McDermott: Hello, I’m Katie McDermott with the Center for Transportation and Environment. This is CTE’s National Teleconference Series. The purpose of this live forum is to engage transportation and environmental professionals in a dialogue about current policies, research innovations, and best practices in the field. Today’s program explores the current state of the science with regard to public health concerns and surface transportation development. From air toxics to physical obesity, public health concerns and transportation are as broad as they are complex. As an industry, transportation and public health professionals are only beginning to understand the synergies that exist between these two important public policy issues, not to mention the scientific foundations supporting them. In today’s program, our panel will discuss what the science currently tells us about the transportation/public health relationship and how the industry can continue to build upon the body of research to ensure the effective consideration of public health concerns in transportation policy-making, planning, and project delivery.

We invite you to discuss today’s topic and share your experiences with our panel. You can use the numbers on your screen to phone or fax in your questions at any time during the broadcast. You can also email us at CTE_email@ncsu.edu. After the program, we invite you to participate in CTE’s new web-based After-the-Program discussion forum where you can continue to talk about the issues raised during the live broadcast with our panel and with the rest of the audience. The discussion forum starts at 4:00 Eastern Standard Time this afternoon, and will stay active for two weeks following the broadcast.
A few more details before we get started. First, I hope you’ve already downloaded the program handout and a copy of the panelist PowerPoint slide presentations from CTE’s website. If not, I encourage you to do so using the URL that will appear on your screen. From this site you may also replay this broadcast in its entirety through the CTE webcast archive or you can order a copy of the program on DVD. We’d also like to get your feedback on today’s program, and to do that, if you’re participating at one of the satellite downlink sites, you can complete the evaluation form located in your handout and turn that into the site coordinator before you leave today. Or if you’re participating via the web, you can complete the online evaluation form located on CTE’s website. We thank you very much for your attention to this.

Well, at this time it is my pleasure to introduce your moderator, Dr. David Belluck. Dave is the Senior Transportation Toxicologist for the Federal Highway Administration Headquarters Office in Washington, D.C. He is project manager and principal author for numerous studies related to public health in a built environment, including a new national project underway called What Works? Transportation and Public Health. Prior to his work for federal highways, Dave was the chief toxicologist for the Minnesota Department of Transportation as well as for the Wisconsin Department of Health and Human Services. Dave, welcome to the program.

Belluck: Thank you very much. Today we’re going to be talking about “Transportation and Public Health: The State of the Science.” We have with us today several superior people in the field, who will be discussing information issues, the science behind their professions, and their work.

First, I’d like to introduce our panel, and then I will give a bit of a discussion on what the panel will be discussing, and then a little bit of an introduction to the state of the science and issues surrounding it.

Our first person today will be Mr. Michael Savonis. He is Air Quality Team Leader at the Federal Highway Administration headquarters in Washington, D.C. Mike Savonis has been the team leader for Air Quality in the Office of Natural and Human Environment of the Federal Highway Administration since 1996. He has 20 years of experience in transportation with extensive experience in air quality and strategic planning.

Our next speaker is Dr. Daniel Wartenberg; Professor and Director of the Division of Environmental Epidemiology, The Robert Wood Johnson Medical School in New Jersey. His main research interests are in the development and application of novel
approaches to the study of environmental risk, pollution, and public health. His particular emphasis is in geographic variation, disease clustering, and the application of geographic information systems.

Our next panelist is Dr. Candace Rutt. She is with the Division of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health Promotion at the Centers for Disease Control and Prevention in Atlanta, Georgia. Dr. Rutt received her doctorate in Applied Health Psychology at the University of Texas in El Paso. Her research interests include cross cultural health and measurement, women and children’s health, body image, physical activity and obesity.

Our next speaker is Mr. John Sampson. He is Director of the Environmental Analysis Section in the Office of Environmental Services, Minnesota Department of Transportation in St. Paul, Minnesota. Mr. Sampson leads MnDOT’s Environmental Analysis Section, which supports numerous programs in the project delivery realm. He works in technical guidance, policy development, training services, wildlife wetlands, and other heavily scientific areas.

Our next speaker is Mr. Harrison Rue. He is Executive Director of the Thomas Jefferson Planning District Commission in Charlottesville, Virginia. He is Executive Director of the Charlottesville Albemarle MPO—Metropolitan Planning Organization. He is a planner, builder, developer, trainer, and founder of the Citizen Planner Institute. He has more than 30 years of hands-on experience in the field.

Our final panelist today is Mr. Richard Bell. He is Project Officer with Active Living by Design, UNC School of Public Health in Chapel Hill, North Carolina. He serves as Project Officer with the Active Living by Design Group, a national program of the Robert Wood Johnson Foundation based at the University of North Carolina at Chapel Hill. He has over 18 years of very wide-ranging experience.

At this time, I’d like to discuss a bit of the program. The first several talks will focus on science; what do we know? We’re going to look at the range of public health issues that move from air toxics to physical obesity. We’ll then discuss the science of toxicology. We’ll then also move onto the science of human behavior, which is extremely important and often not quite discussed enough. We’ll then move on to a panel discussion. We’ll have a break, and then we’ll talk about case histories and how science is informing transportation programs and projects on the ground. We’ll have plenty of time for discussion today, and I want to remind everybody that during the entirety of the program by email, phone or fax, you can reach us and ask questions.
Public health and transportation is an emerging issue of very large proportions. There is a rapidly expanding literature on the subject. Numerous meetings are occurring around the nation almost every week. You can read about it in your newspapers almost every day. Today we’re going to look at a very wide range of subjects and try to give you an introduction into the field so that you’ll feel comfortable discussing it with your public health people, your transportation people, your environmental people at the state and federal and local level.

I’d like to go right now to our first speaker, who is Mike Savonis, and he’ll be speaking on recent public health concerns related to transportation from air toxics to physical obesity. Mike?

Savonis: Thanks, Dave. Good afternoon, everyone. My job this afternoon is to give you a sense or an overview of the emerging issues in transportation and health that have become so very important to the transportation community. But I think in order to place those into context, I want to just start out with giving you a sense of some of the current health considerations that we’ve already been focused on for quite some time.

First, in the area of safety, the World Health Organization has called the number of highway fatalities an epidemic worldwide. And there are more than 40,000 highway fatalities in the United States each year. The Department of Transportation has really focused on this under Secretary Mineta, and we’ve made safety a priority. A reauthorization bill called SAFETEA proposes to spend one billion dollars each year for a total of $6 billion to improve safety on our nation’s highways.

Further, under Administrator Peters, we have made safety one of only three Federal Highway’s vital few goals; those that the entire agency is focused on. As many of you know already, air quality is something that we have focused heavily on at the Federal Highway Administration. The Clean Air Act has placed important responsibilities on the transportation community and provided funding for it. Transportation plans, projects, and programs must conform to air quality plans and for those of you involved in the conformity process, I think you know what that means. It’s a simple statement but a rather difficult in implementation. But in addition we’ve spent over $13 billion, and more than $14 billion has been authorized under the Congestion Mitigation and Air Quality Improvement Program. This program that was unique under ISETEA in 1992 is designed to improve air quality by making improvements to transportation. And then in a holistic sense, we’ve been focused on livability for a very long time in both the planning process and in the funding process. Bicycle and pedestrian improvements have been eligible

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under all of our federal aid programs for quite some time, and that constitutes more than $30 billion annually.

But let me give you a sense of some of the emerging health considerations. The first is mobile-source air toxics. These are an important new source of emissions. They’ve been around actually for a long time. They’re not new in that sense but it is a new consideration for the transportation community. I think it’s fair to say that the transportation agencies have already been challenged by environmental concerns, a lot of them stemming from the 1990 Clean Air Act amendments. Now we are being challenged to bring in health considerations that are addressing cancer and non-cancer impacts of air toxics, but also obesity and the built environment, and we’re looking at new ways of decision-making in terms of Health Impact Assessment or HIAs.

MSATs or mobile-source air toxics: a few years ago, EPA identified 21 mobile-source air toxic emissions. They are really a combination of volatile organic compounds and heavy metals along with particulate matter and some other kinds of pollution. A few years after that, EPA identified six priority mobile-source air toxics that are considered to be of special consideration out of the 21. These include diesel particulate matter and diesel organic gasses. This is a fairly complex pollutant that is both size-differentiated as well as everything that comes out of a diesel engine. The others are benzene, acetaldehyde, formaldehyde, acrolein, and 1,3 butadiene. You can see that there is a lot of overlap with the VOCs—the volatile organic compounds—that we’ve been focusing on for ozone pollution for quite some time.

So what are the health impacts of mobile-source air toxics? It’s undeniable that internal combustion engines produce chemicals that may have important health impacts. In sufficient concentration, MSATs can have both cancerous and non-cancerous impacts including respiratory and cardiac impacts. Benzene and diesel particulate matter are deemed particularly important for the transportation community as well as the environmental community to address.

What MSATs are fundamentally different from the other criteria pollutants? There are six criteria pollutants, three of which are important to the transportation community. Those are ozone particulate matter and carbon monoxide. These criteria pollutants, as they are called, have ambient air quality standards. And the transportation community has direct obvious responsibilities to mitigate these emissions. MSATs are different in this regard. They are not criteria pollutants. There are no ambient standards. And in fact there are no direct responsibilities under the Clean Air Act for transportation

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agencies to address these. But we do have responsibilities under NEPA—the National Environmental Policy Act—and challenges have been raised across the country that we should analyze potential projects for possible emissions and whether or not they would be increased or decreased due to the projects.

The Clean Air Act does regulate EPA or does authorize EPA to regulate MSATs, and EPA can regulate fuel and vehicle standards under certain conditions under the Act. EPA has been moving. They have put out two or three rules in the past five years and a new EPA rulemaking is expected in 2005.

Perhaps the seminal work in MSATs was the MATES II study—the Multiple Air Toxics Emission Study—that was done by the South Coast Air Quality Management District in California. That was released in March of 2000. It was a seminal study and it was an important study that indicated that there were very clear and direct cancer impacts of diesel particulate matter and other MSATs. But it was the first of its kind. MATES III is currently underway and I believe that the South Coast AQ&D is improving and refining its technique as it approaches this important study.

Complementing that, the Health Effects Institute (HEI) has an important study underway to do two things. In the first place, HEI wants to investigate whether there are hot spots associated with mobile-source air toxics. And then in a second phase of that, they want to determine whether these MSATs are harmful at the concentration levels that are normally found in the environment. Unfortunately, it will be several years before we have that.

It’s important to note that due to the rules that EPA has already promulgated, MSATs are expected to decline by as much as 90%. Diesel particulate matter, due to the heavy duty diesel and fuel regulations, are expected to go down by about 90%. The other MSATs, due to the Tier II regulations and other rules, are expected to go down by as much as two-thirds. Clearly this is an area where there is a lot of research—Federal Highway has research underway—and an area where we are still developing policy in terms of a nation and how we should address these important emissions.

Turning to obesity—the second of the topics that I’d like to discuss today—this is a slide that I stole from Dick Jackson at the CDC and this shows the obesity trends among US adults. Just to orient you on the slide you can see that the state of Mississippi down there shown in yellow or orange, they have obesity rates that are greater than 25% of the adults. The other states shown in red are indicating obesity rates between 20 and 24%.
Clearly, over time, obesity has become an important subject, and as Dave mentioned earlier, it’s something that we see in the newspapers very routinely. What is important for transportation, however, are the studies by Ewing and Lopez and others that have indicated that the built environment may be an indicator and a cause of obesity. There are these studies that indicate that because of our sprawling development, people are walking less, biking less, and getting less exercise, which is contributing to the obesity phenomenon. This has raised the call for bicycle and pedestrian facilities, and this is a call that the Federal Highway Administration certainly supports and has supported since 1992. This is something that we feel is very important, and the amount that we have invested with our state and local partners has risen seventeenfold since 1992 to $413 million this past year.

From a research perspective it’s important to note that we’re not really sure just how much the built environment contributes to obesity. There are other studies out there that indicate nutrition and lack of exercise may well play a role in this important area. And then, of course, for transportation, a very key issue is: even if we build these facilities which we do support, how many people will take advantage of them?

Some of the activities of note recently: “Active Living,” a very important new program that’s been fostered by the Robert Wood Johnson Foundation, came into being, and Rich Bell will tell us a little bit more about that important program a little later on—a $1 billion new program has been proposed. The Safe Routes to School that was introduced in the House bill and hopefully we will get one or the other of the reauthorization bills passed soon. The National Institute of Environmental Health Sciences has focused on the question of obesity in the built environment. They held a conference in May of 2004 and are planning another in 2005. And we at Federal Highway are also focused on it, and the Transportation Research Board will hold a workshop moderated by none other than our moderator, Dave Belluck, in 2005.

Finally you can see the What Works? logo that Dave is working on, as well in trying to bring together the transportation and health communities.

