Safety Data Initiative (SDI) Notice of Funding Opportunity (NOFO) Solicitation Webinar
Transcript of the SDI NOFO Solicitation Webinar Video
Tuesday, December 3, 2019

Jason Broehm: We will start by providing a brief overview of the Safety Data Initiative, or SDI for short you may hear. Next we will provide an overview of the notice of funding opportunity solicitation or NOFO for short. This will be followed by a series of short presentations to introduce you to the SDI beta safety tools, or Category A tools in the language used in the solicitation. Finally, we have allotted time to answer your questions about the solicitation. My colleague Paul Teicher and I will be delivering the first two presentations, our colleague Allison Caloggero from DOT's Volpe National Transportation Systems Center is supporting this webinar and will be working with colleagues behind the scenes to ensure that everything runs smoothly. Next, I'm going to provide a brief overview of the Safety Data Initiative.

Jason Broehm: Safety is the U.S. Department of Transportation's top priority. Our DOT's strategic plan begins with our safety goal, which focuses on taking a systemic safety approach. We aim to take a data-driven approach to identify risks that contribute to transportation fatalities and serious injuries and use interventions and countermeasures to mitigate or eliminate identified safety risk. About 95 percent of transportation fatalities occur on our roadways. Over the last several decades, we've made slow but steady progress in decreasing both roadway fatalities and the rate of fatalities based on miles driven. However, as you can see in the chart on this slide, we've also experienced increasing fatalities in some years such as in 2015 and 2016 most recently. In 2017 we saw modest decrease in fatalities, and in 2018 there was 2.4 percent decrease in roadway fatalities and a 3.4 percent decrease in the fatality rate. However, even though these recent decreases have welcome news we still lost a total of 36,560 people on U.S. roadways in 2018, and that represents about 100 people killed each and every day. There are also an estimated 2.5 million non-fatal injuries on our roadways each year so we have more work ahead of us clearly. We're seeking better data analysis tools to improve our understanding of what is happening on our roadways so we can better inform actions to prevent roadway fatalities and serious injuries. We publicly launched the Safety Data Initiative in January 2018. The SDI has focused on surface transportation particularly on our roadways, because this is where the vast majority of transportation fatalities occur. This has been a very collaborative initiative with involvement from many parts of DOT. Within the Office of the Secretary, our policy office has been leading the initiative together with colleagues from the office of the Chief Information Officer and the Bureau of Transportation Statistics. We also have active involvement from several of DOT's operating administrations including the Federal Highway Administration, or FHWA; the National Highway Traffic Safety Administration, or NHTSA; and the Federal Motor Carrier Safety Administration, or FMCSA. The initiative is thought to build on and enhance existing roadway safety efforts across DOT related to data analysis and policy making. The SDI has focused in three areas: first on integrating existing DOT data sources and new big data sources as well; second, using advanced data analytics to provide predictive insights into safety risks; and third, creating data visualizations to help policymakers arrive at solutions that can better target resources to improve roadway safety. With that quick overview of the Safety Data Initiative, I'm now going to turn it over to my colleague Paul Teicher, who developed the NOFO, to provide an overview of solicitation.

Paul Teicher: Great, thank you, Jason and welcome to all the webinar participants. For this part we'll be talking about the Solicitation. I will be providing some general background parameters about the notice of funding opportunity and we're going to have an opportunity to talk about some optional elements associated with it, as well as some of our Safety Data Initiative Beta safety tools and some of the proxy you could potentially choose in order to use and apply with for the solicitation. So some background, first, my name is probably familiar on the NOFO in that I am the federal agency official who is assigned

to the grant so you now have a voice to a name. A little bit about the background, this is something that the office of the Secretary has announced in collaboration with our operated administrations all part of the DOT, and this is a one-time funding opportunity that's on grants.gov. For your convenience I've sprinkled links throughout this webinar to make sure that you're going to the right place. The purpose of the solicitation is for us to partner with government, state and local governments through cooperative agreements. These cooperative agreements will be developing partnerships that will develop, refine, and implement safety tools. These safety tools are meant to address a specific roadway safety problem and the funding will be used to provide technical assistance to develop, refine and implement that safety tool, as well as allow cross collaboration through peer exchanges.

Paul Teicher: The some of the goals that U.S. DOT has in mind as part of solicitation is really to build the capacity of our transportation roadway safety community, to help build state and local governments and their use of tools, taking data and information and turning it into information and safety tools that could be/that can inform policy and decision. Ultimately, we want these tools to be useful to practitioners and we really want to take this as an opportunity to accelerate the way that people use tools and apply them in a meaningful way. Some more of this information is also stated in the Notice of Funding Opportunity and I would recommend if anyone has a further questions there's a lot more information detail in that document.

Paul Teicher: As part of the webinar we want to give some helpful guidance in terms of what we might be looking for and to provide a little bit of perspective so that you all are able to provide as robust of an application as possible if you choose to apply. As part of an application, I view that there's kind of three big things that you should make really clear as part of the application. So these basic questions are: what is the safety problem; what is the knowledge gap related to that safety problem; and then, how will the tool that you are proposing to develop or refine, how will that address the knowledge gap and the safety problem? And so, I think having that really clear in that narrative section, which is required for submission, is very important. So make sure that it's upfront and clear as part of what you guys do. A little bit more about the details in terms of funding, so, the funding opportunity is for up to three million dollars total, and we anticipate between six and twelve awards between a quarter and a half a million dollars. Obviously twelve awards at half a million dollars would be more than three million, so it's going to be contingent on the availability of funds as well as the amount we end up awarding the individual recipients. As part of our funding, cost-sharing or matches not required, however it is favorably considered as part of the selection criteria and evaluation criteria. Also, in-kind contributions are encouraged and that would be also something that would be favorably considered as part of the evaluation criteria.

Paul Teicher: A little bit about the eligibility, the primary applicants, those would be the people who would be entering into a cooperative agreement with U.S. DOT and the Office of the Secretary, those would be government entities. So they could/you could be a state government, local government, regional government, metropolitan planning organization, tribal government, a political subdivision of one of those and I think it's pretty open-ended in terms of that government aspect and it was purposefully done. So one thing I would also note, is that we encourage partnerships and there are other entities that are welcome to be partners but they could not be eligible to be a primary applicant, and that would include folks in the private sector, public and private research or academic institutions, transportation stakeholders, and national organizations. And I would also note that if you want to partner with someone who also could be a primary applicant that's fine. For example, if you're a local government who works with a regional government and a state DOT, you know I think that would be perfectly fine or whatever it is and so that is the eligibility information.

