



Mobility · Safety · Quality · Environment · Shortening Project Delivery

# Quarterly MA STIC Meeting

FEBRUARY 20, 2019

# AGENDA

- Welcoming Remarks
- EDC 4 Initiative Updates
- EDC 5 Initiatives and Team Introductions
- FHWA Updates, Funding, and STIC Membership
- READi Committee and Innovation Conference
- Closing Remarks



# Welcoming Remarks

EDC 4

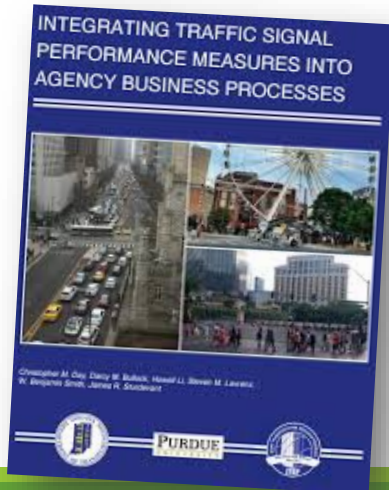
# Automated Traffic Signal Performance Measures (ATSPMs)

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CO-CHAIRS PROMISE OTALUKA, FHWA AND COREY O'CONNOR,  
MASSDOT

# Accomplishments

- Gaining knowledge on the uses and implementations of ATSPMs
  - Workshops with industry professionals
    - Consultants, Venders
  - Hardware and Software Product Demonstrations
  - D2, D3 and D4's ATSPM trials
  - Research from other States and Universities

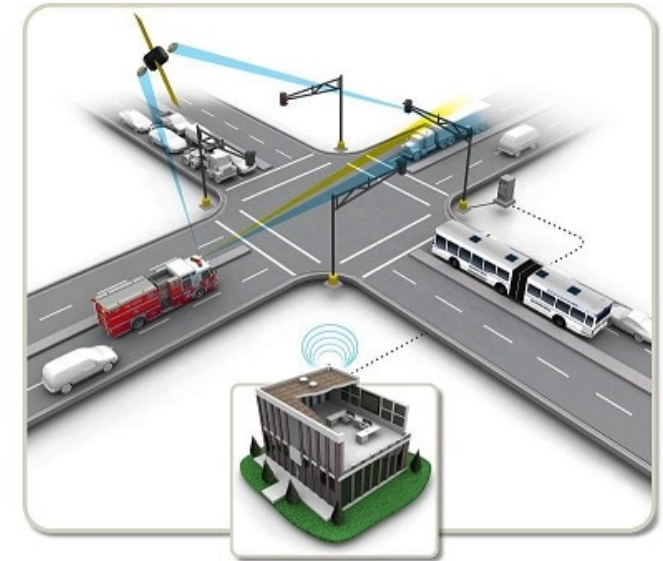


LIVE:TRAFFIC:DATA™



# Obstacles

- Difficult to implement
  - Robust communications requirements
  - Large data storage requirements
  - Training for employees on how to use and interpret ATSPMs



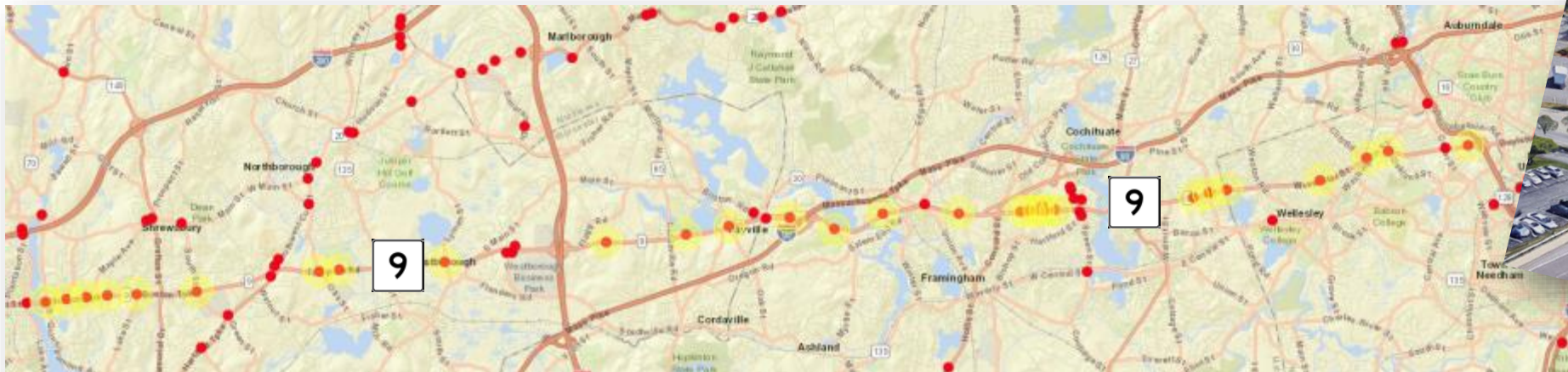
- Proprietary products offer services to address the above difficulties; however,
  - Monthly fee
  - Incompatibility between different companies products



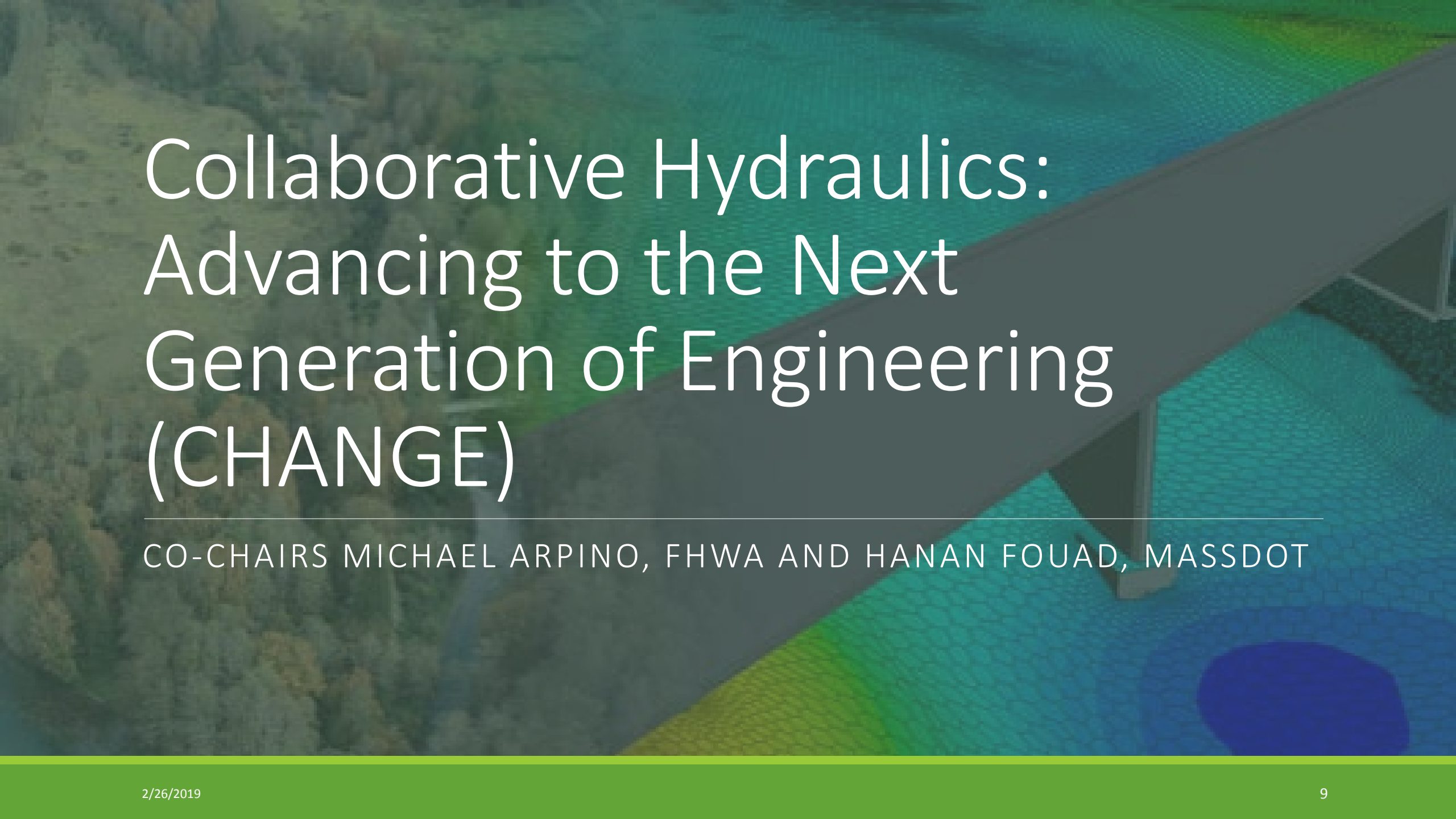


# Looking Forward

- Route 9 SPaT Pilot, Project # 609003
- Around 35 (+/-) State owned signals on Route 9 from Lake Ave in Worcester (Burns Bridge) to the I-95/Rte. 128 Ramps in Wellesley will be equipped with SPaT capabilities
- MassDOT will include SPMs in the bid requirements





An aerial photograph of a bridge spanning a river. The river and surrounding landscape are overlaid with a heatmap, showing various colors from green to blue, likely representing water flow or temperature data. The bridge is a concrete structure with multiple piers.

