

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



Maryland State Highway Administration's Indirect and Cumulative Effects Analysis (ICE Analysis) Guidelines



for Environmental Impact Statements,
and Environmental Assessments and
Categorical Exclusions

Rev. 05/2007

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



What are indirect and cumulative effects?

- **Indirect Effects** – The effects that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.
- **Cumulative Effects** - The impact on the environment that results from 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 actions.

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



Why do we care about ICE Analyses?

- It's a requirement of NEPA.
- It's a tool for decision makers to fully understand the potential consequences of a proposed action beyond its direct impacts.

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Why am I here?

- I am a transportation, resource or government agency that conducts and/ or reviews ICE Analyses.
- I am a consultant and want to learn how to conduct an ICE Analysis to facilitate effective decision making.
- I want to better understand the ICE Analysis process.
- Somebody made me come.
- I've been having trouble sleeping lately.

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Why change the name from
SCEA to ICE Analysis?

- To be consistent with FHWA.

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What are other States calling it?

Secondary and Cumulative Effects Analysis (SCEA):

- Arizona
- Delaware

Indirect and Cumulative Effects (ICE):

- Maryland
- Alaska
- Kentucky
- Michigan
- Pennsylvania
- Illinois
- Indiana

Indirect and Cumulative Impacts (ICI):

- California
- Colorado
- Hawaii
- Louisiana
- Maine
- Minnesota
- Montana
- New Hampshire
- New Jersey
- New York
- North Carolina
- Virginia
- Wisconsin

Secondary and Cumulative Impact:

- Idaho

Secondary and Cumulative Environment Impact Analysis:

- Florida

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Modules

- (Module 1) How to determine which resources should be considered in an ICE Analysis.
- (Module 2) How to establish the ICE Analysis geographical boundary.
- (Module 3) How to determine ICE Analysis time frames.
- (Module 4) How to develop ICE Analysis land use information.
- (Module 5) How to prepare the analysis & reach ICE Analysis Conclusions.
- (Module 6) Presentation of ICE Analysis in the environmental documentation.
- (Module 7) The Consideration of Mitigation in ICE Analysis.

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Training Goals

Provide SHA employees, federal and state resource agencies, local governments and consultants:

- Consistent procedures in conducting a indirect and cumulative effects analysis.
- A clear definition of direct impacts, indirect and cumulative effects.
- A clear understanding of how ICE Analysis applies to project development.
- Knowledge to facilitate the review of ICE Analysis documentation.

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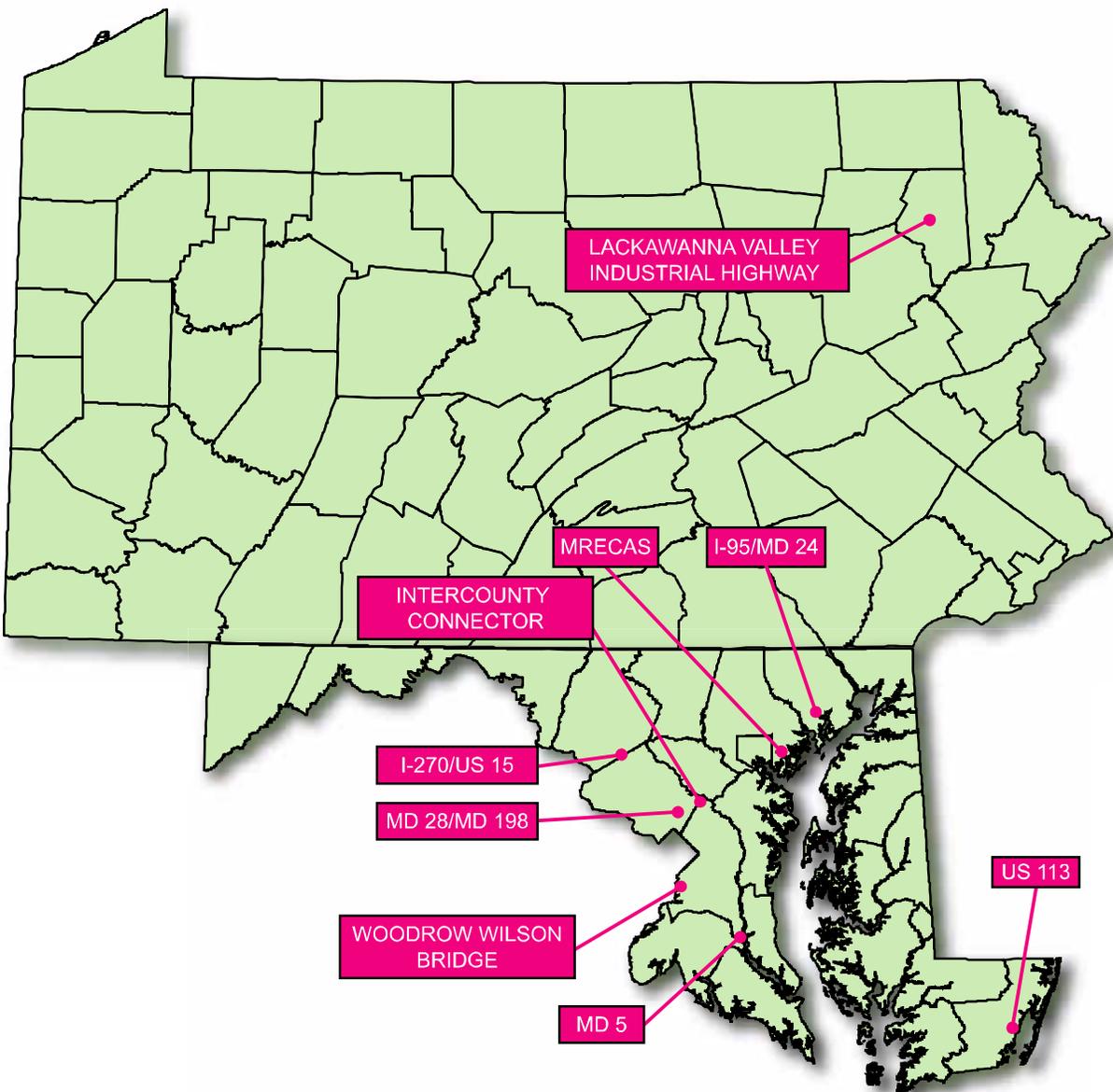
Training Goals

