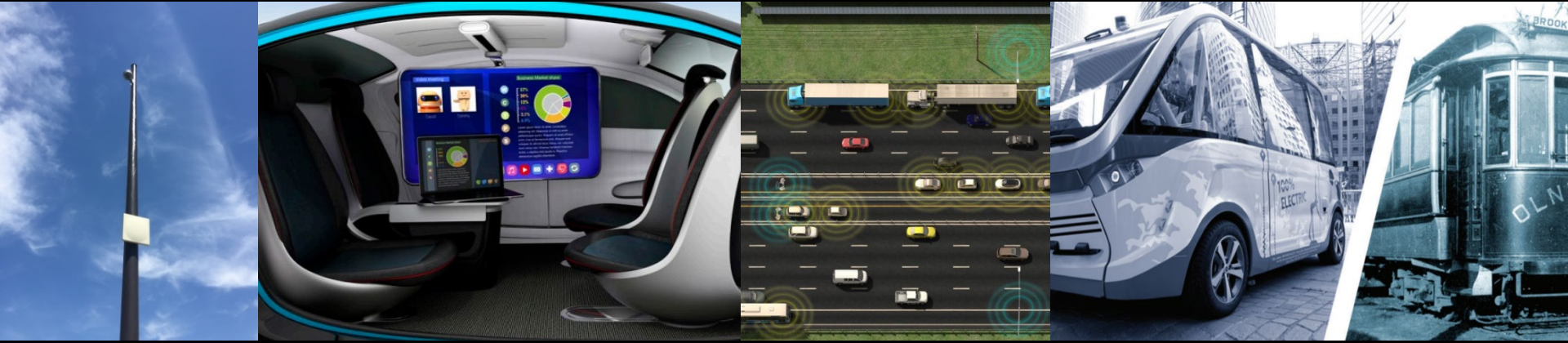




New England Connected Automated Vehicles



New England
Transportation Consortium

AECOM Imagine it.
Delivered.

New England Transportation Consortium (NETC)



- Established in 1994
- Research cooperative between New England state DOTs
- Financial leveraging opportunities and regional partnerships
- Opportunities for research dissemination and training to practitioners in the field
- Currently led by UVM

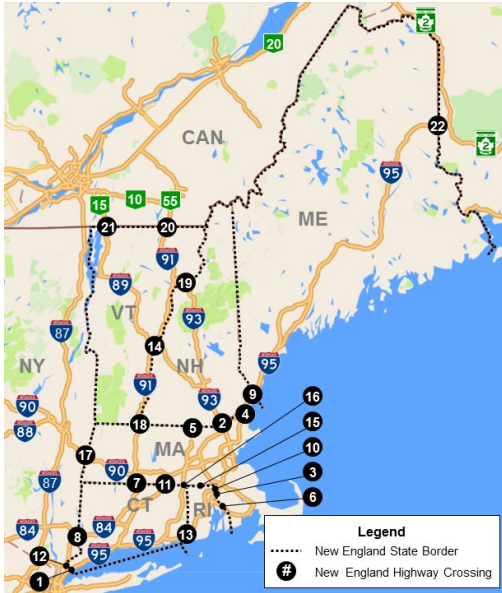


New England
Transportation Consortium

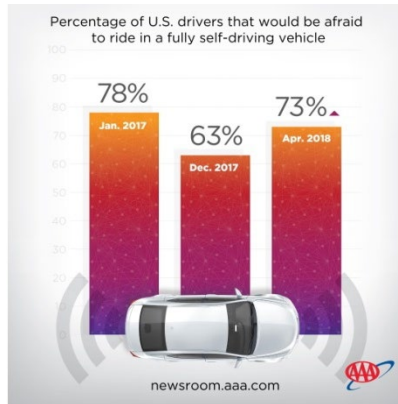
Problem & Methodology

How can the six New England States best work together to ensure connected and automated vehicles (CVs/AVs) operate safely and seamlessly in our region?

