

MAINE DEPARTMENT OF TRANSPORTATION

8/04 * ME

Integrating Land Use & Transportation

David Burwell, Ian Lockwood, Ansel Sanborn, Sam Seskin, Gary Toth

Speaker: ...or like me. I went to bed early. I was exhausted. Today we have a really exciting discussion on Secondary and Cumulative Land Use Impacts and Land Use in Transportation. I'm going to introduce Gary, and he will then introduce his panel.

Gary has 30 years of experience with NJDOT. He is currently Director of Project Planning & Development. His division is charged with generating a half billion dollars of new starts for New Jersey on an annual basis. Project planning involves creating a partnership with the host communities and regulatory agencies, and systematically [inaudible] project expectations to create a good fit between engineering, environmental and political considerations.

Gary has worked for NJDOT since graduating from Stevens Institute of Technology in New Jersey in 1973, with a Bachelor's of Engineering, majoring in civil engineering. He is also a graduate of the Environmental Management Institute at the University of Southern California in 1980.

Gary is one of the originators of the NJDOT task force on context sensitive design, which has been working to implement "CSD -- Thinking Beyond the Pavement" principles with the NJDOT since 1999. He has participated in workshops or peer reviews on CSD or CIA in Maryland, Connecticut, Washington DC, Indiana and Oregon.

Gary has been a member of the National Community Impact Assessment design team since 1998. He helped evolve that team into the transportation research board's CIA subcommittee in 2001, and remains a member today. In October 2001, he organized a 3-day TRB Northeastern US workshop on CIA, and he's decided to do it again in 2005. Prior to that, he was a member as well as Secretary Recorder of the ASHCO Task Force on Corridor Preservation. Gary is 52, single with three children, enjoys reading, coaching soccer, cooking and wine. Maybe not all that the same time, but...

So please welcome Gary.

Audience: [applause]

Gary Toth: Thanks, Judy -- and thanks, Anne, for the early applause.

Speaker: [inaudible / crossing]

Gary Toth: We've talked a little bit during this conference about the indirect and cumulative effects of our transportation projects, so it was a good table setter for our presentation, today. I'm excited to be on a panel with four. Sam Seskin's not here, yet -- hopefully he will be here by the second part of the presentation, so there will be four of us.

This is four of what I think are some of the top people in the country, in terms of addressing the secondary impacts of land use, via our transportation projects. We want to focus more on what to do about that. The people you see here are people that have all devoted their careers to trying to do something about it. To try to not just accept it as something that's just there and going to happen -- we have to try to predict it for our EIS. These are folks that are the cutting edge, in terms of trying to do something about it.

Let me do a brief introduction. This is the way we're all trained. Most of us -- I don't see anybody here that's very young. Most of us were all trained back in the interstate era. Our mission was to build bigger and faster and safer highways -- and we accomplished that goal. But those of us that worked and had anything to do with preparing EISs -- I think if we went around and made a collection for \$5 from each one of us that said that at least once in career, we'd have enough money to all retire. We've all said that evaluating land-use impacts, secondary impacts and cumulative impacts, was beyond our scope.

So we buried our heads in the sand and we decided that our job was simply to accommodate the traffic -- and accommodate it, we did. Whether it was on local streets or on the big highways. Borrowing one of Ian's slides, we thought that roadway expansion was our primary weapon against congestion.

In New Jersey at least, we tried to cover it all in asphalt -- and it looks like elsewhere, too. Like Sisyphus, we tried and we tried, but we kept going back to the same spot. Studies done by the Texas Transportation Institute around the county show that by every measure, the congestion indicators are increasing; in fact, they're increasing at an exponential rate, even though we probably had the biggest public works area; if not in the history of the United States, then certainly in the history of the world. It's interesting that a substantial number of people around the country now spend as much time in congestion as they do on vacation.

What this statistic shows is that not only is the number of hours increasing, but our ability to avoid the congestion is diminishing, because it's expanding beyond the peak hour, so you can't time-shift, any more. It's also expanding to the secondary roads. Those are national statistics, but in New Jersey we anticipate the same is happening. We expect it to get worse in the next 20 years.

Borrowing another one of Ian's slides, this is what we thought would happen when we all started in this business of building the interstates. We thought that if we just would widen the roadway, the congestion would go away. What was really happening was the whole idea of induced and secondary growth. So instead of actually solving the problem, we were contributing to the problem.

This is New Jersey's statistics. But from talking to the folks at this conference and some of the people at PennDOT who were partnering with us on this, it seems like it's the same, everywhere. We're running out of money. This is just another manifestation or depiction of how we're running out of money. Our commissioner calls us the "Five Fingers of Death." Basically, what it shows is that we're billions of dollars in the hole in the next couple of years.

That doesn't even include what we have under study. The previous statistics -- that's just what's in design and targeted for construction. So we have another \$8b worth of needs. By my calculations, at the rate that we're able to invest money in major expansion projects, it'll take us about 100-125 years to solve the congestion, just with what's in study and development. In NJ, we're only looking at about 5-10 percent of the problem. If you multiplied it out, it could take a millennium for us to try to solve congestion by building big highways.

Ian likes to talk about grasshopper planning. The story is that of the grasshopper being born in the spring, and then he's little. Every time he grows, the food supply grows, so he doesn't do any planning. He just anticipates that he's always going to be taken care of. But things that Ian likes to call "limiting factors" begin to occur, and the food supply diminishes. Guess what happens to the grasshopper?

The same thing is sort of happening to us, in terms of the congestion and quality of life. But there is some unanticipated fallout from all of this. It's what the country is now starting to call the "inactivity epidemic." I wanted to throw these slides in here, because I think when I first saw them, I was alarmed. In the last 15 years, the rate of obesity is increasing. Every time you see those colors change, it means things are getting worse in a particular state. We've even got some orange in 2001.

In 15 years, we went from being maybe not so bad to being pretty awful. That's why the health agencies are now starting to call this an epidemic. The question is, "How did we get there, and what are the impacts?" The impacts are not just health. It's costing our country and costing us a lot of money.

I don't want to stand here and tell you that it's all our fault, but we certainly contributed to it. We contributed to it by unhealthy funding decisions, by pushing most of our money into infrastructure early in our careers. We've designed communities around cars and the trips that make them. As a consequence, we got what we designed for.

We've created barriers to walking and bicycling. You can see that this is typical. There are streets like this in every state in the country. In fact, there are probably way too many of them. So we've come to a fork in the road. As Yogi Berra used to say, "When you come to a fork in the road, take it."

Do we continue to shovel money into our infrastructure? Do we continue to follow our demand models like they're a god that must be obeyed? I love this slide, so I have to find a way to use it in every presentation. If we try to follow that road, that light is never going to turn green.

What can we do? I think we don't want to roll the dice. We're here to talk today about what we're calling, "Smart Transportation Studies." It's a way of trying to deal with this by using our forecasts, and then trying to design and accommodate the future that we want -- not the future that we fear.

One of the things we can do is learn from each other. In NJ, we learned a lot from PennDOT and the Delaware Valley Regional Planning Commission, which started to do some of these land-use and corridor stories 4-5 years ago. PennDOT, about the same time that New Jersey announced its program and admitted finally to the public what we all knew for probably a decade, "We don't have enough money to build this stuff." So they made an announcement that they're terminating most of their major big projects -- because they don't have the money.

New Hampshire's doing a lot of really cool stuff. Ansel's going to talk about some of that, later. It was interesting by being at this conference, that I overheard a conversation between Sam and Dan Stewart from the Turnpike Authority here up in Maine. There are lots of very interesting and cutting-edge stuff happening right here in this MPO. They call it, "Destination Tomorrow."

They've developed a land-use policy and a transportation policy where they're saying that the MPO won't put a project in the long-range plan unless the municipality or municipalities through which it passes has a land-use plan -- a sound land-use plan.

They have a lot of guiding principles that go along with it. This is cutting-edge stuff that would come right out of a textbook that you would read anywhere. Right here in this MPO, they're implementing it. It's interesting that one of their guiding policies is that they're going to try to avoid building new highways, and that they're going to strengthen the link between transportation investments and land-use. They have all other kinds of guidance that, again, this could be taught in most of the urban-planning schools around the country.

We can also learn from other sectors. I always thought it was interesting, 20-25 years ago, when we found that our insurance companies were offering us money to go out and go to the gym and play racquetball and things like that. We began to figure out why. The reason why was that what they were trying to do was to alter the behavior of their customers, to prevent the onset of health problems, so that they could reduce the costs of the services to a manageable level.

So the insurance companies figure it out before we did. But it was counterintuitive, at first. Why didn't they want us to become unhealthy, so that we needed to rely on their services more? Well the reason was that they were going to price themselves out of the market, and they were going to go out of business. So they took the counterintuitive approach and tried to cut back on the demands for their services. The challenge for us is, "How do we do that?" That's what we're going to talk about, today.

We have Ian Lockwood and David Burwell. They're going to talk in the first part of the session. David and Ian are going to focus more on the theory and the connections between transportation and land use, and on the effects and results of it. I'm sure they'll show some examples from around the country, but their focus is going to be more on theory.

After we break and come back, Sam, Ansel and I are going to do more examples. I, from New Jersey and Ansel from New Hampshire. Sam has a scattering from around the country. Let me introduce our first two speakers, and then I'll introduce Ansel and Sam, later.

David Burwell is from the Project for Public Spaces. He's a gentleman that's devoted his entire career to Smart Transportation. I'm not going to read his bio word-for-word -- you have it there. From what I know of David, though it doesn't say it in here, but I think he was the founder of "Smart Growth America." He worked for the Surface Transportation Policy Project. He worked for the Rails-to-Trails Conservancy. He's working for two consulting firms, now. One's the Project for Public Spaces, which is dedicated to improving the quality of life for people around the country. He's working also for a second firm that does the same kind of thing around the world. Since he's been working for the Project for Public Spaces, he's been doing a lot of work with us in NJ, and trying to help us tackle this monster.

Ian Lockwood, I don't think started out working on Smart Growth. In fact, I think he started learning in college how to shoot water balloons across the football field with a big slingshot, to get to the other side. But when he was going for his Master's degree, I think he wrote his Master's thesis on traffic calming. That got him interested in the whole idea of how roads can positively or negatively affect a community.

That led him to work for a consulting firm in Ottawa, in his hometown. Somewhere along the line, he went to a conference where the mayor of West Palm Beach heard him speak. She was trying to turn West Palm Beach around, and loved what Ian had to say, in terms of the roles that streets could have in either positively or negatively affecting a city. So she convinced Ian to make the long shift from Ottawa, Canada down to West Palm Beach. I think it was for about 5 years that he worked for West Palm. He did some really amazing stuff in terms of traffic calming, and I think Ian's going to talk about that in his presentation a little bit.

After things ran their course there, Ian went to Glad & Jackson, which is a cutting-edge firm in terms of doing this type of stuff. I've seen Ian a number of times. We've worked with him in NJ. I actually was honored to have Ian come in and help us do a traffic-calming plan in my hometown of Lambertville, NJ. That's the first municipality in NJ to have a traffic-calming plan for the whole municipality.

In any event, without further ado, let me turn over the mic to David.

David Burwell: Good morning.

Audience: Good morning.

David Burwell: It's great to be here and have another day in paradise. Ansel made the point that this is an escape day. Indeed, in fact, this is a beautiful day and the last day of the conference. So we have our work cut out for us. You will have a really interesting panel session here, today, I think.

In asking us to participate in this panel, Gary said, "Let's try to make this a positive session." A lot of times, when you talk about secondary and cumulative impacts, it's all about the bad things that have happened with transportation. But this time, it's about the good things that can happen in transportation, as a result of promoting transportation and land use, and that coordination, and the positive things that can happen in community.

Just to get to the punch line of this particular presentation, it's all about the futility of trying to solve and address community impact from the supply side of transportation. As Gary pointed out, that's like Sisyphus going up the hill. To achieve real positive community outcomes, we have to look at the demand side, and do that through transportation and land use.

Also, I have an admission. I'm a lawyer by training. The more I get into knowing more about transportation and how it's implemented, I realize that most of the problems in transportation and land use are caused by lawyers. The lawyers have gotten the transportation folks so scared about doing anything that doesn't meet the ASHCO design guidelines, or they're going to get sued. At the same time, anybody on the land use side, on the planning board, have similar fears of legal actions. So my penance is to look for ways to overcome these problems with lawyers.

This is a quote by William White, one of the mentors and founders of the Project for Public Spaces. The point is that people have forgotten in this country that transportation and roads, in particular, have always been a gathering point for communities. Crossroads happen where communities happen. As we focus more on moving vehicles rather than providing access for people, transportation has lost its point as a gathering point and focus for community development, and what you folks are all about achieving -- going back to the time when transportation could be a positive contribution to community development.

I think this quote by Jane Jacobs -- anybody not know who Jane Jacobs is? She's the author of "The Death and Life of the American City." I think this particular quote is all you need to know about secondary and cumulative impacts. "The erosion of cities by automobiles proceeds as a kind of nibbling. Small nibbles at first, but eventually hefty bites. A street is widened here, another is straightened there. A wide avenue is converted to one-way flow, and more land goes into parking. No one step in the process is itself crucial, but cumulatively, the effect is enormous." That, I think, summarizes what you folks and your business is all about.

This quote is from Gary's boss. For me, it describes how far transportation leaders have come in this issue of transportation, land use and community development. Wherein, "The transportation and the community-development business would go into a town and address the transportation problems and screw up the community, we haven't done anything." I think this is a real statement of the new mission for transportation agencies, and a real contribution to where we're going in the future. This is just an example of when nibbles come into bites. I don't think anybody can say -- even though -- that's either density or community.

We're all stealing from Ian's presentation. I don't know if he'll have anything left to say!

This one quote shows in one slide the mutually-dependent variables of transportation and land use. It's what we've been denying, as Gary said, for many years. You start with the road-widening. There's no congestion. That induces more accessibility. Land prices rise. More development occurs. Subdivisions develop. More residents move out. Congestion develops. They call for more road-widening. That's the problem of transportation and land use, if they're not coordinated. We absolutely have to deal with this.

[Gary's thought about] Senator Moynahan... "We can't make a presentation about a bow to him. He said, "It's becoming increasingly apparent that the American government can no longer ignore what is happening to the suburbs, as the suburbs eat endlessly into the countryside. Since the spreading pollution follows the roads, those who build the roads must also recognize the responsibility for its consequences." He said that in 1960, as

a 32-year old graduate student. Thirty years later, Senator Moynahan just happened to be Chairman of the Transportation Committee in the Senate. We presented him with that statement, and he said, "We're going to do something about it. Write me a bill."

The result is [Iced Tea] and T21. I'm sure you folks all know about those laws. It was a tremendous watershed event in transportation policy. It basically said, "We're going to stop just focusing on moving vehicles. We're also serving people and communities." That's what you are all about.

The key part of [Iced Tea] was that it expanded the set of customers that Transportation was going to serve. Not just folks who drove, but poor people, seniors, children, and disabled. They became core constituents of transportation service. Most of the reforms that I see driven are a result of being focused on communities with non-drivers. These are the types of new agendas, as I'm sure you all are aware of. Access to transportation services for everybody, to address the adverse lifestyle effects and social isolation. Improvement of community cohesion -- or what some people call, "Social Capital."

I did a little bit of research for this presentation to find out where "community cohesion" comes from. Does anybody know where community cohesion comes from? That's actually in the statutes. The 1970 Highway Act.

Audience: [inaudible]

David Burwell: 109H. That's very good. You must be a lawyer.

Audience: [inaudible]

Speaker: [My wife] reminds me of that all the time.

David Burwell: So what is community cohesion? There actually are guidelines on this, you can probably tell. It means "attention to community and institutional structures." "Trust in political institutions." I guess we haven't done too well with that in the transportation area. "Density of acquaintanceships." And, "family and friendship networks." How's that for an objective of transportation? I think that's terrific, and if we paid more attention to this, we'd be a lot better off. If we do focus on that, that's the old service we provided to seniors. Gathering places. Transportation can provide gathering places for seniors. For kids. Go from Babes in Toyland to this type of accommodation. Paying attention to these types of customers is what positive community assessment and impact is all about.

So, the challenge. "How can we better manage the transportation and land-use connection, to promote social integration and community building, with respect to impacts on access, lifestyle effects and community cohesion?" Just another version of Gary's. "Let's cover it with asphalt." We seem to be doing a pretty good job here in the United States -- particularly on the East Coast.

Another problem with community impact is the lack of equity in distribution or attention to transportation, as a result of sprawl, basically. This is a map showing the distribution of highway funds in and around Birmingham, Alabama. The point is that as sprawl occurs, the attention goes to building more roads in the suburbs, and lack of attention on reinforcing transportation in the central community.

Another big problem with transportation. When I was at the [Service] Transportation Policy Project, everybody talked about the public cost of transportation. But one of the big problems is the private cost of transportation and these types of transportation settlement patterns. Now, on average in this country, we spend about 20 percent of our post-tax discretionary household income on transportation. If you distribute it by income group,

the lowest 5th of our income group is paying almost or over 40 percent of their discretionary income on transportation -- because everybody has to drive.

On the public costs, this is a comparison of cities that promote construction of new roads -- new lane miles -- as the way to address congestion, as opposed to cities that don't. This is a consumer expenditure survey. Of the top metro areas that increase land-miles by 17 percent in the 1990s, their household costs went up 21 percent. Cities that did the least and actually reduced land-miles per capita during the 1990s, their household costs of transportation went down.

We're paying more to build more roads, particularly in urban areas. What's the effect on congestion? In the high road-building metropolitan areas, congestion increased 23 percent. In the low road-building areas, congestion increased 19 percent. These are again Texas Transportation Institute figures. Trying to grow our way out isn't going to work. Gary's point about obesity is also a big problem. This is all the bad news. We're getting to the good news pretty soon, here.

This is an interesting study done by Don Appleyard in the early 1980s. This was a study of the density of acquaintanceships as a variable to highway traffic in your neighborhood. Interesting what he found. In the low-traffic streets and roads in urban areas, people had about 3 friends and 6 acquaintances on these streets when traffic was under about 2,000 ADT. In medium traffic, up to 5,000 ADT, people had about 1.3 friends and 4.1 acquaintances. In the high-traffic areas, they had 0.9 friends and 3 acquaintances. That means some people had no friends. Another example of what we all know, but it's often hard to quantify. That is, the effect on social capital as a result of increased traffic. Again, this is pointed out by Jane Jacobs. The importance of these small and random encounters are key to the creation of community. We have to be responsible to promoting that.

A few slides on Bergen County, New Jersey. Gary's going to talk a little bit more about that in the second session. We're working with them in the most-densely settled county in America. This corridor has a big problem, and the proposed solution has been to widen it. NJDOT does not think it's a great idea, and has asked us to look at the land-use side of the equation, to see if we can come up with alternatives.

This is the corridor, itself. You can see this is the Garden State Parkway, up here. This is Interstate 80 down here. Route 17 links them, plus Route 4. This is up here in Bergen County. As a result, Route 4 and Route 80 also both end up egress and access to the George Washington Bridge. So if one of these corridors gets congested, traffic just tries to scoot up to the other. This also has the biggest mall in New Jersey -- the Garden State Plaza, with 2m square feet of retail, right there. It is basically a long strip mall, for about 6 miles. It has 6 lanes north and south, but in this particular section, it's 4 lanes. The issue is, "Can we widen it," but, "Are there more alternatives?"

