

# **Work Zone Process Reviews Webinar Transcript October 31, 2011**

## **Jennifer Symoun**

Good afternoon or good morning to those of you on the West. Welcome to today's webinar on Work Zone Process Reviews. My name is Jennifer Symoun, and I will moderate today's webinar

Before I go any further, I do want to let those of you who are calling into the teleconference for the audio know that you need to mute your computer speakers or else you will be hearing the audio over the computer as well. For those of you calling into the phone line, please note that your phone lines are listen-only.

Today's webinar will last 90 minutes. We will have a brief introduction given by Tracy Scriba of the Federal Highway Administration Work Zone Mobility and Safety Program. Tracy will give an overview of work zone process reviews and what they do and do not entail. She will then be followed by three presentations from Iowa, Colorado, and Louisiana. FHWA and State DOT representatives from these three states will discuss how they conducted their completed process reviews, their findings, and what worked well and what did not. We will take about 5 minutes for questions following each state presentation. We will use any remaining time at the end to continue answering questions. If during the presentations you think of a question, please type it into the chat area and send your question to "Everyone." Presenters will be unable to answer your questions during their presentations, but the questions typed into the chat box will be addressed following each presentation. If we run out of time and there are unanswered questions we will attempt to get written responses from the presenters that will be emailed to all attendees.

The PowerPoint presentations used during the webinar are available for download from the file download box in the lower right corner of your screen. The presentations will also be available online within the next few weeks, along with a recording and a transcript of today's webinar. I will notify all attendees once these materials are posted.

We're now going to go ahead and get started with a brief introduction, given by Tracy Scriba of the Federal Highway Administration Work Zone Mobility and Safety Program. Tracy, I will bring up your presentation, and you can get started.

## **Tracy Scriba**

Thank you, Jennifer, and greetings to everyone participating in the webinar today. I am going to start with an overview of process reviews, and then we will turn it over to our three presentations from the state level to discuss the real examples of how process reviews have been done. These are three good examples of the comprehensive type of reviews that should be done.

Just to start out with what the requirements are for a process review, the Work Zone Safety and Mobility Rule, updated in 2004 and effective in 2007, requires agencies to conduct a process

review at least every two years. The intent of the review is to assess the effectiveness of work zone safety and mobility procedures, practices, policies, etc. The idea is to use that information to identify any areas for improvement that might be needed, and also to enhance efforts and help projects go more smoothly through work zone planning, design and implementation. Those reviews also might identify certain kinds of best practices that need broader implementation across an agency, or perhaps for sharing more broadly across the United States.

The review, according to the Rule, can include an evaluation of data at the state level—that can be work zone crash data at the state level—and/or a review of projects throughout the state, so a specific selection of projects to review in more detail. I would say in general, most reviews have included some combo of those types of information. The Rule recommends that the review be done by a multi-disciplinary team and in partnership with FHWA.

Now, in general, the updated Rule is more comprehensive than the Rule was previously. As a result, the process reviews also need to be more comprehensive. I know that a lot of agencies have been consistently doing annual work zone traffic control reviews in the field, or traffic control inspections, and those are a great way to identify how well work zones are being implemented at the state level. That's certainly a helpful piece of the process review, but now, with the Rule being broader than it was before, just doing those kinds of reviews is not fully meeting the intent of the Rule.

So, following on that, I'll give you a few examples of what a process review is not. It's not solely a compliance review of a traffic control plan, although it might include that and it can be a very helpful component of a process review. A process review is not intended to be a training program, but it could include a review of an agency's training program as part of the process review. A process review is not the same thing as the Work Zone Self Assessment, although it should make use of those results, because that information can save some effort if it's done as part of the review or if the results from the Self Assessment are used in the review. For those of you who aren't familiar, the Work Zone Self Assessment is a tool that is done annually through our FHWA division offices looking at six categories of work zone practices. It's a series of questions about various practices within those six categories. Lastly, another example of what a process review is not: it's not solely a review of crash data, but, again, reviewing some crash data or operational data as part of a process review can be a helpful component of a review. So, these things in and of themselves are not process reviews, but they can be used as a part of a process review.

From the other side, what a process review is: it's a program-level evaluation of work zone operations and management. How are the policies working? Do they need to be adjusted? Are the practices and procedures being implemented in the agency working well, or do they need adjustment? What are the outcomes we're seeing in the implementation end, when these projects are under construction? What is the crash data showing us? What are the mobility impacts we're seeing out in the field? It covers the range from the beginning—the policies that drive the decisions during project planning and design—to what kind of outcomes are we seeing in the field? It's intended to help assess the effectiveness of a program or a set of practices and procedures. It also involves looking at some individual projects as examples/case studies of how things are working.

What does it enable? A process review enables agencies and FHWA division offices working together to identify good practices and successes that could be implemented more broadly within the agency. Sometimes maybe certain districts in the DOT are doing something well and the word's not getting around to other districts. A process review could be a good opportunity to identify that and help with broader implementation within a state, and also perhaps at the national level. It can enable the agency/division office to identify some situations where there are improvements needed and help them decide together what might be the best thing to improve those situations. It can help identify where a policy or practice needs to be adjusted. Perhaps the definition the agency is using for significant projects is not catching some projects that need additional attention, or maybe the definition is too broad and needs to be narrowed down a bit. The process review could help identify something like that. It can also identify areas for future training. This is particularly true when it comes to looking at TMP development, or in the field looking at certain aspects like signage that are not being implemented well, and perhaps there could be some additional training there. It can identify those types of things.

In terms of thinking in general of the scope of a review and what it should cover, some of the areas are the work zone policies and processes being used in the state. I mentioned a few of these already. Other examples are impact analysis or maybe lane closure policies. Are they working well? Does the agency have one, or maybe they don't have one and they've decided that it might be helpful to have one. It might help streamline things down the road, for example if you develop a lane closure map. A review should look at some elements of data and implementation in the field, both from a safety and mobility perspective. Are inspections happening in the way that they should? Those are the kinds of things that the review can capture.

A number of agencies have looked at not only doing a broad check in the process review, but also looking at one area for particular, in-depth focus. One reason to do that is it enables deeper analysis and getting at the root cause if there's a particular area that's not going well. Also, it can help assess things like, say the agency made adjustments to its TMP development process a few years ago. How are those going? Is it working well or not? Maybe they implemented a new lane closure process and the review is a chance to assess if it's going smoothly or if it needs adjustment. Some of those types of things can be assessed in a little more detail. Maybe there have been complaints about a particular type of practice. The process review is a chance to ask is this just an isolated situation, or is it more of a broad problem and do some standard designs need to be changed to address that issue?