How will this training benefit you:

- **Local Governments** will know what information/data will be requested from your agency.
- **SHA and FHWA Staff** will benefit from knowing what to look for as a reviewer.
- **Resource Agencies** will benefit from knowing which resources could be effected and how.
- **Consultants** will learn what data should be assessed and how to conduct the analyses.

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SHA Case Studies - Project Locations



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ICE Analysis Background

- NEPA and CEQ regulations
- “Indirect” versus “cumulative” effects
- How ICE Analysis relates to SAFTEA / LU
- ICE Analysis and Litigation Considerations
- FHWA ICE Checklists
- SHA’s ICE Analysis Guidelines
- ICE Analysis and the SHA Project Planning Process
- Levels of Environmental Documentation
- What’s New from the 2000 Training
- Research, Analysis and Documentation Issues to be Aware of in Conducting ICE Analysis

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NEPA and CEQ Regulations

- Compliance with the National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) regulations require that the indirect (secondary) and cumulative effects of a project be examined along with direct impacts (40 CFR 1508.25 (c)).
- Keep in mind that these impacts are different and distinct from one another and are treated differently in environmental analyses. The CEQ Regulations defines direct and indirect effects and cumulative impacts at 1508.7 and 1508.8.

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NEPA and CEQ Regulations

“Indirect” and “Secondary” Effects are used interchangeably for the purpose of this discussion; however, CEQ guidelines distinguish a difference among them. Secondary Effects are considered a characteristic of Indirect Effects, as evident below:

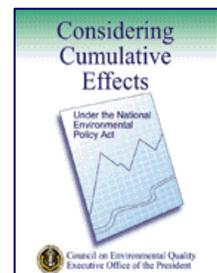


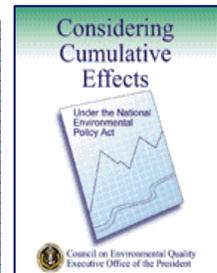
Table 1-3. Examples of cumulative effects (modified from NRC 1986 and Spaling 1995)

Type	Main characteristics	Example
1. Time crowding	Frequent and repetitive effects on an environmental system	Forest harvesting rate exceeds regrowth
2. Time lags	Delayed effects	Exposure to carcinogens
3. Space crowding	High spatial density of effects on an environmental system	Pollution discharges into streams from nonpoint sources
4. Cross-boundary	Effects occur away from the source	Acidic precipitation
5. Fragmentation	Change in landscape pattern	Fragmentation of historic district
6. Compounding effects	Effects arising from multiple sources or pathways	Synergism among pesticides
7. Indirect effects	Secondary effects	Commercial development following highway construction
8. Triggers and thresholds	Fundamental changes in system behavior or structure	Global climate change

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NEPA and CEQ Regulations

- Although there is a difference between Indirect and Secondary Effects, these effects will all be considered “Indirect”. For additional information regarding Indirect Effects per CEQ guidelines, please refer to the Council on Environmental Quality’s handbook entitled Considering Cumulative Effects Under the National Environmental Policy Act.
- Website:
<http://ceq.eh.doe.gov/nepa/nepanet.htm>



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“Indirect” versus “Cumulative” Effects

- **“Indirect” Effects** - Effects that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the patterns 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)).
- Indirect effects are a subset of cumulative effects. Examples of indirect effects are:
 - Commercial and residential development following construction of a highway or the addition of new access points to a highway.
 - Impacts to a wetland system that occurs further downstream following construction of a highway or new access point.