This is also an example of the problem with ignoring land use for 50 years. You build the highway and ignore land use, and this is what you get. This is the corridor, right here. Interestingly enough, this is the Bergen County mainline commuter rail. This is the PASCACK commuter rail line. This line right here, even though this is a high-demand corridor for transportation, it has only trips per day. One going from north-south in the morning, and one going south-north in the evening. That's kind of interesting. How about the people who live here and want to go up there in the morning?

This is another example of the corridor. It's very highly congested. It's very difficult. On the right-hand side, it's all strip -- commercial retail. On the left-hand side, it's very much densely residential. So there's virtually no room to move.

The challenges with this widening project -- these are all costs. These are all the cumulative impacts we know. Very high cost; very high environmental impacts. It takes a long time. This is an important one, as you'll see in

a second -- the property taxes ratable for the southern communities are all located along this highway. So if you widen the highway, you lose a significant part of their property tax.

Again, the equity and community impacts of this -- we did a little analysis of the household median income in 1999. Here's the corridor, right here. This is between \$30,000 and \$50,000 average household incomes, down here where all the impacts are occurring. The benefit of widening it will go to all these folks, who have average incomes of \$110,000 to \$175,000. So who benefits and who pays from this road widening is something that hasn't been addressed in this debate -- but it should be in the future.

We mentioned earlier about the impact on the ratables. Even though it's the relatively poorer cities, the percentage of household income that goes to pay their property tax down here is very high -- from 5.8 percent to 7 percent. Up here in Saddle River -- former Richard Nixon's home, as Gary pointed out, only 3 percent. So there's the issue of who benefits and who pays from a road widening. I think this is something that has to be addressed.

What do we do about this? We have a 3-pronged approach. Demand-side strategies -- Route 17 -- basically as you see here, are focused on land use. Rezoning, consolidating the strip developments into redevelopment areas. Trying to get all the towns to update their master plans. Of the 9 towns, 7 of them do not even have a transportation element of their master plan. In NJ, Bergen County probably has one of the oldest master plans in the state, and there's no requirement that they update it at any particular time. We're going to try to goose that up.

Supply-side strategies -- there are other things that you can do with transportation that are small nibbles. But they're also small improvements, as well. The enhancements programs, CMAC program and all the programs you know. Safe Routes to School, Main Streets... There's a lot you can do off-corridor to improve connectivity in the grid and move a little of this traffic off the corridor, itself.

Operational strategies -- incident-management, time-of-day zoning. These are other things I think Sam Seskin has done a lot of work on. Being able to secure operational control over the corridor, itself. That's another way to address corridor congestion. It's what I call the 4 M's.

Incident management. There's no incident management at all on Route 17. There's no coordination between the towns. What happens if you have a wreck? People have to rely on their cell phones and do the best they can. Access management. Curb cuts. This is also a problem.

Locally, coordination with the local communities, the county and the state, because different highways, as you know, have different access permitting requirements. Mobility management. We interviewed every institution, large public and private employer in the area. Only 1 out of the 25 that we called had any mobility management. This one was a hospital that had a guaranteed ride home program. Other than that, there were no services for their employees. And of course, land-use management.

I'm going to wrap up with some slides from Project for Public Spaces. That's an organization devoted to the idea of building community by focusing through the lens of "place." The organizing principle of Project for Public Spaces is, "If you focus on place, everything changes." It changes because place is what integrates all the different hopes and dreams of a community.

The community is the expert. If you go to a community and you talk to those people, you engage communities intensely in the nature of the problem -- not just the transportation problem, but the nature of the problem of the place. You can very quickly come to conclusions and consensus about what the place needs, in terms of both transportation and land use.

These are some positive outcomes that are possible. Renews good connections between transportation and land use. Can renew downtowns and neighborhoods. Pedestrian life creates businesses and jobs. Enhances real estate values. You know a lot of this stuff. It also nurtures a sense of community, builds social capital, creates gathering places for transportation. That's in the historic function of transportation -- to create gathering places -- not to destroy them.

It improves safety and security by traffic-calming and decreasing the difference in speeds between different types of modes. It can actually improve safety and security through place-making and connection between transportation and land use. It does improve access for everybody -- particularly the new constituency of customers, created by [Iced Tea]. Again, as Gary pointed out, it also promotes physical activity and public health to a certain extent. Of course it's not completely our responsibility as transportation professionals. But the lack of connectivity of non-motorized transportation had contributed to people not being able to walk, bike and run as a method of transportation.

Finally, of course, traditionally transportation shapes growth and minimizes sprawl. That's not in New Hampshire. That's like Vienna or someplace. We had to go outside the United States to find some place that didn't have sprawl.

I'll end up here with an advertisement. Project for Public Spaces is working with ASHCO, FTA, the Institute of Traffic Engineers and NAFCTO -- the National Association for City Transportation Officials. It's putting together a website on context-sensitive solutions. A vital view of strategy of FHWA is to have context-sensitive solutions, which are very much involved with the connection between transportation and land use in all 50 states by 2007. We're putting together this website. It's in beta testing, right now. If you want to look at it, we'd love your feedback. Go to ContextSensitiveSolutions.org. I even put that as a favorite, because I always misspell it.

Here's the key. This is the security password. Click on the term, "Context-Sensitive Solutions," on the top left, and you'll be able to get into their site. Here's an example of what it does. We've polled every state and found out what they had with regard to CSS, in terms of a CSS policy, a CSS training program or a CSS pilot project. By every state, you can find the status of CSS training, in each of those states.

Finally, this is just an example via slide. It shows how on the broader scale, transportation and land use can build community. We tend to create our civic institutions completely independent from each other. So people have no option but to drive -- but also no community. By integrating transportation and land-use networks, we can also create not only good neighborhoods, but good communities.

Here are the lessons for the day, for the test. Four strategies for making the transportation and land-use connection. Again, starting off with this issue of community cohesion and social capital. Be serious about Section 109H. Think about how transportation can make a positive contribution to your community, and how that can be measured.

Hold agencies and community partners accountable for clarifying roles and relationships for addressing transportation, land use and social stability -- the Four M's. "Who's going to do incident management, who's going to do access management, who's going to do access management, who's going to do mobility management? Who's going to do land use?" Ansel's going to talk about that. NH is one of the leaders in trying to forge relationships between the state and local communities to address the problems that you see in Route 17, before they happen.

Third -- an intense focus on community engagement in all parts of the planning process. It's not just a design problem, of course. Get community engagement in the long-range plan and the tip and the unified planning

work program. You have to have CSS. You have to have transportation and land use driving all the planning processes.

Finally, strengthen the land-use partnerships by applying CSS strategies to the whole project-development process. Ending with this -- this is a quote from the President's Council on Sustainable Development -- 1996. "We believe to achieve our vision of sustainable development, some things must grow. Jobs, productivity, wages, capital and savings. Profits, information, knowledge and education and others. Pollution, waste and poverty must not." That's a good, positive statement about CIA, and what we're all about, here. We've got to think about more good things and fewer bad things out of transportation, and we'll make our contribution. Thank you.

Audience: [applause]

Ian Lockwood: One moment, please. Good morning, everybody.

Audience: Good morning.

Ian Lockwood: My name's Ian Lockwood. As Gary said, I'm a traffic engineer with the community-planning firm of Glad & Jackson. I subsidize a house in Florida, but I actually live in a suitcase, and travel from town-to-town, helping people make better streets and better decisions about their cities.

I want to start with showing you this book. It's called, "The Guidebook for Assessing Social and Economic Effects of Transportation Projects." The National Research Council produced it.

I was on the panel that helped produce this book. My big criticism of the book is that the initial assumption or the underlying assumption of the whole book is that transportation projects are negative things for society, in terms of their social and economic effects on communities.

What happens is we have a transportation project that we base on some forecast. We get a needs and purpose statement, and we look at different alternatives. We pick the best one and then we mitigate all of these negative effects on community.

I strongly believe that this is a choice we have. We don't have to build those sorts of projects. We can actually think about our communities differently. How we're thinking about cities and communities is that the city or the community is the project, and that we know what our outcomes ought to be. They should be safer, they should be more cohesive, and they should be more beautiful and more economically successful. Then we design our streets and places and so forth to result in those outcomes. We're kind of turning it around the other way, starting with the type of city we want, and then building toward that vision.

Why do cities exist? This is a fundamental question that we ought to ask ourselves. From a transportation perspective, we think cities exist to minimize travel. To bring people together for the purposes of exchange. Exchange of goods and services and entertainment and social contact and justice. All these sorts of things. The pursuit of mobility or speed tends to spread cities out. They tend to lower the density -- reducing exchange between people. In some ways, you can make an argument that the pursuit of speed and mobility is anti-city, because it reduces exchange, and that's what cities are about.

There are two types of exchanges, in our view. There are planned exchanges and unplanned exchanges. A planned exchange would be something like jumping in your car, going to the drugstore and picking up some sunscreen, or something. You go there and you go back. You've achieved one planned exchange.

An example of an unplanned exchange would be that you live in a walkable community. You decided to walk to the drugstore and back. On the way, you might meet a neighbor and have a chat. That's an unplanned exchange. You might wave to the butcher. You might watch some children play in the park. You might ponder some public art. You might say hello to a stranger on the sidewalk. These are all unplanned exchanges. While you're picking up your sunscreen, you may achieve maybe 12 unplanned exchanges. We think that the richness of a community -- the quality of life -- is proportional to the unplanned exchanges that you'll encounter on a daily basis.

The way we get these unplanned exchanges is through access -- promoting access. Not just driveway cuts, but access in terms of block structure, front doors, access to people and services. That sort of thing. We all know this is true, because when you choose, for example, your vacation location -- if you're going to an urban place for your location -- you choose to go to places like Paris, for example. Like in this slide. You know when you go there, you're going to experience unplanned exchanges.

You might be going to the Louvre to look at art. On the way, you'll see coffee shops and art and fantastic buildings. You'll see people. This is why you go there. You do not go to Irvine California and drive around cul-de-sac gated communities. It's boring, it's dull, and you have no exchange.

The other thing is that when you go to these places, some people say that we're in love with our cars. I think we're in love with convenience and this sort of thing. I don't think we're in love with our cars. When you go to Paris or you go another place like that, you immediately adapt. You start taking public transit; you start walking. You start doing all the sorts of things that they do there on a regular basis, yourself. Even though where you may live regularly, you may be car-dependent.

It's not because we're genetically-programmed in America to drive cars -- it's just that they're convenient. We will adapt to our environment. The idea is, if we can adapt our cities over time, we will adapt, accordingly. We know we can do it in one plane ride, so we can certainly do it over 20 years, if we change our cities.

Eighty years ago, our streets -- our big streets and our little streets -- all operated at the same speed. The speed of a walking horse. It is a very modern assumption that our big roads are fast roads. We've had 5,000 years of urbanism, and in the last few decades, we've changed our inherent assumptions and we've made our big roads our fast roads.

This is a busy street, in this slide. It operates at the same speed as the alley. The big streets with high carrying capacities can be slow. You can find some nice little roads elsewhere in the world. By being slower, even though they carry a lot of traffic, they can have retail on the sides. They can have cafés. They can have housing. They can have all these sorts of things and all the mixed-uses we want in cities next to them. But our preoccupation with speed makes these roads hostile and anti-pedestrian. We want to step further away, and we can't [hold the street].

Typically, we align our big roads, because they're fast, with some sort of commercial land uses. We have this glut of commercial land on the market, and we end up with one-story, low-value buildings and surface parking lots. I think you can see that just about everywhere you go. Systematically, slowing down our big streets and cities, we will get better big roads and we will get better mixed developments, and more sustainable and healthier developments.

We've talked about patterns. Pattern recognition. What we see in different countries and what we see here. What's going on. We all have this pattern-recognition capability. Here's a bunch of pictures which are relatively meaningless from a transportation perspective. But just by looking at them, you can see a nice flower, a good line in the dense area, and good proportion in Leonardo DaVinci's picture. A nice plaza, in

which you'd be willing to spend time. You just look at these things and you know they're of good quality, and nice.

Here's a picture. There's a lot of information coming at you, but there's a problem, here. Maybe there's an architect that could point it out to the rest of us.

Audience: [inaudible]

Ian Lockwood: The driveway; yes! It's too steep. You'd have a problem getting your car in and out of the driveway or in and out of the garage.

Audience: [inaudible]

Ian Lockwood: You can tell that just by looking at it. You don't have to study it, at all. The next slide's a little more complicated. One of these houses doesn't really fit into this street. I had an architect explain this to me. It has to do with the lack of windows and doors. Can anybody tell which one doesn't fit in?

It's easy to tell which one doesn't fit in. It's interesting that the architect who actually designed it realized that not enough light was entering the building. So he put a skylight in the roof.

But let's get to a city. Cities have problems. How do you tell what the problem is? There are all kinds of layers that go into making cities. There's the street network, there's the history. There's the economics of it. There are all kinds of things going on. What may seem to be a problem may not actually be the problem. It could be the symptom of a problem. I think this is telling. It has to do with what we call "pattern recognition."

This is a set of tiles. Can anybody tell what the mosaic is saying? Does anybody know what that means? Can anybody tell? [inaudible] somebody can see it. [inaudible / crossing]

You can analyze each of these little tiles 'til you're blue in the face, and you won't understand the picture. What you need to do is squint your eyes, and then you'll see it a little better. The detail. If you do a statistical analysis of how many white tiles there are next to black tiles or whatever, you'll never get it. You'll never see the big picture. For those of you who can't squint your eyes, let me blur it for you.

I took the same photograph and I just blurred the lens. That's the same set of tiles blurred. Now can you see Abraham Lincoln? It's actually not Abraham Lincoln; it's a prime minister of Canada that just looks like Abraham Lincoln.

Audience: [humored]

Ian Lockwood: But you're close! No, it is actually Abraham Lincoln. The point is that sometimes the detail on the analysis of the tile doesn't help you see the big picture. This is so true in my profession. We focus -- we obsess -- about levels of service, delay and these sorts of things. We try to fix this from the perspective of our tile, and we damage the city. We damage our public health and we do a lot of other things. What we really need to do is to allow that whole context to inform our decisions about transportation.

This may not seem relevant, but all these slides are related. With pattern-recognition skills, we can tell. The block structure on the top left is too big. The motor vehicles are too big. The arterial is too big and too fast. The apparatus is too big. We're chasing our radii and alleys negatively. Our delivery system is too big. Our portion sizes are too big. Consequently, we're too big.

Audience: [humored]

Ian Lockwood: There are health ramifications to it. We're destroying our environment and we're lowering our own health. There's too much traffic for Billy to walk to school, so we drive him. Anybody here that as a kid walked to school? I know I did. Anybody else? Now who here has children that walk to school? Two. Okay. Most of us walked; our kids don't. Something changed in a generation.

Our streets changed. They became busier and faster. Lots of other things changed. I borrowed a bunch of slides from the Center for Disease Control. It's dangerous to walk, in many places. We kill 5,000 people a year in this country -- 5,000 pedestrians -- a year. However, it's not that much safer to drive. We kill 42,000 people on our streets a year. That's more than the September 11th disaster every month. It is a serious problem. We injure 3.5m more people. It's going to get worse.

I think you've seen these horrific stats before, probably. Our vehicle miles per person has more than doubled in 35 years, and it's going higher. Studies have shown that as density decreases, driving increases. We all know these things. Sometimes I think I should [just sit down], because the flags are already showing. You've seen that [inaudible].

Our farmers are growing a new crop. It's called [raw]. We're driving more. We're driving further to shop and further to do errands. Women in particular are driving more. 64 minutes a day. A single mother spends 75 minutes a day driving, on average. That's huge! We're hurting ourselves. We're getting bigger. We're getting diseases.

Over the last few hundred years, we had the big diseases like tuberculosis, malaria, cholera and these sorts of things -- huge, insurmountable diseases. Architects and builders and communities responded, changing community designs, inventing toilets and septic systems and sewage treatment plants. We got rid of a lot of that stuff. We've almost eradicated these historic diseases. However, we have a whole new crop of diseases that are literally killing us. Cardiovascular diseases, respiratory diseases, cancers, and arthritis and osteoporosis and these kinds of skeletal diseases. A lot of these are effected by our built environment -- our lack of walking, our heat syncs in cities and ozone, and these sorts of things. It's going to be increasingly important as our population ages and as we get more obese -- mental disorders are on a huge increase. The Ritalin use amongst children is 3 times what it was when we were children.

Our population is increasing, due to some factors that are important. Our population is increasing, and it's getting older. As people age, they cost more for healthcare. Since 1960, you can see the percent of our GDP that goes into healthcare has almost tripled. That's going to up. It's going to be maybe 25 percent of our GDP in the upcoming years. That's a huge bottom line cost.

The...

[tape turn]

...one day a month since 1993. You'll see how in these slides, we're getting bigger since just the early 1990s. It's a huge, huge increase.

Children from the ages of 6-11 and 12-19 -- the obesity rates have tripled since when we were children. It contributes to a variety of cancers, and it contributes heavily to diabetes. This is the same set of slides that's showing how diabetes is increasing in the country. This is not just some guy saying this. There are real health problems that are happening.

I always work in a slide of myself in every presentation.

Audience: [laughter]

Ian Lockwood: Don't let the hairpiece fool you!

Audience: [laughter]

Ian Lockwood: Actually, this is a men's fitness magazine. They did a survey on the status on American fattest cities. The winner this year was Detroit -- bumping out the long-reigning champion of Huston.

The mayor of Detroit reacted to the article saying, "It has to do with culture. We're not a walking city, and we're the automobile capital of the world." His pattern-recognition skills nailed it, on all three accounts. Culture, not walking and it's automobile-oriented.

I'd like to talk a little bit about the culture. You've all recognized this book is [inaudible] manual. In my view, it is the book that has shaped cities more than any other book in the United States. It contains what's sold as sort of technical material. But it has in it built-in philosophy and language. It's a way of thinking about streets, which has hugely influenced urban form.

Part of it has to do with its language. We'll talk about the culture part. [Gary, you can't be a policeman. You're a girl]. Do you remember in the 70s where there were sort of the gender wars between men and women? There was a whole thing about political correctness in language. There was, "Chairman, fireman, man-hours, man-power, fireman, policeman..." All of these things had a gender bias, which excluded women. All of that was replaced with gender-neutral language. "Chair, police officer, fire fighter, human resources," and this sort of thing. We became gender neutral. Now half the audience here is women. It wouldn't have been like that 30 years ago.

The choice of language can create a bias and perpetuate a bias. In transportation, we have built-in biases in our language. "Once your street is improved, the curb will be right here." Now, how many times have you heard people talking about "improvements," when they're really talking about a "widening?" By saying, "improvement," you adopt the bias of the stakeholders that are helped -- namely, the motor vehicle. You show a bias against every other stakeholder that's being harmed -- like the people who are interested in [inaudible] or the homeowner or business. If you want to be objective and appear to be objective, don't use biased language. It will affect the way you're perceived in the public. It may even affect the way you think.

