



NEW JERSEY STATE TRANSPORTATION INNOVATION COUNCIL

Your Roadmap to Transportation Innovation

NJ TransAction Conference

April 17, 2019

Session 28

(Planning ACIP Credits)

WELCOME & OPENING REMARKS

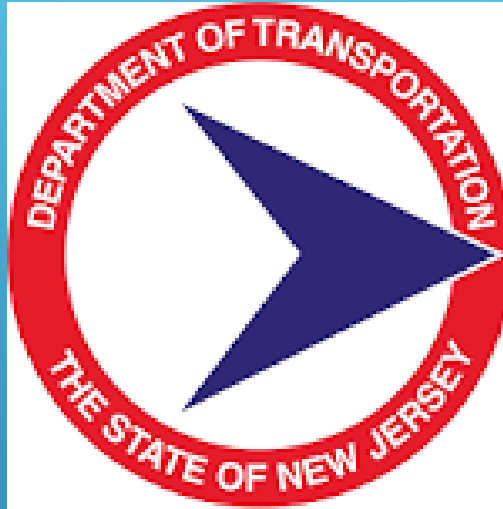


Helene Roberts, PE, CMQ/OE

Innovation Coordinator & Performance Manager

FHWA, NJ Division Office

NJ STIC Lead

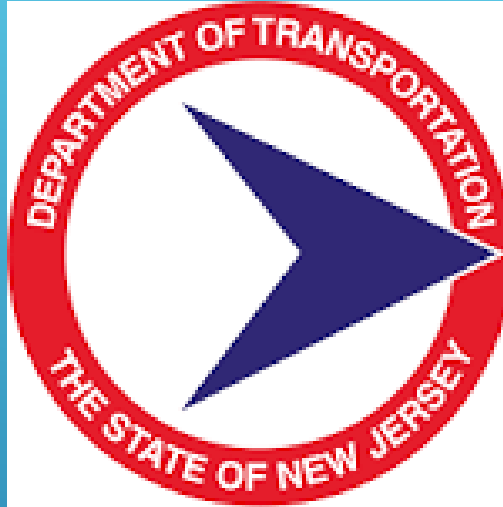


Amanda Gendek

Manager

NJDOT Bureau of Research

NJ STIC Executive Team



Salvatore (Sal) Cowan

Senior Director

NJDOT Transportation Mobility

NJ STIC Core Innovation Area (CIA) Co-Leader



William (Bill) P. McGarrigel, PE

Vice President, General Manager - Urban Engineers

Director & Executive Committee - ACECNJ

NJ STIC Council Member – Industry Representative



Mary D. Ameen, PE

Executive Director

North Jersey Transportation Planning Authority
NJ STIC Council Member – MPO Representative

FHWA HIGHLIGHTS

Helene Roberts, P.E., CMQ/OE

FHWA, NJ Division Office

Innovation Coordinator





Mobility · Safety · Quality · Environment · Shortening Project Delivery

EDC ROUND 5 (EDC-5)



Not Implementing

not currently using the innovation anywhere in the State and is not interested in pursuing the innovation

Development

collecting guidance and best practices, building support with partners and stakeholders, and developing an implementation process

Demonstration

testing and piloting the innovation

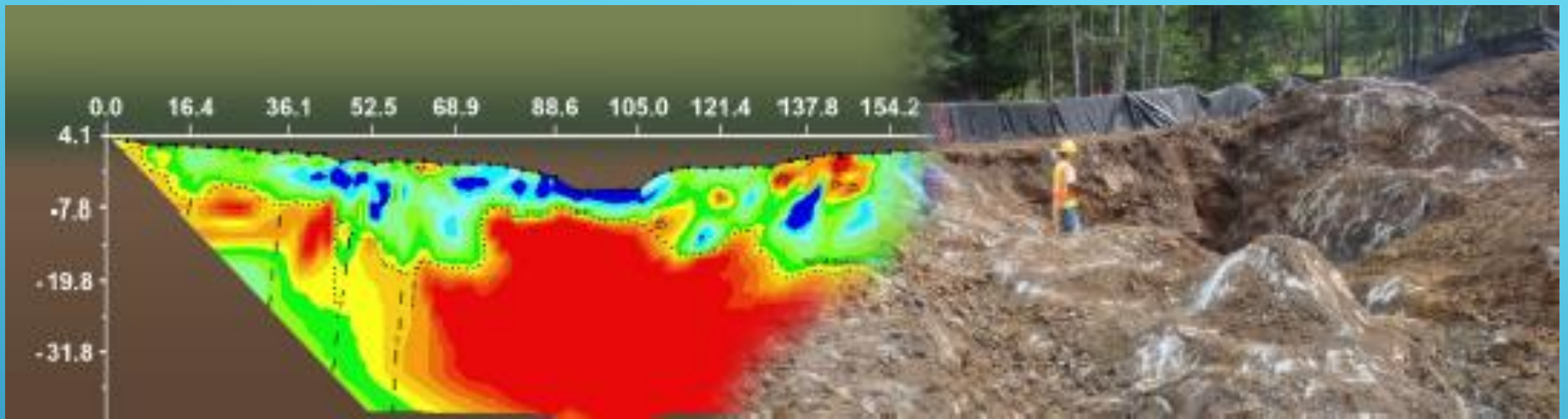
Assessment

assessing the performance of and process for carrying out the innovation and making adjustments to prepare for full deployment

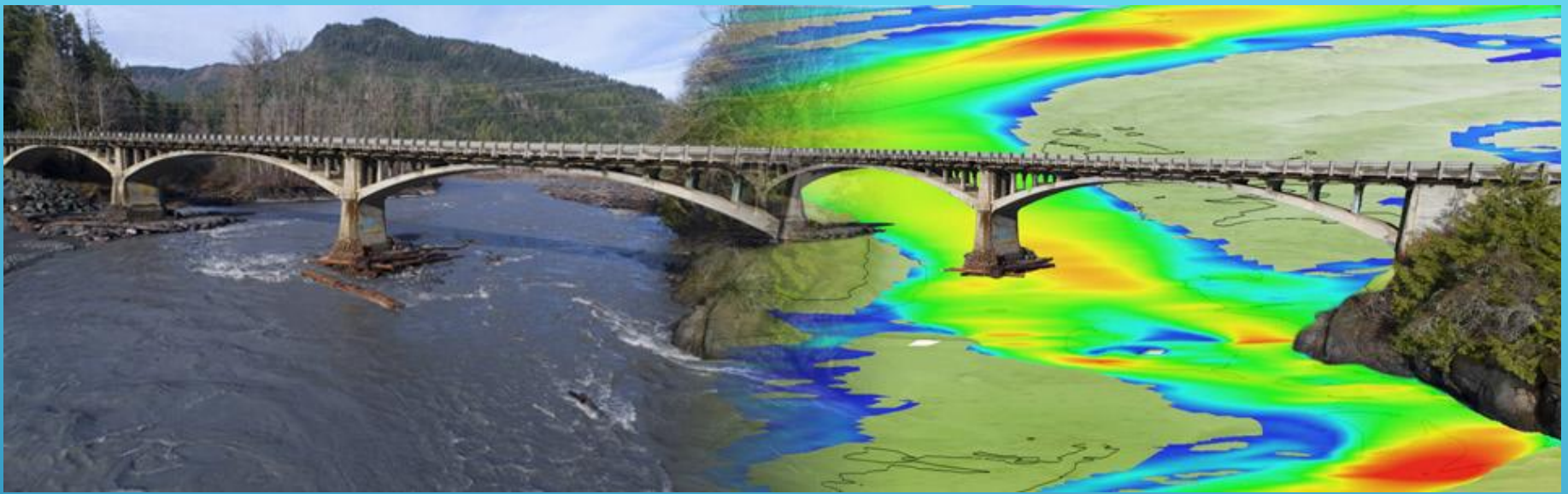
Institutionalized

adopted the innovation as a standard process or practice and uses it regularly on projects

