

**Smarter Work Zones Webinar: Lane Closure and Permitting Systems**  
**Transcript**  
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Please stand by for real-time captions.

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Captioner --

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My name is Brittany Comer-Mathis I will moderate today's webinar.

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Before I go farther we have been experiencing some issues with Adobe connect. If you begin to experience poor audio quality while listening to this webinar, the best solution is to call the teleconference line. If the computer audio or visual components disconnect please bear with us as we reestablish the connection as quickly as possible. If you do call the teleconference line you need to meet your computer speakers. Today we will have five presenters.

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Martha Kapitanov from FHWA Office of operation. Saud Khan from Florida DOT, Elio Espino from A & P consulting transportation engineers. Arshad Iqbal from Caltrans division of traffic operations. And Yusuf Shatnawi from Caltrans division of traffic operations.

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Martha is a transportation specialist on the FHWA headquarters and a member of FHWA Every Day Counts Smarter Work Zone Implementation Team. As a Transportation Specialist, Ms. Kapitanov provides leadership and guidance to the development and implementation of effective work zone practices and innovations on a national level. She holds a bachelor's degree in Civil Engineering from the University of Puerto Rico.

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Saud Khan has been with District 6 of the Florida Department of Transportation for the past 24 years. Prior to joining the Traffic Operations Office as the District Maintenance Specialist, Saud spent 14 years in FDOT construction. In his current position, Saud is responsible for coordinating all lane closures on state roads within District 6, which includes the highly urbanized Miami-Dade County and rural Florida Keys. He received his associate's degree in Trinidad West Indies.

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Elio Espino is a Senior Project Manager at A&P Consulting Transportation Engineers. He has 18 years of transportation engineering experience in the areas of traffic engineering, traffic safety, and transportation planning, with over 14 years of experience as a Project Manager for the Florida DOT. In his current position, Elio provides in-house support to the District 6 Traffic Operations Office for the Florida DOT. He is a licensed PE, certified PTOE, and has a doctorate in Transportation Engineering from Florida International University.

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Arshad Iqbal is a Senior Transportation Engineer in Caltrans Headquarters, Division of Traffic Operations. As a Senior Transportation Engineer, Mr. Iqbal provides statewide leadership in coordinating the activities of the District Traffic Managers and Transportation Management Plan

Managers. He is a licensed PE and holds a master's degree in Civil Engineering from California State University, Fullerton.

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Yusuf Shatnawi is a Transportation Engineer in Caltrans Headquarters, Division of Traffic Operations. As a Transportation Engineer, Mr. Shatnawi maintains and facilitates communication and helps provide partnerships between District Traffic Managers and Headquarter divisions on traffic handling matters. He holds a bachelor's degree in Civil Engineering from the University of California at Davis.

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Today this will be 90 minutes with 60 minutes allocated for the speakers and final thirty minutes for a question and answer. During the presentation if you think of a question you can type it into the chat pod. Please make sure you send her questions to everyone and indicate which present to your question is for.

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Presenters will be unable to answer questions during the presentation. I will start off the question answer session with the questions typed into the chat box. If time allows we will open up the phone line for questions as well. If we run out of time and we are unable to address all questions, we will attempt to get written response from the presenters to the unanswered questions.

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The PowerPoint presentation used during the webinar is available for download from the file download box in the lower right-hand corner of the screen. The presentation will also be available online within the next few weeks along with the recording and a transcript.

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The EDC-3 Smarter Work Zone Webinar Series Program does not offer PDHs. To confirm your participation in the webinar, please submit an individual participation confirmation\* request to [kleinr@battelle.org](mailto:kleinr@battelle.org). You will receive the participation email in 5-7 business days. The response email may be sent to your licensing agency for PDH consideration. The determination of Smarter Work Zone Webinar PDH-eligibility is the province of the licensing agency, not the Smarter Work Zone Webinar Series Program.

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I'm going to turn it over to Martha of FHWA.

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Thank you, Brittany.

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Good afternoon, good morning. This is the 11th webinar in a series of smarter work zones webinars. The topic for our webinars have been selected based on your feedback.

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The previous webinars have include the following topics, corridor-based and program-based project coordination, queue warning, and dynamic lane merge. If you missed any of them we have recorded all of the reviews webinars and all materials have been posted on the national work safety clearinghouse website. Please save the date for our next webinar on April 26 where Massachusetts will share their current efforts to institutionalize technology applications in their state.

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The purpose of today's webinar is to give you a brief review of the project coordination initiative and examples from two state transportation agencies that have successfully developed and used

Lane closure and permitting systems for minimum project conflicts and delays and for improved work zone safety and mobility.

