

State Transportation Innovation Council (STIC)

STIC Business Meeting

MEETING DATE: Wednesday, April 7, 2021
TIME: 1 p.m. – 3 p.m.
LOCATION: MS Teams Call
ATTENDANCE: Refer to Attendance List

Welcome and Introductory Remarks

Anja Walker, PennDOT Bureau of Innovations, welcomed all attendees and called the meeting to order. Ms. Walker reviewed the ground rules and the process for questions and comments. She provided an overview of the agenda and contents of the meeting booklet. Ms. Walker introduced the STIC co-chairs, PennDOT Secretary Yassmin Gramian and Federal Highway Administration (FHWA) Division Administrator, Alicia Nolan.

Yassmin Gramian, PennDOT Secretary, welcomed everyone to the April STIC Business Meeting. Ms. Gramian began by paying tribute to the late Executive Deputy Secretary George McAuley. Mr. McAuley passed away on February 28th while vacationing with his family in Florida. Ms. Gramian first met George in 2013 while in the private sector, and he represented PennDOT on their most significant initiative at the time, the Rapid Bridge Replacement Program. George was very proud of PennDOT's accomplishments. George had a passion for engineering innovation and a passion for his family at home and PennDOT. His influence was felt far beyond PennDOT. Ms. Gramian said that George was dedicated to the success of the STIC. George's invaluable service to Pennsylvania and his legacy will carry on.

Ms. Gramian said that it is an understatement to say that it has been a challenging year. We must move forward and never lose our hope for better days ahead. We in transportation continue to advance our innovations. Those innovations are much needed as we navigate the challenging financial issues that must be addressed to meet our responsibility to maintain a safe and effective transportation network. Ms. Gramian provided an overview of the agenda and extended her thanks to PennDOT's partners.

Alicia Nolan, Division Administrator, FHWA Pennsylvania Division, thanked Secretary Gramian and stated that FHWA also mourns the loss of George McAuley. Ms. Nolan said that he was a true partner and founding member of the STIC. Carrying on his legacy is very important. We have made great strides in innovation and we continue to look for different ways of doing things. Ms. Nolan believes the membership of the STIC is very strong.

Ms. Walker thanked Ms. Gramian and Ms. Nolan for their opening remarks. Ms. Walker introduced the outgoing and incoming STIC members for 2021 and thanked the returning members of the STIC.

Returning STIC Members:

Ed Troxell, Pennsylvania State Association of Boroughs (PSAB)
Aaron Hoover, Associated Pennsylvania Constructors (APC)
Stan Caldwell, Traffic 21 Institute, Carnegie Mellon University
Richard J. Jucha, American Concrete Pavement Association (ACPA)
Eric Donnell, Larson Transportation Institute, Pennsylvania State University
John Gibble, U.S. Army Corps of Engineers, Baltimore District

Amy Sturges, Pennsylvania Municipal League
Susan Armstrong, Pennsylvania Aggregates and Concrete Association (PACA)
Melissa Gates, County Commissioners Association of Pennsylvania (CCAP)

Outgoing/incoming STIC members:

Outgoing - Roger Adams, P.E., Pennsylvania Department of Environmental Protection
Incoming - Domenic Rocco, P.E., Pennsylvania Department of Environmental Protection

New Member Organization:

Karl Singleton - Pennsylvania Diversity Coalition (PADC)

FHWA EDC-6 Summit and Innovations Update

Clint Beck, P.E., FHWA, stated that FHWA holds a summit every two years to introduce new Every Day Counts (EDC) initiatives. The EDC Round 6 summit was held virtually on December 8 – 10, 2020, and was a real success. Almost 60 people registered and attended from Pennsylvania alone. About 1,000 people from across the country attended, a much broader audience than from years past when regional summits were held in person. FHWA sent out emails and flyers to introduce the EDC selection of initiatives for the states to choose from for that summit. To follow that up, Pennsylvania had a virtual summit with participation from District Executives. PennDOT selected three initiatives, with one initiative split into two subparts.

