop a detailed plan satisfactory to the Corps to comply with a Section 404 permit or the applicable NWP.

(2) The responsible FAA official, in cooperation with Airports Certification Officers and Wildlife Services staff, should review the mitigation plan to ensure it does not create or worsen wildlife hazards to aviation. See Advisory Circular (AC) 150/5200-33A, *Wildlife Hazards on and near Airports*, for more information about this important safety concern.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. When FAA prepares an EIS addressing significant wetland impacts, the responsible FAA official should consider inviting the Corps and State wetland agency as cooperating agencies due to their permitting authority and expertise on wetlands. In addition, the responsible FAA official should ensure the EIS contains the information in this section (Section 8).b-e as well as the information discussed in other sections of this chapter.

b. Review the practicability of alternatives. Review all alternatives to ensure there is no practicable alternative that avoids the wetland.

c. Further considerations. Review the information the NEPA document provides to address the issues noted in other parts of this chapter. As needed, include new information specific to the proposed action that FAA and the appropriate resource agency or agencies determine necessary to correct any deficiencies in the EIS section addressing wetland impacts. Some of that new information may include the following, if it applies to the proposed action:

(1) Added information. As appropriate, the information may address some or all of the following factors listed in Executive Order 11990:

(a) Public health, safety, and welfare. This may include: water supply, water quality, and water supply recharge (surface and/or aquifer) and discharge; pollution control; flood and storm water control; or sediment and erosion control.

(b) Natural system maintenance. This may include conservation measures needed to sustain: long-term productivity of existing wetland fauna (fish, wildlife, birds) and flora (timber, food and fiber resources); species and habitat diversity; species and habitat stability; or hydrologic utility.

(c) Other public interest wetland uses. These uses may include recreational, scientific, or cultural wetland use.

(2) Input from expertise agencies. Include input of wetland agencies addressing the survival and quality of the action-affected wetland resources.

(3) Other Considerations. Include information addressing aeronautical safety, transportation objectives, economics and other factors that may affect or are related to the action.

d. Wildlife hazard information. Include information to determine if the proposed mitigation would make existing habitats attractive or more attractive to wildlife that would be hazardous to aviation. Review FAA Advisory Circular (AC) 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*, for more information about this.

e. Mitigation. The EIS should describe proposed practicable, conceptual mitigation. This includes mitigation that agencies with jurisdiction or expertise on wetlands recommend. FAA should evaluate the mitigation and balance its benefits against those of the proposed action, including the mitigation's effects on aviation safety. Include sponsor commitments to carry out the mitigation. Explain why the sponsor or FAA rejected any mitigation or land uses the agencies recommend. Provide an estimated schedule for undertaking accepted mitigation.

g. Finding under Executive Order 11990 and DOT Order 5660.1A. When an EIS addresses a new construction action located in a wetland, the approving FAA official should make a written finding to comply with Executive Order 11990 and DOT Order 5660.1A. The EIS or its accompanying Record of Decision should contain information verifying the facts listed in sections 4.g.(1) and (2) of this chapter.

CHAPTER 22. WILD AND SCENIC RIVERS

1. INTRODUCTION AND DEFINITIONS.

a. General. "Wild and scenic rivers" are those rivers having remarkable scenic, recreational, geologic, fish, wildlife, historic, or cultural values. Federal land management agencies in the Departments of the Interior and Agriculture manage the Wild and Scenic Rivers Act (Act).[1] The National Park Service (NPS) has the primary role in maintaining the National Rivers Inventory discussed in section 1.b. of this chapter. The Wild and Scenic Rivers "program" is more commonly referred to as the "National Wild and Scenic Rivers System" (WSRS).

b. The National Wild and Scenic Rivers System (WSRS). This is a list of rivers the Secretaries of the Interior or Agriculture have determined have the special values mentioned above. The primary purpose of the WSRS is to protect the rivers' free-flowing characteristics. Toward that end, the Federal Energy Regulatory Commission cannot license activities that affect the free-flowing nature of these rivers. Further, other Federal agencies, like FAA, may not assist, by loan, grant, or license or other authorizations, a water resources action that would have a direct or adverse effect on the values for which the river was designed. As a result, FAA must analyze the adverse effects a proposed water resources action may have on the free-flowing nature of these rivers or their natural, cultural, or recreational values. This chapter discusses how to examine an action's potential impacts on river segments designated or eligible to be included in the WSRS.

