McDermott: Katie McDermott, CTE, NC State University
Smith: Lamar Smith, FWHA Office of Project Development and Environmental Review
Pesesky: Larry Pesesky, Lewis Berger Group
Carlson: David Carlson, US EPA
Plano: Steve Plano, Parsons Brinckerhoff Quade and Douglas, Inc.
Sampson: Gail Grimes, NCDOT

[THEME MUSIC]

McDermott: Hello, I’m Katie McDermott with the Center for Transportation and the Environment.
You’re tuned into CTE’s National Teleconference Series. The purpose of this live forum
is to engage transportation and environmental professionals in a dialogue about new
research innovations, policy issues, and best practices related to the field.

In today’s broadcast, we will examine lessons learned in assessing indirect and
cumulative impacts of transportation projects. This broadcast has been produced in
cooperation with the Federal Highway Administration. The objectives of the program are
to introduce current principles and practices related to conducting indirect and cumulative
impact assessments, to discuss the complexities of the scoping process in particular—
which is perhaps the most complicated element of ICI assessments—and finally to
engage our panel in discussions of lessons learned with regard to three case studies,
including the Lower Manhattan Redevelopment Project, Maryland’s I-270/US 15 multi-
modal corridor study, and North Carolina’s Monroe Bypass.

We invite you to share your thoughts and experiences on this topic anytime
during today’s broadcast. You can use the number on your screen to phone or fax in your
questions and comments to our panel today. Or you can email us at cte_email@ncsu.edu.

Before we get started, I would like to take just another minute to go over a few
details related to today’s broadcast. First, I hope you have had a chance to download the
program handout and a copy of the panelists’ PowerPoint slides. If not, I encourage you
to do so using the URL address that is appearing on your screen. From CTE’s website
you will also be able to replay this program in its entirety after today, and you can also
order a copy of the program on DVD or VHS cassette.
We’d also like to get your feedback on today’s program. And to do that, if you are participating via satellite downlink, you can complete the evaluation form that is located in your handout, and turn that in to the site coordinator after the broadcast. Web participants can complete the online evaluation form located on CTE’s website. We thank you for your attention to this.

At this time, it is my pleasure to introduce your moderator, Mr. Lamar Smith. Lamar is the team leader for Training, Technology and Technical Assistance with the Federal Highways Office of Project Development and Environmental Review. Lamar leads the development of national guidance and training related to the implementation of the National Environmental Policy Act, environmental streamlining in the transportation decision-making process. He is the principle author of Federal Highway’s *Interim Guidance in the Consideration of Indirect and Cumulative Assessments and the Need for Process* and he also currently chairs the Indirect and Cumulative Impacts work group with the Council on Environmental Quality. Hello, Lamar and welcome to the program.

Smith: Thank you, Katie. Welcome to everyone. We have a great program today. Very exciting discussion on assessing indirect impact and cumulative impacts to transportation projects. I have around me a very talented and experienced group of speakers, and before I go over the agenda for today’s broadcast, let me introduce to you today’s panel.

First, we have Larry Pesesky, who is the senior vice-president of planning with the Lewis Berger Group in New York. Larry has led the firm’s activities in developing technical guidance for assessing indirect and cumulative impacts of transportation projects, and he is the author or co-author of numerous papers on the issues. He also supports the AASHTO Center for Environmental Excellence as an expert in this area.

Next, we have David Carlson, who is a senior environment NEPA reviewer and transportation liaison with the US Environmental Protection Agency in Region 2 in New York. He is currently focused on the review of all transportation projects in New York, New Jersey, and the US territories in the Caribbean, as well as some land development projects such as the World Trade Center redevelopment. He has also held several other positions with the EPA and has expertise in EPA’s air, water, wetlands and environmental justice programs.

Next is Steve Plano, the assistant vice president with Parsons Brinckerhoff Quade and Douglas, Inc., in Baltimore, Maryland. Steve is a senior manager of the environmental planning and area office operations in the Baltimore office. He has many years of experience in preparation of environmental documentation, transportation
planning, environmental analysis, alternative evaluation, site planning and analysis, and project management. He has led the secondary and cumulative effects analysis on several projects, including the one about which he is going to talk to us today: I-270/US 15 multi-modal corridor study.

And finally, Gail Grimes, who is the consultant coordination manager in the project development and environmental analysis branch of the North Carolina Department of Transportation here in Raleigh. Gail has worked for the North Carolina DOT since 1975 and has held a number of positions. As the manager of the three consultant coordination units she is responsible for more than 300 active projects, including the Monroe Bypass and Connector projects which she will talk to us about later in today’s program.

Welcome to you all, thanks for being here.

Before we get started with the program, I just wanted to review the agenda for today and what you’re going to experience. I am going to do double duty as moderator and presenter, and in fact, I will start us off with a brief discussion of the basics of indirect and cumulative impacts, followed then by Larry Pesesky. He will do a presentation discussing some of the differences and potential uncertainties associated with indirect and cumulative impact analysis. Following the presentations, there will be a discussion among the entire panel.

At around 2:00 p.m. Eastern, in an hour or so, we will take a ten-minute break, and when we return, David, Steve and Gail will present the three case studies involving indirect and cumulative impact analysis of three projects in New York, Maryland and North Carolina, followed by another roundtable discussion from the entire panel, and then another ten-minute break. And then the last 40 minutes or so, beginning at 3:10 p.m. Eastern time, is yours, the audience. We will dedicate this last 40 minutes to answering the questions that you send in during the broadcast. So please phone them in, fax them in, or send them in by email. We will take on as many questions as we possibly can in the time we have allotted.

So at this time, I will change hats from moderator to presenter, and begin with a brief presentation of some of the basic, but what I consider the important, issues, just to set the stage for today’s discussion and establish some context.

The first question that often comes up is: why is [indirect and cumulative impact analysis] so important and why is it such a big deal? It is important that we note that NEPA and other laws require the analysis, and while they may not use consistent
terminology or definitions, or have the same requirements, it is mentioned in several
different laws. Analysis is essential to good transportation decision-making,
understanding the complete impact and the total effect of our projects. It can inform local
interests in authorities and even influence local decisions and directions. Analysis and
documentation is expected, it’s looked for.

Secondary impacts and indirect impacts are [the same things], you have to
remember that. However, indirect and cumulative impacts are not the same thing.

We’ll start with direct impacts. They are probably the easiest of them all: a direct
relationship, an easy relationship, a cause and effect, reasonably predictable. We
understand the methodologies. We are confident with the results and the results are
generally reliable. Methodologies, analysis approaches, are fairly obvious and available.

Indirect impacts, on the other hand, are a little bit more complicated. They are
caused by the project, but they occur later in time or further removed, but are still
reasonably foreseeable, and we’ll talk in a minute about “reasonably foreseeable.” It is
interesting to note how CEQ defines indirect impacts as growth inducing, and other
effects related to the pattern of land use, and population density or growth rate.

Just a graphical depiction of indirect impacts. Indirect impacts require forecasting
of future conditions. One of the things that makes them so complicated or complex, is
that it is about predicting the future, and in order to do them and do them well, there has
to be a degree of predictability and a confidence that there are likely to be or probably
will be indirect effects. Impacts also may occur away from the project area or the
potential area of effect. Impacts also may be either negative or positive.

Cumulative impacts also complicated, complex. Cumulative impacts are those
impacts that result from the incremental impacts of everything that is going on.
Cumulative impacts analysis is resource specific. It is looking at the condition, health,
size, function of a resource from the perspective of the resource over time—past, present
and reasonably foreseeable future—regardless of what agency or what person is causing
that effect, though it is resource-specific.

Just another graphic depiction showing how the total effect on the individual
resource is cumulative. Keeping in mind that we begin this analysis of cumulative
impacts with the direct impacts is where we need to start, and reasonably foreseeable
future actions not only ours, but all others.

Which brings us to “reasonably foreseeable;” not quite as well understood
perhaps as we would like. Our charge isn’t to analyze every impact that is imaginable,
that can be conceived of. Our charge is to look at reasonably foreseeable effects, and
CEQ and the courts have been fairly consistent on their definition of reasonably
foreseeable, that events causing an impact must be probable or likely, and the possible,
but not probable, effects may be excluded from NEPA analysis. And the court looked at
it in this way: at these impacts, these events are sufficiently likely to occur that it is
reasonable to take them into consideration.

Mitigation—probably the most controversial aspect of this entire discussion.
You’ll quite often hear: what is our responsibility to mitigate for secondary impacts or
indirect impacts, or for cumulative impacts? At this point, we will look at how CEQ
defines mitigation as avoidance minimization and compensation, and this is important
because this is about process; this is not about after the fact, this is part of the process.
During alternatives analysis we’re looking to avoid impacts, to minimize those impacts,
and then for those impacts that we cannot avoid are minimized, then compensation. And
then we’ll talk about FHWA’s policy, that we will mitigate for and fund those impacts
that are actually caused by our action, and are a reasonable public expenditure.

A couple of comments on evaluation and on analysis. First on indirect, so the
question is: how do I know when I need to analyze indirect impacts? You need to be
confident that the impacts are likely to occur, not all projects will necessitate an indirect
analysis. Ask yourself: can these impacts be sufficiently described and specified now to
allow for useful evaluation? And the term “useful” is important in this context. We’re
talking about decision-making. Will it help me make a decision, will I understand the
influence of my project on the evaluation? And then the last question is: if these impacts
are not evaluated now, will then future evaluation of the impacts be irrelevant to the
issue, to the understanding?

In cumulative impact analysis, you begin with a geographic area. What is the
geographic area affected by the project, what are the resources that are affected by the
project? You need to determine the other past, present and reasonably foreseeable actions
that have impacted these resources, and then describe the resources. In other words, what
is the condition of the resource at this time and in the future, based on everything that is
happening in the area added to our project, and come to some kind of a conclusion in
decision-making about the overall impact on these various resources.

Scoping—I think this is probably one of the most important elements of the
NEPA project development process when it comes to indirect and cumulative impacts,
and I will try to get the panel to focus on this a little bit later in discussion. But very, very
briefly, the early discussion and presentation of fact is essential: involving the right parties, asking the right questions, getting the right input, focusing on the important issues. Those that are affected by the project and the alternative. Come to agreement on the boundaries, geographic and temporal, agree on methodology, address expectations for analysis and then always think about environmental streamlining, think about the timeframes that are involved in any project development process. And that’s the end of my presentation and at this time, I am going to turn it over to Larry Pesesky who will give us a discussion on indirect and cumulative impacts and uncertainties. Larry?

Pesesky: Thank you very much, Lamar. I would like to begin by talking about how, as Lamar pointed out, indirect and cumulative impacts are a different kind of animal from direct impacts in a number of fundamental ways. One of the ways in which indirect and cumulative impacts differ from direct impacts is the element of uncertainty. As Lamar said, indirect and cumulative both involve making some forecast of future conditions. As we all know, the future is very uncertain. So there is this element of uncertainty that I would like to explore throughout this presentation.

Indirect and cumulative impacts also differ from direct impacts in that how they appear after projects are constructed is often inconsistent from project to project, or even within a project. You see this as you drive interstate highways or proceed along rail lines, but from interchange to interchange or from station to station the impacts quite often vary. The landscape you see around station locations or interchange locations differs from place to place. This is the inconsistent element.

Despite this uncertainty and this inconsistency, the regulations require that if these impacts are reasonably foreseeable, as Lamar pointed out, they should be addressed as part of the overall project NEPA evaluation by definition and in practice. Also, indirect and cumulative impacts are reasonably foreseeable and should be evaluated.