STAGES OF INNOVATION



ADVANCED GEOTECHNICAL METHODS IN EXPLORATION (A-GaME)

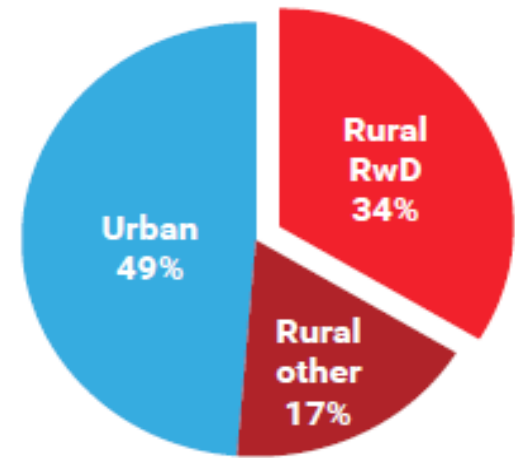


COLLABORATIVE HYDRAULICS: ADVANCING TO THE NEXT GENERATION OF ENGINEERING (CHANGE)



PROJECT BUNDLING

CIA: Infrastructure



Rural roadway departures (Rwd) account for approximately one-third of all traffic fatalities.

REDUCING RURAL ROADWAY DEPARTURES (RWD)



*Mid-block pedestrian crossing location with
Rectangular Rapid-Flashing Beacons (RRFB).*

Photo courtesy VHB

SAFE TRANSPORTATION FOR EVERY PEDESTRIAN (STEP)



UNMANNED AERIAL SYSTEMS (UAS)

Traffic Incident



Traffic Operation Center



Real-time Driver Data

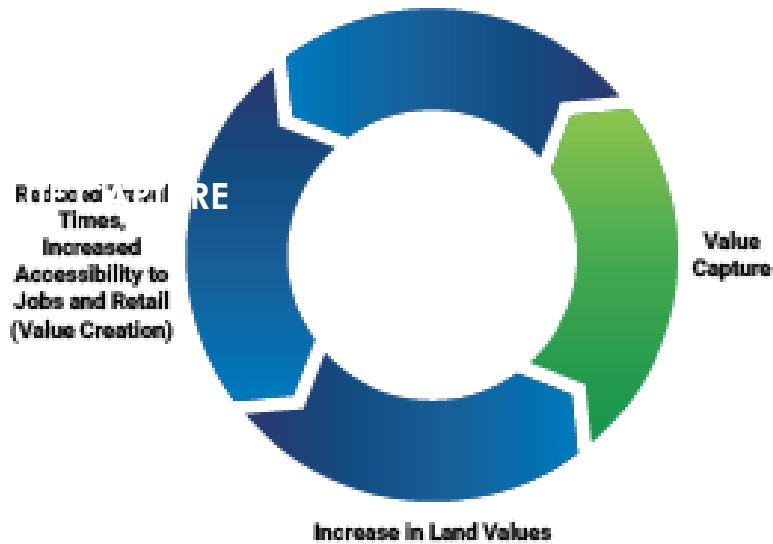


USE OF CROWDSOURCING TO ADVANCE OPERATIONS



WEATHER RESPONSIVE MANAGEMENT STRATEGIES (WRMS)

Transportation Investments



VALUE CAPTURE VIRTUAL PUBLIC INVOLVEMENT

The background of the slide is a collage of various US dollar bills, including \$100, \$50, and \$20 bills, arranged in a slightly overlapping and tilted manner. The bills are rendered in a sketchy, textured style. A solid light blue bar is at the top, and a solid dark blue bar is at the bottom.

FUNDING PROGRAMS

01

Up to
\$100,000
per STIC
per year

02

Rolling
application
process and no
competition

03

Standardizing
innovative
practices

STIC INCENTIVE FUNDING PROGRAM



Safety
Analyst

LPA Mobile
Devices

Local
Safety Peer
Exchanges



NJ STIC INCENTIVE PROJECTS



NJ STIC INCENTIVE PROJECTS

01

**Rolling
application
No
competition**

02

**Offsets
financial risk**

03

**Up to full
cost of
innovation –
max. \$1M**

04

**State DOT
applies**

05

**6 months to
obligate
funds**

ACCELERATED INNOVATION DEPLOYMENT (AID) DEMONSTRATION PROGRAM



ACCELERATING MARKET READINESS PROGRAM (AMR)

- ▶ Rapid, national assessment of emerging innovations
- ▶ Objective-written documentation
- ▶ Broad Agency Announcement issued February 25; white paper proposals due 4/22
- ▶ Open to all sources
- ▶ Awards from \$200k to \$500k

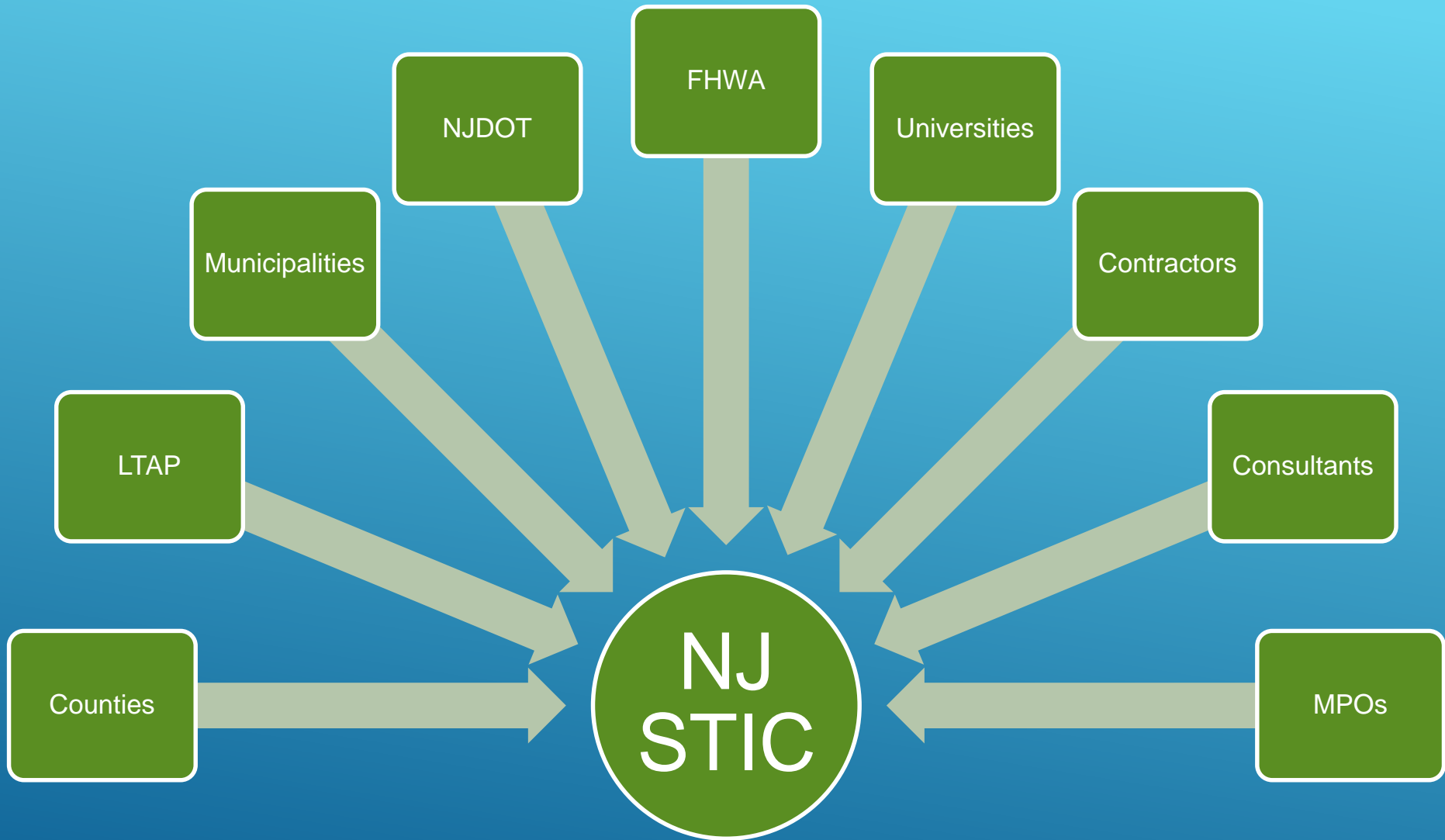


AK	AL	AR	AZ	CA
CO	CT	DE	FL	GA
HI	IA	ID	IL	IN
KS	KY	LA	MA	MD
ME	MI	MN	MO	MS
MT	NC	ND	NE	NH
NJ	NM	NV	NY	OH
OK	OR	PA	RI	SC
SD	TN	TX	UT	VA
VT	WA	WI	WV	WY