Paul Teicher: To talk a little bit about what we're expecting in terms of the deliverables and what the agreement would entail, so, a recipient would be doing about half a dozen different deliverables as part of the cooperative agreement, so they would be doing a project management and an analytic design plan. They would be developing a safety tool, which is a main purpose of the solicitation, and then after the safety tool is developed they would be doing a concise report and then providing documentation and end products (that would be code, software, or whatever it ends up being), the tool itself, and then there also are going to be two in-person peer exchanges that is going to be part of the cooperative agreement. More information about those deliverables are in the solicitation. You can look at the notes, the funding opportunity and kind of see it in detail what the expectations are for those. One thing I would note that's a little bit different than the typical federal government cooperative agreements, is that we've instituted a pay-for-performance model; so when we enter into a positive agreement with someone we award the funding to as a recipient, we don't actually give you any of the funding upfront, we provide funding after the deliverables are completed, reviewed and accepted by OST. So here's a breakdown of what those would be, so after you provide the plans would be half the funds, a quarter of the funds that you provide the safety tool and then a quarter of the funds after we get all the rest of the report documentation and end product, and then beyond that a hundred percent figure is there going to be a set aside for travel for that pure exchange information and that's that activity.

Paul Teicher: A little bit about the evaluation criteria, I would note that each one of these has specific elements that are located in the solicitation, you should take a look at those, as part of your application before you submit it to us. As part of it, I wanted to provide some hot tips as ways to think about things you should consider when you deal with the evaluation criteria. I would also note that the five criteria we have here are in order of most to least important in terms of how we're going to evaluate applications. So first and foremost, technical merit. I think one thing that is worth mentioning and important for folks who are applying is that we're expecting the period performance to be relatively short at one year and so proposing something that's going to take a decade might not be particularly fruitful. So it has to be something that'd be doable and achievable within a one-year time frame. Criteria - potential for use, is something that, when doing the application, you should consider who is going to be the practitioner or the users, intended users of the tool and making sure that you describe exactly who's going to be those users. Also it's important to describe the implementation strategy, how once everything is done, how it's going to be put out into the wild into practice. For the evaluation criterion, potential for replication, one thing to note is that, one of the things that U.S. DOT is interested in is getting the blueprints of all the good work that you all are doing so we can scale and replicate it elsewhere in the transportation safety community. As part of this we expect folks to, you know, build, enhance their state of practice and we want to be able to share that information with others to the extent that make sense. For the potential for replication, that's kind of where that one goes and so part of these applications being clear about, in the end what you would deliver to U.S. DOT is important. So, what is kept by the recipients or the partners, what is provided to U.S. DOT, and what would be a potential available or won't be available to the public. And there's some legal verbiage in the solicitation if you have more questions about that we'd be happy to get those taken care of. For the criterion diversity of recipients, we want to make sure that you adequately describe who you are. So this one is one that we based this criterion is based entirely on the applicant pool. So we're going to be looking at the applicant pool and we're just going to be selecting recipients that have a spectrum of different types and so by diversity we mean, and as described in the notice of funding opportunity; it could be geography, urban, rural, different locations in the United States, the type of government, the analytic and technological capacity of the recipient, the safety problem addressed, the type of tool or the type of data. So as you can tell, kind of it's pretty wide ranging, and I think, being able to accurately describe

how your application is unique and how it fits in with that portfolio will be useful when we go through the evaluation process. And last but not least, the partnerships, and we just encourage partnerships, both within your offices and your organizations, as in government, as well as an external partners to the extent that it makes sense.

Paul Teicher: So in terms of timeline, so we are recording this and as mentioned by Allison in our little chat box and we should have a recording up on our website at our Safety Data Initiative website a week from today. The questions, if you have any, that are not addressed today, you have an opportunity to send us written questions that we will go ahead and answer. The due date to do so is December 10th, applications are due January 17th, 2020. Make sure that you submit your application through grants.gov and if you don't have an account, you need to set up an account through grants.gov. Both the notice of funding opportunity as well as grants.gov has information on how to set that up, so I would suggest getting that done as soon as possible if you don't have account already. Once we receive the applications we'll quickly review them and make a decision in terms of where the awards will be going and then we anticipate awards in March to April of 2020.

Paul Teicher: Switching gears a little bit, one of the things that we identified is in the past year or so with the Safety Data Initiative is that some of our state and local and transportation safety partners want to use the data information but they have limited analytic capacity to be able to do so and there's a need identified to provide some applicants with access to that type of data science and analytics. So as part of that we have, we will be working with the Volpe Center and leveraging the federal data science and analytic resources within the Volpe Center in order to provide that as an optional piece and I'll be passing along to one of my Volpe counterparts in order to be able to discuss a little bit about what that entails; but before I do so, I just want to note that if you choose to do this option it confers no benefit or penalty in the application process. So when we evaluate an application it doesn't matter whether you use the Volpe Center or if you have in-house analytical capacity or contracted data science analytical services elsewhere–if you're a local university, a private company, whatever it is. So folks, we wanted to provide that option as something that would be useful and available. So I'm going to go ahead and turn it over to Dr. Erika Sudderth. She can go ahead and provide a little bit more information as it relates to the Volpe data science services.

Erika Sudderth: Great. Okay, my name is Erika Sudderth, as Paul mentioned, and I am a data scientist at the Volpe National Transportation System Center and Volpe really has a wide range of data science services that we're able to provide. This can include things like data cleaning and processing to prepare data sets for integration, analysis, visualization to generate aggregated variables for statistical analysis. We also have a lot of experience with data integration so trying to link spatial data sets, crash data and other federal data sets, merge these types of data sets with road networks and integrate them into new or existing safety tools. We also develop analytical methods and big data pipelines using cloud services, such as Amazon Web Services. Myself, as well as several of my colleagues, have a lot of experience with statistical modeling using traditional or machine learning approaches, for crash modeling, risk models and other modeling approaches. We also have a good team that focuses on data visualization and tableau dashboards and using these as tools to identify patterns and integrated data to visualize differences or changes over time as well as displaying and interacting with results from statistical models. So if any of the applicants are interested in working with us, there's more information in the notice of funding opportunity about how to work with us. The funding is provided through a set aside from the overall application and we can communicate with you a bit about specific services that we can provide, but not provide sort of advice on how to make your application better. In any of the

communications that we have will be the general communications and information will be posted as overall questions or responses to questions on the website.

Erika Sudderth: So, I'll also give a couple examples of some of the specific projects that we've done. A little bit later in the webinar my colleague Dan Flynn will talk about the Waze pilot project work that we've done as part of the SDI data tools. Some of the other projects that Volpe has completed include addressing driver behavior to improve safety. Volpe developed a video processing tool for naturalistic driving data and using this tool they can detect and map work zone features with over ninety percent accuracy across this large data set, and use machine learning and commercial grade CPUs to process one hour videos in about 30 seconds compared to the three or four hours that it can take for manual coding. And another project, Volpe was looking at improving Motor Carrier Safety through state-of-the-art technology so they developed technology for transmitting ELD data and as well as a software application to analyze the data and designed communication and outreach materials including a program website. So this is just a brief glimpse into some of the capacity that we have and we're happy to provide additional formation if you contact us following the guidance in the NOFO.

