

Guidance on Preparing Cumulative Impact Analyses

Washington State Department of Transportation

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What is the Purpose of this Document?

This guidance was developed jointly by Washington State Department of Transportation (WSDOT), the Federal Highway Administration (FHWA), and the Environmental Protection Agency Region X (EPA).

Our document is based on recent cumulative effects¹ guidance issued by Texas DOT (2006) and California DOT (2005). We want to thank Texas and California DOTs for sharing their guidance documents and related materials with us. We also carefully examined the national guidance from the Council on Environmental Quality (CEQ) (1997 and 2005).²

The focus of this guidance is project level work when FHWA is the lead agency. It was created for our process as it currently exists. However, the intent of FHWA and WSDOT is to improve our identification of cumulative effects prior to the start of NEPA. SAFETEA-LU has set out expectations in Section 6001 to better link planning and NEPA processes. It is our hope that we will continue to improve our early environmental identification including cumulative effects.

This joint guidance addresses cumulative impact analyses for WSDOT projects that are subject to the National Environmental Policy Act (NEPA). For SEPA, a similar process would be followed. Refer to WAC 197-11-330(3)(c) for SEPA only projects.

Our goal for this document is to provide preparers and reviewers with guidance that is both practical and flexible. Cumulative impact analyses will vary according to the type and scale of the proposed project and the resources affected. Therefore, this guidance is intended to be scalable to an individual project depending on the potential effects of the proposed project, the type and condition of resources under consideration, and the professional judgment of the practitioner performing the analysis.

NEPA requires that any agency proposing a major federal action, which may significantly affect the environment, consider the environmental impacts of the proposed action, any unavoidable adverse environmental impacts, and the relationship between local short term uses and long term productivity of the environment (42 U.S.C. § 4332(c)). Some WSDOT highway construction projects that are federally funded or require federal approvals fall under this requirement. The level of analysis for transportation projects range from:

- Categorical Exclusions (CE)- projects in which there are clearly no significant impacts;³
- Environmental Assessments (EA)- projects in which the significance of impacts is not clearly known, to;

¹ The terms "effect" and "impact" are used synonymously in the CEQ regulations and in this guidance paper.

² See "What references did we use?" at the back of this document.

³ See "When is a Cumulative Impact Analysis Required?" section in this document for guidance on categorical exclusions. Cumulative effects analysis is generally not required for these documents.

- Environmental Impact Statements (EIS)- projects in which significant impacts are anticipated.

There are three types or categories of effect (or impact) that must be considered during the NEPA process: direct, indirect, and cumulative⁴ (40 C.F.R. §1508.25). Identifying direct effects, which are those effects caused directly by our activities, at the same time, and in the same place, is relatively simple and straightforward. Identifying and analyzing indirect effects, which are effects caused by transportation project activities, that occur later in time, at some distance from the project, and are in the chain of cause-and-effect relationships, can be more complex and generate more disagreement. But as complex as indirect effects may be, the cumulative effects analysis generates the most complex and contested issues and is easily the most misunderstood.

This guidance attempts to clarify the requirements for cumulative impact analysis.

Cumulative impacts are the summation of impacts on a resource resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes those actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

This category of effects has generated numerous national legal challenges to transportation projects during the past few years. Therefore, it is important that we conduct both indirect and cumulative effect analyses in an efficient, consistent, legally defensible, and logical manner. The process recommended here should help us meet that goal for cumulative effects analyses.

Overall, the goal of our analyses and documentation is to foster good decisions and enable effective public participation. WSDOT's written documents should be readable and readily understood by our audience. This guidance attempts to clarify the requirements of cumulative impact analyses and provide a consistent framework for the analyses.

What Approach are We Recommending?

WSDOT, EPA – Region 10, and FHWA – Washington Division have agreed upon the following approach for cumulative effects analyses.

We feel that there is no single formula available for determining the appropriate scope and extent of a cumulative impact analysis based on input received during scoping. Ultimately, the practitioner must determine the methods and extent of the analysis based on the size and type of the project proposed, its location, potential to affect environmental resources, and the health of any potentially affected resource. However, we have agreed upon the following approach for cumulative effect analyses.

Potential cumulative impacts should be considered as early as possible, as you are identifying direct and indirect effects. A cumulative impact analysis builds upon information derived from direct and indirect impacts. This makes it tempting to postpone the identification of cumulative impacts until the direct and indirect impact analyses are well under way. However, such early

⁴ See “Definitions” under “Background: Resources and More” starting on p. 18 of this document.

consideration of cumulative impacts may facilitate the design of alternatives to avoid or minimize impacts. Therefore, do not defer the consideration of cumulative impacts. Instead, as you begin to consider a project's potential direct and indirect impacts, start outlining the potential cumulative impacts as well. Once more information about direct and indirect impacts becomes available, use it to further refine the cumulative impact analysis. If you determine that cumulative effects are not an issue, document that decision along with the reasons for the decision.

Unlike direct impacts, quantifying cumulative impacts may be difficult, since a large part of the analysis requires projections about what may happen in a project area. Actions taken by governmental and private entities other than WSDOT need to be considered for a cumulative impact analysis. Partnering with other agencies will make it easier to identify additional information that might be needed.

For the analysis use information from any environmental documents such as discipline reports, as well as other relevant information, such as local comprehensive plans, existing zoning, recent building permits and interviews with local government. These may also be good sources for information on past actions.

A partnership approach for transportation projects can be of great benefit throughout the life of the project, presenting opportunities for gathering valuable information and for partnering on mutually beneficial mitigation. These will benefit your cumulative effect analysis as well. Forging early, cooperative working relationships can result in:

- Collaborative planning between federal, state, and local agencies (see FHWA's web site⁵ on scenario planning, an approach that integrates land use and transportation).
- Incorporating reasonable avoidance and minimization opportunities for identified resource impacts.
- Thoroughly documenting your analysis (including assumptions and sources of information), conclusions, and rationale.
- Assuring consistency with regional habitat/restoration planning efforts.
- Identifying opportunities for project stakeholders to become involved in regional planning efforts.

Early collaboration and integrated planning is supported in Section 6001 of SAFETEA-LU⁶ It requires Metropolitan Planning Organizations to discuss potential mitigation activities and locations in the Regional Transportation Plan. Also, FHWA's linking of planning and NEPA⁷ provides tools for interagency collaborative transportation, land use, and environmental planning.

Washington State's growth management law (GMA) gives an opportunity for efficient multimodal and intermodal transportation systems based on regional and local priorities. GMA requires local comprehensive plans to include identified needs on state-owned transportation facilities from the statewide multimodal transportation plan. This requirement should help keep in check the potential for transportation to affect the rate of growth.