The last area I want to touch on is really more of a decision-making tool. Health Impact Assessments; ways of considering what policies, projects, and programs may have in terms of health impacts, is becoming an important topic. This is an approach that has been used in Europe. It’s gaining popularity in Europe, and we are focused on it with CDC and the Robert Wood Johnson Foundation to see whether or not we can improve the decision-making in transportation project and planning.
Some important questions, though, arise. First, can these HIAs better inform decision-making? Second, at what scale are they most effective? Is it most effective at the policy level, the program level, or down at the project level? And then finally, just how rigorous does the information have to be in order for it to truly change the way we make decisions?

In conclusion, I’d like to bring up just a couple of significant questions that I think are particularly important for the transportation industry. When does a good research project, perhaps something like the MATES II study, become the basis for policy and regulation? When are we certain that a study passes into the accepted science? Who makes that decision? Is it the Congress? Is it the administrative agencies in the Executive Branch, like EPA or even Federal Highway? What is the nature of the environmental and health harm? For air pollution, for example, is it a local phenomenon or is it a regional phenomenon? Is it an acute harm or is it something that is longer term? And then, most critically for the transportation industry, is: what can we do to effectively address this harm? Clearly, there are no easy answers, but, in conclusion, let me just say that better research and better science can clearly help us find better ways to make our decisions. Thank you. Dave?

Belluck: Thank you very much. We move on now to Dan Wartenburg, who will be speaking to us on the science of toxicology. When does a transportation factor graduate from an association to a causation, and what do these health effects mean in terms of public health? Dan?

Wartenburg: Thanks Dave, it’s a pleasure to be here. I’m going to try and explain how we in public health study health effects. And I’m going to be focusing on epidemiology and the ways in which we conduct studies to determine this. Epidemiology is the study of the distribution in determinants of disease in populations of people. In other words, we want to know who has it, and often we say person, place and time. How much do they have? And why do they have it? What are the risk factors? How can we understand this whole disease process? In looking at this, we’re motivated by two observations.

First, disease does not occur entirely at random. We know that there are patterns, we know it can be the demographics, can be due to lots of things, but there’s a pattern out there that we need to understand. And we know that disease risk differs from person to person. So by understanding these differences in risk and differences in occurrence, we can begin to understand—and something about the people, their personal characteristics,
be it genetics or otherwise, lifestyle, or environment—we can begin to piece together the
way different factors can affect disease.

Epidemiology actually began as a hybrid of medicine and statistics. What’s
important to note is that epidemiology is based on populations rather than individuals.
What I mean by this is whereas in medicine, when you go to a doctor and you’re sick, the
doctor tries to determine what’s different about you that is causing you to be sick. In
epidemiology, we look at groups of people and ask, what do they have in common, rather
than what’s different that’s causing them to have a different disease experience.
Epidemiology really began from physician observations where doctors saw patients
coming in with similar conditions, what we call a “case series,” and started thinking
about what do they have in common. While the validity of these anecdotal observations is
questionable, this has evolved into a science whereby we can really understand these
types of questions. So therefore the goals of epidemiology are to identify the causes of
disease and to test intervention to see what we can do to lessen the severity, improve
survival, and ideally prevent additional cases of disease.

There are different types of epidemiology, and what I’m going to talk most about
is what we call observational epidemiology. And what that means is that we look at
people as they are as they lead their daily lives. We don’t administer interventions, we
don’t tell them to do different things or avoid other things, but we look at the real world
the way it is and try and make inferences based on what we see out there, as this is the
most relevant approach to looking at how to affect peoples’ lives.

So how do we study how what makes people ill? Well, there are three different
approaches that I’m going to talk about real briefly, and the first is: we can look in the
laboratory, where it’s often called in vitro studies, and we can look at actual cell cultures
and determine the presence of chemicals and how they affect or disrupt cell function. We
can look at whole animals with in vivo studies—and you’ve probably heard of either rat
or mice studies that toxicologists do, I sort of call this “in the cages” —and there we ask,
“Does the presence of chemicals cause illnesses in these animals under highly controlled
conditions in the laboratory?” And the scientists control exactly what’s going on there
and exactly what the animals are exposed to. And third, we move on to epidemiology.

In epidemiology we look at humans, and there are two different ways we can do
this. We can first do what is sometimes called “experiments,” we prefer to call them
“randomized clinical trials,” in which chemical exposures, generally pharmaceuticals, are
given to people in a very carefully controlled randomized study where the only thing
we’re looking at is: does this improve somebody’s health? We don’t look at any things that might cause harm for a variety of ethical and related reasons. And these have been very important to understanding the impact of pharmaceuticals and moving forward treatment for people who are sick.

The other type of epidemiology to look at is what we call observational epidemiology. And in observational epidemiology, we look at whether chemicals and other factors in our lives and that we encounter day in and day out, whether or not they cause illness, and how that process works. Two examples of observational epidemiology, just to give you a sense of that, are the Harvard Nurses Study, which is study that’s been going on since the mid 1970s, and in this study the researchers have enrolled over 100,000 nurses who are sent questionnaires every two years, that ask about their health, their lifestyle, their behavior, their hobbies, their occupation as well as their health status. And from this vast amount of information, lots of analyses have been done to understand different risk factors and what happens to this population as they mature, as they get older, as new people come into the study, to give us a better understanding of risk factors from diet, exercise, occupation and so on. It’s been very, very valuable and you frequently will see articles in the newspaper about results of studies from the Nurses Study.

The second example I’m going to give you is from Migrant Studies. And these are studies where we’ve looked at people who move from one culture to another to see how their disease incidence changes over time. One example of this was studies that were done of Japanese men who moved from Japan to the U.S. Their stomach cancer rates were fairly high in Japan, and when they moved to the U.S., they started getting better. It started declining towards those of U.S. men. And the longer that their children and their children’s children had lower and lower rates. So what that told us is: it isn’t just genetics that causes disease, but in fact it was something about their behavior and environment that made a difference when they moved from Japan to the U.S.

Two important issues to consider when one looks at epidemiologic studies are correlation and statistics. In correlation versus causation, what we ask is, when we see a factor that might be associated with a disease, is it really what’s causing the disease or is it some other factor that really isn’t playing a role but just looks like it is? And we call this confounding. One example of this mistake that can be made is with firefighters. When you see a fire in your neighborhood or in your town, you might notice that when there are a lot of fire trucks there, there’s usually a lot of damage. Someone who didn’t
think about it much might say, “Gee, it’s those firefighters who are causing all that
damage.” Clearly, that’s not what’s going on. It’s just a more severe fire, so we need
more firefighters. So we saw an association, a correlation, that the number of firefighters
was associated with the amount of damage. But in fact, that wasn’t at all what caused the
disease; that was just a correlation. And we need to look further to understand that there
was some other underlying factor that caused that to happen.

We can also think about light bulbs. In this case, when you go and turn the light
switch on, you’ll see the light bulb go on, and you turn it off and it goes off. And you say,
“Oh, I understand how this works, there’s this great correlation.” But then there’s a storm
and the wires go down, and now you flip the switch up and down and nothing happens.
And again, we see it’s not just a simple correlation, but in this case, it’s a much more
complex interaction, and we need to recognize that a lot of the associations that we see
when we study health may be more complex than a simple turning on and off a switch to
cause or prevent disease.

The final example I’ll give, one of my favorites, is from a paper written by R.A.
Fisher, who’s one of the most famous geneticists and statisticians of the last century.
When there was a big controversy about smoking in the late 1950s, he wrote a paper in
which he talked about some of these problems with causation and said, “Maybe it’s not
smoking”—I should say he was a cigar smoker—“it may not be smoking cigarettes that’s
causing disease. Here’s an alternative: maybe it’s that people develop some sort of
precancerous lesion and that irritates their throat, and they have an inflamed throat, and
that really bothers them, so they smoke cigarettes to relieve that illness.” And therefore,
it’s in fact the disease that’s causing the smoking, rather than the other way around.
Again, we have to be careful and thoughtful in how we interpret data, and make sure that
just because we see certain associations, that doesn’t mean that they in fact are the true,
underlying cause.

We also need to look at false positives and false negatives or random effects
when we do these studies. And what that means is that sometimes, we’ll look to say that a
study actually is very meaningful, we say it’s very unlikely to observe what we saw if
there were not a true association. But sometimes, for statistical reasons, that can be the
case anyhow. For example, if we flip a coin, and we flip it a thousand times, and if we
look all the way through there, we might find a streak of five heads in a row. Does that
mean in fact that the coin is a weighted coin, it’s not a fair coin? Well, not necessarily,
we have to look at a larger sample, we might have to look at all thousand flips and say,
well there are five in a row, but in fact there were 492 heads and 508 tails, so in fact it looks like it’s actually a pretty fair coin. We could have the same sort of problem in the other direction, false negatives, where we fail to detect an effect even though it’s real, because maybe our study wasn’t designed well or maybe it wasn’t sensitive enough. And these are some of the issues that scientists look at in trying to understand results from studies they conduct and draw conclusions about them.

One systematic approach that’s often used to assess this notion of causation is based on a paper written by Sir Bradford Hill back in 1965, where he talked about nine aspects of causation. And in terms of this presentation, three aspects of that that are worth considering are one, the strength of the effect. And what I mean by this is we are much more able to identify risk factors when they’re big risk factors. So we know that smoking, for instance, is a big risk factor for disease. It causes lung cancer, and it’s very, very responsible for a substantial portion of all lung cancers. Air pollution, on the other hand, also causes a risk, but it’s a much smaller risk from what most people are exposed to. So it’s much more difficult to detect even though we honestly believe it’s a true risk factor. And we also have to consider what other risks may be confounding or mixing up our analysis that can cause lung cancer and confuse us, and we have to try and separate out all these facts.

The second aspect that Hill talks about is consistency of replication, that any individual study can get any sort of result, and it’s not terribly believable to an epidemiologist. What we want to see is many studies done in many different populations that get similar results. The idea is that all of our studies are imperfect, it’s impossible to run a perfect epidemiologic study, because we’re looking at people who lead their lives and do all sorts of things we don’t know about, and the multitude of risk factors. But if we see consistent results in different populations and we see similar effects, we begin to believe that through the series of many studies, it’s unlikely that they would all be telling us the same thing if it weren’t true.

The third aspect that’s important to consider is dose-response. The basic underlying concept here is that more is worse. And for just about every disease agent we know about, this is true. What that means, in part, is that our studies are going to be less sensitive to smaller effects, and that we really try when we design our studies to look at situations where there’s a lot of the risk factors, it’s very common in the population. That enables us to better detect and quantify the nature of the risk.
Let me now take this to some examples that have to do with traffic. There’s a recent study that was published this fall in the *New England Journal of Medicine* on traffic and heart attacks. The study showed that people had heart attacks within an hour, and they were three times more likely to, if they were in traffic and commuting, within an hour of having—looking at the commuting, having a heart attack within an hour of commuting. That was a very interesting and striking study, but the question that remains is, was the risk traffic? Was it commuting? Was it being in a car? Was it air quality? Was it stress? And we could go on with the list. What’s needed is more research to try and refine that.

There have also been a series of studies looking at proximity to traffic, how close someone lives to traffic, and adverse reproductive outcomes. Low birth weight, prematurity and the like. Here again, the many studies, they look consistent, but the concern is, “What is the real underlying risk?” And there have also been a series of studies that look at proximity to traffic and cancer and asthma, and there are similar problems there, and trying to really understand: what’s the risk, how serious is it, and what can we do? There’s a need for careful and thoughtful research to try and understand this.

So in summary, what I’d like to say is that observational epidemiology is very realistic and that’s its real strength and that’s its importance. But it has methodological limitations. Bigger effects are easier to find than small ones. One makes certain what the true risk factor is, and several studies with many subjects and similar results are needed to be confident that the evidence is consistent and meaningful. And we need policy analysis to then compare costs, benefits of the apparent hazards and alternatives. Thanks a lot. Dave?

Belluck: Thank you. What you’re hearing in the first two talks, you’ll be hearing throughout the day. The issue of sound science, transportation and public health is extremely complex. While scientists try and break down the complexity into smaller manageable units, we know that we have to look at it in these units and then build up to more complex understandings. One of the more complex areas is that of psychology, and Candace Rutt will be discussing that today in the science of human behavior. How do you get individuals to interact with their environment, why do they interact with their environment, and how do we get them to interact better with their environment? So I’d like to pass it off to you now, Candace.
Rutt:

Thanks, Dave. Today I’m here to talk to you about how individuals interact with their environment to influence transportation choices. Why do some people walk? Why do some bike? And why do some drive in their cars for almost all of their trips? I work at the Physical Activity and Health branch at the Centers for Disease Control and Prevention, and we’re interested in this because physical activity during transportation can be a significant source towards meeting the ACSM CDC recommended guidelines for adults, which recommends 30 minutes of moderate to vigorous physical activity on at least five days of the week.

There are four different areas in which people can engage in physical activity. One is occupational; do you sit behind a desk or do you do manual labor? Household physical activity, chores, cleaning, cooking. There’s also recreational physical activity, such as going out and playing basketball or taking a walk. Then you have physical activity that you get during transportation: walking to work, biking to work, walking to a transit station and then getting off that transit station and then walking to your destination. Typically, physical activity researchers have examined individual and social level correlates of physical activity, for instance, self-efficacy, or do you have someone to walk with, that’s social support. Only in the last five years or so have physical activity researchers started to examine the environmental correlates of physical activity, and that’s what I’m here to talk to you about today.