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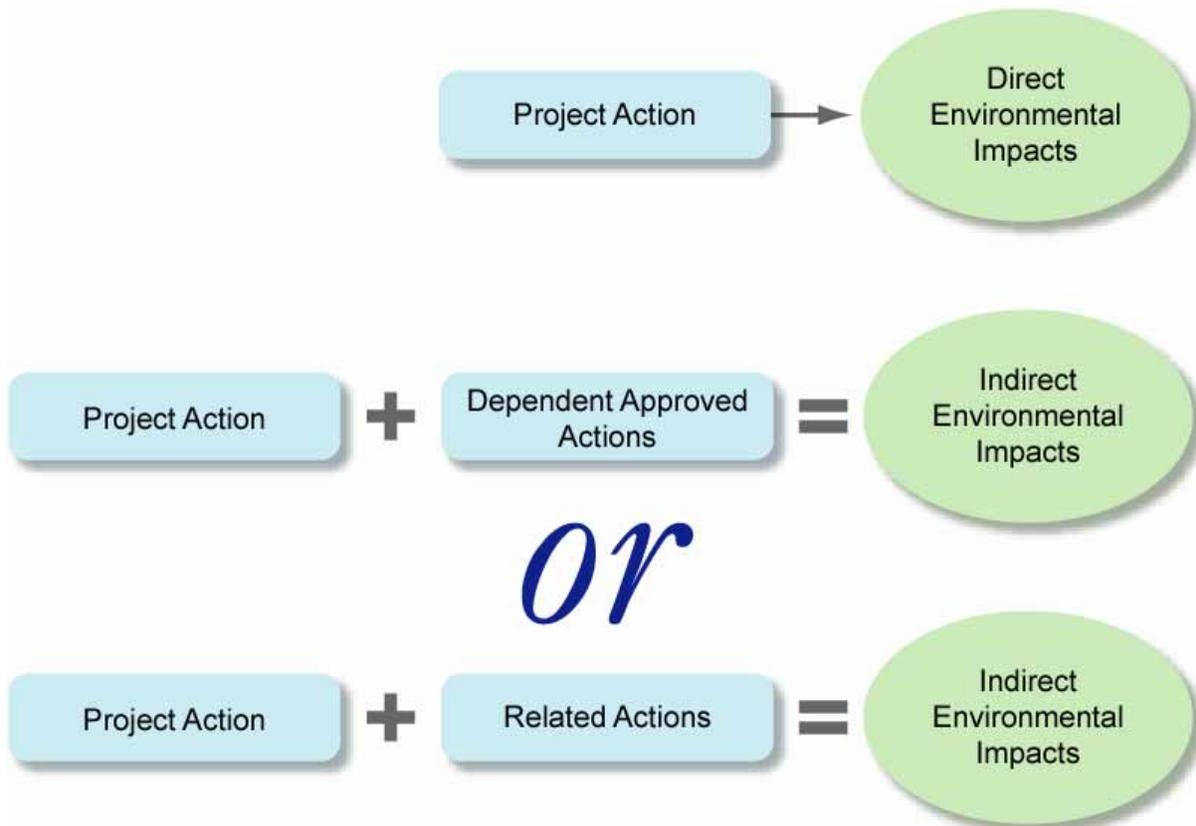
"Indirect" versus "Cumulative" Effects (continued)

Per SHA's ICE Analysis Guidelines, indirect effects may occur when:

- Local governments identify planned development that will not proceed without a specific project or transportation alternative.
- Land use changes may occur (based upon professional assessment) as a result of each project alternative retained for detailed study.
- Resource impacts occur from planned development as a result of each project alternative retained for detailed study.