1 Examine Existing Infrastructure



3 Review Relevant Studies



2 Determine the New England States' CV/AV Status

CV/AV Item	Status	CT	ME	MA	NH	RI	VT
AV Committee or Task Force	Pending				●		
	Established	●	●	●		●	●
CV/AV Legislation or Executive Order	Pending			●	●		
	Passed/Issued	●	●				●
	Executive Order		●	●			
CV Pilot Testing or Deployment	Planning	●		●			●
	Underway				●		
AV Pilot Testing	Planning	●				●	
	Underway			●			

4 Assess Comparable Regional Efforts



5 Determine Cross-Border Issues with Stakeholders

Result: Regional Roadmap of Actions

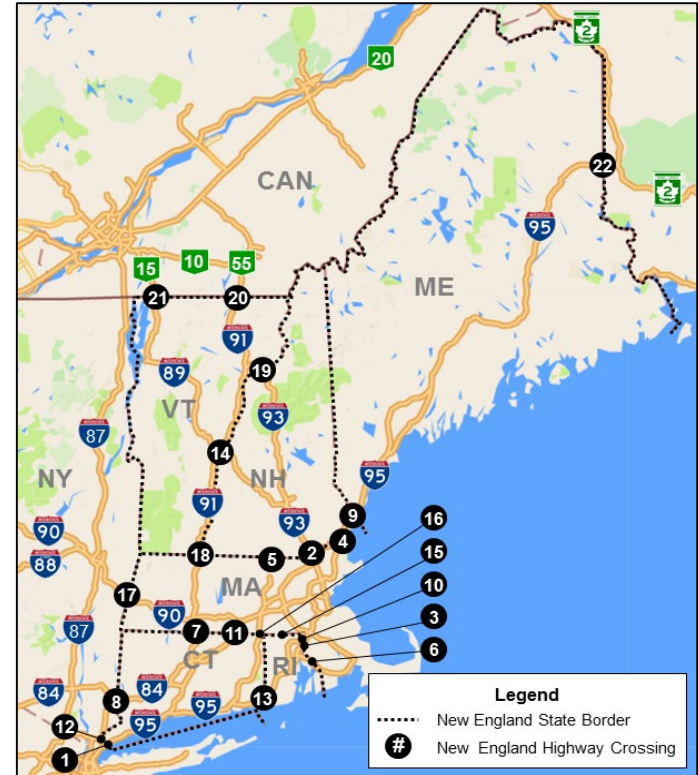
New England Status

- 1
- 2



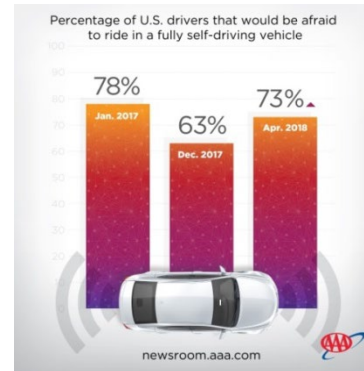
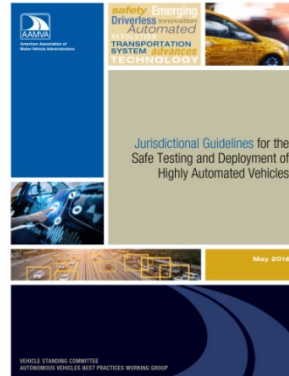
1. Existing Infrastructure
2. Overview of Each State
3. Summary Status

CV/AV Item	Status	CT	ME	MA	NH	RI	VT
AV Committee or Task Force	Pending				●		
	Established	●	●	●		●	●
CV/AV Legislation or Executive Order	Pending			●	●		
	Passed/Issued	●	●				●
	Executive Order		●	●			
CV Pilot Testing or Deployment	Planning	●		●			●
	Underway				●		
AV Pilot Testing	Planning	●				●	
	Underway			●			





1. I-95 Corridor Coalition – list of priorities for regional collaboration
2. AAMVA – legal, administrative, policy, operational, etc. recommendations
3. AAA – public perception
4. USDOT CV Pilots – real world technical projects





1. CV Pooled Fund – field demonstrate and deploy CV technologies
2. Smart Belt Coalition – research, testing, policy, funding, deployment, and data
3. I-10 Corridor Coalition – connected corridor focused on freight
4. North/West Passage – pooled fund and platooning pilot





