

REGIONAL MULTI-MODAL MOBILITY PROGRAM: ARTIFICIAL INTELLIGENCE-BASED DECISION SUPPORT SYSTEM

CTB Briefing

Cathy McGhee, VDOT Chief Deputy Commissioner

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History of Regional Multi-Modal Mobility Program (RM3P)

- Integrated Corridor Management (ICM) Plans
- NVTA identifies ICM as important to meeting the vision of its long-range regional plan, TransAction
- NVTA and Commonwealth develop a plan for RM3P and include it in the Innovative Technology Transportation (ITTF) program
- Federal Advanced Transportation and Congestion Management Technologies Deployment Program (ATCMTD) grant allows expansion of geographic scope into Fredericksburg

Leverage the collaborative use of real-time data to improve travel safety, reliability, and mobility, as well as to give the public the tools to make better informed travel choices.



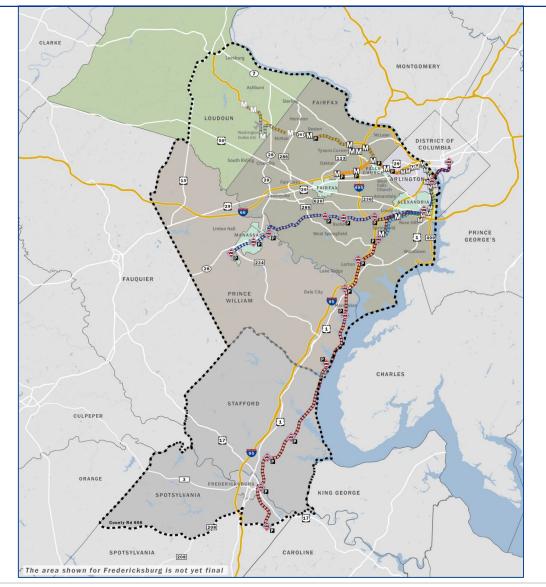


The Goals of RM3P

- **Optimize** transportation system performance by improving the efficiency of agency responses to travel disruptions.
- Enhance travel time reliability.
- Support on-demand, multi-modal trip choices for travelers.

RM3P Scope





This **data-driven** multi-modal mobility program, serving Northern Virginia and Metropolitan Fredericksburg, is comprised of 4 active projects:

- Data-Exchange Platform (DEP)
- AI-Based Decision Support System (AI-DSS)
- Dynamic Incentivization (DI)
- Commuter Parking Information System (CPIS)



RM3P AI-DSS Overview



Description

- <u>Travel Data</u>: Monitor emerging conditions.
- <u>Data-Informed Plans</u>: Solve multi-modal transportation challenges by providing coordinated incident response options to transportation agencies in the region.
- Artificial Intelligence: Predict the impacts of disruptions to the transportation network.

AI-DSS Objectives



- Improve effectiveness of real-time integrated transportation information.
- <u>Reduce congestion</u> by improving mobility and travel time and enhancing travel time reliability.
- Improve safety by reducing traffic crashes.
- Shift from reactive to proactive operations for <u>optimized response time and performance.</u>

Enabled by Technologies and Collaboration

REACTIVE

PROACTIVE

Current Practice

- <u>Reactive-based single agency,</u> single mode response plans.
- <u>Ad-hoc</u> multi-agency & multimodal manual collaboration, often causing longer response times and longer incident durations.



Prediction DSS Future Practice

Response

 <u>Data infused multi-agency, multi-</u> modal coordination.

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- <u>Optimized</u> rules for formulating intelligent response plans that are acted upon in real-time.
- <u>Proactive-based</u> responses to <u>prevent</u> or mitigate predicted issues.

Milestone Overview



Next Steps: Looking Forward after Contract Award

	+12 months	+18 months	+24 months	~ 36 months
Initiation, elaboration, and project management				
	Rollout to a Subregion in NoVA	Rollout to NoVA		
	Base Service		Rollout To Metropolitan	
			Fredericksburg Expanded Service	Full Service
	Integration/System Testing & Full Service "Go-Live"			

Initial contract term: 36 months

- 24 months, development & deployment
- 12 months, operational support
- Begin with a single subregion within Northern Virginia (NoVA)
- Expand to multiple NoVA subregions
- Extend activities to Metropolitan Fredericksburg area



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