NJ STIC 1st Quarter 2021 MEETING

EDC-6 –Break-Out Sessions Summary

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Introduction

The NJ State Transportation Innovation Council (NJ STIC) 1st Quarter 2021 Meeting, held on March 29, 2021, focused on steps to advance the EDC-6 Innovative Initiatives during the two-year program time frame (January 2021-December 2023).

The meeting included representation from the Federal Highway Administration (FHWA), New Jersey Department of Transportation (NJDOT), the state's Metropolitan Planning Organizations (MPOs), local public agencies, industry, trade, and universities.

In response to participant comments in the STIC Caucus meeting held on December 5, 2020, requesting more time to discuss advancement of the EDC-6 innovations, the 1st Quarter NJ STIC meeting included time for break-out sessions.

EDC-6 Innovations Break-Out Sessions

Meeting participants were divided into eight break-out session groups to explore the steps that could be taken to advance the EDC-6 innovations toward the anticipated implementation status at the end of the two years. Break-out session attendees were asked to consider several questions, including: the capacity to create a working group; ways that FHWA and NJDOT could work with local public agencies and other transportation partners to advance the initiatives; and whether participants were aware of examples of the innovation that could be shared at future STIC meetings.

Participants who had attended the NJ STIC Summit meeting in December were generally re-assigned to the break-out session innovation topics to continue the conversation. Individuals were asked to choose which of the eight EDC-6 initiatives they would focus on during the break-out session and, by extension, affiliate with in future meetings to advance the innovation. Most registrants were given their first choice. Although FHWA considers E-Ticketing and Digital As-Builts as one initiative, NJ STIC is approaching them as two initiatives. Break-out groups formed around the following:

- Virtual Public Involvement
- Strategic Workforce Development
- Crowdsourcing for Advancing Operations
- Next Generation TIM
- E-Ticketing
- Digital As-Builts
- Targeted Overlay Pavement Solutions
- Ultra-High Performance Concrete for Bridge Preservation and Repair

At the completion of the break-out sessions, participants reconvened for a short plenary session. The break-out session facilitators reported out on their respective group discussions. Additional comments from attendees were captured in the chat feature and in the recording and have been detailed on each of the innovation initiative break-out sheets.

Among the general comments:

- Nearly all committees agreed that they would volunteer to participate in a working group that could meet at least quarterly or semi-annually.
- Some facilitators noted that they could have used more than the 45-50 minutes of time to discuss each of the topics in the breakout groups.
- At the end of the meeting, Helene Roberts noted that the notes prepared in the break-out sessions will be circulated and used by the Core Innovation Area leaders and working groups to continue to advance the EDC-6 initiatives.

The completed forms for each of the break-out sessions are appended below. A list of the participants who attended the plenary session and break-out sessions and their roles during the break-out session are listed in the appendix.

EDC-6 INNOVATION AREAS
BREAKOUT SESSION TOPIC NOTES

March 29, 2021

Order:

Crowdsourcing for Advancing Operations

Digital As-Builts

E-Ticketing

Next Generation TIM

Strategic Workforce Development

Targeted Overlay Pavement Solutions

Ultra-High Performance Concrete for Bridge Preservation and Repair

Virtual Public Involvement

EDC-6 Initiative:

Crowdsourcing for Advancing Operations.

Crowdsourced data can be obtained whenever and wherever people travel, allowing agencies to capture in real time what happens between sensors, in rural regions, along arterials, and beyond jurisdictional boundaries. Agencies at all levels can use crowdsourced data integrated from multiple streams to optimize roadway use for reduced congestion and increased safety and reliability.

Innovation Implementation Stage Definitions ** State is all-inclusive (e.g., state transportation agency, local municipalities, contractors, consultants)*	Guidance Questions Prompt questions to help assess your current state of practice.** *NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the Crowdsourcing Deployment Team w/ questions.*
Not Implemented: The state* has not planned for implementation of the innovation.	The State does not use and has not planned for implementation of the Crowdsourcing tools listed below: **Crowdsourced Data**: Vehicle probe, navigation app, social media, agency-owned 511 apps, 311 apps, and connected vehicles. **Operations Application Areas**: Traveler information, incident management, road weather management, work zone management, traffic signal management, maintenance, freeway management, performance management, project prioritization and selection, and improved planning for operations.
Development Stage: The state* is participating in webinars and peer exchanges, collecting guidance and best practices, developing an implementation process, and building support.	Is the State pursuing, or intending to pursue, activities to prepare for implementing new crowdsourced data and/or new application areas? Example activities include: ● Assembling a team and developing an implementation plan. ● Conducting preliminary research or studies on the topic of crowdsourcing. ● Identifying the requirements, locations, candidate data sources or products, and operations strategies to evaluate with a test/pilot, as well as gaining the technical expertise and support needed for a test/pilot. ● Hosting workshops or training events, participating in peer exchanges or scan tours, and/or collecting and reviewing guidance and best practices. • Identifying funding sources, contracts, or agreements to facilitate collection and use of 3rd party crowdsourced data.
Demonstration Stage:	Will the testing/evaluation provide clarity on critical questions/issues so that the next steps for the state can be determined in implementing

The state* is testing and piloting the innovation.	new crowdsourced data and/or new application areas? Example activities include: ● Demonstrating the feasibility of the approach. ● Evaluating and improving the application. ● Developing clear evaluation criteria that align with agency goals/objectives. ● Identifying where additional capacity-building activities are needed to further capability maturity.
Assessment Stage: The state* is assessing the performance of the innovation and adjusting any processes for full deployment.	Is the State ready to move towards implementing new crowdsourced data and/or new application areas as standard practice within the State? Example activities include: ● Identifying the nuances and considerations for improved usability (e.g., geographic, temporal, operator processes). ● Determining and documenting lessons learned. ● Developing a business case for use of a crowdsourced data or product and communicating this business case to agency decision-makers and operators. ● Additional capacity-building to ensure continuation (e.g. staff training, funding, etc.).
Institutionalized: The state* has adopted the innovation as a standard practice and uses it regularly on projects.	Has the State positioned itself for long-term sustainability of crowdsourcing for operations? Some options include: ● Establishing policies, processes, or procedures that ensure crowdsourcing is standard practice for the operations application within the state. ● Establishing the long-term funding and sustainability of using crowdsourced data and tools for real-time operations and better planning for operations. ● Regularly sharing results and supporting data related to benefits from crowdsourced data and systems internally with executives and technical managers and externally with stakeholders. ● Sharing lessons learned and best practices with other states.

*** The EDC-6 Crowdsourcing team recognizes your State may be institutionalized in the use of certain crowdsourced data to improve certain operations application areas. We recommend your State identify **new** application areas or data you intend to implement during EDC-6 to improve operations. For these new applications/data, what is your current stage of implementation? This will be your baseline. What does your State hope to accomplish during EDC-6? This will be your goal stage.*

EDC-6 Workshop Questions: Crowdsourcing for Advancing Operations

Q1. Stage of Implementation:

Baseline, January 2021	Two-Year Goal, December 2022
Development	Institutionalized

Innovation Goal:

- Demonstrate an average 15-minute reduction in traffic incident response times.
- Assist in reducing secondary crashes utilizing real-time traveler information system sharing so the public can make alternate route choices.
- Support regional operations collaboration by providing real-time sharing of traffic incident information among the operating agencies in New Jersey.

How will you accomplish this goal in the next two years? What specific and measurable actions can be taken to advance implementation in this time frame?

Baseline Report Implementation Plan		
Activity No.	**Description of Activity**	**Target Completion Date**
1	Establish Oversight Group Define Working Group participants (Mobility Operations Center Staff, Academia). Establish criteria for monitoring, confirming, and entering crowdsourced data into existing traffic management software data sets. Determine available data from NJDOT to provide to crowdsource ISP for a complete dataset.	Within 2 weeks
2	Initiate agreement with crowdsource ISP. Establish access for appropriate Mobility Operations Center staff. Determine program reporting format, frequency, and evaluation.	Within 1 month
3	System Implementation: Data onboarding and integration (2-5 months) Test user phases - training and customization (1-2 months) Full system deployment - including training (1 month)	Within 8 months

State agency	• Amanda Gendek, NJDOT - There are 3 identified activities to be accomplished. How do we accomplish the goals in the next two years? First activity seems to be simple and can be accomplished in 2 weeks. The second we can accomplish within a month, and the third we have given ourselves 8 months. Are we confident we can get these goals completed?

	● Sal Cowan, NJDOT - The Oversight group is pretty set. We had a meeting a few weeks ago with Waycare and were introduced to the team, NJDOT staff was involved as well. The agreement with Waze is a purchase order, NJDOT is working on this as we speak. Access should not be a problem, this will be an ISP web-based platform with no hardware. It does not live on anything related to the State's OIT. Access will be just like accessing Google or another website. You will log in and it will be secure, of course, and there will be user rights for who can see what. The implementation should not be much of a problem. We have to be able to collect various data sources. I had a conversation with data development, Chris Zajac and his team. We went through Safety Voyager which has a lot of the data we are talking about. The biggest thing they will be able to do is analyze historical patterns and compare with crash record data. We need to get them about one year's worth of crash data. There may be an NDA, I believe, but we will work through that. Timing should be fine -- 2-5 months should not be an issue. We should be on track.
Local Agency	N/A
Transportation Partners	N/A
General Comments	● Ek Phomsavath, FHWA - These are good project goals. As you move forward, there is a need to define a measure of effectiveness and some type of performance measure related to achieving the objective and goals of the project. Perhaps looking at the incident time detected by Waycare crowdsourced data and comparing it against CCTV verification time. ● Sal Cowan, NJDOT (Response) - We have a good footing to do this analysis. A number of years ago, we used NJIT through the Department's ITS Resource Center, to compare the data we get out of our TMC. We took a year's worth of data and compared it with the State's crash record data. We took the two data sets and compared them, looking for incidents at a certain date and time in the crash record. We were always off on time 10 -15 minutes, sometimes by more than half an hour.

	Crowdsourcing will help with timing. We can take this report and consider it the baseline, compare it to the accuracy of the timing in the crash records. We can do the same report with TMC data infused with crowdsourcing data, more timely related crash information should be the output. We have a good compare and contrast capability with this information. Baseline vs. crowdsourcing, we got 12% of the crashes in the original report, with crowdsourcing I expect to get a lot more; 100% may not be realistic, but we will see a significant increase, at least double digit maybe even 30 – 40%. The more data we get via crowdsourcing and in-vehicle navigation systems, the more info we will get. TMC data guys record volume in the dataset by looking at a camera and entering data. In preparation for this, I have started to build a platform within my data entry platform that will automatically enter non-recurring delays into my data set so they can handle crashes. Let the computer do the mindless work while they investigate incidents.

Q1b. Focused Topic Questions

1. Does your agency have a traffic operations center (TOC)? If so, what types of data (i.e., citizen calls, ITS field devices, safety service patrol, etc.) do you currently collect and process at the TOC?

State agency	● Sal Cowan, NJDOT - The Statewide Traffic Management Center in Woodbridge operates 24-7. Mobility Operations Center South in Cherry Hill operates 15 hours a day, 5 days a week. NJDOT also operates a 24-7 statewide central dispatch unit emergency call center out of Hamilton. All regular ITS types of data, cameras and the like, is recorded by central dispatch - everything from infrastructure issues, to electrical and signal issues, to vandalism - anything the public or another agency is requesting DOT to fix.
Local Agency	● Vincent Cardone, Monmouth County - The County has no traffic operations center. Website directs to a telephone number to report potholes. Other calls for signal malfunctions come through the radio room operated by the Sheriff's Office. We have two recent

	hires that have experience with traffic operations centers. This is the first step in moving towards an operations center. ● Ek Phomsavath, FHWA (Response) - Citizen calls are a form of crowdsource before the term was even used - first generation crowdsource from the motorist and citizens -Citizen calls, CCTV. ● Sal Cowan, NJDOT (Response) - Crowdsourcing is already institutionalized in New Jersey. NJDOT is an all-in state with regards to the purchase of INRIX probe data. That means NJDOT is footing the bill for any agency to access probe data. Anyone interested in doing it - we have given data to consultants. Since NJDOT pays for INRIX, you have access to it if you ask.
Transportation Partners	N/A
General Comments	N/A

2. Does your agency utilize probe data or crowdsourced data? If so, what types of crowdsourced data are you using?

State agency	N/A
Local Agency	N/A
Transportation Partners	● Jason Simmons, SJTPO - Early this summer, SJTPO is issuing an RFP for a technical study to investigate different ATSPM measures and technology that can be deployed relatively inexpensively. We are looking at different platforms to bring technology into the field and allow our counties more readily available data to enhance the system. Would love to get some additional insight as to what is already available through the State and how it could be incorporated into future work. ● Sal Cowan, NJDOT (Response) - Access to RITIS analytics platform is available. INRIX data is also available, the raw data set. INRIX has a new signal analytics platform available, which may be able to be

	tied onto the State's agreement as a pilot. State DOT is looking at 7,500 lane miles, not every road. SJTPO is a significant partner that may have many more miles in terms of lane miles. The new product can be scalable by price per number of roads. Price is by road - you buy in bulk. Not one cost per service area, it is by road so it is a unique cost. Happy to be part of the conversation if you want to talk to INRIX. ● Ek Phomsavath, FHWA (Response) - Define requirements by needs as you scope your program. With crowdsource data, there is so much coming to us. There may be other data structures that may be meaningful for your operations. ● Jason Simmons, SJTPO (Response) - Because there are so many platforms out there, rather than mining through we are trying to pinpoint important pieces. In terms of developing the RFP, we are trying to take an approach that recognizes needs and where they would like be, having professionals provide what approach they would take to fulfill those needs. This is less of a prescriptive RFP and more open to allowing room for innovation.
General Comments	N/A

3. If your agency is interested in using crowdsourced data, what programs are activities would it support?

State agency	N/A
Local Agency	N/A
Transportation Partners	Jason Simmons, SJTPO - SJTPO is interested in collecting crowdsourced traffic signals and operations data to complement programs and allow our counties more readily available data to enhance the system.
General Comments	N/A

4. What are some needs to pursue crowdsourcing in your agency?

State agency	N/A
Local Agency	N/A
Transportation Partners	● Jason Simmons, SJTPO - Collecting crowdsource data for arterial management. ● Sal Cowan, NJDOT - The data set we will be getting will not necessarily include counts, but will help analyze patterns based on crashes. One of the things we can do is crash forecasting, something never before utilized. Understanding historical crashes related to times of year and times of day is very proactive. We can use both RITIS platform through INRIX and the platform through Transcom which is the SPATEL tool that shows the percentage of the difference between historical and real time data. Non-recurring delays will be determined by the system.
General Comments	N/A

5. Do you have organizational capability or staffing to review crowdsourced data?

State agency	N/A
Local Agency	N/A
Transportation Partners	● Ek Phomsavath, FHWA - From a risk management standpoint, a vendor can provide a data dump, but they also have an analytical tool. You must consider the organizational capability for analyzing and visualizing data. Agency readiness needs to be considered to support the goals and objectives. With Waycare, they are considered to be second generation crowdsource. They are a provider that has a cloud-based computing platform to manage the database and then on the backside, they have a data analytics tool, perhaps supported by AI and machine learning to help visualize the data to support your goals. ● Jason Simmons, SJTPO (Response) - The data side is big unless you have a lot of traffic engineers to mine the data on their own, something SJTPO does not. Nobody has time to do this. ● Ek Phomsavath, FHWA (Response) - from a risk management standpoint, most of the staff are not data scientists. What does this analysis look like with current software and hardware?
General Comments	N/A

EDC-6 Workshop Questions:
Crowdsourcing for Advancing Operations

Q2. Would you be willing to participate in a working group to advance this innovation topic toward its implementation goal? How often should the working group meet? When should the group meet? Who else should be invited to participate in the working group to share knowledge and advance the innovation? Would you be willing to volunteer to lead an effort of this working group?