- June 11, 2018 with the Northeast CV/AV Summit in Windsor, CT
- All 6 states, DOTs, DMVs, Universities, Volpe, I-95 Corridor Coalition
- Discussed Cross-Border Issues, Challenges, and Opportunities



Stakeholder Workshop



Challenges



Opportunities

Coordination Between Six States

Define a Regional Mission, Goals and Objectives

Collective Bargaining

Economies of Scale

Peer Exchanges

Seamless CV/AV Operations Across State Lines

Consistent Emergency Response and Crash Investigation

Executive Buy-In

Focus on Initiatives, Return on Investment

Participate in Regional Meetings

Lack of Agency Mid-Level Understanding

Internal Agency Education Programs

Demonstrations

Public Perception

Coordinating with Stakeholder Groups

Marketing and Public Outreach



1. Legal and Regulatory

- Insurance
- Registration
- Licensing
- Crash Investigation
- Freight
- Pilot Testing

2. Infrastructure

- Communications Network
- Roadside Units
- Standards

3. Operations

- Highway Operations Center Role
- Crossing State Lines
- International Vehicles
- Outreach, Education, Driver Behavior

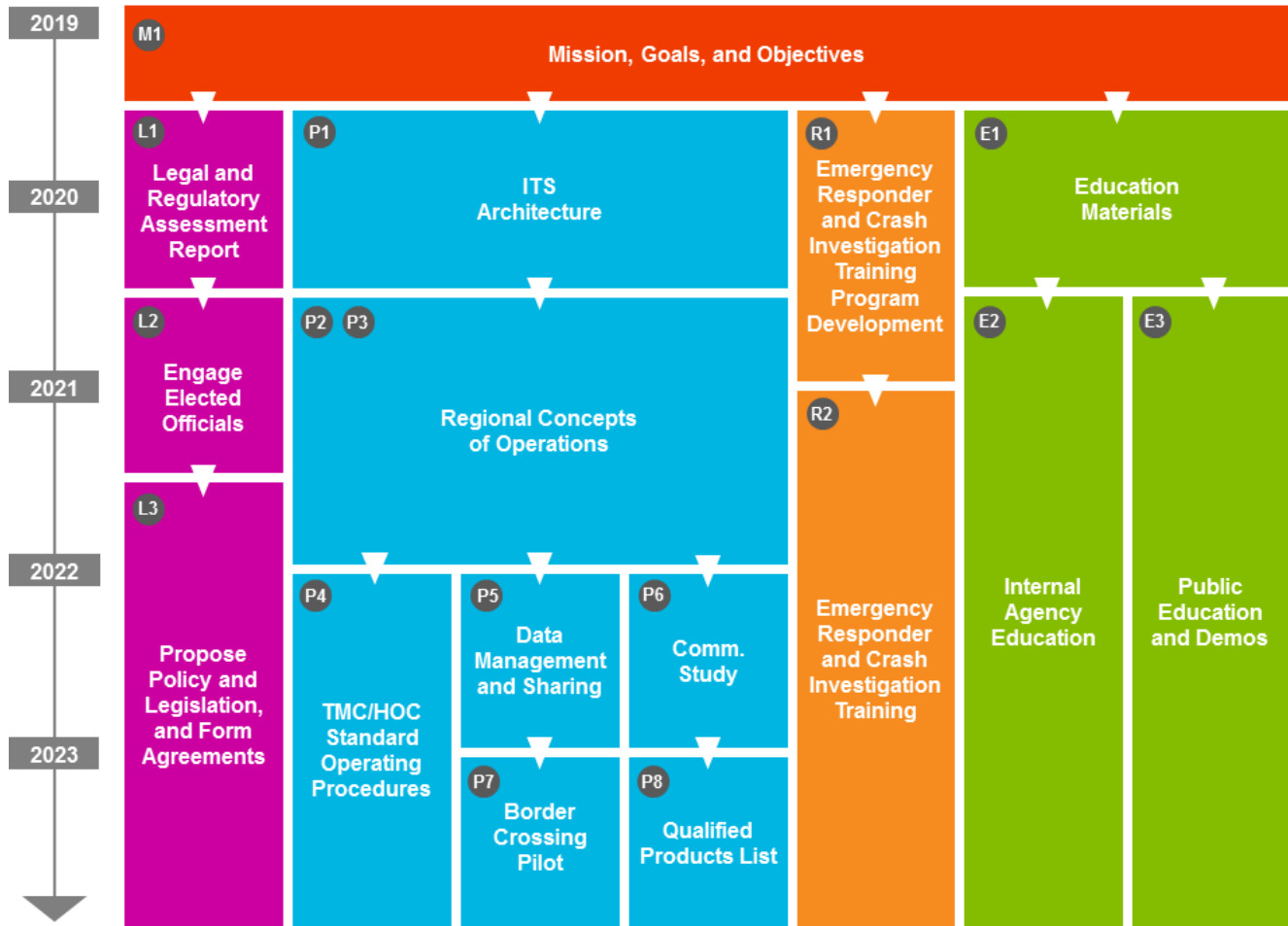
4. Data and Technology

- Data Gathering & Sharing
- Network Resilience / Cybersecurity

Roadmap of Actions

An actionable timeline of regional initiatives to prepare New England for widespread uses of connected and automated vehicles

- M** Mission, Goals and Objectives
- L** Legal and Regulatory
- P** Technical Projects
- R** Emergency Response
- E** Education



Funding

1. Internal Resources
