



# NEW JERSEY STATE TRANSPORTATION INNOVATION COUNCIL

[www.NJDOTtechtransfer.net/NJ-STIC](http://www.NJDOTtechtransfer.net/NJ-STIC)

## 2ND Quarterly Meeting June 16th, 2021

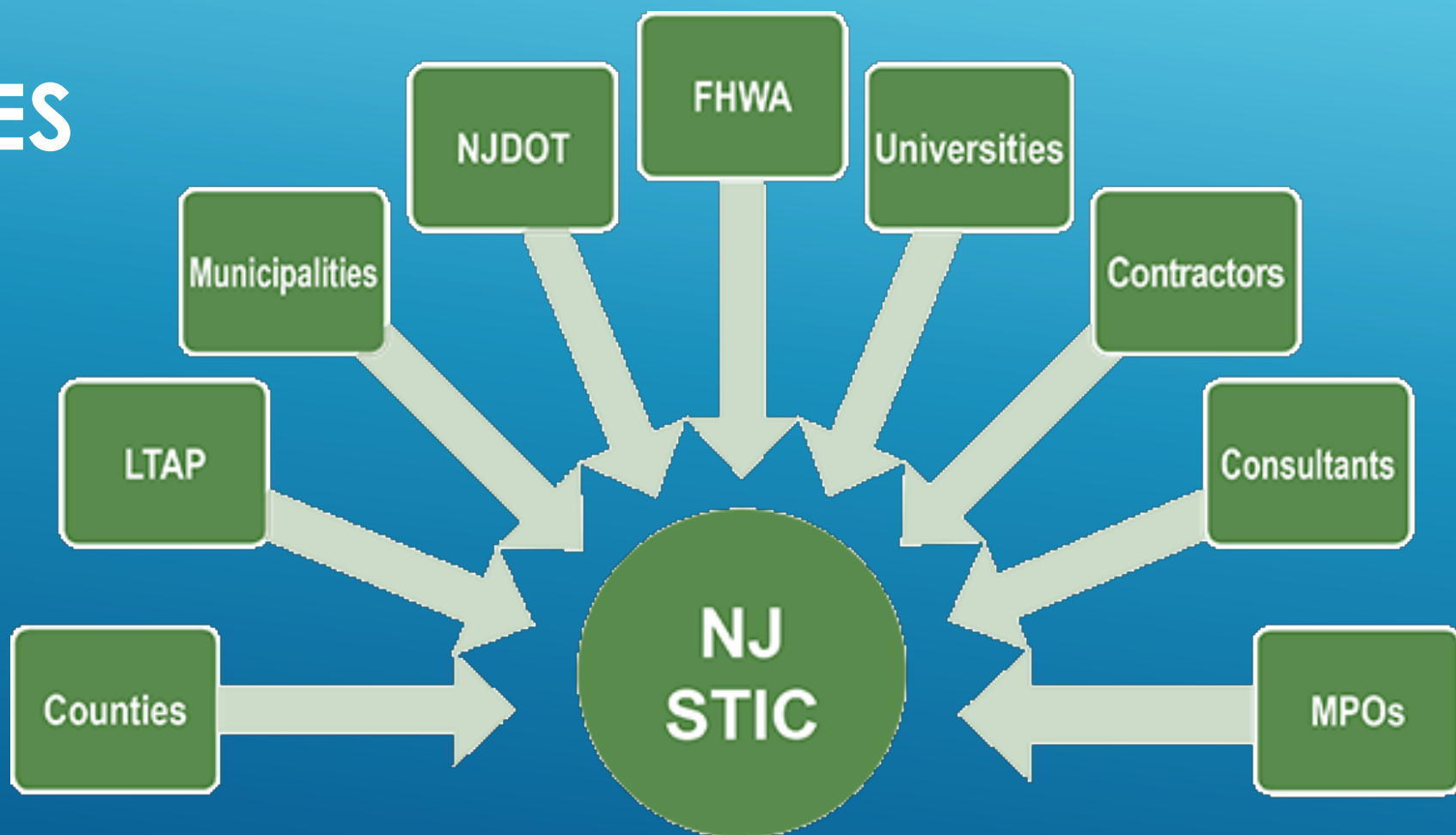


# WELCOME

Mike Russo  
Assistant Commissioner  
NJDOT Planning, Multimodal & Grant Administration



# ATTENDEES





# FHWA UPDATES



Helene Roberts, P.E.  
Innovation Coordinator & Performance Manager  
FHWA, NJ Division Office





- EDC-6 Progress Report #1 & STIC Incentive Status Update (due July 8)
- Let's Go! Pilot Workshop

# CORE INNOVATION AREA REPORTS

## CIA TEAM

### **SAFETY**

NJDOT – Dan LiSanti  
FHWA – Keith Skilton

## CIA TEAM

### **INFRASTRUCTURE PRESERVATION**

NJDOT – Bob Signora  
FHWA – Nunzio Merla

## CIA TEAM

### **MOBILITY & OPERATIONS**

NJDOT – Sue Catlett  
FHWA – Ek Phomsavath

## CIA TEAM

### **ORGANIZATIONAL IMPROVEMENT & SUPPORT**

NJDOT – Zenobia Fields  
FHWA – Brian Goodson

CIA TEAM

**SAFETY**

NJDOT – Dan LiSanti

FHWA – Keith Skilton

# EDC – 5

## Reducing Rural Roadway Departures

 **ACEC** New Jersey  
AMERICAN COUNCIL OF ENGINEERING COMPANIES

 **2021 DESIGN SUMMIT**  
Sponsored by NJDOT, FHWA and ACEC/NJ





















**Wednesday, August 11, 2021**

Forsgate Country Club  
Highland Room  
375 Forsgate Drive, Jamesburg, NJ  
Registration begins at 7:30 a.m.