Erika Sudderth: And then I'll now turn it back to Paul Teicher to continue talking about the beta safety tools.

Paul Teicher: Okay. Thank you everyone and thank you Erika and we appreciate everyone's patience over the next bit. We have. A handful of folks who will be passing the webinar back and forth and never perfectly seamless, so I appreciate you working with us and if there's a little bit of dead space, which will probably be caused by me, but, that's how it goes. To continue on and talk a little bit more about the solicitation, we talked about how you were going to develop refine safety tools and there are really two categories of safety tools that a recipient can apply for. So we have our category A and our category B. And so, our category A tools are our SDI beta safety tools and those we'll describe a little bit but they are ones that we've developed through the U.S. Department of Transportation in our efforts or in collaboration with that Safety Data Initiative. The second is, kind of, category B, which is a little bit easier and it's something that you propose that we separate from those tools so it'd be something that you've been working on or would like to work on and I'm going to start with category B quickly because it's a little bit easier.

Paul Teicher: So, I think of category B in simple or simpler language as kind of a choose-your-own-adventure. Let's say you have a tool that you want to bring to the next level or you've done some basic research and you kind of a good idea of what exact you want but usually that little extra bit of funding in order to turn it into a tool that we used by practitioners, that would be something that category B would fit under and that would be something that you would propose and you would apply and provide that information on what it looks like. And I think it could be range of vary, as long as it addresses that criteria and the way it addresses the roadway safety topic, I think the type of safety tool could be pretty broad in scope in terms of what is acceptable.

Paul Teicher: In terms of category A, as I mentioned before, the Safety Data Initiative did a series of beta safety tools and through some of our efforts at the Department and through the SDI, we have six different beta safety tools to further develop and refine. So the idea you'd be doing a derivative product or one to implement in your jurisdiction and the idea would be to modify and expand it to fit your needs and have it be an applied use case. And so by derivative work, there would be a number of ways you use

it. So it could be added new data sources, so maybe it's your data; modify an analytic approach to fit your needs; modifying the visualization to make it more useful: doing derivative analysis that supplements what's going on. As part of these safety tools, we have six different ones, we actually have folks who are going to do, kind of a five-minute sales pitch lightning talk on their tool and we're going to have more information. We have more information on the tool on our website, we'll have recordings of doing the demos on our website, we have videos for some of them, we also have tools that are available online that you can play around with, and so we'll have as much information on our website so if you have curiosity about those well the contact information that's on the agenda as well as a lot of information on the website.

Paul Teicher: And so, to start things off we have our six tools and we'll just go through them and we'll have about five minutes each for every tool. I'll go ahead in introduce the first person, so this is Professor Mohamed Abdel-Aty from the University of Central Florida, and he'll be talking about the Real-Time Crash Risk Visualization. And I'll go ahead kick it back to Allison so she can have Mohamed provide his talk.

Mohamed Abdel-Aty: So our tool was…thank you for the invitation and our tool was part of the challenge, the safety visualization challenge. I will provide two minutes very quick overview and then there is a short video demonstration and then there is a complete video demonstration, about ten minutes that would be on the SDI website as well as my personal website. The tool that we have developed is actually three main sections. I'm going to focus today on two of the sections, the first one is a real-time application for operators and there is a more long-term section for decision-makers. The first slide I am showing shows the data that has been used in developing the tool. And on the left side you can see mostly the traditional data sources such as the crash data, violation data, the CMS Clearinghouse, U.S. Census, etc. The more innovative part is the right side, which is the real-time data that we have been getting streamed from the field MVDs, system loops, AVI, SPAT, ATSPM, you know, signal data, as well as floating cars such as shuttles and buses, etc. There is social media data also integrated and there is also a real-time weather data integrated. So, quickly, the operator side, which is real-time, all this data is coming to our lab, being screened, being manipulated and then fed into real-time models that are giving us real-time risk estimation on our network, as you can see on the screen. You can see also another screen here showing also we have a connection to the CCTV in the field, we have also a location of the severe crash potential. All this in real-time. We have different visualization tools, we have an AI system that is providing in real-time potential ITS solutions such as variable speed limit solutions or queue warning, etc. This is what's happening in the background, different models and ensemble of models that are giving us crash risk estimation. The second section is for decision-makers and you can see the different layers of data and visualizations that we are providing from network screening to suggestions by crash notification factors for more temporal micro/macro level type analysis, you can see here some of the screens of the output, and basically you know machine learning and AI is being run in the background to give the operators and the decision-makers real-time suggestions and solutions and long-term solutions.

Mohamed Abdel-Aty: For the sake of the time, if Allison you can please play the couple of minutes video. Again, for more information, my contact is there and there is a longer and more detailed demonstrations and videos for the system. Thank you for your attention.

Video Audio: Operators. First function displays the numbers of the high-risk locations in real-time, which are identified based on deep learning algorithms. The high risk locations are classified into five

categories for freeways and arterioles. Also the number of high severe crash risk locations is displayed and the specific locations are visualized with the red jumping icon. A list of the top 3 high-risk locations with the predicted crash risk scores are also provided. If operators click any of the three bars the map will zoom to the selected high-risk segments, meanwhile the real-time crash risk, speed, and volume characteristics of the selected and its adjacent segments could be visualized and to assist operators to get a better idea about what is happening on the segment. Real-time CCTV images are also available for operators to check the field status. Additional data sources could be integrated into the system such as videos from UAVs. For high-risk locations proactive traffic management strategies are provided automatically in order to prevent and mitigate potential crashes in real time, for example, the system suggests the integrated variable speed limit and queue warning sign for this high-risk segment. To augment the component for operators, the system accesses real-time data from three hundred Lynx buses and fifty UCF shuttles based on each vehicles trajectory. Three types of critical driving events– hard break, hard acceleration and the high speed standard deviation–are generated as safety indicators. Section 2: Decision Makers. The first function shows the dynamic temporal status of the historical safety situation for multiple aspects, including crash frequency, crash risks, and different types of critical events from floating vehicles. The system can summarize the historical PATM recommendation at different time periods. Users can also download historical implementation reports to investigate road safety conditions and schedule their current strategies proactively. For the high-risk locations without PATM devices, an installation recommendation could be provided. The historical events data are saved and displayed in the decision maker part. The Crash Diagnostics function is based on historical crashes. First, the decision maker can look at macro screening for crash analysis, which is at the zone level. Here the zones are classified by zip code. Decision-makers can check the crash frequency and rate by severity level. At network level, we provide a decision safety support system. The system offers the most efficient countermeasures and their expected costs and benefits based on the crash modification factors clearinghouse. According to the recent three years crash data, the locations with the most potential for safety improvement are identified and highlighted with the red color. The decision-maker can click any of the identified segments to check its suggested countermeasures, which are selected from 6,000 countermeasures for different crash types and facilities, for example, the decision safety support system recommends two different countermeasures for this location, their costs, benefits and B/C ratios are estimated respectively. Besides for arterials, social media data including Twitter and Strava are added. The last component for decision-makers is the CAV component for the county level. Safety improvement by CAV is estimated from our research.

