

## **Writing Impact Analysis Sections for EAs and EISs**

An impact analysis provides decision makers and the public with an understanding of the likely environmental effects of a proposed action and alternatives being considered in an Environmental Assessment (EA) or Environmental Impact Statement (EIS).

This guidance offers insights into preparing an impact analysis that focuses on the relevant information needed to understand the environmental impacts of alternatives under consideration, presents an analysis of the impacts clearly and concisely, and eliminates excessive detail from the analysis that is not relevant to a decision.

The intent of this guidance is to move the National Park Service (NPS) away from the practice of using intensity definitions as a stand-in for impact analysis and toward a narrative method that fully discusses the potential environmental impacts of alternatives under consideration.

### **I. TAKING A HARD LOOK AT ENVIRONMENTAL CONSEQUENCES AND INCLUDING THE APPROPRIATE AMOUNT OF DETAIL**

Courts have applied what is known as the “hard look” standard in deciding whether or not an agency has fully complied with the environmental analysis requirements of NEPA. This means that there must be evidence that the agency considered all foreseeable direct, indirect, and cumulative impacts; used sound science and best available information; and made a logical, rational connection between the facts presented and the conclusions drawn.

However, that does not mean that an EA or EIS should contain every conceivable piece of information available. Some incorrectly believe that if the analysis does not include every resource that is present, no matter how slight the potential impacts may be, it somehow makes the document less defensible. But the quality of an EA or EIS is not judged on the sheer number of issues considered or impact topics analyzed. The Council on Environmental Quality (CEQ) states that EAs and EISs should be “analytic, rather than encyclopedic” (40 CFR 1502.2(a)) and directs agencies to discuss impacts in proportion to their significance and only briefly discuss impacts that are not important (40 CFR 1502.2(b)). This means a NEPA document should focus only on the analyses necessary for decisions to be made.

Providing an extensive level of detail on every impact without regard to its relative importance to the decision being made can obscure the issues and impacts that are truly important. An impact analysis that focuses on a few issues and impact topics that are pivotal to the decision by providing a thoughtful description of the impacts with well-reasoned conclusions about the importance of those impacts is more effective and efficient than one analyzing a large number of issues and impact topics, most of which have little or no bearing on the decision.

Keep in mind that the “hard look” is not only documented in an EA or EIS. The “hard look” is also documented by the information contained in the decision file (i.e., literature searches, field studies, discussions with experts, preliminary analysis, etc.), which ultimately is what the analysis in an EA or EIS is based upon. Think of an EA or EIS as the summation of all of the work performed by the team in making the impact determinations and tailor the length of discussions accordingly.

## II. OVERVIEW OF IMPACT ANALYSIS

Analyzing impacts means describing how the existing condition of a resource would change, either negatively or positively, as a result of implementing any of the alternatives under consideration. A complete impact analysis includes the following three components:

1. A factual description of direct and indirect impacts (both adverse and beneficial)
  - Direct impacts occur as a result of the proposed action, at the same time and place of implementation (40 CFR 1508.8).
  - Indirect impacts occur as a result of the proposed action but later in time or farther in distance from the action (40 CFR 1508.8).

It is not necessary to differentiate between direct and indirect impacts. The goal is to describe all of the potential impacts that may result from the actions in your alternatives.

2. A cumulative impact analysis
  - Cumulative impacts result from the “incremental impact of the action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7).
3. A discussion of the importance of the impacts
  - The impact analysis should discuss and interpret the importance of the impacts. This discussion should be guided by the consideration of resource context and impact intensity (40 CFR 1508.27).
  - The discussion should provide a logical connection between the impacts that are described and the conclusions that are presented.

An impact analysis predicts impacts that can be reasonably expected to occur based on scientific studies, knowledge of resources, and input from subject matter experts. Impact analysis should focus on issues that are identified during the NEPA process and carried forward for detailed analysis (see *NPS NEPA Handbook*, section 4.2 D). It is not necessary, nor desirable, to include impacts that are speculative (i.e., there is a remote possibility that the impact would occur but no meaningful information exists on which to base a prediction).

## III. FACTUAL DESCRIPTION OF DIRECT AND INDIRECT IMPACTS

An impact analysis should include a factual description of what is likely to happen to a resource if the actions in a specific alternative are implemented. The goal is to describe the impact to the resource in terms that give the reader a clear picture of how the resource would look or function after the alternative is implemented.