So let me proceed by talking about where the uncertainty lies in indirect and cumulative impact assessment. Now, for a shortcut and to save a little time here, I will refer to indirect and cumulative impacts as ICIs. One way that there is uncertainty is the perception versus reality. For many of us who have been involved with controversial projects or mega projects, often the public or agencies have perceptions about what indirect and cumulative impacts might follow from the construction of that particular transportation project. But because of the uncertainty, quite often the lines between what is perception and what is reality are often blurred. But I think it is very important for analysts to focus on what are the perceptions that people may have, and you can find out
about these perceptions during your scoping meetings with the public and with other agencies.

It is also important to note that the uncertainty lies in what indirect and cumulative impacts often are, and this is growth and this is development, and what growth and development is, really the collection and the combination of numerous hundreds and thousands of individual decisions made by people, people who want to know where they want to locate their household; by businesses, where they want to locate their businesses. And in the end, when you build a project 20 or 25 years from now, the indirect and cumulative impacts of that project will be the culmination of hundreds and thousands of individual location decisions made by households and businesses.

Uncertainty also lies in a degree of precision, precision about the geographic reach of indirect and cumulative impacts, how far out do you take the analysis, the timing of when these indirect and cumulative impacts might occur, the geographic scope and scale at which you can reasonably conduct the analysis, the level of precision you have. So these are just some of the ways that you find uncertainty in indirect and cumulative impact assessment.

As I pointed out, the highway’s influences on development varies from project to project. This is the inconsistent element of indirect and cumulative impacts. There are several reasons for these differences. One reason is that as you go from area to area, the highway system itself is at different levels of maturity. In some places, there will be no further highway construction because the highway system has basically been fully built out, and in that kind of a situation you have what is known as a mature highway system. The accessibility of the area to the highway system has basically reached its full potential, so any future incremental highways that you might construct in that area will probably have less of an effect than if you are constructing a highway in an area that is a new location, and you really don’t have a very well developed highway system. So you have to look at highway system maturation. There are many other factors that come into play that help define how an area might develop and grow in the future, and I will get into some of these factors in a second. And local settings also vary quite a bit from place to place.

So what are some of these other factors that influence development and how do they vary from place to place? Well, all of us, as people who run households, make decisions about where we want to live, and I think if we were to go around the panel here and talk to you as the audience, we could find out that every one of us has maybe a
different mix of reasons why we decide to live where we live. These are just some of the factors here. I won’t go through them item by item, but I am sure you are all familiar with it if you think about your own situation, why you live where you live. The same with businesses. Businesses decide to locate in particular places for various reasons and some of this has to do with economic reasons, some of it has to do with social reasons, and a lot of it has to do with physical reasons, like infrastructure availability, available land of a certain type to construct on, the decisions being made by local public officials about growth policies. All of these factors come into play, so it is important to point out that it is not just transportation, it’s not just the highway, it’s not just the rail system that influences where development occurs and when it occurs.

So with all this uncertainty and inconsistency, there is still reasonable foreseeableness, and we do need to do indirect and cumulative impact assessments as part of good transportation planning and decision-making. So one thing we have to look at is: how do you put a boundary around this uncertainty? And this chart shows several ways that the practitioners use to bound the uncertainty. One way to do this is through forecasts or trends. The chart you see on your screen, and I hope you can see it well, illustrates a trend line for population growth in Mecklenberg County, North Carolina, using a linear curve or an adjusted linear curve, that shows in the year 2000, the actual population of the county is somewhere around 700,000 people, following this growth trend line going back to 1900 and forecasting out to the future. By 2020, the trend line says the population of the county will be about 1.1 million people. Well, the state demographer for North Carolina has estimated that Mecklenberg County in the year 2020 will have approximately 1.2 million people. That 1.2 million, whether it is forecasted or you use a trend line, whatever method you use gives you some sense of a boundary. There are only going to be so many people in Mecklenberg County, and this trend line and forecast give you an upper limit to help bound these situations that you’re going to be analyzing.

Another way to bound uncertainty is through a comparative case analysis. You look for a situation or a setting or a project mix that is quite similar to the variables that you are looking at in a particular project you’re analyzing, and you look to draw from that project that perhaps was constructed 10, 15, 20 years ago to see how things changed after that project was constructed. You draw conclusions and inferences from that particular comparative exercise. That can help bound the uncertainty.

One effective way to bound the uncertainty, that I think Steve Plano will be talking about later in his presentation, is the use of expert panels. Quite often, nobody
goes to school to get a degree in indirect and cumulative impact assessment, so whether you are a project team or you want to bring in outside experts, you need a mix of expertise involving the economics, the social sciences, physical sciences, geographic information systems. All of these have to be integrated together to do indirect and cumulative impact assessment. So whether it is a consultant team, an agency team, or you need to bring in expertise from outside, I think it is very important to have a wide range of disciplines that are relevant to the topics you are studying, and to be able to integrate and synthesize the opinions and the analyses of these different areas of expertise into an indirect and cumulative impact assessment.

One final point I would like to make about bounding uncertainty, and that is the use of opportunities and threats, and I will give you an example to illustrate. Quite often, when you’re doing indirect and cumulative impact assessment, you go to the field and you’re doing your field studies, and you see For Sale signs on farmland. You go to a local tax assessor’s office and you find out it is not really farmers that own farmland, they are just leasing the land from development companies that are planning to build something in the future. That is a pretty good indication that there is an opportunity happening here from the development side, or there is a threat happening from other perspectives, that something is going to happen in the future, and whether that is because of the influence of the highway project or other factors it is still important to get some barometer or some indication of what is going to happen following construction of the highway project by doing that sort of field checking and ground truthing.

In doing NEPA analyses—and this applies to indirect and cumulative impact assessments—you need to do a no-build analysis. So you really have to ask the question: what if the highway isn’t built? And in a simple mathematical equation, the no-build scenario consists of the cumulative effects—those are the combined effects as Lamar pointed out in the definition—minus the project’s indirect and direct effects, that leaves you with a no-build. Simply said, it is quite difficult to tease out what would be the no-build, what if the highway isn’t built, but I think it is a very important question to ask to help organize the indirect and cumulative impact assessment. You also have to ask yourself as part of the no-build exercise: what would the locations accessibility be without construction of the highway project? What would be the change in people’s travel times to get to important destinations like places of work, places of shopping, event centers and other activity centers? And you also have to look at the attractiveness of that location without the project. The attractiveness varies based on the facts I had up on a
previous slide, things like quality of schools and other amenities that makes an area attractive for people who want to live or do business in it.

Knowing how to bound the uncertainty and to scope the issue of indirect and cumulative impacts, we then look at how should these effects be analyzed. The scale of analysis quite commonly is not at a parcel by parcel scale, that is, in my opinion, very difficult and is pretty far reached to say at an individual parcel level where the highway’s influence might reach, but I think over a zonal area and for those familiar with travel forecasting, travel forecasters divide an area up into geographic zones. These are quite often equivalent to the sub-county level and sub-municipal level of census block groups. You need to be able to analyze what are the number of people and number of jobs in each zone that might be influenced by the project. And then you have to subject that zone to an analysis for existing population and jobs, no-build population and jobs, and build population and jobs, with the no-build and build being in the future. Once you have allocated people and jobs—and if you think back to that chart on Mecklenberg County, the 1.2 million people in the year 2020—you are going to allocate them among the various zones in the county, accounting for the situation with the project, your build scenario and the situation without the project, your no-build scenario. Once you have done this allocation of people and jobs, then you have to look at land consumption by type of use, with people being households and jobs being businesses. And then there are sub-categories of household types, single versus multi-family, for example. And there are sub-categories of business types, office versus retail versus warehouse, each one having its own patterns and characteristics of land consumption associated with those different uses.

Once you’ve done this, then you look for areas where you have potential for land conversion. Would you be going from existing agricultural uses to potential commercial uses, are you going from existing forested uses to existing residential uses? And in doing this potential for land conversion, and looking at existing uses and land types to future potential uses in land types, you are then starting to bridge between the land use change and the potential for change in environmental resources.

So how do you assess the effects on resources from the land-use conversion? You can look at the potential reduction and resource availability. The example here being loss of forest being converted from forested use, and you see in this photo on the left to residential uses, the subdivision in the photo on the right following the land use change. In addition to looking at the resource availability, the loss in forested habitat, it is also
important to look at the potential change, or reduction in resource quality. Quite often, after an area changes, following construction of the highway project and construction of other infrastructure, there is a change. You may still have a fair amount of forested land left, but you need to look at the quality of that forested land, and one measure of that quality is to look at how much of that remaining forested habitat would still be intact, or to what extent might have been fragmented. So availability and quality both need to be looked at, not just one or the other.

In the example here, in the photo, it shows for an actual project one of these traffic forecasting zones, which is the geographic basis for doing the indirect and cumulative impact assessment on a particular project. And what we looked at here were the changes in water resources, stream flow volumes and water quality. This is the resource availability and resource quality side of things, and it all goes back to when there is a land-use conversion from agricultural to residential. You are going to get a change in the coverage by impervious surfaces, the pavement, the rooftops; all that is going to come into place with the conversion from agricultural to residential. What this change in impervious surface coverage leads to is a change in storm water runoff from this area that we are looking, and some of the consequences are increased potential for flooding, degraded water quality, which leads to a chain of consequences including erosion and property damage potential, and loss of aquatic habitat and species from the streams that receive this storm water runoff from these impervious surfaces. So this gives you an example of how you can bridge from the land use change to what it means in terms of resource change in the future, in a particular area that might be influenced by a highway project.

When do you assess indirect and cumulative impacts? Quite often, land-use planning in an area should be coordinated and integrated with transportation planning, and the place in transportation planning where these sorts of considerations come into play is during systems planning. Transportation systems planning is when the bigger picture, broader look, is taken as to what the future transportation system of a particular area or county might be, and when that transportation systems planning is coordinated with local land use planning, as illustrated by the graphic here, for a particular county, you can control and better assess the potential for indirect and cumulative impacts. In addition to systems planning, obviously you look at indirect and cumulative impacts during project development. These are the design and NEPA evaluations, and even after the project is designed and the environmental impact studies have been completed, you
can follow through with indirect and cumulative impact analysis and monitoring during construction, operations, and maintenance, and I think David Carlson later will be talking about the construction aspects of indirect and cumulative impacts.

So in conclusion, there are just a few points that I would like to close with. One is that there is more than one right way to do indirect and cumulative impact assessment. I think you will hear that during the case studies today, each project having its own particular characteristics and considerations that really merited using different techniques to approach indirect and cumulative impact assessment for those particular projects. So there is more than one right way to do it, and that’s important to keep in mind. I think it is also important to follow up on something that Lamar said, to beware of worst-case, what-if analysis. We are looking at what is reasonably foreseeable, and the way reasonable foreseeableness has been defined by the courts and in practice is what is probable. I think it is dangerous really to get into a crystal ball or what-if type analysis, and this goes back to the bounding of the uncertainty. If you can put a boundary around things you can control, you can come up with a reasonably foreseeable analysis without getting into what-if-ing or worst-case scenario-making.

And finally, many of the projects where indirect and cumulative impacts have been an issue, there has been controversy over indirect and cumulative impacts, and I think it is important to keep in mind that despite doing a thorough technical analysis and following the appropriate procedures for conducting indirect and cumulative impacts, you still may be left with controversy over indirect and cumulative impacts. So I don’t think the indirect and cumulative impact assessments can be looked at as a magic wand, that if you wave it that the controversy will go away. Lamar?

Smith: Thank you, Larry. I appreciate that. Well, I guess because we were a bit nervous, we got finished somewhat early. So, I would like to ask the panel if there is anything that Larry and I need to clarify for the audience or for you, related to our presentation?

Grimes: I would ask a question, a question that is frequently asked of us by the public when we are working on an indirect and cumulative impact assessment: how far back is the past, how far back do you go?