c. The National Rivers Inventory (NRI). The NRI lists more than 3,400 free-flowing river segments having at least one outstanding scenic, natural or cultural feature. It also provides information on statewide river assessments or Federal agencies involved in those assessments. Listing on the NRI means the Federal government is protecting these rivers and streams while agencies are considering the river for designation to the WSRS. The NPS, through The Rivers and Trails Conservation Assistance Program, maintains the NRI.

d. Water resource action. This definition includes construction or development that would affect the free-flowing characteristics of a Wild and Scenic River or a Study River.

e. Study river area. This is a river and the bordering area (located within a ¼-mile-area of the ordinary high watermark on each side of the river) designated for study or

[1] The Department of the Interior agencies are: the National Park Service, the Bureau of Land Management, and the U.S. Fish and Wildlife Service. The Department of Agriculture agency is the U.S. Forest Service. This chapter refers to these agencies as "managing agencies."

potential addition to the WSRS.[2] The corridor is established to protect the free-flowing nature, water quality, and outstandingly remarkable values of a river.[3] Evaluation of the study area is needed to determine if the river has the characteristics that qualify it for inclusion in the WSRS.

Note: The corridor could be wider if needed to protect the resource.

f. Free-flowing characteristics. These are the existing or natural flowing conditions of a river in the WSRS or NRI. Typically, these natural flows exist because no diversions, impoundments, or rip-rap have been installed nor has man altered the waterway's natural course.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
The Wild and Scenic Rivers Act of 1968, 16 USC 1271-1287	This Act: • selects certain rivers of the nation having remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values; • preserves the rivers' free-flowing conditions and protects the areas in their immediate areas; and • strives to balance river development with permanent protection of the country's most outstanding free-flowing rivers.	Department of the Interior (National Park Service (NPS); U.S. Fish and Wildlife Service (FWS); or Bureau of Land Management (BLM) and The Department of Agriculture (U.S. Forest Service (USFS).
36 CFR, Part 297, Subpart A, Water Resources Actions	Regulations here apply to Federal assistance used in building water resources actions that affect the Wild and Scenic Rivers System or Study Rivers the Secretary of Agriculture manages in whole or in part.	NPS, FWS, BLM, and USFS

[2] Title 16 USC, Section 1275.(d). As a policy matter, we have decided to use the ¼-mile standard noted in Section 1275.(d) for study rivers as the limit of our impact analysis for both WSRS and NRI rivers. This will ensure we properly assess potential impacts on these important river reaches.

[3] Source: 36 CFR Part 297.3(c) and the Interagency Wild & Scenic Rivers Council.

Presidential Memorandum to the Heads of Departments and Agencies on National Rivers Inventory, dated August 2, 1979	Underscores the need to strengthen the WSRS by directing Federal agencies to set an example of sound management for State, local and private landowners. To do so, Federal agencies are to take an aggressive role in protecting Wild and Scenic Rivers flowing through public lands. These agency efforts include all rivers and segments listed in the NRI.	FAA
Wild and Scenic River Guidelines for Eligibility, Classification and Management of River Areas, dated 47 Federal Register (FR) 39454, dated September 7, 1982	This document provides information on determining if a stream or river has the characteristics that would qualify it for designation.	Departments of the Interior and Agriculture
CEQ *Procedures for Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers of the Nationwide Inventory*, dated, 45 FR 59190, dated September 8, 1980	CEQ issued this guidance because development outpaces the Federal government's ability to protect rivers having characteristics qualifying them for the WSRS. Failure to assess and avoid effects could foreclose a river's eligibility for that System. Therefore, Federal agencies must: • determine if their actions would adversely affect the characteristics of an NRI river that would qualify it for the System; and. • study and develop reasonable alternatives that would avoid or mitigate impacts.	CEQ

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. The environmental analysis of a proposed airport action that involves a water resource action (see section 1.d of this chapter) that may affect a WSRS or NRI river must include discussions of potential impacts to the river. Typical airport actions that could result in impacts to these rivers include: airfield/landside expansion into a river (new or expanded terminal and hangar facilities, new or extended runways and taxiways, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities, and rental car lots; or a significant increase or change in aircraft operations.

