

Welcome to VTrans Research Symposium and STIC Annual Meeting

<http://vtrans.vermont.gov/planning/research/2017symposium>



HOSTS:

Matthew Hake, FHWA, Vermont Division
Administrator

Wayne Symonds, VTrans Deputy Chief Engineer

Schedule

- 8:30-9:00 **Welcome to the Research Symposium and STIC Annual Meeting Day; Information about the State Transportation Innovation Council (STIC)**
- 9:00-9:30 **VTrans and Every Day Counts Initiatives:** *What has been institutionalized and what are we emphasizing now?*
- 9:30-9:45 **Performance and Process at VTrans**
- 9:45-10:45 **View Research and Innovation Posters:** *Fifth, Fourth, Third Floor Board Rooms (513, 413, 313), Catamount (215). Poster presenters will be available to answer questions about the projects.*
 - Planning and Safety (Fifth Floor Board Room—513)
 - Structures (Fourth Floor Board Room—413)
 - Materials/Pavements (Third Floor Board Room—313)
 - Environmental/Snow and Ice Control (Catamount—215)
- 10:45-11:15 **Research Lifecycle:** *Idea, Proposal, Project, Technical Transfer, Implementation*
- 11:15-11:30 **Impacts of Research/Research to Implementation**
- 11:30-12:00 **Open Discussion** - *What did you learn? What are your ideas for working with VTrans on research or future STIC grants?*
- 12:00-1:00 **Poster Displays Open**
- **SYMPOSIUM WEB PAGE:**
<http://vtrans.vermont.gov/planning/research/2017symposium>

- Welcome and Introductions
- Matthew Hake, FHWA Vermont Division Administrator
- Wayne Symonds, VTrans Deputy Chief Engineer



2017 STIC Meeting and Research Symposium, September 28, 2017

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U.S. Department
of Transportation

**Federal Highway
Administration**





Vermont and Every Day Counts Initiatives

Matt DiGiovanni, P.E.

FHWA VT Division



U.S. Department
of Transportation

**Federal Highway
Administration**



*National STIC Network is about establishing a group of representatives from various levels of the highway community in each State to **comprehensively and strategically consider all sources of innovation.***

Every Day Counts

Better, Faster, Smarter

Measuring Success

- Institutionalized
- Post-Demonstration
- Demonstration
- Pre-Demonstration
- Opt Out of EDC Innovation

IMPACT

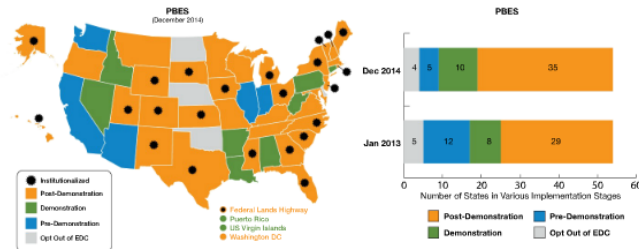
Marketing, Communication,
Partnership, Education,
Demonstration....

Key: 2-yr Implementation Plan

Innovation Deployment Teams

Prefabricated Bridge Elements and Systems

Prefabricated bridge elements and systems, also part of EDC-1, are structures or components built offsite or next to an existing structure. They include features that reduce onsite construction time and mobility impact and improve quality and safety.



Every Day Counts

Better, Faster, Smarter

EDC-1
(2011-2012)



[Adaptive Signal Control Technology](#)



[Flexibilities in Right-of-Way](#)



[Programmatic Agreements](#)



[Clarifying Scope of Prelim Design](#)



[Flexibilities in Utility](#)



[Safety Edge™](#)



[CM/GC](#)



[GRS-IBS](#)



[Use of In-Lieu Fee & Mitigation](#)



[Design-Build](#)



[Planning and Environmental Linkages](#)



[Warm Mix Asphalt](#)



[Enhanced Technical Assistance
Environmental Impact Statements](#)



[Prefabricated Bridge Elements and
Systems](#)

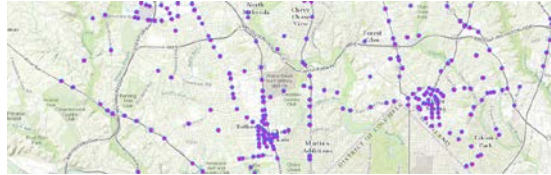
Every Day Counts

Better, Faster, Smarter

EDC-2
(2013-2014)



3D Engineered Models for Construction



Geospatial Data Collaboration



Programmatic Agreements



Accelerated Bridge Construction (ABC)



High Friction Surface Treatments



Intersection & Interchange Geo.