The first half of the first initiative is e-Ticketing. PennDOT is in the developmental stage of e-Ticketing and hopes that it will get institutionalized, which is the final step in the process. The partner to e-Ticketing is Digital As-Builts. Digital As-Builts produce a virtual copy of the physical roadway and bridge network. It is in the developmental stage, and Mr. Beck stated that PennDOT hopes to get to the assessment stage at the end of the two-year timeframe and is looking to 2025 for full implementation. The next innovation is Targeted Overlay Pavement Solutions (TOPS). Pennsylvania has many miles of roads and TOPS is an excellent opportunity to explore a new way to preserve our roadways. TOPS is in the developmental stage and PennDOT hopes to reach the assessment stage soon. Finally, Ultra-High Performance Concrete (UHPC) for Bridge Preservation and Repair is the fourth innovation. Concrete has excellent compressive strength. This fiber reinforced concrete material mixes the properties of concrete and the properties of steel into one. Certain areas of bridges undergo some higher stresses. UHPC is in the demonstration stage. And PennDOT wants to get to the advanced stage. PennDOT Champions include Jason Zang, Tyler Culhane and Patricia Baer.

EDC-6 Innovation Spotlight – Targeted Overlay Pavement Solutions (TOPS)

Ms. Walker introduced FHWA Headquarters lead experts of TOPS, Timothy Aschenbrener, P.E., and Samuel Tyson, P.E.

Mr. Aschenbrener stated that stakeholders, including asphalt and concrete experts from academia, state government, and industry professionals, make up the EDC-6 TOPS team. Simply put, TOPS pick the proper overlay treatment for the correct location. They are used mainly for high-priority areas or areas that have high maintenance needs. TOPS is used in select locations in both rural and urban areas, on primary roads or interstate highway pavements. The mission for these products is to extend pavement life, and increase load carrying capacity, thereby improving safety and cost-effectiveness.

Mr. Aschenbrener stated that alternative materials and mix design are used for higher performance and durability. Alternative overlay mix designs & surface types help address friction, noise, and drainage issues. TOPS benefits include improved safety, improved performance, returned investments, cost savings, and it is environmentally sound. Mr. Aschenbrener reviewed asphalt overlay products in the TOPS toolbox, including High-Performance Thin Overlay (HPTO). Mr. Aschenbrener outlined states that are participating in TOPS. As part of the EDC rollout, they found that state entities are

very interested in case studies, technical assistance webinars, and how-to documents. Mr. Aschenbrener thanked everyone for their time and attention.

Ms. Walker introduced Samuel Tyson, P.E. Mr. Tyson presented information on Targeted Overlay Pavement Solutions (TOPS) Concrete Overlays. He stated that placing the correct overlay on the proper pavement condition will protect the investment and the existing pavement. Overlays of concrete can be applied quickly, and the ultimate goal is to convert pavement back into a long-life pavement for public use. The lifetime of concrete overlay pavements is 20 to 40 years.

Concrete overlays are divided into two primary classes, bonded and unbonded. An unbonded overlay acts by itself to carry the load of traffic. A bonded overlay works with the underlying pavement to form the load-carrying structure resulting from the two layers' bonding. All overlays bond to a certain extent. There is a benefit to having a bond, but there are particular ways to treat the underlying pavement according to type.

In every overlay situation, maintenance of traffic is a crucial part. Mr. Tyson reviewed several examples of bonded and unbonded concrete examples including unbonded and bonded concrete on asphalt, unbonded and bonded concrete on composite pavements, and unbonded and bonded concrete on asphalt. The majority of concrete overlays is generally unbonded overlay. Mr. Tyson reviewed the functionality of the National Concrete Overlay Explorer website.

Ms. Walker stated that if the audience had any questions, they could write them in the chat box or email questions to penndotstic@pa.gov and the STIC Team will follow up with Mr. Aschenbrener and Mr. Tyson.