2. Federal Grants
3. Formula Funding

Name	Agency	State Match	Max. Amount
ATCMTD Grants	FHWA	50%	\$12M/yr.
Better Utilizing Investments to Leverage Development (BUILD) Grants	USDOT	20% (urban) 0% (rural)	\$25M
Bus & Bus Facilities Infrastructure Investment Program	FTA	20%	\$36.6M
Low or No Emission (LoNo) Program	FTA	10-15%	N/A
Accelerating Innovation Deployment (AID) Grants	FHWA	None	\$1M
Infrastructure for Rebuilding America (INFRA) Grant	USDOT	20-40%	≥\$25M
High Priority Innovative Technology Deployment (ITD) Grant Program	FMCSA	≤15%	N/A
Highway Safety Grant Programs	NHTSA	N/A	N/A
Automated Transit Buses	FTA	TBD	TBD
Highly Automated Vehicle Research and Development Program (To Be Announced)	FHWA	None	\$10M
NCHRP Grants	TRB	None	\$600K
Smart and Autonomous Systems Program	National Science Foundation	None	\$1M
Data Science Research Grant Program	Bloomberg	None	\$70K



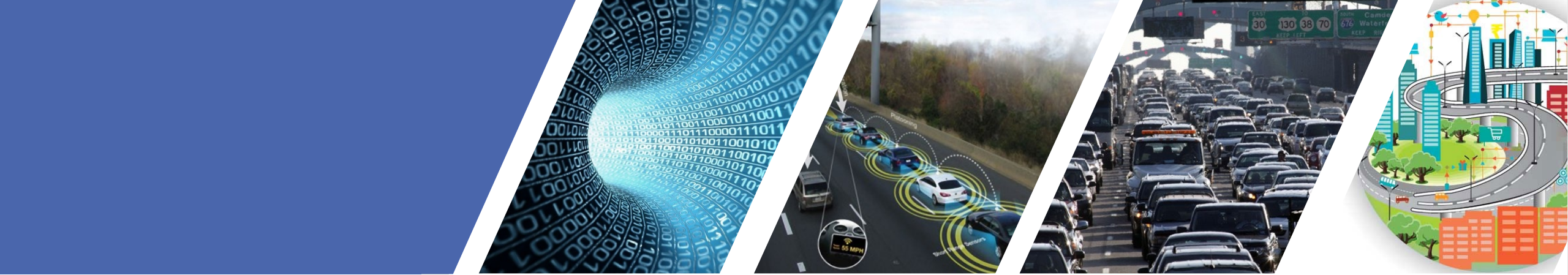
THANK YOU

Suzanne Murtha

AECOM

Connected and Automated Technologies

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Implementing the NETC CAV Roadmap

GINNA REEDER, I-95 CORRIDOR COALITION

NETC WEBINAR

FEBRUARY 26, 2020



I-95 Corridor Coalition
A partnership of transportation agencies to accelerate transportation system improvements

The Coalition is..... more than I-95

Multi-modal ● Multi-jurisdictional ● Multi-disciplinary



Formed in 1993, the I-95 Corridor Coalition is a partnership of multi-state, multi-modal public agencies working together to create a seamless and efficient transportation system.