State agency	N/A
Local Agency	N/A
Transportation Partners	N/A
General Comments	● We ran out of time and did not answer this question.

EDC-6 Workshop Questions:
Crowdsourcing for Advancing Operations

Q3. How should the FHWA and NJDOT work with the Local Public Agencies (i.e., MPOs, counties and municipalities) and other transportation partners (e.g., academic, industry trade, etc.) to advance the innovation? How will your organization be communicating this initiative to your audience?

State agency	● Ek Phomsavath, FHWA -There is always an opportunity for NJDOT and the MPOs to write an article highlighting benefits of crowdsourcing. We have a venue and forum through LTAP related to news articles. NJDOT does a lot of good messaging. Another opportunity would be to incorporate information into the technology transfer newsletter. ● Amanda Gendek, NJDOT - Content is posted and summarized on the technology transfer website. We also have the tech transfer newsletter - emails with newsletters sent 3 or 4 times a year. Any non-NJDOT entities are invited to come to the STIC and share accomplishments or technology related to crowdsourcing. We really want to hear from other agencies about what they are doing. Please let us know how we can showcase that and communicate what is being done. ● Ek Phomsavath, FHWA - We can also leverage MPO email distribution lists and news articles to share news articles with people throughout the state.
Local Agency	N/A
Transportation Partners	N/A
General Comments	N/A

EDC-6 Workshop Questions:
Crowdsourcing for Advancing Operations

Q4. What accomplishments could you share at a future STIC meeting to raise awareness of this innovation topic? (e.g., example initiative, lessons learned, benefits, continuing needs and challenges in advancing through stages of implementation). Are there other relevant innovative initiative topics that you could share that would be of interest to the STIC (e.g., past rounds of EDC)?

State agency	● Amanda Gendek, NJDOT - How can other agencies (NJTPA or consultants) use this data or the products that come out of the use of this data? How can this technology be harnessed? ● Sal Cowan, NJDOT - The Department is issuing a purchase order to Waycare. The Department will share the results of the Pilot and analysis. Options for how we can share; agencies can subscribe to and become a part of the connected citizens program which is dedicated to Waze. There is no data agreement with Waze (NJ will not sign the agreement with Google) and I'm not sure what data is available, but any state, local and county agency can subscribe. From a private perspective, I don't know what a GPI could do to get data that would benefit them. I have looked at the raw data that comes out of Waze and I don't know how to interpret it. Data they provide for review is all of the ingredients, but the sauce is what Waze makes- the product. I'm not sure what non-agency participants can do, but we will show our analysis to show the value of it. iCone is one of the data providers that go (partnering) to Waycare. In North Carolina, they rewrote their construction specs to include at least one or more of the connected devices, at least two of these traffic cones, barrels, or barricades need to have the intelligence to show where the work zone is on traveler info. Info goes to WAZE real time construction info. Jersey City has signed on to the WAZE agreement, and other townships are already involved and have signed off even if the State has not.
Local Agency	N/A
Transportation Partners	N/A
General Comments	N/A

EDC-6 Initiative:
Digital As-Builts.

Digital information, such as 3D design models and other metadata, enhances the future usability of as-built plans for operations, maintenance, and asset management.

Digital As-Builts

Innovation Implementation Stage Definitions **State is all-inclusive (e.g., state transportation agency, local municipalities, consultants, contractors)*	Guidance Questions Prompt questions to help assess your current state of practice. *NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the e-Ticketing and Digital As-Builts Deployment Team w/ questions.*
Not Implemented: The State* has not started planning to implement the innovation of **Digital As-Builts (DABs)**. Examples of DABs data (aka project/asset information models) includes: ● linear reference system and survey information; ● alignments, geometry, and profiles; ● specifications, materials, QA/quantity/payment data; ● pavement structure, thickness, markings, lane width; ● retaining walls, noise walls, sign bridges and other structures; ● drainage (e.g. culverts, inlets, piping, appurtenances); ● utilities/subsurface structures; ● medians, islands, barriers, guard rails, guide rails;	The State does not use and has not planned for implementation of any of the Digital As-Built practices listed below: **Using advanced methods to collect georeferenced digital as-built information.** See DABs example data: ● Using survey tools - GPS/GNSS, LiDAR, UAS, ground penetration radar, SPAR-Subsurface Utility & Pipeline Locator. ● Using e-Construction/mobile devices. ● Via automated machine guidance, intelligent compaction, etc. ● Via O&M inventory practices/GIS. **Using digital delivery practices to create/integrate as-built information and to aid construction:** ● Digital delivery practices to aid construction. ○ 3D model used for: a supporting contract document, construction planning/risk management, real-time digital inspection and payment and augmented reality applications; ○ e-construction/contract administration mobile devices collecting georeferenced construction meta data (e.g. materials/QA, **Using digital as-built applications:** ● Digital As-builts including associated georeferenced construction and other meta data. ○ Using 2D PDF as-builts with, (Note that this is beyond paper and image-based as-builts). ○ Using GIS based as-builts ○ Using 3D model/object based digital as-builts with associated data. **Establishing an asset information management approach (e.g. 'digital twin'):**

	• pedestrian sidewalks, paths; • intelligent transportation systems, freeway traffic management systems; • signals, signs, lighting; • ADA ramps, driveways; • ancillary features (e.g. fencing); • ROW, easements;	• Planning/using an agency data governance, or asset information model approach, to better manage lifecycle asset information for business needs (e.g. 'digital twin') • Collating data from various sources to better manage asset performance throughout its lifecycle. • Optimize collection of asset data that can be reused often. Note: Image-based as-builts that are not searchable and that cannot be associated with metadata are not included in the above-listed practices. State DOTs may use paperless or electronic as-builts and still fall into the "Not Implemented" stage.
	Development Stage: The State* is collecting **Digital As-Builts** guidance and best practices, building support with partners and stakeholders, and developing an implementation process.	Is the State* participating in or conducting any of the following activities towards implementing digital as-builts (DABs) practices? ○ Workshops, webinars, peer exchanges or other training ○ Collecting and reviewing guidance, research and best practices ○ Building support with internal and external partners, stakeholders and vendors ○ Requesting technical assistance ○ Identifying champion(s) and implementation team(s) ○ Identifying opportunities for piloting DABs practices
	Demonstration Stage: The State* is testing and piloting **Digital As-Built practices** on at least one active construction projects, and possibly non-construction projects (e.g. maintenance/operations, utility permitting).	Has the State* conducted or is conducting some of the following tests or pilot activities for implementing **DAB practices** and for collecting DABs information for life-cycle use? ○ Hosting of internal DABs training for staff and/or partners, stakeholders and vendors. ○ Testing and/or piloting of DABs solutions on one or more active construction or non-construction projects. For non-construction, the as-found data is collected outside a construction contract; for example, during maintenance inventory activities. ○ Monitoring of the impact, benefits, costs, ROI, quality and/or safety brought by DABs at the test/pilot location(s).
	Assessment Stage: The State* is using **Digital As-Built practices** on multiple active construction projects, is assessing performance, and adjusting processes for full deployment.	Has the State* conducted or is conducting any of the following assessment activities for implementing **DAB practices** and for collecting DABs information for life-cycle use? ○ Evaluation of the impact, benefits, costs, ROI, quality and/or safety of DABs to determine how to strategically expand implementation. ○ Drafting a DABs implementation and change management plan that addresses people, processes, tools and data management. ○ Consideration or Plans for regular use of DABs practices on applicable design, construction and/or maintenance projects via project specifications, special provisions and contracts.

		○ Plans to incorporate DABs into their manuals, standard specifications, special provisions, contracts language and other documents.
	Institutionalized: The State* has adopted **Digital As-Built** practices as routine operation, uses them regularly on projects, and has integrated their use into manuals, specifications, and contract language where appropriate.	Has the State* conducted or is conducting any of the following adoption activities for implementing **DAB practices** and for collecting DABs information for life-cycle use? ○ Developed specification(s), special provisions, contracts and policies to allow DABs on applicable construction and/or maintenance projects. ○ Considered being a lead state at workshops, webinars and/or peer exchanges on DABs.

EDC-6 Workshop Questions:
Digital As-Builts

Q1. Stage of Implementation:

Baseline, January 2021	Two-Year Goal, December 2022
Not Implemented	Demonstration

Innovation Goal:

- Save significant time and money.
- Implementation plan includes the milestones.

How will you accomplish this goal in the next two years? What specific and measurable actions can be taken to advance implementation in this time frame?

Baseline Report Implementation Plan		
Activity No.	**Description of Activity**	**Target Completion Date**
1	• Prepare a list of required resources and prepare a cost estimate.	October 2021
2	• Identify the funding source and get funding authorization.	December 2021
3	• Reach out to the internal and external stakeholders to get their buy in /input	April 2022
4	• Update the Spec., NJDOT manuals, procedures, flow chart diagram, sample plans if necessary.	August 2022
5	• Start 3-D design/as-builts pilot projects.	December 2022

State agency	• Scott, NJDOT, facilitated the discussion. He noted that initial talks have begun with the team meeting monthly, but the Digital As-Builts (DABs) initiative is currently in the not implemented stage. He then reviewed the activities included in the baseline report implementation plan. • Mahesh, NJDOT, provided an update: o In December met for the first time with FHWA, NJDOT, and several industry consultants to discuss how to implement this innovation. o Held an internal NJDOT subcommittee meeting with reps. from each division. o Reached out to Pennsylvania DOT because they have an aggressive DABs delivery plan to be met by 2025. Will meet with them next month. o The internal team will provide pilot project ideas

	next month. Want to make sure a pilot project meets several functional and business requirements in order to be properly used for a test. One possibility the team discussed would be a pavement resurfacing job that would include ADA ramps as a potential simple project.
	• Question - Has NJDOT done any 3D models yet?
	  ○ Mahesh, NJDOT, responds - NJDOT has not done so yet, but it is the end goal. Initial step is to acquire information/data from our neighboring state (PA) and then will begin our work from scratch.
	  ○ In the next 6 months, the team is working on preparing a list of required resources for DABs including computer software; training; and pilot project expenses. Then cost estimates will be prepared and funding authorization sought.
	• To advance pilot projects:
	  ○ ID pilot project costs and then submit application to FHWA for funding
	• Question - Do we know what projects would be best suited for 3D designs? Also, what projects may be suited that are in the current pipeline?
	  ○ Response - We reached out to various SMEs at NJDOT for input on potential pilot projects; simple and more complex ideas sought - e.g., bridge replacement and large sign structure replacement
	• Question - Can we capture DABs using the 2D plans or do we need to be at 3D level to utilize the concept?
	  ○ Scott, NJDOT responds - We can see more with 3D modeling in terms of utilities, infrastructure, etc. where you would be more limited with 2D. 3D helps more with asset management, can help streamline project delivery, and can provide enhanced historical data.
	• Question - Can we do a hybrid between 2D and 3D in the interim?
	  ○ It is part of the discussion.
	• Question - When will NJDOT utilize 3D as its standard?
	  ○ Mahesh, NJDOT responds - Depends on the results of the pilot projects to some extent and what is learned from the discussions on this topic with PennDOT.
	• Bob, NJDOT - DABs benefits - NJDOT spends much time investigating the current state of the project (before-build) and if as-built plans are not captured correctly it poses challenges that often require much investigation. Having more accurate and accessible as-builts would be an ideal starting point so we don't need to reinvent the wheel every time we revisit a roadway or

	other project. Scott, NJDOT, agrees and notes the benefit of having accurate data available in one place. Bob adds it would increase confidence and eliminate the need to re-survey and re-investigate sites repeatedly.
Local Agency	N/A
Transportation Partners	• Bill, ACECNJ/Urban Engineering, notes that currently, a contractor needs to determine if he is interested in having his work captured in 3D from a risk profile standpoint. Contractually that is not an obligation so this issue needs to be resolved so all parties understand their legal obligations. His group offers 3D now to help the project but are not contractually obligated to do so. NJDOT needs to catch up - e.g. CAD manual from 1980s-90s. Should not be difficult for consultants and contractors to catch up. • Bill, ACECNJ/Urban Engineering, The industry is moving towards 3D design overall - e.g. PennDOT has a digital delivery initiative strategic plan - they will be full 3D by 2025.
General Comments	• The group discussed renaming this initiative ‘3D project delivery or 3D Models’’ instead of ‘Digital As-Builts’ to better reflect the full extent of the innovation. Bill, Urban Engineering, added later that leaving the name as is offers a truncated view of the scale of innovation.