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

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CO-CHAIRS MICHAEL ARPINO, FHWA AND HANAN FOUAD, MASSDOT

# Accomplishments

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- The latest version of the Surface-water Modeling System (SMS) Software and SRH-2D installed into our new machines.
- Trainings
  - Attended 3-day FHWA-NHI-135095 “*Two-Dimensional Hydraulic Modeling of Rivers at Highway Encroachments*” on August 22 -24, 2017.
  - Attended FHWA-NHI-135095A “*SRH-2D Model Data Files, Diagnostics and Verifying 2D Model Results Web Conference Training*” on May 7, 9, 10, 2018
  - Attended FHWA-NHI-135095B “*SRH-2D Model Terrain Development with Various Data Sources Web Conference Training*” on June 11, 13, 14, 2018
  - Attend the bi-monthly “*Two-Dimensional Hydraulic Modeling User’s Forum*” webinars.
- Completed one (1) Hydraulic Study report, in-house, using 2-D hydraulic modeling and compared the results with 1-D.

# Obstacles

- Assistance is needed to schedule FHWA-NHI course related to highways in coastal environment, which would be helpful in the hydraulic analysis of tidal projects.
- The need for a QA/QC engineer to review our 2D Hydraulic Modeling, for the complex projects.
- More training/technical support is needed for bridge scour and sediments transport evaluations.

# Upcoming Plans

Completing	Continue to work on completing the second 2-D hydraulic modeling for one of MassDOT complex projects.
Developing	Working on developing the Two-Dimensional Modeling Hydraulic Study Report Outlines.
Learning	Learning new Bridge Scour and sediments transport tools and floodplain and floodway modeling tools.
Adapting	Adapting the 2D bridge hydraulic modeling and graphical visualization tools for project delivery.
Incorporating	Incorporating 2D bridge hydraulic modeling on project designs and incorporating guidance in the; coming soon; “MassDOT Hydraulic Manual”.

A background photograph showing three individuals in an outdoor setting. On the left, a man with glasses and a yellow safety vest is looking towards the center. In the middle, a woman with blonde hair, wearing a blue patterned shirt and an orange safety vest, is holding a black tablet and looking at it. On the right, the arm and shoulder of another person in a light blue shirt and orange safety vest are visible. The background consists of green foliage.

# e-Construction

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*CO-CHAIRS GREG DOYLE, FHWA AND DAN CASALETTO, MASSDOT*



# Surface Pro Devices 1 of 2

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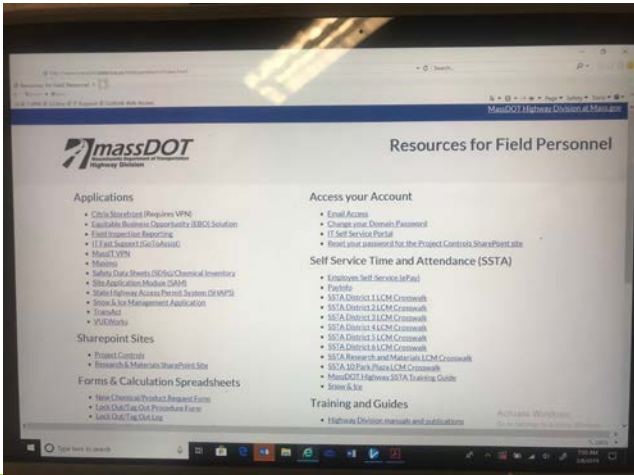
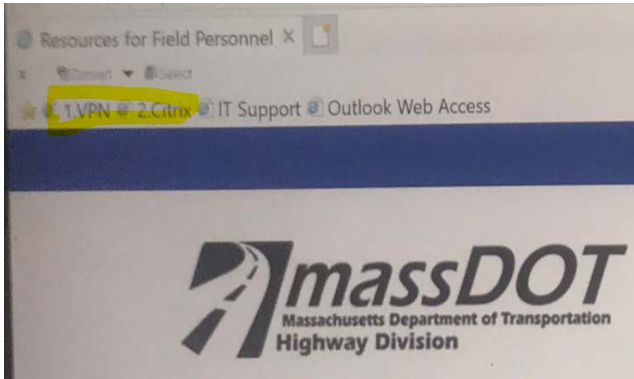
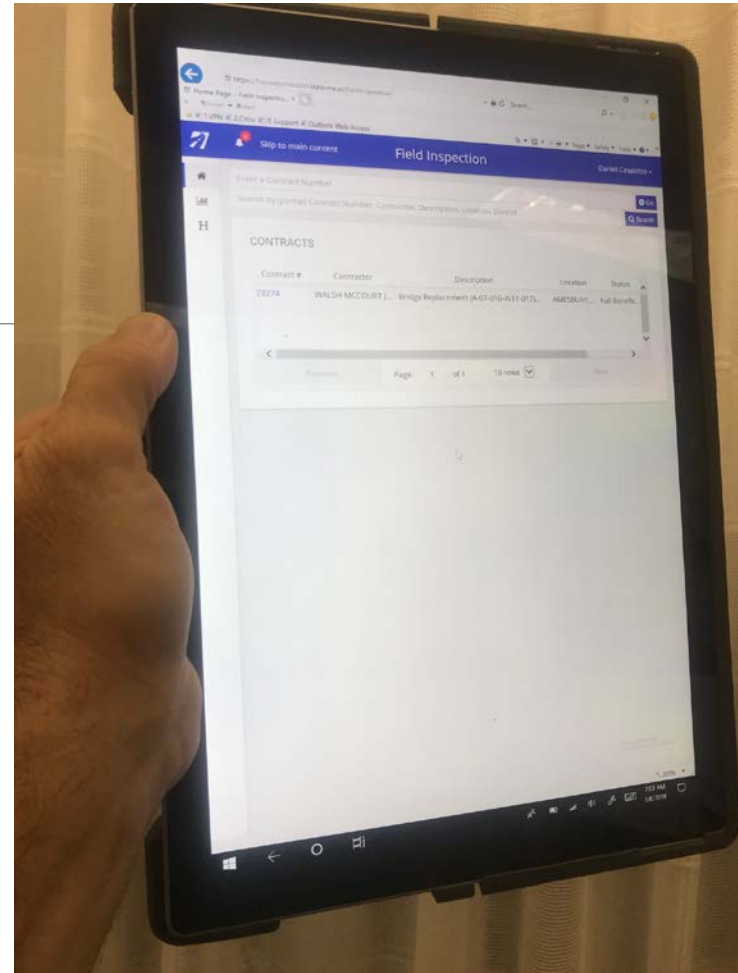
- 200 devices deployed in 2 separate deployments
- Cellular network connection
- 2 in 1 device – laptop/tablet
- Durable otter box case and screen protector
- Also reimaged older devices deployed to maintenance staff in D2
- Need an additional 150 devices to get up to full demand plus a maintenance plan of 50 devices a year for replacement and for new field staff. Working with IT budgeting.



# Surface Pro Devices 2 of 2

Detach screen and becomes tablet good for Field Inspection Reports

- Configured for field personnel
- Favorite links to internal and external resources
- Field Ops Home Page
- Links to VPN included
- Great for doing field inspection reports in the field
- Access to SAM application for pay estimates, including new integration between SAM/FIR so pay slips can be generated from daily report
- Subcommittee of REs set up to evaluate field inspection report module for enhancements/improvements



# SharePoint of Project Collaboration 1 of 2

- Over 30 projects both DB/DBB using SharePoint
- eApproval of forms including RFIs, NCRs, other Info Path forms. Tracking of submittal packages, Dashboard, Quick Access, One location for all team members to find documents

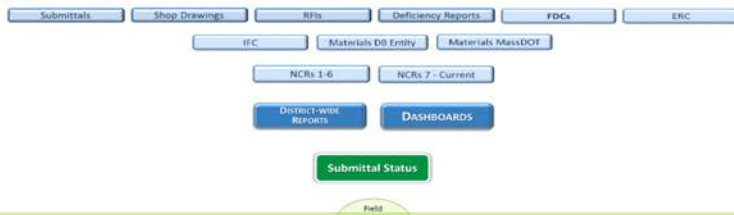
103045 Haverhill



Haverhill Bridges N & S



Quick Access



Resources for Field Personnel

[Field Operations Home](#)

## Project Control SharePoint Sites

### Password Reset

- [Reset your password for the Project Controls SharePoint site](#)

### Boston Headquarters

- [Bluebeam Committee SharePoint](#)
- [MassDOT Fabricators](#)
- [Post Construction](#)
- [READI](#)

### Research & Materials

- [MassDOT Cement Concrete Producer SharePoint Site 2019](#)
- [MassDOT Cement Concrete Producer SharePoint Site 2017/2018](#)

### Statewide

- [District Construction Inspection Reports](#)



Quick Links

[Submittal Distribution Matrix](#)  
[NCR Distribution Matrix](#)  
[MassDOT Design Build Project Workflow](#)  
[Haverhill SharePoint Responsibility Matrix](#)  
[SAM](#)  
[FieldOps](#)  
[Project Controls Password Reset/Change Site](#)

Training



### District 1

- [AETS Demo D1-93932](#)

### District 2

- [102136 Orange](#)
- [102272 West Springfield \(Agawam\)](#)
- [104551 Palmer](#)
- [AETS Demo D2-93781](#)
- [Springfield I-91 Viaduct](#)
- [West Springfield](#)