To give you a flavor for what kind of approaches have been used by different agencies in the first round of process reviews that have been completed under the updated Rule, probably the most common area has been a field review of projects combined with one or more of the following: combining a review of the Work Zone Self Assessment results with a field review of projects; doing a questionnaire of staff or interviews of staff and combining that with a field review of implementation; and you can see examples of some other things that have been combined with field reviews. Again, that's been the most common, and we're going to have a

few examples of different ways that's been done today. There have been reviews that primarily consisted of in-depth interviews of personnel.

Here's another example: to review a set of selected topics, and do it at both the project-level and the program-level, so looking at overall results by looking at, say, crash data and training, and combining that with looking at specific implementation at the project-level, such as TMP documentation, interviewing resident engineers, etc.

Another approach that was used by one state was to do a case study approach and select two projects and review them across the full project development process, from the beginning to implementation in the field. I just want to make a side note on that: two projects are somewhat of a small sample, so I would recommend a larger sample if using the case study approach.

One state did a correlation of strategies to results. They assessed what TMP strategies were used on 21 projects (this is a sampling of their projects, not all of their projects); they assessed crash data on those projects, looking at some of the results of what was implemented on the projects; and they did work zone traffic control quality assurance inspections for 15 of the 21 projects, so again looking at how things played out in the field based on what was decided in the project development process. They compared the information from all three of these facets to see what strategies seemed to work well and what didn't.

Just to close, I'll point out a general resource available on our website: a Process Review Toolbox. It contains additional ABCs on process reviews and discusses some references available and some FAQs. In the Toolbox itself, there are sample questions that may be helpful to use in a process review and they're categorized by the different categories shown on the slide. It covers broad categories as well as some more specific categories. It's just a starting point, and they're available in Word format so they can be downloaded and edited and used as may be helpful by an agency.

To close on the overview, why are reviews important and required? They provide a read on the state of work zones, both in the state and nationally. They can help us identify where improvements or adjustments are needed, maybe where additional training is needed or research, maybe at the federal level, is needed if common things keep popping up. They also highlight successes for broader implementation. They're a means for oversight, both for the state as they conduct the field component of these reviews, as well as for FHWA to ensure that the things that should be happening under the Rule are happening. How well is the MUTCD being implemented, for example? Lastly, as I mentioned at the beginning of the presentation, they are a regulatory requirement,

So that closes my introductory remarks. I'll turn it over to the participants from the division offices and states to give us some concrete examples of how they've done the reviews in their states and what they've learned in that process.

## **J. Symoun**

Thank you, Tracy. Our next presentation will be given by Jerry Roche of the FHWA – Iowa Division and Dan Sprengeler of the Iowa Department of Transportation.

**Jerry Roche**

Thanks, Jennifer. We're just going to take you through what we did this past year for our work zone process review. We actually looked at data and projects that were done in 2008 and 2009 and did a lot of work on the review report. We finished in September 2010, but a lot was done in the winter of 2009. We had a joint FHWA and Iowa DOT team, which I'll talk about a little later. We did a comprehensive review. It ended up being 51 pages, which was longer than we thought it would be, but we really tried to cover everything in this review and it probably just made our next one shorter. We did use the FHWA process review template. It worked pretty well; there were some things that I thought were redundant, but we were able to use that. There, you see a copy of our report and all the different parts. We're still finishing up a few of the action items. We've had progress on those that I'll touch on, too.

There you see our review team of FHWA and Iowa DOT folks. We looked at all the Federal regulations on work zones, certainly the 630 Subpart J, but also touching on the Subpart K and Worker Visibility requirements in 634. We just wanted to make sure that there was compliance with all the safety and mobility regulations. We looked at our TMPs. We still conducted our temporary traffic control review; we conduct that annually and we'll talk about that in a moment. We also identified any best practices.

Here, you'll see the scope of our review. As I mentioned, we looked at all the 630 Subpart J and K requirements, as well as the new 634 requirements on worker visibility. Looking at the current practices and problems, we actually made use of our Work Zone Self Assessment, as Tracy mentioned before, and also used the process review questions you can find online. We didn't use all of them, but a great deal of them we at least talked about and came up with responses for them. It walked us through the review as well as areas we might want to look at further. The in-depth review looked at our Significant Project determination as well as the development of our TMPs.

I mentioned that we still conduct our temporary traffic control field reviews. We do that annually, and we wanted to continue that because we think it's important. Dan, I think you had a few notes or things you wanted to say about that.

**Dan Sprengeler**

A few years ago, we started using a set format with questions and a checklist of all the different categories we address going through work zone field reviews. We'd been doing that for awhile, but to me, it's still one of the most important parts of the review, because that's where you see what's going on and getting executed in the field. Is it going how you planned and how you envisioned it? We try to get to three of our districts every year, and we have six of them, so three one year, three the next year. We go through the checklist for each category of product we come across: signing, devices, pavement markings, etc. After we've gone through the three districts for a year, I take all those reports and try to do a summary of them, and that's what we put into our process review.

**J. Roche**

Another part of that is once we've seen what's going on, we do work zone training every year. In the winter months we train folks in the construction side and maintenance, even private contractors, anyone involved in work zone traffic control or inspection, and provide them feedback on what we saw in the field and hope that they'll take that information and put it to use. That's been very effective. We look at all levels of projects, too, like utility projects, which might be unique.

**D. Sprengeler**

One thing we've experienced in Iowa, as I'm sure other States have as well, is that our reduction in our field inspection staff has hampered us in staying on top of all the things we need to with regard to traffic control. Whenever we can we want go out there and see how the process is working and do things with the changes and specifications and some of our design processes that help us reduce the need for inspection.

**J. Roche**

Going on, for scope number five, we also looked at our crash data and came up with what was most prevalent in our crashes. As I mentioned, we do a lot of training and we added some training areas, and that's something I'll talk on later. We have a Work Zone Traffic Safety Committee that involves several officers from central office, construction, design methods, maintenance, field staff, and also an ATSSA representative. We looked at public information and how that was being done, as well as extra enforcement in the state.

We looked at the procedures and we thought that everything was meeting the requirements. Our second review will look for involvement from field staff. Because of the timing of this review—we had ARRA stimulus projects and I-Jobs, which was the state stimulus program, as well as a major emergency relief project with flooding repairs being done—it wasn't the time to try to involve construction staff, so we did it internally with our team. In the future, we want to involve folks from the field to get their input for our next process review. We think it's valuable; it just wasn't going to work with all the other requirements that were put on those folks.