Smith: That’s a good question. And likely, it is how far forward do you go, and I don’t think that there is a definitive answer across the board. Larry can talk to this more. I think it has to be based on the situation, on the area that you’re in and what you can determine how far back is their data. Is there a photograph, is there a history, is there research? When were the resources beginning to fade away? And those types of questions I think you have to
ask yourself first, but I don’t think you can say it is 10 years or 15 years or 16 years. I just think you have to consider that among other boundaries up front when you’re beginning your analysis and talk to people, talk to the experts and find out what you can know to determine how far back you can go, because I think it will depend.

Pesesky: Sure, Lamar those were some good points. I would like to add, I think I always tend to look back for when there might have been what I would like to think of sometimes as a “Big Bang” in the area, and was there some event or milestone undertaking that really set the pattern for land development and the landscaping you see in the area today, and thinking about some of the projects that I have been involved with. One example is an area where construction of a commuter passenger railroad fundamentally changed the area back in the early 1900s. Well, to me, that was about as far back as I would want to go because what I see in that area today was really the influence and the land development patterns that are there today, was really influenced by construction of that passenger railroad system.

In other cases, I have used events like the implementation and the effectiveness of many of the environmental laws that came into place in the late 1960s and early 1970s. Those fundamentally changed certain areas because you then had construction of wastewater treatment plants, closing of landfills and other noxious facilities that really I think in many areas, you know, I’m talking about areas that were perhaps previously urbanized, that have fundamentally changed the character of those areas. The water became cleaner, the land became cleaner, the air became cleaner, so maybe that, you know, late 60s, early 70s was sort of a milestone point. Another milestone to think of is the construction of the interstate highway system and the post-World War II housing boom, both of which coincided, I think, to fundamentally change the landscape and land development patterns in certain areas. I think looking at the data you have, in combination with the milestone events, is a good way to think about how far back you go.

Carlson: But also, I would add that it’s critical that the state departments of transportation, of highway administration, don’t feel like they have to do this analysis on their own, and should certainly be involving not only their federal agency partners both from the transit aspect and the research agency aspect, but the state and local agencies as well. When going out and asking some of the critical questions about what is the lay of the land, identifying your geographic boundaries, doing outreach to your local and state counterparts to get a sense of what would be our temporal boundaries, where do people feel that it is important that we take this examination to, where do we see these critical
milestone years that you mention? Where does EPA or the corps stand on this, where does the state historic preservation stand on this issue and get a consensus and start that process going very early on?

**Plano:** David’s point is well taken. It is like anything else in transportation planning; it is important to really have a good consensus as you go out there, and if you make the process inclusive and just go back to good planning techniques, including everybody you can get to share in the fun, and a little bit of the pain, of doing secondary cumulative impact analysis. You need a lot of information. You need a lot of people helping you get that information, and the way to start that is, as Larry and Lamar mentioned, and Dave reiterated, this is to do it up front. I think those are all excellent points.

**Smith:** Okay, good. Thinking about the past brings us to the future. Then, by the same token, if we can bound the temporal boundaries past and can we bound them forward, I guess my question really is: can you predict the future? You can predict futures and you can imagine scenarios, which is what we are required to do. We are required to look at those things based on trends, local planning efforts, or the desires of the locals about what likely and probable changes will be coming. With those changes will be impacts and then trying to come to some conclusion about that. So, then the question becomes: well, how far do you need to go, how far can you go, and what is a reasonable future temporal boundary? Since it was included in Larry’s presentation we’ll start with him.

**Pesesky:** Thanks, Lamar. Another thing about indirect and cumulative impact assessment is, I think we need to make this point if it hasn’t been made already, is that it really can’t be distinct from other planning processes that are being undertaken, whether it is local land-use planning, whether it is metropolitan transportation planning being done by metropolitan planning organizations in conjunction with other transportation and environmental agencies. So there is a lot of information and data and thinking out there that is being done by a number of parties. School systems, for example. They do their demographic forecast because they have to plan ahead as to how much school construction they need to do if their population is growing. Utilities need to do demographic forecasting. So there are a number of places where you can get your hands on these data and typically, the demographic forecasters don’t normally go much beyond 20 or 25 years, because I think for practical reasons, that’s considered to be the outer limit of how far you can go and reasonably estimate population change, particularly when you are talking at a county level. Getting down to a sub-county level, I am not even sure I would want to venture out much beyond 10 or 15 years.
When you think about it, going back to the slide I had about location decisions, businesses, developers, households, the decisions that we make, really we don’t tend to look much beyond a five- or ten-year horizon about location, which is a lot of what this indirect and cumulative impact assessment is about.

So I would say just using standard forecasting techniques, I think there is a reason why in standard population and employment forecasting you don’t go beyond 20 or 25 years, because it is the bounds of what is reasonable, and so there is a reason for it. I think it is important to gather up all the different types of forecasts from different entities out there, and then also to think that for a particular highway or transit project, you’re probably not going to start seeing the evidence of the influence of that project on land development patterns for perhaps five or ten years after the project is constructed.

Smith: Very good, anybody else?

Carlson: We also at EPA do trends analysis certainly, for example, on how water bodies are receiving pollution from non-point source run-off and from point source run-off, and we do trends analysis to identify if there are future needs for us to focus on particular water bodies. I’ll continue using an example. So there are other less hard numbers of information; sources of information are available that could give you some indication as far as trends are concerned and things like that.

Plano: And, of course, all of this gets a little tougher when you get outside of metropolitan planning areas where perhaps there are less data, many more unknowns, maybe zoning is not quite in place, like you might see in a more urban area, so you just have to do it case-by-case as Larry mentioned, and again be inclusive as much as you can. There are always people out there who know quite a bit of information about the corridor even if they are not professional planners, and it is good to bring those people into the process.

Smith: Well, something that you said, in non-metropolitan areas, in the rural areas, that’s where it does seem to be more difficult, and a couple of things that occur to me is why are we doing this assessment, number one, and then what do we do if we can’t do an assessment or make some reasonable identification of probable or likely events, because either there aren’t any trends to look at, or there isn’t any planning. So those two things occur to me that probably we could talk about further. Number one, we do this because we made a decision. Number two, what do we do when the data are not available for us, reasonable data available, what’s our recourse in those events?

Plano: I think one way to possibly do it, is not only going out there and finding people who have been in the area for a long time, but perhaps looking at other similar areas across the
country. And the advantage today with the Internet and a lot of sophistication that we have with our new tools, is that we can go out and look at areas that may be very similar demographically, look at case studies, as we’re doing today, and try to see what trends may have happened in other areas. Obviously, balancing that with local knowledge, but I think those type of things, maybe it gets a little more qualitative and less quantitative, but I think the meshing of those we can balance on a case-by-case basis, and really tailor in to each project.

Smith: In those cases, we’re going to talk about expert panels a little bit later. They have to start somewhere. Are they valuable, can they be used in rural areas where there isn’t a lot of planning data? I don’t know who the expert panel expert here is. Any thoughts on that, though?

Plano: Yeah, I have never done one in a rural area, but I would think the Delphi Process can certainly be applied to a rural area. Perhaps you bring in more national experts, if that local knowledge, land-use, or real estate isn’t available, but certainly there are always local people who are going to know trends from a market standpoint, or even if zoning isn’t very strong in an area, you can look at what’s happened over time. Local county planners, local jurisdiction planners, even if they aren’t in that area, there should be somebody in that area who really has a good handle on what is happening, even if it is a local banker who sees developers coming and what is going to happen. We’ll talk about that later, I think it is a good discussion point.

Pesesky: I think academic institutions also are a place to look for expertise. In rural areas I think every state has a land grant college, and I guess I’ll put in a plug for NC State here. They are the land grant college in North Carolina, right? So most land grant institutions have rural sociologists or other rural experts that tend to have a pretty good feel for what is going on in their state, because that is part of their mission, to know what is going on in the rural areas of their state. So I would add academic.

Grimes: Let me ask another question and take us in a little different direction. In the metropolitan areas, in areas that do have land use, that do have transportation plans, how heavily should we rely on these when we are looking at assessing the indirect effect and incorporating those into our analysis?

Plano: Well, I guess I’ll start that off. I think one of the beauties of an expert land-use panel is that you can kind of hang your hat on what’s out there from these land-use plans. But the beauty of an expert panel is to think beyond that, think a little bit outside the box and maybe not be so wedded to those plans, and actually look at different ways of trends, and
maybe think about things a little differently, and actually look beyond what those numbers actually say. So it’s a combination again of quantitative and qualitative, and I think it gets really interesting when you look at it that way.

Pesesky: I think in metropolitan areas, the population forecasts that are prepared by these metropolitan planning organizations are the official population forecasts that are supposed to be used in transportation planning. I think it is important for the indirect and cumulative impact assessment to understand what is behind those numbers, and quite often the MPO would have used a panel itself, representatives from each of the counties in the MPO region to come up with their individual forecasts. So I think getting and understanding of what went into the data, instead of just using the raw numbers that you get out of the MPO population forecast, but knowing what were they thinking when they put these together, and I think that’s sort of a piggyback on that exercise of planning.

Smith: Yeah, I agree. I also think that this is the time to bring up and recognize the local’s role in all of this. It’s not now, nor has it ever been, or will it likely ever be, FHWA or other federal agencies to direct land use, control land use; that is a responsibility of the locals. Okay, I am going to stop. We have a caller who wants to go live right now, so why don’t we do that? Okay.

Caller: I had a question. We go through this whole cumulative and secondary impact analysis process. We look into our crystal balls and we determine what the impacts may be, but how do we use that information in determining, you know, picking an alternative or in the decision-making process in NEPA? We’re looking at all of these impacts that we have no control over, you know, if the developer is going to build near an interchange or something, they’re causing impacts that we as consultants, or you as the federal highway administration, have no control over. How does that enter into the decision-making process?

Smith: Anyone? It is a good question and I think it’s the right question because there are a number of points and it leads to a conclusion about what the effects of the federal agency taking that action are. It is understanding what the effect of that action is, which is what NEPA is about: knowledge, understanding what the impacts are.

Pesesky: I think it can also be a tool, Lamar, to provide information to local decision makers. If they are involved early on in the process as part of scoping, and involved throughout the process of analyzing the indirect and cumulative impacts, then they will have a feel for just what exactly may happen to their community following construction of the highway project, and give them the information to then take action. And maybe the indirect and
cumulative impact assessment can give recommendations to things that the local community might want to consider to anticipate and plan for controlling the effects of the construction of the highway project, whether it be pedestrian improvements or preservation of land, preservation of riparian corridors, those types of things are things that communities have control over beyond the right-of-way, and can start putting into place to anticipate what is going to happen.

Carlson: And while cumulative impacts would not necessarily change the decision on an alternative, it could change the way an alternative is looked at. Certainly, that is what I understand context sensitive design is intended to do, is to take into consideration the surrounding communities, the surrounding areas, and maybe also what other forces are in effect upon those areas, or upon those resources to give it some sense of a context sensitive design. So, while the alternative might not change, its profile would be different had you not gone out and done that kind of an analysis.

Smith: Well, I think that’s an interesting point with indirect; it’s likely that a proposal which is one of a number of alternatives. The indirect effect might likely be at least similar, talking about land-use change and those types of things, but on an alternative basis, the cumulative impacts, i.e., the direct impacts and then the indirect impacts added to that, could be different per alternative and might sway an alternative decision, do you think?

Plano: And I think it would also possibly modify specifics about that alternative interchange locations, interchange types. So I think it is probably two parts, it’s what Larry is saying, it’s really upfront, maybe helping you frame the body of alternatives or scenarios or whatever you want to call them. But as you go along, it is never too early to think about what mitigation strategies you might be talking about with the resource agencies. So, I think it also, on a specific case, maybe helps you frame details about the alternatives, too, so I think it is multi-faceted, and I don’t think we should be afraid of really accepting that responsibility from day one.