Paul Teicher: Great, and I apologize if we had sound issues for the video. It's actually a really cool video and I was just taking a look at it. I didn't know before but I would like to note that both University of Central Florida and Ford were involved in our Solving for Safety Data Visualization Challenge that was run by the Bureau of Transportation Statistics and we're finalists for the development of their high quality tools, so that's why they're part of our SDI beta tools. Thank you Dr. Abdel-Aty for that quick remark. I'm going to go ahead and pass it on to Cal Coplai, who's with Ford Motor Company to talk about their tool. I'll go ahead and give it to Allison to pass it along to Cal.

Cal Coplai: Yeah okay, thanks a lot and thanks everyone for joining in. My name is Cal Coplai, I'm the product owner of a new product that Ford is building out called Safety Insights. As Paul mentioned we kind of built out the early version of this product through the U.S. DOT's Solving for Safety competition, which is really exciting for us so I'm going to share my screen and I have some slides just really quickly to go through. It gives a really, kind of, really high-level overview what the tool is and what it does and

similar to the previous presentation, I will also show a quick video that I'll talk over, but then I'm happy to follow up with folks who are interested and want more, kind of, deep dive questions that you might want to go into, we can certainly talk after we go through this real high level overview outside of the webinar.

Cal Coplai: So, if I can get this going fullscreen. There we go. So at a high level, Safety Insights, the vision is really to be an insight tool, so there's a lot of new data sources and data providers out there but really the secret kind of sauce is when you can help make sense of all that data; how can you generate insight that's meaningful to really move from, you know, there's data deluge and overwhelming, kind of, all these different data sources and data points actually make, you know, refine that down to a point where you generate insights that drive decision making. For us within the Safety Insights team, the focus is, of course, on safety. So how can we build a tool that helps generate insight around transportation safety in particular? So the way that we, kind of, high level describe the tool is really three main pillars of functionality. So the first is just the ability to visualize all sorts of different data elements. That includes things like crash data, roadway infrastructure data, and then we're also bringing in Ford's own connected vehicle data within one application but then that can quickly become overwhelming, right? How do you make sense of all this information that you're seeing at the same time? And that's where the second and the main pillar comes in–the ability to identify hotspots for problem areas with the click of a button these automated network screening algorithms within our tool to allow you to identify those problem areas cell dynamics, based on, you know, the subset of data that you may have chosen and so we quickly kind of allow you to identify those through the tool and then we have the third main pillar which is, okay, so I've, you know, looked at some data I've identified in problems what do I do about that? How do I move from problem identification to solution identification? And that's where this third piece comes in. We're pulling in information from the CMS Clearinghouse for thousands of different countermeasures and we have allowed you to simulate the predicted impact of implementing any of those solutions at any particular location of interest. So we dynamically calculate things like the predictive crash reduction, cost savings to society, and allow you to calculate our arrival, time of return, different factors like that.

Cal Coplai: So that's really some high-level overview of the functionality within the tool. I really quickly wanted to touch on some of the data elements. So the crash data and the infrastructure data are really the key kind of foundational pieces for any safety analysis tool, but with them, what we're bringing in some newer data elements are cell phone data and connected vehicle data. So we're partnered with a third-party data provider for the cell phone data piece. What that includes is aggregated and anonymized movement pattern data you're able to understand things like origin destination patterns and volumes of travel and then for us and Ford, we're really excited about the opportunity around connected vehicle data. So again, that's aggregated and anonymized data element to provide insight around things like where there are hard breaking events or hard acceleration events, traction control for collision warnings, ABS activation, lane departure warning, there's a rich potential around what might be possible via connected vehicle data and we're really just starting to scratch the surface so this is actually a really exciting opportunities to potentially partner with folks to look into what might be valuable insight we can generate from that data. So I'll stop with this slide here and then again just a brief 90 second video I'll show. It shows the tool in action a little bit more but I'm excited to hear from you all who might be interested. I will definitely, you know, you've my contact info here, we also have our webpage SafetyInsights.Ford.com. Feel free to reach out with questions you might have. I'm happy to talk deeper, this is definitely just a high-level overview but I'm curious to hear what you all are

interested in. In terms of how we can expand and enhance the tool. So with that, I'm going to stop sharing for a moment and then just bring up a video really quickly then I'll just talk over again it's just 90 seconds or so.

Cal Coplai: Okay, so, you should be able to click on "View Full Screen" on your own side if you want to. So this is just a quick video showing the tool in action. So you have the ability to add in crash layers and filter down based on specific crash factors or types you might be interested in, and we also have some additional filters like time, geography, road ownership, and other things. So right now, we're filtering down just to the specific county of interest. The data is updating accordingly so right now we're looking at crash data. As we zoom in you can actually click on the individual crash points, get more information about what happens with any particular crash. Now we're generating the hotspots, running the hotspot algorithms and so that generates a list view that you can scroll through you can also export to excel, this hotspot list and then you're able to click that details button that zooms you directly to a hotspot of interest on the map. You can see in pink there, that's the hotspot and then this is where we have the additional connected vehicle data and the cell data comes and you're able to visualize that on the map side by side with the crash data or the hotspot. Then you're able to, kind of, click in and get more details out what's going on with any particular hotspot and then jump over to the countermeasures table and this is where you can filter down and search through all the potential countermeasures you might be interested in, get some information about what the predicted impact would be if you implement some of these. And then you can actually generate an automatic report that summarizes the changes you might want to propose. And that gives, kind of, a real quick overview of what this predicted impact would be. So again, that was a quick video and we have more detailed information available, but thanks for listening in and I'm excited to hear from you all after the fact. So thank you.

Allison Caloggero: Thanks Cal. Paul, I'm handing it back over to you.

Paul Teicher: All right, well thank you Cal for that and thank you. So the next presenter that we'll be having as a SDI beta tools, actually was something developed outside the Safety Data Initiative, it was an exciting tool that was developed at Turner-Fairbank Highway Research Center in the Federal Highway Administration. I'd like to go ahead and introduce Dr. Wei Zhang from the Federal Highway Administration and he's going to talk about his 2-Step model.