STIC

State Transportation Innovation Councils

To identify, evaluate, and rapidly deploy new technologies and process improvements that will accelerate project delivery and improve the safety and quality of transportation in New Jersey.



NJ STIC'S CORE INNOVATION AREAS

CIA TEAM SAFETY

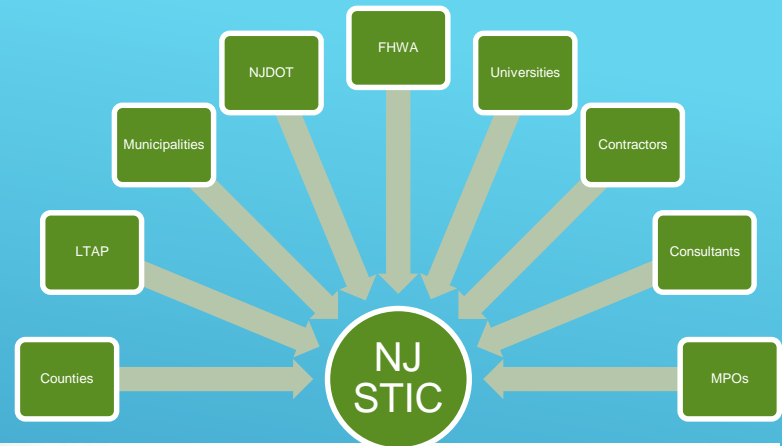
NJDOT – Dan LiSanti
FHWA – Keith Skilton

CIA TEAM MOBILITY & OPS

NJDOT – Sal Cowan &
Wayne Patterson
FHWA – Ek Phomsavath

CIA TEAM INFRASTRUCTURE PRESERVATION

NJDOT – Bob Signora
FHWA – John Miller



BUREAU OF RESEARCH

NJDOT Technology Transfer

Home

NJ STIC

Tech Talks!

Share Your Ideas

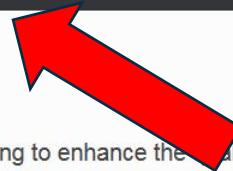
Research

Resources

Calendar



Share Your Ideas



The NJDOT Bureau of Research promotes innovation and problem-solving to enhance the quality and cost effectiveness of the policies, practices, standards and specifications that are used in planning, building, and maintaining New Jersey's transportation infrastructure. Here are three ways that the transportation community can come together to create innovative solutions to transportation problems.

Do you have an **IDEA**?



NJDOT Transportation Research Ideas



Build a Better Mousetrap Competition



NJ STIC

www.NJDOTtechtransfer.net

www.NJDOTtechtransfer.net/nj-stic/



NJDOT Technology Transfer

Home NJ STIC Tech Talks! Share Your Ideas Research Resources Calendar

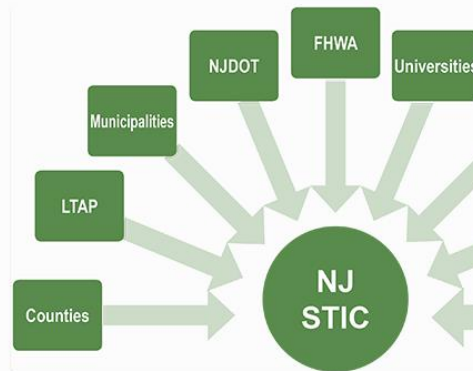
NJ STIC

What is STIC?

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.

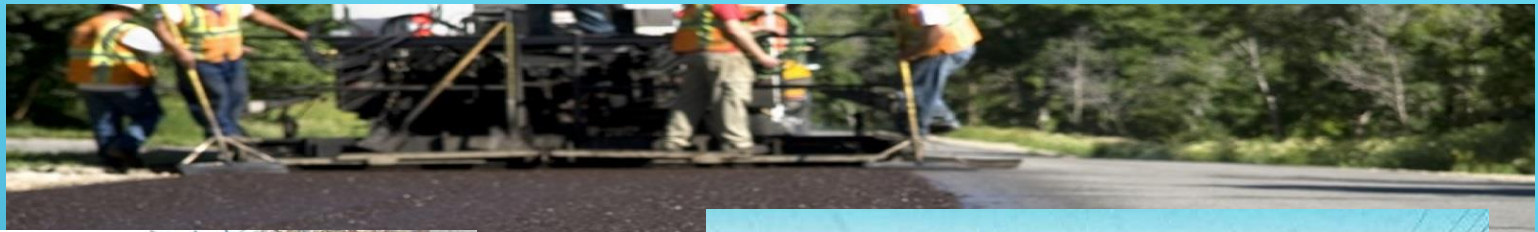
Who are STIC members?

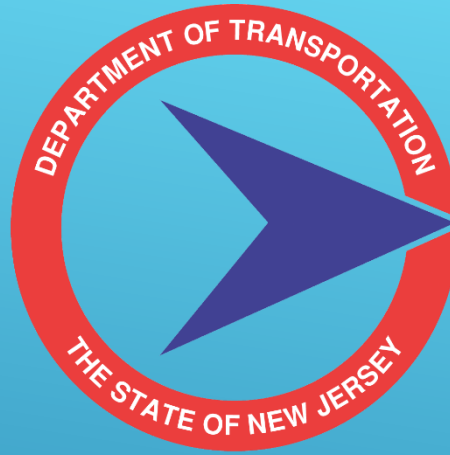
NJ's STIC members are a cross-section of various stakeholders, state and federal agencies, local governments, academia and industry partners that work



A screenshot of the FHWA Center for Accelerating Innovation website. The header includes the FHWA logo and navigation links: 'About Programs Resources Briefing Room Contact Search FHWA'. Below the header is a search bar and a navigation menu with links: 'CAI Home Every Day Counts STIC Network AID Demonstration AMR Program Resources'. The main content area features the 'STIC' logo, a description of the STIC Network, and a photo of a meeting. Below this are sections for 'STIC Incentive Program', 'The Power of the STIC (videos)', and 'STIC Network'. The 'STIC Incentive Program' section offers technical assistance and funds up to \$100,000 per STIC per year. The 'The Power of the STIC (videos)' section includes icons for 'STIC Overview', 'Local Public Agencies', 'DOTs', 'Academia', and 'Industry'. The 'STIC Network' section encourages getting involved with your STIC or contacting a member within your state. The 'STIC Resources' section lists 'Best Practices of Effective STICs' and 'STIC Factsheet'.

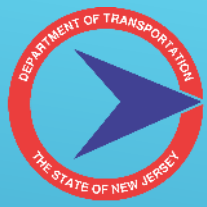
www.fhwa.dot.gov/innovation/stic/





TRANSPORTATION MOBILITY

A DIVISION OF
TRANSPORTATION OPERATIONS
SYSTEMS AND SUPPORT (TOS&S)



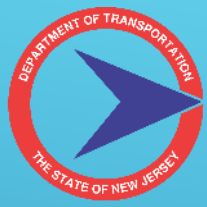
CONNECTED VEHICLE – ROAD SERVICE SAFETY MESSAGES

When this happens...



