

Task 412-a: Analyzing Cumulative Impacts

Effective: February 2008

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:

- Those resources that could be substantially affected by the project in combination with other past, present, and reasonably foreseeable future actions: and
- 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.

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 analysis. 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:

- Describing the current health, condition, or status of the resource within the Resource Study Area and
- 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 discernible 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 that 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.¹

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

¹ 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.

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.

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 substantial 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.

Example:

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

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?
- How reasonable is it to assume that the proposed project will be constructed?
- Is the action identified as high priority?

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. 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

In Step 6, the information collected in Steps 1-5 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 the 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 Analysis 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. Whichever approach you use make sure the cumulative impacts analysis 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 may or 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.

Although WSDOT does not mitigate for cumulative impacts caused by others, 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 analysis you do not have to commit to compensatory mitigation – 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.