4. PERMITS, CERTIFICATIONS, AND APPROVALS.

a. Notifying the appropriate agency. Before approving a water resource action on or adjacent to a WSRS river and a river that Congress designated for study, the responsible FAA official must ensure the sponsor obtains a Section 7 Consent Determination (see section 4.b of this chapter). No less than 60 days before FAA makes a decision on a water resources action, the responsible FAA official must send a notice to the Secretary of Agriculture about

FAA's intent to approve the proposed action. FAA's notice must contain the following information per 36 CFR Section 297.4:

(1) action name and location;

(2) name of the affected river;

(3) the nature of FAA's authorization (e.g., an unconditional ALP approval);

(4) a description of the proposed action; and

(5) any relevant information such as plans, maps, and environmental analyses.

b. Section 7 Consent Determination. When a water resources action involves a WSRS river, the responsible FAA official must ensure the airport sponsor obtains a Section 7 Determination from the Secretary of Agriculture (36 CFR Section 297.5). The Secretary will not consent to the proposed water resources action, if that action would:

(1) directly or adversely affect the values for which a Wild and Scenic River or Study River was designated when any part of the water resource action is within the river's boundaries;

(2) invade or unreasonably diminish the scenic, recreational, and fish or wildlife values of the Wild and Scenic River if any portion of the water resource action is located above, below, or outside this water body; or

(3) invade or diminish the scenic, recreational, and fish and wildlife values of a Study River if the water resource is located above, below, or outside the Study River during the study period.

c. Denial of a Section 7 Consent Determination. FAA may not approve the water resource action if the Secretary of Agriculture denies the Consent Determination. However, the Secretary may recommend measures to eliminate the adverse effects. FAA may encourage the airport sponsor to file revised plans based on those recommendations for further consideration.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. General. The Airport sponsor or responsible FAA official must determine if their proposed water resource action would occur near a designated WSRS River or Study River. The sponsor should consult the NPS, USFS, USFWS, or BLM. If this consultation indicates that the action is within ¼-mile from the ordinary high water mark on each side of a WSRS or NRI river (¼-mile boundary) the sponsor should notify the responsible FAA official. This ensures the FAA official or the sponsor completes the steps needed to comply with the Wild and Scenic Rivers Act in a timely manner. Although not required, FAA also recommends

considering impacts to rivers that may be eligible for a state program comparable to the Federal Wild and Scenic Rivers System. This helps to ensure the environmental process addresses water resource action impacts on those protected rivers.

b. Wild and Scenic and Congressionally-designated rivers. EAs or EISs prepared for proposed water resource actions that involve WSRS or Congressionally-designated rivers must summarize measures needed to avoid or reduce unavoidable, adverse effects on the river. Analyses should address water resource action impacts to the river or the corridor extending ¼-mile from the ordinary high water mark on each side of the affected river.

c. NRI rivers. EAs or EISs prepared that involve these rivers must address effects on these rivers as well. If an agency noted in section 5.a. determines the proposed water resource action could affect an NRI river, refer to CEQ's August 1980 *Procedures for Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the National Inventory* and its attached *Guide for Identifying Potential Adverse Effects* for guidance. That publication states Federal agencies should study, develop, and describe reasonable alternatives before making a decision on a water resource action that could alter the characteristics that may qualify the river for the WSRS. Analyses should address water resource action impacts to the river or within its ¼-mile boundary.

Agencies must do so to avoid and mitigate adverse effects on those characteristics. The responsible FAA official should ensure consultation with the agency managing the river (i.e., USFS, FWS, NPS, or BLM) has occurred. The responsible FAA official should also ensure the managing agency receives the environmental document for review and comment. The EA or EIS should summarize important comments form the managing agency. It should cross-reference the appendix containing documentation of consultation and agency comment letters summarized in the body of the EA or EIS. A proposed water resource action on NRI rivers does not require a Section 7 Determination (see section 4.b. of this chapter).