### District 3

- [102202 Sterling](#)
- [AETS Demo D3-94162](#)
- [AETS Highway Tolling](#)
- [ATMS I-495](#)

### District 4

- [Lowell Tiger 101888](#)
- [102196 Chelmsford](#)
- [103045 Haverhill](#)
- [Route 2 Lexington](#)
- [Whittier Bridge and I-95 Widening](#)

### District 5

- [102123 Raynham](#)
- [102728 D5 Resurfacing](#)
- [103653 Dartmouth](#)
- [Fall River I-95 and Braga Bridge Improvements](#)
- [Go Time](#)

### District 6

- [102269 N Washington](#)
- [103012 ITS](#)
- [103088 Paving](#)
- [104677 Chelsea Viaduct](#)
- [AETS Demo D6-94356](#)
- [AETS Demo D6-94805](#)
- [AETS Demo D6-94806](#)
- [AETS Demo D6-99511](#)
- [Boston Comm Ave Superstructure](#)
- [Longfellow Bridge Replacement](#)

Copyright 2019

# SharePoint for Project Collaboration 2 of 2

- Single point of data for all submissions
- Full integration with Blue Beam
- Great for facilitating Project Meetings

## Submittal Library

Submittal Log - All										
All Documents - No Folders										
Approved Quality Control Submittals										
Find a file										
✓	Name	Submittal No.	Revision	Submittal Type	Submittal Date	Review Due Date	Response Due Date	Actual Response Date	Status	
	Baseline Schedule	100-001	00	Schedule	8/30/2018	9/20/2018	9/29/2018	9/25/2018	Revise and Resubmit	
	Baseline Schedule Rev. 1	100-001	01	Schedule	10/1/2018	10/8/2018	10/15/2018	10/12/2018	Revise and Resubmit	
	Baseline Schedule Revision 2	100-001	02	Schedule	10/12/2018	10/19/2018	10/26/2018	10/25/2018	Accepted, as Noted	
	Baseline Schedule Revision 3	100-001	03	Schedule	10/29/2018	11/5/2018	11/12/2018	11/16/2018	Accepted	
	Schedule Update No. 1	100-002	00	Schedule	10/5/2018	10/26/2018	11/4/2018	11/5/2018	Accepted, as Noted	
	Schedule Update No. 2	100-003	00	Schedule	11/6/2018	11/27/2018	12/6/2018	11/16/2018	Accepted, as Noted	
	Schedule Update No. 3	100-004	00	Schedule	11/27/2018	12/18/2018	12/27/2018	12/18/2018	Accepted, as Noted	
	Schedule Update No. 4	100-005	00	Schedule	12/24/2018	1/14/2019	1/23/2019	1/23/2019	Accepted, as Noted	
	Schedule Update No. 5	100-006	00	Schedule	1/16/2019	2/6/2019	2/15/2019		In Review	
	Invasive Plant Management Strategy	102.3-001	00	Environmental	9/7/2018	9/28/2018	10/7/2018	10/10/2018	Accepted, as Noted	

## Dashboards

### Nonconformance Reports 7-

[new document](#) or drag files here

✓ Name Form Status NCRNo NCRSubject

There are no documents in this view.

### Field Design Change Notices

[new document](#) or drag files here

✓ Name FDCNo Revision FDCTitle Date Status Initiated Date Add Info Request Date Add Info Provided Date Authorized Date Date Reviewed Date Accepted (MassDOT) Fi

There are no documents in this view.

### Nonconformance Reports 1-6

[new document](#) or drag files here

✓ Name NCRNo NCRSubject Form Status  
NCR-004 04 Temporary Trestle - Span G Splice Proposed Disposition

### RFI Library

✓ Name RFINo RFISubject Requested Response Date Date Submitted RFIType Additional Info Request Date Additional Info Provided Date Status

There are no documents in this view.

### Submittal Library

✓	Name	Submittal No.	Revision	Submittal Type	Submittal Date	Response Due Date	Status
	100 Percent Highway Design	D01-003	00	Design	1/22/2019	2/21/2019	In Review
	100 Percent Project Special Provisions	D03-002	00	Design	1/18/2019	2/17/2019	In Review
	Abutment Pile Anchorage - Weld Procedure Specifications - Rev 02	940-006	C	Construction Procedures	2/6/2019	3/8/2019	In Review
	Concrete Structure Elements (CIP) Quality Control Plan - REV B	C0207-004	B	Quality Control	1/28/2019	2/11/2019	In Review
	Drilled Shaft Thermal Control Plan - Upper Placement Addendum	901-002A	A	Construction Procedures	2/7/2019	2/21/2019	In Review
	Mass Concrete Thermal Control Plan for Pier Caps	901-003	A	Construction Procedures	2/6/2019	2/20/2019	In Review
	Mass Concrete Thermal Control Plan for Pier Columns	901-005	A	Construction Procedures	2/6/2019	2/20/2019	In Review
	Quality Management Plan (QMP)	C0205-003	00	Quality Control	1/22/2019	2/21/2019	In Review
	Schedule Update No. 5	100-006	00	Schedule	1/16/2019	2/15/2019	In Review
	Second Bridge Submission	D02-005	00	Design	1/22/2019	2/21/2019	In Review

# eApproval of Construction Amendments

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Go Live for EWOs August 2, 2017

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938 EWOs approved as of 12/31/18 (250,000 pieces of paper saved)

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Two projects currently on-going to support this effort

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eApproval of 683 form (District/FHWA approval of EWOs and Time Extensions)

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eApproval Boston of Fund Increases, Time Extensions, all Miscellaneous items, and Construction Financial Transactions (681s CTs)

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To increase performance speed system will be sending out reminders twice a week to all in approval chain

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Reports automatically sent out every Monday morning of all items approved in previous month

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Goal to have everyone in the Amendment process be able to review and approve Amendments remotely



# eApproval of Contract Amendments

## Package Reminders

Search :  [Back to Reminders](#)

## Packages Sent To **Construction Lead Financial - eSign** But Not Yet Received

e-Sign	Project Manager	Package Creator	View Package	Contract#	District	Sent By	Sent Date	Sent By Days	Source Department
e-Sign	System	<a href="#">O'leary, Donna</a>	<a href="#">Construction - EWO 1M ill to 10M ill Funds or Time e AcrossFY (CTMOD, 681)</a>	<a href="#">101040</a>	District 4	<a href="#">Daniel Casaletto</a>	02/07/2019	1 Day(s)	Boston Construction Area Engineers - eSign

### Package Detailed View

**Contract Information**

Number: **101040**  
Type: Construction  
Description: Sewerage and Stormwater Bridge Substructure Repairs at Various Locations  
Location: District 4  
Bid Opened: 11/13/2017  
Bid Amount: \$1,764,780.00  
WFO Date: 02/06/2019  
Referral A/E Number: None

**Package Information**

Date Created: 02/06/2019  
Package Type: Construction - BIDD 10M ill to 10M ill Funds or Time AcrossFY (CTMOD, 681)  
Head Document ID: NA  
Creation: 02/06/2019 16:44:44  
Admin State: 0  
Admin State Date:  
Admin State:  
Current Department: Boston Construction Area Engineers - eSign  
Notes: none

**EWO Funding Source Summary**

Funding Type	Running Total	PC Code / Agreement	Additional Funds	Contingency Funds	Softened Funds
100% EWO	\$1,764,780.00	100000 - 1 - 100000 - 100% EWO	\$1,133,340.00		

**Notes**

none

**Description**

The extra work order will be used to provide a method of payment to the contractor for the 7 additional work order items requested under the existing contract. The work items are as follows:  
1. Installation of 4" durable wet reflective recessed white lines along the mainline of Route 213 eastbound and westbound. There are no provisions for this material within the Contract.  
2. Repair of 2" micro concrete repair material along the mainline of Route 213 eastbound and westbound. There are no provisions for this material within the Contract.  
3. Repair of 2" micro concrete repair material along the mainline of Route 213 eastbound and westbound. There are no provisions for this material within the Contract.  
4. Repair of 2" micro concrete repair material along the mainline of Route 213 eastbound and westbound. There are no provisions for this material within the Contract.  
5. Repair of 2" micro concrete repair material along the mainline of Route 213 eastbound and westbound. There are no provisions for this material within the Contract.  
6. Repair of 2" micro concrete repair material along the mainline of Route 213 eastbound and westbound. There are no provisions for this material within the Contract.  
7. Repair of 2" micro concrete repair material along the mainline of Route 213 eastbound and westbound. There are no provisions for this material within the Contract.