Below are questions you should consider that will help you focus on the facts:

- What will happen on the ground as a result of implementing the actions under each alternative (e.g., sedimentation changes, habitat changes, specific resource damages, changes in use pattern, etc.)?
- How many or how much will be impacted (e.g., all visitors, number of acres or miles, certain habitat, etc.)?

- If equipment or tools are used, how long will they be used for and what are their impacts?
- How will the resource look or function after the action is implemented (e.g., fewer individuals of a species, more habitat will be available, visual intrusion, etc.)?
- If mitigation is applied, how would that change the outcome (e.g., species restored over time, archeological information preserved, etc.)?

While it is helpful to remind the reader of the actions that would have impacts on a particular resource, the purpose of an impact analysis is to describe what would happen to the resource as a result of those actions. It is not sufficient to restate the actions discussed in the description of an alternative and then make a general statement that the actions would have adverse or beneficial impacts, as is shown in the following example:

Under Alternative 2, the existing trail would be extended 100 feet in order to connect with an existing camping area and three new shelters would be added at the camping area. There would be adverse impacts on vegetation from construction of the trail and shelters; however, these impacts would be minimized by careful design and best management practices during construction.

In the example above, the reader is left wondering exactly what the impacts of trail construction would be. The focus should be on describing what would happen to the vegetation if the trail and shelters are constructed, as illustrated here:

Extension of the existing trail to the camping area would require removal of approximately 1,000 square feet of forest vegetation to create the new trail corridor. The majority of the vegetation that would be removed consists of herbaceous plants and small shrubs, but several canopy trees (10-20 inch dbh) may also have to be removed in order to achieve the correct slope for stormwater drainage. The corridor for the trail extension would be limited to a maximum width of 10 feet and no vegetation would be disturbed outside of those limits. The trail extension would be routed so as to minimize removal of canopy trees to the greatest extent possible. Based on a field visit to map a preliminary route, it is likely that between 3 and 6 canopy trees would have to be removed. The current canopy cover in this area is considered to be dense; thus, any decrease in canopy cover from the loss of 3 to 6 canopy trees would be barely noticeable. The new camping shelters would be located in sections of the existing camping area that are already bare of vegetation as a result of existing uses; thus, no additional vegetation would be removed for these shelters. There may be some small beneficial impacts to native vegetation because there are invasive plants along the proposed corridors that would be removed. After construction, invasive species monitoring and controls would be implemented to help prevent the recurrence of invasive plants along the new corridors and minimize potential spread into adjacent, undisturbed forest.

Rather than thinking about impacts strictly as “short-term” or “long-term”, think about how to describe the duration of an impact in a way that helps the reader understand the importance of the impact. Here are two examples:

- There would be some temporary loss of herbaceous cover but the project is scheduled during the early growing season when the plants are actively spreading. The area would begin to be revegetated by the end of the same growing season, a period of 4 to 6 months,

and would return to current conditions within two years. Therefore, there would be no permanent change in vegetative cover.

- Alternative 3 would have adverse impacts on coastal processes and floodplains from dredging and the presence of facilities that would cause interruptions in sediment flows, erosion, and interference in natural coastal processes. However, these adverse impacts would be small in scale and limited in duration. Dredging would only occur every 5 to 7 years, would be limited to the length and depth of the existing channels, and the work would typically be completed in one month or less; boat and canoe launches would be designed with permeable surfaces to slow runoff and erosion, and would be flush to the ground surface to reduce the area of intrusion into the floodplain and minimize interference with the movement and storage of flood waters. Although dredging would take place once every 5 to 7 years, any interruptions to or interference with natural coastal processes would be short-lived (one month or less) and there would be no change in the overall functions and values of coastal processes.

Additional considerations for a factual description of direct and indirect impacts include:

- Whenever possible, quantify impacts within the limits of the data that is available by providing specific numbers, acreage, amounts, etc.
- You should disclose both the change to current conditions that will result from implementation of alternatives under consideration and the overall expected condition of the resource once the actions under each alternative are implemented.
- Consider whether presenting the information in a different format would help the reader understand the nature and extent of the impacts (e.g., maps that overlay areas of impact before and after the actions are implemented).
- If your alternatives incorporate mitigation measures, be sure that the analysis includes a description of how mitigation would reduce the impacts.

#### **IV. CUMULATIVE IMPACT ANALYSIS**

The purpose of analyzing cumulative impacts is to recognize that when you propose an action that has impacts on the environment, the effects do not occur in a vacuum. Your proposed action and alternatives may have impacts on a resource that is also experiencing impacts from other unrelated actions. With this in mind, it is important to note that if there are no direct or indirect effects from your proposed actions or alternatives on a particular resource, there can be no cumulative effects on that resource either.