STIC Incentive Funding Project Submissions Overview & Feedback

Ms. Walker provided an overview of the 10 submissions received through the Survey Monkey submission form. PennDOT appreciates feedback and considers it when selecting the projects that will receive funding.

The following projects are in no particular order:

1. **Simex Asphalt Float** is designed to lay asphalt or waste material to fill set-section trenches, create sidewalks, or widen existing roadways.
2. **Bridge Deck Link Slabs** is a current STIC innovation from the Design TAG. They are economical in eliminating bridge deck joints by connecting adjacent deck sections with a specially designed slab composed of either traditional concrete or UHPC.
3. **Vegetation Management Tree Shear Attachment** will be used to increase productivity and allows for the removal of hard-to-reach vegetation along the roads.
4. **Brushing Loader Attachment** was submitted through the Maintenance TAG. It is an attachment that connects to the existing PennDOT loader and can reach high brush.
5. **Snow Plow Truck GPS (iPad) System** provides turn-by-turn directions for snow plow routes hands-free.
6. **Automated Traffic Signal Performance Measures (ATSPM) Pilot** is an innovative way to use data to analyze and optimize traffic signals' performance.
7. **Asphalt Lab – Testing Equipment Upgrade** STIC Incentive Funds will be used to work with the Northeast Center of Excellence for Pavement Technology (NECEPT) at Pennsylvania State University's Larson Transportation Institute to upgrade and replace needed equipment.
8. **HAAS Alert Safety Cloud** is a Responder-to-Vehicle solution that alerts motorists using Waze of the presence of a first responder when their lights are turned on at an incident scene.
9. **Salt Building Material Inventory Cameras** can measure salt volume inside salt storage buildings before, during, and after a storm.
10. **Cracking Tolerance (CT) – Index Test Equipment Acquisition for PA Asphalt Balanced Mix Design Implementation** -

It is a practical test to evaluate asphalt mixtures for cracking susceptibility. The PennDOT Materials and Testing Lab is able to run testing as needed.

No questions were received. All feedback will be compiled and reviewed before a final selection will be made. PennDOT will report back on the STIC Inventive Fund recipient(s) in July 2021, if selections have been finalized.

Innovating in Time of Crisis – Panel Discussion

Ms. Walker stated that the pandemic has substantially changed our lives and the way we do our business. The decisive mitigation actions and efforts by the Commonwealth have helped slow the virus' spread to protect citizens, employees, and business partners. COVID-19 has forced us to quickly adapt and work collaboratively to develop sensible and safe solutions to restore our operations and maintain our core functions.

Ms. Walker stated that we have learned a lot about innovating in the time of crisis. One year later, we are still finding ourselves working in this virtual environment. We remain committed to taking whatever innovative steps are needed to not only maintain but advance our transportation services across Pennsylvania.

STIC partners attended to discuss how their organizations innovated in a time of crisis and share some of their lessons learned and challenges faced during this past year. Ms. Walker introduced the panelists:

- Alicia Nolan, FHWA, said that she appreciates this opportunity to present. FHWA was prepared to work in a pandemic situation. FHWA had teleworked for several years with various options, so staff was ready to work in a telework environment. Planning took some time. FHWA made a corporate decision four years back to make sure everyone had a laptop. That made a difference. FHWA had the systems in place. MS Teams was being introduced as a software package and rolled out in January 2020. MS Teams gave FHWA a lot of helpful features.

FHWA realized that they needed to shift away from paper and go electronic for signing and approval actions of various components. They had to convert to electronic to continue to deliver their program. They relied heavily on their partners, stakeholders, and PennDOT to be able to collaborate virtually. FHWA shifted how they conducted training and conferences. For example, the EDC-6 national rollout was very well attended and a big success.

There are a lot of positives and lessons learned. FHWA is thinking about how to apply what they have learned when they return to the in-person environment. That will be a transition.