EDC-6 Workshop Questions:
Digital As-Builts

Q2. Would you be willing to participate in a working group to advance this innovation topic toward its implementation goal? How often should the working group meet? When should the group meet? Who else should be invited to participate in the working group to share knowledge and advance the innovation? Would you be willing to volunteer to lead an effort of this working group?

State agency	• The core working group is already meeting monthly to dive into details and advance this initiative. Participants in the working group include Scott Ackerman, Bill McGarrigel, Mahesh Patel, Mike Wright, and Laine Rankin • Folks they plan to talk to on specific topics include: Karlas Ranganathan (CAD); Tim Stuart on GIS; Mary Ameen (NJTPA); Nunzio Merlo from FHWA • Is anyone missing who should be invited to the working group? ○ Construction industry - should reach out to George Lobman (UTCA rep)
Local Agency	N/A
Transportation Partners	N/A
General Comments	N/A

EDC-6 Workshop Questions:
Digital As-Builts

Q3. How should the FHWA and NJDOT work with the Local Public Agencies (i.e., MPOs, counties and municipalities) and other transportation partners (e.g., academic, industry trade, etc.) to advance the innovation? How will your organization be communicating this initiative to your audience?

State agency	• Laine, NJDOT, Should work with LPAs through NJDOT Local Aid. NJDOT Local Aid is tied into various events and stakeholder groups including MPOs; County engineer meetings held quarterly at NJDOT; Society of Municipal Engineers; League of Municipalities via their annual November meeting. NJDOT Local Aid is constantly in contact with these groups. Overall, the Local Aid Resource Center can facilitate LPA interactions.
	• Question - Do we want one of the pilots to be done by a LPA?
	  ○ Laine responds - Very good idea - Camden would be a great choice as they are replacing all of their sewers. To work with the locals however, NJDOT would likely need to provide design assistance or other funding.
	• Scott, NJDOT, notes it will be important to determine what authority each of the different counties and municipalities have when it comes to accepting digital data. Need to keep this in mind: what are the data sharing requirements at the local, state and federal levels? For example, each county seems to have their own playbook on what needs to be a physical copy versus electronic copy.
	  ○ Laine, NJDOT notes that recent legislation was passed in NJ on permitting electronic signatures for LPAs and the group needs to determine if DBAs are covered by that legislation. She added that when locals do a project they are bound by local public contract laws so need to operate within that framework.
	• Data storage issues with LPAs on the back-end need to be determined, too. Not everyone uses the same platform, for example, many use AutoCAD (which does include a 3D component.) In all, it is important to understand that some localities are using more advanced platforms than others and not all local projects are small.

	• Laine, NJDOT, NJDOT Local Aid Resource Center houses information for LPAs in a one-stop virtual location and encompasses a website, social media, and other resources including a telephone helpline. These resources are being expanded to include videos to convey important messages and advance LPA knowledge - e.g. a specification video is now available.
Local Agency	N/A
Transportation Partners	N/A
General Comments	N/A

EDC-6 Workshop Questions:
Digital As-Builts

Q4. What accomplishments could you share at a future STIC meeting to raise awareness of this innovation topic? (e.g., example initiative, lessons learned, benefits, continuing needs and challenges in advancing through stages of implementation). Are there other relevant innovative initiative topics that you could share that would be of interest to the STIC (e.g., past rounds of EDC)?

State agency	• Highlight best practices and share how challenges were overcome. • Scott, NJDOT, share milestone achievements, including when pilot projects are selected and selection criteria utilized; pilot implementation. • Laine, NJDOT, notes, and the group recognizes, that this initiative reflects a big programmatic effort that is currently at step zero. • Bob, NJDOT, conveyed that the DABs initiative champion (Mahesh, NJDOT) should plan to share status updates at upcoming STIC quarterly meetings - accomplishments so far; what working on now; goals for next quarter. Also provide Helene at FHWA with semi-annual updates that summarizes progress; and perhaps share a highlight initiative at a STIC meeting. On another level, the group will help determine if this idea works and has value for NJDOT. NJDOT senior management will be engaged to determine if they want to pursue DABs after learning from the team. He reminds the group that their role is to investigate the innovation; evaluate it for value; and explain what needs to be undertaken to make it part of NJDOT's SOP. Mahesh, NJDOT, agrees. • Laine, NJDOT, reiterates that this is a big programmatic effort that is at step zero currently, so it is difficult to quantify at this time the level of information that the team will be able to share each quarter with the STIC. Bob, NJDOT, acknowledges and agrees with Laine's comments and shares that some more complex EDC-3 initiatives are still being worked on.
Local Agency	N/A
Transportation Partners	• Keith, FHWA, share benefit-cost analysis findings to help determine if DABs are a good fit for NJDOT and

	LPAs - maybe compare a 3D model project to a regular delivery project to see if time and/or cost savings are achieved with the former. ● Bill, Urban Engineering, shares that 3D digital delivery is a program and is bigger than 3D as-builts - maybe consider strategic plan development like PennDOT. PennDOT has a group dedicated to this program. Mahesh, NJDOT, agrees - many resources required for this program. More decisions will be made following review of pilot project options.
General Comments	● Bob, NJDOT, notes that DABs were originally paired with e-ticketing as a singular initiative but they are on two distinct paths at this point.

EDC-6 Initiative

e-Ticketing

Converting paper-based materials ticketing systems and as-built plans into electronic (e-Ticketing) workflows and digital as-builts enhances the accessibility of highway project data. e-Ticketing improves the tracking, exchange, and archiving of materials tickets.

e-Ticketing

Innovation Implementation Stage Definitions **State is all-inclusive (e.g., state transportation agency, local municipalities, contractors, consultants)*	Guidance Questions Prompt questions to help assess your current state of practice. *NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the e-Ticketing Deployment Team w/ questions.*
Not Implemented: The State* has not started planning to implement the innovation of **e-Ticketing (e-T)**.	

Development Stage:
 	
The State* is collecting **e-Ticketing** guidance and best practices, building support with partners and stakeholders, and developing an implementation process.
	• Has the State* performed any of the following activities for the purposes of implementing e-Ticketing?
	  ○ Collected and reviewed e-T information, guidance, research, and best practices
	  ○ Participated in e-T training
	  ○ Participated in e-T peer exchanges or workshops
	  ○ Building e-T support with internal and external partners, stakeholders, and venders
	  ○ Requested e-T technical assistance
	  ○ Identified an e-T champion and implementation team

Demonstration Stage: The State* is testing and piloting **e-Ticketing** on several active construction projects.	• Has the State* established an e-T Champion and an active implementation team? • Has the State* hosted internal e-Ticketing training for staff and/or stakeholders? • Has the State* tested and/or piloted e-T solutions for asphalt mixture, PCC, aggregates, other materials, or components on several active construction projects? • Is the State* evaluating the impact, ROI, quality, integrity, and/or safety of e-T at test/pilot locations?

	Assessment Stage: The State* is using **e-Ticketing** on multiple active construction projects, is assessing performance, and adjusting processes for full deployment.	● Does the State* consider e-Ticketing for regular use on applicable construction projects via a project special provision for either asphalt mixtures, PCC, aggregate, other materials, or components? ● Does the State* plan to incorporate e-T into their manuals, standard specifications, contract language, or other documents?
	Institutionalized: The State* has adopted the **e-Ticketing** as a standard practice, uses it regularly on projects, and integrated its use into manuals, specifications, and contract language where appropriate.	● Does the State* have a specification or other policy that allows contractors to use e-Ticketing on applicable construction projects for materials (asphalt mixtures, PCC, aggregates, other materials, or components) incorporated into the construction project? ● Has the State* incorporated e-T into their policy, procedures, manuals, standard specifications, contract language, or other documents? ● Has the State* been a lead state at e-T workshops, webinars, or peer exchanges? ● For bid items that are paid based on weight or volume ***and*** e-T is used to accept these quantities, has the State* developed a process to independently verify the quantity information on the ticket?

EDC-6 Workshop Questions: e-Ticketing

Q1. Stage of Implementation:

Baseline, January 2021	Two-Year Goal, December 2022
Development	Demonstration

Innovation Goal:
Success in two years would be full implementation of a fairly priced easy to use e-ticketing system that decreases the need for field inspection staff to be anywhere near moving vehicles to collect tickets. As a bonus, the accuracy of ticketing would really increase.

How will you accomplish this goal in the next two years? What specific and measurable actions can be taken to advance implementation in this time frame?

Baseline Report Implementation Plan		
Activity No.	**Description of Activity**	**Target Completion Date**
1	Assess Vendors for possible use	Summer 2021
2	Obtain Funding to Contract Vendor	Summer 2012
3	Select Qualified Vendor	Fall 2021
4	Procure Vendor	Spring 2022
5	Obtain Funding for User Hardware (2-in-1 and cell phones)	Summer 2022
6	Procure Hardware	Summer 2022
7	Pilot e-Ticketing	Fall 2022
8	Assess Pilot Program	Winter 2022
9	Train Staff of Hardware and Program	Spring 2023
10	Implement e-Ticketing Program	Summer/Fall 2023

State agency	• Thomas Berryman (NJDOT Local Aid/South) – Mr. Berryman expressed concerns about how e-Ticketing protocols would be rolled out to local public agencies (LPAs) as well as contractors who work with the LPAs. He cited the current procedures such as at oversight inspection, when local contractors must supply all documents (tickets, resources, etc.). He asked if e-Ticketing will be part of NJDOT specifications for projects implemented by LPAs? • Yes, according to Valerie Brown (moderator).

	• Berryman: This will be a hurdle for NJDOT Local Aid. He foresees that local agencies will have difficulties in implementing e-Ticketing procedures. • V. Brown: Steps will be taken to overcome hurdles including: piloting, training efforts geared toward LPAs and contractors. • Berryman: These steps seem do-able. Still, he has concerns about the local agencies. • V. Brown: NJDOT wants to have trainings, etc. that would be all-inclusive. • Kimbrali Davis (NJDOT aeronautics) – Using e-Ticketing would likely be of interest to aeronautics, aviation, and she would like to explore its applicability. She believes that it could be used for safety inspections and as part of their real-life observations. She asked "How do we create dashboards to make the info "out-facing" via website, etc. such as safety on light rail systems?" • V. Brown: Yes, there is likely applicability and that exploring this is a related goal to the e-Ticketing work of her office. • Gary Zayas (NJDOT/Information Technology) – In the past, there have been issues of security in the use of cloud services. He raised questions about information backup, access, switching between products (as well as updates), the application of Federal guidelines for security [these are defined as low, medium, high and NJDOT information generally falls under the medium threshold], the need for internal data warehouse, and issues that arise when data is held by external entities and NJDOT needs to "get data back," (which can require additional payment). • V.Brown: AASHTOware software/infotech has been selected for implementation of e-Ticketing. This vendor has been utilized by NJDOT for other products and has already been vetted.
Local Agency	N/A
Transportation Partners	• Mary Ameen (NJTPA) – NJTPA and other MPOs are interested in the use of cloud-based data to promote information sharing between stakeholders. She believes that anything that can be done to make it easier to access information and to make it more accurate, faster to collect and distribute, and safer to collect is helpful and helps to promote the work done by the MPOs.
General Comments	N/A

EDC-6 Workshop Questions:
e-Ticketing

Q2. Would you be willing to participate in a working group to advance this innovation topic toward its implementation goal? How often should the working group meet? When should the group meet? Who else should be invited to participate in the working group to share knowledge and advance the innovation? Would you be willing to volunteer to lead an effort of this working group?

State agency	• V. Brown: There will be an e-Ticketing working group and she has "volunteered" two of her staff to take part: David Simicevic and Ryan Greaux. • D. Simicevic (NJDOT/materials) – Mr. Simicevic suggested that e-Ticketing would be beneficial to closeout group. • V. Brown agreed. • R. Greaux (NJDOT) – Introduced himself and reiterated that he has worked and will continue to be working with V. Brown on implementation of AASHTOware. • K. Davis asked if the data and software would be hosted internally (within NJDOT) or externally (with the vendor)? • V.Brown: Answering this is part of development of the initiative. NJDOT wants to pose questions to other states about their interaction with vendors, procedures and policy. She believes that there are lessons learned about the use of internal (state DOT) servers, implementation of software updates, etc. There are also new issues that NJDOT will need to deal with if/when adopting cloud-based computing as the agency has in the past had issues with its firewall when software updates have been implemented. • V. Brown explained further that NJDOT already uses similar software for estimations and preconstruction, which cloud-based (Infotech, which is an AASHTOware product). In this case, NJDOT owns the data. Moreover, her office no longer needs to work with NJDOT OIT to use and update the software. The data are saved on two servers, which NJDOT OIT backs up every night.
Local Agency	• M. Ameen: Ms. Ameen regretted that she could not devote much time to a working group, but offered to name a member of her staff who could volunteer participate on a working group, someone involved with

	the TIP or local programming. She wants to encourage all efforts that aim to shorten project development time, especially at the front-end (concept and scope). She would encourage the use of milestones drawn from the most significant steps in the process, such as picking the vendor.
Transportation Partners	N/A
General Comments	N/A

EDC-6 Workshop Questions:
e-Ticketing

Q3. How should the FHWA and NJDOT work with the Local Public Agencies (i.e., MPOs, counties and municipalities) and other transportation partners (e.g., academic, industry trade, etc.) to advance the innovation? How will your organization be communicating this initiative to your audience?