⁵ FHWA Scenario Planning <http://www.fhwa.dot.gov/planning/scenplan/>

⁶ SAFETEA-LU FAQs: <http://www.fhwa.dot.gov/hep/section6002/index.htm>

⁷ Linking Planning and NEPA: <http://environment.fhwa.dot.gov/strmlng/linkingtrans.asp>

What impacts are included?

Direct impacts are included in a cumulative impact analysis. This information should be gathered from the sections of the environmental document where the direct impacts of the project are discussed. Impacts may include impacts to wetlands, changes in land use (conversion to transportation use), effects on endangered species, as well as other relevant impacts.

Indirect impacts are included in a cumulative impact analysis. Indirect impacts may include land development occurring after a project is constructed. This could be as a result of access to a previously undeveloped property or as a result of changes in traffic patterns that may change the pattern or rate of planned growth. Other examples of indirect impacts could include changes in wildlife populations due to direct effects on habitat, changes in use of a recreation area or park due to improved access or visibility, or reduced flooding severity downstream due to improved highway runoff flow control.

Cumulative impacts include direct and indirect impacts resulting from governmental and private actions. For instance, a “big box” store may be planned near a project area along with a new subdivision. The effects of these actions should be considered along with the direct and indirect effects of our action for a cumulative impact analysis.

When is a cumulative impact analysis required?

The CEQ regulations require that all federal agencies consider the cumulative effects of any proposed action. The level of the environmental study document being prepared will give you some idea about when and if the analysis should be prepared. **If a project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on the resource.**

Categorical Exclusion (CE): Generally Not Required. These projects are by definition minor projects without significant individual or cumulative environmental impacts, and as such should not require a cumulative impact analysis. There may be unusual circumstances requiring such an analysis, but this should be very rare. If additional capacity is added, you should investigate whether there are any cumulative impact issues.

Environmental Assessment (EA): Generally required. These are projects in which the significance of environmental impacts is unknown. As one of the primary purposes of the EA is to help decision makers decide whether or not an EIS is needed, you will need to conduct an initial environmental assessment. The degree to which resources may be impacted will determine the extent of the cumulative impact analysis needed. Where direct and indirect effects are found to be present, you will need to complete a cumulative impact analysis. When your project is large, complex, and in an environmentally sensitive area, the cumulative impact analysis should mirror what is done for an EIS.

Environmental Impact Statement (EIS): Absolutely required. These are projects in which there are anticipated significant environmental impacts, and a cumulative impact analysis may assist decision makers in making decisions of project scope, design and location. In general, the cumulative impact analysis should include substantial information about resources, past actions that have contributed to trends and reasonably foreseeable effects.

See page 45 in CEQ guidance, *Considering Cumulative Effects Under NEPA*.

How do I Prepare a Cumulative Impact Analysis?

The cumulative impact analysis should begin early in project development, usually during the NEPA scoping process. As the process continues, use the gathered data to further refine the cumulative impact analysis. The following eight steps serve as guidelines for identifying and assessing cumulative impacts:

1. Identify the resources that may have cumulative impacts to consider in the analysis;
2. Define the study area and timeframe for each affected resource;
3. Describe the current health and historical context for each;
4. Identify direct and the indirect impacts that may contribute to a cumulative impact;
5. Identify other historic, current and reasonably foreseeable actions that may affect resources;
6. Assess potential cumulative impacts to each resource; determine magnitude and significance;
7. Report the results; and
8. Assess and discuss potential mitigation issues for all adverse impacts.

Note that these steps are iterative and may not necessarily be sequential. It may be appropriate to identify the resources included in the analysis (Step 1), then apply Steps 2 -6 to each resource, rather than doing each step and re-listing each resource under every step. Steps 7 and 8 can be done at the end. As new information becomes available, it could alter decision making possibly resulting in changes in methods to avoid and/or minimize impacts.

If you are looking for background on related case law, the meaning of relevant terms, a comparison of our eight steps with the CEQ guidance or additional references refer to the last pages of this document starting on page 18.

Step 1: Identify the resources to consider in the analysis

The first step in performing the cumulative impact analysis is to identify which resources to consider in the analysis. **If a project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on the resource.**

List each resource area for which the project could cause direct or indirect impacts. The cumulative impact analysis should focus on: 1) those resources that could be substantially affected by the project in combination with other past, present, and reasonably foreseeable future actions; and 2) resources currently *in poor or declining health* or at risk even if project effects are relatively small.

There is a caveat -if the effects caused by the WSDOT project are minor, but actions by other agencies/developers cause substantial effects, this should be included. The key factor is whether there are substantial effects on the resource under consideration, not whose actions are causing the effects. In other words, the effects can be substantial even if the effect of WSDOT's proposed action is minimal. Regardless of the cause, the health of the resource should be discussed. Because the focus is resource by resource, it may be necessary to conduct separate cumulative effects analyses.

Step 2: Define the study area for each resource

Cumulative effects are considered within spatial (geographic) and temporal boundaries. By defining a Geographic Resource Study Area for each resource, you will identify the geographic boundaries for each resource to be included in the cumulative impact analysis. You will also identify a temporal boundary (past and future).

Environmental specialists (biologists, archaeologists, historians, land use planners, water quality specialists and others) can help to identify appropriate Resource Study Area boundaries for each resource in the cumulative impact analysis based on their knowledge of the resources and regulatory mandates. Public agency representatives, tribes and interested citizens may also offer input during the scoping process.

Geographic Resource Study Area

Many approaches are available to define a geographic resource study area for a cumulative impact analysis. Start with the direct and indirect effects study area already defined for each resource. The following examples describe ways to identify the Geographic Resource Study Area for a few specific resources:

- **Wetlands and water quality.** Identify the drainage basin (watershed) or sub-basins in which the project would be located. If necessary, consult with environmental specialists to discuss potential Resource Study Areas.
- **Archaeological resources.** Identify prehistoric and/or historic archaeological sites in the project vicinity. Determine the geographic context for the type of archaeological resources being affected. Examine the project's historic property survey report. A context will be described in this document, typically including a discussion of geographic range or distribution of sites. Refer to the Area of Potential Effects (APE) if already set.
- **Historic architectural resources.** Identify historic districts and neighborhoods containing affected buildings or structures. Project-specific historical resource analyses typically define the geographic context needed to understand the historic significance of a structure (e.g., period of significance and neighborhood, community, or resource type).
- **Threatened and endangered species.** Determine the local population of individual species and a general study area by considering the range, sub-range, or population distribution for the species. Consult biologists specializing in particular species for assistance in defining reasonable Resource Study Areas. Remember that this guidance is for NEPA compliance only. ESA has different requirements for cumulative effects analyses. This guidance is not intended for cumulative impact analyses for biological assessments prepared to comply with Section 7 of the federal Endangered Species Act (ESA). For ESA cumulative effects, only non-federal actions are included in the specific consultation analysis. Effects of these actions on species are analyzed within the action area; the area subject to consultation.
- **Community disruption/division/displacement.** Identify neighborhood or community boundaries using census and other data such as public school data. Local comprehensive plans can be a data source as well as public involvement and interviews with local service agencies.