- Kimberly Maiolo, Director of Communications of Associated Pennsylvania Constructors, introduced herself. Ms. Maiolo discussed innovative ways that APC members restarted work safely and accelerated work during the pandemic and some methods to keep workers safe. Pennsylvania was the only state to pause highway construction work. The industry's focus was on how to restart work safely while protecting employees and families. A guidance document plan was established to ensure all employees were trained via a safety plan. From an innovation perspective, the inspection process had to be reimaged to take social distancing into account. Virtual meetings were held, which garnered large participation numbers. They moved paper transactions to electronic materials delivery tickets. Ninety-nine percent of the time, it is cheaper to accelerate a project. Ms. Maiolo provided examples of how to accelerate projects, including expanding allowable construction hours and working additional hours. A summer's worth of work needed to be completed in an abbreviated two-month timespan due to the shutdown. Ms. Maiolo presented a video that their association filmed that shows some of the mitigation methods used to restart construction safely.
- David Sanko, Executive Director, Pennsylvania State Association of Township Supervisors (PSATS) stated that if we

learned anything from 2020, it's that everyone must learn to innovate. Whether you wanted to or not, you did. With 120,000 miles of roads in Pennsylvania, there was an instant need for communication with members for fast and reliable information sharing. As an organization, they had a continuity of operations plan in place, complete with a pandemic index. However, they never thought they would have to use it, and they were more prepared for shorter stints out of the office. They communicated with members utilizing digital newsletters, town halls, and fact sheets. They also changed their training plan to virtual. Clear broadband challenges made everybody struggle, so they tried to maintain a bit of paper communication. Paper communication was a challenge in 2020 with the problems with the postal service and delivering mail. However, PSATS executed many ways of communicating through mail, internet, phone, and video, everything with an eye on getting the job done.

Townships had to quickly figure out a new way to conduct business while keeping employees safe through safe social distance and sanitizing equipment. Essential spring and summer maintenance is necessary to prevent and manage outbreaks. Townships wanted to make sure employees and residents were safe and connected. A boost of electronic communication probably pushed everyone ahead five years to use electronics such as electronic payment submittals. PSATS needed to strengthen the community by helping residents combat isolation.

Townships with contingency plans navigated challenges easier than those without a plan. It helped the continuity of operations and communication.

- Amy Staud, P.E., HDR, Inc. then spoke to the group as a representative of the American Council of Engineering Companies of Pennsylvania (ACEC/PA) to give a perspective from the consulting industry. The experience in consulting was pretty much like everyone else's. We had no idea of the duration; we had a lot of infrastructure for short-term work from home. We were tasked with re-training people in virtual technologies and move office equipment into home offices.

We thought about how to keep our projects moving through the planning and design process. Public outreach was a challenge for how to reach commuters effectively. We have had to be creative in reaching people in both traditional ways and non-traditional ways. We also had to check the box for NEPA, taking the project to the public for input. The general public cut back on expenses or no longer had access to a library. We used the open-source web application Apache Tapestry to better understand our audience, as well as ESRI, GIS, and local census data. What is the best possible way to communicate with us on a project? This information helped us ramp up our efforts to get information out because not everyone has digital access. We started to meet people where they are by doing pop-up meetings—which brought us a lot of success.

Ms. Walker stated that as part of the meeting RSVP survey, we asked attendees to send us questions. The following are those questions.

FHWA – Alicia Nolan

- Q. Have any of the changes brought on by the COVID-19 pandemic resulted in improvements or efficiencies within your organization?
- A. Ms. Nolan responded: One of the things that we did have was a paper process for project closeouts on the financial side. Once we went to a virtual environment, doing things on paper was not feasible. Working together with PennDOT, we developed a process to make it electronic. The outcome was that we did find efficiency through reduced time and effort. It has forced us to look at the processes in place and find efficiencies. There is an effort underway by PennDOT to make everything electronic by 2025. I think that due to the pandemic, PennDOT will be moving the deadline up.
- Q. Do you see any changes becoming standard business practice and something that your organization will continue in

the post-COVID-19 world?

- A. Ms. Nolan responded: Yes – one that we did touch on - EDC National Meeting is an excellent example of what we are trying to do regionally. But now, we are looking a little differently by sharing things across the country via one virtual format. Then, we can do some other things with the tools we have now and incorporating virtual solutions.