**Time and Funds Summary**

Completion Date	Original	Current	Amendment	Amendment Date/Dollar
Contract Completion Date	02/16/2020	02/16/2020	02/16/2020	02/16/2020
Contract Completion Amount	\$1,764,780.00	\$1,764,780.00	\$1,133,340.00	\$1,133,340.00

**Delivery History**

Department Name	Step Details	Delivery Type	Date Received	Received By	Sent Date	Sent By	Approval Status
District 4 Construction Admin - eSign	...	INTERNAL MAIL	Feb 6 2019 9:35AM	<a href="#">[Signature]</a>	Feb 6 2019 9:35AM	<a href="#">[Signature]</a>	APPROVED
District 4 EWO - eSign	District 4 EWO - eSign	INTERNAL MAIL	Feb 7 2019 12:38PM	<a href="#">[Signature]</a>	Feb 7 2019 12:38PM	<a href="#">[Signature]</a>	APPROVED
District 4 EWO - eSign	District 4 Construction Admin submits package to Boston Construction	INTERNAL MAIL	Feb 7 2019 1:17PM	<a href="#">[Signature]</a>	Feb 7 2019 1:17PM	<a href="#">[Signature]</a>	APPROVED
Boston Construction Admin - eSign	Boston Construction Admin Reviews Package in Construction	INTERNAL MAIL	Feb 7 2019 2:43PM	<a href="#">[Signature]</a>	Feb 7 2019 2:43PM	<a href="#">[Signature]</a>	APPROVED
Boston Construction Area Engineers - eSign	Boston Construction Area Engineers EWO Package	INTERNAL MAIL	Feb 7 2019 3:03PM	<a href="#">[Signature]</a>	Feb 7 2019 3:03PM	<a href="#">[Signature]</a>	APPROVED
Construction Lead Financial - eSign	Construction Lead Financial processes EWO	INTERNAL MAIL	...	...	...	...	APPROVED
State Construction Engineer - eSign	State Construction Engineer signs EWO	...	...	...	...	...	APPROVED
Independent Auditor	Independent Auditor of Construction Engineering signs EWO	...	...	...	...	...	APPROVED
Construction Lead Financial - eSign	Construction Lead Financial signs EWO out of Construction	...	...	...	...	...	APPROVED
Capital Budget Director - eSign	Budget Director approves EWO	...	...	...	...	...	APPROVED
Capital Budget Director - eSign	Budget Director signs EWO	...	...	...	...	...	APPROVED
Director of Public Works - eSign	Director of Public Works signs EWO	...	...	...	...	...	APPROVED
Chief Engineer - eSign	Chief Engineer signs EWO	...	...	...	...	...	APPROVED
Chief Engineer - eSign	Chief Engineer signs EWO	...	...	...	...	...	APPROVED
Highway Administration - eSign	Highway Administration signs EWO	...	...	...	...	...	APPROVED
Contract Administration - eSign	Contract Administration signs EWO	...	...	...	...	...	APPROVED
Asset Management	Asset Management signs EWO	...	...	...	...	...	APPROVED

District:

Business Approval Status:

Approval Start Date:

Approval End Date:

1 of 1

100%

Find | Next

**Approved EWO e-Approval Report**  
Approval Date From 01/08/2019 To 02/08/2019

**massDOT**  
Massachusetts Department of Transportation

District	Contract#	FWM#	FWM Value	Description	Location	MMARS Approval Date	Final Approval Date
District 4	86986	<a href="#">7</a>	\$10,548.77	Resurfacing and Related Work (including 9 Bridges) along a Section of Route 1	CHELSEA - MALDEN - REVERE - SAUGUS	01/25/2019	01/17/2019
<b>Package Description:</b> This extra work order provides compensation to the contractor for installing new guardrail posts encased in cement concrete on Route 60 (Copeland Circle) from Sta 9+75 R/L to Sta 10+60 R/L and from Sta 30+85 R/L to Sta 31+75 R/L.							
While installing guardrail at the Route 60 Rotary (Copeland Circle), it was determined that existing guardrail posts at the above 2 locations had been set in concrete, due to an existing shallow drainage line just below the guardrail. The contractor was directed to place the new posts into concrete to avoid conflict with the existing drainage lines.							
Boston Construction has reviewed the information and recommends that the Amendment be approved.							
District 4	90728	<a href="#">11</a>	\$46,005.65	Roadway Reconstruction (including Signals) on a Section Canal Street	Salem	NA	01/22/2019
<b>Package Description:</b> This extra work order provides compensation to the Contractor for a change in the scope of work at 10 Canal St., at the City of Salem request. There were no provisions for such work within the Contract.							
The design consultants response to RFI 173 changed the scope of work from milling and overlaying a portion of the property at 10 Canal St. to full depth excavation and additional lifts of hot mix asphalt. This change was required as the thickness of the existing pavement was less than anticipated and a mill and overlay as proposed would not work. The pavement was removed in its entirety and replaced with new pavement.							
Contingency funds are available. No additional time is needed. Boston Construction has reviewed the information and recommends that the Amendment be approved.							
District 4	96795	<a href="#">8</a>	\$22,976.00	Resurfacing and Related Work (including 4 Bridge Decks) along the Route 213 Loop Connector	Methuen	01/17/2019	01/15/2019
<b>Package Description:</b> This extra work order provides compensation to the Contractor for the procurement and installation of 4" durable wet reflective recessed white lines (performed) along the mainline of Route 213 eastbound and westbound. There were no provisions for this material within the Contract.							
The 4" Durable Wet Reflective Recessed White Lines, installed on various other state wide projects, have been shown to be a longer lasting alternative than the sanded pavement markers which were included as part of the Contract. The recessed tape option is a more visible safety feature, especially at night and during inclement weather.							
Additional funds in the amount of \$22,976.00 are requested, as the associated under-runs have been factored into a recent Additional Funds request that was submitted under a separate Amendment. No additional time is needed.							
Boston Construction has reviewed the information and recommends that the Amendment be approved.							
District 4	97932	<a href="#">4</a>	\$2,539.01	Construction of Phase II of the Middlesex Turnpike Extension	BEDFORD - BILLERICA	NA	01/24/2019
<b>Package Description:</b> This Extra Work Order consists of furnishing all labor, materials and equipment necessary to install 50 additional wetland plants per a revision provided by the design consultant, VHB at the request of the property owners at Mire Corp.							
Mire Corporation, the owner of the property on which this mitigation area is being enlarged, has requested that the plantings in the southern lobe of this mitigation area be restricted to shrubs as the proposed trees for this area would interfere with their satellite antenna operations when they reach their mature height.							
As the project falls under a Mass Department of Environmental Protection (Mass DEP) variance, this revision required approval from the Mass DEP. As part of their approval, the Mass DEP initially requested that MassDOT replace the proposed trees with an increased amount of shrubs at a 1:5:1 ratio to make up for any lost canopy coverage due to the smaller size of the shrubs. MassDOT provided a counter proposal of an increased ratio of shrubs of 1:25:1 resulting in an additional 150 shrubs for the southern lobe area which was approved by the Mass DEP on 10/9/18.							
Boston Construction has reviewed the information and recommends that the Amendment be approved.							
Report Date: 2/8/2019 9:02 AM							
Page 1 of 1							

<b>Contract Information</b>	
Number:	101040
Type:	Construction
Description:	Scheduled and Emergency Bridge Substructure Repairs at Various Locations.
Location:	District 4
Bid Opened:	11/15/2017
Bid Amount:	\$ 1,784,780.00
WFP Date:	02/16/2018
Federal Aid Number:	None

<b>Package Information</b>	
Date Created:	02/06/2019
Package Type:	Construction - BWO 1M to 10M Funds or Time Across FY (CTMOD, 681)
MMARS Document ID:	N/A
Creator:	Donna O'Leary 781-641-8430
Action Item #:	
Action Item Date:	
Action Date:	
Current Department:	Boston Construction Area Engineers - eSign
Notes:	none

<b>EWO Funding Sources Summary</b>	
Funding Type	PC Code /Agreement#
100% STATE	101040 : 1 - NFA/OE : 100% STATE
	\$ 2,131,940.00

<b>Notes</b>	
	none

<b>Contract Vendors</b>	
Main Vendor:	SFS NEW ENGLAND INC
Vendor/Party Address:	98 BLW STREET SAUSSEURY,MA,01952
Primary Contractor's Email:	vva.pulpo@spsnewengland.com
Optional Contractor's Email:	
Payee:	SFS NEW ENGLAND INC

<b>Financial Documents</b>	
CT/M	WFP02018C0101040
<b>Supporting Documents</b>	
681 Document	681 Document.pdf
Contract Amendment Form	Contract Amendment Form.pdf
CT Document	CT Document.pdf
Contractor-Documentation	101040 EWO#1 Contr.docx.pdf
District-Documentation	101040 EWO#1 Dist.docx.pdf
Miscellaneous Documents	101040 EWO#1 misc report.pdf
Miscellaneous Documents	101040 EWO#1 Miscrptm.pdf
Miscellaneous Documents	101040 EWO#1 Misc approval.pdf

<b>Address</b>	
	none

<b>Extra Work Order</b>	
Originating Office:	Construction
Extra Work Order Number:	1
Extra Work Order Value:	\$ 2,131,940.00
Extra Work Order Net Cost:	\$ 2,131,940.00
Contingency Amount:	
Sufficient Funds:	
Additional Funds:	\$ 2,131,940.00
Agreements Amount:	
Additional Time:	0 days
Reason Code:	7 - Repairs/other work requested while under contract
RHWA Oversight Required:	No
Audit Letter Required:	No
Cost Recovery Required:	No

<b>Description</b>	
This is Part 1 of a multi-part extra work order to provide a method of payment to the Contractor to repair the 7 interior columns per Gill Engineering's column repair design plans along with additional pier cap repair on Bridge L-04-035 (2X2) - 1495 Upper Level over 1495 Lower Level Bridge in Lawrence. The work includes the following: <ul style="list-style-type: none"><li>Installation of shoring systems at center column at Pier 3 and Pier 5.</li><li>Removal and replacement of defective concrete median for sidewalk column repairs.</li><li>Repair of (b) interior columns requiring immediate repairs based on Gill Engineering's column repair design plans.</li><li>Repair of (d) interior columns requiring immediate repairs based on traditional substructure repair methods.</li><li>Repair of overhead pier cap based on traditional substructure repair methods.</li><li>Required traffic management controls and mobilization/demobilization of working barge.</li></ul> Bridge inspection reported Pier 3, center column as critical structural deficiency requiring immediate repair (CS1) due to advanced deterioration. The contractor, SFS New England obtained the services of Gill Engineering who inspected all 21 columns and determined immediate repairs are needed at 3 center columns and 3 fascia columns and near term repairs are needed at the remaining 15 columns. Gill Engineering has provided a traffic management plan, shoring design and repair plans for all column repairs. This Extra Work Order was verbally approved by the Chief Engineer on February 5, 2019. See attached miscellaneous item. The verbal approval was for part one of this multi-part EWO consisting of the 7 interior columns within the temporary traffic control zone established on the bridge. Costs associated with the remaining column repairs have not been finalized yet. The Contractor has provided an order of magnitude for all repairs including this part one of \$4,207,688.00. Additional Funds are needed. Boston Construction has reviewed the information and recommends that the Amendment be approved.	