Smith: And I have heard the question and comment all the time: well, why do we have to consider all of those impacts that we don’t have any control over, or didn’t cause? And the truth is, you need to understand what the existing environment looks like before you can analyze it. You need to be able to explain what’s going on, and then what is the additive impact of our project and our actions on what is already going, has happened, is happening, and will happen with and without the project, so there’s a comparison there for me.
Well, in the time remaining, any more comments on that? We have just about a minute and a half, I believe. There are several things that I know I didn’t include that are basics and if we could just think about what some of those things are, and if the audience can think about what some of those things are, and perhaps call in, email, fax in those comments and questions for us, either in our next roundtable or the final discussion. One of the things I think we’re going to have to get to at some point is documentation.

Documentation is a very complicated issue when it comes to indirect and cumulative impact. If analysis isn’t complicated enough, well, then you add in how you document it, and tell that story. And I think that we all, as an industry, need to be giving some thought to that, so if anybody has any really great ideas about what an indirect impact analysis should look like in an environmental document, and a cumulative impact analysis ought to look like in an environmental document, I would certainly love to hear those ideas, so that I can pass them along. Well, that’s the end of the first session, and at this time, we’ll take a break and be back in ten minutes.

***

Smith: Welcome back, everybody. Welcome to the second half of today’s program, which is going to be on case studies. I would like to remind you to call in, fax in, or email in your questions and comments. We will try to take as many as we possibly can. They are very important. Please send them in. Remember at 3:10 this afternoon, we will have a session where we will address all of the comments and questions that you send in. So, it’s time to start our first case study, and today David Carlson is going to talk to us about the lower Manhattan development projects. He is from US EPA in Region 2. So at this time, I will turn the program over to David.

Carlson: Thanks, Lamar. I am here to talk to you about the lower Manhattan recovery projects which are a series of projects in response to the terrorist attacks of September 11. By way of context, let me start out by giving you a sense of what lower Manhattan looks like and the context under which the projects were initiated. Lower Manhattan is the third largest business district in the nation, and it has a very dense urban area of 100 million square feet of office space that employs 385,000 people in a space that is just a little more than a mile square. 85% of those 385,000 people arrive by public transportation.

What happened on September 11 when the World Trade Center was destroyed, is that the PATH terminal there was a major hub for the cross-Hudson New Jersey transit
system that came into the World Trade Center, and that was destroyed, and many of the New York City subway operations were drastically altered. The 1 and 9 station, which is a subway line that runs up the west side of Manhattan, was destroyed at the World Trade Center, and the station adjacent to that for another subway line running up the middle of Manhattan was significantly damaged. So therefore, at that time, there were many other transit modes pressed into operation. By way of context for the impact, for example, the 1 and 9 subway line carried nearly a million passengers a day and had linkages to the Staten Island Ferry which brought over many commuters from Staten Island to South Ferry and to lower Manhattan. So not only were the ferries then over-taxed, but also the remaining subway lines, which were already crowded, became even more so.

So, the lower Manhattan transportation recovery projects were identified as a significant need for the 9/11 funds that were allocated by Congress and the President, and those recovery projects involved the World Trade Center transportation hub, which is the blue dot, and that hub includes both the permanent PATH station to rebuild the PATH station that was lost, all of the World Trade Center buildings that were lost. It is a site of about sixteen acres that will have five office towers, a museum, a memorial, and other development projects. The Route 9A West Street was also damaged, and that will have to be redesigned as well. Adjacent to that is the Fulton Street transit center, that is the red dot, and that involves a redesign of a large station where eleven subway lines all cross each other at one location, and then down to the south at the green dot is the South Ferry station improvement, to improve finally the overall function of the 1 and 9 lines, once the line is completed, to be functioning and running.

Congress appropriated 4.5 billion dollars for these transportation projects because the stakeholders of lower Manhattan felt that this was absolutely critical for the recovery of lower Manhattan to begin to occur. So you have several large complex and large capital projects in very close proximity to each other, as you can see by the map.

So, the Federal Emergency Management Agency was the first agency on the scene, and they identified that since transit had been significantly damaged to lower Manhattan, that there was a need to try and make up or patch that loss of transit. So in identifying the need to make up for the lost transit service, we were in discussions with FEMA and we started talking to them about ferries, and using ferries to make up for the lost service. And while we agreed that that was certainly an admirable goal, what it identified to us was that because so many ferries would be pressed into service, that there
would be a cumulative impact on air quality from all of the ferry fleets coming to make up for the lost transit service.

So we began to examine that, and FEMA began a cumulative effects analysis document to examine that issue, while also in the context of the other projects such as the World Trade Center redevelopment. After a little more than a year, FEMA turned the recovery operations over to the Federal Transit Administration, and to continue those discussions, the Federal Transit Administration put forward five million dollars to retrofit the ferries, to minimize the omissions from the new ferry boats coming into the water to make up for the lost transit service. At around this time, we also developed a memorandum of understanding for the environmental coordination and review, and it was signed by all of the Federal and State and City agencies to formalize their commitment to partner for the NEPA process, and to also expedite reviews. The lower Manhattan recovery projects were then added also to the list of priority projects in response to Executive Order 37428 or something, some number like that.

At that point, the inter-agency review team was developed, and each project had its own technical advisory committee. So the critical thing to recognize here is that early on, even in the pre-scoping process before anything had really been identified, just the need had been identified, processes were established to start to address the overall issues, and establish processes that everyone mutually agreed upon, how to proceed through the NEPA process.

So there was a lot of early coordination with the project sponsors and the other federal agencies, including EPA, and what was agreed upon was the desire to coordinate and expedite these reviews, and with the past experiences and discussions that we had with FEMA on issues such as the ferries, FDA approached us and other agencies with the idea for a consistent approach to the cumulative effects analysis. This would be a consistent approach that would be used for all environmental documents, NEPA documents, that we’ve done for the different projects. Since there would be multiple projects, both public and private, with large investments, the cumulative effects are a little more obvious than in most cases. However, the approach that was taken was very much a standard cumulative effects analysis, within the realm of the intent to streamline. By having a consistent approach to cumulative effects analysis, it addressed the concerns that both the review and the resource agencies had, as well as the public, which was a consistent level of understanding, and a consistent terminology and methodology that could be understood across all these different various projects.
So we examined three options or approaches to analyzing these cumulative effects. And they were a comprehensive cumulative effects analysis for the different priority projects. In other words, a cumulative effects analysis would be done solely before all the other NEPA documents would be done, and then the NEPA documents would build upon that, and use that and incorporate that by reference. The other was an independent analysis on a project-by-project basis, which is a more typical analysis that would have been done, but you do run the risk of a variation in the analyses and the methodologies, and you also miss opportunities for mitigation and understanding. The last which we looked at was the coordinated approach to foster consistency and standardize the approaches, and allow for similar comparability between projects, but also allow for the building block of information to be shared as each project progresses through the process to reduce the redundancy and to improve the information as it is developed and identify options for mitigation. And this was the selected approach.

Now the consideration that we were looking at that was most sensitive, was that several major projects were underway, and that the area is already environmentally sensitive, in that there was an absolute need to have an ease of agency and public understanding, and therefore the third approach was the one that was identified as the chosen option. So while there were options or alternatives in the manner in which the approach to doing a cumulative effects analysis was presented, the method was still a typical cumulative effects analysis, keeping in mind these considerations.

We decided as part of that coordinated approach, and early on we proposed to several considerations, and we agreed to several considerations. One, that the baseline for comparison would be the conditions before 9/11, and that the focus would predominantly be on the construction period, since that was the most apparent source for significant impact, given that several of the large projects that were for buildings and transit that upon operation would not in and of themselves lend themselves to great cumulative effects, and that there were five resource areas that we identified that would be most sensitive for analysis. And that would be air quality, noise and vibration, historic resources, business and economic interests, and vehicular and pedestrian access. Since we identified the resource areas that were chosen, and we have identified those early in the process, it also informed our area of analysis. For the most part, the area was lower Manhattan below Canal Street, but depending on the resource such as noise, noise is more localized than would be perhaps for the analysis range or the analysis area for traffic and circulation, which was more spread out across the area of concern through
lower Manhattan. So the noise analysis focused predominantly on where the actual construction was taking place, where the traffic and circulation ranged all across Manhattan and lower Manhattan.

With the approach, this was memorialized in the Federal Transit Administration’s approach to cumulative effects analysis for the lower Manhattan recovery projects. And within that document came the concept of environmental performance commitment. This concept was that the EPCs, as they are referred to, would be developed early on in the project development to reduce the overall potential for adverse effects. These would be environmentally friendly construction design features, and would serve or be applied to all projects equally. The chosen cumulative effects analysis approach and the EPCs were further developed and committed to by the environmental analysis framework, presented to the Federal Transit Administration by the sponsor agencies, the local sponsor agencies of MTA, the Port Authority of New York and New Jersey, and New York State DOT. They committed to the consistent analysis methods that were chosen for the five resource areas. The same geographic area would be used, the same baseline would be used, and sharing of information to promote that building block approach would be utilized and committed to. At a minimum, they would make a commitment of a common set of environmental performance commitments.

These EPCs that were developed initially are green techniques, such as ultra-low sulphur diesel fuel, dust control, limited idling for coordinated construction schedules, common knowledge of surrounding areas; in other words, the common knowledge of the surrounding historic properties, for example, and consistent notice methods and systems for the public, the emergency, police and fire, so that everyone across the board would know exactly what was going on at any one time, and establishing consistent communication with common entities. Ultimately, the idea was that all projects were important, and they needed to be delivered in an expedited way in order to insure that all could. All of the projects had to commit to the approach and the environmental performance commitments, because while the first three could go forward, for example, with no commitment to do any environmental performance commitments, the last two or three that might come forward wouldn’t be able to, or would have a significant burden of mitigation placed upon them because an air increment standard, for example, had been consumed by the first three, and therefore the last two would be in a condition of having...
to wait. So across the board, it was considered that this was an absolute critical aspect that was developed.

Developing EPCs such as these, the Environmental Performance Commitments, early on in this scoping process, even before a document had even really been written, and before alternatives had really been flushed out, was a very novel approach, but given the potential for significant impacts, and given the potential for controversy, it was certainly a smart approach.

So, what we’re doing now and what we’re faced with now is maintaining a focus on managing the environmental impacts for the five analytical categories. We have identified specific environmental commitments that will deliver quantifiable environmental reductions, and these will be incorporated into an implementation plan that will hopefully appear in the record of decision. We will continue the close partnerships that we have, the project sponsors and the other federal agencies, and ongoing communication with the public and ongoing coordination with the review agencies. This approach does demand a lot of oversight from the different agencies. We are working on expanding the definition of the EPCs further, and implementation plans of the EPCs, and getting those into contracts with the builders who would be doing the projects, actually getting those into the contract is our next step. And the expansion that we’re even looking at demand that tier two engines be in all construction equipment in advance of the regulatory deadlines for such a commitment, and that ultra-low sulphur diesel fuel is always available, and that particular filters are placed on all appropriate pieces of equipment, and that those are constantly and consistently used.

We are also examining the issue of a coordinated construction schedule, and there is a construction coordination committee that has been approved by the Governor of New York, and he has set aside a significant amount of funding to promote that effort. And we’re also discussing innovative technologies. So this is giving us the opportunity across many different projects in a very limited area, the opportunity to do some dynamic work in the environmental field to minimize the environmental impacts in an area where the impacts have already been identified as being significant. So with that, that concludes my quick presentation.