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The goal of the everyday count counts smarter work zones initiative is to help agencies handle work zone operations. What are smart work zones? Smarter work zones provide the innovative strategies, practices and tools to enhance the state of the practice for work zone safety.

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Under the smarter work zones initiative we have two initiatives. The project coordination and technology input -- application. Today's focus is on project coordination and I will share with you strategies and tools that can be used by your agency to minimize travel delays and enhance safety for all road users while improving customer satisfaction.

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We define project coordination as the coordination within a single project in and among potable - multiple projects within a corridor network or region and possibly across agency jurisdictions to minimize traffic impacts. The lack of coordination can mean many projects close together, Street cuts or recently paved roads resulting in reduced quality and significant impact to road users and increase agency user costs.

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In order to measure the option of the initiatives we have set two goals for the project coordination initiative. The first goal as you can see is to have 25 state the DOT is using works own project strategies by 2016. This includes using software-based systems to record construction activities, using construction traffic management, using the project coordination strategies to the point that they are included in the agency manuals, driver time and road capacity [ Indiscernible ] savings.

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The second project coordination goal is to have five state DOT's who have volunteered to pilot the work zone implantation strategy estimator software application. The wise tool is a product of the sharp to program. We will now hear from Florida and their works on information system.

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Saud and Elio .

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Hello. We will be presenting on the Florida Department of transportation District 6 Lane closure information system as well as project coordination case study.

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A brief outline, I was going to give you a brief history and how our LCIS was developed, talk about the main features, describe our user roles and how they work and where and how we make LCIS a part of our business and also future goals.

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District Lane closure system, District 6 Lane closure policy was developed out of public outcry and demand for more information and also the DOT District 6, we realize we had to account for the closures. We must account for all Lane closures on our state system. Then in 1989 we adopted the Lane closure policy and one provision of the policy is that notification of Lane closures must be sent in 14 days prior to closing that Lane, to the district transportation office and then public information would follow.

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As an implication of this policy we developed a hard copy of basic Lane closure request form with all of the fields. This was very cumbersome and costly.

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Then in 2008 when I came we decided let's kick it up a notch and we decided let's digitize the form so we would be able to send it by email. It would be very efficient to send it by email at that time. However around 2010 management, as they always do, District 6 management challenge us to show all Lane closures on a map, they provided us 100% support. We also realized at that time there was a need to go paperless. This was also a cost-saving measure. Basically we wanted a system to provide more information to the public and allow the public and us to see Lane closures on the map. In order to do this we had to set up a developmental team. Basically it was myself, Alejandro, Elio and the programmers stepped up to take on this challenge.

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It ended up in the system we realize we had to set up rules and responsibilities in the system. First we had an administrator. He actually set up the users and our LCIS we require registration and a username and a password to get into actually request Lane closures. However the public would be able to see all Lane closures at all times. Alex, the administrator, would be able to choose the change approval, he would be able to manipulate the database and the system.

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Also in the process there is a requester who is foreseeing all of the data in the system. He is normally the permitting, he can also be the construction contractor, he could be the regular guy who applies for a lane closure to do a driveway. Or it could be the people that run the altar music Fest. Whoever actually is applying to do the lane closure, they have to request it.

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Then it goes to a reviewer. The reviewer can be the CEI, it can be permit inspectors, anyone who actually reviews these requests and make sure the information is correct and true.

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Then our public information office is critical because once the request is approved they are copied. They will send this out to mass media, social media, they will do a media release to the regular media and in cases where we have closures of main arteries they will actually set up media call and this information would get out to the television.

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Then we have the guest user. This is anyone in the public who can access the Internet, they can login as a guest, they would be restricted to see only Lane closures that are approved.

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This is a picture of what the screen looks like. This program, as I will show later on, we can have simultaneously enclosures, in a case study we were doing five at the same time. Initial application cost was \$70,000. The capabilities are we are able to approve Lane closure request and there is an automated web-based system, once someone requests a Lane closure the first reviewer gets a quick email that informs them about their is a request that we need to approve and he clicks on that link and he gets in the system.

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The Internet access is used, it is a simple method of accessing the system. I can get it on my smart phone and we have been able to log in from anywhere we have Internet access.

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This is a web based map application so you actually see where the Lane closures are and you can predict if there could be conflicts. The functionalities. It is used to request Lane closures. We are able to manage the approval process and then from this the approval, many agencies are notified, it is smart based so you visualize and you can see it and you integrate it with other systems. One cool feature is on the homepage as a search.. You can search by approved, past or future lane closures, you can search by requesters, you can search all approved ones if you are the public. However, if you are reviewer's you can search all of that in the past and the future and those that were declined. This gives you access to the database.