What we do...

In short, the I-95CC helps agencies tackle the sticky issues and get solutions across the finish line.



PEOPLE

- Create a forum for public agencies to address transportation issues of common interest
- Establish a key network of transportation professionals
- Provide training (e.g., Freight Academy)

TOOLS & DATA: Support data acquisition and tool development



Benefits of I-95 Corridor Coalition Membership

The Coalition, through its diverse membership, provides participating agencies with the opportunity to leverage resources through multi-state/agency operations coordination, planning, and data sharing. The Coalition strives to keep its members at the forefront of industry innovation through participation in transformative technology pilots/research, adoption of best practices sharing, and unique professional development opportunities. Examples of Coalition work that benefits our members and brings a lasting effect on the transportation industry include:

- Coordinated Incident Management and Traveler Information**
To positively affect the safety and efficiency of member roads and responders, the Coalition has successfully brought together and coordinated incident response among multiple jurisdictions and disciplines. The core work of the Coalition has resulted in training programs, common message sets, planning and operations for significant weather response and more. In addition, the Coalition has supported the development of a highly useful tool that advances traveler information services, and supports agency use of real time and historic traffic data (aka "big data") thru collaborative initiatives such as the Vehicle Probe Project and Probe Data Analytics User Group.
- Freight Supply Chain Performance and Truck Parking**
In 2016, the Coalition, in conjunction with FHWA, demonstrated the feasibility of measuring supply chain performance across multiple jurisdictions and modes. Building on this work, the Coalition has received additional funding to (1) initiate implementation of a national freight mobility monitoring program and (2) support State and Regional implementation of freight measurement. To address the truck parking capacity challenges, the Coalition will continue to facilitate dialogue among stakeholders on how to share real-time truck parking availability and what other innovative solutions have been successful.
- Connected and Automated Vehicles**
The Coalition's conference, "Connected & Automated Vehicles (CAV): What States Need to Know" (June 2016) was designed to advance our region's ability to understand, plan for and manage CAV deployment. The agenda highlighted how CAV will affect our transportation systems, provided an overview of lessons learned from around the country, described current efforts underway within select Coalition states, and shared reports from State DOT executives, NHTSA, the insurance industry and auto manufacturers. Moving forward, the Coalition will serve as a resource for information sharing, bringing together knowledge learned from private and public sector programs, and assisting agencies in determining next steps and organizational and infrastructure requirements.
- MAP-21/FAST Act Performance Management Implementation**
The Coalition is providing subject matter expertise to members to assist with performance management implementation and legislative analysis. In addition, the Coalition's Regional Integrated Transportation Information System (RITIS) offers a new feature that makes it quick and easy to respond to the latest MAP-21/NHTSA/FAST Act systems reporting requirements, address inaccurate comparisons, and drill in reporting. Facing pending MAP-21/FAST Act performance management requirements, the Coalition will continue to create a forum for members to enhance staff knowledge—saving agencies time and resources.
- Tolling Violation Enforcement Reciprocity**
The Coalition will establish a multi-state neutral forum to develop/accelerate the enforcement of reciprocity agreements to increase the verifiability of toll violations (and administrative penalties) from non-home state users. The Coalition has established a multi-state neutral forum to share best practices, lessons learned from those states which have implemented reciprocity agreements, approaches to educating decision-makers, legislative process and strategies to overcome barriers to success. The Chair of the working group will be Tom Trish (Highway Administrator, Massachusetts).