Smith: Thank you, David. A very interesting and important series of projects, and an excellent approach to cumulative impact analysis. Next, we have Steve Plano with Parsons, Brinkerhoff. He is going to talk to us about the I-270/US 15 multi-modal corridor study in the DC metropolitan area, Montgomery and Frederick County. Steve?
Plano: Thanks, Lamar. Another mega project somewhat similar to David’s, although I had a whole lot more area to work with, which I am not sure was a good thing or a bad thing. The I-270/US 15 multi-modal corridor study, multi-modal project, which meant we had Federal Highways and also FTA involved in the project. We were looking at transit and highway alternatives. We had about thirty miles of highway improvements to look at and about fourteen miles of transit improvement. So, certainly a project on a major scale. I-270 is really a vital component of the transportation system in the whole region. It radiates northwest out of Washington, DC, carries hundreds of thousands of vehicles every day, has long haul trips, people coming in from as far west in western Maryland as Cumberland, and it also carries people even from Pennsylvania down to jobs in Montgomery County and Frederick County. So it is an essential connection in the area and it has, as I said, a diversity of trips.

If you are not familiar with the area, Washington, DC, the Beltway around it, I-495 and then I-270 radiating northwest out of Washington, DC, and again focusing on two counties: primarily Montgomery County, which is fairly well built out, smaller areas of undeveloped, there are vacant lands available; and Frederick County, which certainly has a more expansive nature in terms of available land that is out of there. But certainly growing at a very fast pace as well. The I-270 corridor is a biotech corridor, one of the major biotech corridors in the region, in addition to the Washington Dulles corridor. So this whole metropolitan area in Washington is certainly a lot of development, a lot of growth, and a lot of infrastructure to help it out.

The I-270/US 15 project itself was already served by a lot of modes out there. This is a photograph of the corridor itself, certainly not at rush hour. Most of the time the corridor operates, a lot of sections operate at level service F, fairly wide highway serving a great number of people in the Washington area. It is an interstate highway. It has HOV lanes already in existence. It has a commuter rail line that runs parallel to that, run by Maryland Mass Transit Administration. Very expansive bus service primarily feeding Lamada, and the Metro Rail System, which serves on a number of lines in Washington.

In addition, we have a lot of inter-modal opportunities with the corridor. Park-and-Ride lots, as I mentioned Metro Rail, again it is highly congested, as with most metropolitan areas now. The congestion is expanding from a rush hour, and that’s kind of a quaint term these days. It’s several hours of rush hour-type traffic in the morning and afternoon. A lot of people are changing their work patterns, going to flex-time just to avoid the congestion, and a lot of long distance trips coming in from the Frederick area
down into Gaithersburg, Rockville, and on into DC, people switching over to Metro. Again, more bad news, the problems we expect to get worse over time. Our population and employment projections show dramatic increases in population and jobs. Of course from an economic development standpoint that’s great news for a biotech corridor; from a transportation and planning aspect, certainly some challenges out there. I won’t go through these numbers, I think they are fairly dramatic if you look at just the right hand column, what the percent change would be over the next 20 years for both counties, especially Frederick County, which I mentioned has more development potential, but also the region and Montgomery County as well.

All of our projects, all of these regulations we try to use an acronym. In Maryland we call it SCEA, secondary cumulative effects analysis, so I’ll probably fall back to that acronym. Obviously, in a corridor such as this, it was challenging, and at times we used different types of terms, but I will keep to the positive right now. It is certainly a challenging corridor to deal with, but also very controversial. A lot of interest in what was happening in that area. Again, Montgomery County being fairly well-built out there is a high quality of life there. Any infrastructure improvement in that area is certainly looked upon by a lot of people and closely scrutinized. To help us out with that, Maryland DOT decided to add an expert land-use panel, ELUP, another acronym, but basically what we wanted to do was get some outside advice, some expertise to help us out, add a little bit of credibility to the process, make it more inclusive, as I mentioned before the first break, and really get some local and national knowledge to help us out in predicting.

The first thing to do is really develop a boundary, a SCEA boundary, as we call it. The SCEA boundary, as David mentioned and Larry mentioned earlier, it is really a compilation of a number of things. In Maryland, we focus in on watershed. There are sub-watersheds depending on where you are in the Chesapeake Bay drainage area. Census tracks, obviously, transportation analysis zones where a lot of the prediction is done from a travel demand stand point, and we try to weave all of these things together. Perhaps the most important aspect is what we call an area of traffic influence, and we work with our travel forecasting people and traffic engineers to develop a boundary that helps us identify where there is perhaps a dramatic cut-off, and where that traffic influence is going to be. So we do some graphing and charting of where perhaps a major percentage change or absolute change is going to happen. We combine all of these, defer to going a little bit outside perhaps where we might normally be when we put all of these
three boundaries together, and develop in coordination with our resource agencies an agreed-to SCEA boundary. And I have to stress that it’s something we do up front, and we try to agree to it early so we’re all on the same page.

The panel members, and we can certainly talk about this in the Q&A period, we try to get people with national expertise in the DC area. That’s pretty easy, a lot of those people are right there. So we have an advantage of working on projects in Maryland and Washington, and it can be land-use planning, it can be economics or demographics. Larry mentioned earlier people in the academic world. We always try to have people like those on the panel. They lend another aspect. People in the banking industry, developers who really have a pulse on what’s happening out there, and really we’re trying to get a blend of expertise that really helps us, and adds kind of a value to the whole process, and certainly we open this process up to the public too.

The panel itself, we’re using their collective expertise to try to get a better product. At the beginning, what we do is, after we develop the boundaries, we give them a set of base data. We actually gave them a notebook of information. You can give them presentations by local planners, demographers as a starting point, but having said that, one of the beauties of an expert land-use panel is allowing those people to think outside the box, and really look at those assumptions that went into a model, as Larry mentioned, and maybe rethink those if possible. So it’s really another level of analysis that’s added to the process. And what we asked them to do is really evaluate the changes that would result from highway or transit improvements.

In the case of I-270, it was so complex we did it in two steps. The first step: we carried out a qualitative analysis, where we asked them, “What are your general thoughts about what would happen if we did highway or transit just from a general standpoint?” We didn’t really ask them to lay out any numbers yet. It helped frame it, get their hands around the project because it was so large. Phase II: we asked them to really allocate in the year 2025, which was our future year by TAZ, or transportation analysis zone, what those employment population figures would be. So actually give them a spreadsheet, ask them to allocate the population and employment just as you would in a model.

What they predicted was that the overall employment and population really wouldn’t change in a lot of areas. It really gave us a lot of confidence in what the models have already come up with, and what those assumptions were in land-use model and travel demand work. In one case in particular, there were some differences, so it gives you confidence, but it also highlights some difference that maybe you want to concentrate
on. In this case, Frederick County, the panel found that there was perhaps a higher potential than what was in the land-use plans, regardless of whether the infrastructure would be there or not to take care of it.

Application NEPA, and we’ve talked about this a little bit. We plowed the information back into our NEPA process; it was a parallel process. Again, from a streamlining standpoint, you want to do as much as you can to make these parallel, so that you’re not losing any time with NEPA. What did we find? Our SCEA conclusions: we found that the land use in the area would not change substantially with or without project. There were just such great market forces in this area that we were really playing catch-up with our infrastructure development. So it really wasn’t much of a factor in selecting an alternative, and that was the first question that we had before the break. I think one of the most important things is it really raised the consciousness level of everybody on the project, the public and resource agencies, about the health of the resources and other people’s resources if you were not responsible for that resource. Again, an inclusive process.

Lessons learned briefly, it gives us expertise outside the transportation world. Sometimes we get in our ivory towers, and this allowed us to break that glass ceiling and get outside, and get some diversity and range of opinion. A little bit more credibility in an area where perhaps the public may not be totally trustful of the projects from way back. There may be a long history on it. It gives you another layer of credibility. Open process promotes trust on any project, just good planning, and I really do believe that the synergy of a panel really gives you a value added, and gives you a project that’s perhaps better than you might normally have from the individuals.

One suggestion for the future that we talked about in Maryland, and I’ll pull up the map that we have. We’ve done a number SCEAs over the past decade. Hopefully, you can see this on the map, but if you can’t, we’ve got so many SCEAs that we’ve done over the past ten years that the boundaries are overlapping, and obviously from streamline standpoint and a funding standpoint, it would be to everybody’s benefit to work with the agencies ahead of time, go to them once, perhaps on a regional basis, have them help us to provide data on a regional basis, so we’re not continuing to reinvent the wheel, and with everybody being a little bit over-taxed at the agencies and funding shortfalls, I think it would be great to really take advantage of some synergy with the agencies right up front, and perhaps do some regional analysis with them, and they can provide us regional data. That concludes my section. Lamar?
Smith: Thank you, Steve. I appreciate it. We’ll now hear from Gail Grimes from North Carolina DOT to talk to us a little bit about North Carolina’s approach to indirect and cumulative impacts, and give us a case study on the Monroe Bypass and Monroe Connector projects.

Grimes: Thank you, Lamar. I am going to talk about two projects that the Department of Transportation has in project development at this time: the Monroe Bypass and the Monroe Connector.

A little history on our indirect and cumulative impact assessment techniques: in the fall of 1997, the North Carolina Department of Environment and Natural Resources assembled a task force to develop guidance for assessing indirect and cumulative impacts on projects that are subject to our state environmental policy act. In December 1998, the Department of Transportation also put together a team to develop guidance for assessing indirect and cumulative impacts on transportation projects. By July 1999, both DENR and DOT realized that we need some help developing these guidances, and that the documents needed to be compatible. So the two teams combined, and in December 1999, the joint task forces retained The Louis Berger Group as a consultant to the team to assist us in preparing the guidance.

The result of our work was in November 2001: DOT and DENR’s task force published the guidance for assessing indirect and cumulative impacts of transportation projects in North Carolina. Our guidance is in two volumes: volume one is a guidance policy, volume two is a practitioner’s handbook. This fall, the task forces will publish our second document, which will be the state environmental policy act guidance for assessing indirect and cumulative effects. This document will be a guidance for all other types of projects, all projects except transportation projects.

Our practitioner’s handbook presented our guidance in an eight-step process for evaluating indirect and cumulative effects. These steps were establishing the study boundaries, developing goals and directions for the study area, identifying notable features, impact causing activities, potential indirect and cumulative impacts for analysis to analyze these impacts, evaluate the analysis results and to assess the consequences, develop mitigation and enhancement strategies.

Two of the first projects that we used our guidance for assessing indirect and cumulative effects were the Monroe Bypass and the Monroe Connector. The Monroe Bypass and the Monroe Connector are two projects that improved the US 74 corridors from east of Monroe to the Charlotte outer loop. The Monroe Bypass extends from SR 1515, east of Monroe, to US 74, west of US 601, west of Monroe. It is fourteen miles on
new location around the north side of Monroe. It is a full control access freeway. We initiated the need for studies in June 1994. The environmental assessment was approved in March 1996, and the finding of “no significant impact” was approved in June 1997.

The Monroe Connector extends from the Monroe Bypass at US 601 to I-485, the Charlotte outer loop. It is eleven miles on new location north of the existing US 74. It is a full control access freeway. The studies began in December 1997, and in November 2003, we published our draft environmental impact statement.

This map shows the Monroe Bypass and the Monroe Connector. The Monroe Connector is in blue, the Monroe Bypass is in red. In relationship to I-485, the Charlotte outer loop and US 74, the existing main roadway through a number of communities, and becomes Independence Boulevard in Charlotte.