**SAVE THE DATE!**

View the 2019 Design Summit presentations online at: [http://acecnj.org/design\\_summit](http://acecnj.org/design_summit)

2019 Presentation Topics:  
Dealing with Aging Infrastructure • Drone On • Going Batty

 <a href="#">Roadside Design Improvement at Curves</a>	 <a href="#">Reduced Left-Turn Conflict Intersections</a>	 <a href="#">Systemic Application of Multiple Low Cost Countermeasures at Stop-Controlled Intersections</a>	 <a href="#">Leading Pedestrian Interval</a>	 <a href="#">Local Road Safety Plan</a>
 <a href="#">USLIMITS2</a>	 <a href="#">Enhanced Delineation and Friction for Horizontal Curves</a>	 <a href="#">Longitudinal Rumble Strips and Stripes on Two-Lane Roads</a>	 <a href="#">Median Barrier</a>	 <a href="#">Safety EdgeSM</a>
 <a href="#">Backplates with Retroreflective Borders</a>	 <a href="#">Corridor Access Management</a>	 <a href="#">Dedicated Left- and Right-Turn Lanes at Intersections</a>	 <a href="#">Roundabouts</a>	 <a href="#">Yellow Change Intervals</a>
 <a href="#">Medians and Pedestrian Crossing Islands in Urban and Suburban Areas</a>	 <a href="#">Pedestrian Hybrid Beacon</a>	 <a href="#">Road Diet</a>	 <a href="#">Walkways</a>	 <a href="#">Road Safety Audit</a>



# EDC – 5

## Reducing Rural Roadway Departures



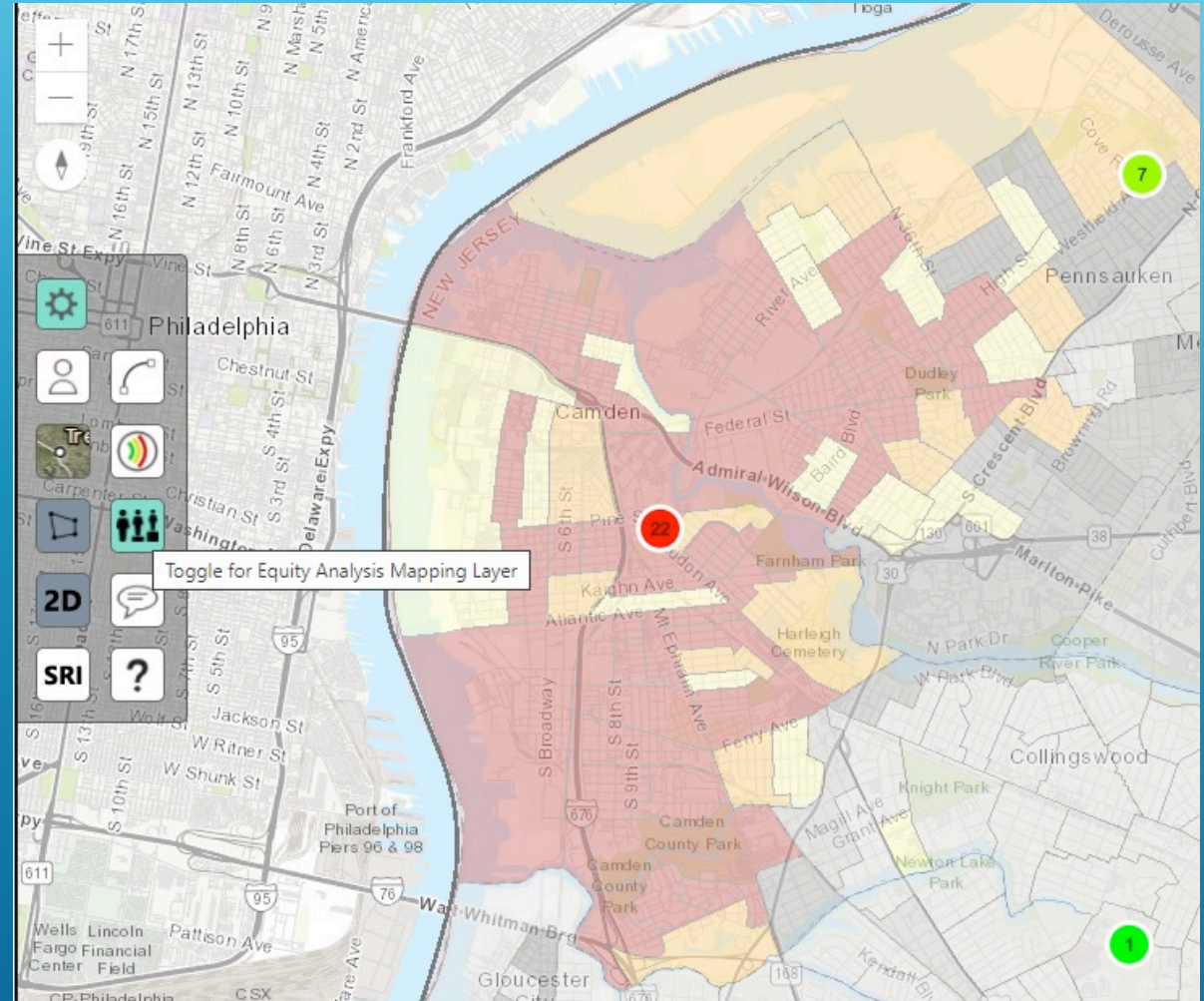
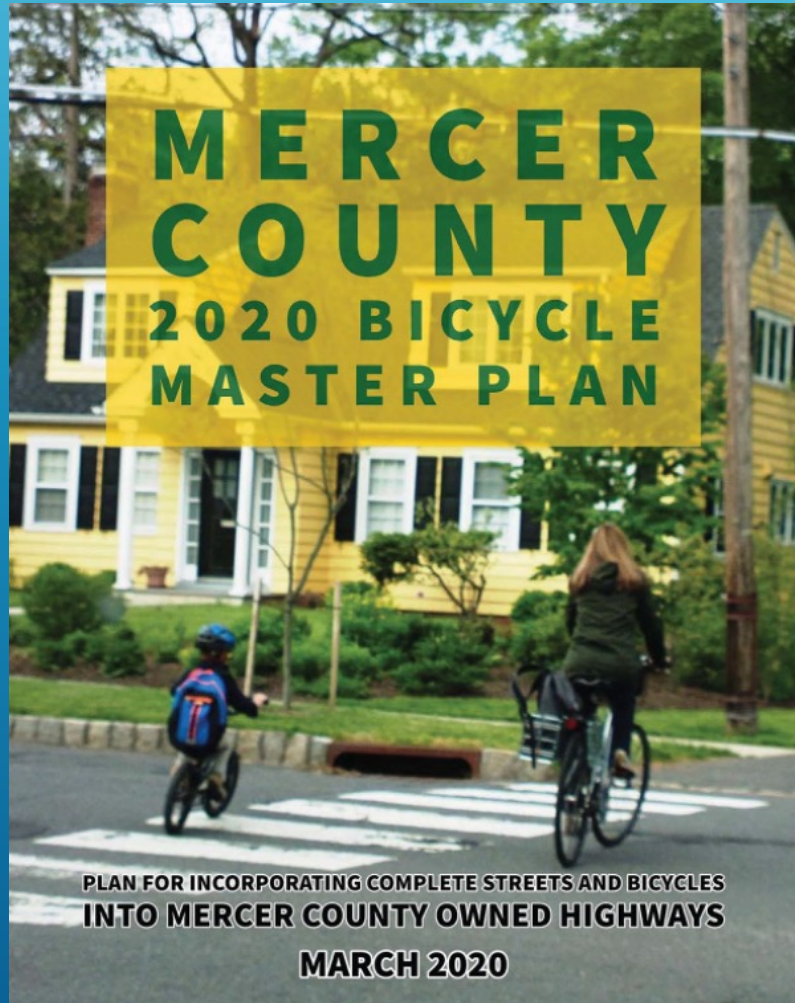
### NJ Regional Curve Inventory and Safety Assessment