APC – Kimberly Maiolo

- Q. With the necessity of working from home a reality for some, how have things changed for your member organizations with employees required to report to a worksite physically?
- A. Ms. Maiolo responded: The Supplemental Safety Plan has added a whole additional layer to normal operations, i.e., Social distancing and PPE. Also, there were some challenges working in the office sporadically during the stay-at-home order—issues around daycare opening and closing and flexibility around scheduling happening across all industries. Our industry does not do well at working from home. They must collaborate. They feel less productive working from home. With project owners working from home, response times were a little slower. Some of the procedural meetings, such as pre-construction meetings, became virtual and will continue to be. However, other meetings must be in-person. We are in the process of trying to identify what should remain virtual and what should remain face to face.
- Q. How have your respective member organizations addressed the safety concerns and apprehension of those physically reporting to worksites while balancing the need to ensure projects are still completed on time and budget?
- A. Ms. Maiolo responded: Apprehension was not as big of an issue within the highway construction industry. Early on, there was fear and uncertainty around the virus. Our members communicated the safety plans and mitigation measures that would be in place to keep them safe. If their employees felt uncomfortable with the mitigation plans, there was a direct line to the president of the company to talk about it and figure it out for many of our members. I heard from one of our members that out of 100 employees, only three employees expressed concern.

PSATS – David Sanko

- Q. What communications challenges did you face with transportation partners during the pandemic, and how did you overcome those challenges?
- A. Mr. Sanko responded: The digital divide became confirmed for everyone. Standard communication in the past was phone and print media, but we quickly had to switch. Everyone was able to use the PSATS website. Many communities have email, but not necessarily high-speed broadband. We faced challenges with some internet service providers who were not prepared for the capacity. Sometimes, additional security features were put into place that slowed or blocked email. We mailed hardcopy mail to those who were not getting electronic communications. We set up alternate methods either with different internet service providers or segregated email boxes. We switched to video training sessions, people attended drop-in sessions or call-in sessions, which were heavily attended. However, people are excited to get back to in-person training and published factsheets that were printable online.
- Q. Will any of the changes you implemented to address these communication challenges become standard business practice moving forward?
- A. Mr. Sanko responded: I think they will. This event pushed everyone ahead in employees' embrace of technology, and many people found that it saved a lot of time. Virtual training will stay mixed with personal interactions and the sharing of information. It sometimes works better when you can see people face to face.

ACEC/PA – Amy Staud

- Q. Has there been something your organization has done in the last year in response to the COVID-19 pandemic that you would go back and do differently?

A. Ms. Staud responded: It is always good to look back and see what we would do differently, setting expectations for what happens post-pandemic. We could not have predicted some challenges of having not 200 HDR offices but 10,000 one-person offices spread across the United States and abroad. We were trying to cope with the situation and ensure that the staff had the resources they needed. As time passed, we found that people have gotten very comfortable with working from home. Returning to work brings additional concerns such as health and safety protocols, masks, and adhering to government restrictions. We have found a way to get through this together, however, we are an industry that thrives on collaboration. We like to work as a team, side by side, in an office setting.

Q. Regarding a return to normal, what are the first things your organization looks forward to working on when the COVID-19 pandemic is in the rearview mirror?

A. Ms. Staud responded: We are happy and satisfied that our team stood strong and never wavered to deliver assignments for our clients. But, we are looking forward to rejuvenating our normal working relationships, both old and new. For example, our recent hires have never even set foot in an HDR office or met their manager in person. We have lost valuable time for the young engineers for that in-person, over-the-shoulder training one can only really get sitting side-by-side with someone more senior. Integration and development are critical for career development and future success. We will focus on team building, focusing on reinforcing our core values and culture and initiating solid mentoring and training programs.