When we looked at the TMPs, we thought some training was needed for the districts. Tracy helped us and we created a workshop for the Midwest Work Zone Round Table, held every Spring with about seven states in the Midwest. We did some training for those folks while we were together.

We also thought it would be good to have a template, because looking at the TMPs, there was no real format for the different projects. We put together a template in August. Hopefully this Fall and Winter we'll talk to folks and see what needs to be made more clear or improved. The goal of the template is to help them think about the questions they need to ask: should they go further? Have they done enough in a certain area, or is there something else they should do for the projects? It plants some seeds and walks them through so they make those decisions.

We also had some issues with TMPs that we knew were created but couldn't find copies, so we created a file folder within the DOT system which will give everyone access in the DOT. Some

were created, but no one else knew it but for the author. This makes it much more accessible. There's a project file for each project, which will have a TMP. We sent out the all three of the colored guidebooks so they knew what the requirements were.

One thing I found interesting is that looking at the projects, we had TMPs that were required for construction projects, and they're typically further out and they were doing a good job of overall looking at different things and implementing some safety and mobility improvements, but we weren't doing anything for our maintenance activities. We had some limited situations where construction wasn't able to happen or a contractor couldn't go out on the road and close a lane, but maintenance could. From the traveling public's perspective, those things are the same, and if it's not good for one person to be out there it's probably not good for the other. We've actually been working on a lane closure map that was flushed out by Traffic and Safety, and we came up with a pretty good prototype that's been turned over to Transportation Data, who uses all the automated traffic recorder data and we're seeing if they can automate that a little bit. That's something they've been playing with. Quite honestly, I haven't checked with them recently to see where they are with that, but hopefully it's something they're going to get done over the winter months and something we'll play with in the Spring when our maintenance activities pick back up.

Looking at our significant project determination, we thought it was in some cases too late for a lot of initiatives and improvements to be included in a project, and so we looked at creating some event dates in our project scheduling system, which the DOT uses. That took a little longer than we thought, but it has been finally implemented and should be used as projects get turned in now. We also wanted some review of the TMPs to make sure they were including everything. Before, that wasn't really included in our policy per se, so that's actually been wrapped into our event dates, and so once they're submitted in there, we'll have a chance to look at them and know they've been completed. Some of them were completing a TMP but weren't sending them anywhere so we weren't aware of its existence.

We also looked at our training. As I mentioned, we do a good job of training for those that install, maintain and inspect our traffic control, but not a lot for the design folks. We're actually bringing in the ATSSA Traffic Control Supervisor course, and we're going to follow that up with the ATSSA Traffic Control Design Specialist course. That's getting done this Fall.

What worked well? I think the joint team approach really worked well for the process review. I liked everyone having input and everyone having some control on what we looked at. Continuing our temporary traffic control reviews on an annual basis is still a good thing, and as Dan mentioned, using the guide questions helped us walk through all the different pieces. For agreeing on the findings, I think it was pretty evident what the findings should be when we went through all the information we collected.

Something we could improve on next is to provide a little notice of what we're doing. Sometimes we'd have questions or we'd go to folks about some things and they weren't really clear on what we were doing or what the purpose of the whole review was so we had to explain ourselves a little bit. I think if we could give more notice, that'd be good. Certainly we should involve the field staff. Like I said, I think that there is value to that; it just didn't work out from

a timing perspective. We could probably focus the review a little more. This one was really comprehensive, but I think we're going to try to focus it down on the areas that really need addressing, and not so much on the things that are going well. We also want to obtain commitment on the action item deadlines. That was one of those things where we said well, this is going to take this construction season or maybe three months, but we really didn't go to all the different offices that would be impacted by the changes that were needed. They all have their own responsibilities and priorities, so sometimes getting them to do your thing takes a bit. Their schedules are full, so trying to add a little more time for commitment from them probably would've been helpful before we came up with our action item deadline. Finally, we could collect and use more data, and that really means on the operations side of things. We're finally getting some operations data with some of the ITS things we've started to deploy, so I think we're going to collect travel times, delays, and some of those things that we can look at next time.

We're actually getting ready to start our next process review. We haven't scheduled our first meeting, but that's something we'll have to get started on pretty quickly. We're certainly going to look at the areas that we had action items on and get an update at those. We're looking at focusing again on our TMPs: how the templates are working; what types of things they're focusing on for strategies. We're also looking at flagger training. That's something we've seen issues with and how they're doing it. The level of quality differs: some flaggers do a good job, and others don't, and that's really an area of public visibility. We're looking at strengthening the requirements for the training, which might be a little controversial because it will be more difficult and take more time for folks to get trained, but it's also something we need. We'll also look at law enforcement training. That's been a little problematic. We usually get overtime officers, and the people we train might not be the people who enforce on the roads, so that's something we'll have to look at to see if it's practical. Also, we're going to continue to look at whether we'll continue to use the process review template. I think we probably will, but we also might streamline that a little bit.

Dan, do you have anything else you'd like to add?

**D. Sprengeler**

No, I think you covered it.

**J. Roche**

Alright, well thanks, Jennifer.

**J. Symoun**

Thank you, Jerry. We do have a few questions. We'll take about five minutes now. Is the annual traffic control field review of all work zones, or how are the selected projects chosen?

**J. Roche**

I'll let Dan say a few things about that. We basically look at all the projects that are in our 511 system for construction. Those get entered usually in advance by a couple of weeks, so we look at all those projects. We have someone from the Office of Local Systems that also participates in our reviews, so she gets all the local projects that are out there. We usually do some follow



up, especially on the local projects; we call in to see if the project's actually going on. As long as the project has started and they have work zone traffic control, we'll go out there. Sometimes we're just looking at an off-system bridge that has seven signs, but it's good to look at closures and whatnot.

**D. Sprengeler**

There are some states I know that look at every project that's out there, but with our concern, we're not looking at individual projects as far as critiquing each one of them. Now we're trying to get a general feel. When we go out there and we drive through the project, what are we seeing for traffic control? It's just a general thing. There's no way we can visit all our projects. Every two years we're in a district, so what's out there is what we look at and we critique. I would say that in a given year, on average, we probably do maybe close to 50 actual visits to projects and write reports on 50 projects. Sometimes you get out there and the project is done and you can't do it, particularly with our utility projects, because there's no good way to know when a utility project is going on. It's hit-and-miss. We'll write a report and do a review on whatever we come across. Some of them will take 5 minutes; others will take several hours if it's in-depth and a major project. I hope that answers your question.