...people go to work



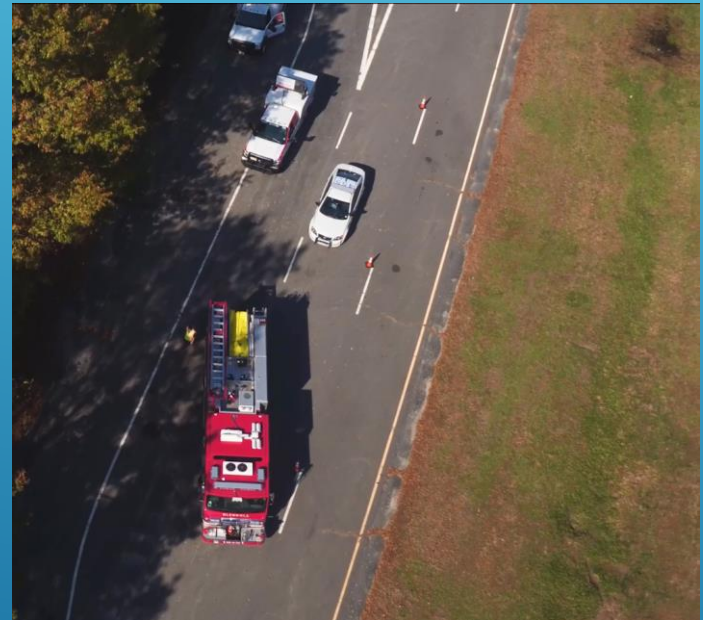


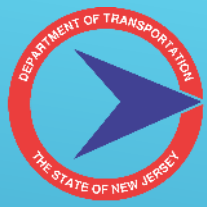
CONNECTED VEHICLE – ROAD SERVICE SAFETY MESSAGES

When a crash happens...



Responders
“Go to Work”

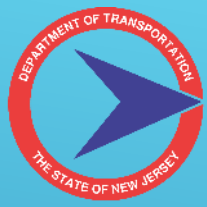




CONNECTED VEHICLE – ROAD SERVICE SAFETY MESSAGES

The road is their “office”





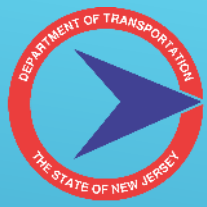
CONNECTED VEHICLE – ROAD SERVICE SAFETY MESSAGES

You don't want
this...

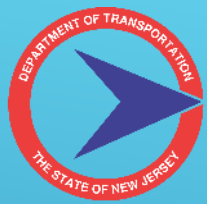


They don't want
this...

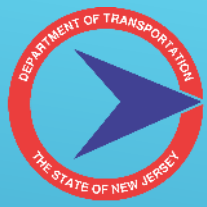




HOW CAN WE INCREASE FIRST RESPONDER SAFETY?



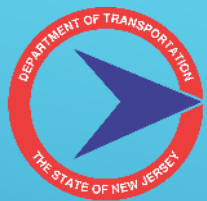
**BY ALERTING
MOTORISTS TO THEIR
PRESENCE ON THE
ROAD USING
CONNECTED VEHICLE
TECHNOLOGY**



iCONE CONNECTED VEHICLE TECHNOLOGY

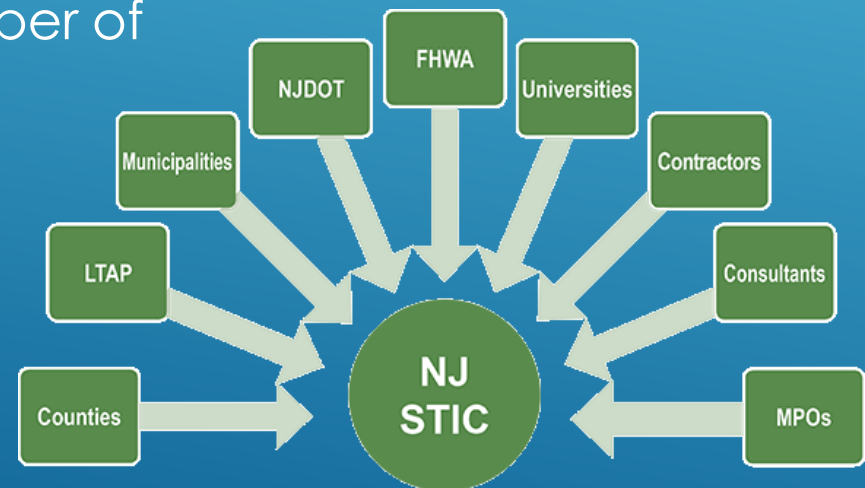
- ▶ Vehicle Hazard Light Radio Adaptation
- ▶ Provides GPS location and hazard light status
- ▶ Transmits vehicle ID, location and 'ON' status.
- ▶ Status posted to XML within 2 minutes.
- ▶ Updates status every 15 minutes.
- ▶ Re-transmits location if the vehicle moves more than 500 ft.

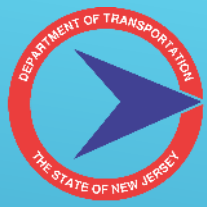




CONNECTED VEHICLE – ROAD SERVICE SAFETY MESSAGES

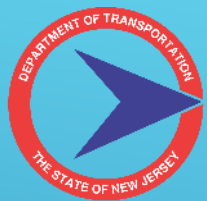
- ▶ Utilizing STIC Incentive Funding, NJDOT Purchased 40 iCone Connected Vehicle Devices
- ▶ Total cost is \$39,600 that includes devices and wireless cellular communication package for 3 years
- ▶ Installation Commenced in September of 2018.
 - ▶ On 9/8/2018 SSP North Vehicles equipped
 - ▶ On 9/3/2018 SSP South Vehicles equipped