Both of these projects are located in Union County. Union County is the fastest growing county in North Carolina. It is the 24th fastest growing county in the country. In 1990, it had a population of 84,000 people. By 2020, we anticipate the population will be around 215,000, which will almost triple the population of 1990. The Monroe Bypass and Connector will relocate US 74 around the city of Monroe, around the towns of Stallings, Indian Trail, Henby Bridge, Lake Park. It will bypass 39 traffic signals that are along US 74 between SR 1515, which is the eastern terminus at the Monroe Bypass, and I-485, the Charlotte outer loop, which is the terminus for the Monroe Connector.

However, we have one small complicating factor, and that is the Carolina heel-splitter. The Carolina heel-splitter is a small freshwater mussel that is indigenous to North Carolina and South Carolina. The US Fish and Wildlife Service listed the mussel in 1993 as endangered throughout its range. Presently, there are four known populations remaining. Two of these populations are in Union County, in Goose Creek and in Waxhaw Creek. The habitat for this mussel is mainly threatened due to water quality degradation, predominantly caused by poor land use, land management planning practices. Basically, it is endangered because of the explosive growth that is occurring in Union County.

This map shows Goose Creek and Waxhaw Creek in relationship to those two roadways, and shows the towns of Stallings, Indian Trail, Henby Bridge. It also shows the growth impact boundary and the water analysis boundary that we used in our analysis. As you can probably not note from this slide, but it is true that neither of our projects have a direct impact on either one of the creeks.
In our analysis, we looked at three scenarios. We looked at the no-build, we looked at build with US Fish and Wildlife controls, and we looked at build without US Fish and Wildlife controls. This slide shows that there are numerous indicators that the potential for land change is strong in the area that we will be changing the accessibility, and there is good accessibility out there already. Change in property values, the forecasted growth as I mentioned earlier, is great. Water and sewer is available to much of the area, and there are plans to extend it to other areas. The market for development is strong, public policy supports the project, and is indicated by land supplies versus land demand. There is a lot of land available for development.

The controls that US Fish and Wildlife propose to this project were in the Duck and Goose Creek sub-water sheds, 100-foot buffers on the intermittent streams, 200-foot buffers on the perineal streams, and one dwelling unit per two acres, and no sewage treatment plant in either. Union County had proposed a sewage treatment plan in this area and had spent over a million dollars on development. They have abandoned this plan and have started back looking at other areas to build this plant. The department, at this time, is working with the municipalities to implement these watershed ordinances as proposed by US Fish and Wildlife. We are working on a biological assessment. After the ordinances are passed by the local municipalities, they will be included in the biological assessment as minimization and mitigation for the cumulative effects. Thank you. Back to you.

Smith: Very good, thank you, Gail. Very good examples of three different projects, three different types of projects, but all very interesting examples. I wonder if the panel would be willing to talk to our audience about a best practice or a lesson learned, or a recommendation, something that you took away from your experience that would be beneficial for everyone who is about to be or is involved in an indirect or a cumulative impact analysis. Thoughts, Dave?

Carlson: Well, I would say that certainly, in the example that I presented, the best thing that came out of this was the discussion of being able to identify the resource areas that should be the subject of the analysis, and establishing a consistent geographic scope, and having that agreed upon by all of the agencies, not only the resource agencies, but also by the transportation agencies and the City of New York as well. And having that agreement, having that understanding, going through that process of identifying exactly what the scope of the analysis would be, I think was the most beneficial, and one of the best lessons that we learned, because then we were also able to focus and hone in on what
were going to be critical aspects that needed to be addressed, and the opportunities for mitigation that should start to be examined, whether it is undertaken by one of the public agencies or whether it is just promoted at large.

We understand that because the project proponent agencies are going to be stepping forward to make some of these commitments on construction equipment, that some private entities might also take advantage of that, who will also be doing construction in not just even lower Manhattan but in the metropolitan area in general. And so we’re looking at those opportunities, and we’re looking at those advantages, and I think had we not, we would have missed out.

Smith: You said something to me the other day in a conversation that I thought was very important, in that the uniqueness of the lower Manhattan projects is not what is important, it’s the approach that you took; early coordination, communication and agreement was the essential component, and what is transferable as a best practice.

Carlson: Yeah, I would say that the uniqueness of the lower Manhattan situation is only unique in that the issues rose to the top rather quickly, but that the analysis and the methodology that was established was the correct methodology that we would have done, or should have done anyway. It’s just that we had an easier time of identifying the critical issues and the geographic scope, and being able to put forward that approach so that it wasn’t a discussion about what resources were critical, but then how to do the analysis, to get to the conclusions, that was where we spent a lot of our time.

Smith: Steve?

Plano: Maybe it’s more of a revelation, Lamar, as opposed to a lesson learned, but I think it is important that all of us, when we first started doing secondary and cumulative effects analyses, I think all of us would probably admit, if we were truly honest, that it was a scary thing. It is something that has been around for years, perhaps we didn’t deal with it in the beginnings of NEPA, perhaps as well as we should have. There has been a new emphasis over the last 10 years. I think it’s commendable a lot of states are developing guidelines on how to do it, and working with agencies in partnership, so I think the revelation is really, it’s almost a back-to-the-future thing, where you go back and you read NEPA, and perhaps we all should do that on a regular basis to remind us how well it is written.

There’s a lot of good stuff in there about how to go about processes, and this truly is just another way of getting more opinions, more information on doing it collaboratively, and I think if you’re not surprised by something that comes up in your
secondary and cumulative effects analysis, you’re probably not doing your job, because you haven’t had that moment where you say “Oh, I didn’t really think about that,” and as consultants and planners and agencies, maybe that’s a little scary, but it shouldn’t be. It should be that you accept those revelations and move on, and really build upon those, because it also builds trust. It makes you more human to the people out there that you are doing the project for. Our ultimate client is the public, and they really need to trust us and be part of the process. So I think maybe that’s more of a revelation than a lesson learned.

Smith: But an important revelation.

Plano: Yes.

Smith: Gail?

Grimes: I think the thing that has struck me most by the Monroe Connector and the Monroe Bypass projects, is that the analysis of cumulative effects, indirect effects for your project is important at the project development stage, but a cumulative analysis assessment is very important much earlier than this. At the point we are with Monroe Connector and Monroe Bypass, the municipalities are working hand in hand with us. The federal and state agencies have devoted a lot of time to helping us try to determine what controls that we need to present to the municipalities, and they have been very open to hearing what we’re saying, and to considering passing ordinances, enacting these controls, but it may be a case of “too late.” The growth that this county has experienced over the past decade, it may not be enough. All that we can do may not be enough to protect and preserve these mussels in these two creeks.

Smith: Very interesting, very profound. I think we are beginning to think about cumulative impacts earlier, at least where we were thinking about that, that’s the way to do it, and it is somewhat about integration of planning and NEPA, and it’s thinking about the environment and planning. It is informing the locals in their decision making. I’ll just mention that I know there are some states around that are beginning to look at cumulative impact analysis at a regional scale. I will mention Colorado, and they can call in and say that they’re not doing it, or that they’re doing a great job, but I have seen some documentation in regional areas where they are going, or at least they are thinking about it. It is not everything. It’s probably not all they need but it’s a start. They are headed in the right direction, at least from my point of view. Though I think you are absolutely right. In order to do cumulative impacts to avoid minimized cumulative impacts, you have to start at the planning process, and you have to address that somewhat procedural
disconnect between transportation, planning and the NEPA process that does exist. Any
final remarks in the last two minutes and forty-five seconds?

Grimes: Well, I will tell you that we are starting our first regional cumulative impacts analysis.
We are doing it in the Asheville area. There are six projects along the I-26 corridor that
will be part of this analysis, and we’re doing a cumulative for all of these projects, and
then we will look to the project development on an individual project-by-project basis to
do the indirect assessment, and refine the cumulative impacts analysis for that particular
project. But it is the first one that we will be doing in this state.

Smith: I think that’s fairly exciting. You’ll keep us posted right? Let us know what happens.

Grimes: Yes.

Smith: I think that’s a great way to do it. I would love to see what you’re doing and how you’re
doing it, and what comes out of that. Well, great case studies, fantastic projects, good
discussion. I will take the time remaining to recommend that folks out there in the
viewing audience send in those questions, comments, emails, fax or call us on the phone,
and we’ll be back in about ten minutes to take those questions. See you then.

***

Smith: Welcome back. This is the time in the program when we take on your questions, and we
have got a bunch of them. They have been coming in one after the other. We spent the
last ten minutes looking over them and making sure that we could answer some of them,
and trying to pick out the best. The first question comes from Den West in Atlanta, who
works for the Environmental Protection Agency, and he asks the whole panel this
question: What types of projects should realistically have a more rigorous indirect and
cumulative impact analysis, and should level of NEPA be a trigger? I guess he means,
does it make a difference if it’s a categorically excluded EA or an EIS in terms of indirect
and cumulative impact analysis? Panel?

Carlson: Well, I’ll take a shot at that. And I’ll see if you agree with me. The idea is that for an
environmental impact statement, that you are dedicating your resources to the most
rigorous analysis that you can provide. For an environmental assessment, which would
lead you presumptively to a finding of “no significant impact,” I would say that certainly
an indirect and cumulative effects analysis is necessary, but that I would anticipate that
because you are doing EA, the resources that you’re impacting would be far fewer, and
you would not necessarily have such a broad range as you might have with an EIS. So the
scope and context of your analysis might be significantly smaller than you would have with an EIS. And with a categorical exclusion, I am not sure what [Federal] Highway’s rules are about that, but again, the idea is that you’re not even having an impact or a significant impact. So therefore, you wouldn’t really spend a lot of time on that.

Smith: Okay, anybody else want to jump in?

Pesesky: I think since the topic is transportation projects, I think the thing about the transportation that is probably the most important driver for the indirect effect, is change in accessibility, whether it is rail accessibility to an area or highway accessibility to an area. So I would look at the degree to which access of a community or an area to the transportation system, and then to business districts and other places where people want to travel. To what extent that level of access is being changed, and the greater degree that access is being changed, which he probably means the more quickly people will be able to travel from an area to get to a downtown business center probably, the more rigorous analysis you want to do. And then you tie that in with the sensitivity of the resources, which quite often means how susceptible those resources are to degradation or change.

Grimes: In North Carolina, the approach that we’re taking is that we’re screening all transportation projects in accordance with our guidance, and new location projects get the most rigorous analysis. But we still start the eight-step process on our widening projects, and we will kick out of the process whatever step we’re in that shows us that we’re not likely to have an indirect effect, then we end the process at that point, but we are taking the approach that every project is screened.

Plano: I think just one final comment if I could, and I agree with everything that’s been said. But I think any project where you have a large potential for land use changes, combined with a host of valuable resources, and on top of that, an area that is undergoing change at an outlying area, the urban/rural demarcation line if you will, I think those three in combination would perhaps deserve the most rigorous analysis, because just the combination of all of those influences together put that area most at risk, I think. So it’s weaving together the resources out there in the land, what changes you expect and also, as Gail is mentioning, going parallel with the NEPA process to see how the documents match up to that.

Smith: Okay, what I want to do on this subject is to connect a comment that comes in from Matt Siebel in Salt Lake City, who asks a question. He recognizes that indirect impact analysis and cumulative impact analysis are different things, and he asks us if they are different things, and if we are saying they are different things, then why are we lumping them
together in this discussion? And I think if we address that question and then go back to the project or document type with this same thought, indirect analysis versus cumulative impact analysis, I think we may even provide more information.

Matt, you are absolutely right, they are different things. We do it out of convenience and out of tradition more than anything else, because they’re both complicated, they’re both complex. And if you look at cumulative impact being the total effect, and you could consider indirect and cumulative impact (and direct impact for that matter) as a subset of cumulative impacts. But in terms of analysis and documentation and telling the story is where we like to see them different, because it gives an indication of what we’re looking at and it tells the story in the way that the story should be told. So, we go back to the question about project and document types, and we should look at indirect impacts separate from cumulative impacts. And I would do it in this way: at least for me, my first reaction is that cumulative impacts ought to be a consideration regardless of the action. You ought to look at them in an environmental assessment, and you definitely should include them in an environmental impact statement. However, two different degrees of analysis, two different levels of detail, because the decisions that you are trying to make in those documents are different.