Wei Zhang: Wei Zhang, Program Manager, in Office of Safety and Operations R&D. I'm very excited to share this 2-Step model with the audience. So what is the 2-Step model? This is a screening tool that enables users to quickly identify high traffic risk locations from geo-coded multi-year statewide (or other regional) crash data. It enables users to build dynamic queries for targeted screening using any combination of the data field that exists in a crash database. This tool provided two types of screening. One is by a crash count and the other is by crash cost. By crash cost is, for each crash and there's a severity, there's a number of people involved that is usually documented in a crash data and with that information you can compute each person killed costs for upon five million dollars. So you add up this cost for the people injured in each crash, you can come up with a crash cost. This is a very interactive way to identify true high risk locations, because it considers crash severity and the number of people involved in the analysis.

Wei Zhang: Okay, now, so what's the requirement? This is a very powerful, very portable, but very powerful tool, I think. Requirements very list, but not long. Okay. Any Windows operating system can

run this system. For crash data, it always requires each crash record, has latitude and longitude coordinates, geo-coded crash data, consistently coded, multi-year. Okay? And you can do, screening by crash count if you have this information. If you want to enable screening by crash cost, then you must have crash severity and the number of people involved in the crash data. Okay. So now I'm, I'd like to do a demonstration of the tool so that you have a feel of how this tool works. And these are all the files included in this tool. This is the 2-step file, this is just library file with a bunch of resource files and you are also going to see a sample data site from the state of Virginia. This is a four year statewide crash data including about half million records. You can, you are going to receive a zip file, you unzip it, put it into any folder. It doesn't need installation and you can run from any folder. When you start this tool you're going to see a map of the United States and the first thing you do is to import data. And here the import data in the same folder. If the import data is in a different folder, you can use this screen to navigate to different folders. Once you bring in the data, it will be based on the minimum/maximum and just coordinate it, zoom into the area of the region. In this case it's a state of Virginia and zoom in to the area and you're going to see a couple buttons, command buttons and you can use this to show crash button to show that this is all the crash data. Okay, turn this on, turn this off. The two modes of screening: one is by crash count, one is by crash cost. I'll just show you that by crash count and this function is basically the first step. It divides the entire state or entire region into 15 mile by 15 mile grid, counted the number of crashes in each grid, displays the number, and then rank them in descending order, and apply color coding. Okay. The red color are the top five regions and the yellow color top six to ten, the remaining in green, okay? This color coding, the size of the grid, these are all customizable. As the user, you can change the size of the grid, you can change ranking and you find you want to display the top seven in red, the, you know, the number eight it to number fourteen in yellow, and you can just do that dynamically. Okay and then the next time you choose any of the region you zoom in.

Wei Zhang: And the second step is that you basically do the same thing. It will repeat and the same thing and at this point you can look at any of this grid. This is a half-mile by half grid in seconds and if I choose this, zoom in, see, in just two mouse clicks, you basically you just wanted the higher crash locations. And now you display this by severity. What you see is the big red, that's a fatal crash. The big yellow is a serious injury crash and so they're different. So this half-mile by half-mile area basically in four years, you know, you have this number of crashes probably more than, more than four hundred crashes. Okay. And you can look at them by year or by other factors. So that you can see whether there's 2012, whether there's any pattern involved. Now go back to all and that at this point, there's a "View Data" function. You click this function, what it does is query on all the data within this half mile by half mile area here, this space here. At this point you can copy and paste data into your spreadsheet or SAS or any, another tool to do more detailed statistical analysis.

Wei Zhang: Okay, now let's go back, another way to do it is to do by crash cost and look at the grid. If I do a back crash cost, it is going to change slightly. Okay. In this case, because we considered a number of people involved and the number of severity, this is a better way to identify the true high crash location, high risk location. The last time I showed you, you choose one but if both, I can choose both. You can do this and zoom in, now this is, this is the area so you see that it's just that quick you can identify the high-risk location. If this is a half mile by one mile area, it shows you the roadway that has safety problems, the intersections that have safety problems. Okay, and so there's a "Street View" function here. It's currently disabled, because Google start in 2018 started asking to provide an accounting code and if you have an accounting code and it will allow you to access Google Street View and with that function, what you, you're going to see is something like that. You can it will go to Google Street View, display the

crashes and you can click each crash. It show you the attributes of a crash and you can also do some kind of visual analysis, look at the location of the crash relative to pavement markings, other roadway geometry features. Gives you a better hint of, to analyze what may be the cause, the root cause of the crash. Also, this tool also includes a query tool you can use a filter, you can add a query, it gives you access of all the data field in the crash database. You can virtually view unlimited number of queries, you can analyze data, you can look at a fatal crash, series injury crash only, you can analyze road user crash only, as crash on state route, local route, crash in any particular county or city and anything you can think of. Okay, so that's all the, this basically, from historic data.

Allison Caloggero: Time. Want to wrap up please?

Wei Zhang: Yes. Okay. A tool, this is to identify crash location. You can also use the knowledge gained from here to do crash prediction. For example, if I know a certain location has, I know the crash, and you know, day of week, time of day, of this crash and if you haven't had permanent traffic monitoring station there, this is just to give you an example. For example, this is a permanent traffic monitoring station, when there is a crash between 10:00 and 11:00 a.m. When there was no crash, these are the speed vehicles, they mostly travel. When there was a crash their speeds reduce and, you know, they all travel at lower speed and if you look at the speed full distribution is something like this. So.

Allison Caloggero: Thank you, Wei. Due to time restriction, we're going to just switch it and pass it off to Volpe so we're able to touch upon the Waze pilot. I'm going to pass the ball to Dan Flynn, who can begin talking a little bit on that. I do apologize, I just want to keep it tight to time; we want to have enough time to address your questions that have been flowing into the Q&A. So without further or do, Dan.

Dan Flynn: All right. Thanks everyone. Yes, I'm Dan Flynn, I'm a data scientist here at the Volpe Center and I'll just give an overview of the work we've been doing as part of the Safety Data Initiative Waze pilot projects. So, as previously, we went over the initial phase of the Safety Data Initiative was to integrate traditional and novel transportation data sets and apply advanced analytical tools, and use compelling visualizations to help better identify safety risks. For this pilot project, we worked with crowdsource traffic incident data provided by the Waze navigation app via their connected citizens program. We integrated each data with traditional data, such as road functional class, historical crashes, weather and Census data, and we set out to do two tasks. First was a research phase, where we developed statewide indicators of police reportable traffic crashes from the crowd-sourced data and then we took that research and developed two applications. The first was for a state agency with the Tennessee Highway Patrol. There we modeled crashes to help better allocate their state troopers for enforcement purposes; and second for the City of Bellevue in Washington, to support their Vision Zero action plan. So, I'll give an overview about the research and the applications.