I was told once by a fellow engineer that this place could no longer be improved.

Audience: [laughter]

Ian Lockwood: Can you imagine? Upgrades -- here you've got plenty. Even the street got upgraded to an arterial. Just the other day. Again, it's showing a bias. [Helping an area against an upgrade]. Showing a bias as you move up the hierarchy of streets. There's nothing wrong with saying, "Change." There are objective translations we can use.

Traffic-demand. As if it's some sort of imperative thing that we have to accommodate. Yet it's a euphemism for "motor-vehicle use." Accidents. Clearly, we all understand that's "collisions." It's not just some unlucky event. There's a responsibility that can be assigned. You saw this earlier -- to make this "more efficient," they add two more or four more lanes.

Every comp plan I've ever read says, "We want to make our roads safer and more efficient." What we mean, typically, is not, "efficient." It's "fast." We spend more money, land and resources and time traveling than any other place in the world -- in the history of the world. It's not efficient. We consume tons of energy, increasingly. So it's not about efficiency -- it's about speed.

Let me go into the big efficiency myth. We all agree that a car moving along burns less fuel and pollutes less than a chronic congestion. I think we all agree with that. Right? We all agree with that. Okay. Consequently, a stream of cars moving along burns less fuel and pollutes less than a stream of cars' congestion. Does that make sense to us all? Consequently, a whole city of streets and a whole network with cars moving along burns less fuel and pollutes less than a congested city. We all agree with that. Right?

But that's the leap. That's the leap of faith that has never been proven. When you actually look at the real data and you don't look at this theory, what do you see? Well we'll plot out land use and energy consumption, in terms of density and energy per capita. These cities that pursue mobility and speed -- what they call "efficiency," like Houston and Phoenix and Detroit -- are the most inefficient cities in the world. They use more energy and more land than any other city, anywhere in the world, in the history of the world.

As you get off that sort of treadmill -- this mobility treadmill kind of thing -- and you get into cities that concern themselves with other things, you get more-efficient cities. Like Chicago. Like New York. Then you get into the Australian cities and the Canadian cities. Then you get into the European cities, and eventually into the Asian cities. Now, I have an issue with the quality of life when you get into the Asian cities, but the European cities, I wouldn't mind aspiring to. They worry about other things than just "speed." I think if we want sustainability and if we want more efficiency, we need to start addressing these very real problems and attitude.

We were taught in school that if we widen the road, we'll reduce delay and we'll reduce costs. Using our pattern-recognition skills, just look around. You look at places like Houston and Detroit and Atlanta -- when they do this sort of first-order thinking, look at the second or third order consequences. People range further. You get more strip development. Jobs move out. People drive more. They own more cars. They do more lane miles. The second and third orders of consequences more than outstrip the investment in the widening of the road. You're going to see this theme repeated over and over.

If we accept congestion, like the cities you saw in the previous presentations, we were taught in school that that will increase delay and increase costs. Now you look around at real cities -- not just this first-order theory. What happens in them? People improve their homes. They use alternative modes of transportation. They drive less. They own fewer cars. They invest in their cities. You get less strip and you get better downtowns, and so on. Those are the second and third order consequences. Our model was flawed. As a professional, we need to get over that, and accept these new ideas.

The capacity of streets. Look in any transportation textbook. The capacity of street is something like, "The number of motor vehicles that can pass over a point on the road in a period of time -- typically, an hour." Yet we all know that streets have the capacity to host social activities, to build recreational facilities, to nurture businesses, and do all these sorts of things. They can be beautiful! They can be actually good-looking. Why don't we think about that, more?

"I told you that six lanes would improve the level of service." Whenever you say, "level of service," you should say, "Well for whom?" Is it the businesses, the transit users, the cyclists, the pedestrians? Typically, it is the unstated motor vehicle.

On one hand, we have all of the coded language. All of the biased language. On the other hand, we have perfectly objective substitutes. I think if we really want to start thinking about sustainability, we need to stop using this biased pro-motor vehicle oriented language. Then we will start having attainable solutions.

Transportation technology has always shaped cities. Cities started at the intersection of rivers, because boats were the big mode of transportation. They started building on the shores. When elevators came along, cities could grow up more than 3-5 stories of what you were willing to walk up. Trolleys came along, which allowed

the trolley neighborhood. Then when the motor vehicle came along, you could develop anywhere you could build a road -- which was basically anywhere.

Up to the end of the trolley era, there was a discipline of planning which revolved around the pedestrian. It was only after that that we ignored the pedestrian. After all, the pedestrian still had to walk to the trolley line. Then the car became the common denominator. I think that's when the problems started -- when we ignored the needs of the pedestrian.

I'd like to talk about failure. In our profession of traffic engineering, this is considered failure when the cars can't get through quickly. Though the whole city has failed long ago, we still worry about the car failure. I'd like to talk a little bit about failure.

Engineers obsess about failure. On the top right, we actually designed failure into cars, so that the trauma to the people in the cab is minimized. We've learned about root barriers to stop sidewalks from impeding. Hulls aren't designed the same as they were. So Titanic boat-types don't sink. Geotechnical engineering has solved foundations, so our towers don't lean, any more, and our roofs don't collapse. We learn from failure. Yet this is I4 in Orlando. It fails twice a day, every day. It's failed ever since it was built, and will continue to fail every day, twice a day. The solution that's been proposed is to widen it. It will fail, as we know, for the next 20 years. Isn't the definition of insanity, "If you keep doing the same thing and getting the same results..." but if you expect something else, you're insane.

As a profession, you think we would learn, after 40 years of failing and our solutions failing. You'd think we'd get it. Maybe our definition of failure failed. Or our model is failing. This is the transportation land-use cycle you saw earlier, about changing land-use, increasing value and so forth.

There are spin-off cycles. As we add more motor vehicle capacity, typically the environment gets worse. Roads become more mobility-oriented. Access decreases. Land values drop and we get change in land uses, which create a worse environment. There's a quality of life cycle that isn't taught in school. That's as the worse environment happens, you get fewer pedestrians, children and green spaces. People relocate. They become more car-dependent, and the cycle continues. One of the keys to sustainability, I think, is to break that cycle.

This road on the right has been widened and widened and widened, so it wouldn't fail. But a long time ago, this road failed in every other aspect of city-making. It's become a huge barrier in this community and all the land uses are devalued along the edge of it. I think we all can name dozens of roads like that. As cities change, they affect the people. They will leave places like you just saw, and relocate, and they will become car-dependent. We can cycle in this car-dependant world, or we can start changing this cycle, by making our street projects contribute to communities instead of detract from them. We'll go into some samples.

Just a little bit on the theory, though -- this is my hometown in Ottawa, 150 years ago. It was a lumber town back then -- it wasn't the capital of Canada, back then. It was just a lumber town. It was put there because of the intersection of a few rivers.

150 years ago, nobody could imagine a gothic building right here on this peninsula, or a French château getting built here, or a castle getting built over here. Or a linear park with bicycle paths along the bottom of the cliff. That was beyond anybody's comprehension. It was just a lumber town.

Let's fast-forward 150 years. There it is, today. There are the gothic buildings. There's the French château. There's the castle. There's the linear park with the path. Ottawa has completely changed. The land uses are completely different than they were 150 years ago. But the street network is the same as it was. It's intact, with the bones of the city that the city grows up on. We talked about that. "You've got to get your bones right." If you want to help your city, it starts with a healthy skeleton.

Speaking of bones, here are some bones. Is anybody here an expert on dinosaurs? No? I didn't think so. I'm not an expert, either. But I can tell -- and I think we can all tell that this was a land animal, just by its feet. I think we can all tell that it walked upright, because of the relative size of its legs. I think we can all tell, too, without being experts that it ate meat, by its teeth. We've never actually seen this animal in real-life, because it's extinct. It's its bones -- this X-ray that tells us about it.

Would you agree that this is an attractive woman? Yes? Why is she attractive? Let's ask an expert on beauty. Why is she attractive? Let's ask Leonardo DaVinci. Well, he would say if you stripped away all the skin and hair and all that, it's her bone structure. There's her skull. She's got good symmetry. Good cheekbones, good jaw line -- that's what makes her beautiful -- the bone structure.

It's the same with cities. The beauty of a city -- you can tell a lot about it by its bone structure. Here are two cities -- two X-rays -- just of the bones. The city on the left is very walkable. It's got great access to public spaces. The buildings are up to the street. There are multiple routing options. If there were a collision right here, there are 200 other intersections to process the traffic. Anybody know where that is?

Audience: Savannah.

Ian Lockwood: Savannah. Okay. You pinpointed it. This city is completely car-dependent. There are parking lots in front of it. It's unwalkable. You don't know which direction you're going. If you want to go north, you have to go southwest, southeast, and then north. It's confusing. Low quality-of-life, in my idea. Anybody know where that is? You get 1,000 points if you know where that is.

Audience: [inaudible]

Ian Lockwood: Irvine, California. That's why you don't want to visit it. You can just look at this X-ray and conclude that you'd never want to go there. Yet you'd go to Savannah.

That's Paris. The point is, it's highly connective. You always know where you are. Multiple routing options. This is Upper Arlington, Ohio. We did their transportation master plan. You can see the old trolley network -- a very connected, cohesive neighborhood. Good bone structure. Every decade, as you move out of the city, you can watch the network fall apart up here to the separate sort of disconnected communities. This is where the cohesion is the least. This is where the traffic problems are more -- they're more suburban.

This is some of our propaganda on why networks work. With the same number of lane miles, you get higher car-carrying capacity. That's one of the benefits of network, compared to this [sparse] hierarchy. Other benefits include when you have a connective network of streets, it shapes the type of development that you can have. You don't get the huge format type development. You get a more fine-grained development, which is more pedestrian-friendly, bike-friendly... You get more transit-routing options, and so forth.

When you assign the trips to the network, with this sparse hierarchy, inevitably, the trips have to use the big roads. Whether they're local trips, through trips or what have you. With the connective network, for the exact same trip-making, there are multiple routing options, there are choices. You can walk. It's more conducive to walking rather than biking and transit. Much better, from a transportation perspective. Once you get your bones right and your network's healthy, how you grow on that network requires vision, and being able to see your place 50-100 years in the future. Then you start working toward that with your land use.

Anybody know where this place is? That's Huston. We call it the "Vision-free capital of the world."

Audience: [laughter]

Ian Lockwood: You can see it has great bones. You see the block structure? But it has absolutely no vision. They somehow don't like government, there. So they don't like rules or anything like that -- so nobody cooperates. This is a result of random acts of private development and greed. It just destroys the city. The idea is that you need to get together and figure out where you want to go. It's called "visioning." You put rules in place to get there.

We all know when we get to a good city that it's a great city and a great place. Just by looking at it -- your pattern recognition. This is a very nice place. This is Charles Street in Boston. This is a little street in Seaside, Florida. This is an area in Miami -- Southeast Miami. That's Victoria, BC.

There were four examples of great places, different cultures, different climates, different scale of buildings, different densities, different architecture, and all fantastic places. The prerequisite for this good design was good bone structure. You cannot get good design and good places without good bones. They go together. It's like the old lipstick on a pig thing. It doesn't matter how much makeup you put on it -- it's still a pig.

Here's another example. This is a suburban area in Georgia. You can see the old farm roads. You can see the developments popping up in this disconnected fashion in the farms. It's about 50 percent built out. We got a call saying that the congestion on these old farm roads has gotten to huge proportions, and that the no-growth people are saying, "I'm here. Let's stop any more people from coming in." But the property-rights thing came into play, and the remaining property owners still want to develop. So there's a quandary. Do they widen these few farm roads and destroy why they moved here and the whole character of their community? What do they do?

Here's the main intersection of the farm roads. The Georgia DOT has always wanted to widen these roads. But they couldn't because of these two historic buildings. They actually took the porch off this building, so they could widen the road as much as they could. You actually step out the door into the turn in traffic at this historic building. They've done everything they can except tear the buildings down to accommodate motor vehicles.

We got a call saying the traffic backs up for a mile in each direction. We said, "Yes. Sure." We showed up, and it actually did back up for a mile in each direction. Something had to happen. We looked at all the conventional silver bullets, like the bypasses. But we knew if we did the big road solution, that big format stuff would show up, and it would just exacerbate the problem. We had 40-something community meetings, and we got lots of input.

This was the "do nothings." These were the remaining properties to develop in the same pattern as the other developments. The market forces were the same, and it would just exacerbate the problem. I'll skip to the end, here. This was the eventual solution, where we put in a network. We put networking in locally, around the intersection. But we also made regional connections around to create network. Now there are dozens of routing options to get to the school, to get to the shops, and so forth. There are multiple intersections to process the traffic, instead of just the one intersection. There's the 3D model that helped us come up with the plan.

The interesting thing is that there were so many streets. So every single street could be designed in character. That would keep this sort of rural feel. Had we made it the 6-8 lane roads, we would've had an arterial look. So we kept the character, but we did it through network.

This is the intersection that was going to be blown out to a giant intersection, before. This intersection can actually get restored to be the center of the community, again. It's not doing all the heavy lifting. You don't have to solve the traffic problems in place. You can solve them through network. Now we can have sidewalks and meeting locations. Put the porch back on. We can actually walk out into a safe place.

Here's another suburban example. This is a mall in suburban Florida, just north of Orlando. It's called Winter Park Mall. It's in a very affluent area. At its lowest point, there was one store open. The rest was vacant. It was the least-successful retail space in the whole area. The developer wanted to just put in new marble floors and fountains and try to compete with the newer malls. He was convinced to tear it down and start again.

What we did was to put in network. There's the little main street, the theater and a whole block structure. All the buildings went out to the street. It is now the most-successful retail space in the area, charging over \$40 a square foot. Parking is hard to find, even though it has the same [issues as everybody else]. [It's so popular that no one goes there, any more].

Here are some of the buildings. Right up to the street. We think that the buildings up to the street are as important as the streets, themselves. They hold the street and make it into a place. There's the Winter Park Village. Just north of Winter Park Village, there's a super block. We call it a village, but it's a mall. This is a sort of suburban scale block with no actual streets going through. You see the private access. Whenever you see a super block, there are traffic problems on the corners. I think we all have experienced that. So we're putting in a network and adding tremendous value to the area. We're putting in mixed-use. There's such a demand in this area, now. This old, defunct mall is actually getting a garage in it, surrounded by \$300,000 condos. People actually want to live there, now. Imagine that! Living in a city!

Now because of the network, we can actually narrow the big state road next to it. This is State Road 1792. It preceded the interstate. This was the big road you used to take to Orlando. It's very busy, and it was going to be widened. The DOT was going to widen it. Because of this network solution, they can narrow it. There's the road with mountable brick medians, so you can turn left into driveways. Periodic refuges for pedestrians. Wider sidewalks and street trees, adding beauty to the streets. It's important to get the street right, but it's also important to get the buildings right, in the right places. Then you can create "place" more readily.

Here are some examples of national chains that say they can't come to the street, but they can. There's no excuse. This is actually a drive-through. It's a fast-food place. There's the Publix up to the street. A hotel, restaurants, retail.

Here's a self-storage place up to the street. The most egregious land use ever invented, up to the street. Here's a Home Depot -- the Big Box -- up to the street. This is what we have to stop -- giving up on "the street." Turning our backs on the street. This sort of thing should just be made illegal. It's just wrong. It's wrong for society. It's not that hard to fix. There's changing no place into a place. It's the same massing and same land use, just a slightly different design.

Trees. Same width of street -- 28 feet. One has trees in the right place and one doesn't. One is much more walkable and it feels better. One has more speeding and one doesn't. Here's downtown Portland. There's no excuse, any more. You can put trees in all sorts of places. There's Baton Rouge, Louisiana. Trees have a huge benefit.

We're getting better at our cross-sections. We just don't do typical cross-sections. Everything I'm going to show you is supportable in the green book. This is [Ferris] Avenue in South Pasadena, California. We're putting in textured parking, concrete valley gutters combined with a concrete bike lane. It will attract investment. It's multi-modal. It's walkable, it's transit-friendly and it's bikeable. It still moves cars; but slower. Slower and safer.

We need to exploit roundabouts -- the most under-utilized intersection control in the country. There are lots of places where they can be used. The nice thing about roundabouts is that they don't need turn lanes. Here's a bridge over the LA River in Los Angeles. It was going to be replaced, for earthquake reasons. There's a signal

here. They thought, "Well, we'll just make it 6 lanes, because we're going to replace the bridge, anyway." When we looked at the intersection, if we put a roundabout in, it processes the traffic more efficiently and we can actually narrow the bridge and create a "place" out of it. The money we save on the bridge, we can bury the utilities. It's just a slam-dunk when you look at the difference between the two options.

We're slowing down our highways incrementally, now. On purpose. This is a highway that goes through a little town in Virginia. We're traffic-calming the highways that go through the town. You have highway speeds between the towns, you go through an entrance sequence and you go through the main street. You go through another entrance sequence and you leave town. Here are some visuals of what it's going to look like. This is what it looks like, today. This is what it will look like.

The highway in Seattle that aligns the waterfront, to South Lake Union -- we're tearing that out and putting back the network. We're replacing it with this beautiful, slower boulevard. All of this property that's colored will now have access to the amenity of the water. We're taking out the big highway completely on the waterfront, and making a 2-lane, slow street. Adding billions of dollars of value to the land use.

When we actually modeled this, compared to the 6-lane highway that's been struggling through here for decades, it performed better on every conventional traffic measure. Delays were reduced. Levels of service actually increased. Except perhaps at 3 o'clock in the morning, when you could go through the highway quickly. But in the normal peak hours, this network completely outperformed the highway that severed the network. That's the effect it's having on Seattle. There's downtown. This is the area that will be positively-affected by this road. We're in the business of helping people -- making it healthier. This will be more walkable and more valuable when we're done. This is the waterfront in Chattanooga, Tennessee, with a big highway along it. There was our idea, to make it a 2-lane road and provide access to the water. There it is under construction. It's open now, by the way. That was achievable through network.

I just want to go back to values for a moment. This is called a "place-disposition gradient." This is an invention we made to describe to cities that they have choices. On the X-axis, we have all the design emphasis of the city -- of the built environment. You get what you buy. If you buy a motor vehicle oriented city, that's what you get. If you buy a multi-faceted city, that's what you'll get. There's a whole range of places in-between. On the Y-axis, we've got the appreciation of urban design, from low to high. From the appreciation of the professional community, the city, the policy environment. You put them together and you can put any city or any part of a city on this gradient.

Lambertville, for example, which was mentioned earlier, Ferris] Avenue in South Pasadena, California -- a very multifaceted place. They didn't have a clue about urban design. It was built in like the 1800s. It was multifaceted, because it was built before cars. Here the city was 100 years ago. Here's what it looks like, today. It's almost the same.

However, some roads got specialized for car use. This is what they call Route 29, going through the city. It cut the city into two pieces. Now you can't walk from one side of the city to the other. So what happened was the city became more motor vehicle oriented, and because people couldn't walk and it was dangerous, they learned about urban design -- that this was not a good thing. They were evolving. They were learning and they were becoming more motor vehicle oriented. So we're going to change that road and make it crossable again, and slow and beautiful -- gluing the city back together again.