##### **A. Identifying Actions that Contribute to Cumulative Impacts**

The actions that you should consider for cumulative impact analysis include:

- actions that are taken by the NPS and by other agencies, organizations, or private landowners;

- actions not included in your proposed action or alternatives that are having or will have impacts on the same resources that are likely to be affected by your proposed action and alternatives; and
- actions that may have taken place in the past, are occurring in the present or are reasonably foreseeable and likely to occur.

When identifying past, present, and reasonably foreseeable actions for your cumulative impact analysis, consider the following:

- In many cases, spatial and temporal boundaries will be different than the boundaries you use for direct and indirect impacts. This is because the actions having a cumulative effect on resources may be at some distance from your study area or may have occurred or may be occurring in a different timeframe.
- Not all past actions need to be included in the cumulative impact analysis. Past actions should be included only when their impacts are ongoing. Impacts that happened in the past and have not continued should be described as part of the affected environment. For example:

You are analyzing the topic of vegetation because your alternative involves cutting trees. In your study area, a section of forest was clear-cut once, 50 years ago. The impacts of that single clear-cut were to change the vegetative community from mature forest to second-growth scrub-shrub, which is what currently exists. That past action of clear-cutting the forest does not need to be considered in cumulative impacts because the scrub-shrub community is now the existing condition of the resource, which should be described as part of the affected environment. However, imagine that the single clear-cut introduced an invasive plant species that has continued to spread into adjacent areas. If one of the issues related to your analysis of alternatives is the threat of introduction and spread of invasive plants, then that past action of clear-cutting could be relevant to cumulative impacts on vegetation because the impacts are ongoing.

- For cumulative impact analysis, “reasonably foreseeable future actions” include activities that have not yet been implemented but for which there are existing decisions, funding, or proposals, and that have a reasonable likelihood of occurring. “Reasonably foreseeable future actions” do not include actions that are speculative or indefinite (43 CFR 46.30). For example:

You are analyzing impacts of a proposed visitor facility on traffic patterns along a main road. There are two large parcels of undeveloped land across from the proposed facility, both zoned for high-density commercial development that, if fully developed, could greatly increase traffic in that area. A visit to the local zoning office reveals that one of the parcels has received approval for a residential subdivision and the developer is actively pursuing other necessary permits. You would include the approved residential subdivision on this parcel in your cumulative impact analysis because there is sufficient evidence that the development will happen in the near future (i.e., it is a reasonably foreseeable action). The other parcel, however, has no approved subdivision plan or other evidence that the owner intends to develop the parcel. In this situation, you would not include this other parcel in your cumulative impact analysis because although the potential to develop that parcel exists due to the zoning, at this time, development of the property would be speculative.

## B. Analyzing Cumulative Impacts

While you do not need to analyze the impact of each individual past, present, or reasonably foreseeable future action that contributes to cumulative impacts in detail, you do need to make a good-faith effort to disclose enough information about these actions collectively to adequately characterize the impacts. Just like direct and indirect impacts, cumulative impacts should be described factually and characterized as adverse or beneficial.

Your cumulative impact analysis should discuss not only how much impact all the other actions (not connected to your proposal) are having on the same resource, but also the increment contributed by the direct and indirect impacts of the actions in your alternatives and the total impact that would result when the impacts of your action are added to the impacts of the other actions. The point is to understand not only the overall impacts, but also how the impacts contributed by your alternatives fit into that larger picture. Are the added impacts of your alternative relatively small but just enough to push the resource over some critical edge? Or is the situation already so bad, or are the impacts of your alternative so small, that the impacts of your alternative make no difference at all?

## V. DISCUSSION OF THE IMPORTANCE OF IMPACTS

After providing a factual description of what will happen to a resource, an impact analysis should then discuss and interpret the importance of those impacts; i.e., are the changes to the resource as a result of implementing the actions under each alternative a “big deal” or a “little deal”? This discussion should be guided by consideration of resource context and impact intensity (40 CFR 1508.27). The concepts of context and intensity are linked, since you need to identify a context in order to assess the intensity of an impact. In many cases, the discussion of context and intensity can be interwoven because resource-specific context is included in the CEQ intensity considerations (40 CFR 1508.27(b)).