Dan Flynn: So in our research phase we, we're seeking to assess, first of all, is this crowd-sourced data useful in supporting safety data applications. So we conducted a study spanning four states using both the crowdsource Waze traffic incident data and police reported traffic crashes, and we did this, with, along with traditional data such as traffic volume, Census and weather data and we used a machine learning approach and we show that we could reliably estimate police reportable crashes at an hourly timescale over these four states. And from this, we also developed interactive Tableau dashboards showing, where and when the model estimates were most accurate. So we concluded from this research phase that this data integration modeling and visualization can support applications of the Waze data to improve roadway safety. Then in our application phase, we worked with a Tennessee Highway Patrol

and they're a great case study partner, because they've already been a leader in using predictive analytics to estimate crash propensity. I'm going to use these model results with their state troopers to guide them to have the highest impact in both reducing crashes and also responding quickly. So, we at the Volpe Center worked with them, we took their existing models, working at their spatial and temporal scales that they were using and then we added the crowdsource traffic data. We showed that when we put in the Waze data, we can also reduce the spatial and temporal resolution to make it a much finer grain, down to one square mile and one hour time resolution without any loss of that model accuracy. So the map here shows for these square mile grid cells, any of the light blue colors or white colors are showing that the model is very accurate at that location over this one year that we did the model training on. And then the timeline of the bottom is showing the daily comparison of the observed and the estimated counts of crashes in the test data. So these results are now being used by Tennessee and prototyping how to transfer this technology into their operational environment.

Dan Flynn: With the City of Bellevue we took a, sort of a different approach and we've been working with them to, first of all, develop these interactive dashboards that integrate the different sources of crash data. So they have the police report 911 calls and then we've added the Waze crash reports as well. So we've shown that, with integrating these multiple data sources, simply the visualization is something that's been useful for them for planning purposes and then in addition we've developed these crash estimation models at a roadway segment level that are helping to guide their investment decisions for their Vision Zero planning. And in summary, what we've shown is that the Waze data can, so the Waze data it can be useful in supporting these safety applications, both at a statewide level and a city level and we've demonstrated having these novel data sources can be used in safety data research and decision making and with that I will pass it back to Paul.

Allison Caloggero: Thanks Dan. Passing it to Paul, Paul you're all set.

Paul Teicher: Great, thank you. Thank you to Mohamed, Cal, Wei, and Dan to talk about the different tools. So we've talked about four out of six of the SDI beta tools and I will be talking about the remaining two and we will still up plenty of time for Q&A, though we're running a little bit behind. We appreciate it on patience for that and as you have questions, go ahead and put them in the chat box so we can get them prepped to answer directly and just a note for availability that UCF and Ford, you could get examples of this through their videos through our website, or through and as well as their information you can also reach out them directly to get more information about their tools. The 2-step model, we plan on having a post on our website. You can also reach out directly to Dr. Zhang. For Waze, we have a number of information that's archived and available, publicly available, as well as a recording of some of the uses, that could be if you have more, want more information, you can contact us, Dr. Flynn, and then, for the last tool we will be talking about our Pedestrian Fatality Risk Map and the FARS Visualizations tool.

Paul Teicher: And so, first the Pedestrian Fatality Risk Map. This is an intro U.S. DOT product that we did and it is a fatality risk model that we developed that takes a whole bunch of different national available integrated data sets, that will include pedestrian fatality information from our NHTSA, roadway type and roadway volume information from the Federal Highway Administration and then information about the built environment, such as intersections as well as a lot of Census data that included information about populations, socio-demographics, information about daytime population, and job density. And so we put that data together in order to create a risk model that identifies pedestrian fatality risk at the neighborhood level, and by neighborhood level I mean the U.S. Census track level. And so, we

developed this and through the risk model process we actually had it peer reviewed and access analysis of prevention, and what it does is it provides a ordinal ranking nationwide of locations that are higher risk and I can I'll show you the tool that we have which is available on the U.S. DOT website and kind of go through a little bit. And I could see this tool being useful as a derivative product you include new crash information, so, for example, serious injuries at the state or local level, and we also include additional variables or information that a state and local government have that we at U.S. DOT don't have such as lighting information and you could also kind of change some of the scope or change the ordinal ranking.

Paul Teicher: I'm going to pop out of the PowerPoint and go to our risk model and I'm going to, first this is a United States and also includes Alaska and Hawaii and this is found at the Bureau of Transportation Statistics, BTS's website, and as you'll see, there will a little bit of missing patches where, because of how small the Census tracts are, you can't really see, can see the red and the orange or red and the pink, but the red and the pink are the top 20 percent of the nation's higher risk pedestrian risk Census tracks and so those are the ones that are as the higher risk and there's also ones that are medium and lower risk. And we had, just as a note, both a urban and a rural model, so you can see multi-rural because the counties are a little bit bigger in this national picture but it shows that particularly in the south and in the west there are areas that are much higher risk as compared to other, you know, the average neighborhood within the United States. This is an interactive GIS map that we have/we've done, this is available online. You have a number of filters that you can do so you can filter by urban or rural, various pieces, we also have layers and so you can toggle on and off the layers and as part of what you can do you can actually type in the information. Just because I'm on Wi-Fi and a little slow sometimes I pre-populated one. Just looking in an area of the example, I chose Louisville, Kentucky. So as you see, you see the OpenStreetMap based map, so you can see the different streets in the neighborhood level. The pink and the red are in the top 20% of Census tracts for fatalities and you can click on and get more information and so you can look and see. I think what the tool is, is a diagnostic tool and so it's something to identify an area that has potentially higher risk. In the end it's something that you would use as a diagnostic and then you would figure out what kind of interventions you want to do, whether that's education, enfoncement, EMS changes, engineering or it could be a mixture of those and have a more holistic approach and so this would be a tool that would be probably combined with other diagnostic and then you would pick the interventions based on what do we you will want to do in your focus area. And so, you can notice that trends and you know, if you are Kentucky maybe there are certain areas that are located over here that you might want to focus on and certain areas over here and there's a pedestrian fatality risk and it might change depending on various other factors as well. And going back to the slide, so that is our Pedestrian Fatality Risk Map and that is one that is available on our web site so you can play around so I encourage you to check out because it's kind of fun even if it's not something that is a focus area for you.

Paul Teicher: The second one I'm going to be talking about is our FARS Visualizations tool. At the National Highway Traffic Safety Administration, they collect the FARS data, the fatality analysis reporting system data, and that is a Census of all public roadway traffic fatalities. We wanted to take kind of this rich data set and convert into a kind of a curated data set that is visually, easy to use in the Tableau software environment. And so the was to take a data set that's pretty rich and had whole bunch information and put it in a way that is constructed to help identify trends and patterns and compare and contrast various attributes. And so the idea is to be able to look and kind of drill down and see and use as an initial piece of information about what's going on the roadway. We use the FARS data, you obviously you could use new data sources, you could use all crashes within your jurisdiction, you could

figure out a different scope and for our purposes we settled on two different topics: one on speeding and speeding safety issues and the other on pedestrian safety, and I'll walk through some of those. I think the idea is, for looking at these is, if you have decision-makers who need basic information put it in a way that's tangible for someone who's not necessarily an intense data scientist or data user to be able to have it, to be able to tease out themes and pattern.