We did a traffic-calming place for the whole city, for all the streets -- slowing them down and making them safer. Making them more beautiful. During this process, the people in the city learned a great deal about urban design. So their appreciation went up, and the design emphasis of the city is going to be multifaceted, again. It was a choice. This is something that they want to do.

Copenhagen has a reputation of being very multifaceted and a [great has appreciation] of design. They didn't get there by accident -- they actually went through this whole evolution of becoming car-dependant. They decided there were too many cars and too much traffic in the city, and they've worked hard over the last 20 years to become a multifaceted place, again.

You can put any city on it. Minneapolis. I call it "Mini-no-place." It's going to be more and more motor vehicle oriented as they build streets like Lake Street. They're really hurting themselves with their I35 project, and so on. Maybe they'll decline enough to get it and then start building themselves back up again. Other cities like Los Angeles are starting to learn and do good things. Boston is doing good things. You can put any city on here that you want.

The cities where there is low appreciation and are resigned to be motor vehicle oriented, have values in the highway capacity manuals -- that sort of predisposition is very important. The places that are multifaceted, levels of service and delays and stuff -- they're a consideration -- but they're not everything. They're not "that" important. And then there are gradients in-between.

If there were a book on healthy cities and parks and affects and everything else about cities, it might look something like that. In multifaceted places or places of high appreciation of design, that would be a big deal. In places like Detroit and Houston, it would not be important, and then again, there would be a gradient in-between. So it's up to everybody in the cities to figure out where they are in the gradient, where they want to be, and start doing something about it, to move in whatever direction they want. It's a choice.

Normally, I end there, and I think I need to stop right there. Thanks.

Audience: [applause]

Gary Toth: Okay. We'll take a few questions, but first let me sum up a little bit of what I heard, here. David talked about visionaries like [Holly] White, Daniel Moynahan and Jane Jacobs, who warned us 3-4 decades ago that where we were going was the wrong way and the wrong direction. Then he pointed out that about a decade ago, [Iced Tea] began to empower us -- to change that direction and think about things differently. David's encouraged us and showed us some examples of how transportation agencies can be the lead in instigating this kind of change.

Ian talked about pattern recognition, and suggested that we don't need a whole lot of technical studies if we just use our intuition to see that the cities and the places that have become dependent on big highways have congestion and health problems -- pointing out that even Detroit ended up being one of the most unhealthy cities in the country.

Ian, also, I think sets us with that. In the past, when we had health epidemics, society asked its engineers, planners and administrators to do something about it. We fixed those. I think he's suggesting that now that there's a health epidemic of obesity and health and congestion and so on, maybe we should be the ones to go ahead and do it.

Ian showed us examples from Georgia, Florida, California and Virginia, where the transportation system can be used to help make the kinds of change that we want -- and the kind of change that we're all talking about here with the CIA subcommittee. We're all looking to make better communities, better mix use, more equitable... David talked about the lack of equity in our system.

The examples that these folks are sharing with us are things that we could use to do a lot of the stuff that we've been talking about for six years here in the CIA committee. Some of those were working with the State Highway Department -- [inaudible] in Florida and places and Route 29 in Albertville is the State Highway

Department. I guess what I want to leave you with is the fact that we can do it. We don't have to be the ones that say land use is not our business. We can make these kinds of changes.

Questions?

Audience: Good morning. I have one question for each of the speakers. The first question has to do with the Route 17 project that David was talking about. I'm just curious. You talked about working with the communities and their planning efforts, to try to integrate with the direction of the transportation system is going in. Can you talk about what those mechanisms are? How are you leveraging that?

David Burwell: That's an excellent question. In looking at the land-use side of the equation here, we found it very difficult to have anybody on the other side of the table. There is no old master plan. They don't consider it their job. When we asked the county engineer what their philosophy was for addressing congestion off the state highway system, on the county road system, he said, "Widen the roads." That was their only philosophy.

The result is, when we have an enlightened, progressive transportation agency which has now flipped and said, instead of, "Land use isn't our problem," "We can't succeed without a partner on that land-use side," who do they talk to? The result is that we've had to create an entity. We've met with these stakeholders -- the mayors -- the planning directors -- the county engineers -- to try to create that density of folks who control those results.

Also, the legislators have traditionally been the brokers of what happens in that county -- mainly for development and their own reasons. They're now noticing that businesses are leaving the county, because it's so congested and they can't get anywhere. They've agreed to create their own regional transportation land-use task force as a condition of assessing the impacts of the road widening. This is partly, I must nod to Gary about, as a condition of progressing with the highway widening that they've agreed to form a regional body to deal with land use.

Gary Toth: Let me chime in a little bit. Initially in Bergen County, the communities were unreceptive to this. That's not unusual. I'll talk a little later about 12 of our studies. I'm not going to go into detail on all 12, but the results have been scattered. In some places, the communities have been very resistant to changing their planning. Other places embrace this when we turned up. They've said, "Where have you guys been, all along?"

It's interesting that Bergen County being, as David pointed out, the most-densely developed place not only in New Jersey, but I guess in the country. They had the grid. They had a lot of the stuff, and they were going in the wrong direction. They were looking with their land-use planning, their master plans and their codes to try to make them look more and more like the suburbs.

When we started to work with them, we looked into their master plans, and they're actually trying to disconnect local streets and force more traffic out onto Route 17 -- not using the pattern-recognition skills that Ian talked about. "Hey, guys! Look! You can't get anywhere doing that. Why would you try to force it out there?"

As David pointed out, we steadfastly refused to look at the widening of the roadway until they looked at the land use. Then finally, last week, our office of Smart Growth was able to talk to the legislative delegation. They said, "Well will you guys look at a couple of the bottlenecks if we go and get all of the communities to line up and start revising their master plans to do all this stuff that Ian's talking about?" We said, "Sure."

Audience: Great. Very good. Thank you very much. For Ian, I think it was the Georgia project where the farm roads were getting very congested -- the historic properties on the corners. Who's paying for the interconnections? The network? Are they part of the state system? Or are they local network? Where's the money coming from?

Ian Lockwood: I have a whole other talk on that sort of thing. I'll go with the West Palm answer -- it's more interesting. In West Palm Beach, we narrowed many state highways. We narrowed every multi-lane city street except for two streets, down to two lanes. We started that effort, which is probably the most ambitious traffic-calming effort in the country, with a city that was a slum. We had about 80 percent vacancies on our main shopping street. The City had \$6,000 in reserves. My children have more than \$6,000 in reserves. The City had \$6,000 in reserves. Drug abuse and prostitution was huge. We had very little tax base. Everybody with choice had left. We had this ambitious project to make the city nice again, so people would come back.

We actually got hooked on what we call OPM. Other Peoples' Money. It's a very addictive thing, once you get hooked on it. We started looking for grants and federal money. We went to Washington and effected the T21 legislation. We got the first traffic-calming project in the T21 legislation. We had to testify in front of Congress and other things, to make it "fundable," I suppose you'd call it.

We got probably \$20-30m -- something in that neighborhood -- from the federal government. We leveraged it with about \$50-60m from the state government. We started putting our big arterial state highways on what we called "road diet." We started narrowing them down, slowing them down, making them beautiful, and making them business-oriented. Making them crossable, again.

We also changed our codes. We didn't have any money. We changed our codes so that when developers came in, they had to traffic-calm the streets. We changed our code for sewer projects. Big utility projects tore up the streets. When they were putting back the streets, they had to bring it up to code -- just like you would bring your electrical system up to code if you were doing it in your house. Our code was traffic-calming. When they put the street back, they had to traffic-calm it. So we got a lot of our 4-lane to 2-lane conversions courtesy of utility projects, who had a funding source. We built linear parks along certain roads with utility funding, because they were putting utilities down. We used everybody else's money to do it.

It's interesting that we had no tax base, and we were systematically removing lane miles from all of our city. We reduced car-carrying capacity and speed for 2-lane, one-way streets. The city was already congested, supposedly. The County said they were going to shut down our city if we were going to get all this infill from the development and we were narrowing their roads. All conventional models say that's going to happen.

We had a city of 80,000 people in the metro area [inaudible]. We narrowed all those roads with other peoples' money. We attracted about \$2b worth of development into the community during that period, and the congestion's about the same.

The problem -- the model was wrong. The best cities are congested cities, in my view. You don't go to cities that aren't congested, because they're lousy cities. They get there in a number of different ways. We got there using other peoples' money.

Gary Toth: Ian, let me chime in here, too. Your firm helped us work on a project in Flemington, NJ, which I'll talk a little bit about later. It had the development of a grid sort of similar to the Georgia example that Ian showed. In addition to using other peoples' money, we think that probably 50 percent of that grid will be built by the developers that will be building out there.

We think we could step in. I talked to our commissioner and said if we didn't do this, we were going to have to build a \$150m freeway. Now all we need to do is build a \$50m 2-lane roadway. "I just saved you \$100m, Jack. Can we put \$10m of that back into the local grid?" He said, "Absolutely."

Then we met with [Dennis Morita], our division administrator for New Jersey. We were doing an EIS for the big freeway, and we talked to Dennis about it. We said, "What about federal participation?" He said, "Absolutely." In fact, he pointed out that there's something in the Surface Transportation Act that says if you're

going to build parallel roads, to provide the function of the thing that's on the surface transportation system, the FHWA can participate in the building of the parallel roads, if they're providing the same service that the original product did. So we planned, but we haven't tested it out. We haven't gotten the federal reimbursement -- they haven't cut the checks, yet. But we believe that we can get the developers to build half of this stuff, and that we can step in and build the other half. Solve the problem better -- not only in terms of the traditional level of service, but end up with better communities.

Ian Lockwood: I'd like to add, too, that the message is to have a vision and to get buy-in from all the stakeholders and so forth -- like David was talking about. The money has always seemed to look after itself. It's something that has to be addressed, and you have to have a strategy for it. But if it makes sense in the big picture, and if you're not focusing on a [inaudible] and if you don't accept, "No," from the guys who says, "No, you can't do that," somehow the money works out. There are creative ways to do it. In the long-run, when you look at the total health of the city, it's cheaper to do the right thing than to continue to do the wrong thing.

Speaker: Any other questions?

Audience: I was just wondering what you think the key ingredients are for a community to go this way. Is it leadership? Is it frustration? What are the elements that push this kind of thinking forward?

Speaker: Before I let those guys answer, I want to suggest that it's us. In many instances, we're going to have to be the leaders, instead of waiting for the communities to come to us and ask for this kind of stuff, hoping that one of them might've seen one of Ian's presentations or David Burwell's presentations. I think when we go out now, we're going to have to be the instigators of this change. I don't know if you guys have anything.

Speaker: I think it is leadership, and I think it is education. Even though there's been this tectonic sea-change shift in the whole transportation delivery system -- "Who's our customer, what's our product, how do we measure success." Level of service has now been pretty much disregarded, as the sole element of a performance measure of success in transportation. Very few communities know that. Very few communities are aware of what's happening within these transportation agencies when they realize that the model is wrong. We can't build our way out of congestion. We need partners at the community level to succeed in our jobs. We want those partnerships. We don't know how to get them. We're not really know how to talk to people.

People used to say, "Engineers are people who wanted to be accountants, but they didn't have the personality to do so." An engineer told me that. It's difficult to go out there and it's scary to go out into the community. The community doesn't know that all these options are open. I think Gary is correct -- nobody is as credible as a convert.

Now, the transportation community can listen to the designers of the world and say, "Yes. That sounds pretty good." But the transportation community itself can be an enormous leader, in terms of going out, meeting with communities and saying, "You've got a problem; how can we help?" That's pretty scary, but it's what's needed.

Speaker: I think there are a few things that can result in good things happening. I would summarize it as an "energy." I think the communities need energy. That can be done through a crisis like the drinking water supply being compromised because of impervious surfaces or what have you happening. The money ran out. These limiting factors come into play. Health. People are sick and tired of being sick and tired. Space. You run out of development property. I think leadership comes into play, as well. If someone actually has a vision and gets this energy going in the community. That can be translated into "code," or action or projects.

The other thing is just projects, themselves. Sometimes you can take even a conventional project and turn it into an opportunity. Just because of the energy, money and interest that's generated by the project. But I really think you need to have an engaging situation where there's some sort of energy. It can either be negative or

positive. Usually even the negative things can be turned around to a positive outcome, with clever people involved.

I think the things that stop this sort of thing from happening include apathy, where people are okay with things; they don't want to change anything. If people believe in the myths -- if they're not educated. I think education's really important. I think laziness -- particularly with public works directions I've met who like to do things the way they used to do in the 1970s. In summary, the energy is what I think it really takes. That can be generated from a number of "sparks."

Speaker: Okay. If we could take a break and be back around 10.20, then we'll continue at that time.

[tape ends]

[tape begins]

Gary Toth: ...in the first part of the session, we talked mostly theory and dogma, sprinkled in with some examples to punch home the points. In the second part of the session, I think we're going to reverse that. We're going to talk more about practical examples, and how places like NJ, NH and some other places that Sam has rounded up are actually going ahead and doing this -- with government as the leadership. Then we'll sprinkle in some theory. Let me introduce the other two panelists that are going to talk here, today.

Sam Seskin is now of CH2M Hill. I guess you've only been there for several months. I understand you were with Parsons Brinckerhoff before then? It seems to me that you seem to have, also a career, like everybody else, here -- devoted to this stuff. But maybe a little bit reversed from Ian. Whereas Ian may have started at the street level in traffic-calming and moved to grid and the Smart-Growth level, it seems that you started with the urban planning and the macro stuff, and have now become a CSS specialist, as well.

I see here that you went to school in New Jersey. Now I know why you're so smart! He's got a Master's degree from Princeton University, and a Bachelor's degree from Yale. I'm not going to read to you all the publications he's created. You have that in his bio. As you can see, there's a lot of focus on land use and sprawl. I didn't know Sam before this week, but I saw him in operation yesterday, working with the Maine MPO and the Maine Turnpike. He's got a soft-spoken but persuasive style.

Ansel also looks like he's actually an engineer. Maybe that's his degree, but his spirit and his heart seems to be in planning -- in community planning -- and doing CIAs. Over a period of time, while hopping around NHDOT doing things in design and bridge design and other areas, somehow I guess he found his true calling and ended up in planning.

He graduated from the University of New Hampshire. He's a professional engineer in New Hampshire. One thing about Ansel that I know is that they put him in the basement of NHDOT, but that hasn't stopped him and folks like Bill Cass from going out there and doing lots of cutting-edge stuff.

Let me turn the mic over now to Sam Seskin.

Sam Seskin: Thanks, Gary. I want to give you all in the community impact-assessment business the courage to actually do a community impact assessment that deals with land use. I want to actually talk to you about different techniques that you can use in your environmental statements -- your EAs, your EISs or with your constituents.

I'm going to take you through a series of specific methods. Before I do that, I'm going to give you an overview of transportation and land-use issues. Basically, I'll take you through a series of techniques that you can all try at home, to see if that gives you the answers that you need to make good decisions.

The transportation and land-use relationships are usually expressed through the word, "Accessibility." Accessibility is a way of thinking about the link between transportation and land use, as we make decisions about transportation. The changes in accessibility that transportation causes bring about changes in land use.

At any given location, of any given parcel in any given neighborhood or place, you've got to clear two hurdles for there to be a connection between transportation and land use. When you make a transportation investment, you increase demand or opportunities for development by changing accessibility. The two hurdles are the public and the private sector hurdles.

The public sector hurdles come in the form of different zoning, land-use policies and regulations. If there is going to be a development consequence, desired or not, it's going to be because you're worked your way through the policies, the impact fees, the regulations and the permits.

That said, at the same time, the private sector plays a key role. They're going to need to be willing to sell. The parcels have to be of appropriate size -- free of constraints, and so forth. There are lots of things that mitigate between the transportation investment and the land-use outcome.

Another way to think of that is in terms of mediating influences on transportation and urban form. This graphic is one way of trying to express that. Again, between land use and transportation, there are a bunch of buffers or influences. The policies are ones that I've just talked about. Institutions and the nature of government itself as a mediating force between transportation and land-use impacts. The nature of the physical environment affects things. Slopes, wetlands, environmental resources, regional and local economic conditions play a very important role. The point in the economic cycle in which you're located at any point in time is going to influence the kinds and the intensity of land-use outcomes.

Rates of growth; amounts of growth. The passage of time. All these things influence the land-use outcomes that result in transportation investments. There is no simple cause-and-effect. That's why it's such a vexing question when someone says, "Well will this road bring about indirect land-use impacts?" "Will a transit investment bring about indirect land-use impacts?"

Most of the time now, we talk about land-use impacts as if they're a negative. These are sprawl or bad consequences. Of course, that isn't so. Depending on the point we are in the economic cycle, we can either think of these things as economic development or as urban sprawl or as urbanization. There are all kinds of terms. Ian was quite clear to say that some of them are more objective than others.

Whatever your interest and whatever your persuasion, my point here is that there are lots of forces and influences that get between the transportation investment and the land-use outcomes. You've got to understand those in a context of any specific project, in order to understand the indirect land-use impacts that result.

Land-use change can occur in many different ways. Growth could locate in different places as a result of a transportation investment. The rate of growth itself may change if the location becomes much more desirable and accessible as a result of transportation. Infill and redevelopment might occur. Policies might change that, in themselves, will bring about more or less development. There are lots of different ways that this can occur.

If you're going to try to sort these out in an environmental document, for example, or in a planning study, you've got to go through a thought process, which I want to describe for you. I want to also say that most of this material is drawn from a guidance document, which you can download from TRB's website, NCHRP is the

National Cooperative Highway Research Program Report 423A. It's available, like so many of them are in TRB, now, in a PDF digital file. You can download this guidebook from which this presentation is taken.

If you're going to conduct an impact assessment, you're going to go through these very familiar steps. Understanding the existing conditions and trends -- here you are again, focusing on land use. Establishing your policy assumptions. By this, I mean what are we going to assume is going to be true about zoning? Or about local preferences for development and about impact fees and so forth in different jurisdictions -- or places that are going to be affected or potentially affected by transportation investments? It's very important to make those assumptions explicit, because under different assumptions, clearly, people can come to different conclusions.

"Gee, this community's never going to change its zoning." Or, "This community can't wait to change its zoning," and so on. Zoning and planning documents themselves are living documents that do change over time. It's essential to try to anticipate those in order to understand the potential impact of land use.

You need to inventory the land with development potential. That task is made much easier these days with GIS. At the heart of the exercise, you need to estimate the growth with and without the project. I'll talk to you about specific methods to do that. Then you've got to actually place that growth on a piece of paper, on a map, on a digital map. Identify the most-likely locations for the growth with and without the project.

Then in a step that's often ignored, ideally, you'd want to measure the transportation outcome. Because if growth locates differently with the build alternative than without the build alternative, your design your transportation impacts might look different than they would have, otherwise.

Having told you the steps in a process like this, now I want to take you through a series of techniques. This is the science of impact assessment, here. I think I can explain it and state it simply, but this is going to be some heavy stuff we'll move into, together. At least I've got you before lunch -- which gives me a little advantage. After lunch, I'd have a really hard time getting through this with you.