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This is the actual Lane closure request form. First they select the category of work, it is a drop-down box and it can be permits, contract it can be maintenance, it could be construction, it could be soil testing. There are a number of categories that you can choose from. Then number two you can select, there is a drop-down box for the state rules. Once you select the state rules, the map automatically populates the state road and on that you can get in on the satellite view, you can manipulate around Google, you can go to satellite view and actually choose the lanes that you want to close. You simply put in the beginning and in, the limits of your MOT.

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Then you can put dates and times also that are similar to the digital version. Also the drop-down box, the other one would be if you want to select the dates. We have a simple calendar and you click on the date that you want to begin and end similar to the times. You can click the hours in either a.m. or p.m. and then at the bottom with the submit button you can choose who you want to submit to, the first reviewer. There is a drop-down box with all of the reviewers. It is a pretty friendly system and it is easy. We sort of targeted the guy who wants to close a lane to construct a driveway.

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The system is integrated, most of you may know or may not know that at FDOT we are partners with WISE, it also belongs to Google. We are set up for their system that is populated by users.

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When we came to DOT we presented LCIS in realize this is a good source of information and we provided a link. We are linked to WAZE. We are also linked to 511 Travel info. They get all of the information. Our traffic management Center monitors it. I get calls from them if there is a Lane closure that is not on the system but it appears in the camera. Then we can do two things, we allow them to close or we send FHP.

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We also have it in our district GIS system where we have a layer in our GIS system, all of our information is available.

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Our policy is reflected in numerous documents in the district. Here we have an example of this in a RFP. We have it in numerous RFPs, our designers and our contractors are able to interface with LCIS.

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We also have it in standard operating guidelines. It is included in there.

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There are other places that we have it stipulated. For example and our TCT notes all plans that are developed for the district, designers must put in this general statement and referred to LCIS. So the contractors or whoever wants to close the lanes knows it is part of their contract.

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The utility permit. This is part of the special provisions. All permits have this statement that we referred them to LCIS. Basically how LCIS is tied into the way we do business.

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District 6 LCIS is pretty user friendly and we realize that we have some improvements that we would like to make. Basically we would like to make LCIS mobile friendly. In other words when a Lane closure is set up we would like to know and when it is taken down we would like to know. We figure this can simply be done by developing an app and whoever is responsible for the Lane closure can go on their smart phone and make a change. It is very easy. We also would like to make LCIS application mobile friendly. Now you can access it from your smart phone. When you make it mobile friendly you actually see the pages align with your screen.

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One other feature that we would like to input that will save on our maintenance, it could save as much as 75% of our time. This is to allow reviewers the option of choosing the next reviewer. The reason is there are times when we have one reviewer, he will be working in different residences. Basically he will be on numerous projects and the administrator will often have to go in and manipulate the street and go into the database and manipulate the entry. If we give the option to choose the next reviewer this is going to help us.

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When we present disrespects LCIS -- district 6 LCIS to the central office -- we presented districts this -- district 6 to the LCIS. They really liked it and they realized it was useful and a mandated that the system go state wide. Central office has since then developed a statewide Lane closure application. It is going to be launched in July of this year. As a matter fact it is already on beta test in two districts. They are going to look at our recommendation and the next update they are going to look at how much work it is going to take to implement changes.

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I will now give it over to Elio and he is going to do our case study.

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Thank you. Basically I-95 in Miami-Dade County it is a main freeway with over 250,000 people a day. We have several projects, five products -- projects of payment and reef -- pavement and rehabilitation. We have coordinator with all of the contractors we had an original meeting in which we made out some coordination rules to be able to more effectively use LCIS for not only the pool process for the Lane closures but to also visualize where we had the closures and how we would manage the mobility impacts.

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Some of the activities that we did were also with in a transportation management plan for the project which needed to include analysis to determine the impact to mobility, along the project limits. That is why we decided the closures would start no earlier than 10 PM.

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Also we had to coordinate in addition to the rehabilitation project, we had to coordinator with the regular maintenance of our express Lane, of our facility which requires the replacing of the plastic delineators Also we had additional coordination with the Miami-Dade Expressway Authority for an open road tolling project in that vicinity. This happened on the northern end of the project wishes the -- which is the area of [ Indiscernible ] not only I-95 goes to the interchange but we also have several facilities such as Florida Turnpike and State Route 112, which is a Miami-Dade Expressway Authority facility.

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There was extensive coordination not only along the projects but also with several agencies that were able to use the application to visualize the closures and also the planning tools to coordinate all of this different work happening at the same time which was not only construction work but also physical maintenance along I-95.

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One key feature is on a project like this we have potential significant impacts was the ability to provide information to the public information officers for the project and be able to provide media releases to social media and be able to provide up to date information on the status of the closures and provide up-to-date information and be able to disseminate information so that travelers can make arrangements in terms of travel routes.