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"Indirect" versus "Cumulative" Effects (continued)



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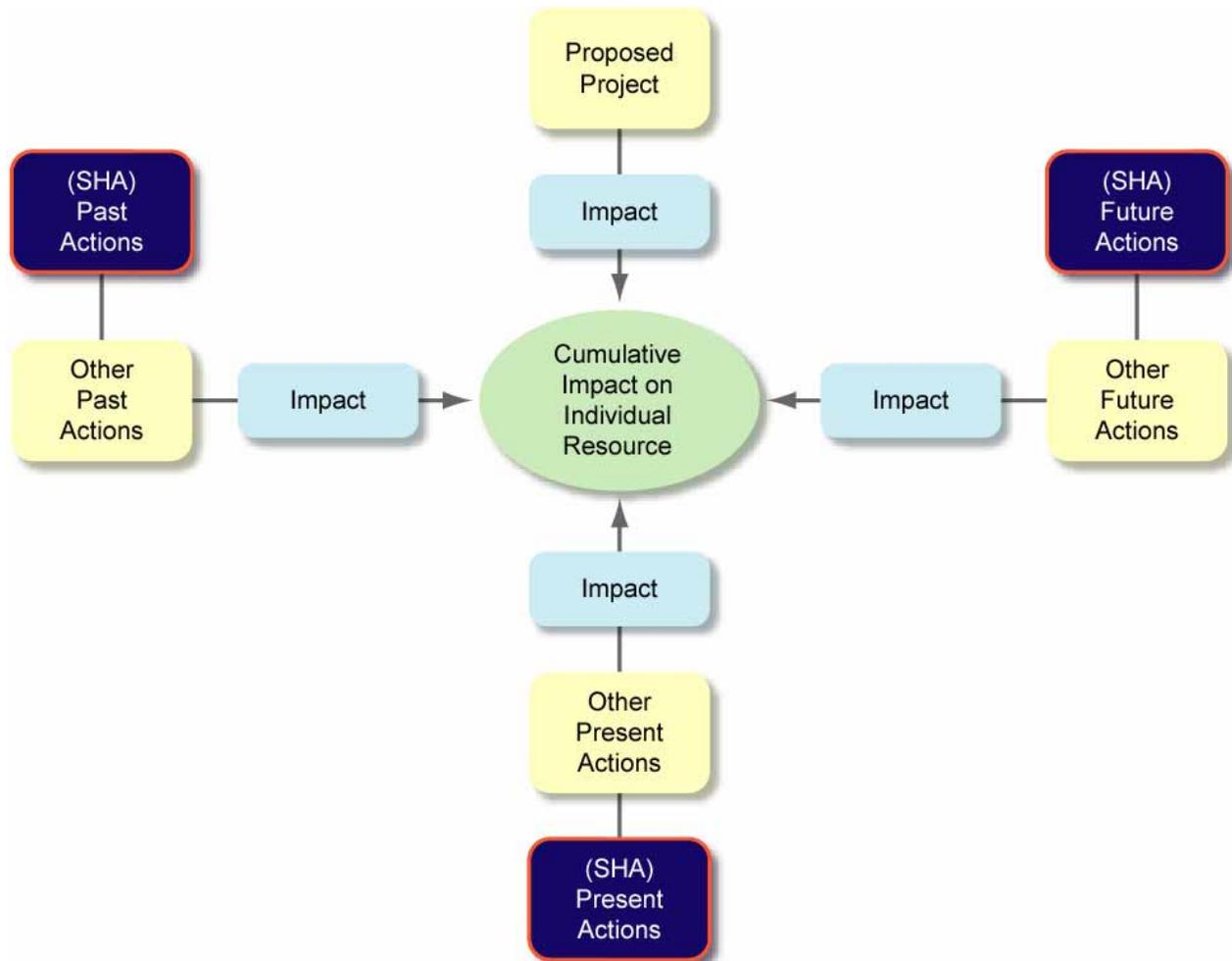
“Indirect” versus “Cumulative” Effects (continued)

“Cumulative” Effects - The impact on the environment that results from 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 actions (40 CFR 1508.7, 1997). Some examples of cumulative effects include:

- Incremental loss of wetlands under the Nationwide permit program.
- Forest fragmentation related to roadway construction and other development over time.
- Increase in impervious surface from commercial and residential development.
- Decrease in active farmlands due to development pressures.

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"Indirect" versus "Cumulative" Effects (continued)



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“Indirect” versus “Cumulative” Effects (continued)

KEY POINTS TO REMEMBER

Each ICE Analysis is unique based upon it's "Project Purpose and Need" and it's "Alternatives Retained for Detailed Study." Therefore, the types of indirect and cumulative effects encountered also vary between projects. For instance:

- For some projects, the rate of development guides the analysis
- Other projects, the location or extent of development can be the key factors of the analysis

Most transportation projects are a response to development, and not intended to promote or facilitate development. This is important to note in the ICE analysis, since it helps in some ways to justify any adverse project effects.