If we look at how physical activity and the environment interact, there are lot of different domains that you can examine. One is walking for transportation, and there are numerous studies that say people who live in high density, high land-use, well-connected neighborhoods are going to walk more for transportation. Also, those who own fewer cars per household are more likely to walk for transportation. But then when you start looking at walking for leisure, you see that those high density, high land-use, high connectivity have no effect, or you find different effects across studies. So you don’t see that same relationship with walking for leisure time. However, you do see things such as aesthetics and access to places to be active as being more important. As Mike mentioned earlier, sprawl has also been found to be negatively related to walking for leisure.

Then if you start looking at moderate to vigorous physical activity, once again, very little, very low relationships between density, connectivity and land use. Once again, access to places to be active if you’re _____ more important. Finally, when you start looking how the built environment influences obesity, you see slightly different correlations with variables. Density, land use, connectivity, very inconsistent results,
nothing very strong. However, when you look at more global measures of the environment, such as sprawl or walkable neighborhoods, you start to see an association: more sprawl, more obesity. You also find relationships with car ownership and time spent in car. The more cars you own, the more time you spend driving, the higher your risk is for obesity.

You have to keep in mind that there are really only a handful of studies at this point. This is a new area of research and the results I’m talking about, we don’t have a large body of literature to support this at this point. There’s a lot of research going on like the Active Living research, and a lot of people are now starting to use these environmental variables to help explain more variance in physical activity. There are also reasons why we could be seeing inconsistencies across these studies. Number one, there’s no standardized way to measure a lot of these variables. You can measure land use differently, you can measure connectivity differently. Researchers in the public health field, we’re trying different measures, different people are using different measures, and that could account for why we’re finding different results across the studies.

There’s also poor agreement between subjective and objective measures of the environment, especially when you’re defining your neighborhood or your community as several miles. So we really need to understand how people define their neighborhood and how accurate they are in knowing what’s in their neighborhood. In addition, the urban form variables, you see a lot of inner correlation, typically areas that are high density, have high land use, and high connectivity. So we have to learn how to parse apart and really figure out which of those variables is influencing behavior. Finally, a lot of the transportation studies don’t include those psychological variables that could be acting as mediators or moderators in that relationship. You just measure the environment and then percent walking, without looking at how the individual is interacting with that environment. And finally, you have the problem of self-selection into neighborhoods. People who like to walk may be moving into those high walkable neighborhoods. People who don’t have a preference for walking may move into neighborhoods where they don’t have sidewalks because it’s not important to them in their decision to buy that house.

When you look at the individual level differences, you find that transportation and physical activity differ across ethnicity, gender, and socioeconomic status. Just to give you a few examples, they find that people with lower incomes, the most important thing for them that influences their walking in one study, was having aesthetic scenery, having a pleasant walking environment. But that same study found that when they looked
at the people with the high incomes, they found that it was having sidewalks was the most important factor. So it’s very important that you need to start looking at the differences across gender or across income levels. Another interesting finding that Ross and her colleagues reported was that even though individuals in the poor neighborhoods are more afraid of walking, they walk more frequently than those in the higher income neighborhoods, probably they don’t have access to vehicles and they have to walk out of necessity.

There are also other reasons why we could be seeing these inconsistencies across the studies. Residential locations are chosen partly on desired travel behavior. If you want to walk or bike to work, you’re going to live close to work. If you want to ride transit, you’re going to pick a home that’s close to a transit station. And researchers have tried to cluster these desired travel behaviors with individual demographics. They find that they do cluster, you have distinct clusters of demographic and behavioral variables with the types of transportation modes they choose. Also, what you see is those attitudinal demographic variables are very strongly associated with how people—the mode of transportation that they choose. Typically, people who have a very strong environmental—they’re going to choose walking and biking and transit probably more, over taking a car when they have the chance. Or those of us who feel that physical activity is important. I might be more likely to walk than someone who doesn’t value physical activity. So you find that those individual characteristics in demographics are very important predicting what people do.

There’s only been one study that’s looked at how—moving, the only longitudinal study that looks at travel behavior before and after a move. What they found, interestingly, is people tend to move into the same kinds of neighborhoods. We’re very set in the type of neighborhoods we like to live in. If you live in a high density area that is highly walkable, chances are you’ll probably move into a very similar neighborhood if you move to a new city. The only difference they found in walking and biking was those who went from a low auto-dependent neighborhood to a moderate auto-dependent neighborhood. Those people actually walked and biked less. And that was the only difference they found. They looked at across all the different types of neighborhood shifts.

Also what they find is when you’re deciding on what mode you’re going to take, travel time is the most important predictor. If it’s going to take you 20 minutes to walk, and five minutes to drive, chances are you probably will drive. Handy [ph] found that out
of vehicle travel time is considered more costly than in-vehicle travel time. However, this could be moderated if it was a pleasant trip, if there was aesthetics and park benches and it was an interesting enjoyable walk. You might be more likely to walk that 20 minutes as opposed to getting in your car.

When you look at physical activity, as I mentioned, people have looked at individual, social, and environmental. The state of the literature right now, the individual and social variables are better at predicting physical activity. As I mentioned before, this environmental field is relatively new. And we need a lot more studies before we can definitively conclude which classes of variables are the most important in predicting behavior. Once again, in the studies when you’re trying to determine physical activity or travel behavior, you will need to explain maybe about 30% of the variance, and I think that may be due to the fact that physical activity researchers haven’t traditionally included the environment, and your transportation researchers have typically only included things like maybe income or gender, but they haven’t looked at the individual psychology at a deeper lever. So I think we both have things to learn from each other and incorporate in our studies. So after reviewing all of this literature, I think that a supportive environment is necessary but in itself insufficient to increase physical activity. You need the supportive environment, but you also have to have people who are going to go out and engage with that environment and be active.

The community guide to preventative services, they do evidence-based reviews of different interventions to promote physical activity and see which ones are strongly recommended, or which ones really just aren’t working at all. And we actually have three that are recommended for the environment. You have enhanced access with an educational component, letting people know the trail is out there and encouraging them to use it, so you have to have both with that one. They’ve also just recently approved community scale design and street scale urban design, so how you design your neighborhoods and your communities have just gotten accepted as being important factors that influence physical activity.

Today I’m here to recommend a paradigm shift. We need to start looking at the environment and the individual and how they interact in order to determine travel behavior and physical activity. We need to not just look at these and control for them as co-variants, we need to look at how they interact, looking at mediators, moderators, we need good, multi-level models. They can look at the interaction between all of these variables or we may say, you know, high density is—affects it this way, but if you don’t
control for the individual socio-economic status, you may come to the wrong conclusions. Because if you don’t measure it, you can’t examine the relationship. So I think we need to include those individual-level variables and the environment in this emerging literature, because if we don’t look at how all of these relationships and people interact with their environment, we may come to the wrong conclusions. I think it’s very important that we start thinking out of the box, physical activity researchers and public health people start looking at the environment and the transportation researchers start looking at the individual. And you’re starting to see that in some of the emerging literature and in the conferences that we’ve been going to, where public health people are talking to transportation people, and I think we need to continue along those lines and forge those relationships. Dave?

Belluck: Thank you, Candace. A few housekeeping chores before we go into a short discussion and panel and then we’ll go to a break at about 2:00. Please make sure that you email us at CTE_email@ncsu.edu with your questions. You can phone us at 1-888-228-6376 or fax your comments and questions to 919-715-3569.

What I’d like to do in the next few minutes is to discuss: how does sound science fit into transportation decision making? And to start it off, I would like to look at the way it is done at the federal, at the state, and at the local level. So I’d like, if I could, to ask Mike to start, followed by John Sampson and then Harrison. If you could give your view of how this works at the different levels that might be very useful for our participants today.

Savonis: Well, Dave I think that we should start with science, and to a great extent it does start with science, in terms of understanding behavior and how to meet travel demand from a transportation perspective. Unfortunately, we don’t always look at all of the appropriate variables and I think some of the points that Candace just made are very important in terms of looking at the individual and understanding individual behavior so that we can create the transportation systems that are necessary.

At the federal level, transportation agencies are driven by policy, and policy starts with legislation and regulation and guidance. And that should be based on the best science that we possibly have. Sometimes it is, sometimes other intervening variables come into play. I think many of the states and localities take their cues from the feds, but then in addition their own programs can be just as effective if not more effective for their locations and for their circumstances. And they may bring in other elements of what they
need to address in order to meet the travel demand in the most environmentally sensitive and safe way that they possibly can.

Belluck: Thank you. John, could you provide us with some insight from the state level, please?

Sampson: Well, Dave, as you know when you worked for as at MnDOT, we pretty much turned you loose to get us data and in a transportation agency since most of the people and decision makers are engineers, they rely on a lot of data and certainly the present administration, I know my boss, and my boss’s boss in particular, relies heavily on data. It always comes back to performance. And so without that, there is no way to document or no way to defend our actions. And so we’re constantly looking for data. We’re constantly looking for good answers in order to support the decisions that we do make.

Rue: Harrison, how does it work at the local level? I think at the local level those of us in the field, we kind of see ourselves, to use a health term, as general practitioners. In other words we look to the research but we’re in the field, we have to make judgments based on what we see. I like to think of our approach in Charlottesville as really combining the best federal policy we can get, the best research, and then using that sound science to make better local decisions both in terms of investments.

Going back to some of the stuff that our previous talks said, the question of, “If you build it, how many will come?” But we actually analyze local Charlottesville neighborhoods that are different from each other. We also do models and things like that where we look at the different kinds of places. In our suburban neighborhoods, 2-3% of people walk. According to the self-reported on the census and in our downtown Charlottesville neighborhoods, 16-48% of people walk to work, self-reported on the census. So we look at the kind of places that are different in our local community and while we do some individual research, we go ahead and make some priority investment decisions on our transportation to build in choice into the system. That’s our biggest lacking issue. And if you go to your psychology, Candace, people need to go places. Most people walk in our area because they are trying to go from one place to another whether it is to work or to play or to shop.

Belluck: Dan, from the academic viewpoint; do you think that transportation folks understand the science? Do you think that they understand the difference between sound science and cutting edge science or purely research level science?

Wartenberg: I think they do. I think like any issue in any group, there are different levels of understanding and different levels of appreciation. I think that when we look at some of what’s going on it’s clear that people in highway departments and dealing with
transportation issues do understand some of the issues. They do understand some of the science. But even among my colleagues, we don’t all understand all of the science and there needs to be better interaction to one, help scientists better understand the questions, and then to have scientists help people in transportation better understand the consequences of the research that’s being done.

Sampson: Dan? If I could just break in and piggy-back off of what Dan is saying. Often what we were looking at within MnDOT is that maybe the top decision-makers don’t quite understand it as much and then whose like myself who are somewhat in the middle rely on someone like you to explain it to us so that we can sort of be that interface and provide that information that they need to make decisions. So it really isn’t that they don’t understand it, they just don’t understand enough. And then we need to translate it into a language that they can understand.

Belluck: Rich, when do you think that there is enough science to make sound science decisions? How is it viewed from your community?

Bell: Well, this is my own personal experience that I don’t know that you can judge it on how much science is good. I think often decisions are made when all of the science isn’t yet there in communities and I think sound decisions depend on what data you’re looking at. Certainly the transportation field is full of problem-solvers who are good at bringing data to bear on a problem. But I think what we’re here to talk about today, for instance, is the problem has been framed differently in the past. It’s been framed as a congestion problem or a problem with throughput of automobiles. And now we have a new problem. We have problems of health and quality of life and as we get more data, I’m sure that people will adapt and be able to use that data. Today I think that there are a lot of decisions that only use part of the available science. And that’s what I think we’re seeking to improve.

Belluck: Given the way that science is constructed and the way that scientists work within their own communities and then with decision-makers; how do you transmit the understanding that 1) the science you’re presenting is really good science, and 2) that it is sufficient science from which to invest billions of dollars in transportation infrastructure changes?

Wartenberg: Well, those are real tough issues that you’re raising. I think as anybody who—any scientist, anyone doing a study of course like sot think that they are doing good science and doing sound science, and there are lots of processes we have to evaluate the quality of the science and the thoroughness and its applicability. But it’s also always open to question. I think when one starts moving into the realm of policy and deciding how do we decide when to spend money, how much money and how big should the changes be, we
start moving that into the realm of policy and the interface between science and policy. There are many different models for how that works, and I think one has to explore many different avenues to see how it works and to test some of the interventions.

I would, in general, not recommend that, on the basis of a couple of studies, that we go out and spend $8 billion to change something. I think we’d want to know that it’s going to work, that it’s going to have an impact, and the kind of impact that we think it’s going to have, and a sense of the real cost and escalate or increase the emphasis on that as we get positive results. Sometimes you don’t get the results we expect and then we can redesign based on our knowledge and based on our data and end up coming up with yet a better solution that does work and that’s where the investment needs to be. So I think it’s an iterative process that takes collaboration and it takes building relationships between the researchers and the policy makers, so there’s trust and knowledge that can be transmitted in both directions and then the whole process moves forward.