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That is basically the case study. Just to summarize the main feature is this ability to be able to handle multiple requests at the same time, be able to visualize what the potential closures are and how we can plan those closures for minimum mobility impacts.

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Thank you very much. We handed back over to Brittany.

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Thank you. I will now handed over to Arshad Iqbal and Yusuf Shatnawi .

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Good afternoon. I am Arshad Iqbal with Yusuf Shatnawi.

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Let me give you an overview of Caltrans District. In California we have 12 district just to give you a layout of the districts. Eureka is district one which is part of Oregon, same as a district to. If you go clockwise we have district 3, 10 and nine and eight there at the bottom of Nevada. District 11 is San Diego which is on the bottom of Mexico. Then the rest of the district, 12, seven, five, four and seven is on the coast. Oakland and San Francisco is in district four, Sacramento is in district 3 and California headquarters is Sacramento and headquarters is also in Sacramento.

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In each district we have our district --traffic management Center. We use this information that helps with inns and management. Also it operates all of the traffic transportation management systems.

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TMC some of them are open 24/7 like in district 1 and there are 2 that are only open during business hours.

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Just to give you a brief history of LCIS. In 1997 and before 97, LCIS was only in a couple of districts and either they were using spreadsheets on orders one, two, three or four for a Lane closure request. So in 1997 a program was initiated and the program was to reduce traffic headaches and coordinate with construction and maintenance activities. And the other main focus was to coordinate projects on the state highways.

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In 2000-2003 a contractor was hired to deliver up the system for Caltrans. Went Caltrans developed the LCIS system it was used by 11 district in 2004. Then, District 7 was the only one that wasn't using the system. In 2009 LCIS from District 7 was also integrated into the statewide

LCS system. But the system was working on its own and it was hard for IT information technology to troubleshoot and also do the development of new items in LCIS. In 2011 it was decided that they would bring all of those LCIS into one statewide system and by 2012 it was completed and the system that we have now in Caltrans, it is a system that was enforced and that is why we recommend it from 2012. We have been doing this to the system as needed. That is how the closures are done.

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In 2000 Caltrans implemented directive 60. DD 60 put the system in place to minimize the distraction to the traveling public and delays resulting from work. Through deputy director 60 TMP's are developed to maintain acceptable levels of service during all work activity on our state highway system.

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Highlights of DD 60 are that the DD 60 established the role of the DTM, District traffic manager, who is responsible for the coordination of all planned work on our state highway system. Each district has a district traffic manager and that responsibility translates to all of the districts. The DTM is responsible for recommending the termination and modification of existing Lane closures without compromising any public safety or that of the workers when there is a traffic impact.

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The district traffic manager is also responsible for reviewing and approving any Lane closure request and are LCS system. They are also responsive for coordinating with the staff whenever significant delays occur on the state highway system. Basically they are responsible for correlating all planned work.

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In addition to the DTM, DD 60 also established the district Lane closure review committee whose rule it is to participate when any plan project activities are expected to result in major significant traffic impacts. Again traffic impacts our individual traffic delays of 30 minutes or more. Above the normal recurrent traffic time. DD 60 also established the headquarters Lane closure review committee. They get involved when any activities that are of an interregional or statewide or environmental or otherwise sensitive statewide nature they get involved.

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The project coordination starts from the beginning in the planning stage, then once it is closer to the design phase we have a specification were all of the other projects that are near or around the project that we are designing our written. We input all of the information regarding the other projects. We have a project development team headed by the project manager and we have a monthly or weekly meeting as needed to discuss the project design and the project which would be in the vicinity of that project. The project team also includes from construction, maintenance, any other office that will be involved in the project, they usually come to the meetings. We invite the utility companies we need to know if there are any projects that will impact their utilities.

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Regarding their utilities because they were part of the project development team, and in Caltrans the policy is that we make those utilities allowed in the right-of-way just provide safety of the traveling public. If it is within freeway and expressway right of ways but there is no other way to give them out. We have an exemption at that must be approved by the DTM.

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For each utility project we have the activity coordinator who works with the activity companies. During the project design phase and during the planning phase teams a map is submitted to the utility companies and they are asked to provide utilities within that project. Those utilities are then incorporated into the project plans and if you go through that again after he is done, it is refined by the utility companies and if a conflict math is there that and then at the end the location math is done. The utilities are either discussed before the project starts or it can be done during the construction of the project.