**J. Symoun**

Thank you. Who leads the process review? Is it the FHWA division office or the Iowa DOT?

**J. Roche**

I think it was pretty 50-50. We usually met at the division office, and I did more of the scheduling and prodding, but everyone would be assigned different things and people would go back and work on their parts, so I would say it was pretty close to 50-50.

**J. Symoun**

Okay. For field staff, do you mean inspectors, project engineers, contractors or the district engineer level?

**D. Sprengeler**

We're talking about inspectors more or less, because they're the guys out there recording what's going on.

**J. Roche**

Probably the resident construction engineers, too. We'll look at several different levels of folks, and even the contractors. We'll talk to them, too, to get their feel of what could be done better and what they think of things. We haven't quite figured that out, but we will when we conduct our scoping of the review.

**D. Sprengeler**

We have a good working relationship with our Iowa chapter of ATSSA, and a lot of our subcontractors belong to that. They aren't necessarily part of the formal review, but we have an ongoing talk with them about a lot of things.

**J. Symoun**

How many people are on the Work Zone Traffic and Safety Committee?

**J. Roche**

About 20, and there's probably 3-4 from maintenance, 3-4 from field construction, and 1-2 from the central office, including FHWA.

**D. Sprengeler**

We've got people involved who work with the standard traffic control plans, we've got specifications involved, and we've got FHWA. We're trying to get resident construction engineers, maintenance staff, traffic and safety people, so it's pretty broad.

**J. Roche**

The committee serves two purposes. Any changes to the traffic control standards and specifications come through that committee. Anything dealing with temporary traffic control comes through that committee before it goes to the specifications committee. The other thing is answering questions. Anytime we get questions or feedback on a road plan that doesn't work as well as it should, it goes in a queue and we discuss all those at the next meeting. It serves the function very well and we think it provides great value.

**J. Symoun**

I think we have time for one more question. You mentioned utilities. In Iowa, are the utilities required to follow the work zone safety requirements?

**D. Sprengeler**

Yes, in general, they would be there by permit through the DOT, so they're required to meet all the standard specifications and traffic control kinds of things. They wouldn't have any TMP requirements. That would all fall underneath the contractor or the district that's overseeing that project. If there was something that the utility folks had to do different, that would be organized through the district to make sure it complies with the TMP requirements.

**J. Symoun**

Alright, we're going to have to move on. I know we have a few more questions. If we have time at the end, we'll go back to those. Thank you, Jerry and Dan. We are now going to hear from Dahir Egal from the FHWA Colorado Division and San Lee and KC Matthews from the Colorado DOT.

**Dahir Egal**

That you, and good morning or good afternoon to everyone. My name is Dahir Egal and I'm with the FHWA Colorado Division. I will not be the one talking today. I'm going to let the CDOT folks talk about the work zone process we use for the review. I will not take too much of your time. I believe that they have done an excellent job and we were all involved in the process review. I have here with me today KC Matthews, who is a unit manager, and his assistant, San Lee. Before I have KC and San take over, I want to say a few things about the process review itself.

This process review involved a lot of work and dedication by a lot of people. In order to be successful, this included completing many tasks and reaching many milestones. For example, there were many meetings, both at the CDOT office and at the FHWA office. There was a review of all current work zone policies and procedures, there were field visits, and there were interviews of resident engineers, project engineers, to determine the sample projects to have. There were a number of brainstorming sessions, and this is where the questionnaire idea originated from. There was creation of the questionnaire, compiling of the results of the questionnaire, and drafting of a report for review. Also, this included meeting with the CDOT management and others to get their tie-in and having the field engineers, resident engineers and project engineers review the draft report to make sure that we covered everything. At the end, we wanted to make sure that the report was in compliance with Subparts J and K., so the FHWA office had to review it and make sure it was okay before they submitted it to the division office.

I think I have said enough. We don't have enough time. I'm going to turn this over to KC Matthews. He is happy today because I see he has a St. Louis Cardinals jersey. His team won, so he is. I have San Lee, so gentlemen, take it over.

### **KC Matthews**

Thank you. I am KC Matthews, State Traffic Inspection Engineer, and San Lee and I along with Dahir and others from the DOT were involved in our process review. San is going to walk us through our presentation, and then he and I will handle any questions at the end.

### **San Lee**

These are the topics I will be covering. We will be going over the purpose of our review; the scope our task force created; the process we went through to complete the review, including how we assembled the team; how the projects were selected to be part of the process review; and then I will talk about the questionnaire and how it was created, and, of course, how the questionnaire can change over time, because there is always room for improvement.

Our goal was to assess how CDOT was doing with regards to our work zone safety and mobility policies and procedures that were created as a result of the updated Rule for J and K. We not only looked at our policies and procedures, but mostly concentrated on project-level practices to make sure we were complying with the Rule and to look for areas of improvement. We focused on safety and efficiency of the work zones; that included speed reduction processes and how standard they are across our region, lane closure procedures and our compliance with these lane closure strategies. Our region lane closure strategies contain minimum traffic operation strategies as well as working hours. We do have that tailored for each region, and they take into account accident data, traffic volumes, and other factors that pertain to traffic. We also looked at positive protection methods and techniques and how we could improve them. And then, we also ensured that projects have TMPs implemented (it looks like that bullet got cut off at the bottom).

For scope, we looked at the intention of the process review and reviewed CDOT's processes and procedures at both the program and project levels. In order to do this, we assembled a multidisciplinary team, and you can see the team members are shown below. We had

representation from project development, otherwise known as area engineers; safety and traffic, which included KC and myself; region traffic representation and residency engineers; and, of course, we had representation from project management, and that included the full range from design to construction and traffic operations; and, also, FHWA.

Once the team was assembled, we reviewed the purpose and scope of the review. We currently conduct our traffic control reviews yearly, although it's only required every two years by FHWA. CDOT conducts them yearly because we see the benefit in doing so. We decided that the best method to obtain information for the process review was to create a questionnaire that targets each area in design, construction, and traffic and safety. The projects selected were based on our yearly traffic control reviews, similar to what Iowa conducts every year. We selected one project and each region where both the designer and project engineer would receive the questionnaire. The results were compiled and reviewed by the team, and commendable practices and recommendations were documented, as well as areas of improvement and follow-up actions that were assigned to the responsible personnel. Each year, all the results of the process review will be presented to all 50+ residencies, and our residency visits are face-to-face. It gives us a good opportunity to give them information on what's going on at headquarters and what techniques other regions are using.