<b>Time and Funds Summaries</b>	
Completion Date	02/16/2020
Contract Encumbrance Amount	\$ 2,234,780.00
Original	02/16/2020
Current	02/16/2020
Amendment	0 days
Amended Date/Dollar	02/16/2020
	\$ 4,366,720.00

<b>Delivery History</b>	
Department Name	Step Details
District 4 Construction Admins - eSign	--
	INTERNAL MAIL
	Feb 6 2019 9:30AM
	Received By: Donna O'Leary 781-641-8430
	Sent Date: Feb 6 2019 9:32AM
	Sent By: Donna O'Leary 781-641-8430
	APPROVED
	Notes: Package Created
District 4 DHD - eSign	District 4 DHD assigns EWO
	INTERNAL MAIL
	Feb 7 2019 12:36PM
	Received By: Paul Steedman 781-641-8405
	Sent Date: Feb 7 2019 12:37PM
	Sent By: Paul Steedman 781-641-8405
	APPROVED
District 4 Construction Admins - eSign	District 4 Construction Admin submits package to Boston Construction
	INTERNAL MAIL
	Feb 7 2019 1:17PM
Boston Construction Admins - eSign	Boston Construction Admin Receives Package in Construction
	INTERNAL MAIL
	Feb 7 2019 2:40PM
	Received By: Donna O'Leary 781-641-8430
	Sent Date: Feb 7 2019 2:40PM
	Sent By: Donna O'Leary 781-641-8430
	APPROVED
Boston Construction Area Engineers - eSign	Boston Construction Area Engineer Prepares EWO Package
	INTERNAL MAIL
	Feb 7 2019 3:01PM
	Received By: Daniel Casaleggio 857-368-9589
	Sent Date: Feb 7 2019 3:01PM
	Sent By: Daniel Casaleggio 857-368-9589
	APPROVED
	Undo Approve
Construction Lead Financial - eSign	Construction Lead Financial processes EWO
	INTERNAL MAIL
	--
State Construction Engineer - eSign	State Construction Engineer assigns EWO
	--
<<Signatory Authority>>	Assistant Administrator of Construction Engineering assigns EWO
	--
Construction Lead Financial - eSign	Construction Lead Financial logs EWO out of Construction
	--
Capital Budget Analysts - eSign	Budget analyst processes 681, BWO
	--
Capital Budget Director - eSign	Budget Director assigns EWO
	--
Director of PAPRO - eSign	PAPRO assigns EWO
	--
Chief Engineer - eSign	Chief Engineer assigns EWO
	--
Chief Counsel - eSign	Chief Counsel assigns EWO
	--
Highway Administrator - eSign	Highway Administrator assigns EWO
	--
Contracts and Records - eSign	Contracts and Records publishes approved documents
	--
Fiscal Administration	Fiscal reprocesses BWO funding/time to MMARS
	--

EWO Approved Date: Not A

# Lessons Learned

- Don't bite of more than you can chew
- Group the work into no more than three sub-areas, and assign sub Committee Chair to work offline from larger group
- Do not leave out industry or District Staff
- Schedule a monthly meeting so that sub Committee chairs can report their work to overall group
- Elevate Blockers and Required Management Decisions right away MassDOT has determined your committee is very important, come out of your comfort zone and ask the tough questions.
- Have fun!



# PAVEMENT PRESERVATION

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*CO-CHAIRS GREG DOYLE, FHWA AND ED NARAS, MASSDOT*

# Pavement Preservation – “When & Where”



Policy: P-XX-XXXX

Date: October 16, 2018

- Completed Final Draft of MassDOT Pavement Preservation Policy Directive and received feedback from MassDOT Senior Management for Final Policy Directive.

## PAVEMENT PRESERVATION POLICY DIRECTIVE

\_\_\_\_\_  
Highway Division Administrator

\_\_\_\_\_  
Deputy Administrator and Chief Engineer

### I. Purpose:

Pavement Preservation is a planned system of treating pavements at the optimum time to maximize their useful life, thus enhancing pavement longevity at the lowest cost to the agency. To further MassDOT's Capital Investment Plan (CIP) vision on Reliability and to encourage Local Agency use of preservation strategies, this *Pavement Preservation Policy Directive* is issued to ensure that the annual program is implemented through a program of long-term network level preservation strategies for both State and Local agencies.

### II. Goal:

The goal of pavement preservation is to “*apply the right treatment, to the right pavement, at the right time*” in order to optimize the pavement network condition. A Pavement Preservation program consists of three components: (a) Routine Maintenance, (b) Preventive Maintenance, and some (c) Minor Rehabilitation (non-structural). These practices result in an outcome of “*keeping good roads in good condition.*”

To achieve this goal, it is the policy of MassDOT that each District shall include pavement preservation projects/activities as part of the annual pavement program. As common practice, a suggested initial minimum level of investment in Routine Maintenance and Preventive Maintenance activities is in the range of 10-20% of the annual pavement program. However, this is not a fixed target and the optimal level of annual investment must be revisited annually by Pavement Management to address current and future pavement conditions and to identify funding needed to achieve target condition levels. The actual pavement preservation projects/activities completed shall be reported annually.



# Pavement Preservation – “When & Where”

- Prepared Final Pavement Preservation Treatment Matrix.

Figure 2 - Pavement Preservation Treatment Selection Guide

			Routine Maintenance		Preventative Maintenance						Minor Rehabilitation			
Category	Description	Parameters	Crack Seal	Fog Seal	Chip Seal	Microsurfacing	Rubber Chip Seal	Cape Seal	Ultra Thin Bonded Overlay (UTBO)	Thin Overlay (≤ 1-1/4")	Hot In-Place Recycling	Level and Overlay	Mill and Overlay	Cold In-Place Recycling
Roadway Classification	Urban		✓	✓	✗	✓	•	•	✓	✓	✓	✓	✓	✓
	Suburban		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Rural		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Traffic (ADT)	< 5,000 5,000-10,000 > 10,000	✓ ✓ ✓	✓ ✓ •	✓ • •	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	• • •	✓ ✓ ✓	✓ ✓ ✓
Existing Surface Distresses	Alligator Cracking	Low	✓	•	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Moderate	✓	✗	•	•	•	✓	•	•	•	•	✓	✓
		High	•	✗	•	✗	•	•	•	•	•	•	•	•
	Transverse Cracking	Low	✓	•	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Moderate	✓	•	•	•	•	✓	✓	✓	✓	•	✓	✓
		High	•	✗	•	•	•	•	•	•	•	•	•	•
	Longitudinal Cracking	Low	✓	•	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Moderate	✓	•	•	•	•	✓	✓	✓	✓	•	✓	✓
		High	•	✗	•	•	•	•	•	•	•	•	•	✓
	Potholes	Low	N/A	•	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Moderate	N/A	✗	•	•	•	•	•	•	✓	•	•	✓
		High	N/A	✗	✗	✗	✗	✗	✗	✗	•	•	•	✓
	Ravelling	Low	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Moderate	N/A	•	•	•	•	✓	✓	✓	✓	•	✓	✓
		High	N/A	✗	✗	✗	✗	✗	✗	✗	•	•	✓	✓
	Rutting	< 3/8 in	N/A	✗	•	✓	•	✓	✓	✓	✓	✓	✓	✓
		3/8 - 1 in	N/A	✗	•	•	•	•	•	•	•	✓	✓	•
		> 1 in	N/A	✗	✗	•	✗	•	✗	✗	✗	•	•	•
	Utility Patching		N/A	✗	✓	✓	✓	✓	✓	✓	•	✓	✓	✓
New Surface	Final Surface Texture	Smooth Coarse	N/A N/A	N/A N/A	Coarse Smooth	Smooth Coarse	Smooth Coarse	Smooth Smooth	Smooth Smooth	Smooth Smooth	N/A N/A	Smooth Smooth	Smooth Smooth	N/A N/A
	Surface Course Required?	Yes No	No No	No No	No No	No No	No No	No No	No No	No No	Yes Yes	No No	No No	Yes Yes
	Average Life Extension	Years	3	3	6	7	8	10	10	10	10	10	12	14
	Cost (per SY)	Low High	\$0.35 \$0.75	\$1.00 \$1.50	\$2.50 \$3.00	\$3.00 \$5.00	\$4.50 \$5.25	\$4.50 \$6.00	\$5.00 \$7.00	\$6.00 \$8.00	\$6.50 \$14.00	\$8.00 \$12.00	\$10.00 \$14.00	\$8.50 \$16.50
2017 Costs	Equivalent Annual Cost (EAC)	Low High	\$0.12 \$0.25	\$0.33 \$0.50	\$0.42 \$0.50	\$0.43 \$0.71	\$0.56 \$0.66	\$0.45 \$0.60	\$0.50 \$0.70	\$0.60 \$0.80	\$0.65 \$1.40	\$0.80 \$1.20	\$0.83 \$1.17	\$0.61 \$1.18

✓ Likely Candidate      • Possible Candidate      ✗ Not a Likely Candidate      N/A Likely Not Applicable

Typical Pavement Ratings for Pavement Preservation Categories  
 Routine Preventative Minor  
 Maintenance Maintenance Rehabilitation  
 PCI Range 95-80 80-65 65-50  
 RSR Range 95-80 80-65 65-50  
 1 to 5 Scale 5 to 4 4 to 3 3

# Pavement Preservation – “When & Where”

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- Evaluated Communication Plan objectives and approach.
  - In light of resource limitations, it was determined that best approach for communication will be through the Policy Directive and Treatment Matrix (when they are issued), along with Training.