Belluck: Mike, we have one minute left. Could you wrap it up for us?

Savonis: Well, very briefly I just want to reinforce what Dan just said because I agree with it wholeheartedly. We want to have the best science that we can have, and what that means to me as a policy analyst is making sure that other people support it, that it’s had sufficient time to be shot at, that it’s withstood other attacks and critiques and other points of view so that it is reasonable to go after. Let me just end with, transportation law has taken an interesting turn since 1992 towards flexibility—the kind of flexibility that Harrison was taking about. And it’s in part because we don’t know the answers in Washington. And so the law has gone in the direction of allowing localities much greater say in the way they approach their transportation decision-making and I think that’s a really good thing.

Belluck: We’re moving to a break right now. We’ll be back in about 10 minutes. Please think of questions and comments you’d like us to discuss and we’ll be back with you shortly.

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Belluck: I’d like to welcome everybody back to the program. Again, this is the CTE National Broadcast on “Public Health and Transportation: The State of the Science.” I want to remind everybody that you can email us. You can phone us at 1-888-228-6736, or you can fax us 919-715-3569.
In our next segment we are going to be discussing how science is informing transportation program on projects and projects on the ground. Our first speaker will be John Sampson, and his talk could also be titled: “Everything You Wanted To Know About My Work, Starting One Year Ago, Going Back Three Years” as I worked for him and he’ll be presenting a lot of the work that I started and that they are continuing at the state of Minnesota. John?

Sampson: Thanks, Dave. The Minnesota Department of Transportation, otherwise known as MnDOT, administers over 12,000 miles of interstate and trunk highways in the state of Minnesota. As such, we are arguably the largest, or certainly one of the largest, governmental land owners in Minnesota, and consequently do have impacts or potential impacts on the environment as well as human health. In these times of increased health and environmental awareness, transportation agencies such as MnDOT must balance environmental stewardship and economic growth, while meeting all state and federal environmental and human health requirements. This can be a very difficult balancing act. Our office in MnDOT works under the philosophy of using sound science for decision-making. Highway projects, as you may well know, are heavily regulated under NEPA, and the end result being an environmental impact statement or environmental assessment. However, NEPA is just one of the many numerous federal laws, rules and regulations we are regulated by. Not to mention state laws, their counterparts in state laws, rules, and regulations. Now these regulations, these laws, run the gamut of acronyms and the alphabet soup of acronyms from CAA, the Clean Air Act Amendments, to CERCLA to NEPA and at the end of the alphabet we find TOSCA.

These regulations present us in the transportation community with a whole host of issues to deal with. Just a sampling of these issues are: habitat fragmentation, endangered species impacts, pollution and other impacts, noise pollution and their effects, waste reuse and recycling, risk assessments and hazard assessments. Ozone has become a topic of some discussion in Minnesota recently, as well as mobile-source air toxics. And finally, metal contamination of soils from vehicles as well as noise barriers. Today, rather than focus on just a single case study, I’m going to highlight some of these issues, specifically three of these issues, that we in Minnesota have been working on quite a bit in the last few years, and where the application of sound science is absolutely essential. First of all, I’d like to highlight waste reuse and recycling. Recently we have heard quite a bit about recycling and it’s become almost like motherhood and apple pie, in that you certainly don’t want to say anything negative about it. And now I don’t want my remarks...
to sound like we in Minnesota are against reuse and recycling of materials. The opposite is quite true. We, for many years, have been recycling much of our materials back into our infrastructure. However, we have found that the application of sound science is absolutely essential because of certain clauses in federal, as well as state superfund, laws. These laws impose joint and several liability and the responsible persons. They also impose strict liability as well as retroactive liability and possibly the most damaging thing for us are severe penalties for non-compliance.

Joint and several liability essentially means that each of the parties that are responsible for the release may be and are responsible for the entire cost of the clean-up and investigation. Strict liability, in essence, means liability is held without regard for fault or negligence, and retroactive liability means that the person or party that is responsible for the contamination that may have occurred prior to the enactment of the superfund law. These are particularly important for state DOTs, because if they are named as a responsible party in a clean up action, and all of the other parties declare bankruptcy, which often does happen, the DOT, considered as a deep pocket and not likely to go bankrupt, is probably going to have to bear the entire cost of the investigation and the clean-up. This liability issue to us is why sound science is particularly important. MnDOT, as I’m sure most other states, have been asked to recycle or reuse waste materials. Many of these wastes, while they may not be considered hazardous waste, do contain toxic chemicals, which probably provide no benefit for the intended use of the material. They are considered in the industry as toxics along for the ride.

The application of sound science in the form of either a beneficial use determination that many states do, or, in the case of MnDOT, we do a hazard evaluation, is essential to determine the properties not only of the waste amended materials but the potential hazards or liability risks associated with the reuse or recycling of that material. Secondly, I’d like to highlight an emerging one and one that I am certainly not an expert on, I think Mike touched on it, and he’s more of an expert I’m sure than I am, but that area is air toxics—MSATs. It’s a relatively new area of concern for us, and since I won’t go into a lot of detail, I will say, however, that from our perspective, much care needs to be taken to apply sound science especially as we relate it to modeling of air quality data. In 1999, our environmental agency in Minnesota—the Pollution Control Agency—published a staff report on the web on air toxics. At that time, we questioned some of the findings because model data for certain chemicals was portrayed as exceeding the health benchmarks at some locations, even though there were no actual monitoring data to
support this. I will say that it was acknowledged in a subsequent report in 2001 that some of the concentrations were overestimated.

We also questioned the positioning of monitoring stations that were placed on rooftops downwind of furnace exhaust vents, and it seemed obvious to us at the time that there should be some elevated levels of toxic components because of the exhausts. Subsequent monitoring stations by pollution control agency do take this into consideration. I certainly don’t want this to sound like I’m being critical of the Pollution Control Agency, because I’m not. The point I would like to make, however, is that unless sound science is applied, the decisions that are made may not, and certainly in some cases do not, reflect reality and may have far reaching unintended consequences. One of those unintended consequences for us was that there were several lawsuits filed to stop some very important transportation projects in our metropolitan Twin City area, and the basis for those lawsuits was this staff report on air toxics.

Recently, we have reluctantly agreed to a request by our Pollution Control Agency to model air toxics for a major highly controversial project in Minnesota, that being the Saint Croix River crossing. This project was part of the national effort recently to streamline the environmental process, moving along projects that had become mired down at the process for far too long. The issue for us then is that there are questions surrounding the noise model or the air quality models for dispersion, as well as emissions of air toxics on a project level basis. In addition, we have been advised by Federal Highways that they will not support dispersion modeling on a project level basis, as there are some serious limitations with the EPA model mobile 6.2. Again, we believe sound science to be essential in accurately assessing the impacts.

Finally, I’d like to highlight the issue area that is alluded to in the title of the presentation: “Sound Science: Everything You Wanted to Know About Noise Barriers but Were Afraid to Ask.” We have found soil contamination around our noise barriers. To put this briefly into context for you; since the mid-1970s, MnDOT has been building noise barriers after the federal, as well as state, noise regulations were enacted. The Twin City/Metropolitan area has the most barriers in Minnesota, with approximately 80 miles of barrier. Treated wood accounts for about 80% of those barriers, with the majority of the treated wood being chromated copper arsenate (CCA). The picture that you are seeing on the screen now is just a typical treated wood noise barrier that we have in the Twin Cities.
A couple of years ago, while doing some chemical background surveys of the soils within our right-of-way, we found soil contamination levels adjacent to our wooden noise barriers that exceeded Minnesota clean-up standards for certain metals and, in particular, arsenic. And the slide that you see on your screen now actually does show where those samples were taken. I suppose the slide is a little on the small side, but it does show where the samples were taken, and that the range of levels that we had were from about 60 parts per million of arsenic to 590 parts per million of arsenic, with the clean-up level in Minnesota being 10 parts per million of arsenic. Additional contaminants that were found were chromium and copper, which should be probably expected. Since the levels constituted a release under federal law, we reported this and are presently in a voluntary investigation and clean-up program, using sound science again to determine the exact nature and extent of the contamination.

The next couple of slides that you will see, the first slide actually shows much of the samples that we have subsequently taken for arsenic, and you can see what that bright red line there that that is our clean-up standard, and most of the samples that we have taken are far above the clean-up standard. The next slide shows what we have looked at in arsenic, and trying to do a correlation between age and the level of contamination, and there doesn’t appear to be a strong correlation. And the last one is chromium trying again to do an age correlation with chromium, and as well you can see that we’re far above the level of clean-up levels in Minnesota for chromium.

Sound science, or the application of sound science, is extremely important with this issue, as it helps us to possibly defuse an emotional response such as, “Oh my goodness! You’re just contaminating everything and you’re killing my children because they’re eating the soil in the backyard!” Now you might think that that is an uncommon response, but as this next slide will show, it is a very common or certainly has a potential for being a very common response. It might be a little hard to detect in the slide but there is, on the right hand side about half-way down a picnic table. Now this is one of our noise barriers, and in fact we do have noise barriers at certain locations that are in people’s backyards.

Sound science also helps us to define what the real issue is. Dr. Belluck helped us figure this out a couple of years ago when he worked for us. One day as we were discussing it, I posed for him the question, “Dave, if this contamination is so terribly bad, then why aren’t we seeing people dying? Why aren’t we seeing emergency rooms filled with people?” At that time, he had no particularly good answer for me, but he went out
and did a survey of all 50 state health departments, as well as some health departments from outside of our country, and what he found was that instead of having a health issue, what we really had was a regulatory issue. Now for me, I found that as good news, because that could give me information that I could take to my senior management and try to explain to them why we’re involved in a potentially very expensive clean-up, when to them it may appear that there really isn’t a terribly big problem. And at the end of the day, for me anyways, what sound science is all about is really making good decisions based on good information rather than speculation. Thank you. Dave?

Belluck: Thank you very much. Just to amplify a little on what John was saying: what we did was we did an exhaustive review of the literature. We looked at all the United States regulatory and health agency literature. We checked the international literature. We contacted all 50 states’ health departments and asked them to check their records because many of the health department records do not get published. We also contacted every health or environmental agency in the world that we possibly could. We had responses from about 24 countries. Every single scrap of information that we collected showed that nobody had, on record, any, I repeat any, human health impacts, either illness or death from any level of arsenic in surface soil from any source. And this was a very big surprise, and as scientists looking for good science, this has helped to inform our leadership. What might be an appropriated science based approach to respond to the issue of the contamination. Is it an emergency? Or is it something that we need to do in a more measured way?

Switching next to Harrison Rue, he will be speaking on “Walking the Talk: Creating an Agency Action Agenda.” Harrison?

Rue: Thank you, David. I’m going to cover a few things from the perspective of somebody who’s running a regional agency in Charlottesville. I live nearby, where I can walk to work or I can choose to take the car if I have a regional meeting. If we could go to the first slide, I’d just like to show a picture of the area outside my office. Charlottesville’s downtown pedestrian mall is about eight blocks long. Bill Lucy’s done some research there, pedestrian counts of 3,500 pedestrians an hour on this mall on a Friday evening. That’s a lot of people actually staying after work, and then most of them are coming in from the suburbs to walk around after work. It’s very interesting. John, think about the number of lanes and we’ll ask you later how many lanes it would take for 3,500 people per hour.
Talk about the public process, really looking first at identifying community values, combining programs and problems. We run the MPO, but we also run the disabilities services board, affordable housing agencies and several other folks, bringing everybody to the table. One of the biggest issues that I think our first speaker identified is: how do we actually get folks to use the science? And so we use a public process to inform decision-makers. Whether it’s at our MPO meeting, or our regular statutory meeting, whether it’s the hands-on workshops we do, we use a resolutely thumbs-up process so that folks are cooperating. So getting folks to the table, we train facilitators every time, whether it’s the agency folks at federal, state, and local level. Community folks, hands-on public workshops generally end up—sorry, I’m a little behind on my bullet points there, folks—and then we end up with a comprehensive exciting visual plan. Because when you’re talking about the impact of transportation facilities in folks’ neighborhoods, they want to know what it’s going to look like, they want to be able to kick the tires. Pictures are the best way to convey that to them.

We always go back to folks afterwards, get buy-in, and determine priorities, and then if you do that stuff right, you proceed with model projects. Folks get tired of waiting 20 years. One of the biggest issues that we talked about earlier is the issue of how long can we wait for the science. In Virginia, it’s an average of 17 years for one project from beginning to driving on it. And in some cases, projects that we still have in the pipeline due to cash issues are 30 years old. They’re being—what we’re talking about building right now is based on the science from 10 or 20 years before that. So it’s maybe 50 year old science. One of the biggest issues for us now is how do we make that—update it quicker and act on it. It’s important to remember the kind of process we’re talking doesn’t replace governance and good business with anarchy. The people in the process, designers do their work, developers, public or private on the projects, decision-makers still make the tough decisions, and if you follow these rules, the projects get built.