Usually, we do this in 4 hours. I'm going to try to do it in about 40 minutes. Families of techniques that I'm going to talk about include comprehensive plans, qualitative techniques -- you can read these as well as I. I don't need to repeat the whole script here, but I'll go through each of these with you in turn. There are 7 different families of techniques I want to talk about.

Let me first talk about one -- comprehensive plans -- mostly, because I want to tell you that it's not any good. Comprehensive plans are where most impact statements begin and end. They really needn't; they shouldn't. They shouldn't end there. It's not a very good way to try to figure out what the future's going to bring, unfortunately. We'd like to think, as planners -- and I'm a planner by training and experience -- that the plans are going to tell you what's going to happen in the future. The planners will tell you that they expect the growth to conform to the plan. If you're doing an impact assessment and you're told to go out and figure out what the land-use impact is going to be, you go and talk to the municipal planner or the county planner or the city planner. You say, "Okay. Here's the plan. Here's the land-use map, folks. That's where it's all going to be." Probably, the only people that believe that are the analyst and the planner. Everybody else knows that those plans are living documents. Sometimes the state obliges you to update them at 3-5-7 year intervals. You're looking at 25 years, here. So it's a big leap to assume that things are going to turn out in the plan.

There are communities where it will, but there are also many where it won't. There's also a big gap between what's in the plan and what's in the zoning ordinance. Some states obligate the communities to link those two. Others don't do that at all. Depending on where you work -- and you know this much better than I -- each state will differ, in terms of the likelihood will have anything to do with what's actually zoned on the ground.

If you're going to try to evaluate the impacts of the transportation investment by looking at the comp plans, the good news is, this is a technique that's easy to implement. You can buy one for \$10 over the counter. You can download it on a website. No politician is going to yell at you too badly for looking at the comp plan and saying that's what's going to happen. It also keeps DOT out of the land-use business, if you're the DOT impact assessment person. You don't have to do anything other than say, "Well it's a local issue and this is what the locals say is going to happen."

The problem is that the plans may not bear terribly much resemblance to what's actually going on on the ground. The realities of zoning and rezoning of land often overwhelm the policies and the pretty pictures in the comprehensive plan. Plans may or may not be closely linked to real estate markets, and they do change. For all these reasons, it's very risky to assume the plan will have the desired outcome.

Maybe most-importantly, if the plan did not anticipate the project that you're evaluating, then there's no link between transportation and land use for you to look at, at all. If the project that you're talking about hasn't been a part of the plan, you can expect that there'll be a different land-use outcome, and in turn the planners will probably look at their comprehensive plan in a few years and say, "You know we want to rethink this part of the town, because there's a new transportation investment, or a larger transportation supply in this part of town than there was before."

In short, watch out for relying on comprehensive plans, and more and more on controversial and complex projects. Analysts are finding out the hard way that this really isn't sufficient; that this doesn't represent sufficient practice or good practice, today. We all wish it did, because our jobs would be a good deal easier.

Let's go through some other techniques, which are going to get increasingly quantitative, as we go along. The first set of techniques we're going to talk about are qualitative techniques. This is the family of techniques that I think you'll probably find most helpful, most often, when you have to do an indirect land-use impact assessment. You're going to rely on doing this both on facts but also on intuition.

You might work with individuals, or you might work in groups. When I say the results resemble good journalism, I don't think journalism's a dishonorable profession, at all. The journalist has the job of going out and trying to understand what's going on, finding the facts, and making a story out of it. A good journalist really does work that's very similar to what a good analyst has to do in a CIA -- piecing together the story from different sources, and using his own judgment to present objectively what may occur.

Qualitative techniques can include the ones listed here. We're going to talk about each of these. I'll talk about each of these briefly. There is a qualitative technique that suits almost every situation and every kind of project that you may have to do -- from large to small, both transit and highway, regional, local and so forth. They don't require sophisticated software or extensive training other than the use of good judgment. And certainly, experience matters a lot in that. You really still in the end have to choose the technique that works best for you, but there's a variety of techniques to choose from.

Let's talk about case studies. Again, case studies are the first qualitative technique I want to talk about, because they're ones that make sense to people. If you want to know what will happen in response to a transportation project, what land-use impacts might happen, people say, "Well has anyone ever done something like this before? Did we build a bypass in the next county? What happened when built it there? Did we widen the road? Did we add a bus line?" Whatever it is they were analyzing, "What happened there? What happened in some other place that's like us?"

Case studies give you a chance to do that. They make intuitive sense, and they build successfully on other peoples' work. You can go in and sometimes find if someone's even looked at this, before. Maybe the

newspaper did. Or maybe analyst did for a transportation project. Maybe someone at the university looked at it.

The difficulty is that it's sometimes a challenge to sort out the factors that contributed to that result, and why it's different from what would happen in your community. An example of this would be in my State of Oregon. The DOT rebuilt the coastal highway past 2 communities that were next to one another on the Oregon Coast. One is Cannon Beach. In Cannon Beach, the State and the local governments decided to build an access control segment of road, here, to replace the old coast highway. There were only a couple of interchanges. The community decided, through some zoning and planning decisions, that they weren't going to rezone anyone at the interchanges for anything at all, really.

So what you have is what you see in this photo -- a series of three exits -- where you can get off to get to Cannon Beach. But at the interchanges, there are no land-use impacts, and along the corridor with access fully-controlled, there are no land-use impacts, either.

Meanwhile, in a little city on the coast, you have as Ian described, a small network of streets, filled with people and shops and relatively free of the through traffic and the recreational vehicles and the motorcycles and the cyclists and everybody who's bobbing up and down on the road that goes past half a mile up the hill.

In the adjacent community, the community of Seaside, we have what I call Hog Heaven. They took quite a different approach to the same project at the same point in time. Rather than doing an access-controlled bypass, they proposed simply to take another alignment and add capacity to their existing network, and allow access and conformance with the state and local zoning and state requirements. What resulted from that was quite a different experience -- a whole lot of fun centers, franchises of all kinds, and stuff that we see much more typically on roads where there's been no access management or no access acquisition.

From these case studies, we found out how the partnership between the local community and the state influenced the road design, and had everything to do with the land-use outcome. The outcomes were polar opposites from one another. This is really evident just from the case study.

Another technique you might use is the interviewing technique -- certainly similar to the case studies -- but what you're really doing here is trying to talk to people in your own community. Asking them, "What do you think will happen when this transportation project is built?" It's a very economical means to access expert opinions. You certainly should ask the planners. You might ask real estate brokers. You might ask old-time residents. You might ask landowners. You're going to do a bunch of individual interviews. Again, this is a very typical technique.

The risk here is in your own interviewer bias. If you're only talking to a few people and you decide whom you're going to talk to, you have to be sure that you've gotten a cross-section of opinions. If you have, and if you've gotten enough opinions, this is a very viable technique. It's one that's used frequently. If you haven't, then someone else will probably point it out to you that your own bias or your own sample caused the problem.

Stepping up a level in complexity, you can use what I call "expert panels" to try to assess these opinions. The panels bring multiple points of view into an open forum, where others can listen in, and in fact, make up their own minds. You're certainly managing this process as the impact assessment specialist, and your job is to sort out from the information expressed by the panelists, what you think the key impacts might be from the facility.

The panelists will be people who have experience and knowledge about these kinds of things. The advantage of that is to get a good deal of expertise in a very concentrated fashion. The risk of it is that strong personalities often influence the outcome of public forums and events. We all know this from many media, today -- for better or worse. The moderator, in fact, can have a huge influence in those events. It's something you really

have to be careful for. Some people can have a lot to contribute and simply not want to be challenging in their speech. They might get lost in all the noise that's generated by someone else.

You can take that up one more level and manage that process through what's called the Delphi process. That takes the same expert panel, but sort of buffers them from one another, by giving them the chance to do their own analysis on their own, without peer pressure -- and even send in their comments anonymously to you, the analyst. Your job is to try to make a story out of all of them. Their comments can be a public record.

This kind of process with feedback and learning can often produce a very successful outcome. Yesterday, you heard about the use of a Delphi panel process on I93 in NH. The process is one that I've used and think a lot of. It does take additional time and expense, relative to other applications. Even other traditional panel applications. So it represents the most complex form of qualitative technique that you might choose. Again, the qualitative technique is just the umbrella heading I've offered to you, to see the similarities between what are basically very people-oriented processes or methods -- to try to look at the impacts of transportation investments.

I've got a couple of graphics taken from some Delphi panels that illustrate how the panel, through a process of their own individual work, which the moderator of the panel would average together, can distinguish in different parts of a region. These are different parts of Montgomery County, Maryland. Changes in population associated with different types of transportation investments in a given highway corridor.

Here is another project -- the study area is shown in various shades, here. In the center in red, you'll see a highway project which is proposed for Montgomery and Prince George's County, Maryland. These maps are ways that we try to show how the panel's opinions, when averaged, suggest that there would be changes. The darker the shade you see in the map at the zone level, the more change would be associated with the population as a result of the highway. This is a map for employment, and this is a map for population. We asked the panel to estimate how many jobs and how many households might locate differently with and without the project. We averaged these numbers together in a statistically reasonable way, and we can produce maps like this. They become the building blocks for the indirect and cumulative impact assessments -- not just on land use, but on all other affected resources, as well.

I'm going to move from the qualitative techniques, which are a family where I think you'll find yourself 80-90 percent of the time when you're doing impact assessments. We'll move into some other techniques which are more complex or more quantitative in nature. You can use what I call "quantitative rules," which are simplifying assumptions that you've pulled from someplace else -- perhaps from a case study. I say the results resemble science because someone else may say the answer is 2 percent or 5 percent or 7 percent, but it's always risky when you take that information from another place and try to apply it exactly to your own place.

Quantitative rules can include allocation and decision rules. We could spend a good deal of time going through what these nuances mean. Basically, you're building on other peoples' recognized work. Someone else who's done a quantitative analysis of the impact, say, of a bypass or of a transit investment in a place similar to yours. When you find those other pieces of work, you can say, "Well look. Here's an answer that we can work from." The good news is that you've got a number. The bad news is you've got to assume that their situation is essentially the same as yours. Or you've got to be able to factor their number up or down, east or west as the case may be, to try to make it applicable to your situation.

An example of this that I worked on in Madison, Wisconsin, involved trying to figure out the land-use impacts of two different transit investments on the little isthmus of land that were where most of the city resides -- between two big lakes -- in Madison, Wisconsin. The blue line here shows a possible LRT -- Light Rail Transit line. The dots are the stations. What we've mapped here are the changes in accessibility, resulting around these stations from the transit investment.

The reason this involved the use of rules of thumb is that we actually had to take a study that was done in Washington DC -- a much bigger transit system -- and try to take some of the statistics from that and apply it to Madison, where the data didn't exist. We had to then factor down the world of Washington, DC, to fit the situation in Madison.

Through taking a great deal of care, we actually came up with some conclusions that were useful and reasonable. We factored down some quantitative work that had been done in another community and suggested about how many hundreds of jobs the City of Madison would gain under one scenario or another -- LRT versus commuter rail. We used rules of thumb from one study successful in another. Clearly, there was a lot of professional judgment involved here, but the results proved quite useful.

I'm now going to talk about GIS. Everybody loves GIS, and we all use a ton of it. Am I at 10 minutes already? Oh, I'm in trouble, now. The strength of GIS is that it's incredibly visually compelling. The downside is that by itself, it isn't an analytic technique. It's a cartographic technique. That said, GIS can often convey really interesting information and in a corridor, suggest how growth and development is changing. Simply through that visual image, it can begin to suggest what might happen in the future. The different colors on this represent different decades of development that occurred in a particular transportation corridor. It begins to suggest what might occur in the future, there.

There are a series of statistical methods, where you're going to try to take data from your own community and use it to build a statistical model that predicts growth and change that results from a transportation investment. Regression models are a common statistical technique, and there are others, as well. The good news is that they're going to be based on data from your own community, and that you can compare your model to someone else's model to see whether you've calibrated it properly. The bad news often is that it requires a lot of data, and the data may not be available. An example of this, again, on the transit side is some work that was done in San Francisco on the impacts of the [BART] system. The Rapid Rail system in that city. It used a very sophisticated statistical model to try to determine how much BART did successfully influence land development, where and in what amounts.

Moving up the scale of complexity, regional economic and demographic models are typically used when you're working at a large scale of a county or multiple-county scale. They don't directly deal with land use, but they indirectly do, because when you measure the changes in the economy and the changes in employment that result from transportation investments, you can translate often those employment changes into growth in jobs in households. Then you begin to see about how many jobs in households might occur, as a result of increasing the ease of movement in a community, and the competitiveness of businesses in those communities.

There's a whole bunch of models you can use. These are the acronyms for a whole bunch of them. They all have a very strong, empirical basis, and they're particularly good for predicting economic development -- meaning employment change. That's what they're all about. But they often involve license. They certainly involve a lot of data. And it isn't something you can typically do at home.

We used this for our [trade cargo] study in Oregon.

[tape turn]

...across the Columbia River, would this increase international trade in the northwest with Canada? Economic models talked about the overall change in employment that might result, and that was very useful.

At the high end or the low end, depending on your point of view, there are families of land-use models which explicitly focus on land use and development change, and have been designed in part for these very purposes.

They use GIS in a whole lot of land-use and real estate data. There's a whole collection of them out there. Some of them are developed uniquely for one community, and others are generic software that you can license commercially. They're very good at predicting land use change if you have the time and the money and the data and the patience to build them. Often you'll spend a year or two or three calibrating such a model. So typically, you're going to want to do this at a regional level, and make it a long-term investment. Typically it wouldn't be useful or economical to try to put one of these together for an individual project -- no matter how large. We used it again in the Portland-Vancouver metropolitan area to look at changes in household and business locations, as a result of increasing capacity for getting across the Columbia River. We found that there would be some interesting changes with households moving from the Oregon to the Washington side -- and jobs, as well.

I've taken you through, very quickly, a bunch of different families. I want to say again that there's lots more information where this came from. Other training programs. Some of the same material's also available on the ASHCO Centers of Excellence website, if you'll look under "Indirect and Cumulative Impacts." You'll kind of follow a chain through a couple of links and you'll find your way through these presentation materials and a bunch of other very useful things. ASHCO Centers for Environmental Excellence, I believe it's called. They have an excellent website, where they tab for indirect and cumulative impacts.

We've talked about the different steps involved. In closing, a couple of words of advice to those of you who are analysts. First is to be honest with yourself and with everybody. To say that transportation investments do influence development outcomes. They're going to influence them in ways that you have to figure out, and they're going to be different. It isn't good enough any more to just wish this problem away.

The second bit of advice I want to give you is that you've really got to focus on your own community. Because in the end, every community's story -- every corridor's story -- is different. That's why you have to be careful when you just take a case study from another community and say, "That's what's going to happen, here." After all, that's what CIA is all about. And that's certainly what context is all about.

A third bit of advice is to really understand the power and limitations of policy. In other words, don't settle for someone who says, "It's going to turn out like the plan says." On the other hand, know that policy can have a lot to do with outcomes, and in fact, can have a lot to do with mitigating the outcomes that you don't desire, as well as encouraging the outcomes you do desire.

In the end, what often happens in this presentation is someone says, "What about mitigation?" In the end, recognize that local policies are one factor -- not the only, but one very important factor -- in influencing land-use outcome. Understanding how you can work with them and also what their limitations are has a lot to do with seeing your way through the CIA process.

In the end, you've got to choose a technique that fits the scale -- the geographic scale and the complexity of the project. One that fits the time you have available and the resources and the skills that you have available for and in your community. Over time, you and your agency can add tools and techniques to your toolkit, trying different ones in different situations. Getting the confidence and experience to work with them. As you do that, you'll over time be able to address the important land-use impact questions that are part of CIA.

I think that's it.

Speaker: Okay.

Audience: [applause]

Ansel Sanborn: Good morning, everyone. My name is Ansel Sanborn. I work for the NHDOT. Someone asked about some real-world examples of land use and transportation. I guess I'm it. I remember yesterday some discussion of graphics and logos and things. There was no real reason to put this graphic on in the beginning of the presentation, but I like it, so it's there. It's actually the graphic from the Route 16 corridor study.

I want to give you in the next 25 minutes, maybe, an overview of what we've done with land use and transportation in New Hampshire, with my buffet of examples. Like all good buffets, there are some that will probably be useful for you and others that you're not going to sample. Let's see if we can present enough choices for you to enjoy.

In about 1993, in New Hampshire, there was a document required by the legislature that talked about transportation in the 21st Century. There was a committee that was chaired by our commissioner, Chuck O'Leary -- famous for "Drive Fast and Don't Look Back Over Bridges." His committee of legislative people, business people and other state agencies looked at a number of things about transportation in this century. When we looked at that, we found out that there were lots of things we had to deal with in transportation. But something that was new to the discussion -- at least in New Hampshire -- was the importance of land use and transportation, and how they work together.

We first talked about the conflict between land use, which was a local decision, and transportation -- which was usually decided at the regional and state level. Because there were different government levels dealing with this, there was a disconnect in terms of how we dealt with this.

We also knew that if we continued with the same kind of land-use choices that we made, we were going to continue to rely more and more on automobiles. That was something everyone said, "Yes -- we've got to watch that." We also knew even at that time -- 10 years ago, before we got into the financial crisis we're in today -- that we couldn't vote our way out of congestion.

We had these things identified as issues, and luckily, we had a study. We had a Route 16 corridor study. We got \$1m from the federal government, because people in North Conway were concerned about getting people to ski slopes. They talked to our legislative delegation and they were able to get \$1m for us to do a corridor study.

It was a big corridor study. It was 150-miles long. It involved over 30 communities, 4 regional planning commissions, and it was about 1/6 of the land area of New Hampshire. It's also adjacent to Maine.

A typical corridor study in New Hampshire, 'til that time, did what some of the other speakers have talked about. That was to "assume" land use. We assumed that all the master plans, all the regulations, and all the thoughts that people had had in the individual communities were going to happen. So land use was an assumption. The corridor study's typical role was to look at that land use and find a way to serve that land use or accommodate that land use or accommodate traffic, at least -- by providing an enhanced transportation system. What can we do with transportation to meet those land-use requirements?

Well the Route 16 study was different. It was different in a few ways. We defined it as a corridor-protection study. How do we protect what we have in that corridor? We also described it, and I think it was partly to get the federal funds, as a very "innovate" study. We wanted to take innovative approaches -- particularly looking at the land-use side of the equation -- as well as transportation. We wanted to take some of the lessons from this study and apply them in other places.

Finally, we wanted to participate with a great group of people at state, regional and local levels. The study team was comprised of groups that we'd worked with before, and groups we hadn't. FHWA and DOT, certainly. The

Office of State Planning has now become the Office of Energy and Planning in New Hampshire -- but particularly the state agencies that dealt with issues of land use and development.

We had four planning commissions that were involved -- the North Country Counsel, Lakes Region Planning Commission, Rockingham Planning Commission and Strafford Regional Planning Commission. Rockingham and Strafford were MPOs -- the other two were rural. Probably key to the effort -- and you'll hear more about them as we talk a little bit more -- were five working groups. The communities in the area were all asked to nominate two individuals to become part of these working groups. They were divided into five regional working groups, and they met frequently throughout the study and were really our sounding board to all the things we found.