State agency	• T. Berryman: It will be very important to communicate with LPAs. NJDOT Local Aid does this when there are notifications from FHWA. He also suggested: outreach through the League of Municipalities, county engineers, etc. NJDOT is in the process of communicating information on the use of the Project Management and Reporting System (PMRS aka e-builder) to the LPAs now. The NJDOT Local Aid offices talk to the LPAs frequently in order to convey information to the LPAs. He also suggested that NJDOT should begin this conversation through an official NJDOT departmental communication, i.e., letter, and that the information could be communicated through SAGE (System for Administering Grants Electronically). • V. Brown agreed that the info needs to be shared to all who will be involved including the LPAs.
Local Agency	• M. Ameen suggested that the EDC-6 initiative may open up additional resources. Moreover, other states, other STICs, may have best practices, success stories to share. And this work would make a good topic for discussion at MPO collaboration meetings and quarterly gathering, both of which are well-attended. • She also suggested that NJDOT pursue active engagement in order to effectively share information. Consider presenting at the county engineer meetings, where you are likely to hear specific questions from those who would be involved. Other opportunities include peer exchange opportunities and the MPO regional advisory committee. Ultimately the goal should be to systematically address the obstacles to implementation.
Transportation Partners	N/A

General Comments	From plenary (via comments): • Laine Rankin (NJDOT): It would be extremely helpful it all the items to convey to the locals could be compiled into one document. Local Aid can be the conduit to reach out. For example, we have a quarterly meeting at DOT (virtual) for the County Engineers. We are always looking for presentations. Also, we have a booth at the League of Municipalities in November to convey information. We can also post or link from our Local Aid Resource Center website.

EDC-6 Workshop Questions:
e-Ticketing

Q4. What accomplishments could you share at a future STIC meeting to raise awareness of this innovation topic? (e.g., example initiative, lessons learned, benefits, continuing needs and challenges in advancing through stages of implementation). Are there other relevant innovative initiative topics that you could share that would be of interest to the STIC (e.g., past rounds of EDC)?

State agency	• V. Brown: NJDOT held a meeting with FHWA and stakeholders from other states at a peer exchange. Another peer exchange to engage internal stakeholders would be fantastic.
Local Agency	• M. Ameen: NJDOT might want to look at the implementation of other innovations for guidance, particularly those that moved the agency from work that was done manually and is now done "electronically", such as I-cone – look at e-innovations that move from analog to electronic formats. NJDOT may also want to look toward its neighbors for inspiration, such as Pennsylvania (perhaps contact John Ward at DVRPC).
Transportation Partners	N/A
General Comments	N/A

EDC-6 Initiative:

[Next-Generation TIM: Integrating Technology, Data, and Training]

Traffic Incident Management (TIM) programs aim to shorten the duration and impact of roadway incidents and improve the safety of motorists, crash victims, and responders. New tools, data, and training mechanisms are available that can benefit both new and existing TIM programs, including local agency and off-interstate applications.

Innovation Implementation Stage Definitions **State is all-inclusive (e.g., state transportation agency, local municipalities, contractors, consultants)*	Guidance Prompt questions to help assess your current state of practice. *NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the Next Gen TIM Deployment Team w/ questions.*
Not Implemented: The State* is minimally supporting TIM training and is collecting little to no TIM data. TIM on local roadways is not being considered and no NextGen TIM technologies have been implemented.	Little or no TIM program support on local roadways. Limited to no use of the following **NextGen TIM technologies**: • **Computer-Aided Dispatch (CAD) Integration** – Little or no sharing of information between public safety and Transportation Management Centers (TMCs) beyond occasional phone calls or email. • **Unmanned Aircraft Systems (UAS)** – Not used for TIM or crash mapping and state laws may preclude use. • **Video Sharing** – Sharing of video between dispatch centers/TMCs and on-scene responders does not occur. • **Responder-to-Vehicle (R2V) Alerts** – Not utilizing any type of R2V alert systems.
Development Stage: The State* is providing some TIM training and collecting TIM data. Efforts are underway to collect information, build support, or develop an implementation process for local TIM elements and/or one or more NextGen TIM technologies.	Are Local TIM programs being considered? Have some TIM program elements been used on local roadways on a small scale? Is your State evaluating use of NextGen TIM technologies? • CAD Integration – Incident information is routinely provided by public safety agencies to TMCs via phone, email or other similar method. • UAS – May be used by public safety agencies, but not for TIM or crash mapping. • Video Sharing – Evaluating technologies required to allow video sharing. • R2V Alerts – Evaluating existing alert technologies.

Innovation Implementation Stage Definitions **State is all-inclusive (e.g., state transportation agency, local municipalities, contractors, consultants)*	Guidance Prompt questions to help assess your current state of practice. *NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the Next Gen TIM Deployment Team w/ questions.*
Demonstration Stage: The State* is regularly providing TIM training and exploring ways to use TIM data. Local TIM elements and/or one or more NextGen TIM technologies are being piloted.	Are some TIM program elements being supported on local roadways in a single metro area? Is your State piloting use of NextGen TIM technologies? • CAD Integration – TMC operators can view public safety CAD data via a public or media interface. • UAS – Experimentation with UAS for TIM or crash mapping. • Video Sharing – Experimentation with video sharing between TMCs and on-scene responders. • R2V Alerts – Actively testing R2V alert technology.
Assessment Stage: The State* has a foundation of TIM training and TIM data use, has deployed local TIM Program elements and one or more NextGen TIM technologies, and is assessing performance and adjusting any processes for full deployment.	Are formal TIM program elements present on major local roadways? Are these programs being considered or tested on other roadways and/or in other areas? Is your State assessing and refining use of NextGen TIM technologies? • CAD Integration – Public safety CAD data is provided to the TMC via a dedicated feed, but requires operator review, entry or copy. • UAS – Actively used for TIM and/or crash mapping, but is not used by all agencies, or is not the technology of choice. • Video Sharing – Actively sharing video and the technology is being evaluated. • R2V Alerts – Alert technology has been deployed and is being evaluated.
Institutionalized: The State* has established TIM training as a standard practice and implemented training requirements, is regularly using TIM data to support operations, and has adopted local TIM elements and two or more NextGen TIM technologies as standard practice.	Are formal and funded TIM program elements, including TIM training and data, on all local roadways? Has your State implemented two or more NextGen TIM technologies as standard practice? • CAD Integration – Data is automatically transferred to the TMC from public safety agencies, and an event can be created in the TMC software if applicable. • UAS – Use is legally permissible and used for crash mapping, or other TIM purposes, as a matter of practice. • Video Sharing – Video from the TMC is shared with on-scene response personnel, and vise versa, as a routine part of operations. • R2V Alerts – Warning systems are implemented and widely used.

EDC-6 Workshop Questions:
Next-Generation TIM

Q1. Stage of Implementation:

Baseline, January 2021	Two-Year Goal, December 2022
Development	Demonstration

Innovation Goal:
The goal of the project includes the reduction of incident response time by 15% and duration by 15%.

How will you accomplish this goal in the next two years? What specific and measurable actions can be taken to advance implementation in this time frame?

Baseline Report Implementation Plan		
Activity No.	**Description of Activity**	**Target Completion Date**
1	Request implementation schedule of the NJSP CAD system deployment.	Within two weeks
2	Perform systems engineering analysis and define user needs/requirements.	Within 4 months
3	Develop scope of work and implementation schedule	Within one year

State agency	• CAD integration – NJDOT has implemented T-Rex, and is holding conversations with State Police related to what communications will be shared (two-way, one direction), or if NJDOT will just be receiving data from the State Police. There are questions about what communication is private or proprietary, and so what can be shared. NJDOT is working on establishing radio channels to enable the agency and the police to talk to each other at an incident site to improve coordination.
Local Agency	N/A
Transportation Partners	• DVRPC – We are not an operator and so we have no access to data, and we do not develop data. We have no involvement with the CAD systems. We do have Regional Integrated Multimodal Information Sharing (RIMIS) – we use the platform to share information among agencies including NJDOT, PennDOT, and

	SEPTA. We provide video feeds from NJDOT cameras to local fire departments to provide more clarity about an incident. We facilitate sharing of information. DVRPC has a few area-generated task forces that meet to talk about how to respond to incidents better or how to improve situations. • In the NJTPA region, a task force was formed for the Rt. 495 project to help assist with reacting to any incidents during the project. The group was set up to work with towns and counties impacted by the various project phases. The project is about to end, but they are hoping to have the group continue and discuss how to improve coordination of communication among the towns, counties, and NJDOT. Examples of communication include giving advanced warning about upcoming projects, or asking for help in accessing information. The group includes the Port Authority and NJ TRANSIT. People working together through these groups improves trust and they are working together better. • Because DVRPC task forces are area-generated rather than project-generated, they can serve as a model for task forces in other regions.
General Comments	N/A

EDC-6 Workshop Questions:
Next-Generation TIM

Q1b. Focused Topic Questions

1. NJDOT established a Statewide TIM training program in support of EDC-2 (2013 – 2014). Has your agency participated in the NJ TIM training program?

State agency	• We are working toward participation by all local agencies in the TIM training course. Local agencies, fire departments, and other state agencies have participated.
Local Agency	N/A
Transportation Partners	• DVRPC helped to develop the training course with NJDOT and FHWA.
General Comments	• The State Police has a component on traffic incident management as a part of officer basic training.

2. NextGen TIM has four components: CAD integration, UAS, Video Sharing, and Responder to Vehicle (R2V) alerts to enhanced TIM operations. Which one of the four components would your agency be interested in deploying?

State agency	• CAD – developing with state police (Development) • UAS – Incident Management Response Team (IMRTs), not used for regular situations, but used for I-495 to see traffic patterns (Assessment) • Video sharing - through TRANSCOMM (Institutionalized) • R2V – iCONE project – new model devices being installed, using WAZE (Assessment)
Local Agency	N/A
Transportation Partners	• DVRPC has video sharing (see question below).
General Comments	N/A

3. Are any agencies participating in the DVRPC MPO's Regional Integrated Multi-Modal Information System (RIMIS) video sharing system? It is a web-based information exchange network connecting traffic and transit operation centers, etc. in the Delaware Valley region. Member agencies can view the region's transportation system through detailed databases, congestion maps, and real-time traffic videos.

State agency	• NJDOT Cherry Hill is able to access and view DVRPC cameras (RIMIS).
Local Agency	• Local fire departments and the Delaware River Port Authority have access to DVRPC information.
Transportation Partners	N/A
General Comments	N/A

4. Any agencies using the UAS for crash reconstruction and situational awareness?

State agency	• DOT does not plan to utilize UAS for crash reconstruction. If they have situational awareness recorded, the information can be reviewed at a later date, but would not be used for analysis of the incident.
Local Agency	N/A
Transportation Partners	• DVRPC – no involvement
General Comments	N/A

5. If your agencies are deploying UAS, is it administered within the law enforcement or transportation offices?

State agency	• Transportation office • NJDOT uses UAS technology throughout the agency through the Bureau of Aeronautics
Local Agency	N/A
Transportation Partners	N/A
General Comments	N/A

EDC-6 Workshop Questions:
Next-Generation TIM

Q2. Would you be willing to participate on a working group to advance this innovation topic toward its implementation goal? How often should the working group meet? When should the group meet? Who else should be invited to participate in the working group to share knowledge and advance the innovation? Would you be willing to volunteer to lead an effort of this working group?

State agency	• Coordination with Kim Davis (Bureau of Aeronautics - UAS) • Sal Cowan (Transportation Mobility)
Local Agency	N/A
Transportation Partners	N/A
General Comments	• Invite local agencies to participate. • TIM group has meetings with stakeholders every 6 months. • Outreach to media to increase awareness of incident management among media representatives; they are looking at media as partners who can communicate information to all in NJ. • A bumper sticker was created to promote the Move Over Law. Could work on additional outreach through social media on Move Over Law.

EDC-6 Workshop Questions:
Next-Generation TIM

Q3. How should the FHWA and NJDOT work with the Local Public Agencies (i.e., MPOs, counties and municipalities) and other transportation partners (e.g., academic, industry trade, etc.) to advance the innovation? How will your organization be communicating this initiative to your audience?

State agency	• Through training and raising awareness of what the DOT is doing. • Through continuation and support of task forces to reach people in their communities. • DOT is working on creating task forces in areas other than 495, but not wanting to spread too thin.
Local Agency	N/A
Transportation Partners	• MPO Technical Advisory Committees – municipal and county planners and engineers meet. There could be a 10 minute presentation to get the word out on TIM. DVRPC has done this but not for a while; it makes sense to get a TIM presentation back on their agenda. • DVRPC can also let people know through the Regional Safety Task Force meetings.
General Comments	N/A

EDC-6 Workshop Questions:
Next-Generation TIM

Q4. What accomplishments could you share at a future STIC meeting to raise awareness of this innovation topic? (e.g., example initiative, lessons learned, benefits, continuing needs and challenges in advancing through stages of implementation). Are there other relevant innovative initiative topics that you could share that would be of interest to the STIC (e.g., past rounds of EDC)?

State agency	• Training – we want to have as many people trained as possible. We could do a presentation to raise awareness of training. • When established, a presentation on Waycare Traffic Management System could be shared. • Detour routing could be a future topic. DVRPC uses IDRuM and is finished with updates. NJDOT is still working on the updates. The process includes checking the existing route, and talking to locals, which provides an opportunity to introduce the TIM program.
Local Agency	N/A
Transportation Partners	• DVRPC – the RIMIS system and how the agency is sharing video could be a topic for presentation. Contact: Chris King cking@dvrpc.org
General Comments	• iCONE has already been presented. • Weather savvy has been presented.

EDC-6 Initiative:
Strategic Workforce Development.

The demand for highway construction, maintenance, and operations workers is growing, while at the same time, emerging technologies require these workers to have new skills. The ***Highway Construction Workforce Partnership*** has developed new resources and innovative strategies for identifying, training, and placing individuals in the Contractors' workforce filling the construction jobs that support the Nation's highway system.

Innovation Implementation Stage Definitions **State is all-inclusive (e.g., state transportation agency, local municipalities, contractors, consultants)*		Guidance Questions Prompt questions to help assess your current state of practice. *NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the Strategic Workforce Deployment Team w/ questions.*

	Not Implemented:
	
	The State* has not started planning to implement a Strategic Workforce Development initiative.
		• Describe the reasons for not implementing a contractor workforce development initiative in your state.
		
		• Does the State lack the internal resources to undertake the initiative?
		  ○ Was there minimal industry interest to begin discussions on the potential benefits of a contractor workforce development initiative? If there was minimal interest expressed by the industry, why is this so? Please explain.
		  ○ Was there difficulty in finding an organization to take the lead for the initiative?
		  ○ Did you determine your near-term or long-term contractor workforce needs within the state and determine that the need was low? Please explain.