I want to look at one modeling thing that we did a little bit ago called the Eastern Planning Initiative. We did some diagrams of communities around in our region, we diagrammed how they might infill over time, suburban, downtown, and small towns. We base this on reviewing Robert Cervero’s research about pedestrian activity, and use that research to add some elasticity to our models. We compared a disperse scenario in our four county region. That would require $1 billion of investment and 44% of those miles driven would be congested. This is about a 50-year buildup, mostly invested in bypasses and wider roads. If we built entirely more compactly, we would save a half a billion
dollars in public—just the transportation investment, not the water and sewer. And 29% of that would be congested. One of the interesting things looking at that is: what made the difference? It’s the proximity of activities within the communities give people the choice of walking transit. Proximity of the communities to each other made the auto trip shorter and the network made the travel more efficient. The biggest significant piece of this was this wasn’t a big shift. One trip in six, only one trip in six in an average household, saved $500 million.

When we talk about values, what we actually modeled was what in our area was called the sustainability accords, which had been agreed to years before. Percent farms and forest, percent developed, percent of non-auto trips, gas, water quality, air quality, and the more compact one obviously not only saved $500 million, but it measured higher on the sustainability accords. We then took that theoretical study and moved it into our long range transportation plan. One of the lessons is that you have to have a catchy name, so if you use Mr. Jefferson’s name in our area, that’s why we had to end up with the UnJAM (United Jefferson Area Mobility) 2025 plan. I promised our hosts here that I wouldn’t sing our long range transportation plan theme song, “Get UnJAMmed,” you’ll have to go to the website for that. But, you know, we were able to take the modeling and use it in the same kind of public process, come up with five principles, completing the well-connected network of roadways, in other words, not necessarily build more big roads, but build the connections first. Re-engineer the intersections and corridors; this goes to that goal number one of federal highways of safety. We need to re-engineer those for more safety, more capacity, and improvements in transit, terrain modified bit of smaller streets. So we get the local traffic off the primary highways. We end up—my new concept is called primary relievers. My Federal Highway guys, I’m trying to think of how we can use primary dollars to build the off road network quicker and protect the through capacity of the corridor and make the activity happen, main streets on either side of the primary corridor. And then really well executed design details.

We like to brag on the work that VDOT does, this is one of their designs for a rural highway. We also look at the work that our small towns are doing for more compact development in the towns. And then my friend Dan Burden came up with something called Level of Quality Guidelines. We usually just measure a level of service. You can’t read this here, but you can go onto our website and download it, and it actually ranges from “exemplary” to “hall of shame.” We do that with pictures. This isn’t a regulatory
standard, it’s meant to really be an inspirational standard, so it’ll just be better work across the design spectrum.

We’d like to do field research so we went into the field with our policy makers and filled one of our local streets full of cars, and we took the tin cans away, and these are the same people sitting in the same places, and we realized that there’s a heck of a lot more space left to work with there if we get people out of individual cars. If we can put them on a bus—now note that a city council member’s driving this bus and we have a bike rack in front, there’s a lot of space left over. What’s also key is if you take all those folks and put them on the sidewalks, they need to be able to walk and bike and there’s unlimited capacity around the transit stops for walking, biking, or head shared or transit customer delivery system, I like to think of it. And so investing in transit is a really good way of maximizing the capacity of our existing roadways, which also provides better water quality issues, less pavement.

From Eugene, Oregon they did a lot of work looking at BRT and median of existing roads. From our work in Honolulu, we looked at the transit stops near the proposed BRT system we’re working on, and developed scenarios as well as new codes to produce these downtown develop code near the transit stops. Some new principles, we work with ULI to come up with a principle to come up with a principle called Transit Ready Developments, and strategies to address how development in greenfield sites in both incorporate transit supportive strategies early on, and then grow into transit oriented development over time. Some of the key things, it’s really the same principles direct from new urbanism or from smart growth. And some of the issues that you look at are really: mix of land use isn’t adverse to housing sites, pedestrian friendly site plan, transit routes and stops that are incorporated into current development or factored into future plans. The key thing is transit planning across jurisdictions. Most of the suburban development is in rural counties and the transit providers in the downtown cities, so getting them to work with the new developers over time. And then actually adding marketing plans so the developers can take advantage of those transit supportive strategies.

I want to talk a little bit about just age-friendly streets. We did a seniors plan and really ended up going out with some of our area seniors and related agencies and looking, just trying to fix the simple street in front of the senior center. And we discovered that little things like roundabouts, crosswalks, median islands, could make them more walkable. It would be simple interventions. Great research by Arlington Institute for Highway Safety showed roundabouts have 39% less accidents, 76% less injury, and 90%
less fatal and basically injury crashes. So I just wanted to end on that, that we can do minor interventions that will really provide sound science on the streets. This last roundabout in Honolulu is right near a school, and most folks have seen remarkably more folks walking to school since the roundabout went in because it’s safer.

Belluck: Thank you, Harrison. Our next speaker is Rich Bell, and he’ll be giving an Active Living by Design case study: “Community Models for Active Living: Responding to New Research and Building New Evidence.” Rich?

Bell: Thanks, Dave. As Dave said, I’m going to be talking about Active Living by Design’s work to build community models for active living, and I think I’ll start by talking about the importance of active living environments and to public health practice, what it takes to be build community models and what we mean by them. And then I’m going to quickly introduce one of the 25 projects we work with around the country to give you a sense of what it might look like on the ground, and what the local implications for research might be.

The first, of course, the research tells us that there is a significant burden of physical inactivity. Seventy percent of us don’t achieve the Surgeon General’s recommended dose of physical activity: 30 minutes, essentially daily. Nearly two-thirds of us are overweight, and one in four obese, and we know that the rate of increase in obesity amongst children and adults is rising at an alarming rate. We also know the very close association of physical inactivity to chronic disease and to the major causes of death. Finally, the economic burden. Conservative estimates of medical costs associated with physical inactivity at $76 billion every year. We also know that until recently, public health practice, which was focused mainly on individuals, exhortations to exercise and structured programs, wasn’t particularly successful in increasing the percentage of adults who are physically active. When we look around for reasons for that, we also see during that time the emergence of a sedentary society. There’s a lot of evidence and research about the relationship of the built environment, as we’ve been talking about, to physical activity. Automobile dependency, the changing nature of work and play and the introduction of television, computers, and other conveniences that have really engineered physical activity out of our daily lives. And certainly social factors in human nature, cultural factors that have grown up around these things.

If we look at what good design or activity-friendly communities or highly walkable communities could do, we’re seeing, as Candace said, in the very new research of which much more needs to be done, some encouraging evidence that we can positively
affect transportation trips, walking, cycling transportation trips, the total minutes of physical activity. Perhaps prevent weight gain through community design in part. Of course, there’s much more to learn, but we can’t afford to wait for all the research to come in, so we do view ourselves as part of the learning process. When we look at all this evidence, essentially, what we’re seeing is the need to take another look at the traditional public health approach that did not factor in environmental concerns, focused mainly on individuals’ decision making. Add to that practice now an effort to lower barriers in the community environment, and make the choice to be physically active easier, and importantly, to try to make that choice to be active possible to integrate into the daily routine. That is where we come up with active living, which is a way of life that integrates physical activity into daily routines.

There is a growing active living movement across the country, due in a large part to significant leadership provided by the Robert Wood Johnson Foundation, that has committed $75 million to a wide variety of efforts in the areas of research and evaluation, policy and practice, and education and awareness. And Active Living by Design’s place in that larger constellation of efforts is really about developing, supporting, and learning from very diverse community models, these 25 community models. And so we have chosen those. More than a year ago we began working with 25 communities with very different lead agencies, target populations, settings, efforts. It’s really trying to cover the broad potential of types of interventions that we could put together. But what’s important about all of the models that we’re trying to build, they have this in common: they integrate a variety of strategies.

The first I’d like to introduce is preparation, that’s essentially the need to build multidisciplinary partnerships, bring a lot of people around the table to break through that style of thinking that sometimes infects public decision making, and bring to bear the best the different disciplines have to offer on a problem. It also includes, of course, the environmental and behavioral assessments, good planning that Harrison talked about that are necessary for effective efforts. Promotion is about developing and expanding our constituencies, and that’s more than just messages to people we want to be active. It is messages to elected officials on policy concerns, or messages to engineers about building projects. Programs provide the immediate opportunities and the incentives for people to be active and to engage with their environment. Commuter choice programs, safe routes school programs. Walking and bicycling clubs are examples there.
In the policy realm, this is really about influencing decision-making and allowing active living supports to become more part of mainstream community decision making in community life. And this is vitally important to transportation because it’s where land use, transportation and public health become highly integrated, both at the planning and policy level, to where you see connectivity, you see better road design, more inclusive road design, you see destinations come closer together, you see the marginal cost of trips by different modes start to come into better balance, funding for bike/ped facilities and the like.

And finally, you see the physical evidence. You see physical projects such as the transit-oriented developments and the traffic calming, the accessible parks and the bike/ped facilities. So what’s important about these community models is the combination of strategic integration in one place of these types of strategies, and a continuation of that work so that they build over time and achieve a critical mass, and it’s when these things become more mainstreamed and have that critical mass that we hope that we’ll see significant changes in physical activity and health outcomes.

If I were to give you an example of one of our 25 projects on the ground that might give you a flavor, you can get all 25 on our website, activelivingbydesign.org. Here’s a project in a Slavic village neighborhood of Cleveland, Ohio. It’s an old steel mill neighborhood south of downtown Cleveland, about 31,000 residents, it’s a low-income multi-ethnic community, and they’re focusing on pretty much everybody in this neighborhood, but with a particular focus on youth. This is a small part of the list of partners that they’ve pulled together to work actively together on an integrated project. You’ll see a non-profit community development corporation as the lead agency. They’ve worked with local, regional, and state transportation agencies, the city’s planning and parks and health and public safety departments. Three universities in this partnership. Activist groups, advocacy groups such as EcoCity Cleveland, three public schools, a variety of recreation and other non-profit organizations serving the neighborhood.

And the type of project they’re putting together, again, is integrating many concerns in one place, trying to build to get more out of each one than could be gotten separately. They’re building two multi-purpose trails in the neighborhood, not just for recreation but to make transportation lengths to key destinations and linking it to a regional system. When one school is being built and one is being renovated, they’re undergoing active living audits to actually affect the redesign with the school system of that school before it’s changed so that it’s friendly for physical activity and safe routes to
school. They’re developing a few safe routes to school programs now, they’ve engaged in an extensive youth mapping project which is going to lead to these very neat active living maps in the neighborhood that will go to every household in the neighborhood. They are also focusing on the policy area. On a policy—bicycle pedestrian and transit master plan and working piece by piece over time with the city they hope to slowly but surely improve street design standards citywide. They are also putting in new on-street ped/bike facilities such bike lanes on the Fleet Avenue Bridge in that corridor. They address neighborhood concerns like crime. People didn’t feel safe to be physically active, so they’ve organized safety walks on a regular basis in key areas where people had concerns. So active living becomes part of the solution, really, to the safety problem as well, the crime problem, by putting eyes on the street.

They’re hoping to develop more walking and biking support groups over time, they’ve developed their first workplace fitness initiative at Slavic Village Development, the lead agency, and hope to roll out workplace fitness initiatives within the neighborhood with employers there. They spend a lot of their first year doing all the research necessary to have a very targeted and effective social marketing program so that they can influence behavior of individuals, of various sorts of individuals throughout the neighborhood. They’ve converted a brown field into a golf course, they’re putting physical activity programs—and you can get a sense of that critical mass of effort. So we’re not just talking about building sidewalks and bike lanes and hoping people will come. It’s a variety of efforts they’re putting together.

In Cleveland, as with the other 25 models that we’re working with, there are a variety of ways we can learn from these efforts. Active Living by Design is certainly requiring, from all of our grantees in these partnerships, their input into an evaluation system of all the supports and outcomes they’re putting into place. That’s along those five strategies I mentioned, what are they accomplishing in those areas? We also have, with the support of the National Institute of Environmental Health Sciences, a funded evaluation—five year evaluation of behavior. Physical activity and actual health outcomes in these neighborhoods so we can see whether the strategic integration of efforts is actually going to yield physical activity and health results.

In many of our communities there are local efforts. Area universities, folks seeking and getting NIH funding for scientific studies using these as case studies, the federal steps program through HHS is providing additional help for research and community-based research. So what we hope to do with all of these efforts is to describe
the case studies and really pull out some of the best practices we see and share them and learn from them. So in our effort as a whole, we really hope to of course learn from these new community models, these partnerships and projects, we hope to demonstrate that a strategic combination of interventions can be effective first at delivering the active living supports, and second at boosting routine physical activity. And finally all of this will help us build a larger movement that will help integrate things like transportation reform with good thinking in reform in a variety of disciplines.