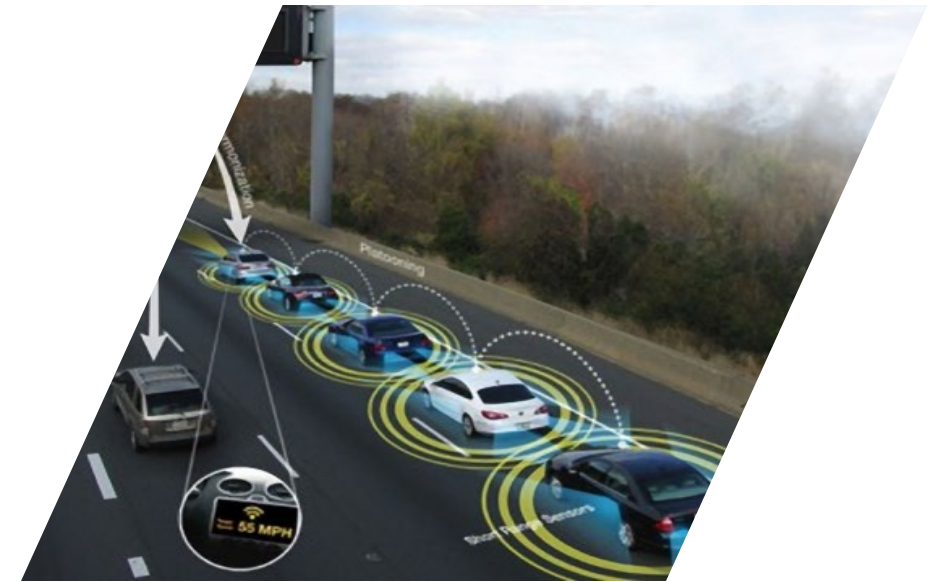
RESOURCES

- Compete for grants
- Extension of agency staff
- Partner with FHWA to explore policy implementation

The Coalition and CAV

What should we be doing today for the CAV future of tomorrow?

1. Learn from each other
2. Separate the noise
3. Leverage regional interoperability and transferability



Why is it so important to work at the regional level?

- Benefit from different approaches
- Make sure it works
- Avoid unintended consequences
- Coordination can lay the foundation