	Development Stage:
	
	The State* is participating in webinars and peer exchanges, collecting guidance and best practices, developing an implementation process, and building support.
		• What are the near-term and long-term contractor workforce needs of the state? More specifically, have you determined statistics such as:
		  ○ Average annual state-wide construction labor shortage
		  ○ Number of available construction jobs within the state?
		  ○ Top 3 craft positions with the greatest need? (Construction Inspectors, Field Soils and Material Testers, Masons, Pile Drivers, Field Surveyors, Heavy and Tractor-trailer Truck Drivers, Construction Labors, other …)
		• What contractor workforce strategies are advancing? (examples: improving statewide contractor talent pipelines, reskilling the contractor workforce, expanding contractor apprenticeships and other credentialing efforts, high school engagement/summer internships, addressing the long-term needs of emerging technologies, etc.)

	Note: To respond to some of these questions, you may need to reach out beyond your work group to industry stakeholders to gather the information.	• How did you obtain your partners? What type of outreach was performed? Are there documented efforts of outreach that can be shared? • Do the potential partners supporting this initiative represent a broad statewide coalition? • Have you or are you developing a Memorandum of Understanding or charter between the statewide partners? ○ Does this include identifying the initiative lead and a working group? • Have partners participated in workshops, webinars, or peer exchanges on construction workforce development? • Is the partnership collecting lesson learned and best practices, and/or developing a framework to address critical construction workforce needs in the state? • Is there specific information on existing programs and products that the partners need?

	Demonstration Stage:
	
	The State* is testing and piloting the innovation.
		• How does the program pilot address workforce problems faced by construction contractors within the state?
		• Do you know the projected construction workforce hires needed over the next two years?
		• What fields or craft positions do the workforce efforts focus on? (Concrete Finishers, Pile Driver, Field Surveyor, heavy and tractor-trailer truck drivers, construction laborers, …)
		• List the name of your initiative partners.
		• Provide the name of the partner that is identified as the lead organization for the initiative.
		• Are the partners attending and/or co-sponsoring career fairs, construction career days or other similar events?
		• Have you identified a pool of candidates for your specific workforce effort? If yes, please share any issues you may have encountered during development.
		  ○ Have you determined how to identify/recruit candidates for your program?
		  ○ Have you set up participant options for training, employment or advancement?
		  ○ Do you have a method developed to assess participant skills?
		  ○ Do you have construction firms ready to place participants?
		  ○ What is the projected length of your pilot efforts?

	Assessment Stage:
	
	The State* is assessing the performance of the innovation and adjusting any processes for full deployment.
		• Do you have an effective strategy to evaluate your efforts to increase the contractor workforce?
		• Have you implemented workforce clauses or incentives within your construction contracts? If yes, what examples can you share?
		• At a minimum, please provide the following statistics as an outcome of your contractor workforce initiative.
		  ○ # of participants enrolled in workforce programs.
		  ○ # of participants successfully completing workforce programs.
		  ○ # of participants successfully attaining credentialing.
		  ○ # of participants placed in employment.
		  ○ 3-month (90 days) retention rate

		○ 6-month (180 days) retention rate ○ Average state median wage rate. ○ Percent salary increase over state median wage at placement ○ # of participants in apprenticeship. ○ Average time to complete apprenticeship. ○ # of participants projected to meet journey worker status in the next two years. ○ Percent industry participation (# of participating contractors / # of state registered contractors) • What barriers have you experienced when individuals are not advancing in the program?
	Institutionalized: The State* has adopted the innovation as a standard practice and uses it regularly on projects.	● Have you shared your success, programs, and best practices with others? ● Are your partners willing to mentor others that are setting up similar programs? ● Will you be looking to expand existing workforce programs in the near future? ● What benefits has industry within the state realized by institutionalizing your workforce programs, i.e. what is your success story?

EDC-6 Workshop Questions:
Strategic Workforce Development

Q1. Stage of Implementation:

Baseline, January 2021	Two-Year Goal, December 2022
Assessment	Institutionalized

Innovation Goal:

- Expanded innovation focus to meet additional workforce development needs in NJ
- Implemented training program to capture skills gaps, institutional knowledge at both the technical and management levels
- Partnerships with outside sources (FHWA, others) to provide skill-specific training to develop/add skills

How will you accomplish this goal in the next two years? What specific and measurable actions can be taken to advance implementation in this time frame?

Baseline Report Implementation Plan		
Activity No.	**Description of Activity**	**Target Completion Date**
1	Reinvigorate succession planning programs to address workforce development in managerial skills	June 2022
2	Follow up with national and local organizations outside of DOT, FHWA to include a more local perspective; also include AASHTO sources to tie in to their national experiences, best practices; these can include professional organizations such as ITE, ITS, ASCE to capitalize on their members/student organizations for hiring.	December 2021
3	Develop new training/apprenticeship programs for construction skills; should include union, DOL, other contracting associations e.g. UTCA	June 2022
4	Advance NJDOT Civil Rights programs performing outreach in underserved communities, including one for beautifying streetscapes (Urban Youth Core Program, TRAC and RIDES Programs [AASHTO endorsed]); mentoring program within department pairing new and experienced staff; (PEDI – program for professional engineers)	June 2022
5	Take advantage of FHWA DFS T2 funds that can be used to get NHI courses	December 2021
6	Partner with workforce development boards, vocational schools, community colleges and universities for recruitment	June 2022

State agency	• Internal to NJDOT workforce development:
	  ○ Michelle Shapiro (NJDOT HR). Looking into launching a leadership training effort to kick off in the Fall of 2021;
	• Michelle Shapiro (NJDOT HR) created highway operations technician positions; we made adjustments to those titles and created "trainee" level positions at the entry-level; we are teaching them what we need them to know on the job; it's all on the job training coupled with some classroom training. There is some classroom training at every level going up to the supervisory levels. The trainee has both classroom and on-the-job training and must meet a certain standard at every level before moving up. This training track was implemented in 2015 and has been in-place until Covid-related freezes. This is a civil service apprenticeship program.
	• Michelle Shapiro. On the construction-side, we created an "apprentice" title that will start to roll out in a few months that is a non-competitive, two-year term program including on the job training.
	  ○ NJDOT is also exploring what it is required for developing a training program for construction inspection / maintenance and is going to participate in a research and national pilot for construction and maintenance inspection technician "apprentice" title. Kelly Hutchinson and someone else from our training team will participate in focus groups this year in April.
	  ○ We expect that the candidate pool can be broadened through this approach.
	  ○ In answer to a later question from ACCNJ, NJDOT may have some interest in safety-related classroom training.
	• Elkins Green (NJDOT). Mentioned that might be an opportunity to connect individuals and the funded non-profit organizations currently participating in the successful Youth Corp program. It has been discussed in the past that Youth Corps could be a good source for connecting participants with future job opportunities at NJDOT. The Youth Corps program has given youth participants exposure to landscaping and minor construction at NJDOT at gateways in the summer months
	  ○ Michelle agreed that HR should coordinate further with Civil Rights to connect the participants in the Youth Corps. She noted that advertisements for highway operations trainees (January / February each year) and they develop a hiring list for the entire year; something similar is contemplated for the construction inspection titles.
	• Chrystal Section (NJDOT) mentioned that there is an application deadline in mid-April. There is a good template for this.
	
	• In response to a question on why the training program for highway operations was established, there were more vacancies

	than people applying for positions. Impediments were "experience" requirements and "testing" requirements that could not keep with our demand.
Local Agency	• Greg Whitehead, Lawrence Township commented that they try to hire folks at the basic level and train them in the skills they will need for their positions (e.g., CDL, pesticide license, etc.). It is difficult to find candidates for some positions; they are looking at all parts of the recruitment process to attract new hires. There is a lot of turnover in some mission-critical jobs like heavy equipment operators and those who come in at the entry level receive training or licenses and then leave. Our preferred approach these days is bring folks into "trainee" position and do additional trainings to prepare the trainee. o Greg noted that the non-competitive positions can be problematic for more skilled positions (e.g., heavy equipment). Being hired provisionally can lead to persons being employed for 6 months to a year and then having to be let go if they do not place among the top 3 for the position. o Michelle Shapiro explained that NJDOT controls when the testing will occur and works off its own list to avoid the situation in which a person holds a position "provisionally" NJDOT established its own practical testing; the traditional Civil Service written test was replaced by oral exam at the higher levels, and the practical skills testing is conducted on NJDOT equipment Admittedly NJDOT is bigger.
Transportation Partners	• Jill Schiff, Associated Construction Contractors of NJ (ACCNJ) -- relies on the unions for recruiting in skilled trades such as heavy equipment, not lacking in applications / candidates for operating engineers (e.g., equipment operator) or laborers for highway projects (2000 apps for 500 opportunities); no shortages on the registered apprenticeship union side. • On the management side, they offer an internship program (e.g., inspectors, resident engineer) and recruit from 2- and 4-year higher education institutions. They have 60 persons in the internship program graduating on the management side. They have offered to help find people to fill needed positions for the government agency openings.
General Comments	• DOT -- Focus from FHWA for this initiative is to fill locally-specific highway construction jobs.

EDC-6 Workshop Questions:
Strategic Workforce Development

Q2. Would you be willing to participate on a working group to advance this innovation topic toward its implementation goal? How often should the working group meet? When should the group meet? Who else should be invited to participate in the working group to share knowledge and advance the innovation? Would you be willing to volunteer to lead an effort of this working group?

State agency	• DOT -- Multiple units are interested in serving including HR, although Michelle will be retiring from NJDOT soon. Other NJDOT Volunteers included J. Longworth, N. Jones, C. Feinthel specifically. • Chris Feinthel had been involved in the Urban Youth Corps program in the past and would be interested in continuing in that effort, as well. • Robert Marshall indicated that CPM should be interested in participating
Local Agency	• Lawrence Township—Greg Whitehead interested in serving.
Transportation Partners	• NJ Local Technical Assistance Program- Janet Leli interested in serving. • ACCNJ - J. Schiff expressed willingness to participate.
General Comments	• Frequency and format TBD; participants should consider other possible partners/representatives that could add value to this working group.

EDC-6 Workshop Questions:
Strategic Workforce Development

Q3. How should the FHWA and NJDOT work with the Local Public Agencies (i.e., MPOs, counties and municipalities) and other transportation partners (e.g., academic, industry trade, etc.) to advance the innovation? How will your organization be communicating this initiative to your audience?

State agency	• NJDOT, N. Jones -- We are meeting our DBE goals, but that is very conservative goal; we should consider possible expansion of DBE efforts to increase the capacity of DBE contractors to "take on" more work. • NJDOT, M. Russo – use the STIC to push out any identified initiatives out to the local level; from a construction perspective, is there sufficient number of DBE contractors out there? • NJDOT, Shapiro, NJDOT Highway Operations lessons learned might be good for locals. In working groups, we should be able to provide information.
Local Agency	• Lawrence Township – recommended working with the counties and other municipalities to gather additional, on-the-ground information and share further data. Share information through APWA Chapter.
Transportation Partners	• ACCNJ, Schiff -- Hard to find candidates in some areas from DBEs, need to be given more opportunities; have created lists of contacts that could be leveraged. Willing to share information via newsletters, emails, magazine, etc. They have created lists of contact for DBEs to reach primes • NJTPA, Behrend -- also happy to help spread information to counties. • NJLTAP- bi-monthly newsletter, emails. Currently includes EDC information in every newsletter.
General Comments	• Suggested enhancement of business development programs to allow for capacity building of DBEs.

EDC-6 Workshop Questions:
Strategic Workforce Development

Q4. What accomplishments could you share at a future STIC meeting to raise awareness of this innovation topic? (e.g., example initiative, lessons learned, benefits, continuing needs and challenges in advancing through stages of implementation). Are there other relevant innovative initiative topics that you could share that would be of interest to the STIC (e.g., past rounds of EDC)?

State agency	• NJDOT, M. Russo-- there are innovations within Human Resources in the realm of Civil Service that could be shared as best practices. NJDOT was able to find an innovative approach that other public sector agencies may benefit from.
Local Agency	N/A
Transportation Partners	N/A
General Comments	N/A

EDC-6 Initiative:
Targeted Overlay Pavement Solutions (TOPS).

Pavement overlays represent a significant portion of highway infrastructure dollars. State and local highway agencies can maximize this investment and help ensure safer, longer-lasting roadways by employing innovative overlay procedures that will improve pavement performance, lessen traffic impacts, and reduce the cost of pavement ownership.

<table>
<tr><th colspan="2">Innovation Implementation Stage Definitions
*State is all-inclusive (e.g., state transportation agency, local municipalities, contractors, consultants)</th><th colspan="2">Guidance Questions
Prompt questions to help assess your current state of practice.

NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the TOPS Deployment Team w/ questions.</th></tr>
<tr><td></td><td>Not Implemented:

The State* has not started planning to implement the innovation.</td><td colspan="2">The State/Locals are not planning to implement any of the TOPS innovations.</td></tr>
<tr><td></td><td></td><td>Asphalt
○ High-Performance Thin Overlay
○ Crack Attenuating Mixture
○ Highly Modified Asphalt
○ Enhanced-Friction Overlay
○ Stone Matrix Asphalt
○ Asphalt Rubber Gap-Graded
○ Open-Graded Friction Course
○ Ultra-Thin Bonded Wearing Course</td><td>Concrete
○ Unbonded Concrete on Concrete
○ Unbonded Concrete on Asphalt
○ Unbonded Concrete on Composite
○ Bonded Concrete on Concrete
○ Bonded Concrete on Asphalt
○ Bonded Concrete on Composite</td></tr>
<tr><td></td><td>Development Stage:

The State/Locals are participating in webinars and peer exchanges, collecting guidance and best practices, evaluating existing network distresses, considering alternate resurfacing strategies, developing alternate cost analysis.</td><td colspan="2">• Have the State/Locals performed any of the following activities for the purposes of demonstrating any of the TOPS solutions?
○ Collected guidance and best practices
○ Hosted training
○ Identified network distress that traditional overlay practices haven’t been successful in addressing
○ Considering alternate resurfacing strategies
○ Requested technical assistance</td></tr>
</table>

	Demonstration Stage: The State/Locals are constructing TOPS pilot or demonstration projects.	• Have the State/Locals identified or programed a TOPS candidate for a pilot or demonstration project for construction in 2021? • Are the State/Locals currently constructing or recently completed a TOPS pilot or demonstration project 2020?
	Assessment Stage: The State/Locals are monitoring the performance of the TOPS innovation and developing standard design and specification guidance full deployment.	• Are the State/Locals currently monitoring the performance of a TOPS pilot or demonstration project constructed prior to 2020? • Are the State/Locals developing cost analysis guidance or design manual and standard plans/specifications to incorporate any lessons learned or best practices from the previous pilot or demonstration projects?
	Institutionalized: The State/Locals have adopted the TOPS innovation as a standard practice and is included as a standard option in programming cost analysis and regularly considered as an option to address pavement network distress on projects.	• Have the State/Locals adopted a TOPS solution as a standard practice to address extra ordinary network distress? • Does the State/Locals consider life cycle costs when evaluating options to address network deterioration? • Does the industry have the experience and capacity to confidently cost and construct a TOPS solution?

EDC-6 Workshop Questions:
Targeted Overlay Pavement Solutions

Q1. Stage of Implementation:

Baseline, January 2021	Two-Year Goal, December 2022
Institutionalized	Institutionalized

Innovation Goal:

Asphalt TOPS using HiMA would extend pavement overlay service life and save money. EFO would save lives, extend pavement overlay service life and save money. Successful pilot projects are measurable targets.

How will you accomplish this goal in the next two years? What specific and measurable actions can be taken to further advance implementation and dissemination of these solutions in this time frame?

Baseline Report Implementation Plan		
Activity No.	**Description of Activity**	**Target Completion Date**
1	EFO – We plan on the following activities: collecting guidance and best practices, evaluating existing network distresses, considering alternate resurfacing strategies, and if available we would be interested in webinars and peer exchanges.	
2	HiMA – Planning to construct a pilot project to evaluate.	

State agency	• We are a little further ahead for Highly Modified Asphalt (HIMA); have spec ready and looking for pilot project. Excited about the applications. For enhanced friction, we have not developed a spec and are waiting for more guidance.
Local Agency	• For the time being all reps at local level were interested in finding more guidance and best practices passed down from federal and state level. Would love to see trainings by DOT or LTAP. • Interest from everyone in getting more training and webinars with DOT supervision. Deanna's staff has had some confusion with DOT specs, so finding out what can be included in a local aid project would be helpful. There is a need for real world examples, even a simple hand out of do's and don'ts. Her staff would be encouraged to attend any trainings made available.

	They are not interested in concrete. • The Local Aid Resource Center could help with roll out of this initiative. • LTAP could help tailor training to locals as well.
Transportation Partners	N/A
General Comments	N/A

EDC-6 Workshop Questions:

Targeted Overlay Pavement Solutions

Q2. Would you be willing to participate on a working group to advance this innovation topic toward its implementation goal? How often should the working group meet? When should the group meet? Who else should be invited to participate in the working group to share knowledge and advance the innovation? Would you be willing to volunteer to lead an effort of this working group?

State agency	N/A
Local Agency	N/A
Transportation Partners	N/A
General Comments	• Yes. Every six months is a fair time frame. Helene Roberts can lead the working group. County and municipal engineers, as well as local officials should be invited to attend.

EDC-6 Workshop Questions:
Targeted Overlay Pavement Solutions

Q3. How should the FHWA and NJDOT work with the Local Public Agencies (i.e., MPOs, counties and municipalities) and other transportation partners (e.g., academic, industry trade, etc.) to advance the innovation? How will your organization be communicating this initiative to your audience?

State agency	N/A
Local Agency	N/A
Transportation Partners	N/A
General Comments	• We should work together to develop a plan on how we want to inform the counties and municipalities on implementation. • A traveling workshop showing real-world applications would be well received. It was discussed that it should be shared with county engineers at their monthly meetings, as well as perhaps a course offered at the League of Municipalities Conference in 2021.

EDC-6 Workshop Questions:
Targeted Overlay Pavement Solutions

Q4. What accomplishments could you share at a future STIC meeting to raise awareness of this innovation topic? (e.g., example initiative, lessons learned, benefits, continuing needs and challenges in advancing through stages of implementation). Are there other relevant innovative initiative topics that you could share that would be of interest to the STIC (e.g., past rounds of EDC)?

State agency	• Probably won't see benefits in two-year period for advertising, but we can discuss the problems we saw and why the solution was applied to that area. • We are also refining issues we've had with blistering and actively seeking a pilot for revised specs to eliminate that issue. We are a lead state on it and we reported back on the issue so hopefully we can get an update. • Let working group know about any updates you have on local level state of practice. • Find out if Laine Rankin's group had anything come in through municipal aid. Ultimately there are 565 municipalities in NJ, so we should be able to find out who is doing what through some kind of survey.
Local Agency	• We can put out a survey to our membership if they have used these things. Joseph Ettore will send out a survey.
Transportation Partners	N/A
General Comments	N/A

EDC-6 Initiative:
UHPC for Bridge Preservation and Repair.

Ultra-high performance concrete (UHPC) is a new material for bridge construction that has become popular for field-cast connections between prefabricated bridge elements. Bridge preservation and repair is an emerging and promising application for UHPC. UHPC-based repair solutions are robust, and offer superior strength, durability, and improved life-cycle cost over traditional methods. State and local agencies can deploy UHPC for bridge preservation and repair to maintain or improve bridge conditions.

Innovation Implementation Stage Definitions **State is all-inclusive (e.g., state transportation agency, local municipalities, contractors, consultants)*	Guidance Questions Prompt questions to help assess your current state of practice. *NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the UHPC Deployment Team w/ questions.*
Not Implemented: The State* has not started planning to implement UHPC for preservation and repair.	
Development Stage: The State* is collecting information, hosting training, and building support towards using UHPC for bridge P&R	• Does the State have a UHPC for bridge P&R implementation champion or team? • Has the State participated in workshops, webinars, or peer exchanges related to UHPC for bridge P&R? • Has the State requested technical assistance for a project that uses UHPC for bridge P&R? • Has the State identified a potential UHPC for bridge P&R application they would like to pilot, and begun to develop plans or details for this potential project?
Demonstration Stage: The State* is testing and piloting UHPC for bridge P&R	• Has the State used UHPC for bridge P&R on one or more projects? • Has the State compared 2D modeling results with any previous 1D modeling results or measured data?
Assessment Stage: The State* is assessing its prior use of UHPC for bridge P&R and is	• Is the State considering UHPC for bridge P&R for regular use on projects?

	developing guidelines and standards for its regular use	● Does the State plan to incorporate the lessons learned from UHPC for bridge P&R demonstration projects into future projects? ● Does the State plan to incorporate UHPC for bridge P&R into their design manuals, standard details, contract language, and other documents?
	Institutionalized: The State* has adopted UHPC as a standard practice for bridge P&R.	● Has UHPC for bridge P&R been successfully integrated into the State's policies, procedures, and guidance (e.g., design manuals)? ● Is the State consistently letting projects that use UHPC for Bridge P&R? ● Does the State receive technical assistance requests from other transportation agencies seeking to develop knowledge related UHPC for bridge P&R?

EDC-6 Workshop Questions:
Ultra-High Performance Concrete

Q1. Stage of Implementation:

Baseline, January 2021	Two-Year Goal, December 2022
Assessment	Institutionalized

Innovation Goal:
Consistently letting projects that use UHPC for Bridge P&R. Significantly increasing service life of repairs to reduce maintenance needs and road closures.

How will you accomplish this goal in the next two years? What specific and measurable actions can be taken to advance implementation in this time frame?

Baseline Report Implementation Plan		
Activity No.	**Description of Activity**	**Target Completion Date**
1	Assessment of Completed P&R Projects	December 2022
2	Deployment of additional P&R Projects	December 2023
3	Conduct additional research on UHPC	December 2024

State agency	• The team discussed various next steps and ideas for progressing ongoing pilot projects, the assessment phase and upcoming initiatives. On the state level, they recommended identifying opportunities for testing UHPC on key areas of specific bridges during pilot projects, versus full overlays at the start, to see how it performs in key areas.
	• The team also discussed some current research and reporting tasks studying UHPC under this program including:
	  o Fresh properties testing
	  o Dynamic Flow Test, UHPC Repair Products and Compatibility, Preformed Elastomer seals with UHPC Headers.
	• Task under Report development:
	  o General Modification and Additions
	  o Special provisions modifications
	  o Discussion on UHPC surface defect treatments.
	• They discussed two current NJDOT pilot projects

	where both bridges being tested had partial UHPC overlays. They mentioned some details and specifications for these projects including: o That any supplier would need 5 years' worth of prior experience with UHPC o And that these projects were done using proprietary mixtures. **The Assessment Phase:** • They are finalizing a long-term program now that is going to include impact echo testing and shear wave tomography of the UHPC on bridge specimens. • For this, the team is studying four bridge decks with UHPC overlays and plans to conduct a baseline test in the next few months to look at delamination between UHPC and the underlying deck primarily. The overall scope is being finalized now, but plans include: o Testing of 5-10% of the bridge decks periodically over the next five years o Repeating baseline testing once or twice a year over the same time period o Looking for signs of delamination between UHPC and the underlying deck o Monitoring all four structures and any exposed elements (UHPC deck joints, headers, and overlays) o Some structures are asphalt overlayed so the team will be doing a coring program too **Bridge Resource Program:** • The team also mentioned potential research under the NJDOT Bridge Resource Program. They said that under the program there is a task for "innovative study" and in the coming year will be focusing on UHPC using FRP fibers. Some plans include: o Working with partners at Rutgers University to get material lab tested. o Then move into field so it can be used on a current bridge deck. o Additionally, the team discussed a plan to use UHPC material to repair a bridge girder on Route 46 in North Jersey that is still under study.
Local Agency	• On the local agency level, the team suggested that there might be opportunities for local agencies with low-volume short span bridges to use their assets as potential test bridges for UHPC pilot programs. This

	would be an opportunity to test at a lower cost than on state roadways and might be a way to collaborate.
Transportation Partners	• The innovative study research under the BRP program mentioned working with partners at Rutgers University, an academic institution, and shows one potential opportunity for involvement.
General Comments	**Introductory remarks/background:** • The facilitator noted that this project started off in December with discussions during the EDC-6 Caucus surrounding innovative UHPC technology. Talks were focused on what the current stage of deployment for UHPC was in terms of bridge preservation and repair, as well as the anticipated level of deployment, or goal, for the end of the two-year cycle. Opportunities for implementation as well as potential barriers were also discussed. • Since that time, a baseline report was established last month and indicated that the goal of the current program is to have completed the assessment phase of all related UHPC bridge preservation projects by December 2022 and deployment by December 2023.

EDC-6 Workshop Questions
Ultra-High Performance Concrete

Q2. Would you be willing to participate on a working group to advance this innovation topic toward its implementation goal? How often should the working group meet? When should the group meet? Who else should be invited to participate in the working group to share knowledge and advance the innovation? Would you be willing to volunteer to lead an effort of this working group?

State agency	• The team said that regular meetings should be established and that it would be beneficial to start a committee to organize future meetings. Specifics included:
	  ○ Having meetings twice a year, that can then be adjusted as things progress
	  ○ That the state should take the lead: Giri Venkiteela, NJDOT Bureau of Research, offered to help lead this effort. Discussed taking the list from today's meeting and using it to establish an initial team, then inviting others as well.
	  ○ This committee would be for the primary purpose of information exchange.
	• The team also discussed what other partners should be involved. They said that people from the geotechnical engineering field should be included especially on foundational related items. Also partners from the construction field should be included as they have to deal with issues pertaining to ultra-high performance during their jobs too and can provide some guidance.
	• The team said it would be beneficial to look out for any additional research investigations into this area that have happened, or are planned, as meeting with potential partners who have gone down a similar path could be helpful for information exchange again.
	  ○ Good to team resources/information exchange.
	  ○ There are other state agencies that have already utilized UHPC and may be helpful to engage with.
	  ○ Can gather information related to special provisions or specifications.

Local Agency	• The team highlighted that often times county engineers are not involved in innovation-based workshops, so there is an opportunity here for engagement and to help guide local-level partners through UHPC technology.

Transportation Partners	• Partners in construction were highlighted above as one of the groups that should be engaged in committee meetings and information-exchange discussions.
General Comments	N/A

EDC-6 Workshop Questions
Ultra-High Performance Concrete

Q3. How should the FHWA and NJDOT work with the Local Public Agencies (i.e., MPOs, counties and municipalities) and other transportation partners (e.g., academic, industry trade, etc.) to advance the innovation? How will your organization be communicating this initiative to your audience?

State agency	• On the state level, the team said that presentations, webinars, future in-person site visits when allowed, and showcase events are all important to communicating about this initiative. They identified some specifics items below:
	  ○ NJDOT Research Showcase
	  ○ NJ League of Municipalities
	  ○ Events/showcases aimed at design engineers (projects will need to engage design engineers for county and local agencies)

Local Agency	• On the local level, the team said that there may be opportunities through local aid funding programs for engagement. Specifically, they said that all municipalities and counties that the state is providing local aid funding can engage them more on utilizing UHPC for preservation and repair projects. • The team also discussed incentivizing the use of innovative material through local funding. Potential trainings, tech transfer initiatives, or funding, were all mentioned as opportunities that could help advance the initiative. • They also said that oftentimes local agency partners get traditional construction funding, so funding for innovative materials specifically could help motivate them to try UHPC or other materials out. • On MPOs specifically, the team said that MPOs usually get involved once the pilot project is complete. Usually, the state has the project figured out and then county engineers are brought in for classes and trainings. This could be something to consider down the road for the future plans.
Transportation Partners	• The team discussed an AASHTO TC3 educational initiative where NJDOT has engaged AASHTO as a sponsor in developing a UHPC course geared toward the construction industry. Development is ongoing and

	should be finalized within the next year.
General Comments	• Social media tools such as LinkedIn, Facebook, and others were also discussed as a general good way of communicating relevant information.