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To help manage and coordinate all of the Lane closures in California, Caltrans developed the LCS, the Lane closure system. It is an Internet accessible system that Caltrans uses to monitor the status is -- the status of Lane closures on highways. The LCS is designed to share information with different sources, quick maps is one of them. The commercial wholesale web portal which is a database for local agencies and media information services providers to access statewide information. This is where Google and other entities in the 511 gather information.

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Another way to share information is through the PeMS the performance measurement system as well as the California highway information network.

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LCS is accessible statewide by the Internet. It allows the DTM or the resident engineer or any permit to access and check for complex or restrictions on their projects and then they can coordinate accordingly if there are conflicting closures.

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The LCS allows for enhanced coverage between districts regarding any projects or any major incidents that happen on the border of one district, then the district next to it would also see that and they can coordinate accordingly.

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This is an important fact. Prior to the LCS, the LCS centralized, Lane closure information and reporting varied across the street -- the state. When it was reported oftentimes it was late or an accurate and it was not consistent. There was no centralized access or reporting procedure. Coordination was typically difficult. This new system has helped to solve many of these problems that we were having.

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Before any request is made in the LCS, the Lane requirement chart is needed. Lane requirement charts provide information regarding when activities can occur at that location and how many lanes are required to remain open. At that specific location. Lane requirement charts are developed using the latest traffic volumes for each location and the information is sourced from various reports, the TSN and PeMS. The charts are based on actual volume and allowable capacity of that location.

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They are developed on a project by project aces and we try to balance the needs of the work that is being done and the safety of the traveling public. That is very important.

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In addition to the basic Lane requirement charts, PeMS , the performance measuring system, can also be an aid in developing accurate site specific Lane requirement charts. With the use of loop detectors, this can be done instantly and accurate for any location.

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Lane requirements charts are based off the concept of zero delay. That is there will be no congested work that will be expected in addition to what is typically acceptable for that location. Certain activities such as approach slab replacement, may require more time than the typical zero delay chart. In that specific instance the design engineer and the contractor they work together to identify those activities that require a longer work window and they accommodate them accordingly.

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We develop Lane requirement charts for each facility for a conventional highway, this chart in front of you shows the hours where one way reverse traffic control is allowed. In addition to that are specification reinforce that and they provide additional limitations regarding how long each direction is allowed to be stopped or the maximum length of a single reversing closure. This limits the amount that a one way reverse control is allowed. These all reduce the impact on the traveling public and this helps coordinate with our requirements to the contractor or two maintenance or anybody at large.

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The DTM also developed charts for certain low impact maintenance and encroachment permit activities that do not really require the development of a detail work specific chart. These are based off the assumption that a 15 minute delay is acceptable above average driving conditions. Also typical activities performed off-peak hours on highways with low traffic volume may also be treated adequate with these type of charts.

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Once the Lane requirement chart is done and it is part of the specification [ Indiscernible ] we also have a specification to report delay damages for that particular section of the highway or the connected -- connector closure. For example if the work was supposed to stop a 7:00 in the morning, we calculate the delay damages for the first two hours and if the damages exceed \$7000 per hour we use this formula as you can see in the example. Then we penalize the contractor for each 10 minute delay he did not open the traffic. That is part of our special provision and that is why when the contractor sees that he will be penalized every for 10 minutes he usually stops working and picks up his closure before the end time.

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All of our construction or our maintenance or permits contracts that work on the state highway system, the contractor is bound by our specifications. Caltrans enforces our TMP's by inserting the language into our standard specifications. For example our LCS. This back here shows when to submit requests, when to process change or changes and cancellations. And the LCS is used to notify the contractor of any unauthorized request or when a closure would be needed to be correlated with other parties such as maintenance or construction. For example if there is a construction requesting a closure and maintenance is requesting a closure, typically construction will take precedence over this since we have a contractor with construction and maintenance are the internal employees. Many times they work together so that when construction takes a closure we will take and correlate with maintenance and they can work together.

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This spec shows limitations on traffic impacts. This shows traffic impacting closures, it has the contractor follow the Lane requirement charts and the work Windows set in those charts. This limits the amount a Lane can also be reduced and this also limits the closure or how many consecutive off ramps that they can have in a single direction. This way when a traveler is

traveling if you want to get off and you missed it you will not be driving miles and miles to come back.

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However we can do that if there is quarter nation with the RE and this can be beneficial with the project and we can do this temporarily.

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This document also describes the process to close major freeway connectors as well. We have all of this in our specifications.

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Also for specifications that are larger than 8 miles, the amount -- we specify the amount of Lane closures per direction that we allow in those specific projects. We also limits the work within the city streets and we tell in our specifications how the contractor is to coordinate with the city and went to notify a local agency of any planned work that will be coming into the right-of-way or anything of that nature. It is a coordination between that way.