Sam's presenting is scrolling very well...

Audience: [laughter]

Ansel Sanborn: Those of you who don't know me know that I'm a technological whiz. That helps. There were trends. As you look at land use in the corridor, we used probably more qualitative techniques that Sam described. To look at the future in the corridor, we forecast continued growth in traffic.

The corridor has a lot of tourism. The southern part of the corridor had recently at that time in the early 1990s, Pease Air Force Base had become Pease International Trade Port. There was a lot of development potential there that we were aware of. We also knew that the southeast part of the state was growing in such a way that people couldn't afford to live there, so the people that were going to work at the trade port had to live farther up the corridor. We knew that those issues were going to be addressed.

When Bill and I were coming from Concord to the conference yesterday, we experienced the Little Bay Bridges that go between Dover and Newington. The bridges are narrow. When there's an incident, as there was when we were coming through yesterday, you get to sit in traffic for a long period of time. We knew that those issues were there.

As you go farther up the corridor, you go from a limited-access highway to a two-lane road, which is a higher standard for a period of time -- with different levels of control of access. Until you get to North Conway. Then from North Conway on, it's very, very rural -- and in the spring, under water. So Route 16 has lots of different faces.

We knew that there was a part of the corridor where roadside development was just waiting to happen. There's the town of Ossipee we'll talk about in a moment. That had ten miles of Route 16, and very permissive land-use regulations. We knew that that was a place where we had some issues. We knew congestion was coming, and if we were try to deal with this traditionally, there was going to be increase cost, delay and difficulty in trying to find a construction remedy.

These are the hazards -- congestion, loss of scenic quality -- and for a tourism state, that's a big deal. Development in access would increase accident rates. We certainly don't want that to happen. And the need for costly road expansion projects, if we take that approach to solving the issues, was going to accelerate.

Transportation land-use cycle -- an early version. I've seen better ones today will immediately steal them if they're available. We talked about this. In a rural state where lots of traffic goes past your location, it makes you think of all the possibilities for your piece of property. As these properties are changed to more commercial things, then we have more traffic congestion. Then the DOT comes to town to solve that with a "project," and we go through the cycle many times. There are examples in NH of where we had Route numbers with A and B, demonstrating different bypasses that were constructed to take care of the problem, over time.

Here's the premise. If we integrate land use and transportation, and if there were changes in local development policies, there could be a reduction in the need for highway expansion. We can maintain the quality of our communities. This was the deal and this was what we were looking for.

We looked at different ways of using land-use techniques to address situations, site-specific. We were focused on access management. Location and development were sort of a mid-level. Then reducing the demand for vehicle trips with planning through system-wide approaches was also discussed.

Here's a picture of the corridor. The corridor varied in terms of the nature of the corridor, from the seacoast area to the north part of the corridor. There was also a wide difference in terms of the capacity of the communities. You heard that discussion yesterday about certain communities had full planning departments, and lots of people who worked on these issues on a daily basis? There are communities who don't have planners.

We have very, very active volunteer boards. The expertise and the ability of those boards to deal with David and his lawyer friends certainly affects what happens in terms of developing the corridor. We have a number of communities who have no zoning in the corridor. So advanced land-use regulation approaches probably didn't fare very well in those communities. The corridor was very diverse.

We came up with three principles. These were the land-use findings of the study. We said around the Route 16 corridor, we should encourage nodal development. If you're going to develop, find a space and develop it. Between those nodes, though, discourage new development. Certainly plan and coordinate access to the highways. These were the things we took to the communities, and they were pretty well received. We'll talk about some examples.

But there were issues. The jury's out on a lot of these things. "What's the public acceptance of these techniques? How effective can they be? Are they really feasible? What's the economic impact? When you change these things, how do you impact property taxes? What do you do to tourism? How much do they cost? Do we have the authority to do all these things we want to do? Are they flexible? Are they adaptable? What happens to land-donor equity?" These discussions are continuing in lots of areas.

We talked about 4 of the particular partners in the Route 16 study -- the 4 regional planning commissions. We have 9 in NH, 4 MPOs and 5 who are rural. The 4 MPOs receive most of their funding through dues and through pass-through PL funds. The rural planning commissions also receive dues, but we have taken a part of our Ossipee [R funds] in NH, and each of them receives something on the order of \$100,000 a year to help us with different planning activities, ranging from the development of the 10-year plan, to doing some data collection, to working with their communities. There's a relationship that we have with the planning commission.

I've talked about a couple of examples. Rockingham Planning Commission, an MPO part of the Seacoast MPO, has done a few things that are interesting. A question earlier was, "Who does this stuff?" The answer is, "It varies." Rockingham Planning Commission was very involved in getting us to support a corridor study of Route 125 that goes from Massachusetts [to Crosstown], Kingston. It's a favorite shortcut for some people who don't want to use Route 95. When we went through that study with them, we found out that certainly there was need for addressing traffic congestion issues in Plaistow, and that ended up being a suggestion for widening.

When you got into Kingston, if you did a good job of access control, you wouldn't have to widen. That became a rallying cry, because lots of people said, "We don't want to do this kind of widening thing." So Cliff Sinnott, who you hear about more lately, who's the head of the Rockingham Planning Commission, was an advocate.

He came to the department and said, "We know you're going to work on the design for this highway. It's a project. But can you build on the component of access management?" And we did.

We've supported the work of the planning commission and the consultant, working with the community and with particular property owners, on the issue of access management. Now, has it been rosy? No. Once we went from the concept of access management, which was very popular, to the specifics of access management, things got a little more interesting.

First, the individual property owners weren't really sure that they wanted to see a median in front of their property, and that they would have to go to another location, turn around and come back. Business owners were damned sure they didn't want to do that. The emergency service providers said that the additional 3 seconds it was going to take to do this was going to mean this thing doesn't work -- which was what we'd always heard in traffic-calming areas.

We've had groups of people who've come out and said, "It's a good theory, but we really don't want you to do this." But we're still working with them. We think that we are going to come up with an access-management solution. It won't be simple, but it's going to help us, and it's going to help us avoid a construction solution to this problem.

The Town of Newington had a very active member on one of our working groups on the Route 16 study. He was on the planning board at the time. He became a real advocate of land-use solutions. He's been active in some of the construction projects we've had in the area, but he also was very active first as a planning board member, and then as a selectman, in working with developers on a very developable commercial property in Newington.

He worked with them, realizing that the traditional solutions would've had these developments bring their traffic to a very congested local street -- Woodbury Avenue. He said, "That's not going to work. We're going to set up a service road." They designed a service road. The different developers who came along and bought the parcels as they came on had to first dedicate the land to the service roads and second, provide some funds for the construction of the service roads. The service road's under construction. It's going to work. He was the person who took the idea of land use and transportation, knew it was an issue in his community, and thought of a better way of doing things.

Strafford Regional Planning Commission -- a [next] commission at the corridors worked very effectively with its community on land-use regulations. The Town of Wakefield is the first town in the corridor in which the access to Route 16 is not limited. There are driveways in Wakefield. In the other parts of the corridor to the south, there are not. Wakefield has taken the Route 16 corridor study to heart.

I heard from the executive director of Strafford the other day that the planning board meeting's members still wave the corridor study around at people -- I think it's a way of warding off developers -- similar to a cross or something. They talk about the Route 16 corridor study strongly, and they have rewritten their regulations so that if you bring a business to town, "Don't put your business on Route 16 -- put it in our village. That's where we want it. We want our village in Wakefield to be the place where everything's happening -- not Route 16. They have had people challenge them, and they've stood up to the challenge. To this date, it's worked well.

Lakes Region Planning Commission put together a land use, transportation, access-management road show. We found some SPR funds to support them, and they've gone out to individual communities. They can customize it to the community. They go out and take digital photos. They look at examples and they take this road show -- when it comes to the planning board into the board of selectmen, the examples they see are from their community. It's very effective, and it has helped the different communities think about land use and transportation in a different way.

The town of Ossipee is probably our poster child for "getting it," in terms of land use. They had a very active member. All these things need an advocate. There was an active member on their working group who got the idea of the land-use solutions. They went through an additional planning process which we were able to support for [Chirette] -- the Town [Hall Chirette] in Ossipee. We looked at the issue of land use with some help from some land-use consultants and the regional planning commission.

They changed their [inaudible] regulations along Route 16 and in the villages. They now have implemented some village zoning, so that you can expand the five Villages and Ossipee -- you couldn't, before. Now you can make the villages that exist bigger. Along Route 16, they found 3 areas -- 3 intersections of state highways, where they said, "These areas are natural for development. We want to do something along this area." They made them their commercial nodes. So these areas were established as commercial nodes in their land-use regulations -- and between the nodes, they downzoned. They limited the things that could happen between these nodes.

Ossipee was the number -1 target area when we started this study, in terms of really wondering about what might happen, but it's come out very well in terms of how these regulations have worked. We've also worked with Ossipee on an [antipodal] center. They're talking about choices in transportation. There's a study ongoing now for a citing of an [antipodal] center, and there's been some FDA money earmarked for this. So we may see something along that line in a couple of years.

Town of Tamworth. No zoning. In a state that says, "[Look where you die]," they say it loudly, and zoning does not work for the town of Tamworth. They have very, very active citizens. Their members on the Route 16 corridor committee, including a woman named Dee Peterson, who is now 91 and knows my phone number.

Audience: [laughter]

Ansel Sanborn: She calls very regularly with issues about what's going on in the town of Tamworth. They have a beautiful village called the village of [Chicora]. [Chicora] should be on everybody's postcards. It's got a dam, it's got water, it's got a church -- it's got everything you want. It's got lousy parking; it's a deathtrap for pedestrians, and it has traffic congestion you wouldn't believe.

We worked with them with a template that we seem to have applied in a few places in New Hampshire. We started out with [Dan Bergen], follow up with Michael [Wahlrich] and then bring PPS in to hit the home run. We used that group of people to work with the community, as well as the DOT and some other state agencies. We accomplished some ideas of what we could do within the Village that will calm the traffic and make it better for pedestrians, organize the parking and do some things.

They now have a village association that's probably the most-active group along the whole Route 16 corridor. They have gone through the earmarking process and have \$500,000 in the bank to work on the village. We're working with them now for a community-sponsored and community-run project that's going to work on these issues.

Our maintenance folks who take care of Route 16 in the village -- in the past two weeks -- have constructed a temporary island in the village. The temporary island's working. People are slowing down; it's working for pedestrians. It's changed the character of the village. It's certainly an idea of how we're going to do the more-expansive changes in the future. Tamworth has been especially aggressive, but they don't like zoning.

Meredith. Meredith is a study of a place where we've gone in the past. We were there in the early 90s. We formed a citizen's advisory committee. The department came to town, talking about issues of capacity and

safety. The citizen's advisory committee wanted to talk about aesthetics and function. As a result, the solutions that were proposed didn't meet everyone's needs.

The department has proposed a 5-lane scheme through Meredith for a number of times -- even though we went through the inordinate step of making the lanes 11 feet; not 12. I know it's extreme. It was not widely supported by the community. At a certain point in time, our commissioner at the time wrote them a letter. He said, "You know what? I guess we're not going to agree." So we went away.

Time heals all things. A new commissioner and a new attitude took us back to Meredith. Some help from PPS looking at Routes 3 and 25 in the areas. I'm looking at another project where we can include a roundabout instead of a traffic signal at the intersection. It's turned it around.

They rewrote their master plan two years ago. They have a renovated, re-energized Main Street program in Meredith. They have a revitalized citizen's committee, and they have a DOT that wants to work with them. We're now in the process of selecting a consultant that's going to work with them in the area of context-sensitive, to make this solution better.

North Country Council is the largest and most economically-depressed area, perhaps, of all the regional planning commissions. In the North Country, if you come to build a highway, you're well received. When and I get depressed by people saying, "We don't like you at the DOT," we go to the North Country Council and they like us. When you build things there, you're popular.

Things have changed, to some degree. The section that's shown as Gorham has a road between it and Berlin called the Berlin-Gorham Road. They had strip development and even sprawl. The shopping centers along that road have died.

It's a four-lane section that the DOT was going to come to town and repave. Because we've been talking about this sort of thing, we came to town and said, "You know what?" Maybe you don't need 4 lanes any more, folks. Maybe 3 lanes is going to do it for you. And what if you were to provide some facilities for bicycles and pedestrians and start to build on the idea of cultural tourism, which is new to the area, but is taking off?" In 2 weeks, I can tell you how it comes out, because that's when we're meeting with the town. For a change, we're doing their promoting -- this is kind of a solution from the town of Gorham.

Littleton has always done it right. Littleton has always done innovative things. In New Hampshire, you go to a town meeting to talk about municipal costs. You go to the school board meeting to talk about the school. Neither talks about the other. You have to go home and add it up to figure out what your tax rate's going to be.

In Littleton, they get together. They've gotten the school board meeting with the town fathers, and the boards of selectmen at least once a month. When they present a budget, it's a budget for both activities. You know what you're doing. And they coordinate things. If we need to do something in the schools, maybe the things in town have to wait; so it's sensible.

They've also worked with a couple of adjacent communities in doing industrial development. They found that 3 communities were involved. One provided the access road, one provided the property for the industrial park, and the third provided the cost or the funding for the infrastructure improvement. The industrial park's doing well, and they're splitting the tax money. They're doing some interesting stuff in Littleton.

Main Street in Littleton is the State Route. We were coming to town to repave the State Route. But Littleton said, "You've got to do better." They applied for a TCSP project and were successful. They got \$750,000 for planning, and \$2m for construction. They selected PPS to help them. PPS came to town and did a lot of very

innovative work. They did some work on a newspaper insert that we're shamelessly borrowing to use in other places around the state, because it's worked really well.

It hasn't been exactly smooth sledding, but the town is behind the idea of what the improvements to Main Street could be. We're now working with the town in Phase 2 for preliminary engineering, final design and construction. The town wants to make sure that it's done right; they want to manage it themselves. So we're working with them for a municipally-managed project that's going to do, in effect, a reconstruction of Main Street and a repavement.

You heard Bill talk yesterday about I93. [inaudible] talk about the Community Technical Assistance Program. It takes the idea of the corridor study and blows it up. There are 26 communities in southern New Hampshire; 4 original planning commissions are involved in this. We think that they need help in dealing with growth. The growth is going to come whether or not there's an expansion of the highway -- and anything that might come if the highway's expanded. So we've talked to them about that.

We've...

[tape ends]

[tape begins]

... places we feel that it's not our role to come to town and say, "This is the menu of things that you can choose from."

We've asked some help from Antioch University in Keene and the archaeology team to help us design a process to create a scope of work. We're using a non-governmental group, an agency group and a community group. It's important for everybody to understand that the recipients of the services are the communities. It's all about the communities. We're having meetings later this month with all three groups to make this happen. We're dealing with agencies that are more familiar with the communities and more familiar with the non-governmental organizations, to try to make sure that the message is not just one from the DOT. This process is one in which we're hoping to get the three groups together and come up with a scope of work that's going to be the most-effective thing that we can provide to the communities in dealing with growth. The advantage, we hope, is that the things and techniques and tools and training developed under this project will be able to be used throughout the state. It's got so many possibilities.

We have a project we want to talk about -- the other I93 project. This is [Bough de] Concord. In the left-hand side of the screen, I89 joins I93. In the right-hand side of the screen, I393, which takes you to the seacoast, leaves. This section of I93 through Concorde actually separates the City of Concorde from the river. It's been an area that we've talked about for a long period of time -- particularly on Friday afternoons and Sunday afternoons, when there's tourist traffic, during commuter hours, and when people want to use it as a shortcut around the community. This section gets very congested.

In 1992, the legislature said, "You've got to deal with this, DOT. Do a traffic study." So we did. We did a traffic study. We estimated everything. We looked at the trends. We came up with some numbers and we said, "Eight lanes and eight interchanges." We took it to show to the city council. The few DOT people who survived the meeting came home and said, "You know they didn't like it."

Audience: [laughter]

Ansel Sanborn: There was a reaction. The reaction was, some business people and others in the City of Concorde looked for some money for a TCSP grant. They got a project called Concorde 20/20. Concorde

20/20 visioned the area. We worked with them. We now have a community-driven process that is now a [Bough-Concorde] project. We're working with the community, which include the 3 communities of [Bow], Cambric and Concorde are revising their land-use plan under their master planning process. We're dealing with them as the precursor to the work we're going to be doing on planning and design for the project. We've used techniques such as visualization and GIS.

The last one is our long-range plan process. In this process, we're using a client committee to run the process. An in-reach program within the DOT and an advisory committee independent of the DOT -- actually organized for us by the New Hampshire Charitable Foundation and the regional planning agencies for public involvement. We want to work with a CSS training session, which we're doing under a separate contract, and put this all together and change the way we do business.

There are project steps. You've heard from Sam and others that it's more important to get people involved early and define the problem. On the [Bow] Concorde projects and others, we're trying to do that.

This is a funnel. The funnel says, "In years past, we always thought projects went into a pipeline." Well they don't -- because the pipeline doesn't function. There are too many needs. The money to fund these projects is too great. Things don't come out of the pipeline. What we really have is a funnel. We have to find ways to take all those needs coming into the top of the funnel, and deal with them in appropriate ways.

Some things won't happen. Some things will be dealt with in other ways. The idea of using land use and transportation creatively, I think, is one of the ways that we can make this funnel work better.

The final word comes from Cliff Sinnott, the executive director, in a meeting last week. Despite lots of talk and some positive steps, we've got a long way to go to adequately coordinate land use and transportation policy. Most of that policy change has to happen at the local level, but it can be aided by DOT initiatives and incentives." To add to this, after Cliff made this statement, the regional planning directors who met with us to talk about this thing said, "What we're really looking for is someone in this state to take on the role of leadership." They're wondering if DOT can do that. Maybe in a year or two, I can tell you if we can.

Speaker: Thanks, Ansel.

Audience: [applause]

Speaker: I can tell everybody is tired of listening to people talk to them. I could probably stand up here and talk to you for an hour about how to get rich and where to find the money. But I think that probably your attention span is about shot.

I'm going to rush through my slides once I get them up there. What's important is not the details of how we do it. What is important is the fact that states are doing it, and we're getting away with it. Ansel's still here, even though they did put him in the basement of NHDOT. He's still here; we're still here. I think what we want to encourage everybody to do is to try to do this stuff in your state.

New Jersey has 12 pilot projects ongoing, right now, for Smart Transportation to address the land use. I'm going to talk about a couple of them. Like I said, I'm going to go through this really quickly. The details aren't important; the principles are.

Standard elements of our Smart Transportation studies is that we start out by announcing that our funds are limited. We can't pay for everything, and I think that's sort of where you guys are, Ansel. The next step is that we can only invest limited funds in those areas where sound land-use planning can occur.

We're telling folks that, "If you want to have a say in our transportation planning, then we need to have a say in your land-use planning." It's got to be a partnership. We're telling them. And I think you told this to the one community -- which one was it? "If you want to choose to go alone, then you have chosen to go alone." We have to go take our investment and our time somewhere else. We don't have time to fight with somebody for 6 months to a year.