Temporal Resource Study Area

Cumulative impact analyses should include a time frame as well as a geographic study area. There is no predetermined time frame. The time frames chosen should reflect the resource concerns, geographic resource study areas, the project, and how other important resources fit in. Choose past and future time frames based on what has happened and is proposed to happen in the area. For instance, when did past actions decrease the quality and health of a particular resource? The idea is to use a timeframe that goes back far enough to provide a reasonable historical context to tell the story about important trends and the current state of the resource.

A “future” year should also be selected. As with historical timeframe, the projected year should be based on providing a reasonable context to estimate the future state of the resource. This may be when a proposed development (subdivision or regional shopping mall as examples) is complete. Another example is using the long range transportation plan horizon year or project design year. Some effects or trends may require an even longer future horizon to be meaningfully examined.

After describing why the temporal study years were selected, you should also describe the characteristics of the study years. Describing the rationale for why the temporal study years were selected allows decision makers and interested readers to know the reasons behind your decision.

Step 3: Describe the current status/viability and historical context for each resource

The purpose of Step 3 is to begin to "tell the story of the resource" by: A) describing the current health, condition, or status of the resource within the Resource Study Area and B) providing historical context for understanding how the resource got to its current state. Historical context includes historical uses of a resource or an area or past practices and behaviors. The information in the "Affected Environment" section of the proposed project's draft environmental documents can provide one useful reference keeping in mind it may only give current conditions. Once the health and historical context of these resources is described, the effects of future actions on these resources will be assessed (Steps 4 and 5).

Current Health of the Resource

"Health," as it is used here, refers very broadly to the overall conditions, stability, or vitality of a resource, regardless of whether it is natural (e.g., a wetland) or social (e.g., a community). There are a variety of ways to determine the current health or status of the resource within the Resource Study Area. The practitioner may rely on their own professional expertise; consult other technical specialists on the project team; access resource inventories, assessments, or other data sources; and review environmental documents for other nearby projects. When determining the health of the resource use the Resource Study Area you defined in Step 2.

The health or status of the resource should include a description of trends affecting it. These recent trends are meant to help provide an historic context of the current condition of the resource. (Recent trends are distinct from the more long-range historical context that will be considered below). Many circumstances might indicate a trend that could affect the resource. Examples include: government decisions (e.g., a recent zoning change or preparation of a habitat conservation plan), community preferences (e.g., passage of a measure to protect a historical downtown neighborhood), demographic changes (e.g., a shift in population growth rate), or natural phenomena

(e.g., changes resulting from an earthquake, flood, or fire). Examine the circumstances to determine if there is a pattern indicating a trend or if it is a single event without a discernable pattern.

These trends may indicate whether the health of the resource is improving, stable, or in decline. This is valuable to the analysis in two ways: first, it will help the practitioner to focus the cumulative impact analysis more closely on the resources that are in decline and second, it may help the practitioner to propose more effective mitigation in Step 8 of the analysis.

In some cases it is clear that a resource is in good health. For example, if a historic district consists of multiple buildings that have retained their original character, are occupied and the economic forecast is good, this may indicate that the health of the historic district is good or excellent. In some cases it is also clear the resource is in poor health, such as when a species is listed as Threatened or Endangered, or when major streams within the proposed project's Resource Study Area are listed on the federal Clean Water Act Section 303(d) list of impaired waters.⁸

Similarly, in some cases it will be easy to determine the effect of recent trends on the health of a resource. If a historic district includes many abandoned historic buildings, and the local City Council has recently approved building permits that could demolish some of the historic buildings and construct new high-rise buildings in their place, these trends could indicate that the condition of the historic district is declining. If an organization funded and implemented a plan to clean up a polluted stream, including protecting riparian habitat, providing an appropriate buffer, and committing to long-term monitoring and adaptive management, this might lead to an improvement in the stream's water quality.

Historical Context of the Resource

The goal of identifying the historical context is to give the reader (decision maker) a reasonable explanation of how the resource got to its current state. Providing historical context is not the same as providing a list of every project or action that has affected the resource over time. It is not realistic or necessary to provide an exhaustive "laundry list" of projects throughout the years. Rather, the historical context should identify key historical patterns or activities that have contributed to the current condition of the resource.

To describe the historical context of a resource, begin by identifying key patterns or activities in the past that have influenced it. These may be related to notable changes to the region's land use or demographic patterns. Then characterize the nature of the influence that these patterns or activities have had on the resource, such as destruction or degradation of habitat. To describe the historical context, use historical information. This information may be quantitative, qualitative, or both. Quantitative information is useful for determining trends over time, but it is not always available. A qualitative description can also be useful in providing historical context. The goal is to tell the story about the resource. If there are not enough quantitative data, then use qualitative information. Conversely, even if a lot of quantitative information is available, it may not all be relevant to the analysis. Unless it is useful to the analysis, do not include it.

⁸ If fecal coliform is the reason for the 303(d) listing, mention it in the document, but clarify that it is not a transportation product.

These examples show that the historical context, current health and trends of a resource can be described with a few sentences. You only need to use enough data or words to tell the story about each resource.

Four Examples of Historical Context

Example 1: Farmland

The project is located in a rural area that is now transitioning and being rezoned into suburban and industrial land uses. Since approximately 1980, more than 400 acres of land used to produce hops and daffodils have been converted to residential and industrial land uses. The study area encompasses half of that area.

Example 2: Wetlands

The project crosses a stream. While the stream is not navigable, it is subject to the jurisdiction of the U. S. Army Corp of Engineers under Section 404 of the Clean Water Act. Past land development has been minimal, but approximately .25 acres of the stream have been disturbed by another infrastructure project.