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NEPA and CEQ Regulations – (continued)

- In the past, Federal agencies have routinely addressed direct, and, to a lesser extent, indirect effects of their proposed actions on the environment.
 - Analyzing cumulative effects was more challenging because of the difficulty of defining geographical and time boundaries.
 - As a result, less attention has been given to cumulative effects until recently.
- The availability of data, particularly agency - published resource reports / inventories, coupled with the development of GIS technology, have contributed to the increase in feasibility of incorporating indirect / cumulative effects analysis in the NEPA process.

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ICE Analysis and SAFTEA-LU

- SAFETEA-LU (Section 6002) regulations refer to CEQ regulations regarding indirect and cumulative effects, stating: Compliance with the National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) regulations require that the secondary and cumulative effects of a project be examined along with direct impacts (40 CFR 1508.25 (c)).
- Indirect and Cumulative Effects resulting from transportation projects are therefore assessed similarly as they were under previous DOT legislation.

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Litigation Considerations When Conducting ICE Analyses

- Why ICE practitioners should be concerned about litigation potential?
- Why do projects get challenged?

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Litigation Considerations When Conducting ICE Analyses (Continued)

- It is important to have a fundamental basis for your indirect and cumulative effects analysis
- It is important to have your ICE analysis and support documentation reflected in the Project Administrative Record.

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Federal agencies have struggled with preparing cumulative effects analyses since CEQ issued its regulations in 1978. (“A Common Sense Approach to Improving the NEPA Process” Fred R. Wagner, Environmental Claims Journal/Vol.13, No. 1/Autumn 2000)

- They continue to find themselves in costly and time-consuming administrative proceedings and litigation over the proper scope of the analysis.
- Court cases throughout the years have affirmed CEQ’s requirement to assess cumulative effects of projects but have added little in the way of guidance and direction.
- To date, there has not been a single, universally accepted conceptual mitigation approach, nor even general principles accepted by all scientists and managers.

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Federal agencies have struggled with preparing cumulative effects analyses since CEQ issued its regulations in 1978. (“A Common Sense Approach to Improving the NEPA Process” Fred R. Wagner, Environmental Claims Journal/Vol.13, No. 1/Autumn 2000) (continued)

- The level of details that an agency provides in an EIS and the scope of analysis it chooses to address among the wide range of resource impacts may vary dramatically depending on the proposed action.
- NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail.
- Effects shall be discussed in proportion to their significance. There shall be only brief discussion of other than significant issues.

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Litigation Case Studies

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



Muckleshoot Indian Tribe v. U.S. Forest Service (1999)

BACKGROUND

- The plaintiffs-appellants, the Muckleshoot Indian Tribe, et al. (Muckleshoot Tribe), argued that the U.S. Forest Service violated the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA) during a land exchange with Weyerhaeuser Company.

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



Muckleshoot Indian Tribe v. U.S. Forest Service (1999)

- Various environmental groups and the Muckleshoot Indian Tribe successfully challenged the adequacy of an EIS that evaluated a proposed land exchange between the Forest Service and the Weyerhaeuser Company.
- Plaintiffs argued, in part, that the Forest Service failed to adequately identify and analyze the Cumulative Effects of the proposed action.
- The court held that an “EIS must analyze the combined effects of the actions in sufficient detail to be useful to the decision maker in deciding whether, or how, to alter the program to lessen cumulative impacts.”

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Friends of the Bitterroot, Inc. v. U.S.
Department of Transportation (2000)

BACKGROUND

- Only after six months following the Muckleshoot decision, the Ninth Circuit disposed of a fairly similar cumulative effects analysis.
- The Montana Department of Transportation (MDT) proposed to widen a 34-mile section of Highway 93 south of Missoula running through the Bitterroot Valley, and a 56-mile section north of Missoula, running entirely through the Flathead Indian Reservation.
- In the southern section, Friends of the Bitterroot and the Highway 93 Citizens' Coalition filed suit in federal court against the FHWA and MDT over inadequacies in the Environmental Impact Statement (EIS), including erroneous safety and capacity analyses and failure to consider regional impacts.

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



Friends of the Bitterroot, Inc. v. U.S.
Department of Transportation (2000)

- The court reviewed an EIS that identified a number of “Known Related Projects” to a proposed highway expansion and assessed very briefly the probability of cumulative effects of those projects.
- The EIS concluded that “cumulative effects are not expected” and offered a brief explanation for that conclusion.
- The majority concluded that “the discussion may be summary, but it is sufficient.”