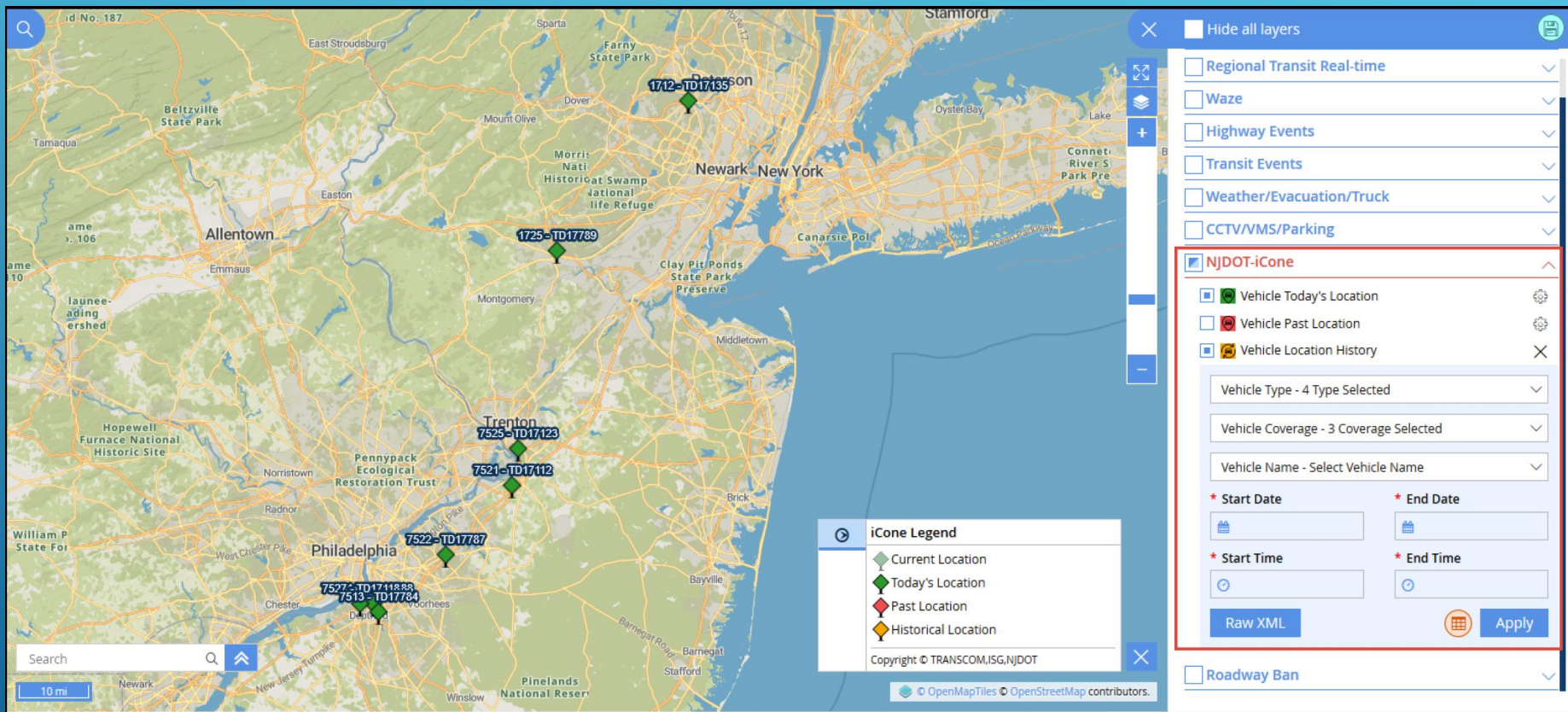


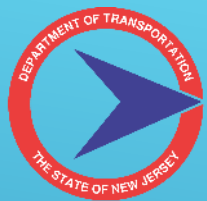
CONNECTED VEHICLE – ROAD SERVICE SAFETY MESSAGES





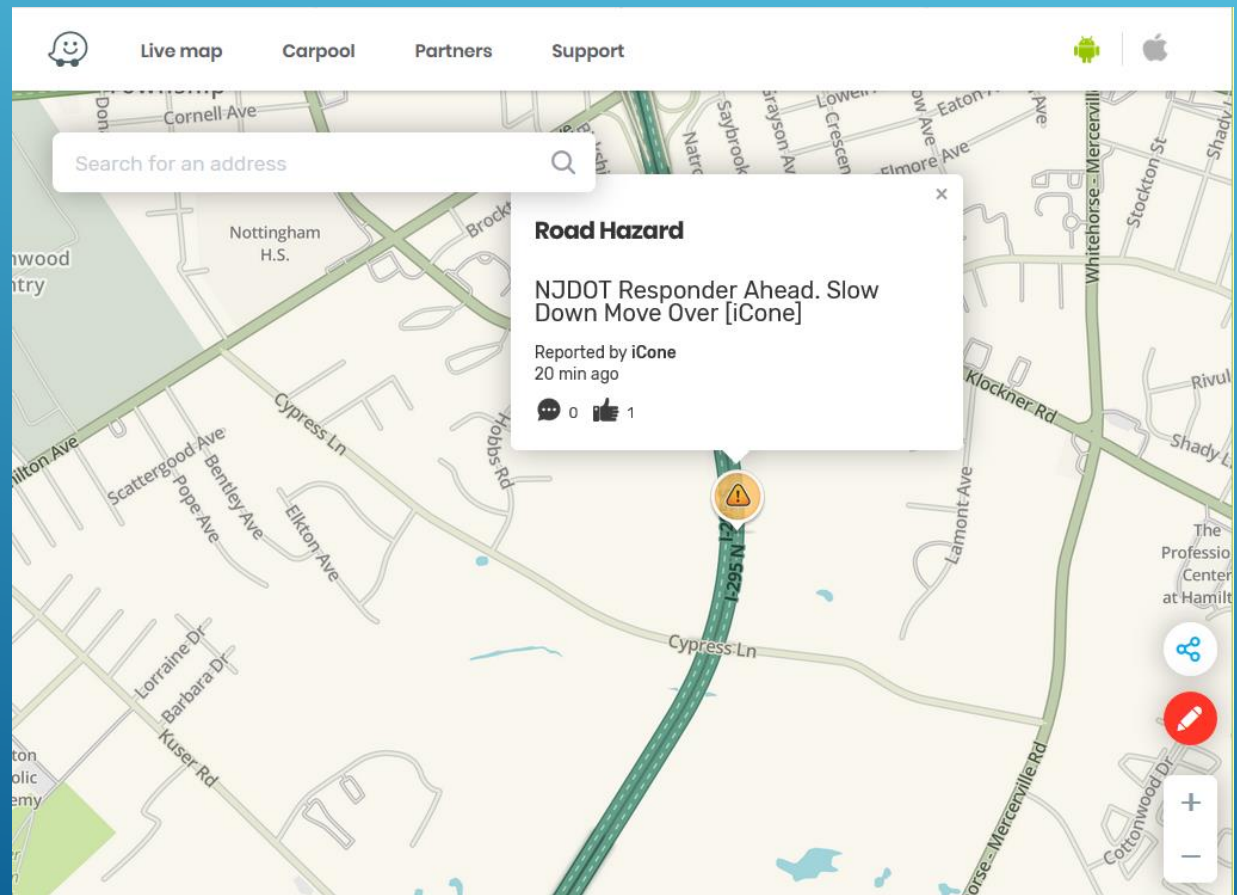
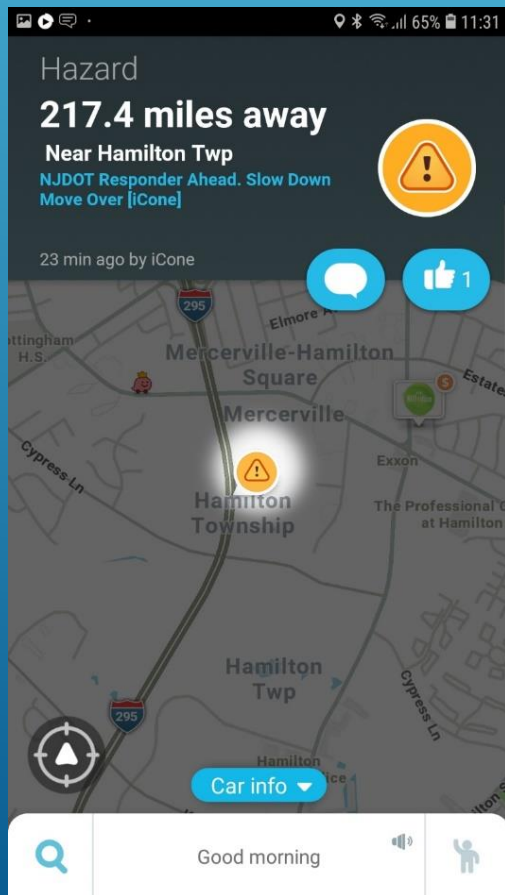
Integrated Real Time Vehicle Dashboard