Indirect impacts, on the other hand, are different because they are about the relationship of land use, the effects of change on the implementation of the project. Not all projects are treated the same, or will have the same relationship or potential for land use change, regardless if they have other significant impacts or not. So I think scope is very important in this regard, and understanding the scope of the project is important in order to make those types of decisions. I would dare say that any EIS will have a cumulative impact analysis and an indirect impact analysis. It is almost a given, but there may be situations. Any reactions to those comments?

Plano: Even from a category exclusion standpoint, by definition you are looking at whether the project has individually or cumulatively a significant impact. So maybe you’re not doing an analysis per se, but you are at least asking yourself the question of whether there are cumulative impacts out there. And I think what Gail said is right on, you’re going through a step process almost like you’re defining what type of document you use, so you start out at one point; if you, at one point, stop and say, “I’ve probably got enough information and it’s going to be this type of document,” that’s fine as long as you do that in a conscious effort, and do that with your partners and agree to that. Larry if you want to add to that…
Pesesky: Sure, Steve, thanks. I think just for practical purposes, too, because the line between what is indirect and what is cumulative can often be blurry. Rather than spending the time to try to figure out, well, is this an indirect impact or a cumulative impact, let’s do the analysis. It’s going back to the presentation I made. There are a number of factors that influence where development occurs and when it occurs, highways being one of them, but water, sewer availability, and all of these other influences are important as well. And those really are more on the cumulative side rather than on the highway indirect side. So I think because the blurriness about what is really influencing change in an area, it becomes so blurred. Rather than spending the time trying to decipher if this is indirect or cumulative, do the analysis based on the information you have to paint the picture about what the future is, highway project with all the other activity, and then look for what can be done to ameliorate the conditions if it’s necessary, and then you might want to step back and say “okay, fine.” If the highway influence seems to be preponderant, it seems to be the limiting factor to what may happen in this area, then your emphasis with the mitigation is going to be more on what can you do with the highways project in terms of access location and design features. If the preponderance is more on things that are happening locally, regardless of what is happening with the highway project, then the focus with the mitigation really needs to be on what the local communities and municipalities can do to institute controls and take measures.

Grimes: I think the Monroe project shows how important it is to look at the cumulative effects, because when you look at indirect and direct impacts, you’re looking at what is associated with your project. And for a sensitive resource, you may be getting a relatively small part of the picture if all you look at is your direct and indirect effects. And when you bring the cumulative impacts into it, it may change the picture entirely as to what has happened in the past. Your project may not have a lot of significance as to the damage or to the survival or the effect on any particular resource, but when you look at everything that’s happened in the past to that resource, it could change the whole complexion of the project, which is what happened with Monroe.

Smith: Okay, should we take another question? To change subjects a little bit, this question comes from Harold Draper, who works with the TVA in Knoxville, Tennessee. I happen to know Harold fairly well, and he makes a comment and then a question. He says, “it seems that natural resource data as compiled at the eco-region level,” and I would say at the project level as well, “should influence outcomes and alternative selection and may depend on boundaries selected. Could you comment on how to define geographic
boundaries for analysis, eco-region, watershed, human community, and can we standardize boundaries?"

Plano: I’ll start out. I think the word “standardizing” is probably something I have a little issue with, just because every project is really unique. Every corridor is unique. The resources in those areas that we’re looking at are all individual, and I think we need to treat them uniquely so. In the engineering field, we try to standardize things as much as possible, because it’s helpful and it’s easy sometimes, but secondary cumulative effects analysis is not easy. I don’t think that it should be easy, and I think it still goes back to what Larry mentioned earlier about scoping, and really helping in a group atmosphere to define those boundaries, and it’s really asking yourself, continuing with the question: is this watershed far enough out to capture what the impacts are going to be from an indirect standpoint, and also a cumulative impact standpoint? And the people who know that are the people who are responsible for those resources. Those of us who write NEPA documents, we may have an expertise in one particular area, you can’t be an expert in everything. And going to Fish and Wildlife, for instance, and asking them these open-ended questions, obviously there is going to be some give and take, and that’s okay, but I think it is really important to accept the fact that there is a lot of help out there for helping to find geographic boundaries, and that’s just one aspect as I mentioned earlier in the I-270 study. It’s also census tracks, it’s area of traffic influence, so at some point if it helps you to have a working session for four to eight hours with maps in front of you to develop these boundaries, great. I think that’s the way it can be done and just go at it.

Smith: Anybody else?

Pesesky: I guess I would just add, the watershed is becoming for me a very important resource to look at, because it seems to encapsulate a whole bunch of things that are happening with the land, it’s not just the stream itself, but what’s happening over the landscape that drains to that watershed or sub-watershed area. And what growth often boils down to is how much pavement is being constructed here and how’s that going to change run-off patterns and the pollutant loadings carried into the stream, which once you make those calculations, you can then look within the stream itself how that habitat is going to be affected. So it seems as though the whole watershed approach is looking for ways to link up watershed planning and watershed analysis techniques, which I know there are a lot out there borrowing from other expertise outside of transportation, linking those with transportation expertise and demographic expertise, I think is a wise way to proceed.
Carlson: I just would add that, keeping in mind that depending on the resource will depend on the scope of your boundaries, and in certain cases, depending on the effect on the resource, will make that definition for you. So it’s not always going to be the same. And it is certainly not going to be the same between indirect and cumulative impacts. Your indirect impacts might only take you out so far in a geographic scope, whereas now that you’ve gone that far with your indirects, you are now into a broader scope, a wider geographic boundary in your cumulative impacts analysis, if you had only just looked at the direct and then right to the cumulative. So you do have to keep in mind that the different impacts do carry with them different geographic boundaries, and recognizing that as a challenge.

Smith: Yeah, I think geographic boundaries are today different than we used to think of them. You know, we used to be real good about drawing a circle around something, and you say “that’s it, that’s our study area, and we’re only going to look at what is within that study area” – something that I have always cautioned people about doing, because in doing that, if you say we’re only looking outside of this, it limits your analysis to something that might be arbitrary. So what you really need to do is you need to look at something, Steve you mentioned earlier, is traffic influence area. I think that’s some place to start recognizing that there are a number of different boundaries we need to determine.

We begin with a study area boundary or the project influence area boundary in an iterative way, come back in and lay on top of that the resource boundaries which could widen out or shrink in our study area of boundaries, but you’ve got to take into account those boundaries. Boundaries are going to be different for every type of project, for every type of resource, for every area, and you need to begin thinking about that as early as possible, and be willing to expand your boundaries, your study area, if you need to do that and you can’t do it by yourself. You need help from others. You need to talk to resource agencies. You need to talk to others about what those boundaries should include for analysis. It’s part of the decision that we need to make at the outset of the NEPA process to identify and agree on resources and the boundaries of the resources. And then there’s temple boundaries, which we’ve already talked about earlier today.

Should we go to another question? I’m holding the tough ones for later. Well, this is kind of a tough one, Robert from Dallas, and it is addressed to me, but I am going to give anybody a shot at it. “How is a transportation agency supposed to provide compensatory mitigation for impact outside of the right-of-way of a project?”
First thing I’ll say, it’s probably not a problem. Compensatory mitigation or the mitigation of impacts would be related to the impacts, it won’t be related to where the right-of-way is. So, I don’t think there is a problem. Robert, if your problem is, “do I need to mitigate or is it okay for me to mitigate, or am I required to mitigate outside of the right-of-way?” I certainly don’t think there’s a problem. If you mean something else, please send me another email and I’ll take another shot at it.

Carlson: Let me see if I can’t turn a twist on this and I’ll ask the question. Do I have to do compensatory mitigation for an impact, either indirect or cumulative, that does not occur within the right-of-way?

Smith: My answer to you would be: it depends on the impact, and indirect or cumulative, related to the project. I don’t think in or outside of the right-of-way is the issue, though. I think it has to do with responsibility for the impact related to the action. It also has to do with what opportunities are available. I suspect that context sensitive solutions is one of these things that goes a little bit beyond the mitigation or compensation of impacts, that are just narrowly defined as actually caused by the action.

Pesesky: If I could add too, Lamar, some of this may be happening unintentionally, or maybe wasn’t conceived of when the projects were being planned. A couple of examples I can think of, one is where the interstate was constructed to improve travel in an area that was already served by a facility that did not have limited access, but was a commercial corridor for an area. So here you’ve got an interstate that’s parallel to an old US highway commercial corridor, and the business life of that commercial corridor goes down after the interstate is built, because the traffic that used to use the commercial corridor to get back and forth now is using the interstate to get back and forth, and that those businesses don’t have the visibility they used to have with the traffic. What I am seeing in a lot of places is that DOTs are going back into those places where they’ve noticed this happening, and investing money in doing context sensitive solutions in those commercial corridors, which in some cases maybe became seedy, and making landscape and sign posts and other types of context sensitive improvements.

That wasn’t contemplated when those interstate projects were being planned, but as a consequence of the effects that these agencies have seen of these interstate systems, they’re going back to the old parallel routes that need something to help make them viable as a commercial basis, and highway agencies are using within the ability they have to spend money to spruce up those commercial corridors. That’s something that I think that you know now, maybe this pattern is being noticed that it can be anticipated. Now in
the future, if similar situations come up like, I don’t know, with Monroe Connector, Gail, if one of the alternatives would bypass the existing commercial corridor, maybe something needs to be done within that existing US 74 corridor to maintain commercial viability, if that’s an option.

And something else I have seen too, if you don’t mind me adding, beyond the right-of-way, is where highway agencies have invested money, seed money, for local planning efforts. I have seen it in Pennsylvania and New Hampshire, for example, where it is out of the right-of-way, but it’s highway money being invested to help communities that might be affected by a highway project, who maybe don’t have a strong tradition of planning, to give them the seed money to do the type of planning that is necessary to develop the controls for what might happen after the highway is built.

Smith: Okay, do we need to talk anymore about mitigation? For me, I think it is a very complicated issue. I don’t think there are any definitive answers. I mean, we can make statements about policy and we can make statements about what regulation or what law requires what mitigation. It may be somewhat open to interpretation. For the Federal Highway Administration, it has to do with reasonable public expenditure and actually caused by the action, but even that policy has been redefined over time, based on the idea of environmental enhancement and stewardship, which I’ll tell you is one of FHWA’s vital few goals. The stewardship of an environment, being good stewards. But on the other hand, I am not sure that we could force a DOT to compensate for impact that they’re not definitely responsible for, or cannot control. Regardless of whether there is a close or a far apart relationship to those impacts, it is a very sensitive issue. It may fiscally strap state DOTs, and I don’t know that we can answer the question about mitigation, but to think about what it means to the environment and think about what it means to being good stewards of the transportation infrastructure as well.

Shall we take another question? Okay. This one comes from Kim Light and the question is: “Who (agency decision maker) will ultimately decide when reviewing an indirect and cumulative impact how much long-term impact is enough to stop a project? Is it an agency permitting that action that defines the threshold?” I think some of the question got cut off; let me see if I can reframe it: What degree of long-term impact is enough to stop a project? Let’s ask it like that.

Carlson: Well, the idea is that there is, it’s not a question of stopping a project, I don’t think. I think really the question needs to be asked is: what degree of long-term effect is the
overall community, the human community or the resource community, willing to withstand?

Smith: That’s a good point.