6. DETERMINING IMPACTS.

a. General. As described in section 4.b. of this chapter, different levels of impact analysis must be conducted for Designated or Study rivers, depending on the proposed water resource action's location. If the proposed water resource action is within the ¼-mile boundaries of a WSRS or NRI river, an evaluation of action effects on the river is needed. The evaluation must determine if the action would directly or adversely affect the values cited for designation or study or that no part of the proposed water resource action is within the river or its ¼-mile boundaries. If the action is located within these boundaries an analysis is needed. That analysis must determine whether the water resource action would not invade or diminish the scenic, recreational, and fish or wildlife values of the Wild and Scenic river or a Study river.

b. The evaluation. As noted earlier, the EA or EIS must include documentation of agency coordination. That coordination may be needed to determine if any designated or

Study or NRI river is within the ¼-mile boundary noted in section 6.a of this chapter. If coordination suggests that a designated or eligible river is within that zone, the airport sponsor or responsible FAA official, as appropriate, should conduct an evaluation to determine if the proposed water resource action would adversely affect the river by:

(1) destroying or altering the river's free-flowing nature;

(2) introducing a visual, audible, or other type of intrusion that is out of character with the river or that would alter outstanding features of the river's setting;

(3) causing the river's water quality to deteriorate; or

(4) allowing the transfer or sale of property interests without restrictions needed to protect the river or its ¼-mile-wide boundaries.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. After completing the consultation and analyses discussed in other sections of this chapter, use the information in the following table to determine the severity of water resource action impacts on a protected river.

ORDER 1050.1E THRESHOLD	FACTORS TO CONSIDER
None.	None for determining a significant impact, since FAA does not have a threshold for this resource. Use information in section 6.b. of this chapter when determining if a water resource action would cause an adverse effect.

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. During the environmental review process, NPS, BLM, FWS, or USFS would normally provide letters addressing action effects on the affected river. Often, those letters include recommended measures to mitigate those effects. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If FAA or the sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why the recommendation was not adopted.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. For Wild and Scenic or Study rivers. When consultation with NPS, BLM, USFWS, or USFS leads FAA to determine that water resource action would preclude the inclusion of a Study river in the WSRS, the responsible FAA official should invite one or more of those

agencies to be a cooperating agency. The Record of Decision must adopt suitable avoidance and mitigation measures and a monitoring and enforcement program.

b. For NRI rivers. If a water resource action requiring an EIS would adversely affect an NRI river, the responsible FAA official should request the agency managing the river be a cooperating agency. If that agency does not respond to such requests for support within 30 days, FAA may proceed, but is should use care to avoid or minimize significant effects on the NRI river.

c. Mitigation. The EIS should describe proposed mitigation when NPS, BLM, USFWS, or USFS provide that information. FAA should fully consider the mitigation and balance its benefits against those of the proposed water resource action. Explain why the sponsor or FAA did not adopt any mitigation agencies recommend. If feasible, provide an estimated schedule for undertaking accepted mitigation.

CHAPTER 23. CUMULATIVE EFFECTS

1. INTRODUCTION AND DEFINITIONS.

a. General. This chapter discusses how to consider a proposed action's cumulative impacts. It supplements the information in Chapters 4 and 5 of Order 1050.1E. Cumulative impacts are impacts the proposed action would have on a particular resource when added to impacts on that resource due to past, present, and reasonably foreseeable actions within a defined time and geographical area. Note that this range of actions includes actions FAA itself undertakes as well as those for which any other public or private entity is responsible. According to the Council on Environmental Quality (CEQ), cumulative impacts represent the:

> "…impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time."

b. Past actions. When determining how a cumulative impact analysis will assess past activities, the availability of data will determine how to analyze past FAA and non-FAA actions. Due to poor recordkeeping or simply the scarcity of information going back in time, the analysis of some actions may be more qualitative than quantitative. Scoping or consultation is useful in determining the extent of past actions for a cumulative analysis. Information on past actions (i.e., within the past 3 to 5 year) may be available from agencies, tribes, and developers responsible for those actions, but obtaining these data may require close coordination among agencies and other parties.

c. Present actions. The cumulative impact analysis should include information on FAA and non-FAA actions within the geographic area and time frame that affect environmental resources the proposed action would affect. Scoping or consultation is useful in determining the extent of present actions for a cumulative analysis. Information on present actions is available from agencies, tribes, and developers responsible for those actions, but obtaining these data may require close coordination among agencies and other parties.

d. Reasonably foreseeable actions.[1] These are actions that occur on or off-airport. They have been developed with enough specificity to provide useful information to a decision maker and the interested public. Use the following table to help determine if an action is reasonably foreseeable.