First, let me share with you a little more about our yearly traffic control reviews. Our yearly traffic control reviews typically review six projects in each region, and we have six regions. The types of reviews are shown. We have one nighttime operation field review, two maintenance projects, and you can see bolded there is one full office and field review, because that's what the task force decided would be the project from each region that would receive this questionnaire. Also, we did the no notification review for a field review and a field review with notification.

Let's talk more about the format of the questionnaire. Again, since we have six regions, there are six projects statewide. The questionnaire is broken up into four sections. Then, we have a general section that went out to both the project management and the design personnel. We have a design-specific section, a construction-specific section and a safety traffic operations-specific set of questions. The purpose of this questionnaire was to ensure that every level of our projects, from design through construction, knew what the Work Zone Safety and Mobility policies and procedures were. Also, we wanted to make sure that they were implemented all the way through to the project level. Now I will show you a small sample of our questionnaire, which is available for download on your screen.

#### **D. Egal**

By the way, if somebody wants to know all the questions, we have provided that. You can download all the questions that CDOT ask the field and designers.

#### **S. Lee**

Here are the general questions that went out to our construction staff as well as our design staff. The goal of the first question was to find out the strategies that are being used. Secondly, what issues or concerns were coming up as a result of the implementation of our work zone safety

and mobility policies and procedures? Were there any outside factors affecting their implementation on projects?

Here are the design personnel questions. For the first question, we wanted to verify that the process for work zone safety and mobility began earlier in the stages of the project scoping level. Secondly, we wanted to find out if work zone safety and mobility procedures influenced strategy selection for their operations. Also, we wanted to find out if any projects surveyed applied for an exception to the significant project Rule definition, such as those projects that are on interstates and low-volume areas. Those are projects that would be near our border, low-volume, and don't require the public information piece of the TMP, so those projects would be able to apply for an exception with FHWA.

Here are some construction questions. For the first question, we are looking to improve our initial TMPs. Secondly, we wanted to improve the collaboration between construction and design personnel, if necessary. Also, we wanted to make sure that we had a uniform approach to how we set our project speed limits and work zone speed limits across the State.

Here are the traffic questions. With the first question, we wanted to verify that the network and region-wide impacts were being considered during project scheduling, especially when it comes to coordinating two concurrent projects in the same area or corridor. We also wanted to find out how and when our public information spec was being used. Also, again, with respect to speed limits, we wanted to ensure a consistent approach to the setting of speed limits and make sure that there is a central point of contact for setting speed limits, which are the traffic engineers for each region.

After compiling the results, we found the following were successful practices across the majority of the projects. We found the projects were exceeding our minimum traffic control and operations strategies, and our public information efforts were above and beyond the requirements of the Work Zone Safety and Mobility Rule. Our regions had some type of method of public outreach for long-term projects that affect a large number of travelers. Another successful practice we saw was the use of VMS signs. They were set up typically before large projects to let travelers know of the upcoming project, or in some cases during projects to let travelers know what kind of expected delays they could have traveling that roadway.

Let's go over some of our follow-up actions from this process review. We found new and consultant project engineers are still coming up-to-speed on our work zone safety and mobility policies and procedures. We found the initial training that we provided to the regions and to the consultant personnel needs to be continued. We initially rolled it out for the J and K rules, and as a result of the process review we decide to continue the information sessions as well as share the presentation online.

Speaking of online, we also have a central website for all our work zone safety and mobility related documentation. This website is going to be on the last slide. It also provides a central point for all of our personnel for any questions or assistance and clarification that they need with respect to work zone safety and mobility.

We also found that the project engineers need to be notified of adjustments to the TCP and the best practices to improve our projects at the design level for future projects. We really wanted to improve our communication between our construction personnel as well as our designers so they were aware of any changes that were made to their projects that were designed by them. Lastly, one missing piece we found is that we did not do a survey for our contractors, and as a result of that, for our next process review, our process review team task force will create questions for contractors to see what kind of measures we can obtain from them and see how we are doing with regards to performance.

Here's the website where we have all of our work zone safety and mobility documentation. Again, the questionnaire that we used for our State is available from this webinar on the download page.

**K. Matthews**

One thing that I want to add is the responsibility of tracking the implementation of any area of concern rests with our branch, and so basically it rests with San and I and our unit at this point, as the two people who represented this branch on the task force. We are currently doing follow-up and making sure that our areas of concern that need to be addressed do get done in a timely fashion.

**S. Lee**

I think we are ready to answer questions. I see the first question is: are the designers internal to CDOT? In some cases, no; once we were going through the projects that were selected for the process review, we found that some of the people were actually consultant designers. We were able to track them down and get the questionnaires sent to them. We went both internal and external.

**D. Egal**

I want to add that this was a collaborative effort. Who was involved in the process review and who was really leading this? This was a collaborative effort between all bodies involved. The DOT was responsible for leading this, and the FHWA division office was consulted at all times. Some of the meetings took place in our local FHWA office. So, it was collaboration among all bodies involved.

**S. Lee**

The next question was what potential questions do you anticipate asking contractors for the next 2012 process review? We did not have any contractor representation on the task force, so this may be something that we will look at for 2012. We haven't really set down any questions for them yet, so that will be a job for the next task force to do.

**J. Symoun**

The next question we have in there is: were TIM quick clearance practices considered?

**K. Matthews**

With regard to Traffic Incident Management quick clearance, for the Front Range regions, those east of the Rockies, where most of the population is in our state, each of the major corridors already has its own incident management plan. Those are already in place for at least the interstate sections and also for some of our other freeways and arterials. Each project is already required to abide by those. If you happen to be working on a major roadway that doesn't have an incident management plan, you are required to create one for that project, and it becomes part of the statewide package. We also have courtesy patrol in the Colorado Springs and Denver areas during construction. It's an interesting mix because we already have courtesy patrol on Interstate 70, Interstate 25 and our C-470 beltway, but when a project is operating in one of those areas the project incident management takes precedent over the corridor incident management because it needs to be tailored to the phasing and traffic control plans for that particular project.

**S. Lee**

There was one question about who leads the process review.

**K. Matthews**

The DOT leads the process review, but FHWA is part of the task force from day one. When we had our two task forces for compliance with Subparts J and K, we had co-chairs. I was the CDOT chair and my counterpart from FHWA, who is now Dahir, would have been the other co-chair. He came in on the last part of Subpart K, so his predecessor and I were co-chairs and so we really just continued that relationship with regard to the process reviews.