Example 3: Community Cohesion

The project is located in an area where there is large Hispanic population. A previous project bisected the community. Development has occurred along the existing roadway. Current development plans within the resource study area indicate the development of a single family subdivision of 127 units, and a commercial strip mall. The total impact of these third party actions is the development of 222 acres. These developments are occurring regardless of the WSDOT project.

Example 4: Peregrine Falcons

Peregrine falcons began to experience a substantial decline in the 1940s as a result of the use of the pesticide DDT. By the 1970s populations in the west were reduced by 80 to 90 percent. In 1970 they were listed as an endangered species by the U.S. Fish and Wildlife Service. A survey in 1980 identified only five nesting pairs in Washington State. They were listed as a state endangered species that year. DDT was banned in 1972. Since then, the peregrine falcons' numbers have increased. In 1999 they were removed from the federal threatened and endangered species list. In 2002 they were down-listed at the state level from endangered to sensitive in Washington State.

Step 4: Identify direct and indirect impacts of the project that might contribute to a cumulative impact

A cumulative impact analysis must look at the impacts of a proposed project in combination with the impacts of other past, present and reasonably foreseeable projects identified within a Resource Study Area.

If your project does not have a direct or an indirect effect on a resource it cannot have a cumulative effect on that resource.

Step 4 helps to identify the direct and indirect impacts for each of the proposed project alternatives on the resources identified in Step 1. It is important to differentiate each alternative's potential to contribute incrementally to cumulative impacts.

Direct Impacts

The cumulative impacts analysis should summarize the direct impacts of the project. The information may be presented in a table, referring back to the text of the environmental document for more information on the direct impacts.

Indirect Impacts

These are impacts that often relate to changes in land use, such as addition of new impervious surface, filling of wetlands, modification of habitat. While land use changes are the direct result of local planning decisions (and FHWA and WSDOT have no control over local land use decisions), there may be indirect impacts associated with transportation projects that affect the rate and pattern of development that should be analyzed. For example, if WSDOT constructs a bypass route around a town, restaurants, gas stations and other forms of development may relocate to the bypass in order to get more business from intercity traffic, while development and economic vitality along the original route may decline.

In general, projects in a new location or projects in which there is a dramatic change in travel lanes (e.g., from two to six lanes with grade separations) are more likely contribute to indirect impacts than projects in areas which are already developed, or involve a smaller increase in capacity.

To evaluate the potential for indirect impacts, you should evaluate the likelihood of development in the project area following project construction. To do this, use the following:

- Look at population and land use trends in the project area and region or subarea. How has the area developed? How fast is it planned to develop? Will the project affect the rate of development? Are people building in the area? Look at the pattern of zoning. Has it recently changed or is it about to change?
- Review the local comprehensive plans. Are there plans/plats in the project area approved or currently under review? Is the area within the urban growth boundary or outside it? Is the city planning on moving the urban growth boundary to allow for growth or are they concentrating on infill? Does the transportation element of the plan include the transportation project? Would the transportation project support the local decisions contained within adopted plans? Do the city planners expect the project to support or encourage development?

Use your professional judgment, as well as discussions with the city or county in the project area, as well as any other experts in the area to determine what development is probable. For instance, if a developer has a good track record in completing platted developments, the proposed development is likely to be developed.

Examples

Example 1: Project Z is proposed to bypass the City of Whoville. According to the city, there are plans for several local businesses to relocate to the western terminus of the proposed bypass, to

maximize intercity travel stops. The developments will not occur in this location if the bypass is not constructed nor will they be constructed if not granted rezoning and building permits by local agencies. The local businesses planning to relocate from the downtown area include a gas station and a restaurant. In addition, the city planners indicate that two fast food restaurants are planning to locate new franchises in Whoville and plan to locate at the western terminus of the proposed bypass. If the bypass is not built, these developments will not be located there.

Given that there are no frontage roads along the bypass and limited access, it is likely that only the termini and interchanges will experience land changes. At this time, only the western terminus has development proposed. Beyond the land use changes discussed, there are no other developments planned with one exception. A “big box” store is going to be built in the area of the bypass. This development will happen regardless of whether the bypass is built or not. These third party actions would total 50 acres.

In addition to the 20 acres of land rezoned and converted from agricultural to retail/commercial as a result of business relocating along the new corridor, another indirect effect of the bypass could be some deterioration of the downtown as a result of the new corridor. The bypass could be particularly difficult for city center businesses that rely on pass through traffic. Some of these impacts could be beneficial. If the project improves access to the city, it could lead to an increase in density which is supportive of improved transit services. Additionally, the concentration of growth within the urban growth boundary can slow down sprawl.

Alternative	Direct + Indirect Acres	Third Party Actions Acres	Cumulative Acreage
Build	100 + 20	50	170
No-Build	0 + 0	50	50

Use the information in Step 4 to combine it with the impacts of other reasonably foreseeable actions (Step 5) to perform the cumulative impact analysis (Step 6).

Step 5: Identify other current and reasonably foreseeable actions

Step 1 and 2 of this guidance identified the resources to consider in the cumulative impact analysis and the geographic area to be considered for each resource (Resource Study Area). The procedures set forth in Step 3 help with describing the health of the resource by discussing the historic context and current trends affecting the sustainability of each resource. Step 4 identifies direct and indirect actions or project impacts that could contribute to a cumulative effect. The purpose of Step 5 is to identify other current and reasonably foreseeable projects to be considered in the cumulative impact analysis. Ask yourself what else might affect these resources.

The following list suggests some examples of current and reasonably foreseeable trends, events, actions or projects that may be included in a cumulative impacts analysis:

- Projected land use and other information in local or regional comprehensive plans
- A development proposal, which has been filed with the local government, county or other plat-approving agency and has SEPA permit applications complete.

- Population/ employment trends which are identified in local or regional comprehensive land use plans
- Planned and funded transportation improvements by city or county governments
- Building permits issued by the local agency with jurisdiction, but that are not built yet.
- Local or regional infrastructure projects that could impact resources (schools, hospitals, manufacturing, shipping etc.)
- Trends related to global climate change, as we currently understand them and related to the project, should be discussed to the extent possible.
- Trends in land development patterns, such as, growth/expansion around interchanges; zoning changes to accommodate development pressures once transportation improvements occur.

Keep in mind that CEQ regulations, as reflected in FHWA's *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (Interim Guidance, January 2003), require cumulative and indirect impact analyses to focus on actions “that are likely or probable, rather than those that are merely possible.” It can be challenging to discern “probable” from “possible.” There are tools and processes that can be used to help make the distinction. You can begin by asking some basic questions.