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



Fritiofson v. Alexander (1985)

BACKGROUND

- This case involved a challenge to an Army Corps' decision to prepare an EA on a '404 permit to fill wetlands for a development on Galveston Island (Texas).
- By all accounts, further development affecting those wetlands was being planned, but those plans were not yet pending before the Corps. In addition, it was acknowledged that this particular proposal would not have significant effects--the Corps said that it had to go no further. The court disagreed.

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



Fritiofson v. Alexander (1985)

- The Court articulated the parameters of an effective (and defensible) cumulative effects analysis. The court suggested that an agency consider:
 - The area in which effects of the proposed project will be felt; the effects that are expected in that area from the proposed project; other actions – past, present and reasonably foreseeable – that have had or are expected to have impacts in the same area; the impacts or expected impacts for these other actions; and the overall impact that can be expected if the individual impacts are allowed to accumulate.
 - This checklist emphasizes the importance of defining the context in which cumulative effects are evaluated.

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City of Carmel v. U.S. Department of Transportation (1997)

BACKGROUND

- This case arises from the proposed realignment of California State Highway 1 from the City of Carmel-by-the-Sea to nearby Hatton Canyon.
- The primary location identified for a new route was, Hatton Canyon, a pristine "wilderness" area east of the City of Carmel.
- According to the Plaintiffs, the Final Environmental Impact Statement fails both to catalogue adequately past projects in the area, and to provide any useful analysis of the cumulative effect of past, present and future projects and the Hatton Canyon freeway on the wetlands, Monterey pine and Hickman's onion.

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



City of Carmel v. U.S. Department of Transportation (1997)

- 123 F.3d 1142 (9th Cir.) the court held that an EIS must “catalogue adequately the relevant past projects in the area.” It must also include a “useful analysis of the cumulative effects of past, present and future projects.” This means an EIS must analyze the combined effects of the actions in sufficient detail to be “useful to the decision maker in deciding whether or how, to alter the program to lessen cumulative effects.”

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



FHWA Checklist for Documentation of Indirect Effects in an Environmental Document

- **Best Practices: The NCHRP Report #466 - 8 steps**
- **Step 1- Scoping** - identify basic approach, effort required
- **Step 2 - Identify the Study Area's Direction and Goals** – define the context for the Indirect Effects Analysis (IEA)
- **Step 3- Inventory the Study Area's Notable Features** – identify specific environmental issues
- **Step 4 - Identify Impact-Causing Activities of Proposed Action & Alternatives** – break down activities into individual, impact-causing components for analysis

Source: Louis Berger Group, Inc. (2002) National Highway Cooperative Research Program Report 466 Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects. Project B25-10(02) FY '96 Transportation Research Board, National Research Council Washington, D.C.: National Academy Press, 109 pp.).

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FHWA Checklist for Documentation of Indirect Effects in an Environmental Document (continued)

- **Step 5 - Identify Potentially Significant Indirect Effects for Analysis** – catalog indirect effects by component activities; identify potentially significant indirect effects meriting further analysis
- **Step 6 - Analyze Indirect Effects** – use qualitative and quantitative techniques to estimate the magnitude and intensity of potentially significant indirect effects, and to enhance comparative description of future conditions
- **Step 7 - Evaluate Analysis Results** – evaluate the uncertainty of results for ramifications on overall assessment
- **Step 8 - Assess Consequences and Develop Mitigation** – evaluate the consequences of indirect effects in context of full range of project effects; develop strategies to avoid or lessen unacceptable effects; and, re-evaluate effects in context of mitigation strategies

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FHWA Checklist for Documentation of Cumulative Effects in an Environmental Document

Best Practices: The CEQ's 11 steps

- Step 1- Identify the significant cumulative effects associated with the proposed action and define the assessment goals
- Step 2- Establish the geographic scope for the analysis
- Step 3- Establish the time frame for the analysis
- Step 4- Identify other actions affecting the resources, ecosystems, and human communities of concern
- Step 5- Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stresses

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FHWA Checklist for Documentation of Cumulative Effects in an Environmental Document (continued)

- **Step 6 - Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds**
- **Step 7 - Define a baseline condition for the resources, ecosystems, and human communities**
- **Step 8 - Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities**
- **Step 9 - Determine the magnitude and significance of cumulative effects**
- **Step 10 - Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects**
- **Step 11 - Monitor the cumulative effects of the selected alternative and adapt management plan**

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Available Resources Regarding ICE Analysis