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[1] From FAA Order 5050.4B, paragraph 9.q.

OFF-AIRPORT ACTION.	ON-AIRPORT ACTION.
The proponent has committed to completing the proposed action. As a result, the action is or will be the subject of a NEPA document, or a Federal, State, local, or Tribal government permit application or approval and would occur within the same time frames as those evaluated for the proposed airport action.	The action is included on an unconditionally approved ALP and the proponent has: • committed to complete the proposed action depicted on the unconditionally approved ALP; and/or • developed preliminary design plans for an action in an Airport Capital Improvement Plan and those plans are available for review by interested parties.
Would affect all, some, or one of the environmental resources the proposed action would affect.	Would affect all, some, or one of the environmental resources that the proposed action would affect.
Would occur within the same time frames as the time frames analyzed for the proposed airport action.	Would occur within the same time frames as the time frames analyzed for the proposed airport action.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS. The National Environmental Policy Act of 1969 (NEPA), as amended contains the statutory framework for consideration of cumulative effects in Federal decisions. The CEQ regulations implementing NEPA's cumulative effects requirements are at 40 CFR Sections 1508.7 and 1508.25(a)(2) and (3).

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
40 CFR Section 1508.7	Defines cumulative effects. These effects are the incremental adding of a proposed action's effects on an environmental resource to impacts on the same resource due to past, present, and reasonably foreseeable actions, regardless of the agency or entity undertaking those actions. Individually minor impacts due to actions occurring over time may cause significant impacts when those impacts are collectively evaluated.	CEQ

40 CFR Section 1508.25(a)(2)	This section requires Federal environmental documents to address cumulative actions which, when viewed with other proposed actions, have cumulatively significant impacts. Therefore, those actions and their impacts should be discussed in the same EIS.	CEQ
CEQ's *Considering Cumulative Effects*, January 1997[2]	This document provides CEQ guidance specifically addressing cumulative impacts and the regulations at 40 CFR 1500 *et seq*.	CEQ
CEQ's *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis*, dated June 24, 2005.[3]	Based on scoping, agencies have the discretion to determine whether and to what extent information about specific past actions is useful when conducting a cumulative impact analysis. The guidance discusses how to determine the past actions needed for agency decision making. Among other things, the guidance notes that agencies may focus on the current *aggregate* effects of past actions. Agencies need not delve into *each* individual past action's historical details.	FAA

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS.

a. General. FAA must evaluate any airport development action funded under the Airport Improvement Program (AIP) or subject to FAA approval under NEPA (See Order 5050.4B, paragraph 9.g.(1)-(11)). Part of that evaluation requires FAA to assess a proposed action's direct and indirect impacts on a particular resource. The other part of the NEPA evaluation requires FAA to consider those effects in *combination* with the effects on the same resource due to past, present, and reasonably foreseeable actions. NEPA requires this to determine if a proposed action would cause any significant cumulative effects. Actions that could cause such impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or relocated

[2] http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm

[3] http://ceq.eh.doe.gov/nepa/regs/Guidance_on_CE.pdf

access roadways, remote parking facilities and rental car lots; significant changes in aircraft operations; and significant amounts of construction activity.

b. Applicability. A cumulative impact analysis is an integral part of an EA or EIS.[4] This analysis provides FAA officials with information on impacts resulting from other actions that have occurred or that will occur within a defined time and geographic area. The responsible FAA official uses this information to decide if a proposed airport project's impact to a specific resource would cause a significant impact on that resource when added to past, present, and reasonably foreseeable actions within a specific geographic area or designated time frame. Applications for permits and licenses under the scopes of other Federal, State, or local agencies are excellent sources of information for defining the scope of past, present, and reasonably foreseeable actions.

(1) Where? This is a "specific geographic area." It is that geographical area containing environmental resources the proposed action would affect. Consultation with resource agencies in the affected area is important when defining this area.

(2) When? This is a "designated time period." Typically, it is the cycle during which the project is expected to affect a resource, ecosystem, or human community. FAA or the sponsor should determine this time period after consulting with agencies having knowledge of other actions in the area the proposed action would affect. See section 6.b. of this chapter

(3) What? These are the actions considered in a proposed project's cumulative impact analysis. They include the proposed FAA action and past, present, and reasonably foreseeable future actions of FAA *and/or* other entities or individuals. See sections 1.b.-1.d. of this chapter.