# Pavement Preservation – “How”

---

- Developed, updated & reviewed new Draft MassDOT Pavement Preservation Specifications.
- Updates to existing Pavement Preservation Specifications are ongoing.
  - Prepared / updated Cold-in-Place Recycling Specifications for Municipal use.

# Pavement Preservation – “How”

---

- Developed, updated & reviewed new Draft MassDOT Pavement Preservation Specifications.
- Updates to existing Pavement Preservation Specifications are ongoing.
  - Eg. Prepared / updated Cold-in-Place Recycling Specifications for Municipal use.

# Pavement Preservation – “How”

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- Several MassDOT Pavement Preservation projects were completed prior to and during EDC-4.
- Additional projects have been identified and are being advanced annually statewide through the STIP, including Interstate and other high traffic volume highways.





# Safe Transportation for Every Pedestrian (STEP)



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CO-CHAIRS TBD, FHWA AND CONNOR KEATING, MASSDOT



# STEP

Selection Guidance

Policy Recommendations

Outreach and Funding Tips

Transit Corridor Improvements





Table 1. Application of pedestrian crash countermeasures by roadway feature.

Roadway Configuration	Speed Limit								
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
2 lanes*	1 2 3 4 5 6	1 3 5 6 7	1 3 5 6 7	1 3 4 5 6	1 3 5 6 7	1 3 5 6 7	1 3 4 5 6 7	1 3 5 6 7	1 3 5 6 7
3 lanes with raised median*	1 2 3 4 5	1 3 5 7	1 3 5 7	1 3 4 5 7	1 3 5 7	1 3 5 7	1 3 4 5 7	1 3 5 7	1 3 5 7
3 lanes w/o raised median†	1 2 3 4 5 6 7	1 3 5 6 7	1 3 5 6 7	1 3 4 5 6 7	1 3 5 6 7	1 3 5 6 7	1 3 4 5 6 7	1 3 5 6 7	1 3 5 6 7
4+ lanes with raised median‡	1 3 5	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7
4+ lanes w/o raised median‡	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8	1 3 5 6 7 8

\*One lane in each direction    †One lane in each direction with two-way left-turn lane    ‡Two or more lanes in each direction

Given the set of conditions in a cell,



























- # Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- 1 High-visibility crosswalk markings, parking restriction on crosswalk approach, adequate nighttime lighting levels
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- 7 Pedestrian Hybrid Beacon
- 8 Road Diet

This table was developed using information from: Zegeer, C. V., Stewart, J. R., Huang, H. H., Lagerwey, P. A., Feaganes, J., & Campbell, B. J. (2005). *Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines* (No. FHWA-HRT-04-100); *Manual on Uniform Traffic Control Devices*, 2009 Edition, Chapter 4F. Pedestrian Hybrid Beacons; the *Crash Modification Factors (CMF) Clearinghouse* website (<http://www.cmfclearinghouse.org/>); and the *Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE)* website (<http://www.pedbikesafe.org/PEDSAFE/>).

Table 2. Safety issues addressed per countermeasure.

Pedestrian Crash Countermeasure for Uncontrolled Crossings	Safety Issue Addressed				
	Conflicts at crossing locations	Excessive vehicle speed	Inadequate conspicuity/visibility	Drivers not yielding to pedestrians in crosswalks	Insufficient separation from traffic
Crosswalk visibility enhancement					
High-visibility crosswalk markings*					
Parking restriction on crosswalk approach*					
Improved nighttime lighting*					
Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line*					
In-Street Pedestrian Crossing sign*					
Curb extension*					
Raised crosswalk					
Pedestrian refuge island					
Pedestrian Hybrid Beacon					
Road Diet					

\*These countermeasures make up the STEP countermeasure "crosswalk visibility enhancements." Multiple countermeasures may be implemented at a location as part of crosswalk visibility enhancements.

# Selection Guidance

# Policy Recommendations

## Consider

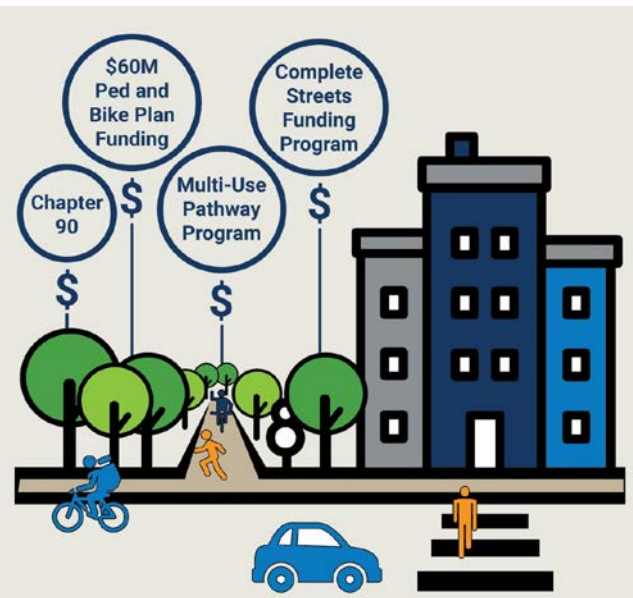
Consider STEP countermeasures on all resurfacing and reconstruction projects (higher visibility markings and low-cost crosswalk enhancements)

## Use

Use Complete Streets Program for funding and education of countermeasures

## Encourage

Encourage communities to use Municipal Resource Guide and FHWA technical assistance

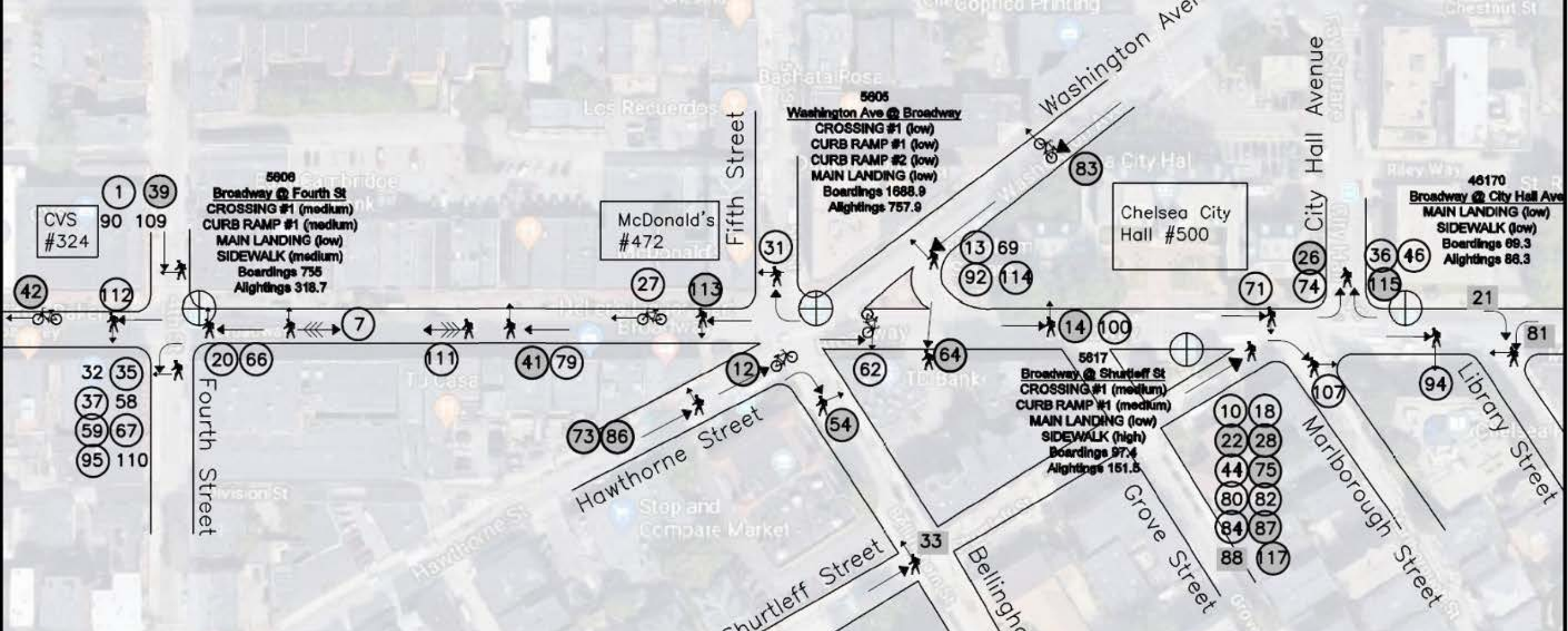


Highway Safety Improvement Program (HSIP)	Every Day Counts
<p><b>\$35M</b> available for the HSIP projects</p> <p>Funded <b>198</b> projects, programs, &amp; designs through HSIP &amp; Completed <b>431</b> Road Safety Audits since 2009</p>	<p>Promote use of STEP pedestrian safety countermeasures:</p> <ul style="list-style-type: none"> <li>Road Diets</li> <li>Pedestrian hybrid beacons</li> <li>Pedestrian refuge islands</li> <li>Raised Crosswalks</li> <li>Crosswalk visibility enhancements</li> </ul>