The cumulative impact analysis should only include those proposed actions or projects with a reasonable expectation of happening. When identifying reasonably foreseeable actions begin with asking questions like the following:

- Is the proposed project included in a financially constrained plan?
- Is it permitted or in the permit process?
- How reasonable is it to assume that the proposed project will be constructed?
- Is the action identified as high priority?

An affirmative answer to any of these questions may indicate the action is reasonably foreseeable.

Count what counts. According to CEQ, “a cumulative effects analysis should ‘count what counts’, not produce superficial analyses or a long laundry list of issues that have little relevance to the effect of the proposed action or the eventual decisions.”

CEQ advises practitioners to consult with the staff of an appropriate agency to identify reasonably foreseeable future actions based on that agency's planning process. Project scoping can provide an opportunity for these agency discussions. For further information, refer to Chapter 2 of CEQ's guidance document, *Considering Cumulative Effects under the National Environmental Policy Act* (1997).

Both quantitative and qualitative data are appropriate to use in evaluating cumulative impacts. Quantitative data are preferable, and should be used whenever relevant data are available. However, qualitative data are also important, particularly to those analyses more dependent on human perception, such as aesthetics or community disruption.

Use the best data you have available. In cases where data are incomplete or unavailable, communicate with experts, individuals and cooperating agencies as soon as possible, because such communication can lead to additional opportunities for data collection and help all participants reach an understanding concerning the availability and acceptability of relevant information. When

preparing an Environmental Impact Statement or Environmental Assessment where there is incomplete or unavailable information for a reasonable foreseeable significant adverse effect, refer to CEQ's guidance at 40 CFR 1502.22. It lays out principles regarding what to say about the incomplete or unavailable information, and when to obtain additional information. In some cases, it may be helpful to obtain objective professional judgment through a structured and efficient process such as a Delphi Panel.¹ Keep in mind that a cumulative impacts analysis could likely change over a 24-60 month period, so the analysis and data may need to be revisited during the life of an EIS.

It is important when preparing NEPA documents to be clear on what information was available and analyzed. The NEPA document should be viewed as a disclosure document. NEPA is an open process. NEPA does not require an answer that will satisfy everyone; rather, NEPA requires a well-researched and reasoned analysis based on a hard look at the best available information.

Be sure to document the assumptions and methods used to identify actions included in the analysis, the agencies and experts consulted, and any other research. It is important to identify our sources and maintain a record of methods, assumptions, and analyses. This is especially important when data are scarce.

Step 6: *Identify and assess cumulative impacts*

After the Resource Study Areas have been identified for each affected resource (Step 2), the health of the resources has been assessed and put into historical context (Step 3), the direct and indirect impacts of the proposed project have been identified (Step 4), and the direct and indirect impacts of other reasonably foreseeable actions have been assessed (Step 5), the information is ready for analysis. In Step 6, the information is reviewed and analyzed.

Review the Information Gathered

The information gathered to define the Resource Study Area and to define the context for the resource should provide a sense of the health of the resource. Developing the “reasonably foreseeable” list of actions to include in the cumulative impact analysis will also provide insight into the prospective changes within the Resource Study Area, and how those changes will affect resources. This review will also provide a sense of the amount and quality of data that will be available to conduct the cumulative impact analysis.

Assess the Cumulative Impacts

The proposed project's cumulative impacts can be assessed using a variety of methods and tools that are suited to different levels of analysis. The practitioner, with appropriate input as needed, selects the method(s) and tool (s) on a case-by-case basis for each resource being analyzed. Chapter 5 of CEQ's *Considering Cumulative Effects* describes a variety of methods or tools - both qualitative and quantitative for evaluating cumulative impacts. These range from simpler methods that may require less time and financial resources, such as matrices or mapping overlays, to data-intensive methods such as modeling or trends analysis. Table 5-3 on pages 56-57 of the CEQ document describes these methods, as well as their strengths and weaknesses.

The method(s) used may vary depending on the resource considered, the type of available information, and the scale of the proposed project. More than one method can be used to assess cumulative impacts on a single resource. For example, the cumulative impact analysis of a species could combine Geographic Information Systems (GIS) mapping and consultation with species

experts. GIS would show historical and anticipated changes in the size and location of species habitat, and the consultation would provide information on the condition of the species and the species' ability to adapt to anticipated biological stressors.

Drawing Conclusions

In previous steps, the practitioner collected data and information and applied a method(s) to analyze this information. Based on that analysis, the practitioner now draws conclusions about the cumulative impacts to resources by applying professional judgment to the results, and by coordinating with technical experts as warranted.

First, the practitioner answers the question, "Is there a cumulative effect?" If the results of the analysis indicate that the proposed project, in combination with other actions, would affect the health of the resource or a trend associated with a resource, the practitioner can conclude that the proposed project will contribute to a cumulative effect (either beneficial or adverse).

Next, the practitioner uses the results of the analysis to characterize the severity or magnitude of the cumulative effect. Consider the following question: "What do decision-makers need to know about the status of this resource within the Resource Study Area?" The practitioner should document the following for each resource:

- The health, status or condition of the resource as a result of past, present and reasonably foreseeable impacts.
- Avoidance and Minimization. Any project design changes that were made or additional opportunities that could be taken, to avoid and minimize potential impacts in light of cumulative impact concerns.

The CEQ guidance discusses using the concepts of context and intensity in making impact conclusions. We recommend considering the context and intensity of the proposed project's cumulative impacts. This will help the practitioner to make conclusions about the severity of these impacts. Chapter 4 of CEQ's *Considering Cumulative Effects* provides additional information on assessing the magnitude and significance of cumulative impacts. For most resources, the NEPA cumulative impact analysis conclusion will not require a description of the severity of impact (e.g., substantial, moderate, minor, significant) unless the method specifically reports results in such terms.

Once the cumulative impact analysis is complete, review the conclusions of the cumulative impact analysis with the conclusions from the direct and indirect impact analyses of the proposed project. This comparison can test the soundness of the conclusions about each resource. For example, if the direct and indirect project impacts would result in a 0.2-acre loss of wetland habitat in a Resource Study Area that contains more than 100 acres of similar habitat, a substantial contribution to cumulative impacts might not be anticipated. However, recognize that if this same 0.2-acre impact affects an extremely rare or threatened resource, the cumulative impact may be considered substantial. You will need to know what is happening and anticipated for the other 99.8 acres to draw your conclusions.