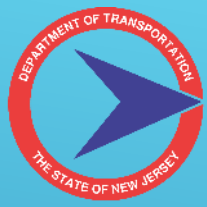




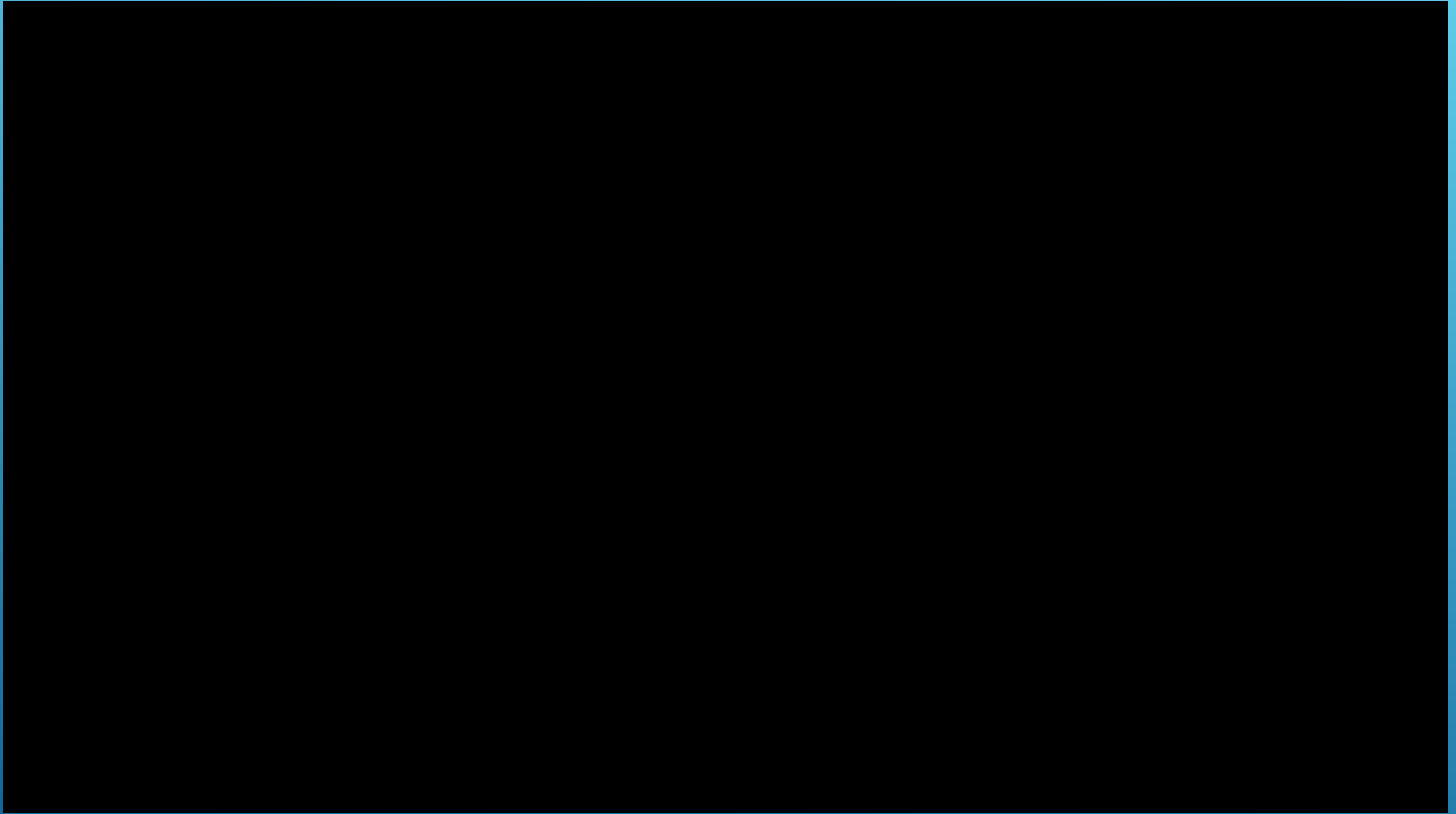
CONNECTED VEHICLE – ROAD SERVICE SAFETY MESSAGES

- In November of 2018 the message format that will be integrated into Waze application was standardized





CONNECTED VEHICLE – ROAD SERVICE SAFETY MESSAGES



TEAM – A group of individuals working together to achieve their goal.

TEAM – A group of individuals working together to achieve their goal.

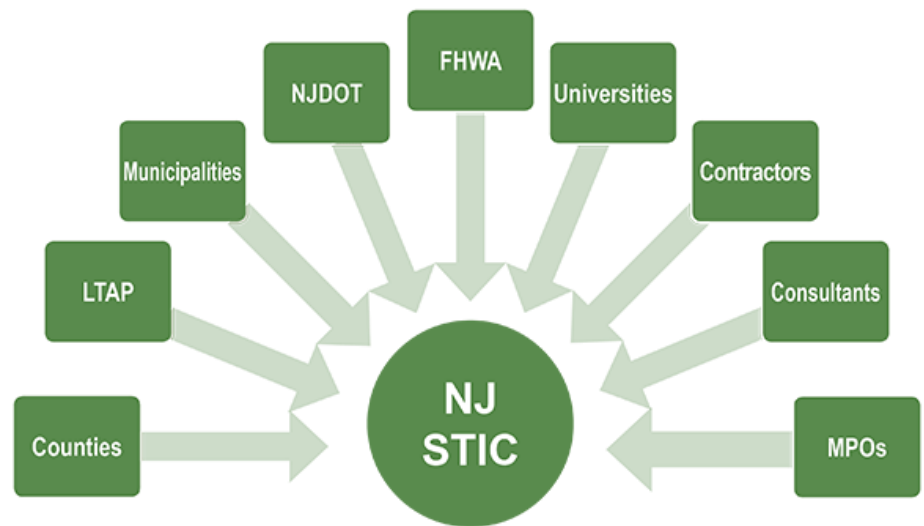
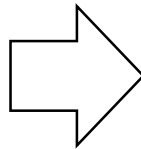
There are plenty of examples:

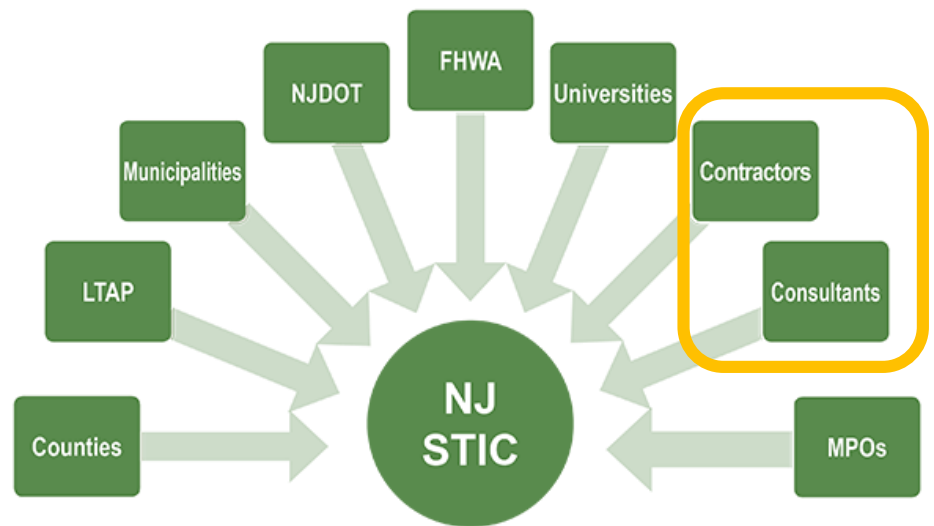
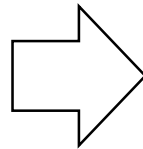


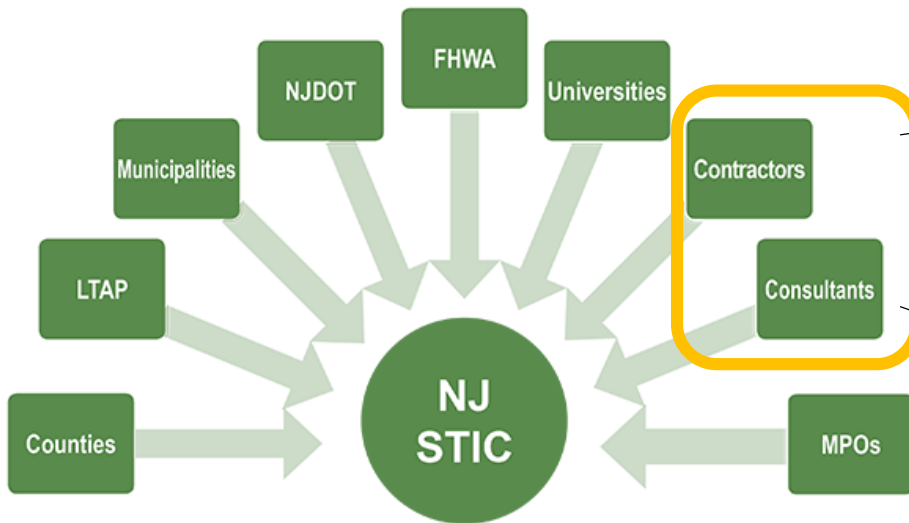


- Team concept introduced in 2010
- Promotes innovation
- Evaluate/Implement quickly and proficiently
- Each State establishes their framework









WHAT IS THE ROLE FOR



IN THE



???