**J. Symoun**

Thanks. We have time for one more question. Since it is not uncommon for changes in the Traffic Control Plan during construction, do you permit contractors to make changes to the TCP and do they need to sign and seal changes?

**K. Matthews**

We do permit changes to our traffic control plans. We have the overall traffic control plan, and smaller plans are developed off of that, depending on the phasing that we call methods for handling traffic, or MHTs. The MHT may make an adjustment to the initial traffic control plan, and so we don't go back and re-sign and re-seal the original traffic control plan. It's understood as part of our process that the MHT will be how we do it, because the traffic control plan is developed before we even know who the contractor is going to be, prior to contractor selection. The traffic control plan is the broad overall plan, and the MHT may make modifications to that. That does require signatures by our project engineer as well as our superintendent from the contractor side, but those are not sealed.

**J. Symoun**

Thank you. Now I want to move on to our final presentation, which will be given by Betsey Tramonte of the FHWA Louisiana Division and Barry Lacy of the Louisiana Department of Transportation Development. With that, you can go ahead.

**Betsey Tramonte**

Thank you, Jennifer. Hi, everyone. This is Betsey Tramonte, and I'm the safety specialist here at the Louisiana division office of the Federal Highway Administration. I will cover the majority of the review today, and then Barry Lacy, who is a work zone engineer for the Louisiana Department of Transportation and Development, is going to discuss what DOTD has done after this review was conducted.

The purpose and objective of our process review looked a lot like Iowa and Colorado. We wanted to document compliance with the CFR and we also wanted to review DOTD policies regarding temporary traffic control, so we wanted to look at the program side. We also wanted to review procedures at the project level to gauge compliance with these policies. It's the same type of review that the other states are doing: looking at the program side of the work zone (a program that the State had) and looking at how what we've done at the program level is brought down to the project level as well. Along the lines of what Tracy had said earlier, we didn't want to do a compliance review for TC plans specifically and we didn't want to use only the Work Zone Self Assessment; we wanted to use a comprehensive review of the entire program.

Next is scope: how are we going to do that? We did want to look at the Work Zone Self Assessment to look at the work zone program area. This is something that we do once a year and we have all of our stakeholders together to do that. It was a perfect fit for the program side of the review. Then, we take 18 projects at random from each of our DOT's nine districts. When we picked a project, we would go in with the project engineer and review the file that the project engineer had on the project. Then we would go out into the field and do a review of what was in the field as well. Then we wanted to document the findings and provide a report to stakeholders.

Team members: we had a multidisciplinary team. FHWA-Louisiana was on that team, including myself and the area engineers here in the office. We had the DOTD construction section, which Barry is part of. We had Louisiana's Work Zone Task Force, which is a multidisciplinary group that consists of many different sections of the State: their headquarters office, traffic management, road design, safety, bridge section, construction section. We also had representation from the districts and their traffic operations engineers. Then, we had LSU as well. They do a lot of work on our training.

Next are the findings and recommendations. Our first finding comes from the Work Zone Self Assessment, and how we determined the finding here was on one of the sections in that assessment, we ended up decreasing the rating from the execution phase to development phase. The part that we found that needed to be reduced to the development phase was the planning process to include alternative network options, to maintain traffic, and also the question does the agency's planning process manage the TIP to eliminate network congestion caused by poorly-prioritized execution of projects. We found those two areas needed to be more from a development standpoint, so we recommended to incorporate a checklist of work zone traffic control impacts in Stage Zero as part of the project development process, so really to consider work zone impacts earlier in that process. We also wanted to make sure that the planning section at the State was represented on the task force.



The next finding was the Transportation Management Plan. We found the DOT D did not have an official policy requiring a TMP for all federal aid projects. They did have a policy to identify significant projects, but as far as a TMP being a holistic document and a plan on how to manage those impacts, that was something that we didn't see in their policies per se.

The recommendation that we had for this was to revise existing Lane Closure EDSM (which is what they call their policies) to require a TMP on all significant projects and a TMP on all federal aid projects. Right now, the State is coming up with different types of projects and what kind of TMP would match each type of project.

The next finding, finding three, was night inspections of traffic control devices. According to state policy, traffic control devices should be inspected once a week during nighttime periods, and we found that on only 50% of the projects. Our recommendation was that the project engineers enforce contractor inspection of traffic control at night.

Next was the finding for media releases. In their own specifications, DOTD was asking the contractor to contact the media on a weekly basis regarding the project. What was happening was that the state was actually doing all the contact with the media. Our recommendation was that DOTD should relieve the contractor of that responsibility since they were handling it very well on their own.

The next finding, finding five, was the lighting plan. According to DOTD policy, there had to be an approved lighting plan on file for all night construction. As we went through these projects, we looked at project files and found that 3 out of 5 projects reviewed for nighttime work did not have a plan. Our recommendation was that the DOTD project engineer should check projects of nighttime work for a lighting plan, and the lighting plan should be checked nightly for compliance.

Finding six was work zone deficiencies. This pretty much came from our standardized checklist that we used to look at all of these projects, and we use a standardized form, much like Colorado. Actually, I think I found Colorado's and used a lot of the pieces from it. We looked at every project using the same checklist, that standardized form, and we came up with several different deficiencies. From that, we recommended that those deficiencies be looked at by DOTD and FHWA project engineers and area engineers when they are doing their field reviews. These would be areas for additional training.

Observations of recommendations: our first observation that we had was for temporary traffic control plans. We found that 66% of the projects reviewed had an actual temporary traffic control plan specific to the project, but 33% of them had a standardized traffic control plan. We recommended that temporary traffic control plans should be designed specific to the construction project and all revisions to the traffic control plan should be submitted by the contractor to the project engineer. We were finding oftentimes that there was not an updated traffic control plan in the project engineer's file.

Our second observation was training. We looked at the training program in detail and we found that it was somewhat stove-piped. Great law enforcement training was being done by the State,

but oftentimes the project engineer didn't know everything that the project engineer needed to know about what law enforcement was supposed to be doing out on the job. We found that in a lot of pieces throughout the training, so we wanted it to be more collaborative and coordinated instead of stove-piped. Our recommendation was to conduct collaborative training for all personnel with a role in work zone safety at the project level.

I will turn it over to Barry Lacy, the Louisiana Department of Transportation and Development work zone engineer, to cover the DOTD response to this review.