4. PERMITS, CERTIFICATIONS, AND APPROVALS. No specific permits, certifications, or approvals are required.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES - ENVIRONMENTAL ANALYSIS.

a. General. A cumulative impact analysis is resource specific and generally addresses environmental resources the proposed action would affect (40 CFR Section 1508.7).

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[4]FAA must also consider cumulative impacts to determine whether there are extraordinary circumstances surrounding a normally categorically excluded action. If such circumstances would occur, FAA must determine if they warrant preparation of an environmental assessment. See FAA Order 5050.4B, Table 6-3; FAA Order 1050.1E, paragraph 304k, and 40 CFR section 1508.7

b. Consultation and cooperation are useful tools when developing a cumulative impact analysis. As already noted, information on past, present, and reasonably foreseeable future actions of other agencies and persons is necessary to properly evaluate cumulative impacts. Gathering this information is critical. Yet, it can be difficult because it typically involves checking with a host of sources. In addition, defining the geographic and temporal boundaries of a cumulative impact analysis adds more difficulty to this effort. If either boundary is too narrow, significant impacts may be missed. If they are too wide, the cumulative impact analysis can be unwieldy and the uncertainty and remoteness of the impacts will be of little benefit to the analysis. Consultation and cooperation are useful tools in completing this step.

(1) Federal, State, or local agencies, tribes, private developers, and citizen organizations are excellent sources for information vital in establishing these boundaries.

(2) They often provide information on pending permit applications or other documents prepared for actions. Because those applications or documents contain information on past, present, or reasonably foreseeable projects, they are often excellent sources of information necessary for use in the cumulative effects analysis.

(3) Therefore, the geographical reach, timing, and information critical to the cumulative analysis should be developed based on information gleaned through consultation and cooperation. Often, scoping or scoping principles are excellent ways to accomplish these tasks.

6. DETERMINING CUMULATIVE IMPACTS.

a. General. As noted earlier, cumulative effects may occur when the impacts of an FAA action are considered with the actions of other agencies, tribes, private developers, or FAA. The key question is:

> "Do the effects of FAA's proposed action on a particular environmental resource, when added to the effects on the same resource due to FAA and non-FAA actions, adversely impact that resource?"

Therefore, the cumulative analysis should focus on meaningful impacts, not inconsequential or irrelevant ones. Doing this allows the analysis to focus only on those environmental resources the proposed action (40 CFR Section 1508.7) would affect and the impacts it would cause.

b. Affected environment. In addition to characterizing the resources and human communities, defining the affected environment also requires describing the baseline conditions of project-affected resources. Consultation, cooperation, and scoping, once again, play vital roles here. This is because data used to describe the defined affected

environment depend on information from other governmental or non-governmental sources. Note that the geographic and temporal boundaries for a cumulative analysis are larger than those defined for the project alone.

(1) Setting the baseline. The historical context of commonly affected resources included in a cumulative analysis' geographic area or time frame are critical in setting the baseline for a cumulative analysis. This is because baseline conditions provide the context for evaluating those impacts.

(2) Setting geographic boundaries. To set geographic boundaries, the agency must first determine the area that the proposed action would affect. Then, based upon the resources in the project area and the geographic areas the affected resources occupy, the cumulative impact analysis' geographic boundaries are expanded beyond the proposed project's impact area. Examples of geographic boundaries include airsheds, river basins, regional boundaries (e.g., forest or ecological classification), or socioeconomic zones.

(3) Setting the time frame. The time frame is the time period during which the project is expected to affect a resource, ecosystem, or human community. The time frame for cumulative effects is not necessarily the life of the project because it includes reasonably foreseeable actions. For example, a cumulative impact analysis focusing on sedimentation impacts during an airport project's 2-year construction period would address the effects of sedimentation on affected water quality and fish populations. Therefore, the analysis would examine sedimentation effects:

(a) due to past actions, proposed actions, and any reasonably foreseeable within the 2-year period; and

(b) any other reasonably foreseeable action that would occur *beyond* that 2-year period, if that action would affect the same waters and fish populations the proposed action would affect.