IMPLEMENTATION



EDC-1 Innovations (2011-2012) – Example - Adaptive Signal Control Technology

- Route 168 - MP 6.79 to 9.72 - (11 intersections)



IMPLEMENTATION



EDC-2 Innovations (2013-2014) – Example - Accelerated Bridge Construction

- Route 202 Bridge over Passaic River



IMPLEMENTATION



EDC-3 Innovations (2015-2016) – Example - Road Diets

- Route 45, Woodbury



IMPLEMENTATION



EDC-4 Innovations (2017-2018) – Example - Pavement Preservation

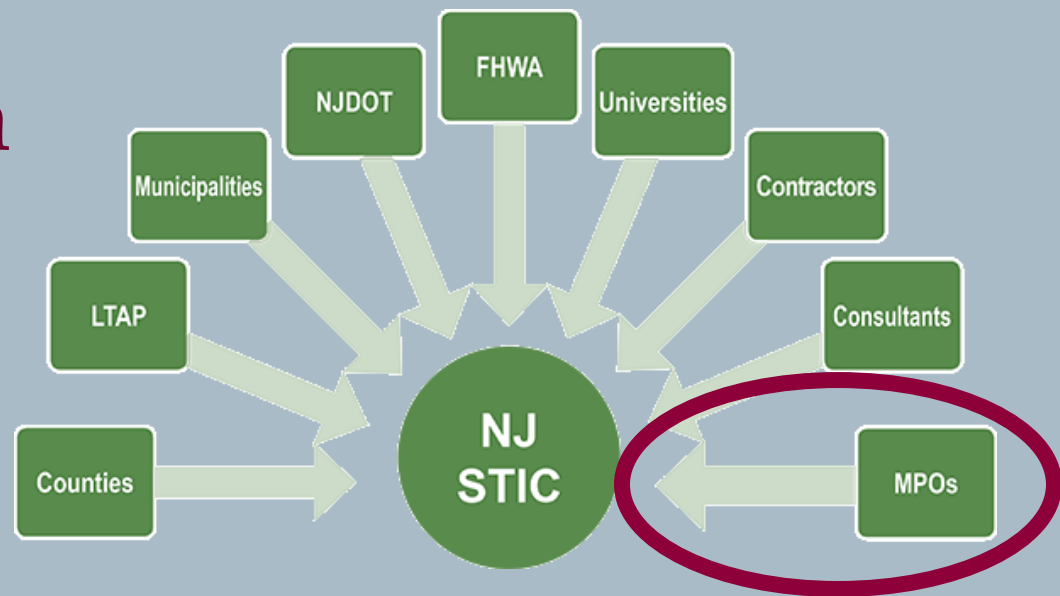
- Park Avenue (CT)