We're going to pay for the planning. That's something that I think makes it sort of hard for a lot of the communities to turn down. There are a few that do, but most of them are accepting the offer. It makes a lot of sense to save some tax dollars. Then we also tell them that our office of Smart Growth must be involved, because we want to bring in the state planning people who're going to have the responsibility for this for the next 20 years.

The first project I want to talk about, we mentioned before the break, in terms of answering one of the questions. It's the Route 31 Flemington project. You can see from that map, it's sort of in the center of New Jersey -- New York -- to the right of the screen in Philadelphia, down where that thing hits Pennsylvania.

The project area is a short corridor, only about two miles, but it connects a lot of the important state highways in New Jersey. Originally, we had \$150m bypass that looked a lot like a freeway. Portions of the Flemington area looked like this. These are the portions that were along the existing state highway, and started to sprawl. The portion where the bypass was going looks like this, right now. Nobody wanted it to look like that.

So we started the planning process. It didn't start out well. Initially, the community was not happy. We had been doing EIS in this area for 15 years. They felt like we had promised them the bypass. They didn't like the message. We toughed it out and stuck there. We started to understand the context -- did a lot of work to understand where the development was and where the existing land use is and how it was zoned.

We went out and did a lot of interviews. I think Sam was talking about the interview techniques. Some other folks talked about interview techniques. Ian and his staff went out along with people from NJDOT and the County. They went out to talk with every developer out there. What began to emerge was a different plan -- but they were willing to listen and do something different.

We wanted to know where all the open space, historic and cultural resources were. We took a look at the existing transportation network, which sort of looks like some of the stuff that Ian was showing. As you look at the bottom left-hand corner of the screen, you have a grid which is the old town of Flemington. It's functioning fairly well. Then you go to the right side of the screen, and the grids started to of break down.

We said that we wouldn't totally abandon the state facility in the corridor, but that we would build a two-lane road with traffic signals at a cost of \$50m instead of \$150m, and we would do that as part of the backbone of what was going to occur.

We started to recognize the land-use patterns and work with the developers. We started to try to get them to shape their plans a little bit for future development. They were very receptive, surprisingly. They were very receptive. They didn't kick us out; they were willing to listen.

What began to happen was that by reshaping the internal circulation roads of the developers, we began to piece together a grid. It wasn't going to cost the developers any more money. They had to build their roads to get people in and out of their Home Depots and their housing developments. We just made sure they connected one to the other.

This is how the network began to emerge. The stuff in the pink-orange is the new local grid that's going to be added to the system. The green is the two-lane roadway that we're willing to build. As you can see, there are

lots more lane miles in there now that connect and are useful for through-traffic than there would've been if we'd have built the four-lane freeway.

What you see now is the grid overlaid over developments that will occur over the next 10-20 years. You can see that probably about 40 percent of that network can be built by the developers and it's not going to cost them a penny. That's without even beginning to talk about OPM -- Other Peoples' Money, or trying to get them to build more pieces.

Interestingly enough, there's a piece of the green that one of the developers came to us and asked if he could build it. He asked us how long it would take, and we said probably another 3-5 years before we'd get to it. He said, "Well I like this plan so much -- can I build it for you?" Of course, we said, "Sure."

So we ended up with a plan where actually the internal roads for the development -- starts connected with the adjacent properties. Where it doesn't, where you see pieces of the grid that don't [inaudible] with existing development, those are the places we're going to talk about -- coming in to work with their [inaudible] and provide the county with money to fill it in.

This is what the plan looks like in total. It's not totally finished, but we're getting there. The Office of Smart Growth told us that for the first time in history, we got the towns of Flemington and [Arrorton] to actually sit down to the table and talk to each other about an integrated transportation and land-use plan. They never talked to each other about any kind of planning.

Both of these municipalities, in three months -- in 90 days of working with DOT and Glad & Jackson -- have agreed to totally rewrite their master plans. Building codes and zoning ordinances reflect that they've totally changed their paradigm. In 90 days. Every developer that served on that chart was willing, voluntarily, to change his scheme to be compatible with it.

We are going to follow up on an access-management plan, to the formal process in the State of New Jersey. It's a little cumbersome, but we think that we need to do something to make this whole thing stick.

Our Office of Smart Growth has come into partnership and has said they'll take it, now. The next step is that they'll provide the funding for the county and the two municipalities to rewrite their local plans. Those plans will be consistent with the NJ state plan, and they're going to celebrate this -- because there aren't too many examples of that in New Jersey.

Next project I'll talk about real quick is Route 29 in Trenton, in front of our state capital. Off to the left, you'll see some of the capital complex, 4-lane freeway built right on top of the waterfront. The City is looking to redevelop the whole area to the far side of the highway up there. They also want us to change the road into a boulevard and retreat it from the river. We told the City we'd be willing to take a look at that. However, only if they allowed us into their land-use planning process. They agreed. They understood that this was not going to work if we simply built the boulevard and it wasn't in coordination with the land-use part.

Another picture of what the highway looks like. Those trees to the right have the river right behind them. The freeway, like many freeways over the history of our country, gobbled up the waterfront. There's another picture, looking from the other side of the roadway, from the capital complex out. Again, you can see that the freeway's right on top of the river. There's the Delaware River. We wanted to model it after something that Ian and Glad & Jackson worked with in Chattanooga. I'll flash through these slides, but if you remember, what he did was to change the whole character of the road -- from a freeway to a boulevard. They actually got it built.

The difference in what we're doing is we're actually also talking about picking up the roadway and retreating it 200-300 feet from the river in some spots, so that the City can use it for waterfront parks. Like in Chattanooga

where they coordinated with the land use, this is sort of what Trenton wants to do with some of the vacant land on the far side of the highway. You can see some of the vacant land, there. This is one of the spots where we're going to move the road over. This is the southern part of the project. These are State parking lots. The State of New Jersey's agreed to build some parking garages and give all this land to the City to develop. But again, it has to be coordinated with the highway and the land-use plan.

Another example is our Route 30 project in Camden. The red circle shows you where the Cramer Hill area of Camden is. It's our most [inaudible] in the state. What you see on the left is two different plans. The one on the bottom is the initial plan that the developer -- the Sharkey Corporation -- had. They came in with a \$1.5b promise of an investment. They told everybody that if NJDOT didn't build a new interchange and a new bridge across the river, this whole plan would fall apart, and NJDOT and the State of NJ would be responsible for the failure to resurrect the City of Camden. Thanks to our commissioner with vision -- David talked about him before -- we told him we'd be more than willing to look at investing in the infrastructure, there. But we wanted to have a say in the land-use plan. We wanted to make sure that if we were going to put \$100m into the area, the capacity wasn't all going to be gobbled up in a couple of years because of malls and other things that might be developed in the initial plans.

I'm going to flash through this. The yellow on the bottom is a light rail line that our partner, NJ Transit, just built. The little asterisk down there is where there's going to be a station. The initial plan that the developer had was sort of subtle, but the bridge was going to line up. You can see the red line is higher on the map. It was going to line up and go right into the heart of their upscale residential area. By working with us, we suggested that they shift the bridge and orient it to feed the existing commercial street, which is very distressed. They needed the traffic in order to help build it up. There was one shift.

We worked with them to put more parkland in. We also worked with them to downsize. They were going to put a big golf course there. That's one of the reasons they wanted the interchange. They wanted the golf course by the interchange, so everybody could see it if they drove in from Philadelphia, which is just across the river.

In order to do it, they were actually going to rip out a number of streets from the city grid. So instead of adding grid, they were going to tear it out to build the golf course. We got them to downsize it to 9 holes from 18 holes, so we could have more of a grid. That allowed for better connections for pedestrians, and better circulation.

We added from [future] connections to the downtown Camden. So anything that happened here could jump across the river more easily. These slides show how with the change in the plans, it became a more equitable waterfront plan, so that everybody had access to the waterfront -- not just the few people in the upscale homes west of that red line.

The green lines there show that we expanded the area. By adding the grid in, and streets for people to walk, we increased the radius of the people that were within a 5-10 minute walk of the light rail station. [inaudible] you have to look closely, but look on the bottom slide. It has some pink things right next to the light rail station. That was the big boxes. I think Ian pointed them out. Why would anybody go on a light rail line to go to Home Depot to buy 2x4 and try to take it home? Why not put the high-density residential next to a light rail station? You know, they didn't argue. They immediately saw the benefit of that.

Then ultimately, what we think will be the homerun is -- we actually have them thinking about giving up the golf course altogether and creating a public park along the waterfront, and extending the street grid through it to make better connections. Not only for driving, but for walking. Project for Public Spaces will tell you, too, that one way to keep an area from becoming undesirable is to have a lot of eyes on it. We think that by having a road through there and the ability for a lot of people to walk through the waterfront, you'll keep it from becoming an undesirable area.

The interesting thing about this site is what you can't see from that picture. That waterfront will have a magnificent view of the Philadelphia skyline. It can almost become like Central Park in NYC. It can become one of the most fantastic parks in the State of NJ, and do a lot to resurrect Camden. There's the final plan.

The last project is the one that David talked about a little bit. Again, I'll fly through it. It's the Route 17 corridor. Again, the principles are lots of congestion -- everybody clamoring to get us to widen the roadway. But we knew that without seeing the land-use planning, it was just going to be a total waste. There's so much pent-up demand out in the Bergen County area that we could widen that road and add 10 lanes, and within a couple of years, it would all just be backed up.

Here are some of the principles that David talked about. The planning was off a lot, there. There were towns that hadn't updated their master plans in years. Worse yet was that a lot of their plans were actually calling for the elimination of the grid and through-traffic density and mixed-use. They were trying to turn themselves back into a suburb for some reason.

Initially, we had a lot of resistance from the elected officials. So we did the same thing that Sam and David and everybody talked about. We did our homework on the land use and development patterns. One of the things we tried to do, instead of widening 17 was mainly due to the right-of-way, ratable impacts and costs. That was to provide rear-access roads parallel to 17. These slides show some areas that it'll go through. We also talked about closing curb cuts on Route 17. We were finding places for transit centers. There could be a great potential for bus service -- that's very underutilized in the corridor. Consolidation of parking lots. Here are some examples. On the top is existing Route 17. Here are some examples that PPS came up with -- some work they did in LaJoya, California.

Let me just flash through this things. This slide shows the reverse frontage road. We were able to use local streets and punch through some connections to come up with a parallel road to Route 17. There are lots of businesses that front on 17. They were back out to this roadway. We think we can get the people to enclose a lot of curb cuts, and get a lot of traffic off of Route 17 -- to serve them from the back, without making a major disruption of the community.

Success! The Bergen County Delegation, which initially started out by telling us that they wanted us to widen the roadway and they didn't want to hear about land use, when to our office of Smart Growth last week. They said that if they can get DOT to agree to take a look at some of the hotspots in the corridor, they would put their [inaudible] weight behind getting the communities to work with us for land-use planning. One of the US Congressman got us a \$2m earmark to fund that effort. The legislators are all in there teaming up, talking about introducing legislation for access management and land use and all that type of stuff.

It took us a couple months of being stubborn -- sort of like NH was on some of their projects -- to stick with our vision -- but it's starting to pay dividends. Here's some of the stuff that David was talking about, before. We funded the study. Helping to make the downtowns more valuable, with traffic-calming pedestrian stuff. Operational stuff.

The thing I want to close with is that we're a long way from being there. Somebody once said, "The opera ain't over 'til the fat lady sings." We don't want to dance in the end zone, here, because the game's not over, yet. But here's the philosophy I think we want to leave you with -- all of us here. It's a JFK line... "If we don't do this, nobody else is going to do it. If we don't start now, it's never going to happen."

The closing thought for this CIA conference is what John Metille started us off with -- "Let's just do this."

Audience: [applause]

Speaker: I think we've got some time for some questions, Judy.

Audience: Ian has some [inaudible] down in West Palm Beach -- if anybody wants to see those when you get ready to break, we'll be willing to stay here to go through them. Those of you [inaudible]

Audience: I like the idea of sort of leveraging with the land-use planners and the locals. "Play with us or we'll take our money and go." We really don't have enough money for all the places, so I think that's an excellent approach. Where places don't have land-use plans -- and there is a ton of them around -- they really need to have some kind of plan. Unfortunately, in my neck of the woods, we oftentimes find the highway department has its own vision. They do the exact same thing. "If you don't want to play by our rules, we'll move on." How can we get that synergy going in a community where the highway department sings the right song, but they don't always play by the same rules?

Speaker: I'm not sure I understand. "They sing the right song, but they don't play...?"

Audience: They say the right words, but then the actions are a little bit different.

Speaker: This is strange for us, as transportation people -- as people who spent their careers trying to get projects built -- dealing with communities. The lesson that we're all learning from watching this is that when the communities oppose the project and they start building up some political support for that, it slows down the process, and it usually brings us to our knees. It's kind of strange for us to sit up here on a panel and tell each other. In the community, I think you learn a lesson from the community. That is to be stubborn and tough it out with them.

Let me say something, too, Brenda. You said it in terms of, "Taking our money somewhere else." You've got to be diplomatic about it. What we try to say in NJ is that... All of us here, I think, have been through management training. They always tell you, "Don't sit down there and tell somebody that's not behaving the way you want that, "Here's what I'm going to do to you if you don't do what I want you to." You sit down there and you talk in terms of, "If you don't follow this plan of action, we will leave you with no choice but to do this." I think that's the way NH's doing it, and that's the way we're trying to do it in NJ. That is to say to the communities, "It's not like we want to be mean and bully you, but if you don't engage in this and you do things that are going to erode the capacity of our investment in a couple of years, we don't have any choice. We can't invest in your area."

Audience: Ian, I've got a question for you. In looking at Savannah and looking at West Palm and stuff like that -- those are flat areas. A grid works very well on a flat area. What have you done in something that's hilly? We've got a project in Tennessee, where we've got ridges and valleys.

Ian Lockwood: Seattle. Seattle's hilly. The grid is only one way of doing a connective network. There are all sorts of different patterns. I showed Paris, for that reason. It doesn't have to be a connective grid network. It can be different shapes. Obviously you have to work with the topography. There are lots of hilly places that are well connected.

Have any of you vacationed in Switzerland? It's a hilly place, in places. They have very connected communities. In British Columbia and Oregon and Washington and California, there are very hilly places that are well connected.

We just finished a master plan for the University of California at Santa Barbara. That has some contour. The message is just to connect it. It doesn't have to be grid-ironed. You have to respect the topography. There are

realities that are involved with that, of course. There are certain slopes and stuff that you'll want to take into account. It's pretty straightforward; you have to work with your topography.

Speaker: Yes. When we talk about "grid," I don't think of things simply in squares. David, I don't know if you want to talk a little bit about it. I know that he's been pushing some DOTs in their planning process should talk about street connectivity. Not necessarily a grid, but connections between streets, as a measure instead of a level of service. Do you want to say a word or two about that?

David Burwell: Well I guess it kind of evolves out of the necessity, by the fact that more and more DOTs are realizing level of service is an inappropriate measure of performance. You never can get ahead of the process, as has been noted.

What are some of the ideas for different performance measures? There is a measure of connectivity. [My idea of reviewing] the Maryland department of Smart Growth Resource Center developed it. It measures the number of intersections per segment, per length of highway. It promotes smaller blocks, more connectivity. To the extent that you've increased your connectivity index, you're given more options between origins and destinations, you've increased the performance of the entire system. It also tends to be a Smart Growth by having a lot of positive outcomes for the community -- many more positive outcomes than simply level of service.

Audience: Do you get into the situation where the connectivity gets into the residential areas, though?

Speaker: Yes.

Speaker: Yes. There's the sort of feeling that residential streets can't contribute to the network. We think they can. You'll see in a moment where in West Palm Beach, we kept our connected network of residential streets connected to the bigger roads. As we slowed down our arterial streets and so forth, as you'll see, we actually slowed down our residential streets even more, using more traffic-calming measures.

Audience: [inaudible]

Speaker: It encouraged the longer trips, to stay on the various levels of road. We would encourage our big streets to operate at 25-30 mph, and our smaller streets to operate at 15-25 mph. There's a time thing.

Audience: Ours are designed that way, but they're not enforced that way.

Speaker: To follow up, one of the big issues that [inaudible] despite everything we've kind of laid out to the communities on Route 17 about that "widening is not going to increase throughput. It's not going to do anything for congestion. It's going to destroy the ratables and property tax base," and they're poor communities, anyway. It's going to help all the rich people north of them.

Their answer is, "That's great, but just build the highway." The reason is, they say, it won't do anything for congestion, but what's happening now is the traffic's overflowing into our residential areas. What'll it do? It'll get that traffic back onto Route 17. It's not about Route 17. It's about protecting our neighborhoods.

We're trying to convince them there are a lot of other things they can do, as Ian's pointed out, to protect your neighborhoods, without destroying your rate base."

In industry, though, it's going to be harder to do this in existing neighborhoods, that people [inaudible] into cul-de-sacs and things like that. There were so many places in NJ we need to address that we'll leave those for last. Scott?

J. Scott Lane: Gary, it sounds like the DOT has done a lot with education of the public in the communities that you're dealing with. What type of strategies, tools and techniques have you used to get that word out? Is it just through public meetings? Or do you have materials and some type of a campaign to educate the public?

Gary Toth: We so far have been doing it simply on a project-by-project basis. We're now working on a public relations campaign to do an outreach and an awareness. I think New Hampshire's probably at the cutting edge of that. You guys have done stuff for school curriculum. Do you want to talk a little bit, Ansel?

Ansel Sanborn: We've done a few things in combination with other Smart Growth efforts that are going on. Our Office of Energy and Planning with the State Smart Growth Initiative did some things with actually the three communities that are in the [CTAP] area. We worked with them about alternate land scenarios and transportation and a bunch of other things. They ended up with a website with a lot of good information, and they're using that website as a way to disseminate information.

They've done some things with school curriculums. The 20/20 project we talked about has an active program of working within the school. I think they're even doing that in Littleton as part of the Main Street program. They're working with different groups. Like all financially-strapped organizations, we try to take everything we have and share it around. Those are the places we see it. We also think there's going to be coming out of our long-range planning process. It's going to be sort of the [inaudible] educational piece on all this stuff.

Audience: [What can I learn from this]?

Speaker: I've been with this Project for Public Spaces for just a couple of years, but one thing I find that they've really nailed is not waiting to get the technique of issuing press releases and getting the word out. Trying to get people to come to you -- to sit in some room to talk about transportation issues is really kind of difficult. You'll end up getting stakeholders -- people with particularly preconceived outcomes that will just come in here for a soapbox. Their technique is to go out into the community. The principle of the community itself is that the community is the expert. They just do what they call a "place audit." They go out into the street and see folks who are walking down the street, and say, "Tell me three things that you like about this place and three things you don't like. Then give me three small ideas for improving it." The biggest part of it is stultifyingly simple. But the kind of information they get from actually going out into the community and asking people on the street is oftentimes much more useful than they do from having a meeting and asking for stakeholders to come into a room and get on a soapbox.

Audience: Gary, I wanted to ask you in terms of your working with communities. It seemed to be that you were dealing with communities. My question was around the MPOs in NJ. Is there a network of MPOs that have any kind of regular communication system? And is that a mechanism through which you're trying to do the [inaudible] transportation plan if you land-use plan?