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When we have projects where multiple closures are going to be expected, for example for slab replacement projects for multiple bridge activity projects, we also have specification for those to specifically -- specifically. It also limits the amount of Lane closures in each direction and the closure space and how close they will be together.

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Once the lane requirement chart is due, we have a spec that requires the contractor to take online training on how to use the LCS. When the training is completed the contractor submits that certification and information to be engineer and the engineer will provide a user ID. And the contractor gets a password. The information on the Lane requirement charts are used to request a user account. This is a typical window of the request for construction. We have a window for construction, maintenance and enforcement. From the lane requirement chart the contractor submits the beginning and once he sends in his project the inspector is assigned to that project, they are also shown in the drop-down menu. After inputting the direction, they input the date and the time it begins in the date and time it in's, also the contractor or the requester who is requesting the closure submits what kind of facility is close. What type of closure is it a full closure or a partial closure. If it is a standard closure or another type of closure. What type of work is done, how many existing lanes, also import the chart number here. At the same time the requester will hit the submit the box. Will be used to monitor the traffic. At the same time any additional requests he wants to put in that will be done in this window.

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Once he has submitted the closure, it goes to the next step which would be the resident engineer or the district traffic manager. We have roles for each office. District traffic manager can access it anytime, he can create a closure, he can review it and he can also approve the closure. His or her office is capable of doing the approvals.

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The inspector can only be status on a few projects. If the contractor is unavailable and the closure needs to be open, the inspector is allowed. The TMC dispatcher are the ones to set up the cone.

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The request path is once a requester submits a closure and it is submitted it is saved as saved. It goes to the maintenance supervisor or division engineer. If there are any conflicts then it will return back to the requester. If not once it is submitted it goes to the DTM. Once the district

manager office locked into the LCS they will see there are that many closures pending for them to review it. The district traffic manager checks the closure against the other projects to see if there is no other contract. Either he rejects it and goes back to the resident engineer and return back to requester or everything is okay and the engineer submits it to make it approved. Once it is approved the closure can be carried out.

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The first thing the district traffic manager does when they do that under the search tab where he will be searched by who requested it or even the project number they can use. They can use the project EA number. Once it serves it the closure was in that time period it shows up. Like this example we are in this search. These two buttons are pressed you will see that the standards of the closure and the details of the closure were submitted. In the beginning I mentioned if the requester submitted and saved. If it is saved this means that the resident engineer has to check the data and make sure that everything is okay, once he approves it, it goes to DTM. The same thing happens when that shows up on LCS two. If it is on good status it shows up on LCS.

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Before the resident engineer or DTM ones to submit a closure or doing action on the closure, they review the details. The search results shows all of the details about that quarter, what was the ID assigned to this, what was the product ID number, when it was approved, when the DTM approved it and what facility was supposed to be closed. All of that information is here for the district traffic manager to make a decision on whether to approve this closure or deny it.

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The other field on the next same page is the district traffic manager inserts some comments. Those comments are for the requester that although you request has been approved at the same time they request by permit office because he knows that can be easily done. To see what kind of activity the engineers are doing. The same thing can happen for the mechanism -- office. Maintenance stuff might be at the same time working around the project

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Just to give you a coordination and -- on how the LCS works. This is a typical project in district 10, Stockton. The project is on Route 12 in district 10. In district 10 this is on the border of district 3 which is San Francisco Oakland office and district four is San Francisco Oakland office. The project is only in the -- this one small location but they had to close a stretch 16 mile. There was a detour of almost 28 miles going to three different districts. The importance of this project was that the district lane closure system because three districts were all in the same project, they have to use all of those six strategies and the reason they use the construction method as a full closure just to take advantage of that closure. That is the one in LCS additional traffic from those three districts and see that there is a full closure in district 10 we can make use of this complete closure so that district for -- 4 construction contractors are working on the same route and the same thing from the district 3 office.

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Just to make sure we take advantage of this closure, a lot of other works are done at the same time, any bridge inspection was done, and maintenance people stepped in and made sure all of the cones are picked up. Pavement markings or shoulder markings and sometimes they do the AC placed. This project is the same example for any other project that the district traffic manager coordinates the activities and he can see in LCS which closure was first and if he has to approve a closure if there are other offices with the same closure too.

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Another aspect of coordination is with the public and emergency response teams as well as our internal public information office. Caltrans, we maintain a plan closure webpage. This page allows the public to access and see all of the planned lane closures for a 14 day window, seven days in advance and seven days previous. You can go in here and click on a County and search for all of the closures on the county or that route and confirm the timeframe in the type of closure you are searching for.

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When you see the output, when you enter an enclosure you are able to see the long-term closures or closures that are in progress as well as the completed ones that have been canceled within our system.