CM/GC



GRS-IBS



Locally Administered Federal-Aid Projects



Design-Build



Implementing Quality Environmental Doc



National Traffic Incident Management Responder Training (SHRP2 L12)



Alternative Technical Concepts (ATC)



Intelligent Compaction

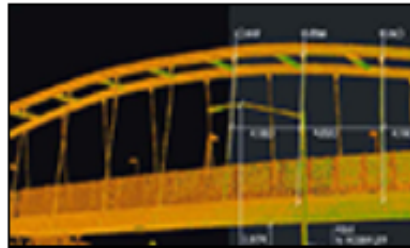
Every Day Counts

Better, Faster, Smarter

EDC-3
(2015-2016)



EDC-3 Overview Video



3D Engineered Models



Data-Driven Safety
Analysis



e-Construction



eNEPA and IQED



Geosynthetic Reinforced
Soil-Integrated Bridge
System



Railroad Coordination



Regional Models of
Cooperation



Road Diets



Smarter Work Zones



Stakeholder Partnering



Ultra-High Performance
Concrete Connections



Ultra-High Performance Concrete Connections for Prefabricated Bridge Elements (UHPC)

Benefits

Accelerated Construction. durable and simplified details that facilitate the fabrication and construction efforts needed to connect prefabricated bridge elements.

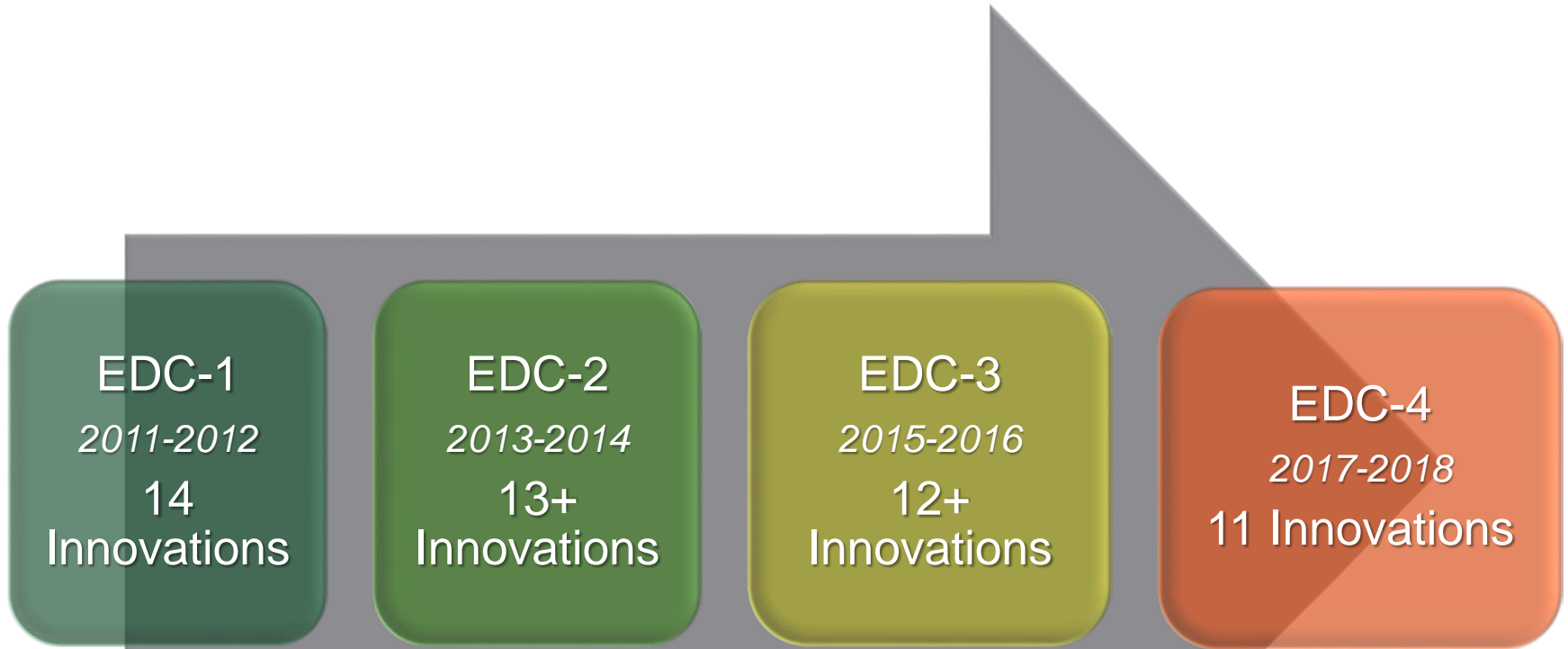
Simplified Connection Details. significant simplification to the design of the component connections.