The New England CAV Roadmap

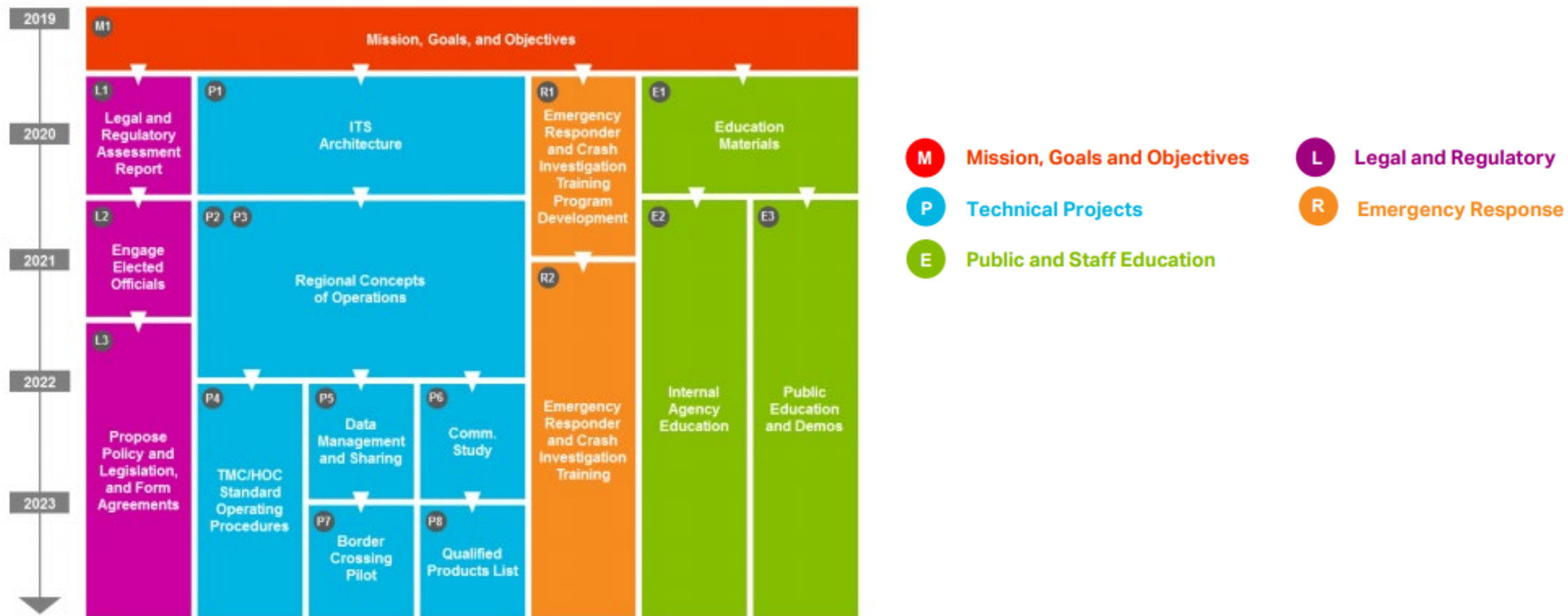


Figure: Regional Initiatives Workflow and Timeline

The NE CAV Mission, Goals and Objectives

VISION

Seamless operation of connected and automated vehicles (CAV) across New England States and surrounding regions of the United States and Canada.

MISSION

To share resources and information and work collaboratively with neighboring transportation agencies and other stakeholders to facilitate the deployment of CAVs in New England and its surrounding region for freight and passenger movement.

The NE CAV Mission, Goals and Objectives

GOALS AND ACTIONS

Legal and Regulatory: Identify opportunities to align relevant policies, regulations and laws where appropriate.

1. Prepare a legal and regulatory assessment report for the region that can be used as a resource for individual states to:
 - Engage local and elected officials using consistent terminology and framing
 - Propose and coordinate policy and legislation

Technical Projects: Support the development of the technology and infrastructure to facilitate cross-border operation of CAVs.

1. Conduct CAV infrastructure readiness assessment for the NHS in New England
2. Develop a regional ITS architecture
3. Develop regional concept of operations for highway connected vehicle deployments
4. Develop regional concept of operations for arterial connected vehicle deployments
5. Develop regional winter weather standard operating procedures
6. Data management and sharing
 - a) Identify CAV data that could be useful/beneficial to state DOTs
 - b) Identify data collection, storage and sharing capabilities
7. Implement cross-border CAV pilot(s)
8. Complete a communication study
9. Develop a regional qualified products list (QPL)

Education and Training: Coordinate the development of consistent CAV education and training opportunities across the New England Region.

1. Develop educational materials tailored to specific audiences (Governors/Legislators/DOT CEOs, Agency Staff, emergency responders, Public, etc.)

A new project?

- Five project ideas developed:**
1. Education and Training
 2. *New England Connected and Automated Vehicle Legal and Regulatory Assessment*
 3. Data Management and Sharing
 4. Infrastructure Readiness Assessment
 5. Concept of Operations