Belluck: Thank you, Rich. Over the next 14 minutes or so we have a discussion between the panel members. Before we get into that, let me remind you again to please email your questions to us, phone them in at 1-888-228-6736, or fax them in at 919-715-3569. Well, let me ask the first question. From what we’ve learned today from these case histories, was the initiation of the work that you folks did based on sound science or was the sound science a response to a problem that had been identified?

Rue: Both. I think I’ve been somebody who would just personally is a reader and pays attention to research, and both what I read and then what I mostly observe in a particular community, as somebody who travels around and does it in different communities, and you go in with a certain amount of knowledge, but the first thing that we do in a new community is teach people to look around them and discover the problems are, be able to describe those problems to each other, and then figure out what kind of technical information they need to address those problems. So the field survey, field audits, walking audits, road work we like to call it, really helps you pull out of your library of facts, statistics, what you want to present to them in a community workshop.

Belluck: When you present these findings, are there scientists in the community who bring the scientific method to bear to question you about your findings?

Rue: Oh sure, and then don’t forget, everybody’s in amateur science, you know, really, everybody watches TV and sees a statistic here or there. I knew that we were on top of something here when you saw across the Fox ticker, the last active living report about obesity. But in general when you’re working in the community the argument is not about the science; it’s about the solutions, in general.

Belluck: John?

Sampson: I think in our situation it was primarily that the science was driven by the problem that we had to come up with good science, good data, good information, to be able to solve some of these problems that we were faced with. So I think primarily it was that we were faced with some issues and we didn’t have the science to show anything, or the science to
back up anything. The other piece of it is there a little bit because we do know some things. I think also in our particular situation we were—and I don’t want to use the term forced, but maybe in a little without the large letter force, forced into doing some of this because we felt that the agencies that we felt were looking out for us perhaps weren’t. Perhaps they didn’t have the science available. So in order to protect ourselves from liability, from other kinds of risks and spend the dollars that we have responsibly on the transportation infrastructure, we had to come up with the science or look for the science in order to defend ourselves.

Belluck: Rich, how do you see this?

Bell: Well, I definitely see science used as defense in lots of the debates. I see science used as persuasion. But I also see what Harrison mentioned, and that is that at least at the community level people want to solve problems and they sometimes, sometimes science can bring to bear more information on helping to solve those problems, or just to clarify what the problem is. I often see in community-level debates that much of the action is really defining the problem, in the first place. What data to look at. Are we looking at congestion and air quality problems in the middle of our town? Are we looking at traffic accidents around the school? Are we more worried about neighborhood quality of life than we are, that the arterial is functioning well at a high level of service. So that is really where I think communities need to build consensus and understanding and then I think very good data can inform good efforts.

Belluck: You all are involved in very practical applications of science. When you come up with a problem, or I should say, when you find a problem, do you find in many cases that the fundamental research is there to answer the question or are these conditions that you’re dealing with so new and novel that new information needs to be generated?

Rue: I would say both cases, to pick a new topic we haven’t gotten to yet, they should green streets or water quality, even done with the Chesapeake Bay. We’re looking on about four different levels in the Charlottesville area. We’re part of the James River watershed, feeds down to the bay near Norfolk. We’re also doing a TMDL, total maximum daily load study, right now to clean up an urban creek. Both our city and county are working on stream protection ordinances at the same time in advance of that science but under threat of EPA future regulation of phase II storm water. And at the same time we’re finishing up our TMDL, and I took my job three years ago and the first reports I had to read was measuring the amount of, and different between the sheep and cattle and dog waste in the stream, you know, down to that level of on-site measurement.
We’re finding out that when we look at the entire watershed, it just came out last week or the week before that the Chesapeake Bay agreements and accords and the policy around the bay, is really based only on modeling and the people who are measuring are saying, “I don’t think this model is working.” So both at the regional level down to our very neighborhood oriented level there’s some disagreement between the field research and the modeling. We still want to put those stream protection ordinances in place so we can govern how close people are building to the stream. We’re not going to wait for that to be carried out, and we’re developing—I had a guy who did Portland’s Green Streets Initiative to develop, again, stream protection within our parking lots, with new ways to build our parking lots and our streets to protect storm water there. So you can’t wait on the science, you find the best info you can and then you act on it.

Sampson: I think in some cases for us, the science may have been there but it may not have been put together to answer the questions that we had. But I do think it’s a little of both, and the science is there. But often people hadn’t maybe connected the dots, and that was what was needed to happen. Often though the science isn’t there. We’ve run into some issues that were sort of out front and it does maybe pose some problems at our agency then because people don’t understand it and they wonder what we’re really about, and yet we’re trying to be out front and we’re getting a little bit ahead of some of the issues.

Belluck: Mike?

Savonis: I just wanted to pick up on what Harrison ended with, because it’s something I strongly believe in. It’s more a question of bringing the best information to bear. In many areas when we talk about the science of situations, in my experience, we funded more than 15,000 projects under the Ingestion, Mitigation and Air Quality Improvement Program. I continue to find huge differences of opinion about whether a project has worked or hasn’t worked. We also find big differences on seemingly similar projects. In one application where it works beautifully and in another application where it doesn’t work at all. So in that sense, in the reproducible sense of science I think that we’re not really there and I think it’s for some of the reasons that Candace indicated, it’s the behavioral aspects in trying to predict human behavior. But that’s not an argument for abandoning it. It’s an argument for getting the best information, making the best guesses and trying to work a community process so you have the best transportation meeting your needs.

Wartenburg: I think it’s also an opportunity to continue to the next step, which I’m excited to hear a lot of you have said, of doing the evaluation and asking that question of did it work, if it didn’t work as well as you’d hoped, why not, what can be done the next time is tried,
what can be done even in this situation to improve it, and using that feedback process to inform what’s going on and advancing both the science and the practice.

Bell: Another point would be the effort to try to anticipate unintended consequences. I think that’s something that dogs us all the time. We bring lots of information to bear on what we’re focusing on. But there’s something inevitably we’re not focusing on that comes back and creates a difficulty. So we’re always as careful as we can be to think about all the potential unintended consequences and it’s—that’s not a science. But we try to do the best we can.

Belluck: Dan, I wanted to ask you a question. In the world of toxicology, regulations and rules often come out asking your profession to figure out answers to legislative needs. The databases aren’t present to do that. Is it appropriate to modify the intended use of the original data, and can you make sound decisions from that that would help people who are doing work with transportation issues?

Wartenburg: We often use data that was collected for one purpose to answer another question, that’s—I think it’s sort of routine in what I do and what my colleagues do, and the challenge is making sure it’s still appropriate and it’s being used in a way that makes sense and noting the limitations, that when the data’s not collected for a particular purpose, one has to make sure that one identifies those limitations and recognizes that if I were to go out and collect the data today, I would do it differently, I would get more information or different information that would give me yet a better answer. We don’t have time to wait, or we don’t have the resources to do that. So it’s what happens routinely, I just think we have to be cognizant and really communicate those limitations to people less they misinterpret the suggestions and recommendations that are being made. But I think it’s a great way to go in spite of its limitations.

Belluck: For the panel: you’ve heard a lot of views today. What do you think is the most critical research that is either one ongoing, or you think needs to occur in order to start answering the practical on-the-ground questions that practitioners are facing.

Rutt: Really, I think the Active Living by Design that Robert Wood Johnson is funding is going to answer a lot of our questions with respect to the built environment and physical activity. The one thing I would love to see is longitudinal studies. There’s only one longitudinal study that examines people moving from one environment to the next, and how that influences behavior. Is it the individual characteristics, or is it the change in environment? And right now, everything we’ve got is cross-sectional, which makes those—you can’t make, you know, casual assertions based on cross-sectional data, you
can only say there’s relationships. It’s not until we have those well done longitudinal
studies that you can say, okay, there’s a highly likely chance that A caused B. It’s one of
Hill’s criteria, is A happened before B. So I think we’re moving in the right direction,
we’re going to see a lot of fabulous research coming out in the next few years. But we
can’t wait for that research before we start building green communities with places for
people to walk. You kind of have to balance what you have with what you think is going
to—you know, you can’t wait for all the research. We’d be waiting around 30 years
before we decided what was a healthy community. So it’s a balance between what’s out
there and trying to do the best with what you have.

Bell: I’d like to see advances in the science of partnership building. Maybe it’s an art. Because
we really do need these multi-disciplinary partnerships to solve these problems and
working with them every day as I do, I see just the human and social and contextual
difficulties in making partnerships really deliver outcomes at the community level. I
don’t think we’re trained that—we’re trained as specialists often, when we try to do
policy work and other types of work. But often what we’re called upon to do are much
more high-order complex social interactions in order to work with others to solve
problems and I’d like to see a little bit of that.

Belluck: Mike?

Savonis: I think we ought to let the numbers guide us to at least some extent. I started out with
safety and some 40,000 people die on the highways annually. I think that should be an
area where we focus very heavily on that. Air pollution is certainly another priority and
particulate matter in particular seems to be a priority to me in terms of reducing that
pollution where another estimated 15,000 or 20,000 people die prematurely due to those
numbers. I think that’s what—we ought to let the numbers to some extent marshal where
we put our forces.

Belluck: Thank you. We need to wrap up now and move to a break. The next section which will
start in approximately 10 minutes is your chance to ask us the questions and for us to
respond to your issues, concerns and comments.

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Belluck: Welcome back, this is the third and final hour of the CTE national broadcast on “Public
Health and Transportation: The State of the Science.” Again, please feel free to email us,
to phone us, or fax us with any of your questions or comments. Dan, you had a follow-up comment on Candace’s discussion.

Wartenburg: Yes, I just wanted to emphasize something Candace said that I thought was a really important point, that a lot of times scientists talk with—sound, doing sound science. Scientists always say, “But we need to do more studies, we need more research money, we need to keep going.” And while I certainly support that, we can’t be paralyzed by that, and Candace was suggesting that we need to act on the data that we have and do the best we can at the time that we have that data because the world isn’t going to wait for science to find the perfect answer. And it’s a really important notion that those two go together, for we really got to keep moving, we got to bring the information together, we’ve got to consider it both in terms of how good the science is and how it’s going to affect practice. But we need to really keep things moving. It’s a notion of taking the information out of the lab and out into the real world and using it, and that’s the whole purpose of doing the research, so I think it’s really important that we remember that.

Rue: If I could follow up on that before we get into the questions. In transportation I think that’s particularly important because we have planned and built most of our major transportation facilities based on what we think of as the black box. We hand over a lot of data on traffic counts and turning movements to the modelers and they create a model that says, “Well, if we do these particular improvements, then transportation is going to improve.” And it’s based on just that issue of throughput. And sometimes our good friend the modelers are even wrong on those basic issues. So I think the particular things that Rich is talking about in active living and livability is really adding more parameters so no one particular study’s conclusions should be the basis of that whole system’s approach to investment.

Wartenburg: And that also points to the need for evaluation and making sure that when we start implementing these policies and using the data, that it is imperfect and it is incomplete, or are incomplete, that we evaluate it and see how to learn and how to change things or how to do it better next time.

Sampson: But again, and I agree with the transportation agency that’s charged with building that infrastructure, we can’t always wait. We can to a point, and there is a balance there like I said in my talk, but there is a balancing act that we’re trying to achieve there. We need answers and we have expectations that this project is going to get built. And so we can’t always wait to have the definitive answer. And we do have to make decisions on the best
that we have available. Acknowledging that it may be flawed, it may not be complete. In knowing that when they have to go back later and make some adjustments.

Belluck: Mike, you wanted to add something?
Savonis: Yeah, just wanted to add, I was reminded of the old adage, I don’t remember who said it, but states are the experimental laboratories of the nation. And it’s something that’s very true. We have to act on the information that we have at hand. The need for mobility and accessibility does not stop because we don’t have all the answers at hand.

Wartenburg: It’s in fact because of doing that, that we learn more. That’s part of the research that goes on.
Savonis: That’s right.

Belluck: I’d like to get to the first question from a Robert Edstrum that’s directed to the panel. “If many of the environmental and human impacts from transportation systems are predictions for models, how many of these predictions are actually validated with the measurement data? Also, if the model predictions are not validated, how is that good science?”

Rue: I’ll go out on a limb and say often the model predictions are not validated. I mean, there—we made our transportation investments laying these plans on the basis of a 20 year model guess. And there is no way. It would be absolutely random chance if those exact predictions about volumes were actually correct at the end of that 20 year period. It’s our best guess at the time. I agree with the good doctor here that we should be going back and evaluating that and using that information to both fine tune the model and adjust the investments.

Wartenburg: It also important to remember that models are simplifications of the real world, and there are many other factors that determine what happens in the real world that we can’t include in our models. So validation is a sort of interesting concept of what do you really—how do you really implement that? Because we can’t expect to make a perfect prediction, we’re trying to go in the right direction. And if we’re going in the right direction, we’re doing a great job. I think that’s where the evaluation comes in. It’s not, is this the best model, of course it’s not, as we get more data, we’re constantly improving it, and we’re going to change it and make it more like the world, but it’s always based on the past. And nobody can predict the future perfectly. I think for these models we do use that information as it comes in, and we do try and upgrade them and we do try and change them, as well as the notion of what you were saying where it’s done differently in different locations, be it states or communities. And the comparison across those different
places even with the same model gives us a lot of information about the larger system and how it’s really working in those other factors that we either didn’t think fell into the model or didn’t accommodate adequately.