The discussion of the importance of impacts should be a thoughtful narrative that explains what aspects of the impacts are relevant to each particular resource and whether or not the impacts are important. You can use common descriptive terms such as “the loss of vegetation would be small” or “there would be a large decrease in the building’s footprint” in describing intensity, but you need to include some explanation of what you mean; i.e., the “because...” statement: “the loss of vegetation would be small *because less than one-quarter acre would be removed from an area that encompasses 2,000 acres*”; “there would be a large decrease in the building’s footprint *because demolition of the entire north wing would reduce the size of the building by approximately 50 percent*,” etc. The discussion of the importance of the impacts can be included in the body of the analysis or can be in a separate “discussion” or “conclusion” section at the end of the analysis.

### A. Identifying Context

Context is the setting, situation, or circumstances surrounding a particular resource (40 CFR 1508.27(a)). Context provides a backdrop against which the intensity of impacts can be applied to understand their importance.

In general, the context in which your actions take place will be described as taking place in a national park system unit, which is subject to the NPS Organic Act, its enabling legislation, and NPS regulations and policies (and any other applicable authorities). A park unit’s purpose and significance can provide important overall context for assessing the importance of many impacts. Once you’ve written the factual description of an impact, think about how the predicted change to that resource might relate to

the park's purpose, significance, and mission. Here is an example of how you could use park purpose as the context for assessing the importance of impacts on museum collections:

Your proposed action would double the space used for exhibits of museum items. The extra space means that more of the items currently in storage can be brought out and made available for viewing by visitors and for academic research. It's easy to see that this would be a beneficial impact but how would you characterize the importance of the impact? If your park was established to preserve the works of a famous person and expand knowledge about her works, doubling the exhibit space and making more curated items available for research could be a very important beneficial impact in the context of that purpose and mission.

Context can be resource-specific, in many cases involving things such as laws directed at the preservation of a resource, NPS policies regarding preservation or management of specific resources, whether or not the resource is fundamental to the park, is rare or unique, is in close proximity to a location where you are taking action, etc.

## **B. Discussing Intensity**

Intensity is the severity or magnitude of an impact (40 CFR 1508.27(b)). As discussed above, assessing the intensity of impacts to a specific resource is linked to the context in which that resource is found. For example, if the affected resource is rare or unique, the same level of adverse impact might be considered more severe than if the resource is common and widespread. Also, if the alternative's impacts cannot be reasonably predicted, then the impacts of the alternative might be considered to be of greater magnitude than if the alternative's impacts are well-understood. Here are some questions to help in your consideration of intensity:

- Do the impacts affect the integrity of a resource in a meaningful way?
- Do the impacts on the resource interfere with a park unit's ability to fulfill its purpose?
- Do the impacts on the resource interfere with a park unit's ability to meet a desired future condition identified in another resource plan?
- Is there a high degree of uncertainty in the analysis you have provided?
- How much of the resource is impacted compared to how much exists?
- Are the impacts on a resource that is unusual, rare, special, etc.?
  - impacts on a federally-listed endangered species?
  - impacts on a structure that is eligible for listing on the National Register of Historic Places?
- Is the resource already degraded and do the impacts of the proposed action threaten to "tip the scale" so to speak, to where the condition no longer meets guidelines, regulations, or laws regarding the resource (for example, air quality standards)?
- Are the impacts on a specially protected or designated area (e.g. wild and scenic rivers, wilderness areas, or other special designations)?
- Do the impacts affect public health or safety, especially when they could affect a large number of visitors or people?
- Would the impacts result in the potential to violate a law or other requirements that exist to protect the environment?

## C. Discussing Significance

Significance is determined by comparing the impacts of the proposed action and alternatives under consideration to the current condition of the resources (i.e., the condition of resources as described in the affected environment section). If you determine that predicted changes to affected resources as a result of implementing an alternative are a “big deal,” it may be appropriate to describe the impacts as significant or likely to be significant. This will differ, depending on whether you are preparing an EIS or an EA.

- If you are preparing an EIS and believe the impacts of a proposed action or alternative would be significant or are likely to be significant, you should state that and briefly describe why, referencing CEQ’s significance considerations (found at 40 CFR 1508.27 and outlined in the *NPS NEPA Handbook*, section 1.6). If the impacts analyzed in an EIS are not likely to be significant, it is not necessary to explicitly state that. Rather, you could state in your impact analysis methodology section that where impacts are expected to be significant it is stated in the discussion section, and that if significance is not addressed in the discussion that means the impacts will not be or significant are not likely to be significant.
- If you are preparing an EA, you do not need to discuss significance. However, you may choose to characterize impacts as “likely to be significant” or “not likely to be significant.” If you choose to do so, you should not make any conclusions regarding the significance of impacts in the EA itself. Conclusions regarding the significance of impacts should be reserved for the finding of no significant impact (FONSI). If you cannot complete a FONSI because the alternative selected for implementation would result in significant impacts, you must apply mitigation to reduce the impacts to a level below significance or publish a Notice of Intent to Prepare an EIS and complete an EIS and Record of Decision before taking action.