Systemic Evaluation of Roadway Departure Crashes At Curves





## Safe Transportation for Every Pedestrian (STEP)







QUESTIONS?

CIA TEAM

***INFRASTRUCTURE***

***PRESERVATION***

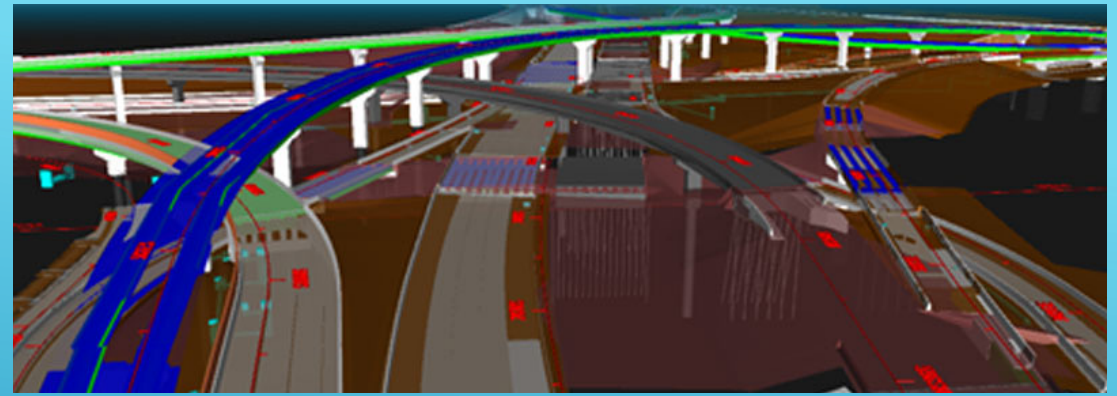
NJDOT – Bob Signora

FHWA – Nunzio Merla



# EDC – 6

## Digital As-Builts



**Purpose:** To explore the use of 3D models to build projects and update that digital information to reflect the project's as-built condition

### Benefits:

- Construction using digital information can lead to safer projects
- Digital information streamlines project delivery
- Digital as-builts can provide enhanced historical data

### Status:

- Team assembled (NJDOT, FHWA, Industry), Baseline Report completed, Working on preparing a list of required resources and preparing a cost estimate

# EDC – 6

## e-Ticketing



**Purpose:** Provide stakeholders with an electronic means to produce, transmit, and track and verify materials deliveries