Step 7: Document the results

The purpose of Step 7 is to document the results of the step-wise cumulative impact analysis process. The product of Step 7 will be included in the NEPA document. It is a summary of the analysis approach and conclusions. This summary should include the identification of resources considered in the analysis, the Resource Study Area for each resource, and the conclusions concerning the health and historical context of the resource (Steps 1 through 3). Step 7 also presents project impacts that might contribute to a cumulative impact (Step 4), other reasonably foreseeable actions considered in the cumulative impact analysis (Step 5), and the conclusion of the analysis as outlined in Step 6.

The information presented in Step 7 is a summary, consistent with NEPA disclosure requirements. The audience for the information presented in this step is decision-makers and interested members of the public, agencies, and affected tribes. Therefore, it is important for the practitioner to clearly state the conclusions of the analysis. Include information about the methods and assumptions underlying the analysis.

Describe the Analyses, Methods or Processes Used

Briefly state how the impact analysis was conducted. For example, you may have plotted GIS overlays of proposed projects (developments) and known locations of an endangered plant species. Briefly explain this approach and include any of the figures or data used to draw conclusions if they provide illustration or clarification. Provide references or footnotes as needed to document sources.

Explain the Assumptions

Explain any limitations that were faced in conducting the analysis. Reviewers will need to know how conclusions were reached in situations for which there were data gaps, scarce information, or limitations or obstacles associated with obtaining the data (e.g., data were cost prohibitive). If models were used, explain the assumptions on which the models are based.

For the purposes of NEPA disclosure, the cumulative effects discussion should compare the cumulative impacts of each alternative (including the “No Action” alternative). A typical statement might say, "Alternative A would adversely affect 0.4 acre of wetlands. Alternative A, in combination with other actions, contributes to an adverse cumulative impact to wetlands, while Alternative B does not."

How to Summarize Cumulative Impact Analyses in the Environmental Document

The document should include a summary of the results of each analysis, all the steps in adequate detail to fully disclose the strengths and/or weaknesses of the analysis as well as the analytical methods and assumptions used. This cannot be overstated - the decision-maker (as well as any other reader) should be able to determine not only what you concluded, but how and why you concluded what you did.

It's the project team's decision on where to best place the Cumulative Impacts Analyses in the environmental documents. In some cases, it should be a separate section to effectively show all the cumulative impacts and how they interrelate. In other cases, it can easily be summarized in each technical report. Which ever approach you use make sure the cumulative impacts analyses compares the reasonable and feasible alternatives fully considered in the environmental document and the No Action Alternative.

Step 8: Assess the need for mitigation

In most cases, a cumulative impact results from the combined actions of numerous agencies and private entities. In Step 3, you looked at trends and disclosed those with adverse or negative effects on a resource if that resource is also affected by your project. Now, in Step 8, you need to discuss potential mitigation. Implementing a potential mitigation measure to address cumulative impacts is often beyond the jurisdiction of FHWA, WSDOT, or other cooperating agencies. By using the steps in this guidance, you would gather information early in the process, become aware of how the effects of the proposed project may combine with other effects, giving you opportunities to use elements of mitigation (avoidance and minimization) throughout the development of the project. If unavoidable, adverse cumulative effects remain, you will need to describe or suggest compensatory mitigation that could be implemented by the appropriate party. Let us explain further.

FHWA's NEPA regulations in 23 CFR 771.105(d) and CEQ's CFR 1502.14(f) call for the consideration of mitigation for adverse impacts. Mitigation should be identified for adverse impacts disclosed in the environmental document, whether direct, indirect, or cumulative. FHWA, is directed to mitigate for impacts that “actually result from the Administration action and represent a reasonable public expenditure after considering the impacts of the action and the benefits of the proposed mitigation measures. In making this determination, the Administration will consider, among other factors, the extent to which the proposed measures would assist in complying with a Federal statute, Executive Order, or Administration regulation or policy.” 23 CFR 771.105(d)

For more information about presenting mitigation, see CEQ's discussion of mitigation in *NEPA 's Forty Most Asked Questions* (nos. 19a and 19b) In summary, 19 (a) discusses consideration of impacts not “significant” in themselves, but “significant” in combination with other effects. Question 19 (b) discusses how mitigation measures outside the jurisdiction of the lead or cooperating agency or unlikely to be adopted or enforced by the responsible agency should be dealt with.ⁱⁱ

Although WSDOT does not mitigate for cumulative impacts caused by others, and there exists no regulatory requirement for an agency to do so, we do need to disclose the impact and describe mitigation that may be planned or suggest possible mitigation to those agencies responsible. If practical mitigation options exist, we need to determine whether such options are within the control of WSDOT or FHWA. This is a key point: In cumulative effects analyses you do not have to commit to compensatory mitigation for actions that are not part of the proposed project – but you do have to discuss it.

For example, mitigation measures for air quality impacts might require numerous local communities to modify their comprehensive plans to reduce the amount of planned development and reduce the number of vehicle miles traveled within the geographic study area. WSDOT and FHWA do not have the authority to implement the necessary planning decisions, obtain local legislative approvals, or change the regional distribution of future development. Therefore, disclosure of mitigation for cumulative impacts is not based on or limited to specific mitigation measures that can be implemented by the lead agency.

In Step 8, you should consider all avoidance and minimization measures that are planned or in place to benefit the affected resource. Some of these measures may be part of the proposed project, others may be actions taken by other entities.

Consider the effects of any statewide initiatives such as the removal of fish passage barriers. Partnering opportunities, not associated with a project, for retrofitting or similar regional efforts could also produce some benefits to be considered. See discussion in “Recommended Approach”. If it is not possible to identify a mitigation measure, the discussion may consist of listing the agencies that have regulatory authority over the resource and recommending actions those agencies could take to influence the sustainability of the resource. By doing so, the needed mitigation would be disclosed to the public and reviewing agencies even though it could not be implemented by FHWA or WSDOT. Once disclosed, the information could be used to influence future decisions or to help identify opportunities for avoidance and minimization when other projects are proposed.

Using the 8-Step Approach: A Hypothetical Example

To assess the potential for cumulative impacts, the practitioner determines the potential for past trends and current and reasonably foreseeable future actions, in combination with the proposed project, that affect the health of the resource.

Below is a brief outline of how to use the steps, with a hypothetical example for wetlands:

Step 1: The project will have direct or indirect impacts to wetlands; therefore, wetlands are included in the resources to consider for cumulative impacts assessment.

Step 2: Based on consultation with environmental biologists and wetlands specialist, you determine that the relevant resource study area (RSA) is the drainage basin.