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This all feeds into the quick map and we maintain this quick map which features a web map interface that shows information to the public regarding closures that are in progress. This is based on real-time information and it is refreshed every five minutes. Quick map shares information to various sources and from various sources and they all show up on the quick map. This is including what I said previously the commercial wholesale web portal, any highway changeable message signs you can click on an icon on this website and you can click on NC what the signs are saying. As well as you can see the CCTP so you can see what is happening on our highways. This all feeds from the LCS as well as the Caltrans highway information network. The public is able to access QuickMap -- whenever a field staff reports a closure, then cones will show up on the web map and in the public can click on the web map and get information regarding when it is planning to be picked up and the type of work that is occurring. On that same page you are able to type in the highway number. That will transfer you into the Caltrans highway information network. That will tell you all of the information and all of the closures happening on that route. This is how we also connect with the public.

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The current method of the closures is from the field the inspector or the contractor make a phone call to the DTM and provide them their closure ID, their phone number, their location and the time when the first one was put down ] the same thing when the last one is picked up. The new system we just developed it and we have a certification that is already in effect that goes from July 1, 2016, there is a contractor, a requester can use the webpage. And they can type in the webpage on their smart phones, laptop and even from the desktop. Once it is logged in with the user ID and password. The closure application it is good for them because they can change it from the field. This has been used in the TMC and now the contractor has a way to use it from July 1. It will expedite the process of changing the status of a closure and especially if we need to cancel a closure instead of waiting for the phone call connection this'll take care of that closure.

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Public ordination is linked to Facebook, YouTube, Twitter Instagram.

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Just to give you a help on what happened on the US 50 project done in district 3. The outreach was it done for six months and they use LCS two Corneille the activities. You can see that transit ridership was up 10 to 15% and traffic count fell by almost 25%. The average delays were under 30 minutes. That is because LCS helped to connect the project because at that time the district traffic manager was able to deny any other request at the same time in the same area as to what was going on in the heart of the city of Sacramento multiple lanes were closed at the same time and the connector were closed on and off. Just so there was not any further impact to the public

and the traffic LCS was to control the project and coordinate at the same time only one project was going on without traffic impact.

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I think we are done. Any questions?

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If you would like to ask an audio question please press\*one on your: -- telephone keypad.

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Sigh about that. We will turn it over to Martha.

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Thank you. I will go over some of the resources the FHWA has developed.

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We developed a toolkit which is available on the national works on safety information clearinghouse website. Here you can find case studies, fact sheets, specifications, webinar recordings and many other useful tools for both project ordination and technology application.

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In addition please remember that under this initiative we are offering peer exchanges, workshops and training.

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Other resources available from federal highway and SHRP2.

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Thank you for joining us. Please save the date for our upcoming webinar. On Tuesday, April 26. Again it is at the national works on safety information clearinghouse. We do have some polling questions. If you could pull -- bear with us for a few minutes.

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I would like to start this with some polling questions. The third question is a brief answer. Please know you are limited to 250 characters. You're only allowed to answer once.

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The first question is does your agency currently use a link closure and permitting system in works on? -- Work zones?

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The second question is your agency considering the use of a lane closure and permitting systems in work zones?

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The third question is, is there any information that would be helpful to your agency in deciding to use a lane closure and permitting system?

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While people are responding we will begin answering questions in the chat box. If time allows I will open up the phone line for questions. If you like to answer question over the phone priest -- please press the \*1 .

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The first question is from Nick for FDOT. Can FDOT contractor submit a claim for delay is their request for a lane closure is denied or deferred?

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I think we already answered that question. It is part of the contract. It goes to the traffic control plan where we specify link closure times. And also there is a special provision in which is the lane closure causes extended congestion. The engineer can order the contractors to open it.

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The next question was also posted in the chat box. What is the basis/criteria for deciding whether to approve a closure request?

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In reviewing the LCIS, we look at many things. Number one we look at provisions in the TCP, the lane closure times, we also look at the MOT set up, to ensure that it meets the specifications in the FDO T standard index. We also consider what commitments are made to our contractors. That we get from our designers. If these things are not met in our LCIS we can simply decline it.

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The next question is for Arshad and Yusuf. What kind of notice is required for entry of restrictions? Additionally, so you use this data to route OSOW traffic?

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In LCS we have a specification that a request must be submitted in at least seven days in advance. That gives us enough time and the district traffic manager to review the closures for any conflicts and also to coordinate with any other project. What was the other one?

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On a project to project basis. Whatever we limit the current of our highways they are to give advance notice 21 days. That way when our permitting office is doing approvals they know where the closures are when the issue a permit they can reroute their closures or reroute in that regard.