### **Benefits:**

- *Enhances data collection & reduces exposure to construction equipment*
- *Time Savings - Real-time access*
- *Project documentation is more consistent and efficient using e-Ticketing*

### **Status:**

- *Effort in Development Stage*
- *Two Vendors have given presentations to date. Continuing to reach out to other Vendors for future presentations.*

# EDC – 6 Targeted Overlay Pavement Solutions (TOPS)

**Purpose:** *To develop and install overlays that provide long-life performance under a wide range of traffic, environmental, & existing pavement conditions*

## **Benefits:**

- Improve surface characteristics, such as smoothness, friction, and noise
- Timely and well-designed overlays are consistently cost-effective
- Targeted solutions to high-traffic areas result in reduced maintenance needs, fewer work zones, and improved safety

## **Status:**

- NJDOT is a lead agency using High-Performance Thin Overlay (HPTO), Binder Rich Intermediate Course (BRIC), & Stone Matrix Asphalt (SMA)
- Ultra-HPTO (aka HiMA) pilot project bid and awarded in region south currently being monitored

# EDC – 6

## UHPC for Bridge Preservation and Repair



**Purpose:** To explore the use of UHPC for Bridge Preservation and Repair.

### Benefits:

- Versatile & Strong - UHPC is a fiber-reinforced, cementitious composite material with mechanical and durability properties that far exceed those of conventional concrete materials
- UHPC repairs can outlive and outperform their conventional counterparts, resulting in life-cycle cost savings

### Status:

- 2 Pilot projects using UHPC completed in 2020 as well as additional deployments in 2021. Info being gathered on performance and usability
- Life cycle cost analysis will also be conducted
- Bridge Design Manual will be updated to include UHPC P&R



CIA TEAM

**MOBILITY & OPS**

NJDOT – Sue Catlett

FHWA – Ek Phomsavath

# EDC-6: Next-Generation TLM: Integrating Technology, Data, and Training

## NJDOT collaborating with NJSP

- Computer-Aided Dispatch (CAD) integration project
- CAD integration into traffic operation centers to improve incident response and quicker clearance.
- NJSP has commenced installation of the new CAD system.

## “Development” Stage

- Assembled a team
- Need to determine the data types/interface format of the new CAD system once deployed by the NJSP.









# EDC-6: Crowdsourcing for Advancing Operations

## NJDOT partnering with Waycare

- Pilot project
- Support/improve operations of traffic incident management (TIM) and traffic operations centers (TOCs)

## “Development” Stage

- Awarded the STIC Incentive funding (\$55,000)
- Federal authorization of funds
- Status of procurement







**NEW**

CIA TEAM

**Organizational  
Improvement &  
Support**

NJDOT – Zenobia Fields

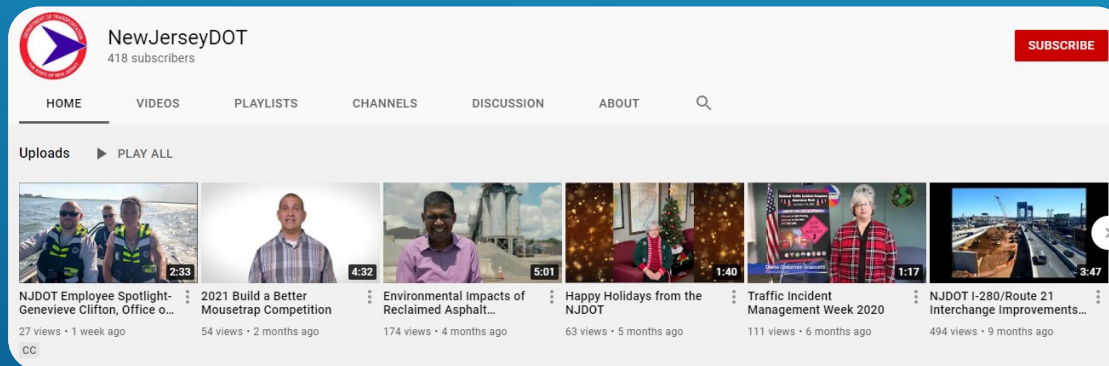
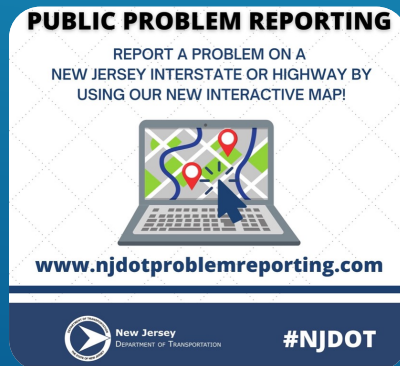
FHWA – Brian Goodson

# Virtual Public Involvement

- I. FHWA Webinars – Tools and Engaging Traditionally Underserved
  - a. Bridging the Divide – Connecting People to Opportunity:  
<https://www.youtube.com/watch?v=wh7I-j9MTpo>



- II. Rutgers VTC Key Informant Interviews
  - a. Current and future engagement techniques



# Strategic Workforce Development



- I. FHWA Webinars – Training, Fostering Partnerships and Resources
  - ✓ **Raise** Awareness and Foster Healthy Attitudes Towards Construction Careers
  - ✓ **Build** Capacity in the Highway Contractor Workforce
  - ✓ **Utilize** Industry Accredited Pre-Employment Training Programs
  - ✓ **Provide** a Pathway to Apprenticeship and Jobs



- II. Let's Go! Pilot Workshop – Succession Planning Efforts
  - a. Anticipated in July or September