Gary Toth: We have 3 MPOs in NJ. Not surprisingly, each one of them is a little different when it comes to this. The DVRPC -- Delaware Valley Regional Planning Commission -- is very proactive on this. One of the slides I used in my kickoff presentation was some work that DVRPC did on this several years ago. They are actually working on one of our corridors for us. Part of our experiment here is to transfer the funding back to the MPO that we will use to do the corridor study, and have DVRPC take the lead on transportation and land use.

The other two MPOs -- the North Jersey TPA, which covers most of the state -- they're supportive of the idea, but so far they're willing... As somebody once said, "They're behind us...5 yards behind us." That's sort of where they are. Then the third one -- the South Jersey MPO is sort of like the northern reaches of NH. They're

still down there thinking that they want the state highway system to connect them. They're not exactly excited about this.

Ansel, can you comment? Either Ansel or Sam? On the Portland-Oregon MPO? Or New Hampshire? Sam yesterday talked to Portland Maine area MPO. They're into this. If you remember, Jackie, the policies that I showed up there. They've got all the right statements and all the right visions, and they're still struggling with figuring out how to implement it. So they're still early in the game, too. So nobody wants to totally celebrate that. But at least in Maine, there's an MPO that is taking the lead on this. I don't know about NH or Oregon.

Ansel Sanborn: I think in NH, most of the studies we're working on that involve a heavy land-use component have regional planning agencies -- both MPOs and the rural planning commissions -- associated with them. Their role with their communities is to work in the transportation and land-use areas. They've got a lot of history on that. We're able to work with them and help them to provide some tools and training. I think they're real partners in this effort.

Sam Seskin: It depends what stage of life you're at. If you're young and full of ambition, take them all on at once! If you're feeling middle aged, pick the strongest MPO. They're the ones that sort of get it. Oregon has a state land-use system that tells everybody what rules to follow. They let the locals figure out how to follow those rules. They've been at it for 30 years, and their MPOs have been dodging all that time. There are others who are totally into it.

If you take the long view -- if you want to wait the 20 or 30 years, you can probably bring anybody along. If you want to get something done in the next 5 years, find the MPO of your DOT. Find the MPO that gets it, and give them the incentive. Let them demonstrate with your dollars. If you are the MPO yourselves, pick the local community that you want to work with. Let them demonstrate with your dollars how to do this link. Then lead by example. That's a strategy that you can implement in a year -- certainly in five years -- and make big progress.

Gary Toth: Should we let Ian run through his West Palm stuff?

[tape turn]

Ian Lockwood: You saw the musical -- right? "The West Palm Story?" The real story's not quite as fun.

I told you how life in West Palm Beach was 15 years ago. Here's our downtown. You can see how our streets were widened. They were one-way. They became escape routes to the suburbs. Everyone became car-dependent. We had to tear down half our fabric buildings to make parking lots for cars. It degraded the pedestrian environment. There was this big cycle of light that we were trying to break.

West Palm Beach -- the downtown is just in here where that orange area is. That orange area is where the film about drug abuse in the United States was filmed, called, "Crack America." It was filmed right here, in West Palm Beach. There was, "Buy your crack here," spray-painted on the sides of the houses and things.

This is Climata Street. This is the street that was 80 percent vacant. This is our downtown. This is Palm Beach, where the greatest concentration of wealth in the country is located. They disliked West Palm Beach so much that they wanted to raise the bridges up at night to keep the criminals out. That's how bad it got.

Just a bit on land use. We had a downtown master plan area. That's our downtown in cartoon form. We thought about our history. This is the old Nolan plan for West Palm Beach in 1923. Quite often, you get a lot of inspiration from older plans. We looked at the older plans. We thought of our downtown in terms of, "corridors, neighborhoods and districts." Each place had its own identity. We thought about land use down to

the lot level. What did we want to happen on our lots? We had a huge public exercise coming up with a master plan for the downtown. A big part of it had to do with density and how much density we wanted on our land.

You'll recall the FAR -- Floor Area Ratio -- the ratio of buildable square footage on top of the available property. We rejected that idea and we went with this. This is how it works. Everybody know about Floor Area Ratio, I guess. The idea was how we placed buildings on property. We were concerned about it from an urban design perspective, whether we wanted it to all stack up on one corner or spread it out to hold the street for the pedestrians. We chose the latter. It was all about the pedestrian; this whole exercise.

We zoned by numbers of floors -- not by Floor Area Ratio. We specifically decided how much land use would happen where. We didn't want all the market to be hogged by, for example, one giant developer's building. We wanted to spread it out to the city. We came up with four building types. If you're in West Palm Beach, you can build 1, 2, 3 or 4. 1 is houses, 2 are things like town homes and courtyard buildings. 3 are five-story buildings. 4 are 10-story buildings with a setback of another 5 stories.

We zoned the different parts of the city for these different building types. As I described earlier, it's very important to hold the speed with the buildings, and we wanted a nice built form when we were finished. Most of the land in West Palm Beach is zoned for 5 stores. Something like Paris or parts of Boston and Chicago.

This one-page regulating plan tells developers and property owners what they can do. This was done with a very open public process. It was documented and became the vision. I just wanted to point out that zones or building-types 1, 2, 3 and 4 are shown, but the dark lines are along A streets. We had extra regulations about A streets, where there can't be any driveways, or they have to have so much glazing on the lower part. It has to be retail frontage and so forth.

Again, the bottom line was walkability, to make the street entertaining as people walk. We had an 8-second rule. The façades have to change every 8 seconds as you walk along, so people would be willing to walk further.

If you're a developer and your area's a type 3, don't think about building a type 4 building. It's not going to happen. It created a lot of predictability for developers. We found that the developers didn't really care what the rules were, as long as they were consistent and predictable -- but we cared.

It also didn't allow corrupt people to sneak to public officials and get their plans approved without going through this whole urban-design exercise. It made it very public. They couldn't go around the process. Even on the B streets, where there were parking lots that showed people how to design parking lots and hide them. They talked about signs -- all of the physical designs.

The other thing we did was simplify the approval process. Typically, different cities have different things. You come in with your plan and you have to go to this sort of staff level review of your plans. Then you go to the planning board. If it gets through that, you go to the commission. Then you get your plan through. That can take a long time.

We sped it up. If you conform to the very public master plan, you could go to the city urban designer and in two hours have your plan approved at staff level, with no planning boards, no city commission -- if you followed the rules of the very public and accepted vision that was in the master plan. So for the first time, the City could compete with the suburbs in terms of time to get things approved.

It was all in a nice, simple document that we wrote. Then things started happening right away. We were so poor the people would come in and say, "Look, are you going to accept our development or are we going to go somewhere else?" We decided not to have a beggar mentality anymore. We said, "Okay. Then go somewhere

else. We'll wait for somebody who's willing to do something." Lo and behold, we had the market they wanted to be in, so they followed the rules, and they've continued to do so.

My job was to redo the streets. There were a lot of people involved -- it wasn't just me. Here's one of the streets that got changed. This is the before-and-after. It was made a two-way street. The property owners there, of course, 80 percent were vacant. But the people that were there said, "If you take away the street, you're going to destroy the 20 percent we have." Of course, as we know, it doesn't do that. The street became vibrant, again.

There's our library. It's at the main square of the city. Any architects here? You can identify the architectural design of that building. I think it's called neo-grotesque architecture?

Audience: [laughter]

Ian Lockwood: We changed it to that. We put a nice square in front. We changed the big intersection from a signal to raised intersection with no signals. We built a fountain in the square. The kids play in the fountain; the parents come watch the kids. All the prostitutes and drug dealers -- this used to be the place you'd go to get your crack. All of those people left because of all the natural surveillance that was introduced by these legitimate activities. These slum-like, empty buildings started turning into nice buildings.

We gave away façade grants, so people could fix up. We didn't give them a penny for the inside, but as long as the public realm looked good, we were okay with it. They did all the stuff on the inside. Where prostitutes and drug dealers used to do their work, now we have functioning restaurants and retail and bars.

This is an interesting downtown street -- a particularly ugly street. We had a vision for it. David mentioned about the lawyers. We decided to push the edge of design as far as we could. We came up with this cross-section which has no curbs in it. It's just a relatively flat plane, all made out of pavers. We wanted trees between every parked car. We raised intersections all to sidewalk level, so that people in wheelchairs could get around very easily.

There's the street. There's what it looks like after it was built. It's one of the most beautiful streets in South Florida. It's completely accessible. It's all done through textures and colors. We call it the festival design. When we shut the street for festivals, people pushing strollers and wheelchairs can get around in a completely barrier-free environment.

Speaking of lawyers -- one of the lawyers said, "Well when people park, they're going to park on the sidewalk, and there are going to be all these bad behaviors." Even drunken drivers park properly on this street.

Audience: [laughter]

Ian Lockwood: They obsess about getting into those little targets we did with white bricks. It hasn't been a problem.

Audience: [inaudible]

Ian Lockwood: This one is drained to the center of the street. There's the catch basin, right there. It's inverted Crown Street -- which we were told we couldn't do, by the head engineer. Of course, we did it and it worked fine. You can also drain in places with winter climates, where you have ice. You can drain into a swale on the sides, or a valley gutter. The point is that the idea was to do it flush. This is the way we did the drainage. It just happened to work out that way.

We did nice bus stops. This was a ditch, and the ditch was sized for a hurricane-type flooding. We reconstructed it into a park, which can flood. This actually can fill right up to here without water, without damaging anything during big rain events. In the meantime, 99 percent of the time, it's a nice water feature and park. We built bridges to get over to the school, and stuff like that.

This is at one end of that park. We had fun with it -- we did a little fountain coming out of the end of it. We built a roundabout where there was an awkward-shaped intersection, before. This is a four-lane truck route, which we narrowed to a two-lane truck route, with lateral shifts and off-street parking. Again, about access. On-street parking was the goal -- standard access to businesses. We took one lane out and put it in on each side for parking.

Audience: [inaudible]

Ian Lockwood: Oh, yes. of course, they can play. All of the conventional-thinkers, neighsayers, doubting Thomases came out of the woodwork and said, "You're going to kill people." Of course, when you actually looked at the statistics, these types of streets had about 50 percent of the number of collisions as conventionally-designed streets. They have about 80 percent fewer injuries and deaths. So it's actually a lot safer. The reason is because speeds are lower.

Speaker: Right.

Ian Lockwood: Shopping distances are shorter. Fields of view are wider. Drivers are more courteous, and this kind of thing. That is just fear-mongering when people say stuff like that. It made the cover of *Florida Engineering Journal* -- "Traffic Calming -- Bringing the Good Life Back to Floridians."

This is one of the big state roads that's in the process of being narrowed, right now. You can see the width of the sidewalks. You could hardly believe this was a downtown. It was almost like a wide curb around the building. It was just a place to put poles. We're in the process now. This is the current width from the orange arrows, and that's how wide they'll be when we're done with parking. A lot of it's already built.

Here's a piece that got built. We did it in many sections, because there were several contacts. These roads are kind of long, and they go through different [roads] as they go through the city. This 2-mile section went through a neighborhood 5-lane state arterial road. We narrowed it down to two lanes. This is still under construction, but it now has street trees, and so forth. The bottom line is that it sewed the community back together. It was much less of a barrier. It raised property values. It raised safety.

On the way, there were two elementary schools. We raised the intersection up to sidewalk height. There's the sidewalk, there's the ramp up. So the intersections are the same height as the sidewalk. There's another ramp at the side. It slowed the cars down in front of the schools -- there are two of these intersections at each school. They're what we call a "slow zone." That's important even on weekends when kids are playing in the field. Kids are 4-6" taller as they walk across, so they can be seen easier and they can see better. It slows the cars down in the vicinity of the crossing. That's exactly what you want. It makes the intersections very conspicuous. We narrowed every single side-street along the way with these [inaudible] so that the exposure to traffic is shorter. Should there be parked cars in here, a child crossing the street can actually see past the parked cars from a safe vantage point. That's part of our "Safe Routes To School." This used to be a 5-lane state road. The road used to go from hedge-to-hedge, practically. We put the odd median in just for fun, to break up the gun-barrel look of the street.

Then we didn't just calm our arterial roads. We did a lot of calming on the side streets, down to even slower speeds, using a whole variety of traffic-calming measures. Some are on emergency routes, so we left a gap for

the tires, so the emergency vehicles can get through. Emergency response is a big deal, so we came up with a whole strategy on how to deal with that.

Being able to cross the street to the schools downtown -- these are raised crossing. Something like raised intersections, but just for pedestrian crossings. You can see the ramp that the cars have to go over. That makes for a very safe crossing.

This is an interesting process that's just finishing construction, right now. This is the state road, right here. It was a one-way street going from right to left into downtown. Behind this is a big art gallery -- the largest art gallery in South Florida. They've got this city park and then the Intercoastal Waterway. Folks would just blow past here at 50 mph going downtown, down this one-way street. That's looking to the right. Those are the cars speeding at you from the right. There's downtown to the left.

We had this idea of building this plaza right in the middle of the road on this modified roundabout. This art gallery was built on top of a cemetery, and there are actually gravestones in the basement. It was the cemetery for the original settlers, called "pioneers" of the community. So we called this Pioneer Plaza. Because it's at the art gallery, we're building a sculpture for the pioneers. There's how it fits into the road. The red lines are how wide the arterials were when we started them. The shaded area is how wide it's going to be when it's done. There's the modified roundabout.

Again, we were pushing the edge of design. It's all going to be raised. There are going to be no vertical curbs, here. If this park were to change into a sculpture garden in the future, which is a goal for it, this whole area can be used for public events without the annoyances of curbs for people to cross.

We started drawing this thing, and then we saw these rocks in another city. We thought, "Geeze, that would be cool to put in the middle of the road, just like they did." So we redesigned the circle with big rocks. That evolved. There it is, under construction. There's the water you saw earlier in the park. Here's what the rock turned into, over time. This is still up; it just got moved in a few minutes ago. These will all be lowered down. It's all flush. It's all done with textures and colors. There'll be big art in here, when we're done. There's looking to the right. There's the [inaudible] under construction, there. There's another view.

You can see the attention to detail with the materials. The bricks are actually curved to help guide drivers around, to minimize the signage. There's no vertical lighting shining down on anything. It's all uplit -- it's kind of glow at night and be really cool. We obsessed about views of the art, as you drove up, so you could see the art being properly.

The only type of palm tree in this part of Florida when the pioneers came was the sable palm. So we're using the sable palm. All the other types of palm trees were introduced later. We're trying to use the original species of plant. Even the colors of the bricks and so forth were inspired by a piece of art that's already in the art gallery next to the intersection.

This is North Dixie Highway -- a 4-lane commuter route. It looks like a gun barrel, and drivers drive like bullets. It's straight as an arrow. We had an idea of making that linear park -- this was done with sewer money. There's the before picture; there's the after picture. Here are some other pictures. You're standing in the right-hand travel lane where the shot was taken. That was even further along.

You see the 2-lane road we replaced it with, with lateral shifts and the nice linear park. This had tremendous effect on the community. People started walking for the first time. They started riding their bicycles for the first time. Property values went up. The boarded-up homes -- people with choice bought the homes, fixed them up and started actually living in the community again.

This is downtown where "Crack America" was filmed. There are some buildings that were restored. We made them into a [school for performing arts]. Here's what happened. The place changed from the drug capital of the United States to a wonderful, mixed-use development. There's Macy's. There's a Cheesecake Factory. There are apartments above the shops.

This intersection is at the center of this \$600m infill development. According to all of our transition modeling, it needed left turn lanes, here. But we decided not to put in any turn lanes, because of our interest in pedestrians. We wanted the crossing distance as short as we could. All the modelings said it wouldn't work. It really worked well. If you go there, it's a great place; you want to be there. People through networking found ways around, and it works just fine. That's just a sample of some of the things we did.

In summary, we made our districts better, our neighborhoods better, and our corridors better -- in terms of people, places and pedestrians. All the terrific forecasts about congestion didn't come true. We have \$2b worth of investment where nothing was happening before. And when you go to West Palm Beach today, it's actually a very nice medium-sized city that turned around in probably less than 15 years.

Yes.

Audience: Just one question. Where do all the service people live? The people who now work for Macy's, and things like that? Is there any affordable housing component worked into this whole design?

Ian Lockwood: That's a good question. There's a whole issue of gentrification and pushing out poor people. First of all, if you look closely, there are no buildings, there. A private developer actually tore down all of the boarded-up homes, and he went bankrupt. We took over the 70 acres of practically cleared land. So there was actually no poor-population.

Audience: Yes. People still have to work.

Ian Lockwood: Yes. There are all sorts of things that we did to keep our low-income people in West Palm Beach. I took out the slide of our affordable housing, but we have affordable-housing projects sprinkled in amongst the community. The idea was not to concentrate low-income people or high-income people. We also started a Marriage-Renaissance Fund, where our housing folks would identify candidate families to become homeowners.

In some of our neighborhoods we had 80 percent renters and 20 percent owners. We wanted it the other way around. We wanted 80 percent owners. They would find specifically single mothers, working, low-income. They'd find out how much mortgage they could afford and find out who owned the home. We would help them. We got 10 banks involved, and basically forced them to work with us in the community to lend money to these high-risk people. They got a mortgage that they could afford.

The remainder of the price of the house which they could not afford, the City bought. We called it GAP financing. If they stayed in the home for a certain number of years -- I think it was 5 or 6 years -- we would forgive the loan over time and just give them the ownership of that. We turned renters into homeowners.

The key is, we're not just in the habit of giving away homes. The key to this whole thing is that the parents and the children have to go through a year-long course on how to become homeowners. So we would teach folks how to open up a bank account, write a check and all the things homeowners do. Write their will, learn how to hire a plumber, learn how to maintain their lawn, learn how to paint. All the kinds of things that we take for granted because we have role models, they never did. They're in this cycle of poverty which we had to break through education. That's why the kids and the parents went through it.

When I left the city and joined Glad & Jackson 3 years ago, we had I think it was 125 families that went through this. We did not have any default loans. We did not have one late payment. We calculated a 1,000 batting average. It was because we calculated what they could afford and sized their mortgage, accordingly.

I'm not the housing expert from the City, but there were a whole bunch of things we did from the Marriage-Renaissance Fund, to the Weed & Seed program, where we'd go into an area, weed out the bad drug dealers, and so forth. I don't know that there are any good drug dealers, but we weeded them out with our police. Then we seeded the area with economic development, with a drug rehab, with family planning and all these sorts of other programs, to get people on their feet again.

There were a number of things we did, but we did not want to push our low-income people out of the city. They were walking to work. They were right near downtown, and we didn't want to make them car-dependent. Our modal split was ½ of 1 percent, and we could not afford to have them become car-dependent; and neither could they afford it. We did everything we could to keep people in the city.

Audience: We probably should turn the mic back to Judy; right?

Judy: Please help me thank Ian, Ansel, Sam, Dave and Gary.

Audience: [applause]

Judy: Lunch is in boxes or bags out on the table. Then at 1.00, we're going to meet in here and discuss what happened this week -- good, bad or other -- and help Arizona plan the next one.

Everybody is invited! Thank you.

I'd also like to thank Jackie and Trish and Cheryl and Hank for helping make this successful.

Audience: [applause]

[sessions ends]