### **Barry Lacy**

One of our responses was to the nighttime construction. The way the spec reads is that the contractor has to give us a couple light meters. It has to be ground-mounted, trailer-mounted, or mounted on light towers. We can no longer afford to have just headlights, which we were having on a couple of jobs. We make them turn off the strobe lights, minimize distraction to the motorists, make sure they're not shining lights in peoples' eyes, and things like that. We have different levels of illumination requirements. Level 1, which is 5 foot candles, is for general construction, clean-sweeping, low level lighting requirements. Level 2, which is 10 foot candles, is for installation, asphalt paving, concrete paving, and things like that. Our third level is 20 foot candles, which is the higher level, like crack filling, joint repair, pavement patching, and things like that. We want to make sure that they minimize glare to the motoring public.

Another thing that wasn't happening was that for the spec, he has to submit a lighting plan 30 days in advance of when he wants to work at night and he has to demonstrate it the night before. All these things we need to have done to make sure it's adequate, and our inspectors can help them out with that.

Another we do is to make sure he does a traffic control diary. This used to be done on paper, and now the new requirement is to do one online through our site manager system, which is something more than 40 states have. It's a very good tool and it's very detailed as far as what's going on at the existing site and how he has corrected his plan and things like that, in case we have to go to court. I have a guy that works for me who actually rides every job in the State three times year. He puts a lot of miles on his car and he grades all the projects out there, and we have a checklist that we use: we give one point to a minor deficiency and two points to a major. You want to try to get as close to zero as possible instead of the highest grade. He grades everything and he has a couple categories of what's going on, and we put it on our system and get the contractors and project engineer all on the same page so it's corrected within 5 days.

We are also finding that some of our PEs took work zone safety to heart and made it a priority, and some didn't. We had to write a spec so not only the engineer, who is our project engineer, but also myself and my traffic control specialist, if we ride upon a job that we see is really bad and we can't take it anymore as far as safety to the traveling public, we have the ability to shut down the contractor's operations. It's happened in a couple instances, and it's not a fun task. We don't like for it to happen, but it has to happen sometimes to get their attention. Sometimes we might pull their certification as far as TCS and TCT certification. We'll pull it and make them take the test again give them a 90 day probation period. Everybody knows what a controller work item is; the underlying controller work item on each kind of project is work

zone safety. If you don't have it right, you don't get to work that day. They're starting to realize that, and we're happy about that.

We have a current temporary traffic control plan that we upgrade on a regular basis. We meet as a work zone task force and throw out some ideas, and I get a lot of phone calls to change this or change that. We make everybody take a flagger course and a TCT course, and we make all the upper level technicians and engineers take the TCS course. We took the generic ATSSA course and made a Louisiana-specific course, which will be coming out the first of next year, which incorporates our TC details, and our minimum design standards, and our traffic control design standards into one format that is actually more applicable. We're happy we're doing all of these correctly.

**B. Tramonte**

For the Transportation Management Plans, too, the State has asked us to bring in training, and that's what we've done in several different training courses with them on the TMPs. TMP development in the state is going very well now, and it's been a really great thing that's come out of this review.

The next slide is what worked and what didn't work. Things that could have worked better: we could have started a little earlier in the process. We could have been a little clearer on the scope, looked at some more types of projects—we really did use random sampling of all kinds of different subjects. We could have focused on fewer things in greater detail. That's probably what we'll do next time. Things that worked include the collaboration among partners. Without that collaboration, we couldn't have done a review as in-depth and thorough. Management support of the review also worked well, from both a State and Federal perspective. There's been a lot of support in the findings and recommendations, and making the Louisiana work zone program a better program, and it is a strong program now. With that, we are ready to take questions.

**J. Symoun**

Thank you. The first question is does Louisiana have issues with documenting areas of noncompliance such as 50% nighttime reviews?

**B. Tramonte**

You mean as far as the State having issues with the documenting of that area? No. When I say 50% noncompliance, we looked at 18 projects out there, however many projects fit in that type of roadway. We look at two-lane vs. two-lane, four-lane vs. four-lane, but there were no issues with that, were there, Barry?

**B. Lacy**

No, we had no issues documenting and we also had no issues correcting them.

**J. Symoun**

Have you reviewed utility construction projects, and if so what were the observations and recommendations?

**B. Tramonte**

Not as part of this review, we didn't.

**B. Lacy**

I think like every other state in the country, we have issues with utility companies. Their idea of traffic control is maybe one cone. We are riding a lot more projects like that, but the problem is we don't have any teeth in our utility permits. All we have is the ability to pull their permits. Sometimes that causes a big stir, but at least we get their attention, and hopefully they will get it right the next time. We have issues, but the idea is just to make them abide by their permit.

**J. Symoun**

Do you have standard guidelines for lighting plans?

**B. Lacy**

Yes, in our spec book, we have a section on nighttime construction operations. I highlighted the main parts about it. It contains anything the contractor needs to know about what he needs, minimum standards of what he shall and shall not do, is all part of the subsection of our spec book.

**J. Symoun**

At this point, we do have some time left, so we can continue asking questions for Louisiana, but also if anybody questions for any of the presenters, please feel free to post them up there and indicate which presentation they're asking about. Going back to Louisiana, is your spec book available online?

**B. Lacy**

Yes, it is.

**J. Symoun**

If you have the web address, you could type it into the chat box so people can easily get to it. If you don't, you can send it to me later and I can send it out.

It looks like we have some other questions coming in. Another question for Louisiana: is your nighttime set-up that's tested the night before, is that on the roadway or off-site somewhere?

**B. Lacy**

I think we like to see it on the side of the roadway, unless there is a neighborhood nearby, and then we will not disturb the public. It's usually done on the side, out of the way of traffic, just to demonstrate.

**J. Symoun**

How are you rolling out your work zone training: online or in-person?

**B. Lacy**

The flagger course is available online through ATSSA, but most people take it in-person. The TCT and TCS courses are not online. It's a physical test.

**J. Symoun**

While we are waiting for some other questions to come in, if the operator can give instructions for anybody who wants to ask a question over the phone.

**Operator**

At this time, I would like to remind everyone that in order to ask a question over the phone, please press star, then the number one on your telephone keypad. We will pause for just a moment to compile the Q&A roster. There are no questions over the phone at this time. I return the call to the presenters.

**J. Symoun**

Thank you. Going back up to the Iowa questions, we have one in there that didn't get answered. How in-depth would the law enforcement work zone traffic control training be?