# FEATURE PRESENTATION:

Operations Apprenticeship Program

Reinvigorating Succession Planning  
and  
Special Recruitment Programs



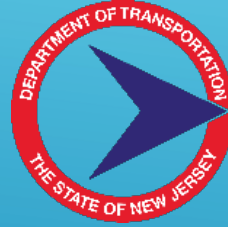


# Operations Apprenticeship Program

Michele Shapiro

Director, NJDOT Human Resources

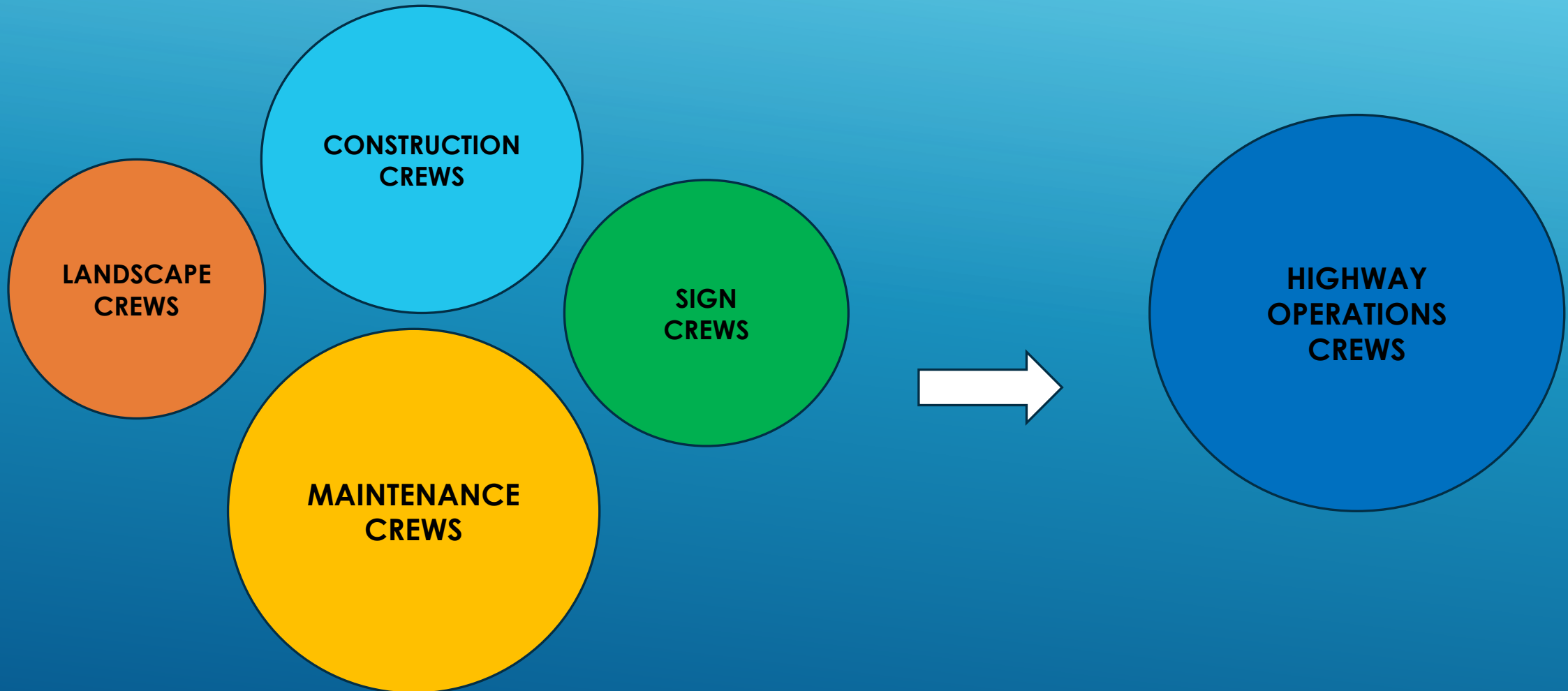
# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”



- ▶ **Why did NJDOT develop the apprenticeship?**
  - ▶ **Lack of qualified job applicants**
  - ▶ **Inconsistent skill sets through the crews**
  - ▶ **Insufficient resources to perform meaningful specialized work**
- ▶ **What did we do?**

# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”

## STEP 1 - CONSOLIDATE





# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”

## STEP 2 – DEVELOP A TITLE STRUCTURE AND STAFFING PROFILE

TITLE	QUANTITY
Crew Supervisor	1
Assistant Crew Foreman	1
Highway Operations Technician 3	2
Highway Operations Technician 2	3
Highway Operations Technician 1 / Trainee	3
<b>Total crew size</b>	<b>10</b>

# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”

## STEP 3 – TRAINING

### ► Developed a Training Team

- Sourced experts from within the organization to serve as trainers
- Developed a training curriculum

# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”

