U.S. Department of Transportation (DOT), Federal Highway Administration (FHWA) Sustainability Initiatives

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Neelam Patel: And at this time, I would like to introduce David Carlson from U.S. Department of Transportation, Federal Highway Administration. And David works over at Federal Highway in their policy shop and he's going to be talking a little bit about upcoming sustainability initiatives at the Federal Highway Administration. David?

Slide 2: U.S. DOT FHWA and Sustainability

David Carlson: Thanks, Neelam. Good morning – good afternoon, everyone. I am David Carlson. I'm with the Sustainable Transport and Climate Change Team here at the Federal Highway Administration. And one of the things I wanted to bring up were some of the things that we're doing here at Federal Highways that support a broader sustainable highways initiative and agenda. And, we are currently using a – batting around a sustainable highways definition that we're using to try and orient the community around exactly what does it mean to create a sustainable highway. And in essence, sustainable highways are ones that allow for basic access and development needs in a manner that is consistent with human and ecosystem goals, allow for transport mode and choice regardless of age and ability, are affordable, and operate efficiency – efficiently, limits emissions of – and new and non-renewable resource use. And these principles are equally applicable in urban, suburban or rural areas and can be applied to all functional classifications. So that's kind of a working definition. It's a little clunky, but it seems to hit all the high points that a lot of people have given us input on.

So there are a number of activities that here at Federal Highways we're working on and that go towards sustainable efforts. The first one is a program that we call Context Sensitive Solutions which we've been doing for a number of years. And we do see a great intersection for a number of these issues that you've heard about here on the webinar and also that we're doing here in Federal Highways that addresses these. And so Context Sensitive Solutions is an approach that considers the total context within which a transportation improvement project exists. And CSS really refers to an approach or process as well as an outcome. And it calls for an interdisciplinary collaboration of technical professionals and local community interest groups, landowners, facility users and the general public who live and work near transportation facility or use them. And the process agencies can gain - using the process, agencies can gain an understanding and appreciation of the community values, so they can address these in transportation planning and project delivery. And, certainly, you know, how and – pavements are used and what types of pavements are used would be one of those issues that we would consider as part of the CSS process.

I also put up there another strategy that we have in our Asset Management Office. It's called Life-Cycle Analysis, and it's an engineering economic analysis tool that allows transportation officials to quantify the differential cost of different investment options for a given project. So they look at the broad scope of what the project would be costing and where are the opportunities

to save money and – on those projects and consider the expenditures and the user cost throughout the life of an alternative, not just only the initial investments. So – and they would – and we're broadening that perspective to include sort of both the co-benefits of making some materials and decisions and design decisions as being part of that cost analysis and that's going on in our Asset Management Office and we're – we here on the team are working with them on that.

The other initiative that we've got going on – we're working with EPA and the Forest Service on a green streets effort which is to use – when we use the term "green streets" we're referring to using natural systems for storm water management. And those would be swells and protected boxes that contain trees, bushes, shrubs, grasses that rainwater and storm water is funneled to. And those are our treatment options for that storm water. We also find it has a lot of other co-benefits as far as, you know, in aesthetic, attractiveness. We've found creative designs for such applications. And of course, they do have, as Neelam mentioned earlier, they do have an effect of heat island reduction or minimization.

The other initiative that we've got going on is the Green Highways Partnership, which is going on here in the Mid-Atlantic States between Pennsylvania, Virginia and Maryland and it's a partnership of the DOT, the state DOTs, and the EPA. And we are looking at different methods for - applying different methods to projects around pavements, the use of pavements, storm water control, storm water management and a number of other activities. And there is a website for the Green Highways Partnership, and I believe it is greenhighwayspartnership.org, I think, and that is worthy of checking out to see what are some of that unique technologies that we're developing as part of the partnership.

The last activity that we have going on is a new one and it's very broad and it is our Sustainable Communities Partnership that we are doing with EPA and HUD. It's the three-agency partnership. And those partnership principles look at providing more transportation choices, promoting equitable and affordable housing opportunities, enhancing economic competitiveness, supporting the existing communities, and coordinating and leveraging Federal policies and investment and then valuing communities and neighborhoods. So – and those are the things that are the focus for the three agencies to work on. And here in the Department of Transportation, we call that "livability" and that is our term for here in the department, but it does go towards the Sustainable Communities Partnership.

I mentioned all of these because like with EPA's programs, well, heat island is not necessary something that we're particularly focused on. I think you'll be able to see in the descriptions that I was giving you of the different strategies and programs that we're implementing and we are delivering to our partners that, certainly, heat island considerations would be folded into all of those kinds of activities. Certainly, in the Sustainable Communities Partnership and CSS and in Green Streets, I think you'll see that those kinds of considerations are getting folded in and we would be looking at those.

Now as far as the research that we've got going on, we are about to engage on a sustainable highways criterion tools development in which the heat island effects of pavements would be one of the criteria. It's similar to a LEED-type system that we'd be developing, are really closer to the Sustainable Sites Initiative in terms of having a UHI reduction as part – as one of the criteria

that we would be examining. And Dr. Kaloush, I'm excited that we'll probably be approaching you to help us understand how to incorporate some of those criteria into our overall effort.

And then, as Neelam mentioned, we have a number of projects and reports that have been developed by TRB, the Transportation Research Board and NCHRP researching the different pavement technologies and different elements that the pavement technologies deliver on in a variety of different ways. But the thing that – one of the things that we are predominantly focused on, certainly, is making the pavement more usable, recyclable and have a long life and minimize in the environmental effects. And again, while I say that UHI hasn't been one of our primarily focuses, it certainly is one of the considerations that we have in there, and my colleague, Matt, will now talk to you about what we've been doing when it comes to pavements. So I'll turn it back over to you.