Paul Teicher: So looking at that, I'm going to pull up the first one so this is related to, are fatalities as it relates to speeding related crashes. This Tableau visualization actually looks at the proportion of all fatalities that are speeding related, by speeding related I mean either someone was driving fast in the speed limit or too fast for conditions as reported by a police officer and you could change it to a different topic as part of an application. So you see here, you have a various pieces and I'm going to focus on New Mexico, so New Mexico, we've choose one year of data you could use more out of their 405 traffic fatalities, 36% were speeding related. And you can see, and so say you're New Mexico and you want to see how the rest of the region is doing comparatively, you can look and see and you can see how you compare to some of your peer states. You can also look and see where the higher percentages are, where the counts are, so this shows for example a lot of local roads where the speeding pieces it's happening amongst this group of states. So as the filters go, it'll adjust the numbers accordingly. You can also have information about time of day, day of the week, month, whether someone's in a vehicle or not in the vehicle, and that is something that you can choose. There's also, you can also break down and look further so you can go in and you could do a state-level breakdown, so it pops up and will show the state by county so you can look at the information by counties. You can also look at this and the other map, you can look at individual crashes so they'll be a layer for crashes, and so you can look and see various information. So, I'm just going to pick one, in Torrance, New Mexico, I'm going to/you can also take a look, you can also do a Google Street View, so it'll pop up similar to the 2-Step model and looking at Google Street View. This isn't exactly how the crash looked but it kind of describes the roads as a rural area, it doesn't have any markings on, it's kind of in the middle of the desert, you see some houses, but not a lot and so that gives a sense of information. So it provides all in really one visualization. A lot of interesting insight.

Paul Teicher: The second one I'll show quickly is a different format in a different topic so this is pedestrian fatalities and this is count, you also have information as it relates and here it is in presentation mode once it's fully fleshed out. This is how it looks and the full scheme and you can add different attributes, so in the section of fatality piece you have, you can also look at a heat map and so this shows during winter months, in particular, is particularly pernicious for pedestrians. You can look at different dimension types, you have age and gender, so sex between male and female, so usually middle-aged men are disproportionately affected by pedestrian fatalities and you can break down similar information for your state. So if you wanted to go ahead and look at Missouri, it would pick up that information, and these would adjust. You could also look at a crash level similar to what we had before and I'll show you can focus in on Missouri and it gets more types of information.

Allison Caloggero: One minute.

Paul Teicher: Thanks, and so, I think this, kind of, shows some of the potential functionality and obviously there's less sophistication, it's more descriptive statistics, but it has some visually compelling components that I think are worthwhile, potentially worthwhile depending on what your user needs are. With that I'm going to go ahead and go back. Those were the six of beta slides and we have time for Q&A afterwards if we want to go ahead and address those. So at this point, that is what we have for the

SDI safety beta tool. I know we've been getting some questions from the chat box, I think we've teed up a few so my colleague Jason and I will kind of talk through some of those questions as they come and we'll go ahead and address them.

Jason Broehm: Okay. So we've been trying to answer a number of these questions in the Q&A pod as we've been going through the webinar presentations, but we've got several others that have been queued up and I'll ask the first one to Paul.

Jason Broehm: Do you have recommendations on which tools would work best a certain level, such as cities, counties, MPO, or state? Also, does each tool have a list of the core based data that would be needed from a jurisdiction to make the tool work?

Paul Teicher: Great, and I think that's a really good question. I think some tools might be better fit, I mean I can't definitively say one is best for certain purposes, but I think a lot of them have flexibility. I think for, just looking at examples, the UCF one/the city of Florida uses richer data and so you probably couldn't do like a region and have all that information. I mean, maybe, but I think it's probably, probably be more effective at a local area. Ford Motor Company looked at, I think, a region, the Detroit region as part of what they were doing. The 2-Step model looked at statewide, they did examples of Virginia but also drilled down to Northern Virginia. In the Waze one we looked at both the city as well as a state. So, I think that has flexibility depending on jurisdiction and what the research question is and I think ultimately depends on the safety problem and the research question. Some might be better apps and more appropriate, I think more importantly, sometimes it depends on what your safety needs are, what your information needs are, in terms of what tool might be most effective. For the Pedestrian Fatality Risk Map, I don't think it would be as helpful for a really localized area, probably better for a region or state, and the FARS Visualization probably similar, unless you want to do a derivative product that focuses on specific elements that's related. And I think for all of them, different flexibility in and if you have questions of whether it would be a good fit of part of the application process, we can't say, "Oh yeah, it's the best idea ever," but we can say well it's a good fit or not, and if there's anything, you might want to consider it as part of it.

Jason Broehm: We've got a couple of questions about the category A/category B. The first is, is there a set percentage of the total award amount that will be set aside for category A proposals and category B proposals or does it just depend on proposals that are submitted? We provided an answer in the Q&A pipe, at least Paul, if you want to just say briefly for everyone who have not seen the response.

Paul Teicher: Yeah, and we anticipate awarding at least one award in category A, and one award in category B. We don't have a percentage in mind, I think it will be contingent on the quality of the applications and the ones that fit well on the criteria and provide a diverse set. So we expect probably at least one, but there's no quota or anything that we've anticipated.

Jason Broehm: Okay. Next, for each responding team, will the sponsor only consider one proposal for category A and one proposal for category B or will all proposals be considered?

Paul Teicher: A great question. An applicant can submit as many applications if you want to use, for example, have an application with category B tool and then one for category A, you can have two

separate applications, that's fine. So we, or if you want to do two different tools for category B or two category A, we would evaluate each one individually as part of any applications received.

Jason Broehm: Great, so there was a question whether the Federal Highway's 2-Step tool that Wei Zhang presented on whether that's available currently. It's not available on the federal highways websites, we are preparing to make that available for download on the SDI web pages, so we will provide more information about that soon. Anything you want to add to that Paul?

Paul Teicher: Yeah, we expect to have it in the next day or two on our Safety Data Initiative website and the agenda has the contact information for all the folks who spoke today. So if you have, if you want to reach out and, if there's not something you're missing, that is also an avenue you can take.

Jason Broehm: There is a question, the required deliverables listed the software that is developed, does this include mandatory release of all source code?

Paul Techier: That's a good question so it's part of what we want to do, I think the application needs to be or be clear about in the end what is retained by the applicant and the recipients of the funds what is available for U.S, DOT, and what is available for the public. So if there are certain things that are very, very sensitive for a number of reasons, or there's proprietary information, we probably at a minimum will want, at least, to be able to have a basic blueprint, but the exact what that would look like would be part of what's in the application described. So if there are certain things that you're sensitive about, then that should just be noted. That, of what then would be retained and not provided to U.S. DOT. I'd look at the NOFO language in order to really have a good sense of what that is and I think generally in order to have scalable and replicable tools, of blueprints as part of what is delivered more is better but we understand that there are certain elements that cannot be shared or is preferred not to be.