- CEQ Regulations 1508.7 and 1508.8
- FHWA Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process
- FHWA Environment Guidebook, Considering Cumulative Effects Under NEPA, Council on Environmental Quality (January 1997)
- Consideration Of Cumulative Impacts In EPA Review of NEPA Documents, U.S. Environmental Protection Agency, Office of Federal Activities (2252A); EPA 315-R-99-002, May 1999
- FHWA Website - <http://www.fhwa.dot.gov/>

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Available Resources Regarding ICE Analysis (continued)

- **Guidance for Estimating the Indirect Effects of Proposed Transportation Projects. NCHRP Report 403, Transportation Research Board, National Research Council. Prepared by the Louis Berger Group, 1998**
- **Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects. NCHRP Report 466, Transportation Research Board, National Research Council. Prepared by the Louis Berger Group, 2002**
- **FHWA Position Paper (April 1992) Indirect and Cumulative Impact Assessment in the Highway Project Development Process**
- **Re: NEPA Community of Practice website (<http://fhwa.dot.gov>)**

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SHA's Guidelines

Provide general purpose procedures and a “consistent” framework for preparing an ICE Analysis. This includes:

- Introduction
- Scoping/Initial ICE Analysis activities
- Analysis
- Mitigation

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SHA's Guidelines - continued

INTRODUCTION

- Definitions - Indirect and Cumulative
- Combinations of Direct, Indirect and/or Cumulative Effects
- Levels of Environmental Documentation

SCOPING / INITIAL ICE ANALYSIS ACTIVITIES

- Resource Identification / Data Availability
- Setting the ICE Analysis Geographical Boundary
- Setting ICE Analysis Time Frames - Past and Future

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SHA's Guidelines - continued

ANALYSIS

- Refinement of Geographical Boundaries and Resources
- Data Collection and Mapping
- Analysis Methodologies - Trends, Overlays, Matrices, Interviews

DOCUMENTATION

- Preparing the Written ICE Analysis Summary
- Responsibilities of SHA, agencies and locals
- Existing regulations and protective measures – documenting how growth controls could outweigh any project effects, thus greatly reducing the potential for land use change

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction

SHA's Guidelines - continued

KEY POINTS TO REMEMBER

Each ICE Analysis is unique based upon its "Project Purpose and Need" and its "Alternatives Retained for Detailed Study." Do not apply a "cookie cutter" approach!

The ICE Analysis guidelines provide a framework in which to conduct your analysis. Technical components including key resources, and data availability will vary between projects, thus making each approach unique.



Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



SHA's Guidelines - continued

COMBINING EFFECTS

The following combinations of direct, indirect and/or cumulative effects of an alternative on a resource may be encountered in transportation projects:

- **Direct, Indirect and Cumulative Effects**
 - Typically, larger capacity-adding or economic development projects. SHA examples include MRECAS, Hickory Bypass and US Route 1.
- **Direct and Cumulative Effects Only**
 - Typically, smaller improvement-type projects, such as bridge replacements and widenings to alleviate congestion/improve safety, but can include larger projects. SHA examples include US 113 Planning Study, MD 4 and MD 5.
- **Indirect and Cumulative Effects only**
 - (Associated w/ Economic Development projects)

If project alternatives do not result in direct or indirect effects upon a resource, then no further analysis of that resource is required.

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ICE Analysis and the SHA Project Planning Process

PROJECT PLANNING STAGES

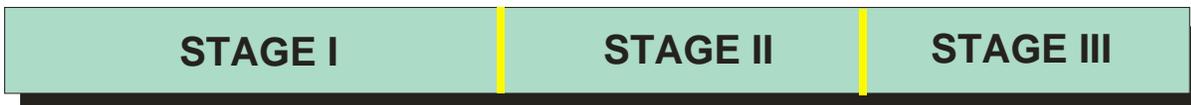
- **STAGE I - Preliminary Alternatives Development through the “Public Alternates Workshop”.**
- **STAGE II - Detailed Environmental and Engineering Studies through Location/Design Public Hearing.**
- **STAGE III – Post Public Hearing through Record of Decision.**

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ICE Analysis and the SHA Project Planning Process - continued

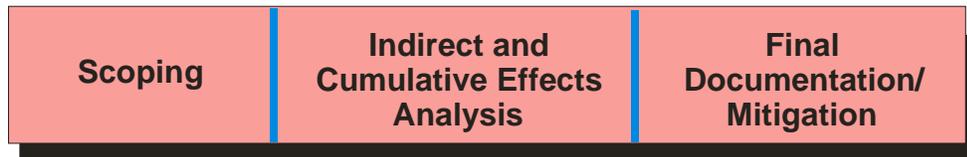
SHA PROJECT PLANNING STAGES



SHA PROJECT PLANNING ACTIVITIES

Interagency Field Review	Alternatives Retained for Detailed Study (IRM)	SHA Selected Alternative (IRM) & Conceptual Mitigation	Selection of Alternative
Purpose & Need (IRM)	Alternates Public Workshop	Draft Environmental Document Location / Design Hearing	Final Environmental Document