**J. Roche**

That's something we have to look at. We've considered the ATSSA course; there are some slides that they often put together for doing that kind of training. Our issue with that is we're not quite confident that we are going to reach the people that do the work zone enforcement. We can certainly train the state patrol district offices and things like that, but actually getting the officer to sit through the training that's going to be out there is something that we are not entirely sure that we can accomplish. That would have to be set up with our state patrol and some discussions will have to happen before we could do that training to make sure that it would be valuable to them. For some work zones, we don't want them to do a lot of enforcement. We want them to be present to control things, but we don't necessarily want them stopping someone in certain work zones. If you have a single lane or that kind of thing, it can actually be worse having them there. Do you have anything to add to that, Dan?

**D. Sprengeler**

We also have local city and county enforcement on occasional projects. That would be tough to get those folks on, too.

**J. Roche**

There are some issues with getting them trained and the logistics of getting that done. That's something we'd have to talk through, I think.

**T. Scriba**

I know a handful of states have developed something for online training for law enforcement, just trying to address the sometimes difficulty in getting them in one location for the training. I know Kentucky has done that, I think Georgia has done that, and I think Idaho is working on that. There are probably a few others. Federal Highway is hoping to take that earlier law enforcement traffic control training course that was created and make that available online.

That's still something that is in-process. Just want to mention that as another route that some states have gone to try and increase the reach of training for law enforcement.

**D. Egal**

KC is going to talk about that, Tracy. Colorado has done some unique things as far training goes, so, KC, go ahead.

**K. Matthews**

As part of our Subpart J, we identified that need and we are actually using the course that Tracy is speaking of. It's a half-day, FHWA-developed program, and it's now required for any officer, whether it's Colorado State Patrol, County Sheriff or a local police department officer who will be providing active law enforcement in a work zone. We are handing cards that are similar to flagger cards when the officers get trained. Initially, FHWA came in from the resource center, sent an instructor, and trained the trainers. We trained one trainer for each troop for Colorado State Patrol, and now State Patrol handles their own training. They incorporate it into their yearly training for their officers. We did a couple of other sessions for the local law enforcement on each side of the State, and now most of the major departments have a trainer trained, and as they lose trainers to other agencies or retirement, they will have to get someone else trained. We handled issuing the cards and we have a database that can be accessed internally in case the officer shows up without his or her card. We want to make sure they can still provide active enforcement. Our project engineer will be able to get on the internet and verify that an officer has been trained.

**T. Scriba**

Thanks, KC.

**J. Symoun**

For Louisiana, somebody said they're interested in your checklist for reviews and the point system. Is that available online anywhere?

**B. Lacy**

I can get it to them. We are in the midst of adding a few more, because we see a lot of stuff out there. I've worked construction for 20 years so I know what goes on. We have a checklist right now and we're updating it. It's not online, but I can get that to them.

**J. Symoun**

If you want to send it to me so I can get that out, that would be great. This one is for all the presenters. Someone said that it sounds like in future reviews you would ideally focus on just a few areas of potential improvement. I'd like to give each of you a chance to talk a little bit about that and if that's what you agree with. We can start with Louisiana.

**B. Tramonte**

I think so. The next time we do a review, using this review as a springboard, we look into just a smaller group of issues, more in-depth. That's one of the things, as I said earlier, that was the

most difficult. The checklist we had was so huge and had so many things to look at that next time it will be really nice to just focus in on a couple of things and see if we need to make any changes.

**J. Symoun**

How about Colorado?

**K. Matthews**

Colorado is going to take a similar approach. We have a good idea from the first review of what is working well. I think we will still assess it, but not necessarily as in-depth, and really work on the areas that we feel need to be improved.

**J. Symoun**

Iowa?

**J. Roche**

That's something we're going to look at. We are sure of being compliant with the procedures and things this time, so there have been no real changes. We had a few traffic control plans we had mentioned, but a lot of that was taking inventory and that would not have changed. We will spend a little more time going in-depth in an area or two, which we think would be more valuable going forward. This one was comprehensive, but the next one will not look at a lot of the same things, because a lot of that stuff has already been documented. There's no sense in writing it again.

**J. Symoun**

Thank you. We have another question regarding utilities, again for all the presenters. Who monitors utilities that relocate for the State construction? Anybody can jump in and start on that one.

**B. Lacy**

Louisiana likes to do two different ways. We do it with the current construction job and with our current inspectors, and a lot of times we let the utilities relocate before we do the construction job. Either way, we have inspectors watching to see what they do. A lot of times, it works better with us doing the inspection. The problem we run into is with the small towns that have no idea where the utilities are, and then the tree trimming and phone guys that show up at the last minute do their own thing, and something happens and they pick up their cones and leave before the police arrive.

**D. Egal**

This is Colorado. With respect to utilities, if the utility relocation is part of the construction project and the contractor is the one doing it, then it's no different than anything else that the contractor does. If this work is by permit, then it's more complicated, because they have a permit and the state has inspectors, so the state inspectors are responsible for making sure that they comply with the regulations and policies and procedures. Sometimes they don't really do a good job of making sure that the utility contractor is really adhering to these standards. It's a weak area, I would have to say.

**J. Roche**

This is Iowa. The districts all have utility coordinators that would handle that.

**T. Scriba**

We had an earlier question about how states should measure success or performance in regard to customer satisfaction. There are ways other than surveys that have been used. I'll comment on that first, and then if any of states want to comment on that, they can jump in. I would say there is probably a limited set of ways that we've seen. One, of course, is the age-old tracking of complaints. Obviously, complaints are one side of the picture. You rarely get the feedback from somebody calling in to the information line or sending an e-mail to the DOT with the positive information. You get some of those, but not a whole lot of them. You have to keep in mind that the complaints in and of themselves aren't the whole picture, but I would say the number of complaints is one way that has been used. With regard to surveys, I think there've been surveys that have been done on particular projects, and then there've been more general transportation surveys that the DOT does on topics that include work zones, but might be broader. I think those are sometimes larger surveys that entail a level of effort that is a little bit intimidating. There has also been a survey – available online - that Missouri DOT has done, and it's more of an ongoing survey that enables the public or even DOT employees to comment on the conditions of work zones. Those are the main ways I've seen. I don't know if any of our speakers want to comment on how you look at customer satisfaction in your agency.

**K. Matthews**

We've done the usual survey methods, but on our megaprojects, the ones that really have large impacts, we've also done focus groups. Our public information office pulled in users of the corridor and sat down and had a focus group session with them.

**T. Scriba**

Thank you. Anyone else want to add anything before we move on?

**J. Symoun**

I think we're about out of time for today. I want to thank all of our presenters and thank everybody in attendance. You've had some great questions. The recording transcript and presentations will be available online in about two weeks. I will send an email when they're available. With that we will end, and thank you everybody. Enjoy the rest of your day.