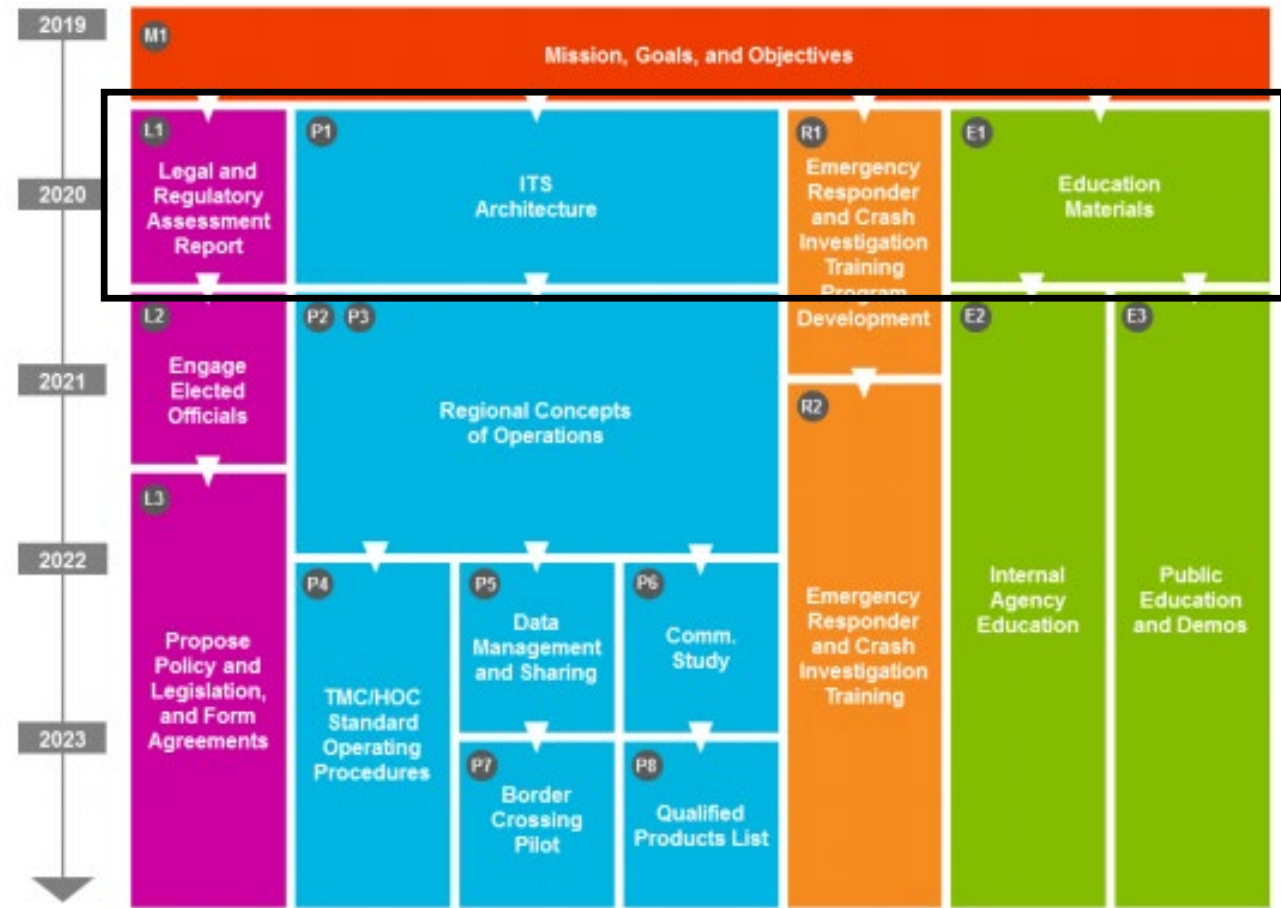


Figure: Regional Initiatives Workflow and Timeline

Recent Activities

Peer-exchange in person meeting - October 2019

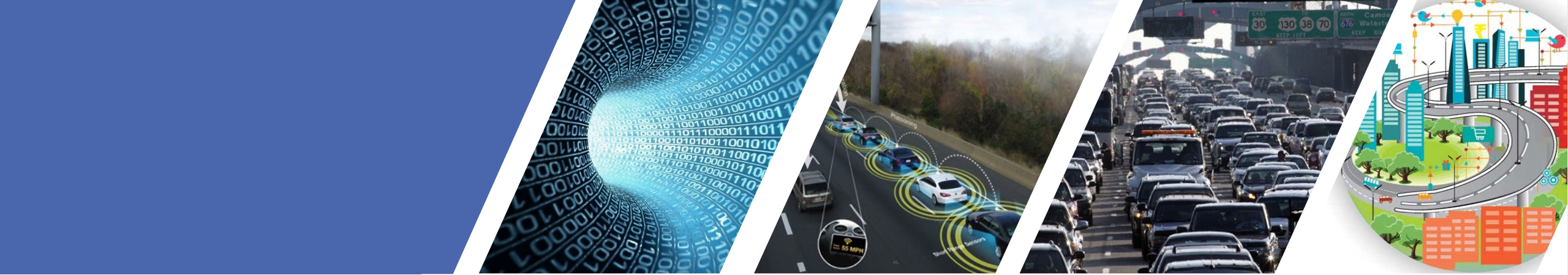
- First responder training
- Data sharing

Quarterly conference call – January 2020

- Terminology discussion
 - Kelly Funkhouser, Consumer Reports
- Safety band discussion

What's on the horizon?





Thank you!

Virginia Reeder

I-95 Corridor Coalition

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www.i95coalition.org