Bell: And in the spirit of getting more data, more accurate data, I’m very encouraged by the whole movement toward context sensitive solutions. You have the data you’re used to working with, but communities provide an awful lot of good data, some of it a little more verifiable, some of it anecdotal, but nevertheless, it adds a lot to the decision-making process. But it does require another tool kit on the part of some transportation decision makers. I think it’s great, it’s exciting.

Savonis: I think it’s critical that we look at the models, and I’d like to draw a distinction between models for planning purposes, and models for regulatory purposes. For planning purposes, we still need to look at the performance of the model. We still need to do some validation and too often it’s not done. But if you’re coming up with a best guess or kind of a futuristic look 20 years in the future, that’s one kind of purpose and that’s something that I think we can all support. For regulatory purposes, you want to be sure that it’s pretty close to right. Because you’re making investment decisions, the kind of investment decisions that John was talking about earlier.

Sampson: That’s right, and really a case in point that we have now, and obviously somebody who’s listening might think that we’re trying to be critical of federal highways. The new traffic noise model, TNM, we in Minnesota have submitted comments because the existing model we had modified to fit Minnesota conditions, and so we’re really pretty comfortable with the omission rates from delays and so forth from the vehicles. In using the new model and using the old model, what would be considered our old model, we found that there are discrepancies between what’s predicted and we actually go out and measure. So again, I think it’s really critical that the validation does take place because in many cases that we’ve found, and this is just a specific case, it was underreporting what the actual level was. In other words, we would be probably not putting in a barrier where it should be put in. And then later on, paying the consequences for that when the actual noise levels do occur. Then we can’t go back because we can’t spend federal money on doing a retrofit on noise barriers.

Belluck: I’d like to come back to this in a few moments, but we have a live call from Allen, who’s in Kansas City, go ahead Allen, please. Allen?

Allen: --down in Kansas City and I’m just basically wondering what we could do on a federal government level to help improve or make this process go faster. Basically we have some
transportation—public transportation issues in Kansas City, and it would be good to be able to find ways that we as a federal government can help to make this process go faster.

Savonis: I’d like to know which process you’re talking about, Allen?

Allen: The process of getting the sound science out to the public in order to convince them to implement these public transportation systems.

Rue: I’ll jump in on that one. Number one, the federal government can’t convince people to do anything anywhere, so you have to work through a local planning partner, and I would suggest your regional council or the city of Kansas City. If elected, they’re involved, make them local electeds. And you have most leverage of getting people to pay attention to facts and ideas when it’s attached to a project. So if your concern is more transit use for air quality issues, something like that, then look at a corridor study or a neighborhood project. I noticed even in Rich, your project here that folks were interested in transit and walkability, it doesn’t have to be a transportation project to discuss transit issues. I’ve done lots of work with public housing and neighborhoods and issues about how we’re getting around come up. It can even be a regional watershed quality. Dan Williams did a study of South Dade watershed in Miami and we ended up with transit and mixed use development coming up and looking at watershed protection issues. But education happens best when it’s attached to a project and some of the pre-training workshops giving it, folks ready for a project.

Savonis: What we’re really concerned about, this issue of bringing projects to completion more quickly and right now it takes about five years in order to bring a project to construction, and we’re trying to reduce that to a mere three years if we can possibly do that. We’re looking at ways, but I think Harrison is right; a lot of it depends on the local community involvement issues, making sure that the community buys in and that the environmental concerns are all addressed early.

Rue: And just to beat that drum a little bit more, when we’re doing a major project and we have folks’ attention for a while, we meet separately again with the staff and do a short training. Meet with—in the guise of giving the running of the process over to citizen groups, we train them in facilitation training. Part of that is the science urban design issues, understanding how transit work issues are part of the facilitator training so that when they’re running the design tables, folks will understand what some of the issues are.

Belluck: Question for the panel to amplify on Allen’s question: are there required timing issues that make reducing the review time difficult beyond a certain extent? For example, the announcement periods for a specific action, the comment periods, the planning periods
that you have. Are there any of these periods which are pretty much immutable and what
does that mean for streamlining?

Sampson: Certainly many of those are fixed in law. Certain agencies have so much time to respond
to certain things, and so certainly from that standpoint, they are fixed. And I know in
Minnesota we’ve been struggling with that in trying to reduce the amount of time for
environmental impact statements or environmental assessments, and it does appear that
we—I wouldn’t say that we’ve reached the end of the line, but we’re really trying to
struggle now and we’ve got the low hanging fruit, so to speak, and now we’re really
struggling to get past that and reduce the time even further. But much of it is prescribed
in loss. I’d have to say that that’s an issue.

Rue: David, if you carry on with that public process parallel to the required regulatory required
time periods, it’s not really additive. Traditionally, what we’ve done in the transportation
industry is we sit in a back room, develop a project, design it, and then go out to the
public and get lots of dart—you can bring along the dart board and put the plan up on the
dart board and get darts thrown, go back to the drawing room and fix it. If you go to the
public, to the decision makers, work with the developers and the elected officials and the
other folks at the beginning of the process, then the required regulatory periods are less of
an issue because they’re running parallel to the—I think really getting buy in on correct
investments is much harder than meeting the regulatory requirements.

Belluck: Allen, do you have any more questions or comments?

Allen: No, I think that pretty much covered it. The only other thought I had was—you’re talking
about how we, as a federal government should kind of just stay out of it, so is there
something that we can do to help those local agencies get the job done faster? Is there
something we can do?

Rue: Let me correct my misperception, Allan, please stay in the game and help us with this.
Lots of the work that I’ve done has been with federal partners working through the states
and through our local and regional efforts. We often have federal folks on our teams that
work with folks both in the federal and regional offices and then through the state DOTs,
our federal partners who state DOTs visit, serve on our tech committees and things like
that, so… Generally it’s best if the federal agency, if you’re funding or providing
technical support, you’re not the—out front, you’re backup support.

Savonis: One of the other things that we can do is seek to extend the resources that we put to
research. Unfortunately, it’s never really enough and it’s never really what we need to do.
Betty Deacon from UC-Berkeley led an effort in fulfillment of part of T21 to take a look
at the amount of research funding that we needed for environment, and that panel’s estimate was about $150 million, which was vastly different from the amount that we currently spend on environmental research. I think if we put more research to it, we’ll be able to create the information that we need which would then influence decision makers much more quickly.

Belluck: We have a faxed in question/comment from Joanne Potter. What is your assessment of the working relationships among transportation professionals, public health advocates and researchers? How can effective collaboration be promoted?

Rutt: I think we’re getting a lot better at the American Planning Association and the National Association of City and County Officials. They are putting together conferences, they’re working together in communities with the health impact assessments. You see the smart growth conferences where public health people are going to, we just gave—Dave and I just gave a talk at the American Public Health Association, so we’re starting to see the cross collaborations. And universities are offering joint degrees in public health and planning. So we’re getting there but I think we’ve got a long way to go. We’ve got the early adopters, but I think we still need to learn each others’ language. I’m learning a lot about transportation as I go along in this field, because I’m traditionally trained as a psychologist, so I’ve got a lot to learn. And then everyone in the transportation division has a lot to learn about individuals and psychology and public health. So I think we’ve got a lot to offer and we’re getting there, but I think we’ve got a ways to go.

Bell: I’d like to say I think the same, pretty much the same. The relationship building is stronger, and we’re definitely on the right track. I think what hasn’t yet really happened is that the two disciplines aren’t necessarily comfortable with each others’ language and methods yet, and they don’t know how to use each other to the best advantage. There are real strengths—transportation engineering field, for instance, and public health field. And they both appreciate data for instance, they both appreciate problem solving, they’re both rigorous in their own ways, but they don’t know how to take advantage of each other for shared goals, and I think that’s where we need to move from here.

Rue: I think every one of the—I love the Active Living program, and every place that I’ve seen where it—even coming together to apply for one of your grants, which we didn’t get, has had ongoing residuals of more interest in working together in the community on this stuff. But I think working the other way, we don’t really see, for instance, the public health folks coming to our MPO meetings, which are really boring, but…We’re actually one of the more creative ones. We’re forced by our good friends in Washington to talk
about a lot of boring regulatory stuff, which is why we try and do the real work of the planning in the hands-on, exciting workshops. We don’t see enough medical professionals coming to those workshops and speaking up for the kids and for health and obesity. We have a few doctors come every once in a while. I’d like to get to, you know, imagine the power of doctors marching on Richmond to look for funding for some of these activities instead of just worrying about lawsuits. Nothing personal, doctor. The medical being not only doctors, but everybody associated with it, for care about kids and seniors. And if you were helping us push the agenda for changing the way we’re doing our transportation investments, that kind of effort we appreciate.

Rutt: I think there are certain areas where we do have an opportunity, where public health people are reviewing plans for sewage and water waste removal. You could, as I mentioned earlier to the panel, you could incorporate an expedited approval for builders who started to take the prevention of chronic disease into the design of their neighborhoods. Putting in sidewalks, increasing the land use, increasing the density. People who take those chronic diseases into account and the prevention of those given expedited approval, or even with the health impact assessments that I’ve been working on, I find that a great way to start talking on a project, as you mention, it’s project based or policy based, and you really sit down with the local people and you start talking about this is the health outcomes of this project or policy. I found that really helpful to start building those relationships with local people in Atlanta on an area we’re looking at.

Wartenburg: I don’t think one of the challenges—or, I take your challenge, even though I’m not a physician, but nonetheless, I think one of the challenges in getting health people involved is that you’re really advocating is prevention, and one of the hard things about doing prevention is if you do a great job, what do you find at the end? Nothing. And it’s very hard to convince people that’s a good outcome. And of course it’s the exact outcome we want. I think that’s one of the changes that we have. If you look at any of the budgets that go towards public health, and I probably shouldn’t say anything. But if you look at several of them, for instance, if you look at cancer, prevention is a tiny fraction of the amount of money that goes to research because we always want to cure things. And I think we need to change that concept, that’s a bad concept. Prevention would put the people who try and cure things out of business. And if we can prevent the obesity problem, we don’t have to worry about all these consequences of diabetes and cancer and all the other things you’re talking about. So I think we need to also educate the public health people on how important this is, and get them to work in these sort of situations to
help in the prevention and help work with—on the local level as well as elsewhere on pushing these agendas just like you suggested.

Belluck: Dan, you’re a leader in epidemiological community. What are the formal interactions that occur between your community and the transportation community to improve dialogue, to increase understanding and to prioritize what the needs are of both the decision makers in these transportation organizations, and what the state of the science is that you could deliver in a rapid time frame.

Wartenburg: I think most, in terms of the work I do that I know most about, most of the focus is on health effect, so it’s the studies that are looking at the negative impacts. In other words, people getting some sort of disease. There’s a heart attack study I mentioned and the cancer studies and the birth outcome studies, but I think that’s not the—I think that’s important and it helps define the problem, but it doesn’t promote the solution. I’m not as involved in some of the interactions with the transportation community in terms of there need to be meetings. I know that you’ve been involved in several of those. I’m trying to bring these people in to sit at the table even if they haven’t worked in that area, and talk about those issues and see the tremendous opportunities for doing good research. We’re always looking for good, exciting, meaningful research. And if that’s what needs to happen more, however you drag us kicking and screaming or whatever to the table to hear this, and maybe we’ll get excited about it at the time. I think many of us, though, on the local level, I mean, in my town I deal with it, but not as a scientist. I deal with it because I live there and I’m concerned about the traffic problems and all the issues we’ve been talking about here today.

Belluck: Rich?

Bell: I’d just like to highlight some of Harrison’s work in that regard. I think, as he said, his MPO meetings are very boring. And I think as long as there’s opportunities, say, for a medical professional or a public health professional to become involved in a transportation debate, is a hearing-like formalized setting with a lot of jargon. And that becomes a lot harder if there’s less motivation to become involved because there’s a steep learning curve, and people are tired, they happen in the evening or whatever it is. But the work he does to involve the community, things that are like ___, front-end work, community building work where public health professionals have a wide range of ways to interact. The language isn’t as jargon-y and it’s much more accessible. I think we’ll do a lot to create more interactions.
Wartenburg: But we also need to educate the communities. The community I live in, I sit on the board of health, and when we started—in our town they started introducing new transportation plans, they didn’t come to us, we deal with the septic systems. I think that we need to—and in fact where they went first was to the environmental commission because it was perceived as an environmental problem. I think we need to broaden the notion in the communities as to how these are interdisciplinary and multifaceted problems, and we need all the different parties involved. And obviously I wasn’t excluded, I could go to hearings about it, but I think we need to sort of push people to become more involved in user expertise. A lot of communities have physicians in them who are concerned about these problems but don’t recognize that their going to that meeting can have a big impact and that they can contribute something that some of the other people can’t contribute, and that’s the kind of interaction we’re looking for.