Ms. Nolan echoed what Ms. Staud said; there are some negatives. There are some things that we have lost such as face-to face interaction that leads to problem solving, and networking. How do you now pull together fostering a culture within your office? During meetings we are missing side conversations where you can get something resolved. Ms. Nolan is looking forward to bringing that back. In regard to strengthening in-person communication, how do we build it back stronger?

Mr. Sanko stated that the municipalities' residents expect in-person interaction. Working virtually has produced some efficiencies, however, other things have been lost. People are anxious and looking forward to face-to-face interaction. Mr. Sanko said that he has had to cancel their annual conference in April two years in a row. He said that there is an appetite from elected officials and the general public to reengage with society.

APC – Kimberly Maiolo

Q. The use of risk-based construction inspection limited the physical field inspectors based on this pandemic. Do you see an opportunity to reduce on-site inspection and man-hour needs for projects post-pandemic?

A. Ms. Maiolo stated that they put together a construction resource task force to restart work. The pandemic has forced us to use technology to help us out, looking at every angle in the post-pandemic world and what works and what does not. This will be explored further as to the way inspection is done on-site. So, stay tuned for more information.

Mr. Sanko stated that safety is first and common sense. We were reminded of essential health and are making investments in making facilities safe—with additional social distancing capacities. Communities have invested in lighting upgrades such as ultra-violet lighting like what emergency rooms use and negative ionization airflow in office facilities not only for COVID but for other purposes.

Ms. Walker thanked the panelists. We have learned a lot from this panel and we encourage everyone to put it to good use.

Communications Update

Ms. Walker stated the Bureau of Innovation is excited to share the STIC year-end report, which was released a few weeks

ago. It showcases what was accomplished in 2020. Thank you to TAG Leaders and STIC Members and their dedication to innovations. Ms. Walker provided the link to the Year-End report.

The meeting adjourned at 2:47 p.m.

Attendance List

Members in Attendance:

- Secretary Yassmin Gramian, P.E., PennDOT
- Division Administrator Alicia Nolan, FHWA
- Susan Armstrong, PACA
- Emily Bernzott, P.E., WTS
- Nick Burdette, P.E., ACEC
- Stan Caldwell, CMU
- Dan Cessna, P.E., ASHE
- Stacey Cleary, PAAMA
- Mark Compton, PTC
- Eric Donnell, Ph.D., PSU
- Joseph Gerdes III, PSATS
- Melissa Gates, CCAP
- John-Thomas Graupensperger, PAEP
- Brad Heigel, P.E., PTC
- Aaron Hoover, APC
- Keith Johnson, University of Pittsburgh
- Domenic Rocco, P.E., PA DEP
- Doug McLearn, PHMC
- Ronald Seybert, Jr., P.E., APWA
- Mahmood Shehata, P.E., MASITE
- Amy Sturges, PML
- Edward Troxell, PSAB
- Alfred Uzokwe, DCNR

PennDOT Leadership:

- Melissa Batula, P.E., Acting Executive Deputy Secretary
- Robert Chiappelli, Deputy Secretary for Administration
- Larry Shifflet, Deputy Secretary for Planning
- Michael Keiser, P.E., Acting Deputy Secretary for Highway Administration
- Brian McNulty, P.E., District Executive, District 1
- Sandra Tosca, P.E., District Executive, District 3
- Rich Roman, P.E., District Executive, District 4
- Michael Rebert, P.E., Acting District Executive, District 6
- Tom Prestash, P.E., District Executive, District 9
- Brian Allen, P.E., District Executive, District 10
- Cheryl Moon-Sirianni, P.E., District Executive, District 11
- Bill Kovach, P.E., District Executive, District 12

FHWA Leadership:

- Keith Lynch, Assistant Division Administrator
- Clint Beck, Director of Programs and Performance Management

Absent Members:

- Rodney Bender, PE, PUC
- C. Kim Bracey, DCED
- Brandon Carson, SAPDC
- John Gible, U.S. Army Corps of Engineers
- Richard Jucha, P.E., ACPA
- John Kibblehouse, Sr., PAPA
- Karl Singleton, PA Diversity Coalition
- Steve Thomas, AICP, Franklin County