## STEP 3 – TRAINING CONT.

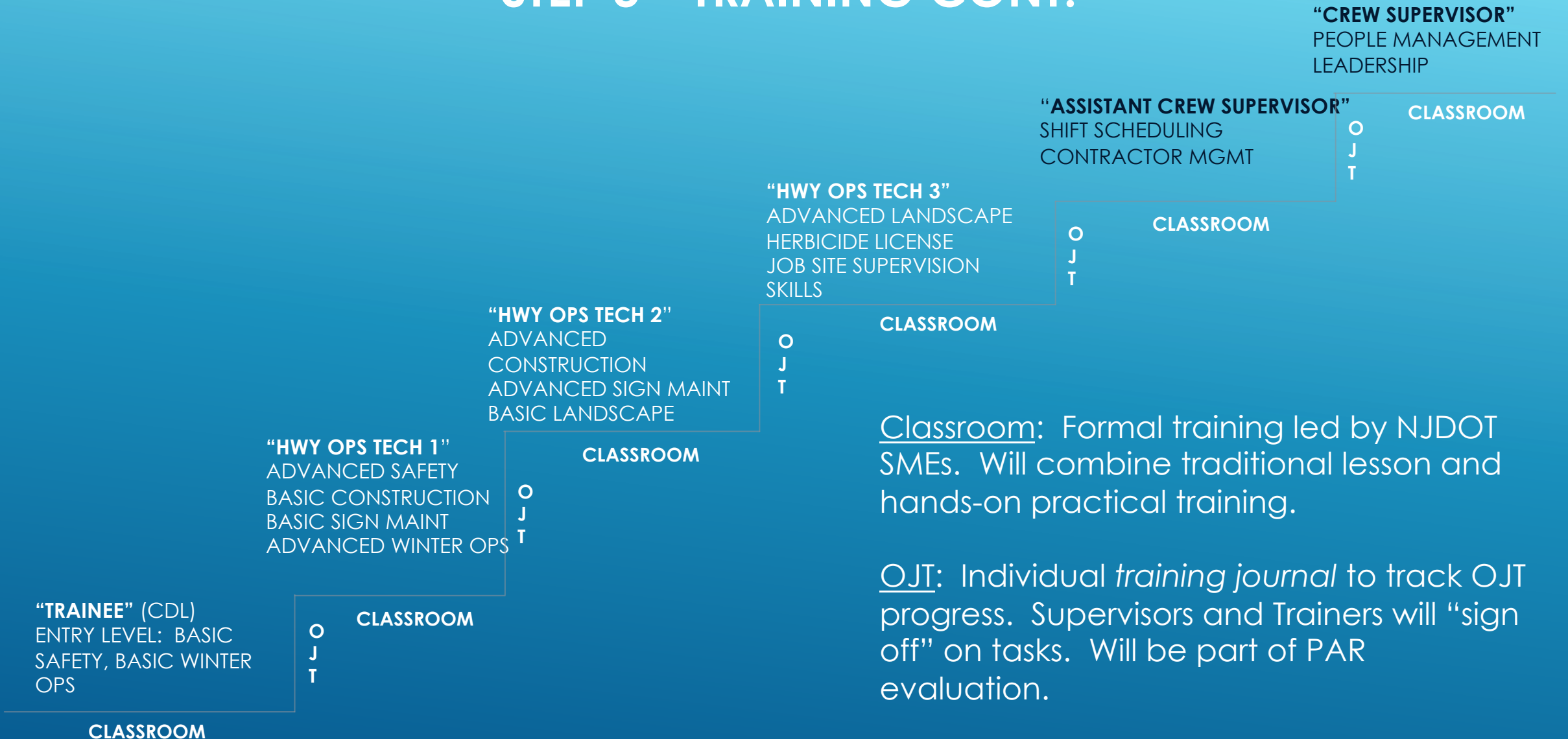
### ► “Level Set” the workforce

- Trained all levels of highway maintenance personnel on the basics of the work they would be expected to perform
- Opened advancement training thereafter



# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”

## STEP 3 – TRAINING CONT.



# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”

## STEP 4 – WORKING WITHIN THE CIVIL SERVICE SYSTEM

- ▶ **NJ’s Civil Service System placed limits on a traditional apprenticeship**
  - ▶ **Developed a notional apprenticeship**
    - **Hired into the Highway Operations Technician Trainee (no Civil Service Exam)**
    - **Advance to Highway Operations Technician 1 after one year (no Civil Service Exam)**

# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”

## STEP 4 – WORKING WITHIN THE CIVIL SERVICE SYSTEM CONT.

- ▶ **Highway Operations Technician 2 and 3**
  - ▶ **Requires Civil Service Testing**
  - ▶ **Vacancy must exist based on the crew staffing profile**



# **NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”**

## **STEP 4 – WORKING WITHIN THE CIVIL SERVICE SYSTEM CONT.**

- ▶ **Developed a unique practical examination**
  - ▶ **Administered by NJDOT’s Training Team and Human Resources**
    - ▶ **Test in a more comfortable environment**
    - ▶ **Familiar test content**

# NJDOT HIGHWAY OPERATIONS “APPRENTICESHIP”

## WRAP UP

- ▶ **What are some of the valuable takeaways from this experience?**
  - ▶ **1. Develop a “Grow Your Own” strategy**
  - ▶ **2. Think outside the box and use resources wisely**
  - ▶ **3. Remember that change takes time**
  - ▶ **4. Listen to the employees**
  - ▶ **5. Communicate frequently**
  - ▶ **6. Don’t stop**



# Reinvigorating Succession Planning and Special Recruitment Programs

Chrystal Section &  
Vicki Tilghman-Ansley  
NJDOT Civil Rights



# NJDOT SUCCESSION PLANNING (SP)

## Overview/History

- Supported by Commissioner and Senior Leadership
- Implemented 2001- Division of Employee Support
- Director, Manager and 3 Staff

# NJDOT SUCCESSION PLANNING (SP)

## Overview cont.

- Mission Statement Linked to NJDOT's Mission
- Succession Planning Steering Committee
- Core Competencies
- Development of Profiles for SES Positions
- Application Process