ICE ANALYSIS ACTIVITIES



AGENCY COORDINATION

AGENCY COORDINATION IS CONDUCTED THROUGHOUT THE SHA PLANNING PROCESS

IRM - Interagency Review Meeting

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Levels of Environmental Documentation

SHA's ICE Analysis Guidelines apply to:

- Environmental Impact Statements (EIS), including Supplemental Environmental Impact Statements (SEIS's)
- Environmental Assessments (EA's)
- Categorical Exclusions (CEs) (only if capacity or access improvements occur)

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What's New from the SCEA training in 2000?

- We've got a new name
- Litigation Discussion
- Updated SHA Case Studies
- Updated Issues encountered by SHA's ICE Analysis Review Team
- Updated Reference Material
- Training Manual (including Checklists)
- Addressing Indirect and Cumulative Effects in Categorical Exclusions

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What's New for those who attended the ICE Analysis Training in 2000? (continued) Newly added checklists

Identifying Factors	Yes	No	Rationale
Resource Boundaries			
Watersheds	<input type="checkbox"/>	<input type="checkbox"/>	
Sub-Watersheds	<input type="checkbox"/>	<input type="checkbox"/>	
Chesapeake Bay Critical Area	<input type="checkbox"/>	<input type="checkbox"/>	
Sensitive Species Protection Areas	<input type="checkbox"/>	<input type="checkbox"/>	
Forested Tracks	<input type="checkbox"/>	<input type="checkbox"/>	
Farmland/Agricultural Areas	<input type="checkbox"/>	<input type="checkbox"/>	
Historic Districts/Cultural Resources	<input type="checkbox"/>	<input type="checkbox"/>	
Communities/Neighborhoods	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	
Census Tracts			
Census Tracts	<input type="checkbox"/>	<input type="checkbox"/>	
Extent of Preliminary/Conceptual Alternatives			
Project Study Area or "Project Area"	<input type="checkbox"/>	<input type="checkbox"/>	
Area of Traffic Influence			
Traffic Analysis Zones (TAZ)	<input type="checkbox"/>	<input type="checkbox"/>	
Other Measures of Traffic Influence	<input type="checkbox"/>	<input type="checkbox"/>	
Sewer and Water Service			
Existing Sewer and Water Service Boundaries	<input type="checkbox"/>	<input type="checkbox"/>	
Planned Sewer and Water Service Boundaries	<input type="checkbox"/>	<input type="checkbox"/>	
Planning Areas			
Priority Funding Areas (PFAs)	<input type="checkbox"/>	<input type="checkbox"/>	
Local Planning Area Boundaries	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	
Other			
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	

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Research, Analysis and Documentation Issues to be Aware of in Conducting ICE Analysis

DETERMINING WHICH RESOURCES SHOULD BE CONSIDERED IN AN ICE Analysis (Module 1)

- Land use is often included in the resource discussion of documents. Land use is not a resource, but the tool used to assess effects.
- Analyze resources that are indirectly effected and not physically impacted, where appropriate

ESTABLISHING THE ICE Analysis BOUNDARY (Module 2)

- Limited discussion/rationale regarding the determination of the Area of Traffic Influence.
 - Traffic generated for the project at the alternatives public meeting stage are used by the forecaster to determine the ATI
 - Important to provide a justification for how the ATI was determined
- Provide appropriate level of mapping to support establishment of the Geographical Boundary, including mapping all relevant sub-boundaries

Indirect & Cumulative Effects Analysis Training Program ICE Analysis Introduction



Research, Analysis and Documentation Issues to be Aware of in Conducting ICE Analysis (continued)

HOW TO DEVELOP LAND USE INFORMATION (Module 4)

- Greater coordination is needed with local jurisdictions to develop accurate land use scenarios that are not necessarily reflected in Master Plans.
- Proposed transportation and developer projects should be listed, and with impacts, if available
- Greater effort is needed to develop the impacts associated with “other projects” not included in the CLRP or CTP.

HOW TO REACH ICE Analysis CONCLUSIONS / DOCUMENTATION (Module 6)

- ICE Analyses must clearly differentiate between indirect and cumulative effects
- ICE Analyses must differentiate land use/impacts between alternatives.
- Assure that Socio-Economic conclusions are consistent with ICE Analysis conclusions.
- The “Conclusion” section of an ICE Analysis should tie everything together (but often does not).