EDC-6 Workshop Questions
Ultra-High Performance Concrete

Q4. What accomplishments could you share at a future STIC meeting to raise awareness of this innovation topic? (e.g., example initiative, lessons learned, benefits, continuing needs and challenges in advancing through stages of implementation). Are there other relevant innovative initiative topics that you could share that would be of interest to the STIC (e.g., past rounds of EDC)?

State agency	• Case studies were identified as the primary way to share accomplishments and advance the initiative following pilot projects and assessment. The team highlighted that:
	  ○ Outline of the assessment reports is geared toward case studies
	  ○ Case studies can help assess pilot projects to date and share information/accomplishments.
	• The team also said that so far, we have been primarily talking about UHPC as repair material, but in the future can also begin talking about UHPC as a structural material to continue to advance the initiative.
	• Lastly, the team talked about how securing more funding to do additional assessments/deployment of pilot projects would be a great asset, and how sharing accomplishments is a part of that process.

Local Agency	• The team said that case studies developed at the state level can also be relayed to local agencies through various venues including STIC. • Cost benefit analyses on using UHPC versus regular concrete in certain areas could also be done and shared with local partners, as this information might help provide more details on specific benefits of innovative materials. The team also said there is potential to implement this technology on any super-structure type at the local level. • Relating back to earlier-mentioned BRP efforts and studying UHCP with FRP fibers, the team said that these projects can become expensive when using proprietary materials. The aim of the BRP study is to attempt to lower costs and use local materials so that it can become more accessible to local agencies.
Transportation Partners	• The team discussed that more regular open discussions/information exchange meetings would be

	beneficial to better share experiences with transportation partners.
General Comments	• The team expressed that there is still a lack of AASHTO/FHWA guidance on overlay applications and that general support in application would be helpful.

EDC-6 Initiative:
Virtual Public Involvement.

Public engagement during transportation project planning and development helps agencies identify issues and concerns early in the process, which can ultimately accelerate delivery. Virtual public involvement strategies supplement traditional face-to-face information sharing with technology platforms that increase the number and variety of methods agencies use to inform the public, receive feedback, and collect and consider comments.

Innovation Implementation Stage Definitions **State is all-inclusive (e.g., state transportation agency, local municipalities, contractors, consultants)*	Guidance Questions Prompt questions to help assess your current state of practice. *NOTE: Not all questions have to be affirmatively answered to meet any given stage; judgment is required; call the VPI Deployment Team w/ questions.*
Not Implemented: The State* has not started planning to implement Virtual Public Involvement. *For more information about the VPI innovation, visit the FHWA VPI website.*	The State does not use and has not planned for implementation of any of the **VPI tools listed below** for project development, environmental review, or planning: ○ **Mobile applications** ○ **Project Visualizations** ○ **Do-it-Yourself Videos** ○ **Crowdsourcing Tools** ○ **Virtual Town Halls / Online Meetings** ○ **Mapping Tools** ○ **All-in-one Tools** ○ **Digital Tools to enhance in-person events** Note: Social media is not included in the above-listed tools. State DOTs may use social media and still fall into the "Not Implemented" stage.
Development Stage: The State* is learning more about and planning for adoption of the innovation but has not formally piloted VPI tools and techniques as a part of planning, project development or environmental review. MPOs and local public agencies (LPAs) have not formally piloted VPI tools.	● Has the State, MPOs or LPAs been participating in VPI webinars and peer exchanges? ● Is the State collecting guidance and best practices for the use of VPI? ● Is the State currently researching possible use of any of the above-listed tools / techniques? ● Is the state currently developing a process or policy for using any of the tools or techniques in planning, project development, or environmental review?

		• Is the State encouraging MPOs and LPAs to develop an approach to using VPI for their planning and programming activities? • Does the State face substantial barriers to implementing VPI tools, such as lack of staff training or lack of needed VPI software/hardware?
	Demonstration Stage: The State is piloting one or more VPI tools or techniques for either planning or projects in development and environmental review stages, and/or MPOs and LPAs are piloting VPI tools and techniques with explicit support, encouragement, or guidance from the State DOT.	• Is the State DOT using at least one VPI tool or technique for project-level public involvement activities, with the intent to expand its use or incorporate it into their regular business practices? • Is the State DOT using at least one VPI tool or technique for statewide planning public involvement activities, with the intent to expand its use or incorporate it into their regular business practices? • Is at least one MPO in the State using at least one VPI tool/technique for regional transportation planning activities? • Have the State DOT or MPOs in the State started using a new VPI tool or technique or made a significant advancement in how they incorporate VPI into their planning or project development public involvement approach? • Has the State applied for, or received, grant funding (e.g. STIC) to pilot VPI tools and techniques?
	Assessment Stage: The State has completed one or more pilots of VPI tools or techniques for planning, project development and/or environmental review, and/ or MPOs or LPAs have completed one or more pilots with State DOT involvement. The State DOT and MPOs / LPAs are assessing the effectiveness of the VPI pilots, developing policies, and adjusting public participation plans to integrate VPI into normal business.	• Has the State DOT revised, or is in the process of revising, public involvement guidance to include the use of VPI tools and techniques for planning activities? • Has the State DOT revised, or is in the process of revising, public involvement guidance to include the use of VPI tools and techniques for project development and environmental review activities? • Have MPOs in the State revised public involvement guidance to include the use of VPI tools and techniques? • Has the State DOT or MPOs in the State developed and completed a STIP, LRTP, or another plan using one or more of these tools? • Has the State DOT completed a significant phase of public involvement for a proposed project using one or more of these tools?

		● Has the State DOT, or the MPOs / LPAs, developed performance measures and baseline data for evaluating the effectiveness of VPI?
	Institutionalized: The State DOT has integrated at least one VPI tool or technique into its everyday business practices for either planning, project development, or environmental review. MPOs and/or LPAs in the State use VPI tools and techniques as part of normal business and the State DOT supports the use of VPI techniques for regional transportation planning. The State DOT and MPOs have adopted polices about how and when to use VPI tools that are reflected in public participation plans, UPWPs, and other documents.	● Has the State DOT integrated any of these tools and techniques into ongoing regular business? ● Have any MPOs in the State integrated VPI tools and techniques into ongoing regular business? ● Has the State DOT adopted policies or guidance related to the use of VPI tools and techniques which reflect an institutionalized state, and in accordance with federal guidelines? ● Do MPOs include VPI in their public participation plans, UPWP, or other documents as a tool to enhance public involvement activities? ● Are there any significant remaining barriers to using the above-listed VPI tools? Do State DOT and/or MPO staff have the necessarily skills and technology to effectively use the VPI tools?

EDC-6 Workshop Questions:
Virtual Public Involvement

Q1. Stage of Implementation:

Baseline, January 2021	Two-Year Goal, December 2022
Demonstration	Institutionalized

Innovation Goal:

- Increased public engagement of various stakeholder groups understand that input through VPI is as important, and considered equal to, in-person input.
- VPI enhances and increases our access to populations, particularly underserved, but have to strike the balance of in-person and virtual engagement.

How will you accomplish this goal in the next two years? What specific and measurable actions can be taken to advance implementation in this time frame?

Baseline Report Implementation Plan		
Activity No.	**Description of Activity**	**Target Completion Date**
1	Draft a white paper on the pros and cons of various VPI platforms, especially related to security and access. Also included should be the best platform to be used for different forums – size, importance and engagement required.	June 2022

State agency	• Andy Swords, NJDOT Statewide Planning: State Long Range Transportation Plan (LRTP) will be launched in the later-part of the year and will be an opportunity. Statewide Transportation Improvement Program (STIP) adoption by October 1, 2021 and other critical documents and plans will require VPI for input when updating. • Rickie Clark, FHWA. In Indiana, several telephone town halls were held by Indiana DOT were used to gather input on the LRTP, and were run like a radio program and invited participants to call in to listen to the conversation, ask questions and provide input. The LRTP gets people talking • Pankesh Patel, NJDOT: Capital project delivery process has public involvement action plan. It would be helpful for VPI guidance from the Office of Community Relations (OCR) to ensure consistency department-wide. • Include email subscription based-service to get update on interested projects, etc.

	• Melissa Hayes, NJTPA. NJTPA is wrapping up a number of initiatives such as their Long Range Transportation Plan for public input. They used a follow button on the website to get updates and very few followed as they may not have understood the concept of the "follow" button but they also included a survey to get more information and many (400+) signed up to receive the email updates. NJTPA also used the email list to send reminders about upcoming events and other engagement efforts. • Rickie Clark, FHWA. Under EDC-6 there are several tools featured by the FHWA that can be used at the MPO and/or State level. • Lauralee Rappleye, NJDOT. Need to update the Public Involvement Action Plan to include VPI. OCR will continue to work on this.
Local Agency	N/A
Transportation Partners	N/A
General Comments	**Comments about VPI during introductions:** • Review public involvement action plans with the Office of Community Relations (OCR) to ensure protected groups are engaged. • VPI is a new normal resulting from COVID 19. • Local Planning Assistance implements bike ped plans and safety action plans and has implemented some virtual public outreach. • Zoom fatigue is real. • VPI pros and cons – more participation but there is zoom fatigue and are we engaging all participants or just the same people and people who have the technology? We need to ensure we are engaging everyone including underserved and under-represented communities. • Virtual train the trainer workshops covering very technical information was effective for participants, and NJDOT was able to shorten the length of the time of the workshops because they ran so efficiently. Participants are also more comfortable joining and engaging virtually and they can participate whenever and wherever they are.

	• VPI will be integrated into NJDOT practice going forward. More people can be reached through a virtual environment. However, we must ensure we reach those who do not have internet or computer access so they can participate. • Challenges of VPI – unmute, turn on camera, accessibility, internet issues, lag time. • NJDOT is using VPI for projects and is very interested in what other agencies are doing and share learning and best practices. • NJ TRANSIT has in-person outreach experience for survey research. • Embracing outreach around public information centers which are held virtually – NJDOT used to have one evening meeting for a few hours but now can do it 24/7 for up to two weeks. But, how can we effectively promote the event, whether virtual or in-person, to increase participation? Participants do still enjoy the in-person interaction and dialogue directly with NJDOT staff. Looking for ways to improve outreach. • Particularly for NEPA compliance, we need to ensure there is adequate public involvement being undertaken. Assess who we need to talk to, how we reach out to them, and communicate opportunities to participate. There are traditionally underserved segments of the public that we do not always reach that remain a challenge with VPI. • Under Local Aid, we strongly encourage that we follow Federal requirements related to public involvement and require them to hold a virtual meeting at a certain date and time so that someone is available live to answer questions and post information and gather input for several weeks which satisfies the requirement. • In some cases, to make materials more accessible to the public, use videos to explain projects, particularly Title VI and EJ programs because people do not want to read manuals and would rather watch videos. • Recap of VPI Innovation – as of January 2021, we are in demonstration stage in New Jersey – implementing at least one or more VPI tools and the goal is to reach the institutionalized stage within two years.

EDC-6 Workshop Questions:

Virtual Public Involvement

Q2. Would you be willing to participate on a working group to advance this innovation topic toward its implementation goal? How often should the working group meet? When should the group meet? Who else should be invited to participate in the working group to share knowledge and advance the innovation? Would you be willing to volunteer to lead an effort of this working group?

State agency	• NJDOT: Office of Community Relations – guiding NJDOT on VPI. • Julie Seaman, NJDOT. Local Aid does not work directly with OCR and needs to follow the federal process and may have to tweak for local projects; Local Aid has a resource center with separate website to service local agencies https://www.njdotlocalaidrc.com/. • Shivani Patel, NJDOT. Civil Rights group should be involved to assure applying VPI equitably in alignment with Title VI and EJ. • Lauralee Rappleye, NJDOT including her work with tribal communities for consultation • Rep from Statewide Planning – TBD from Andy • Bill Riviere – Local Tech Assistance Programs working with municipalities and local agencies on bike ped programs.
Local Agency	• NJTPA: Melissa Hayes and Ted Ritter • SJTPO: Alan Huff and Melissa Melora – may not have as many successes but they can discuss some efforts and or challenges with VPI
Transportation Partners	• NJ TRANSIT - Susan O'Donnell • NJ LTAP – Janet Leli is the lead for LTAP or someone from her group. • Rutgers-VTC – Trish Sanchez
General Comments	• Meet quarterly at least if not more often. • Perhaps model after the NJDOT Complete Teams effort.

EDC-6 Workshop Questions:

Virtual Public Involvement

Q3. How should the FHWA and NJDOT work with the Local Public Agencies (i.e., MPOs, counties and municipalities) and other transportation partners (e.g., academic, industry trade, etc.) to advance the innovation? How will your organization be communicating this initiative to your audience?

State agency	• Julie Seaman, NJDOT: Local Aid worked with MPOs, University Resource Centers, and the TMAs to administer TAP grant training virtually to municipalities that was successful and always looking for improvements. • Pankesh Patel, NJDOT. OCR disseminated information so that the maximum number of people can participate --- also includes direct mailing and email.
Local Agency	• Andy Swords and Lauralee Rappleye, NJDOT: We should listen to our Local Public Agencies and MPOs and ask the communities what works best for them. • Jennifer Marradino, SJTPO. Still need to fine tune our techniques to reach the broader public.
Transportation Partners	N/A
General Comments	• VPI efforts were reaching consultants and not necessarily the public and target audiences.

EDC-6 Workshop Questions:

Virtual Public Involvement

Q4. What accomplishments could you share at a future STIC meeting to raise awareness of this innovation topic? (e.g., example initiative, lessons learned, benefits, continuing needs and challenges in advancing through stages of implementation). Are there other relevant innovative initiative topics that you could share that would be of interest to the STIC (e.g., past rounds of EDC)?