# NJDOT SUCCESSION PLANNING (SP)

## Overview cont.

- Individual Development Plan (IDP)
- Additional Development Tools
  - Training/Formal Education
  - Mentoring Program
  - Taskforce Assignments

**Program Discontinued- 2010**



# NJDOT SUCCESSION PLANNING (SP)

## Potential Pilot

- Based on Strategic and Workforce Development Plan
- Diversity in Participants- Race/Gender
- Two Tiered Program
  - Executive Level- Targeted SES Positions
  - Professional Level- Targeted Professional Positions

**SP is Transferrable to Local Governments**



# QUESTIONS/ANSWERS

## ROUNDTABLE



# REMINDERS & ANNOUNCEMENTS

NJDOT Tech Transfer Website  
[www.njdottechtransfer.net](http://www.njdottechtransfer.net)

NJ STIC Website  
[www.njdottechtransfer.net/nj-stic/](http://www.njdottechtransfer.net/nj-stic/)

All meeting recordings, presentations, and summary are posted  
<https://www.njdottechtransfer.net/nj-stic-meetings/>



March 2021 Issue  
NJDOT Tech Transfer News

Calling All Innovators!!

The 2021 Build a Better Mousetrap Competition Has Begun!

New Jersey's *Build a Better Mousetrap Competition* provides a great opportunity to share new ideas with others in the state and across the country. We are looking for submissions from employees of local or state public agencies (municipalities, counties, parks commissions, NJ Department of Transportation, NJ TRANSIT) that have developed new solutions to problems or found better ways of doing things. We will gather the best ideas from around the state and judge them using a 5-point rating system.

Read [more](#) about the 2021 BSBM winners (and see the video!) and learn about winners from years past.



March 2021  
NJDOT Tech Transfer News

December 2020 Issue  
NJDOT Tech Transfer News



The NJ Transportation Research Ideas Portal is Still Open — But this Round will be Ending on December 31st!

The New Jersey Department of Transportation's Bureau of Research invites you to participate in the *NJ Transportation Research Ideas* collaboration website. We are asking NJDOT's research customers and other transportation stakeholders to propose research ideas for the NJDOT Research Program. Join us in finding workable solutions to problems that affect the safety, accessibility, and mobility of New Jersey's residents, workers, visitors and businesses.

[Read More on How to Register & Submit Your Idea!](#)



22nd Annual NJDOT Research Showcase

December 2020  
NJDOT Tech Transfer News

September 2020 Issue  
NJDOT Tech Transfer News

LUNCHTIME TECH TALKS!



Analysis of Local Bus Markets Webinar



Join the NJDOT Bureau of Research on October 7th for a Lunchtime Tech Talk! Webinar on Analysis of Local Bus Markets

This Lunchtime Tech Talk webinar will feature Deva Deka, Ph.D., Assistant Director, Research at Rutgers – Alan M. Voorhees Transportation Center (VTC) and Susan O'Donnell, Senior Director, Business Analysis and Market Research at NJ TRANSIT. NJ TRANSIT operates nearly 250 bus routes throughout NJ. Bus riders constitute almost 60% of all riders using the agency's services. For many, these buses are essential for meeting almost all their daily travel needs. This webinar will present information drawn from five years of onboard surveys of bus riders throughout the state — work conducted by VTC for projects funded by the NJDOT Bureau of Research and sponsored by NJ TRANSIT.

The event is free, but registration is required to receive a link to the webinar and to be eligible for NJ AICP and PE credits. Read [more](#) about the talk or register [here](#).

[Also check out our calendar for other events](#)

DEADLINE EXTENDED TO OCTOBER 1st!



September 2020  
NJDOT Tech Transfer News

June 2020 Issue  
NJDOT Tech Transfer News

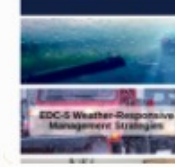


NJ STIC 2020 Spring Meeting

The NJ State Transportation Innovation Council (NJ STIC) Spring 2020 Meeting, held May 6, 2020, focused on the EDC-5 Innovative Initiative Virtual Public Involvement. The topic was appropriate to the times as STIC members gathered for the group's first virtual meeting in response to NJ Executive Order 107 in force during the COVID-19 pandemic. Speakers included NJDOT Commissioner Diane Guenrez-Scacchetti, Jil Stark and Lana Lau from FHWA, representatives of the state's three Metropolitan Planning Organizations (NJTPA, DTPAC, and SJTPC), Monmouth County, the Township of Princeton, and industry partner, AECOM.

[Read More](#)

LUNCHTIME TECH TALKS!



Lunchtime Tech Talks! Go Online

With the COVID-19 stay-at-home order in place, the NJDOT Bureau of Research took its Lunchtime Tech Talks online and recently hosted three webinars.

On April 14, 2020, Ray Murphy, ITS Specialist with the FHWA's Resource Center, presented *EDC-5 Weather-Responsive Management Strategies*. Under Round 5 of the Every Day Counts (EDC) program, FHWA promotes Weather-Responsive Management Strategies (WRMS) to manage traffic and road maintenance during inclement weather to improve safety and reliability, and minimize environmental impacts associated with weather events.

[Dredging, Dredged Material Management and the New Jersey](#)

June 2020  
NJDOT Tech Transfer News

Subscribe



If you are a new NJ STIC member or just want a refresher, please click on the links below for a quick primer on the Federal Highway Administration's STIC Network and the New Jersey STIC program.