## VI. ADDITIONAL CONSIDERATIONS FOR WRITING AN IMPACT ANALYSIS

### Dismiss Issues that are Not Significant

It is not necessary to carry an issue or impact topic forward for detailed analysis simply because a resource is affected. Detailed analysis under each alternative should be reserved for significant issues (meaning pivotal issues, or issues of critical importance) that will play a key role in making a decision. All other issues should be briefly discussed then dismissed from detailed analysis (see *NPS NEPA Handbook*, section 4.2 E).

As a general rule, you should carry an issue forward for detailed analysis if:

- the environmental impacts associated with the issue are central to the proposal or of critical importance;
- a detailed analysis of environmental impacts related to the issue is necessary to make a reasoned choice between alternatives;
- the environmental impacts associated with the issue are a big point of contention among the public or other agencies; or
- there are potentially significant impacts to resources associated with the issue.



### **Focus the Analysis**

Impacts should be discussed in proportion to their importance. Focus the analysis on the specific aspect or component of the resource being analyzed (e.g., if the actions would affect two species of mammals, limit the analysis to describing the impacts on those two mammals rather than to wildlife in general).

If there is an extensive body of information on those two species of mammals that indicates any adverse impacts would be small and easy to mitigate, this can be presented in less than a page of analysis, and would be adequate to demonstrate the “hard look.” It is not necessary to include multiple pages of information simply to prove that you actually considered it. As noted above, the EA or EIS represents the summary report of the “hard look” at environmental impacts.

### **Incorporate by Reference**

Incorporating information by reference is a good technique for keeping the analysis concise. Rather than reproducing whole sections of background studies and previous impact analyses in an EA or EIS, concisely summarize the relevant facts or important conclusions and provide a cross-reference to the underlying document. This makes it easier for the reader to see how the underlying information was utilized in reaching the conclusions outlined in the impact analysis. When incorporating by reference, you must ensure that the underlying document is readily available to the public.

### **Get the Facts Straight**

One of the difficulties in providing a factual description of impacts is that the person writing the analysis is not always a subject matter expert and may not know what the actual impacts would be or how to describe them. You should be sure to engage subject matter experts as part of your interdisciplinary team during preparation of an EA or EIS. Subject matter experts should be involved in the review of draft text to ensure that impacts are accurately described and evaluated.

### **Avoid Redundancy**

If some impacts are the same under two or more alternatives, you do not need to copy and paste the same text over and over. It makes the document very difficult to read and dilutes the overall focus on the important impacts. It is sufficient to say that the impacts of alternative C are the same as the impacts of alternative B. In a situation where many of the impacts are the same across alternatives, a summary table may be a good way to convey the similarities and differences between alternatives in a concise, understandable format.

In an EIS, if there are potentially significant impacts that are the same between alternatives, it is sufficient to say that the impacts of Alternative 3 are significant for the same reasons as outlined for Alternative 2. However, be careful that the impacts are in fact the same before saying this. If two alternatives both have significant impacts on the same resource, but for different reasons, then the impacts and reasons that they are significant should be fully explained.

### **Use the Proper Baseline**

The no-action alternative provides a benchmark for the public and a decision maker to compare what would happen to the environment if current management were continued into the future, as opposed to what would happen to the environment if one of the action alternatives were selected for implementation. However, the no-action alternative is not itself the baseline for predicting changes to the condition of resources. The baseline for predicting changes to the environment that could occur if any of the alternatives under consideration (including the no-action alternative) are implemented is the affected environment (i.e., the existing condition of each resource at the time the analysis is prepared).

### **Compare the Impacts of Alternatives**

The impacts of the alternatives should be presented in comparative form (40 CFR 1502.14). This may be done in narrative form as part of a “discussion” or “conclusion” section in the environmental consequences chapter of an EA or EIS, or in a table included in either the alternatives chapter or environmental consequences chapter. When comparing the impacts of alternatives you are answering this primary question for the reader: how do the meaningful impacts of the action vary between alternatives?