State Transportation Innovation Council

NJ TransAction Conference

April 17, 2019



Mary D. Ameen, Executive Director

North Jersey Transportation Planning Authority

NJTPA Region

Bergen

Essex

Hudson

Hunterdon

Jersey City

Middlesex

Monmouth

Morris

Newark

Ocean

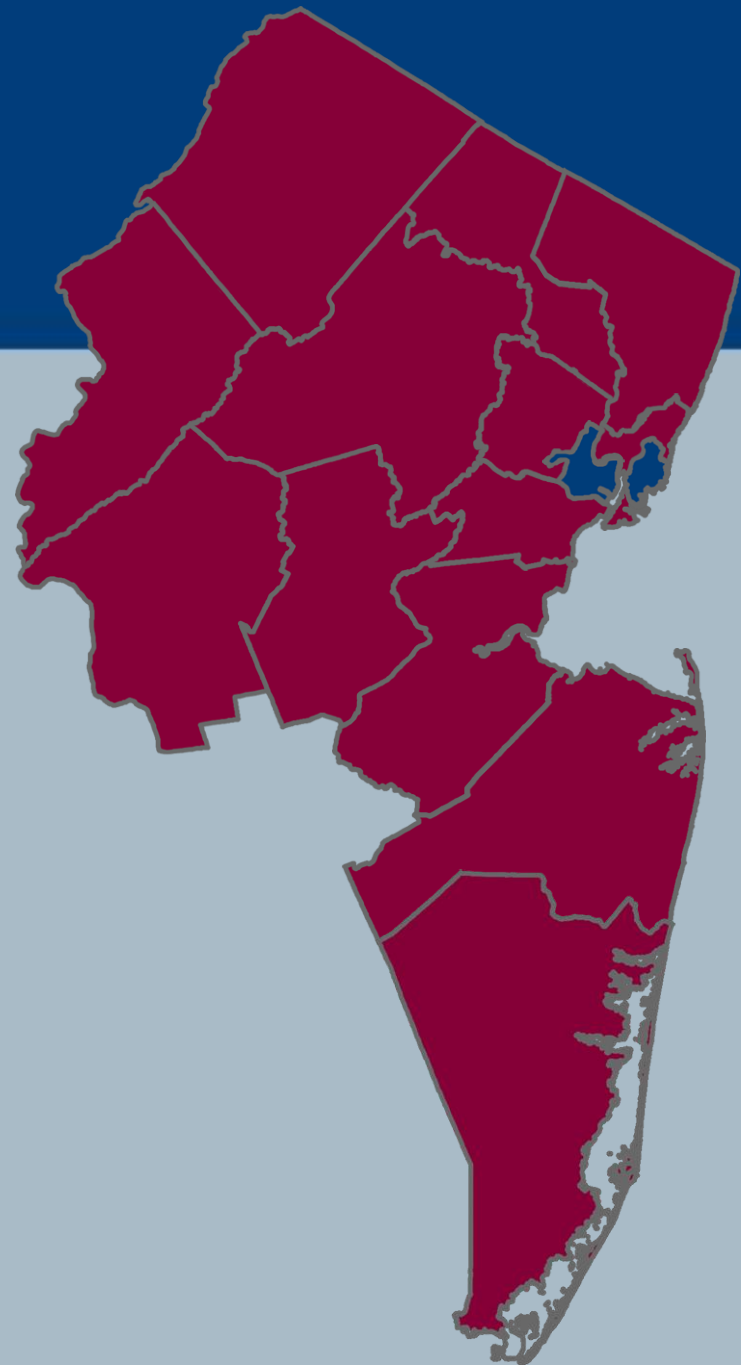
Passaic

Somerset

Sussex

Union

Warren



North Jersey Transportation Planning Authority

The Metropolitan Planning Organization for Northern New Jersey



STANDING COMMITTEES

Planning & Economic Development Committee

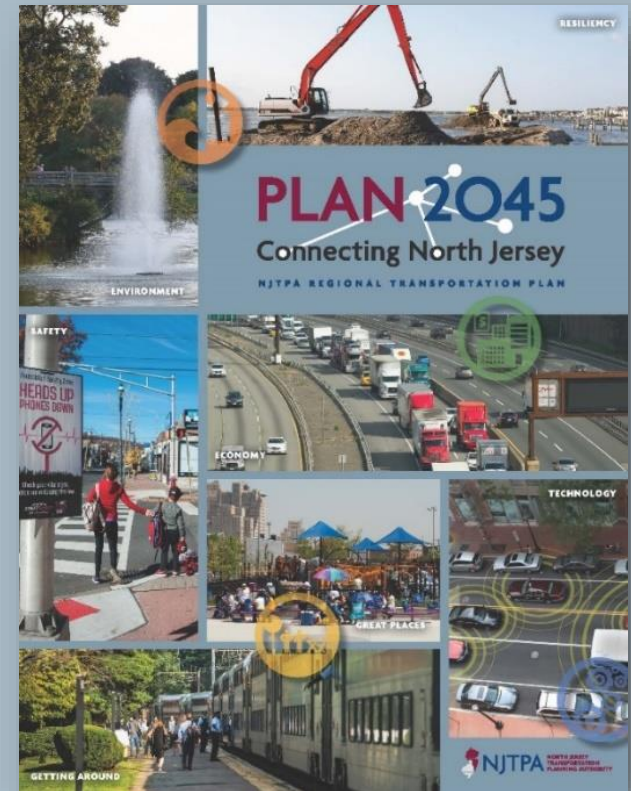
Project Prioritization Committee

Freight Initiatives Committee

Regional Transportation Advisory Committee

Metropolitan Planning Organizations and the STIC

- Technical Assistance
- Information Exchange
- Collaboration
- Regional Vision



The Connected Corridor



Advancing TSM&O in NJ
Through the Application of the
FHWA Capability Maturity Model

CMM Level 1 Performed



- Done ad hoc

Good

CMM Level 2 Managed



- Process developing

CMM Level 3 Integrated

- Process documented
- Closing gaps among:
 - Institutional - supporting framework
 - Operations – what you do
 - ITS - the technology



Better

CMM Level 4 Optimized



- Performance-based improvement
- Formal program

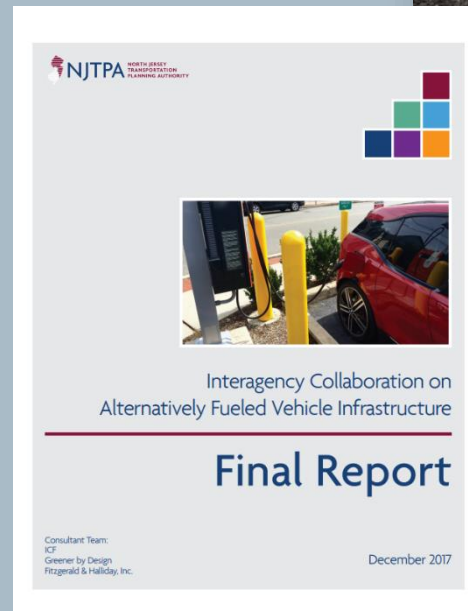
Best

IMPROVED ITS/
TSM&O
EFFECTIVENESS
INCREASING
BENEFITS ALIGNED
WITH REGIONAL
GOALS



Alternative Fuel Vehicles

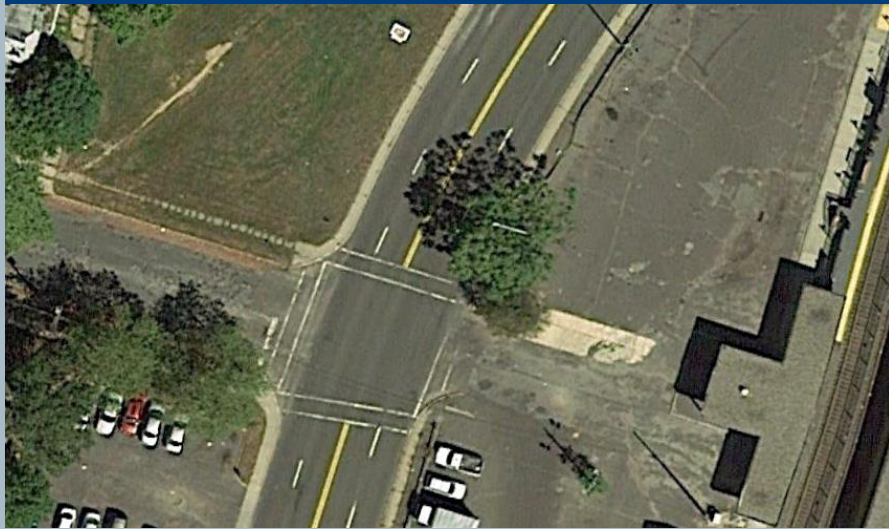
- Technical Assistance
- Data on Market Support
- Model Ordinances
- Fleet Planning
- Research



Safety Work

Road Diet Memorial Drive, Asbury Park

Before



After



Pilot Roundabouts



Newark's Ironbound

Street Smart NJ

DRIVE SMART
We **STOP**
for people



It's the law



BeStreetSmartNJ.org

WALK SMART
We wait for
the walk



BeStreetSmartNJ.org

DRIVE SMART
We slow down
for safety



BeStreetSmartNJ.org

Local Capital Project Delivery

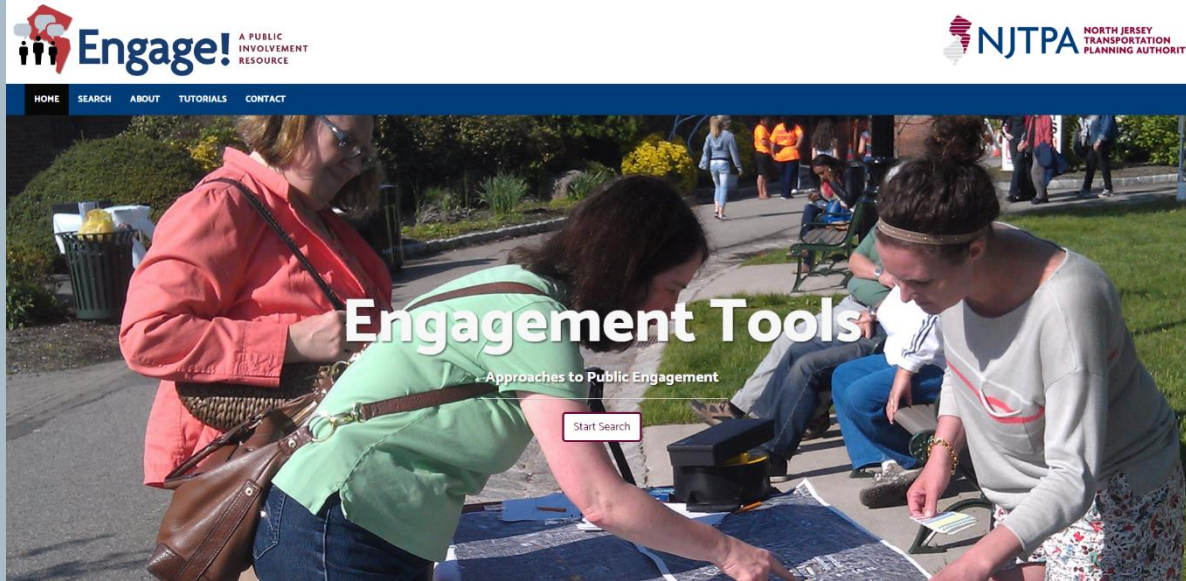


Valley Road Bridge,
Morris and
Somerset Counties

Manhattan Avenue Wall,
Hudson County



Public Outreach



Thank You!

Mary D. Ameen
Executive Director, NJTPA

Defining the Vision. Shaping the Future.



NJTPA

**NORTH JERSEY
TRANSPORTATION
PLANNING AUTHORITY**

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QUESTION & ANSWER SESSION





THANK YOU!

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