#### **NJ State Transportation Innovation Council (NJ STIC) Primer**

The State Transportation Innovation Council (STIC) National Network was born out of Federal Highway Administration's (FHWA) Every Day Counts program. The program helps state DOTs identify and rapidly deploy proven, yet underutilized innovations to shorten project delivery, enhance safety, reduce congestion, and improve environmental sustainability. Each state's STIC is charged with establishing a process in which ideas, innovative techniques and processes can be evaluated and implemented quickly and proficiently.

The [New Jersey State Transportation Innovation Council](#) (NJ STIC) includes members from state and federal agencies, local governments, academia and industry partners, and other transportation stakeholders who work together to forge an environment of innovation, imagination and ingenuity to pursue specific initiatives and their rapid implementation to deliver a modern and high-quality transportation system to the Garden State.

[NJ STIC Team Charter](#). The NJ STIC Team Charter provides the mission statement, membership, and structure of the Core Innovation Area Teams, STIC Executive Team, and Innovation Advisory Team.

[NJ STIC Innovative Initiatives](#). The EDC-6 initiatives that NJ STIC has chosen to work on are featured, along with innovative initiatives from prior rounds of EDC.

[NJ STIC Meetings](#). The NJ STIC meets quarterly to discuss innovation deployments, progress updates on innovative initiatives, and suggestions for additional initiatives moving forward. Review presentations and documentation of meetings to find out more about innovation at the state and local level.

[NJ STIC Incentive Funds](#). The FHWA offers technical assistance and funds—up to \$100,000 per STIC per year—to support the costs of standardizing innovative practices in a state transportation agency or other public sector STIC stakeholder.

[FHWA STIC Network](#). The FHWA STIC Network website offers general information on elements of the federal STIC program and links to State Innovation Accomplishments, best practices of STICs, and an opportunity to sign up for newsletters and other information.

[FHWA Every Day Counts \(EDC\)](#). Every two years, the FHWA works with state departments of transportation, local governments, tribes, private industry, and other stakeholders to identify a set of innovative technologies and practices that merit widespread deployment. Information on prior rounds of EDC innovative initiatives is available as well as information on STIC initiative-related events.

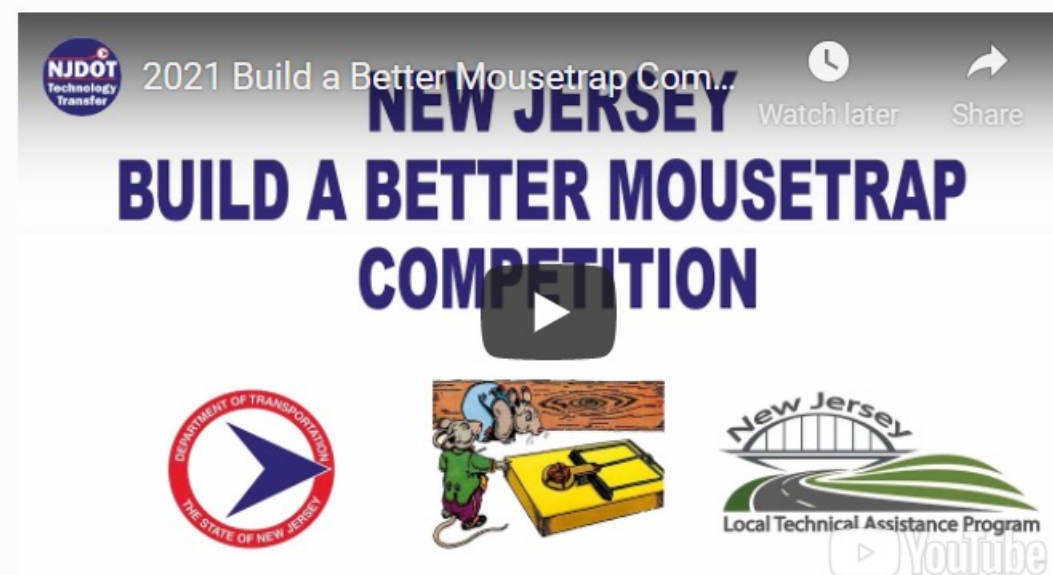
[FHWA Every Day Counts Round 6](#). The webpages for each of the seven EDC-6 (January 1, 2021 to December 31, 2022) innovative initiatives provide descriptions of the initiatives, links to resources, and contact information for FHWA personnel.

## Build a Better Mousetrap

People involved in the transportation industry often find better ways to do their jobs. Whether it's a new gadget that improves the quality and safety of a project, or an innovative process that reduces costs and improves efficiency, the people on the front lines are often the source of the innovations that become the latest and best practices.

New Jersey's [Build a Better Mousetrap Competition](#) provides a great opportunity to share new ideas with others in the State and across the country. We are looking for submissions from employees of local or state public agencies (municipalities, counties, parks commissions, NJ Department of Transportation, NJ Transit) that have developed new solutions to problems or found better ways of doing things. We will gather the best ideas from around the state and judge them using a 5-point rating system. The highest scoring entries will be entered into a Build a Better Mousetrap National competition.

Click the [Better Mousetrap Competition](#) for more information including an entry form to share your innovation and get in the game!





# THANK YOU!

[www.NJDOTtechtransfer.net/NJ-STIC](http://www.NJDOTtechtransfer.net/NJ-STIC)  
(609)963-2242 – Bureau of Research