Step 3: The context: Currently the area is being used for some farming and rural housing, and has relatively intact wetland complexes. The urban growth boundary has recently been moved and now includes this area. Current resource study area acreage: 1,000 acres. Historically (pre-settlement), the area contained abundant wetlands. The wetlands have been disturbed by agricultural activities over the past 150 years. In recent years, urban development has increased the pace of wetland loss. The trend: Rapid development is continuing, and is expected to accelerate over the next 20 years.

Step 4: This project will have two acres of direct and indirect impacts to wetlands in the Resource Study Area.

Step 5: You have identified reasonably foreseeable actions in the wetlands Resource Study Area, and the associated impact to wetlands. These reasonably foreseeable actions include two new housing developments, a new business park, and several transportation improvements. Based on available environmental documents, discussions with wetlands experts, and other information you have collected about these actions, you estimate that 200 acres of wetlands will be adversely affected by reasonably foreseeable actions.

Step 6: You used a trends method to analyze the cumulative effects on the wetlands loss over time. You also consulted with environmental biology staff and regulatory experts to analyze the effect of cumulative stresses (fragmentation, pollution, sedimentation) to the values and functions of wetlands in the Resource Study Area.

Step 7: You concluded that there will be substantial cumulative impacts to wetlands within the Resource Study Area given past, current, and reasonably foreseeable actions. Your analysis shows that your project will account for two acres of the 200 acres of potential cumulative impacts to wetland. You conclude that the wetland impacts associated with your project will contribute minimally to the impacts of other current and reasonably foreseeable projects.

Step 8: Based on your analysis of the status of wetlands in the Resource Study Area, you recommend that compensatory mitigation for the direct and indirect project impacts be near existing wetland mitigation areas or wildlife refuges. If practicable options for cumulative effects mitigation exist, disclose them and suggest possible mitigation to those agencies responsible. Remember to include in your disclosure any avoidance and minimization that has been done.

Background: Resources and More

Following are definitions for some of the more important terms used in this guidance, a summary of applicable case law, a comparison of the WSDOT eight steps with CEQ's guidance and references.

Context

"This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short and long-term effects are relevant." (40 CFR §1508.27 (a))

Cumulative impacts

"...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR §1508.7)

Direct impacts

"Direct impacts are caused by the action and occur at the same time and place." (40 CFR § 1508.8a).

The terms "effect" and "impact" are used synonymously in the CEQ regulations and in this guidance paper.

Indirect impacts

"Indirect impacts are caused by the action and are later in time and farther removed in distance, but are still reasonably foreseeable. Indirect impacts 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 and other natural systems, including ecosystems." (40 CFR § 1508.8(b))

The term "secondary" impact does not appear in the CEQ regulations or guidance. It is used in FHWA's Position Paper: Secondary and Cumulative Impact Assessment in the Highway Project Development Process (April 1992). FHWA uses the term "indirect" impacts synonymously with "secondary" impacts. For the purpose of this guidance we use the term "indirect."

Intensity

This refers to the severity of a proposed action's impact on the environment. CEQ NEPA Regulations (40 CFR § 1508.27(b)) list several factors to consider. Context and intensity are considered together in determining the significance of an impact (the more sensitive the environmental context, the less intense an impact needs to be to have a potentially significant effect).

Mitigation

Mitigation according to 40 CFR § 1508.20, includes: a) Avoiding the impact b) Minimizing impacts by limiting the degree or magnitude, c) Rectifying the impact by repairing, rehabilitating or restoring d) Reducing or eliminating the impact over time e) Compensating by replacing or providing substitute resources.

Reasonably foreseeable

An action is reasonably foreseeable if it is considered "likely to occur" and isn't too "speculative." EPA's Consideration of Cumulative Impacts in EPA Review of NEPA Documents (May, 1999) states that "Court decisions . . . have generally concluded that reasonably foreseeable future actions need to be considered even if they are not specific proposals. The criterion for excluding future actions is whether they are "speculative." The NEPA document should include discussion of future actions to be taken by the action agency. The analysis should also incorporate information based on the planning documents of other federal agencies, and state and local governments. For example, projects included in a 5-year budget cycle might be considered likely to occur while those only occurring in 10-25 year strategic planning would be less likely and perhaps even speculative."

Language from court decisions can be helpful in formulating questions and criteria as practitioners proceed with analysis to determine which actions may be reasonably foreseeable. For example, one court case defined "reasonably foreseeable" as an action that is "sufficiently likely to occur, that a person of ordinary prudence would take it into account in making a decision." *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992) (Sierra Club IV). Courts have also recognized that "An environmental impact is considered 'too speculative' for inclusion in an EIS (Environmental Impact Statement) if it cannot be described at the time the EIS is drafted with sufficient specificity to make its consideration useful to a reasonable decision maker." *Dubois v. US. Dept. of Agriculture*, 102 F.3d 1273, 1286 (1st Cir. 1996).

Factors that indicate whether an action or project is "reasonably foreseeable" for the purposes of cumulative impacts analysis include: whether the project has been federally approved; whether there is funding pending before any agency for the project; and whether there is evidence of active preparation to make a decision on alternatives to the project. *Clairton Sportsmen's Club v. Pennsylvania Turnpike Commission*, 882 F. Supp 455 (W.D. Pa 1995).

Resource Study Area

A Resource Study Area is specific for each resource and focused on the area where cumulative effects on the resource are expected to occur. It may be the same or larger than the study area for direct and indirect effects.

Significance

The significance of a potential impact on the natural or built environment depends upon context, setting, likelihood of occurrence, and severity, intensity, magnitude, or duration of the impact. Almost every transportation project that would be recognized as major federal action, no matter how limited in scope, has some adverse impact on the environment.

Review and consideration of case law can help clarify interpretations of the term "significance. In deciding whether a project will significantly impact the environment, case law suggests that agencies should review the proposed action in light of the extent to which the action will cause adverse environmental effects in excess of those created by existing uses in the affected area and the absolute quantitative adverse environmental effects of the action itself, including the cumulative harm. In any proposed major federal action⁹, the public must have an opportunity to submit factual information on this issue which might bear on the department's threshold decision of significance. *Hanley v. Kleindienst*, 471 F.2d 823 (2nd Cir. 1972, cert. denied, 412 U.S. 908 (1973)). If you are concerned about the role that the level of significance and controversy may have, you should consult your Attorney General's office or other legal counsel.