Rue: One last thought in terms of public process. One of the best ways to do that, associated with a project is—you mentioned ___ and the hands-on workshops. We might have, you know, 50 public meetings for a complicated transportation plan like the one we did at Oahu, but we also had 50 focus groups. Everybody from the doctors to the Philippino construction contractors to the waiters in the hotels to the guys who play golf in the country club, the lawyers downtown, and reaching out to folks who are not attending, it’s a good process. The other trick we’ve done recently is two full days of focus groups, the out of town consultants listen to about nine different groups. In your case, a representative of the health board would have been somebody who was in one of those groups and everybody else we could think of who might have a remote interest in environmental, water quality, any kind of association. Reaching out in your projects to reps to that you don’t have to bore everybody with coming to the same meeting. Only a few people.

[LAUGHTER]

Belluck: Let me ask a question. In your experience, can the scientific community, keep up with the research necessary to answer all of the questions that are being generated by other parts of the research community, and is most of the science generated and focusing on problems but not focusing on potential solutions?

Wartenburg: I think in terms of can we deal with all the questions, it depends the level which you want to get responses. One could argue we can’t deal with all the questions we have on the table today, so certainly as questions grow we can’t. On the other hand, we were talking before about using the data that’s available today, and if you’re willing to take imperfect
answers with approximate data that was collected for a different purpose, then you
probably can address most problems to some degree. The question is, is it good enough?
And that’s a much more complex question.

Bell: I would say when you look at studies like the environmental determinants of physical
activity and you see just how many determinants have been identified, you see the
challenge that’s there. I would think it would be difficult, at least at current funding levels
to keep up with the questions that are rolling out. In term of practice, and I think those
questions are very important and I think what we’re doing is building understanding, but
there’s a difference between building understanding of, you know, the elasticities and the
influence of various factors. There’s a difference between that and practice and solving
problems and putting things into practice. And I think that’s the gap we’ve got to really
look at, and what I hope is when we do try to select which research we’re doing, we have
an eye to practice.

Rue: I want to jump in on this just a little bit, but I think of sound science as including the
practice. In other words, those of us who were essentially playing with potential roadway
designs in the field, testing and trying new ways of improving capacity and maintaining
safety and making more livable… We’re actually coming up within testing designs in the
field, and then we observe whether or not they work or not. That, to me, is an application
of sound science. It’s not longitudinal research, we don’t bother with documenting as
much of the before and after, but if I’m going to paint a new lane in the roadway, we test
the speeds before and we test the speeds after and we see whether or not that actually
worked or not. And we go back to the same school three years later and see if the kids are
happier with the interventions or not. That’s an application of field science. It is roadway
design and engineering field research, but it’s not the kind of stuff that you guys on that
side of the table are talking about.

Savonis: In the purer sense, I don’t think there’s any way that research can keep up with the needs
in the transportation community. As Rich mentioned, the variables are just too vast, too
great, there’s too many different ways. I think of it rather in terms of relying on creativity
of people and the evaluation, you know, what Harrison is talking about. Evaluation we
have not seen a lot of. I commend you for doing some of that, and we have sought
funding to do some of this evaluation, but it’s difficult and it’s expensive, and one of the
conundrums that we face in the transportation community is that every dollar that we
seek for evaluation, before and after studies, is a dollar taken away from investment or
maintenance of these facilities. And it really is a no-win situation because we continue to
try and improve the state of the facilities, but often without the information that we need. We asked the Congress to help us with that and unfortunately, they have thus far not picked up on our request for funding there.

Sampson: One thing I find interesting, maybe get into some trouble for this, but several years ago there was something called SHRP, strategic highway research program, which dedicated $150 million to researching pavements, primarily the asphalt payments. There’s $150 million. Create your own acronym and maybe you can get some funding.

[LAUGHTER]

Savonis: There are proposals on the table to do just that. But in a state of constrained funding it’s difficult.

Belluck: We have another question from a Joshua Hassel [ph] from Vulcan National Transportation System Center: “In my ongoing review of the literature, I find that most studies on transportation, the built environment and physical activity often like clearly defined theoretical models. That is, rather than proposing and then systematically testing causative factors linking transportation, the built environment and other factors, psychology, diet, etc., to measure of form variables on the one hand, and health measures on the other and hope to control for everything by using random sampling or other methodological approaches. How can researchers do a better job of building rigorous causal models to test and obtaining or generating the data needed to test that?” Thank you.

Rutt: Well, you can only do, you know, proof that there is without a doubt, A causes B with longitudinal studies. The cross-sectional studies will only show you that they’re correlated. You cannot prove causality from a correlational, cross-sectional study. So that’s what we were—I mean, the cross-sectional stuff is great, to say, “Okay, we think that these things—they’re showing they’re related.” But you cannot prove without a doubt that A is causing B. And I think we need to start with that. Like you look at—they notice higher rates of smoking or higher rates of cancer in those who smoked. So you get a good idea of what’s probably related and could be causative, and then you do your longitudinal study and then you’re able to prove that. So you have to realize we’re at a very immature science right now. We’re brand new, we don’t want to invest $50 million in one study when we could be measuring the wrong variables. You start with the cross-sectional study, you figure what’s a probably determinant, and then you go for better funding to do those longitudinal studies where you can actually prove A causes B. So just
please keep in mind we’re doing the best that we can, but it’s—we have to start raw and then we can narrow our scope when we have a better idea.

Belluck: Quick question: for many people, science is the Rodan and Mothra movies, you know, where a monster shows up, we put on our white lab coats, we have about 40 minutes in the movie to solve the problem, we solve the problem, and then we move on. Science normally takes a heck of a lot longer than that. When it comes to technology, what is it, every six months a new generation of computer with double the speed and a fraction of the price. Is that the model that many people have in their heads about us getting the science that we need to better address these problems? Is that why there’s so much pressure for a quick answer? Those are the two models that are in the average individual’s mind when they think about science and the application sides.

Rue: I hate to shock you, but don’t be upset, guys. I don’t think most people think about science and research that much every day. [LAUGHTER] It is the topic here, and decision makers do, they’re seeing decision makers who are looking at an investment ask for better information. Now, generally, they’re not asking for longitudinal studies or anything like that. They want the best research and they don’t think about what kind of research. They don’t differentiate between somebody going out and counting traffic, the number of traffic, the number of vehicles on there that day, and then somebody telling them, okay, in 20 years it will be this many, you know, in a particular model. Most average folks can’t differentiate that kind of field research to the kind of stuff that Candace is doing or that you’re doing in cancer research.

Belluck: Why is it then that you think that—and this comes from my experience at public meetings—when you go to public meetings it seems that people are often very surprised at how little we actually know about the science behind their questions and our seeming inability to get them firm, strong answers in real time. How does that relate to your comment that people don’t think much about science. Is it that the people that will interact with us at these meeting are those few that do think about the science?

Rue: No, I guess I just don’t—I want to be clear. It’s not that they don’t think much about it, in other words they’re not disdainful of science, they’re just not thinking of that first. When people come to public meetings, even Dan and his community thinking about traffic, you know, he’s not thinking about the science of traffic, he’s thinking about it as a driver or somebody running across the street. It’s in his way, it’s a pain. The things that most people care about, unless you are an activist representing a particular environmental group, unless you’re somebody really deeply concerned with children’s health, you’re not
thinking about the science of it, you’re thinking about the ways in which our transportation investments impact your daily life. That’s why people come to meetings. And we basically have to up sell them to a higher level of thinking with better information that is clearly explained. And again, the best research, it’s crystal clear when it’s completed.

Wartenburg: I think the other issue is that the way you’re portraying science, I don’t think that’s really fair. What scientific questions have we answered absolutely, I think it’s very few. We look at something like cancer, when was the war on cancer declared? 1970 or 1971 or something like that? And where are we today? We’ve learned a tremendous amount and survival’s gone up, but I think—quote you all sorts of statistics—but we don’t have the definitive answer and I think that the expectation for any sort of science occurs to anybody. Most scientific problems that you pose a problem and you’ll get the answer, it’s not how it works because the answers—the problems are very complex and the problems evolve.

I think we’ve learned a tremendous amount about transportation and about the built environment and we’ve implemented all sorts—I mean, we’ve heard today about all sort of exciting projects that are going on in real communities in the real world and we’re seeing effects. So I think actually it’s moving very fast and the number of people that are doing research in this area is skyrocketing. And I think as Candace said, it would be great to start doing these longitudinal studies as we get the data, as we use the cross-sectional data and the historical data to generate clear, testable hypotheses and can move forward and that that’s going to happen. None of this stuff happens overnight and there’s no magic answer that, “Oh, I’m the smart guy, I’m going to do the study and that’s going to answer it and then we all go home.” It doesn’t work that way. I think we have to have a more realistic view of what science does—can do and does do and how we utilize that information the most effective ways to improve all of our lives.

Rutt: And as you mentioned, it’s not just one study, you need several studies to really say, “Okay, this is probably a really true effect.” One study doesn’t reset the paradigm. You really need a lot of research and a lot of people finding the same thing using different methodologies and different tools and then it’s like, okay, this is probably a really true effect in findings. So with the physical activity in the built environment, we don’t have big fancy models. I know the ecologic model is one that’s used a lot, that Jim Salles [ph] came up with where the environment and the individual and the society all interact. But
we’ve got a long way to go before we really understand all the intricacies of how all the variables are interacting to predict behavior.

Wartenburg: That actually is a comment I wanted to make before we went on our break, which is all these models. Models are terrific and tremendously important, but following what John said, what we learn most from is when models don’t work. Model works and we already knew the system, so what’s the big deal? But when they don’t work, we are able to identify what we put into it that was incorrect, and that’s where we learn and move forward and get new knowledge. And I think that coincides with what you were saying as well.

Belluck: We have a question from Chad Edwards, Senior Transportation Planner at the North Central Texas Council of Governments: “One of your speakers mentioned that transportation projects in Virginia took an average of 17 years to implement. The science 17 years ago was much different than the science of today. Would it be prudent for transportation projects to undergo an additional scientific study immediately prior to the start of construction? This would update the science and address any new needs.”

Rue: Whoa, is that a loaded question. Of course, it would be prudent. But I think the real issue is not to set it up as a review. One of the things that happens is that any time you set it up as a review, people who just don’t like the project get to come out again and try and kill it. And that’s not—there should be good reasons not to do a particular investment if it no longer is cost effective, if we’ve learned more about the particular area where it’s going to go, or most importantly if the community has grown differently in 15 or 20 years and you end up thinking, well, that’s not really going to meet our vision. Then the science can be used as a way of, okay, what would meet our vision, what would protect this species we just discovered? Or in fact, what’s going to provide a more cost effective solution?

We’re undergoing that right now with a particular project in Virginia looking at a suburban strip corridor versus a bypass that really was designed a long time ago and really doesn’t meet community needs anymore. That’s coming more from the community vision point of view than from, frankly, new field research that shows there are better technical solutions than just another road to make the existing one work.

Savonis: And we do see communities taking a second look and state DOTs taking a second look at old environmental impact statements to make sure that the assessments and judgments that were included in that document were still, in fact, valid.

Belluck: We’re in our last few moments of our program today. What you heard today is the complexity of the issues and the technical data behind transportation and public health.
As populations increase, as demands increase on our transportation systems, sound science is going to become more important and more vital in the transportation management decisions. We thank you for joining us today and we hope that this has been useful for you. Please feel free over the next week or two to send us your additional questions and we will endeavor to answer them online. Thank you very much.

McDermott: Thank you Dave, and thanks to the rest of our panel on behalf of CTE. And most importantly, thank you for participating in today’s program. I’d like to acknowledge the many downlink sites across the country who tuned in today, including EPA’s air pollution distance learning network. I must also recognize the tremendous effort of the Agency for Telecommunications, the North Carolina Information Highway, North Carolina State University’s video communication services group, along with East Bay Media, all of whom helped produce today’s live broadcast as well as our web simulcast. And just few reminders before we leave you. You can continue today’s discussion on transportation and public health in CTE’s new After-the-Program discussion forum. We hope you’ll take advantage of this opportunity and visit the web discussion forum and post your comments and your questions and your topics. That forum will go live today at 4:00 following this broadcast and will remain active for two weeks.

Also, DVDs of today’s broadcast can be ordered from our website. You can also view this program in its entirety from CTE’s webcast archive, and online versions of the panelists’ handouts along with the PowerPoint presentations are available from our website as well. Please remember to complete the evaluation form located in your handout and return that to the site coordinator before you leave, and web participants can submit the electronic version of the form that’s available on CTE’s website. And we invite you to regularly visit our website and check out our newsletter. For more information about the programs that we’re producing throughout the year, this broadcast is our last one for 2004 and we invite you to join us on March 3, 2005 when CTE’s first broadcast of the new year will be featuring “Scenario Planning for Better Transportation Decision-Making.” That’s our program for today, it’s been a pleasure being with you. Until next time, thank you and goodnight from Raleigh, North Carolina.

[THEME MUSIC]
[END OF RECORDING]