State agency	
Local Agency	• Melissa Hayes, NJTPA can share lessons learned from VPI for their Long Range Transportation Plan and collaborate with the MPOs including working with community groups. • Jennifer Marradino, SJTPO is interested in learning more about building its set of outreach partners, specifically for the southern region and in general.
Transportation Partners	N/A
General Comments	There was limited time for this question.

NJ STIC 1ST QUARTER 2021 MEETING

LIST OF PARTICIPANTS

NJ STIC 1st Quarter 2021 Meeting: NJ STIC Registrants, Meeting Attendees and Break-Out Session Topics

ID	Last Name	First Name	Organization	Job Title	Attended Plenary	Break-Out Session Topic	Attended Break-Out Session	Facilitator	Note-taker
1	Besenski	Dejan	NJIT	Deputy Director ITS Resource Center	X	Crowdsourcing for Advancing Operations	X		
2	Cardone	Vincent	Monmouth County	Principal Engineer, Traffic II	X	Crowdsourcing for Advancing Operations	X		
3	Cowan	Salvatore	NJDOT	Senior Director	X	Crowdsourcing for Advancing Operations	X		
4	Gendek	Amanda	NJDOT	Manager	X	Crowdsourcing for Advancing Operations	X		
5	Johnson	Elizabeth	NJTPA	Senior Director, Information Systems	X	Crowdsourcing for Advancing Operations	X		
6	Krykewycz	Gregory	DVRPC	Assoc Director	X	Crowdsourcing for Advancing Operations			
7	Kuhn	David	Consultant	Asst. Vice President	X	Crowdsourcing for Advancing Operations	X		
8	Meehan	Sean	Rutgers-VTC	Senior Researcher	X	Crowdsourcing for Advancing Operations	X		X
9	Phomsavath	Ek	FHWA - NJ Division	ITS Engineer	X	Crowdsourcing for Advancing Operations	X	X	
10	Simmons	Jason	SJTPO	Program Manager	X	Crowdsourcing for Advancing Operations	X		
11	Sweet	Jim	NJDOT	Section Chief, Environmental	X	Crowdsourcing for Advancing Operations	X		
12	Ackerman	Scott	NJDOT	Executive Manager, PMO	X	Digital As-Builts	X	X	
13	Jahr	John	Brightview Engineering	Principal	X	Digital As-Builts	X		
14	Lubin	Andrea	Rutgers-VTC	Senior Researcher	X	Digital As-Builts	X		X
15	Mausert	Brian	Greenman-Pedersen, Inc.	Director of Civil Engineering	X	Digital As-Builts	X		
16	McGarrigel	William	Trade ACECNJ	General Manager	X	Digital As-Builts	X		
17	Onyile	Bassey	NJDOT	Assistant Transportation Engineer	X	Digital As-Builts	X		
18	Patel	Mahesh	NJDOT	Manager	X	Digital As-Builts	X		
19	Rankin	Laine	NJDOT	Director	X	Digital As-Builts	X		
20	Signora	Robert	NJDOT	Project Manager	X	Digital As-Builts	X		
21	Skilton	Keith	FHWA	Safety Engineer	X	Digital As-Builts	X		
22	Ameen	Mary	NJTPA	Executive Director	X	E-Ticketing	X		
23	Balluch	Al	NJDOT	Director		E-Ticketing			
24	Berryman	Thomas	NJDOT	Manager	X	E-Ticketing	X		
25	Brown	Valerie	NJDOT	Program Specialist 4	X	E-Ticketing	X	X	
26	Davis	Kimbrali	NJDOT	Manager	X	E-Ticketing	X		
27	DiPetrillo	Stephanie	Rutgers-VTC	Senior Researcher	X	E-Ticketing	X		X
28	Greaux	Ryan	NJDOT	Administrative Analyst 1	X	E-Ticketing	X		
29	Simicevic	Dave	NJDOT	Principal Engineer	X	E-Ticketing	X		
30	Tayebi	Touraj	NJDOT	Transportation Engineer	X	E-Ticketing	X		
31	Wright	Michael	ACECNJ	Executive Committee, Director		E-Ticketing			
32	Zayas	Gary	NJDOT	Director, Division of Information Technology	X	E-Ticketing	X		
33	Bull	Catherine	Rutgers-VTC	Reseach Coordinator	X	Next Generation TIM: Integrating Technology, Data and Training	X		X
34	Catlett	Susan	NJDOT	Project Manager	X	Next Generation TIM: Integrating Technology, Data and Training	X		
35	Cippoletti	Richard	NJTPA	Senior Manager, Analytical and Planning Tools	X	Next Generation TIM: Integrating Technology, Data and Training	X		
36	Dusenbury	Koree	NJDOT	Program Specialist		Next Generation TIM: Integrating Technology, Data and Training			
37	Houck	Tom	NJDOT	Principal Planner	X	Next Generation TIM: Integrating Technology, Data and Training	X		
38	Kaminski	Amy	FHWA-NJ	Technical Programs Manager	X	Next Generation TIM: Integrating Technology, Data and Training	X	X	
39	Minutoli	Nicole	NJDOT	Director	X	Next Generation TIM: Integrating Technology, Data and Training	X		
40	Singh	Jeevanjot	NJDOT	Section Chief, BSBPP	X	Next Generation TIM: Integrating Technology, Data and Training	X		
41	Ward	John	DVRPC	Deputy Executive Director	X	Next Generation TIM: Integrating Technology, Data and Training	X		
42	Zajac	Chris	NJDOT	Section Chief		Next Generation TIM: Integrating Technology, Data and Training			

NJ STIC 1st Quarter 2021 Meeting: NJ STIC Registrants, Meeting Attendees and Break-Out Session Topics

ID	Last Name	First Name	Organization	Job Title	Attended Plenary	Break-Out Session Topic	Attended Break-Out Session	Facilitator	Note-taker
43	Aimen	David	Rutgers-VTC	Asst Director	X	Strategic Workforce Development	X		
44	Bandyopadhyay	Sutapa	FHWA	Planning and Program	X	Strategic Workforce Development	X		
45	Behrend	David	NJTPA	Deputy Executive Director	X	Strategic Workforce Development	X		
46	Clark	Robert	FHWA	Division Administrator	X	Strategic Workforce Development			
47	Feinthel	Christopher	NJDOT	Sr. Director of Operations, NJDOT/TOS&S	X	Strategic Workforce Development	X		
48	Goodson	Brian	FHWA	Community Planner	X	Strategic Workforce Development	X		
49	Green	Elkins	NJDOT	Director	X	Strategic Workforce Development	X		
50	Hutchinson	Kelly	NJDOT	Manager 2, Human Resources	X	Strategic Workforce Development	X		
51	Ishaq	Cameron	Consultant	Consultant - FHWA (SWD)	X	Strategic Workforce Development	X		X
52	Jones	Nadir	NJDOT	Manager	X	Strategic Workforce Development	X		
53	Leli	Janet	NJLTAP	Director	X	Strategic Workforce Development	X		
54	Lobman	George	UTCA	Director of Transportation Agencies	X	Strategic Workforce Development	X		
55	Longworth	Jack	NJDOT	NJDOT Operations Administrative Support	X	Strategic Workforce Development	X		
56	Marshall	Robert	NJDOT	Director of Highway Traffic and Design	X	Strategic Workforce Development	X		
57	Russo	Michael	NJDOT	Assistant Commissioner	X	Strategic Workforce Development	X		
58	Schiff	Jill	ACCNJ	Executive Director Operations	X	Strategic Workforce Development	X		
59	Section	Chrystal	NJDOT	Administrative Analyst	X	Strategic Workforce Development	X	X	
60	Shapiro	Michele	NJDOT	Human Resources Director	X	Strategic Workforce Development	X		
61	Tilghman-Ansley	Vicki	NJDOT	Senior Executive Service / Manager		Strategic Workforce Development			
62	Whitehead	Gregory	Lawrence Township	Director of Public Works	X	Strategic Workforce Development	X		
63	Dee	Joseph	NJDOT	Deputy Director, Program Advancement	X	Targeted Overlay Pavement Solutions (TOPS)	X		
64	Ettore	Joseph	Monmouth County	County Engineer	X	Targeted Overlay Pavement Solutions (TOPS)	X		
65	Gresavage	Susan	NJDOT	Manager, Pavement and Drainage Management	X	Targeted Overlay Pavement Solutions (TOPS)	X		
66	Monaco	Kevin	NJ Asphalt Pavement Association	Executive Director	X	Targeted Overlay Pavement Solutions (TOPS)			
67	Roberts	Helene	FHWA - NJ Division Office	Performance Manager	X	Targeted Overlay Pavement Solutions (TOPS)	X		
68	Sarmad	Omid	CAIT	Program Coordinator	X	Targeted Overlay Pavement Solutions (TOPS)	X		X
69	Stockton	Deanna	Princeton	Municipal Engineer	X	Targeted Overlay Pavement Solutions (TOPS)	X		

NJ STIC 1st Quarter 2021 Meeting: NJ STIC Registrants, Meeting Attendees and Break-Out Session Topics

ID	Last Name	First Name	Organization	Job Title	Attended Plenary	Break-Out Session Topic	Attended Break-Out Session	Facilitator	Note-taker
70	Abuhuzeima	Shukri	NJDOT	Executive Regional Manager - Team A		UHPC for Bridge Preservation and Repair			
71	Bertoni	Joe	NJDOT	Assistant Commissioner	X	UHPC for Bridge Preservation and Repair	X		
72	Cardie	Paul	FHWA	Senior Structural Engineer	X	UHPC for Bridge Preservation and Repair	X		
73	Cheng	Xiaohua "Hannah"	NJDOT	Project Engineer	X	UHPC for Bridge Preservation and Repair	X		
74	Hussein	Mohab	NJDOT	Geotechnical Engineer	X	UHPC for Bridge Preservation and Repair	X		
75	Lathia	Pranav	NJDOT	Supervising Engineer	X	UHPC for Bridge Preservation and Repair	X		
76	Mendenhall	Jess	NJDOT	Principal Engineer, Structural Bridge Design	X	UHPC for Bridge Preservation and Repair	X		
77	Merla	Nunzio	FHWA	Transportation Engineer	X	UHPC for Bridge Preservation and Repair	X		
78	Miller	John	FHWA	Project and Program Delivery Manager	X	UHPC for Bridge Preservation and Repair	X	X	
79	Najem	Ahamad	NJDOT	Project Engineer	X	UHPC for Bridge Preservation and Repair	X		
80	Najem	ali	njdot	SES, manager Structural & RR Engineering Services		UHPC for Bridge Preservation and Repair			
81	Newton	Patricia	NJTPA	Principal Planner	X	UHPC for Bridge Preservation and Repair	X		
82	Omer	Marhaba	NJDOT	Principal Engineer Traffic		UHPC for Bridge Preservation and Repair			
83	Rabie	Samer	NJDOT	Senior Engineer	X	UHPC for Bridge Preservation and Repair	X		
84	Stiesi	Ryan	RU-CAIT	Public Relations Assistant	X	UHPC for Bridge Preservation and Repair	X		X
85	Venkiteela	Giri	NJDOT	Research Project Manager	X	UHPC for Bridge Preservation and Repair	X		
86	Bremer-Nei	Elise	NJDOT	Bicycle and Pedestrian Coordinator	X	Virtual Public Involvement (VPI)	X		
87	Clark	Rickie	FHWA	Transportation Specialist	X	Virtual Public Involvement (VPI)	X	X	
88	Hayes	Melissa	NJTPA	Senior Manager, Outreach	X	Virtual Public Involvement (VPI)	X		
89	Holman	Vanessa	NJDOT	Deputy Chief of Staff		Virtual Public Involvement (VPI)			
90	Lisanti	Daniel	NJDOT	Manager	X	Virtual Public Involvement (VPI)	X		
91	Maniar	Nipa	NJDOT	Section Chief	X	Virtual Public Involvement (VPI)			
92	Marandino	Jennifer	SJTPO	Executive Director	X	Virtual Public Involvement (VPI)	X		
93	Meades	Vanessa	NJDOT	Principal Engineer/Acting Regional Coordinator		Virtual Public Involvement (VPI)			
94	O'Donnell	Susan	NJ TRANSIT	Senior Director	X	Virtual Public Involvement (VPI)	X		
95	Patel	Pankesh	NJDOT	Executive Regional Manager	X	Virtual Public Involvement (VPI)	X		
96	Patel	Shivani	NJDOT-Civil Rights/Affirmative Action	Affirmative Action Specialist (Title VI/EJ)	X	Virtual Public Involvement (VPI)	X		
97	Rappleye	Lauralee	NJDOT	Acting Manager, Bureau of Environmental Program Resources	X	Virtual Public Involvement (VPI)	X		
98	Sanchez	Trish	Rutgers-VTC	Outreach Specialist	X	Virtual Public Involvement (VPI)	X		X
99	Seaman	Julie	NJDOT	PMS 3	X	Virtual Public Involvement (VPI)	X		
100	Swords	Andy	NJDOT	Director, Statewide Planning	X	Virtual Public Involvement (VPI)	X		
101	Thompson	Diane	NJDOT	Program Specialist	X	Virtual Public Involvement (VPI)	X		
102	Worth	George	NJDOT	Project Manager	X	Virtual Public Involvement (VPI)	X		
103	Boerchers	Bernard	Consultant	Director, Traffic Engineering	X	Were Not Assigned/Did Not Attend Breakout			
104	Bragg	Raymond	M Division of Engineering	Assistant County Engineer	X	Were Not Assigned/Did Not Attend Breakout			
105	Choborda	Stephen	NJDOT	Manager	X	Were Not Assigned/Did Not Attend Breakout			
106	Dicksen	Clint	Local - Fanwood	Public Works Director		Were Not Assigned/Did Not Attend Breakout			
107	Limbachia	Milan	NJDOT	Program Specialist Local Aid	X	Were Not Assigned/Did Not Attend Breakout			
108	McEldowney	Ben	Consultant	Graphic Designer	X	Were Not Assigned/Did Not Attend Breakout			
109	Morshed	Nusrat	NJDOT	Project Engineer	X	Were Not Assigned/Did Not Attend Breakout			
110	Stott	Glenn	NJDOT	UAS Program Manager		Were Not Assigned/Did Not Attend Breakout			