# Outreach & Funding



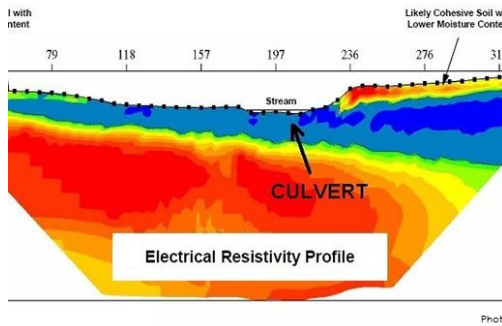
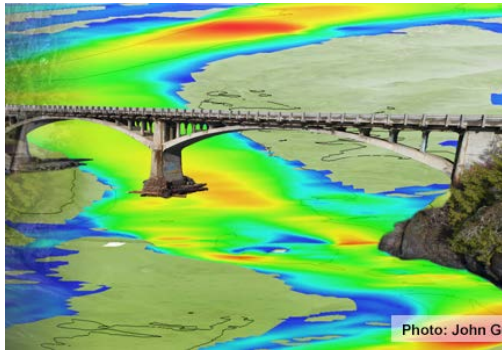


# Transit Corridor Improvements

# EDC 5



# EDC Round 5 Initiatives & Team Introductions



→ **Advanced Geotech Methods in Exploration (a-GaME)**  
*Co-Chairs Olu Adeyemi and Jennifer Rauch, MassDOT*

→ **Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)**  
*Co-Chairs Michael Arpino, FHWA and Hanan Fouad, MassDOT*

→ **Project Bundling**

→ **Reducing Rural Roadway Departures**  
*Co-Chairs Michael Pezzullo and Francisca Heming, MassDOT*

→ **Safe Transportation for Every Pedestrian (STEP)**  
*Co-Chairs TBD, FHWA and Connor Keating, MassDOT*

# EDC Round 5 Initiatives & Team Introductions

## → UAS

*Brandon Wilcox, FHWA and Margo Souza (temp), MassDOT*

## → Crowdsourcing for Operations

*Promise Otaluka, FHWA and Michael Fitzpatrick, MassDOT*

## → Value Capture: Capitalizing on the Value Created by Transportation

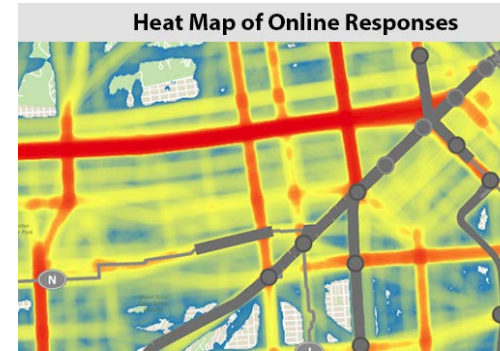
*TBD*

## → Virtual Public Involvement

*Cassie Ostrander, FHWA and Derek Krevat, MassDOT*

## → Weather Responsive Management Strategies

*TBD, FHWA and Joe Foti, MassDOT*





# Center for Accelerating Innovation



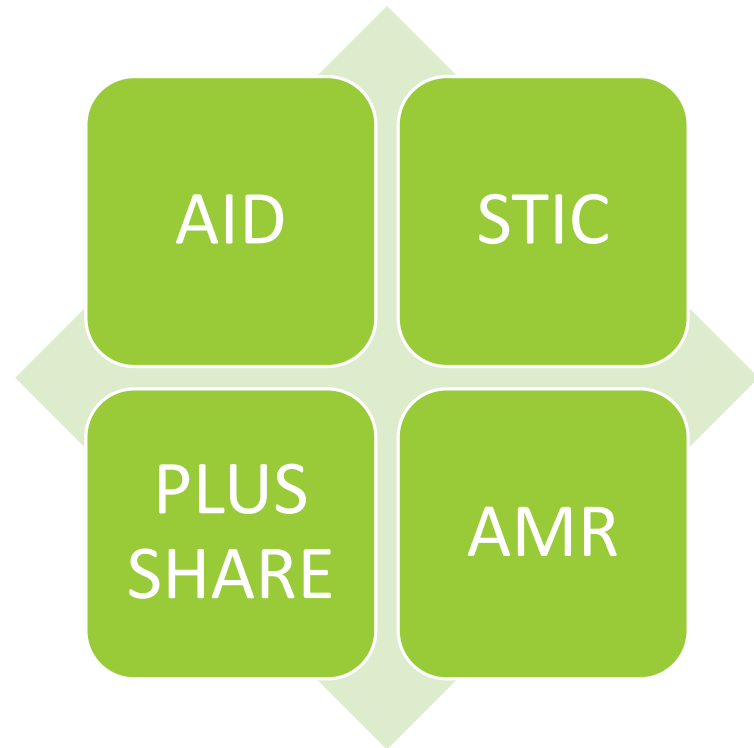
## FHWA UPDATES, FUNDING AND STIC MEMBERSHIP

KEN MILLER, ASSISTANT DIVISION ADMINISTRATOR

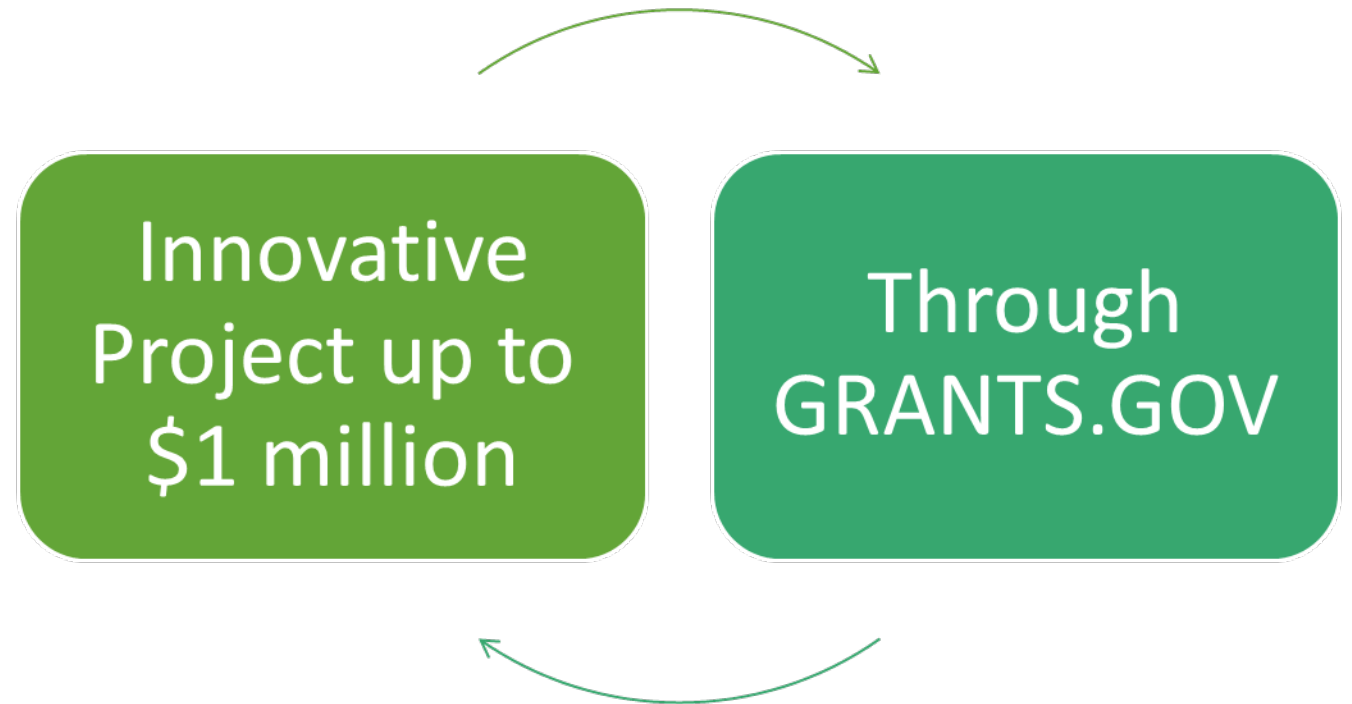
TO OFFSET RISK

# Innovation Incentives

# A four-legged support stool



## AID Project Grant



# STIC STATEWIDE PRACTICE Program Grant

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To implement  
statewide  
innovative practice

Up to \$100,000 at  
80%

Though FHWA CAI  
Office

# PLUS Increase share

---

Project  
incorporating  
EDC Innovation


Up to 100%

Additional 5%  
Federal Funds



# AMR – Accelerated Market Readiness

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Accelerate  
assessment/use of  
emerging / new  
technology

Including patented or  
proprietary products

\$100,000 to \$500,000  
at 80%

# Deadlines

Get your innovation grant request in before the limited funds are gone!