Jason Broehm: Okay. There's a question, are the category A tool source code available to us for local implementation, or applicants supposed to you partner with developer companies and agencies to implement them?

Paul Teicher: Great, so it depends on the situation, so for the first two, the one by University of Central Florida and by Ford Motor Company, those are software that they have developed and tools they developed and you would be working directly with them so for and UCF would be partners as part of, if who wanted to use one other. For the other ones that were developed, and they're all developed in the public space and we have information that can, that could be provided. So, perhaps it depends on what it was but we would be able to provide to the extent that it's available source coded information that that's open to the public. I know that, for example, the FARS Visualization the Tableau workbook, all the FARS is online and we would provide, for example, if we want to use Tableau as your software the derivative product we could provide all the steps that we took and some of the tricks that we did. And we could provide the data, some of the data for the Pedestrian Fatality Map and for the Waze, we actually have a GitHub that has some of the information that's available. So I think it depends on the tool for the public one but generally we would be able to provide enough information or to be able to do a derivative product and if you have questions on whether that's the case or not we could have a separate conversation on that.

Jason Broehm: Next question, will the category B cover any salary cost?

Paul Teicher: So the way the funding works is the cooperative agreement and it's respective of a guess what the salary is. So we provide funding for once the deliverables are received and accepted. So as long as, it to be up to the applicant to how you want to spend those funds. I imagine some of them are going to be needing to be sent for the tool development account be used for salary, but I don't think, we expect the funding that was provided through a cooperative agreement that would be up to the discretion of the primary applicant how that's used in order to achieve the objectives and deliver the deliverable.

Jason Broehm: Okay, question here, can we use this funding for developing solutions that have a hardware component along with software component?"

Paul Teicher: I would say yes, generally I think just being clear about, at the end obviously if it's hardware might not be provided to U.S. DOT but if it's something that is generally applicable that multiple jurisdictions are doing or maybe something that's useful for you then I think that would be possible. I would just be clear in the application in terms of what the different mechanisms are that are going to be employed as part of the application and the tool development and refinement.

Jason Broehm: Following the question, if you could elaborate on quote-unquote 'knowledge gap', are these funds intended for experimental treatments versus proven safety countermeasures?

Paul Teicher: Yeah, so the way I think of 'knowledge gap' and maybe I'll provide a crude example. The same jurisdiction and I have an alcohol impairment problem, but I don't know where the alcohol impaired crashes are occurring on my network or in on my roadways, I don't know who those people are, I don't know if they have, they end up having DUIs in court if they get pulled over and arrested, and so the information, the safety problem would be the alcohol impaired drivers, the information gap is knowing, the who, what, when, where, where and why, and then the tool could be, and I'm just spit balling, something that provides a geospatial location of the crashes that's connected to information about court records and demographic information of the people who are stopped or end up crashing. And in terms of using proven safety countermeasures or further treatments, we view this as providing information in order to help a policy or decision maker, so that would be the type of tool development we're looking for, for the funding.

Jason Broehm: Yeah, there were quite a few questions that have come in. We're not going to have time for all of them unfortunately, but we will provide responses on the frequently asked questions page on our Safety Data Initiative webpages. So for anything it didn't get answered during this webinar we will take a look at those and make sure that we provide responses online. So Allison, I know you said that there was a question that Erika could respond to. I'm not finding that specific question right now, but if you wanted to, Erika, if you wanted to take that one.

Erika Sudderth: Yeah, so there was a question about documentation on the video processing tool and I will collect some of the research reports and contact information for the project leads and post that under the frequently asked questions.

Paul Teicher: Great, and so since our time is up. Like Jason said, we plan on responding to all the questions, so if we didn't get to your burning question, we'll go ahead and be able to post it on our SDI website. Again, the questions are due between now and December 10th, I encourage you to do so. If you

have questions we'll go ahead and post those and identify them and make them generalizable the best we can. I want to thank everyone for taking the time out of the day to consider this solicitation and to hear about what we're doing as part of notice of funding opportunity. I think we at U.S. DOT are really excited with the opportunity to partner with folks and I'm really looking forward to getting some strong applications to help advance the state of practice, so we hope that you all received useful information today and I guess that's, Jason is there anything else?

Jason Broehm: I know there was one question about contact information for presenters, that slide, make it up here, can you put it back up?

Paul Teicher: Yes. So the contact information is on the agenda that's part of the webinar and we can go ahead and put that contact information on the website as well. I don't believe I have a slide handy that has all the contact information.

Paul Teicher: Okay, with that I think we're past the hour. Again we appreciate everyone's time! Thank you so much for your interest and we look forward to getting a whole bunch really great applications!

###

Contact Information

General Inquiries for Safety Data Initiative Notice of Funding Opportunity
Jason Broehm, Transportation Policy Analyst
Paul Teicher, Senior Policy Analyst
U.S. Department of Transportation
Email: USDOTSafetyDataInitiative@dot.gov | Phone: 202-366-4416

Volpe Center Data Science Services
Erika Sudderth, Ph.D., Data Scientist
Volpe National Transportation Systems Center, U.S. Department of Transportation
Email: Erika.Sudderth@dot.gov | Phone: 617-494-3128

Real-Time Crash Risk Visualization Tool for Traffic Safety Management
Mohamed Abdel-Aty, Ph.D., P.E. F.ASCE, F.ITE, Pegasus Professor and Chair
University of Central Florida (UCF), Dept. of Civil, Environmental & Construction Engineering
Email: M.Aty@ucf.edu | Phone: 407-823-4535

Ford's Safety Insights
Cal Coplai, AICP, Product Owner
Ford Motor Company
Email: ccoplai@ford.com

2-Step Model
Wei Zhang, Ph.D., P.E., Highway Research Engineer/Program Manager
Federal Highway Administration (FHWA) Office of Safety R&D, U.S. Department of Transportation
Email: wei.zhang@dot.gov | Phone: 202-493-3317

Safety Applications of Waze Data
Daniel Flynn, Ph.D., Data Scientist
Volpe National Transportation Systems Center, U.S. Department of Transportation
Email: Daniel.Flynn@dot.gov | Phone: 617-494-3665

Pedestrian Fatality Risk Map
Paul Teicher, Senior Policy Analyst
The Safety Data Initiative Team
U.S. Department of Transportation
Email: USDOTSafetyDataInitiative@dot.gov

FARS Visualizations
Paul Teicher, Senior Policy Analyst
The Safety Data Initiative Team
U.S. Department of Transportation
Email: USDOTSafetyDataInitiative@dot.gov