Carlson: So it’s not necessarily stopping the project, the projects can still go forward, but I think the recognition needs to be put in place, and certainly is critical in any of the document. I think that the burden of a cumulative impacts analysis really falls hardest on Federal Highways in disclosing that. It is even more critical, that kind of analysis and disclosure of the resource’s tenability, its ability to maintain itself. In Gail’s example, the mussels, I think that’s a great example of you identifying that the community is on the verge of something traumatic, and it’s not necessarily a question of stopping the project, but taking that into recognition and then maybe convening a host of agencies with an interest to try and understand what are the things that we can do collectively, cumulatively that can be brought to bear to remedy the situation. It’s not just the DOT that’s in question, but it is also the interest of the county, the local municipalities, and the state divisions of environmental protection. But I think what’s remarkable is that Gail’s agency went forward and went ahead and did that identification in a very public way, and I think that’s really the critical thing that needs to be asked in doing that kind of analysis.

Plano: I would also add that we talked about alternatives earlier, and what David said is absolutely right: you’re looking at the resource that’s under stress, but you’re also perhaps refocusing your project and your alternatives to a point where maybe there is an alternative that helps from a standpoint of less stress on that resource or cluster of resources, so as much as we can, if it directs how your alternatives are developed, even going back as far as scoping, that’s a positive thing. You may learn some very useful information at scoping that you might not normally find out when we were basically looking at direct impacts in the scoping process years ago. So I think it is a very positive thing to do up front; better get the bad news now, early in the process, than later. I think most DOTs would agree with that. They would want to know it as early as possible.

Pesesky: I have a question here. This is from Myron Phillips with SMA, which I guess is a consulting firm in Seattle, Washington. “Could you further define ‘highway maturation?’” I think if it didn’t state it on the slide, what was intended was highway system maturation, not individual facility maturation. What I mean by “highway system maturation” is, as an area is urbanizing, transportation facilities are being constructed commensurate with that urbanization, whether it is freeways, expressways, transit systems. And over time, the urbanization of the area is going to begin to slow down. This
is what is happening where I live in northern New Jersey and New York City. You’re not going to see much newer rail systems or highways systems, freeways and expressways, being built in that area. That doesn’t mean that you’re not going to have transit projects or highway projects, but the structure of the system is in place. The arterial, the freeways, the expressways, the rail lines, and once that structure is in place, then little tweakings of the systems, better connections may be better, you know, some interstate, some interchanges that might be needed.

The effects of those tweakings of a system that has basically had its fundamentals in place will probably not have as great an effect over the region as the construction of these freeways, expressways, and rail systems did when they were initially constructed. That is not to say that there isn’t a potential for indirect and cumulative impact from these tweakings of the system, with new stations or new interchanges, but the range of those effects are going to be much more localized, because the regional access and the regional mobility have already been put in place by the mature system, the one that has been pretty much built out, and the tweakings are going to have very localized effects. So, I hope, Myron, that that helps clarify what “highway system maturation” means.

Another question that Myron asked here, or example he provides, is a highway corridor widening project through a city that impacts businesses because of loss of access, loss of parking, loss of visibility; would this mean that the highway has matured? Again, I was talking about system maturation and access and mobility throughout a region, not a facility itself, and I think the facility itself, yes we have widening projects and signalization projects and turning lanes put in, and these do impact on businesses, but I think in the parlance of direct, indirect and cumulative, the impacts of a widening on adjacent businesses are generally direct impacts. But if they are important impacts, they need to be looked at, however you categorize them: direct, indirect or cumulative. But I think that’s a different type of impact than the one we’re talking about, with changes in accessibility and how that influences land development in an area.

Smith: Okay, great, thank you. We had two different questions come in on the mussels, Gail, and they are both very similar. So here’s the question from Chris Porter from Cambridge Systems. Chris asked Gail: “If mussels had not been present, would secondary impact still have been evaluated, and were there other concerns about impacts on water quality, land development, etc., with the Monroe County project?”

Grimes: Yes. We were doing an indirect and cumulative impact assessment, whether or not the mussels were there. It is our practice to do an indirect and cumulative impact assessment,
a rigorous assessment, on all new location projects. And the development that is occurring in Union County is tremendous with or without this project, with or without the Connector project or the Bypass project. So we wanted to look at the growth, the effect on water quality. In North Carolina, we have water quality rules, but we have to look at the cumulative effects on downstream water quality for our projects, so we would have been evaluating that with or without the mussels.

Smith: Okay, let me ask the second part of the question about the mitigation. And Kirk Webb of Carter Burgess in Denver asks, his question is about mitigation as part of the project, or is it more of a planning activity, part of the planning effort? I guess, is it upfront or will it be done post-project?

Grimes: The ordinances that US Fish and Wildlife has asked to be put in place, the buffers on intermittent and perineal streams, the density, these are minimizations, mitigations that the Department of Transportation has no direct jurisdiction over. So we are working very closely with the local municipalities to put these ordinances in place within the towns of Stallings, Indian Trail, Henby Bridge. And they will be part of our biological assessment, but the towns, the municipalities, will be doing this, not the Department of Transportation, because it is not within our jurisdiction. But they have been extremely cooperative with us, and like you said earlier, you can’t do it alone, and this is one case where you can truly see from the project that it is just not possible to do it alone. It had to be a joint effort among the federal, state, and local folks to try to protect the remaining populations in these two creeks.

Smith: Okay, because we haven’t talked much about documentation, we’re going to give that some time, and there is a question, and we have three minutes and thirty seconds left. “What is the level of effort expected in a tiered EIS process?” Which we can’t answer in three and a half minutes, but we get people thinking about this because I noticed a trend with some of the bigger projects doing tiered EISs. Any comments from anyone?

I have a whole bunch of opinions. I don’t know if they’re good, but I’ve got a bunch of them. There are different kinds of tiered EISs and they do different things. There are planning level EISs, and I think a tiered EIS could begin that process of doing a regional or a planning level study for cumulative impacts, definitely. I think we have to admit and recognize that tiered EISs are different creatures, programmatic EISs too, are different creatures than a stand-alone project EIS. There may be many projects that come out of a tiered EIS. There may be many different types of projects that come out of a
tiered EIS. So there is a different expectation of analysis, a different level, a different scale, if you will, a 25,000-foot versus 1,000-foot scale as an example.

Two minutes. Any comments?

Plano: I will just add one brief comment. I am not sure I know what the answer is, but I do know that we all ought to get a little bit smarter about tiered EISs. I think there are going to be more of them in the future. I think there are a lot of mega-projects out there, it seems like more and more. The projects are so large, but the counterbalance of that is that the funding is so limited in most states that there has got to be some creative way to move projects forward, so tiering EIS is probably something that we will all be doing a little bit more of in the future, and weaving secondary and cumulative into that early is something we probably ought to start talking about.

Carlson: I think with a tiered EIS, certainly on the programmatic level, you have a qualitative analysis in front of you, where you would essentially set out the boundaries and the framework under which you would do a much more directed cumulative and indirect analysis upon the next tier of the project. So that’s how you would establish your boundaries, establish your baseline, your framework under which you would do the analysis in your first tier, and then utilize that, build upon that and actually get the data, get the information, that you would present in the second tier for any individual if you are doing a segment-by-segment kind of operation, and I would see that as being the most appropriate level of documentation.

Pesesky: I guess I would just add that you might want to have the fundamentals, which is the population employment and maybe some land use information, coming out of Tier 1, but then you could do a more focused resource base analysis and transportation influence, individual project influence analysis, in Tier 2.

Smith: Okay, that’s it then. Thanks to our national audience for sending in those questions, very good questions, lots of discussion. I am sorry we only got to about one-tenth of the number of questions that actually came in. Let me promise that we will individually, or as a panel, answer these questions to the best of our ability, and those answers will be posted on the CTE website within the next two weeks or so. So, periodically go back and check CTE’s website for our responses to your questions.

I get to make closing remarks and summary, and I am so pleased to get to do that. I would like to start by thanking CTE for making this possible. I think it is a very important discussion. We need many more like this. This is a subject that’s not going away or shouldn’t go away, and we need to get a lot smarter on it. Secondly, I would like
to thank Katie McDermott for all of her help in making this happen, leading us around
and feeding us very well. Next, I would like to thank the wonderful panel—David, Steve,
Gail, and Larry—for taking the time to be here, and I guess I would be remiss if I didn’t
thank your employers for giving you the time to be here. So thanks to everyone. I’d also
like to thank everyone in the audience for joining us too.

And in closing, I have just a few remarks and observations I would like to leave
you with, and then I would like to tell you about one thing in particular that’s going on
right now. And I am going to start by saying that these are difficult issues. I don’t think,
or anyone thinks, that this is simple. It’s complex and there are probably a number of
reasons why we still look at these things as new emerging issues, even though they have
been a part of requirements since 1978, when CEQ issued their regulations or consider-
to-be priorities. They are complex and complicated, but perhaps not as complicated as we
might think, as long as we approach them properly, with common sense, understanding,
and reasonable expectation, that is focused on the purpose of the analysis and what it’s
intended to address and what it’s intended to reveal.

I would also like to remind you that everyone is struggling with these issues. It’s
not just us, it’s everyone. Remember why we do this. Remember why we’re required to
do it and remember what it accomplishes. This is about making decisions. It is about
making good transportation decisions, good environmental decisions. We’re both
stewards of the environment and stewards of the public transportation infrastructure.
Consider the value of facing these issues head on as early as possible. I recommend being
honest, diligent, open, and focused on expectations. And the needs, right at the beginning
of the NEPA process and the project development process, and begin to establish early
important resources for consideration. The boundaries, all the boundaries: geographic,
resources, study areas, temporal, being reasonable about temporal boundaries. Look at
methodologies, look at determining what methodology makes sense for the given
situation, come to agreements and understanding. Be willing to admit and accept.
Recognize that there are certain activities or decisions that are not ours, that land use
decisions are those of local agencies and not the federal government, and look for
opportunities to consider mitigation.

And then finally, I would just like to remind you about the activities of the
Executive Order 13274 Work Group on indirect and cumulative impacts, and ask you to
be looking for some products coming from that work group in the very near future. So
stay tuned for further information. That’s about all from here. I guess, back to Katie then.
McDermott: Thank you, Lamar. And on behalf of CTE, thanks to our entire panel, and thanks especially to you for participating in today’s program. I would also like to acknowledge some of the downlink sites across the country who tuned in today’s broadcast, including EPA’s Air Pollution Distance Learning Network. I must also recognize the tremendous efforts of the Agency for Public Telecommunications and the North Carolina Information Highway, who helped produce today’s broadcast and internet simulcast.

Just a few reminders before we leave you. As Lamar mentioned, we did not get to all of the questions that were submitted to this broadcast, but our panel has graciously agreed to take a look at them and respond in writing, and CTE will compile those responses and put them on our website. And I invite the audience, if you have any additional comments about today’s subject and would like to submit those to CTE to include on our website, please feel free to do so by emailing us at cte_email@ncsu.edu. Also, in about two week’s time, VHS cassettes and DVDs of today’s broadcast will be available. You can order these from our website. You can also view this broadcast in its entirety from CTE’s webcast archive. And as we mentioned in the beginning, online versions of the handout and the panel’s slide presentations are available for download as well. Please remember to complete the evaluation form in our handout, and turn into the site coordinator before you leave today, and web participants can complete the online evaluation form located on CTE’s website. We invite you to regularly visit our website and check our newsletter. For more information on the satellite programs being developed throughout the year, we invite you to join us again on October 27, when we will look at “Context Sensitive Solutions for Transportation,” and coming up in December will be “Transportation and Public Health: The State of the Science.”

Well, that’s our program for today. It’s been a pleasure being with you. Until next time, good night from Raleigh, North Carolina.

[THEME MUSIC]
[END OF RECORDING]