Open Season from October 1 till September 30.

More info;

<https://www.fhwa.dot.gov/innovation/>

# STIC Roster

## FHWA

Jeffrey McEwen  
Ken Miller  
Michael Arpino

## State DOT

Jonathan Gulliver  
Patricia Leavenworth  
David Mohler  
Michael McGrath  
John Bechard  
Rachel Bain  
Astrid Glynn  
Sam Sleiman  
Francisca Heming  
Peter Cavicchi  
Barry Lorion  
Paul Stedman  
Mary-Joe Perry  
John McInerney  
Lily Oliver  
Margo Souza

## Consultant Representatives

Abbie Goodman – ACEC  
John Pourbaix – CIM

## Local Public Agencies

Rich Benevento – APWA  
Tom Reynolds – MHA

## MPO Representative

Charles Kilmer

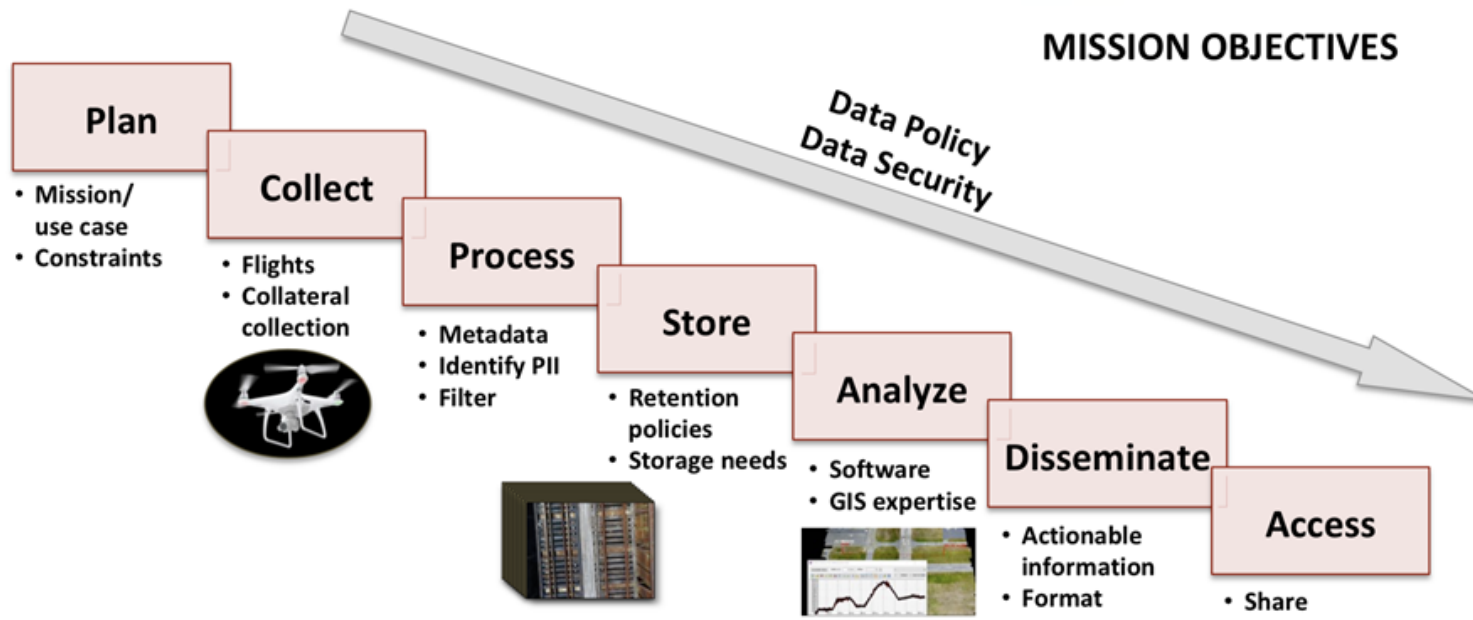
## Federal Resource Agency

Peter Butler – FTA  
Daniel Vasconcelos – U.S. Army  
Corps of Engineers  
Chris Bisignano – U.S. Coast Guard

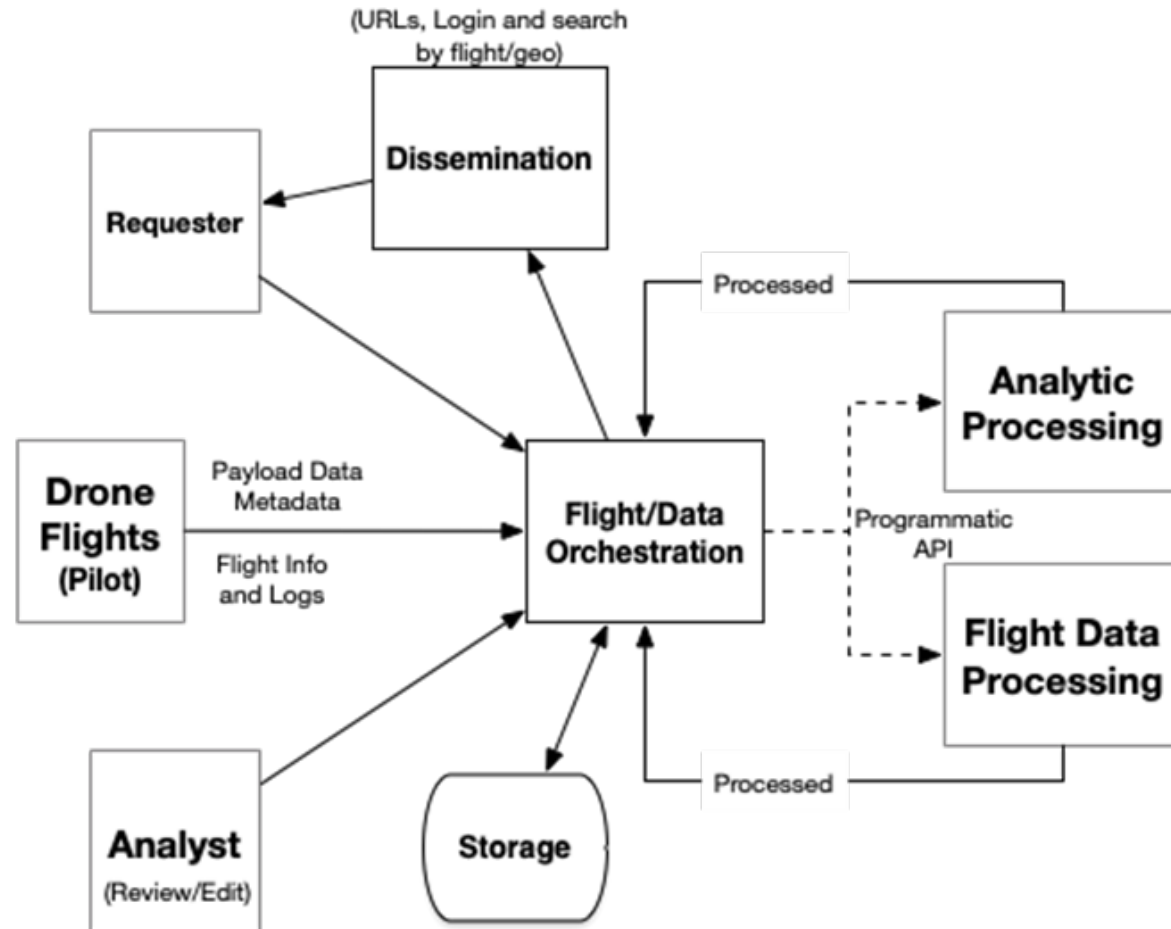
## Private Sector

Michael Allen – ATSSA

# UAS AID Project Grant Application



MassDOT UAS Data  
Analytics &  
Cybersecurity Program  
Alpha for Surface  
Transportation



**Notional Future UAS Infrastructure Architecture**

# FUNDING REQUEST

Total cost \$1,250,000

- FHWA \$1,000,000
- MassDOT \$250,000



# READi Committee and Innovation Conference

# READi Committee



## Piloting

- RFID
- Dow Paint
- UAS for stormwater BMPs
- VueWorks
- Work zone safety
- AUTOstripe

## Technical Sessions

- Effect of Binder Modification and Recycled Asphalt Pavement on the Performance of Permeable Friction Course
- SHAPS
- Climate Change Resiliency
- ASR
- UAS
- Linking Landscapes, Bringing Flood Resiliency into MassDOT Asset Management, and Rivers and Roads Training update





April 9<sup>th</sup> and 10<sup>th</sup>

Worcester DCU Center

[Register here](#)

# Highlights

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- 40+ breakout sessions
- Keynote speakers
- 3M Transportation Safety Division Roadshow
- Networking events

# MA STIC EDC Excellence Award

- MA STIC EDC Excellence Award will be presented at the MassDOT Transportation Innovation Conference to one of our EDC 4 teams.
- STIC to vote in March
- Recipients of this award have demonstrated outstanding performances and results due to group achievement.

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# Closing remarks

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MASSDOT DEPUTY ADMINISTRATOR & CHIEF ENGINEER  
PATRICIA LEAVENWORTH