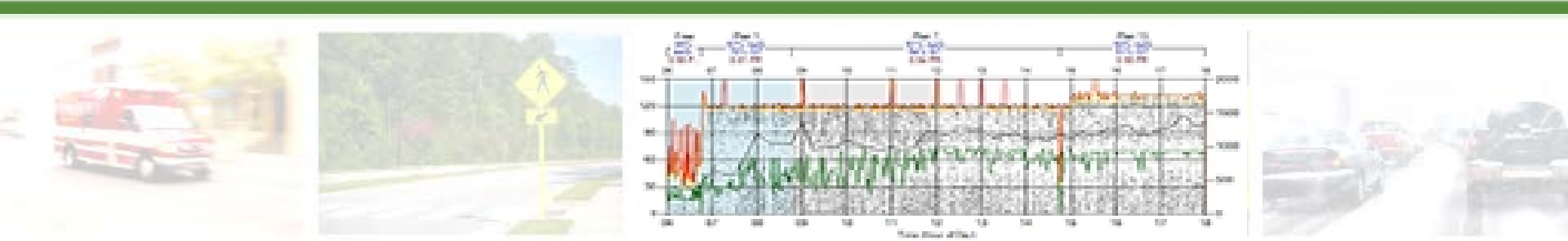
Improved Long-Term Performance. provides better long-term performance



steel fiber-reinforced, cementitious-based material

Every Day Counts -Round 4





Automated Traffic Signal Performance Measures (ATSPMs)

- **Improve retiming process**
 - Save time, money, & improve performance

Road Weather Management – Weather-Savvy Roads

- **Proactive when it comes to weather**
 - Improved communications, save lives / time



Using Data to Improve Traffic Incident Management (TIM)

- Improve adoption and consistency of TIM data collection and increase its volume across transportation, law enforcement and other responder agencies
 - Improved decision making, save lives

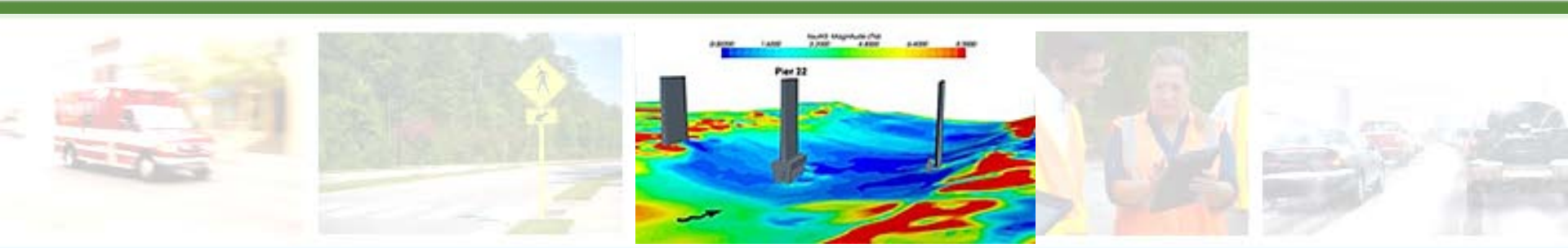


Safe Transportation for Every Pedestrian (STEP)

- Pedestrians 16% of roadway fatalities
- 6 cost-effective countermeasures with known safety benefits
- Including: Road Diets
 - Save Lives

Data-Driven Safety Analysis (DDSA)

- More sound approach to allocating resources
 - Save lives... fewer & less severe crashes



Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)

- Offers planners...to...designers more accurate modeling technology through 3D visualization
 - Save Money, Improved Performance

Ultra-High Performance Concrete (UHPC) Connections for PBES

- Address a key challenge in PBES
 - Improved performance
 - Faster construction
 - Save money / time





Pavement Preservation (When, Where, and How)

at the right time (when),
on the right project (where),
with quality materials and construction (how)

critical investment strategy to help
meet pavement Performance
expectations





Community Connections

- **Achieve designs that best suit the purpose and needs of individual communities.**
 - Timing is ripe to hold forums to discuss & consider retrofit or removal options to connect/reconnect and revitalize urban cores and adjacent communities

Integrating NEPA and Permitting

- **...promotes synchronized reviews, where the various environmental reviews and permitting procedures are performed concurrently.**
 - » Save time and money



e-Construction and Partnering: *A Vision for the Future*

- ... take advantage of e-Construction technologies to enhance partnering among the project team
 - improve communications and workflow for the efficient delivery of projects in the electronic age
 - [DocExpress](#)
 - [Headlight](#)

FUNDING: STIC Incentive Program

- Up to \$100,000 available to each STIC per year
- Fund activities that have a statewide impact on making an innovation a standard practice

Vermont STIC Incentives

- Design-build guidance documentation and website
- SK1- Mapping framework for data integration
- Lean Training and Scan Tours
- e-Construction advances

FUNDING: AID Demonstration Program

- Incentive funding (up to a maximum of \$1,000,000) to offset risk of using an innovation on a project
- State DOTs (MPOs and local governments), Federal Land Mgmt. Agencies, and tribal governments are eligible
- AID Grants:
 - Tri-State 511
 - Bluetooth Monitoring in Chittenden County
 - ROW BPMS

FUNDING: Increased Federal Share

- Federal share increase of 5% for project level innovative techniques
 - CM/GC Delivery Method
 - Performance-based specifications for cast-in-place concrete
 - Road Diet
 - Ultra-high performance concrete
 - Slide-in Bridge Construction

Questions?