Discussion of case law

Case law provides some guidance on the standards that must be met with regard to cumulative impacts. NEPA analyses must include useful evaluation of the cumulative impacts of past, present, and future projects. In *Carmel-by-the-Sea v. U.S. Dep't of Transp.*, 123 F.3d 1142, 1160 (9th Cir.1997), the Ninth Circuit found that this means the environmental analysis must evaluate the combined effects of past, present and future projects in sufficient detail to be "useful to the decision maker in deciding whether, or how, to alter the program to lessen cumulative impacts." See also *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1379-80 (9th Cir.1998) ("To 'consider' cumulative effects, some quantified or detailed information is required. . . . General statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided.").

The *Carmel-by-the-Sea* court acknowledged that the EIS considered the impacts in the individual resource discussions and in a separate section, but noted that the analyses were "not lengthy, and taken either separately or together" they failed to satisfy NEPA. 123 F.3d at 1160. The critical component missing from the analysis was how the past and future projects interact with the present project to cumulatively impact the area resources.

A cumulative impact analysis should identify the area in which the effects of the proposed project will be felt; the impacts that are expected in that area from the proposed project; other actions - past, present, and proposed, and reasonably foreseeable - that have or are expected to have impacts in the

⁹ "Major Federal action" includes actions with effects that may be major and which are potentially subject to Federal control and responsibility. **40 CFR 1508.18**

same area; the impacts or expected impacts from these other actions; and the overall impact that can be expected if the individual impacts are allowed to accumulate. *Grand Canyon Trust v. Federal Aviation Admin.*, 290 F.3d 339 (D.C. Cir 2002); *Fritiofson v. Alexander*, 772 F.2d 1225 (5th Cir. 1985).

In *Fritiofson* the court stated that "the CEQ regulations [indicate] that a meaningful cumulative-effects study must identify: (1) the area in which effects of the proposed project will 'be felt; (2) the impacts that are expected in that area from the proposed project; (3) other actions--past, proposed, and reasonably foreseeable--that have had or are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the individual impacts are allowed to accumulate. *Fritiofson v. Alexander*, 772 F.2d at 1245.

Differences between Washington's and CEQ's guidance

Many of you are familiar with the CEQ 11 steps for cumulative effects analyses. We have adopted the 8 steps that TxDOT and Caltrans use. Below is a table comparing the two approaches to show how these fewer steps are still inclusive of the CEQ steps.

Comparison between WA steps and CEQ steps for Cumulative Effects	
WSDOT steps	CEQ steps
#1	1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.
#2	2. Establish the geographic scope for the analysis
#2	3. Establish the timeframe for the analysis
#5	4. Identify other actions affecting the resources, ecosystems and human communities of concern.
#3	5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stresses.
#3, 4, 5, 6	6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.
#3	7. Define a baseline condition for the resources, ecosystems, and human communities.
#6	8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.
#4, 6, 7	9. Determine the magnitude and significance of cumulative effects.
#6, 8	10. Modify or add alternatives to avoid, minimize or mitigate significant cumulative effects.
* no comparable step	11. Monitor the cumulative effects of the selected alternative and adapt management.

* At the project level, this step is not practical but we will continue to improve monitoring at the statewide level through our environmental management system. Additionally, a review of case law shows that no agency has been held accountable for this step.

** Bolded WSDOT steps indicate the majority is covered by that step. Some other(s) steps are covered as well.

What references did we use?

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

Guidance for Preparers of Cumulative Impact Analysis Approach and Guidance (2005)

http://www.dot.ca.gov/ser/cumulative_guidance/approach.htm

COUNCIL ON ENVIRONMENTAL QUALITY

Considering Cumulative Effects under the National Environmental Policy Act (1997)

<http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm>

Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (2005)

http://ceq.eh.doe.gov/nepa/regs/Guidance_on_CE.pdf

ENVIRONMENTAL PROTECTION AGENCY

Consideration of Cumulative Impacts in EPA Review of NEPA Documents (1999)

<http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm>

FEDERAL HIGHWAY ADMINISTRATION

Question and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process. (Interim Guidance, January 2003)

<http://www.environment.fhwa.dot.gov/projdev/qaimpact.asp>

MARYLAND STATE HIGHWAY AGENCY

Secondary Cumulative Effects (SCEA) Analysis (2000)

<http://www.sha.state.md.us/>

<http://www.sha.state.md.us/improvingourcommunity/oppe/scea/other/6-28-00Guidelines.pdf>

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)

Report 466: Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects (2002)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Indirect and Cumulative Impacts Guidance

http://www.ncdot.org/doh/preconstruct/pe/ICI_Guidance.html

TEXAS DEPARTMENT OF TRANSPORTATION

Guidance on Preparing Indirect and Cumulative Impact Analyses, (December 2006)

http://www.dot.state.tx.us/services/environmental_affairs/default.htm

END NOTES:

ⁱ The objective of most Delphi applications is the reliable and creative exploration of ideas or the production of suitable information for decision making. The Delphi Method is based on a structured process for collecting and distilling knowledge from a group of experts by means of a series of questionnaires interspersed with controlled opinion feedback (<http://www.iit.edu/~it/delphi.html>)

ⁱⁱ CEQ's discussion of mitigation in *NEPA's 40 Most Asked Questions*, no. 19a and b.

Mitigation Measures. What is the scope of mitigation measures that must be discussed?

19 a. The mitigation measures discussed in an EIS must cover the range of impacts of the proposal. The measures must include such things as design alternatives that would decrease pollution emissions, construction impacts, esthetic intrusion, as well as relocation assistance, possible land use controls that could be enacted, and other possible efforts.

Mitigation measures must be considered even for impacts that by themselves would not be considered "significant."

Once the proposal itself is considered as a whole to have significant effects, all of its specific effects on the environment (whether or not "significant") must be considered, and mitigation measures must be developed where it is feasible to do so. Sections 1502.14(f), 1502.16(h), 1508.14.

19b. How should an EIS treat the subject of available mitigation measures that are (1) **outside the jurisdiction** of the lead or cooperating agencies, or (2) **unlikely** to be adopted or enforced by the responsible agency?

A. All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the RODs of these agencies. Sections 1502.16(h), 1505.2(c). This will serve to [46 FR 18032] alert agencies or officials who can implement these extra measures, and will encourage them to do so. Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation.

However, to ensure that environmental effects of a proposed action are fairly assessed, the probability of the mitigation measures being implemented must also be discussed. Thus the EIS and the Record of Decision should indicate the likelihood that such measures will be adopted or enforced by the responsible agencies. Sections 1502.16(h), 1505.2. If there is a history of non-enforcement or opposition to such measures, the EIS and Record of Decision should acknowledge such opposition or non-enforcement. If the necessary mitigation measures will not be ready for a long period of time, this fact, of course, should also be recognized.)