Again, consultation with resource agencies is critically important in obtaining information to determine the range of actions the cumulative analysis should include.

(4) Tools. In addition to the geographic boundaries and time frame, there are other useful aids when defining the affected environment. Examples include the Nature Conservancy's Natural Heritage and Conservation Data Programs, the U.S. Geological Survey's (USGS) Biological Resources Division's, National Biodiversity Information Infrastructure, or the U.S. Environmental Protection Agency's (EPA) Environmental Monitoring and Assessment Program.

(a) The Nature Conservancy's Natural Heritage and Conservation Data Programs provide current, comprehensive data on the abundance and distribution of rare species and communities.

(b) USGS' Biological Resources Division consolidates and distributes biological research, inventory, and monitoring data that seven Department of Interior (DOI) agencies collect. The data are used to support management of the nation's resources. Its National Biodiversity Information Infrastructure provides a source of comprehensive biological data.

(c) The Environmental Monitoring and Assessment Program identifies the extent and size of regional and national environmental problems. It is useful in identifying the effectiveness or success of various environmental programs and policies.

e. Determining environmental effects in the cumulative impact analysis. The complex nature of cumulative impacts means there may be different methods for conducting the analysis. As noted often in this chapter, analysts should broaden their thinking beyond project-specific impacts. "Cause and effect" relationship tools are generally useful in determining the extent of effects resulting from actions included in this analysis.

(1) Broaden the scope. When determining cumulative effects, the agency must go beyond a project's specific effects on a resource. For example, the cumulative impact analysis of an airport expansion project's effect on roadway traffic would consider the increase in passengers, extending roadways that provide terminal access, and other actions planned in the area that add traffic or that would require roadway work. If the associated roadways would reduce a wetland whose primary function is retaining floodwaters, the individual resource analysis would focus on direct impacts to that wetland. The cumulative wetland analysis would assess how project-caused wetland losses added to past, present, and reasonably foreseeable wetland losses would affect flooding potential within the geographic boundaries set for the cumulative impact analysis.

(2) Additive effects. The cumulative impact analysis addresses the additive or synergistic effects on resources, ecosystems, or human communities resulting from the proposed actions and other actions included in that analysis.

(3) Sustainability. Consider if the cumulative effects would adversely affect the sustainability of the resources, ecosystems, or human communities. In this instance, a qualitative presentation is likely more useful because quantitative data may not be available or difficult to obtain.

7. DETERMINING THE SIGNIFICANCE OF CUMULATIVE EFFECTS.

a. General. The significance threshold for cumulative impacts varies according to the affected resource. However, after completing the cumulative effects analysis, compare the cumulative impacts against the applicable significance threshold for the resource analyzed. The responsible FAA official should determine if project impacts *added* to those of past, present, and reasonably foreseeable future actions trigger the significance threshold for the resource analyzed.

b. Potential mitigation measures. The Environmental Consequences analysis should address the cumulative effects causing the greatest impact to the affected resources within the time frame and geographical area established for the cumulative impact analysis.

c. Mitigation. During the environmental review process, agencies having jurisdiction or special expertise about project-affected resources may provide letters addressing the effects. Often, those letters include recommended measures to mitigate effects. The mitigation should focus on measures that would most effectively reduce cumulative impacts to affected resources. An appendix to the environmental document should include copies of those letters. The environmental document should summarize the most important information in those letters and accurately cross-reference the appendix and pages in that appendix for further information. If the FAA or the sponsor does not adopt any recommended mitigation, the environmental document should clearly explain why the recommendation was not adopted.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. Preparers may present cumulative analysis information in a separate chapter addressing cumulative effects. Logically, that chapter would follow those chapters discussing environmental consequences, because information in those chapters focuses on resources the project alone would affect. As an alternative, preparers may include a cumulative impact analysis in the document's Environmental Consequences section discussing each project-affected environmental resource. That analysis should be in a clearly marked "Cumulative Analysis" subsection at the end of the discussion on a particular resource.

b. Mitigation. Describe proposed mitigation when FWS or other consulted agencies provide such recommendations. FAA should fully consider those measures and balance their benefits against those of the proposed action. Explain why FAA or the sponsor did not adopt any recommended measure. If feasible, provide an estimated schedule for undertaking accepted mitigation.