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The next question is from Ernest it is for Caltrans. Had you coordinate to reduce the lanes between two adjacent projects or projects close together?

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Brittany Comer-Mathis already mentioned in the presentation, in Caltrans all the contractors have to follow this process -- specification. For each project we develop a special provision. We have a specification that is already mentioned to the contractor that only one lane closure is allowed in the same direction and also to keep a distance between the two projects so that one project will not impact the other project or even the lane closures. We have different specifications. The one that I was showing in the presentation was just a few. We have a lot of specifications that coordinate activities of lane closures and the projects within the same route and in the same direction.

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The next question is for all speakers. What policy do have regarding record retention, in other words do you archive works on activity data after the project is completed?

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Can California go first?

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Go.

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After the project is completed we develop the as built. That is retained from the life of the project. In LCS we have data for 10 years regarding that closure and that construction activity. Yes we have in other policy that retains all copies of the hardcopy and that depends on the type of document. We keep data three years to 5 to 10 years. Even for the lifetime. We have different policies to attend to for activities and any information regarding that project, that is archived and that can be accessed anytime.

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This is FDOT. In District 6 we keep this information in the database for ever. It is accessible by reviewers, the public only see what was approved and many times we have request from our legal department and we have been able to use our database to assess the old request. It is forever.

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Thank you.

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The next question comes from Stacy. Is LCIS only used during construction and maintenance or is it also used earlier when projects are being programmed and scheduled in a given year or when setting the letting schedule?

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LCIS is used during the construction phase when there is need for a lane closures. In other words it is only used when there is a need for lane closures. We do not use LCIS as a planning tool. Only when lane closures are required.

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The next question from David. How do you handle the lane closure clay insulation by contractor -- cancellation by contractor?

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Last-minute closures they simply contact myself and the traffic operation office. If this was a major closure I would immediately get in contact with the public information office and they would send out either an email blast or get in contact with the media so that the public is aware or the contractor can get LCIS, there is a feature which allows them to early end the lane closure.

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Thank you. The next question comes from Willie. Is your LCIS integrated with traffic sensors on the roadway to supply real time information on when lane closures can be allowed?

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At this time it is not. But maybe eventually we can have it integrated into our ITS. And maybe part of a big improvement program.

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Something that we do is we require the department has a spreadsheet where you can perform a capacity calculation. We require a lane closure analysis to determine how many lanes should be opened or how many lanes can be closed on the lane closure application. So the DTM is required to collect data or obtain it from the closest data collection station and California has stations throughout the district and throughout the state. That is how that information is done on a freeway lane closure such as I-95 on the case that he we presented. We had data from the TMC office. And basically we used that data to perform that analysis. The application is not integrated into the application we use other tools in it is part of our requirements to perform a capacity analysis.

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Thank you. We have two final questions for Caltrans. Is approval only based on local knowledge and or traffic counts?

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Yes. The district traffic manager and his staff is already involved in this project in meetings and monthly meetings. We know what kind of closure is coming and what time. Then again the closures are approved based on daily traffic based on per hour, knowledge and activities around

the project, the DTM approves the closure. Hourly volumes and type of construction activity. All of these are part of the major approval process.

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The next question is for a 21 day notice for permitting what type of restriction would warrant this amount of advance notice?

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I checked with Arshad, it is actually 15 days is the advance notice. (*Information correction: it is actually not less than 25 days and not more than 125 days before the anticipated start of an activity that will change the vertical or horizontal clearance available to traffic, including shoulders*). However the changes that were this time of advance notice are typically any height or weight -- with clearance. This happens when we put over as my put up a brand-new oversight we do not want anyone to hit it. So we tell permit there is a sign or there is something there and this also happens when we put in false work that limits the horizontal and vertical clearance typically. We tried to get as much advance notice as we can so that way permits can know in advance.

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Thank you. It looks like we have gotten through all the questions in the chat pod. Apparently we do not have any questions coming in over the phone line.

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We have about six more minutes. I believe we can wait for a moment and see if there are any more questions.

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I want to thank everyone for joining us today and for asking these questions. Again this is our clearinghouse website for the smarter work zone toolkit where you can find previous recordings in additional -- and additional materials to help you with project coordination and strategies in your state.

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Thank you. I think we will go ahead and close out. The recording will be available online within the next two or three weeks. I will send an email to everyone who registered once it is available.

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The next smarter work zones webinar will be held on Tuesday, April 26 from 1 PM to 2:30 PM Eastern time. The topic is integrating technology application. Registration is not yet available. Once it is available I will send out an invitation to the smarter work zone distribution list. Thank you to our presenters and thank you for attending today's webinar. Please enjoy the rest of your day.

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This concludes today's conference call. You may now disconnect.

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[Event Concluded]