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

CTB Briefing

Cathy McGhee, VDOT Chief Deputy Commissioner

July 19, 2022
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
The RM3P Mission

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.
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

- **Travel Data**: Monitor emerging conditions.
- **Data-Informed Plans**: 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.
- Reduce **congestion** by improving mobility and travel time and enhancing travel time reliability.
- Improve **safety** by reducing traffic crashes.
- Shift from reactive to proactive operations for **optimized response time and performance**.
Enabled by Technologies and Collaboration

Current Practice

- **Reactive-based** single agency, single mode response plans.
- **Ad-hoc** multi-agency & multi-modal manual collaboration, often causing longer response times and longer incident durations.

Future Practice

- **Data infused** multi-agency, multi-modal coordination.
- **Optimized** rules for formulating intelligent response plans that are acted upon in real-time.
- **Proactive-based** responses to prevent or mitigate predicted issues.
Virginia Department of Transportation

Milestone Overview

1. SOLUTIONING
   Feb-Nov 2020

2. STAKEHOLDER ENGAGEMENT
   Apr 2020 – Now
   Public Agencies & Industry

3. SOLICITATION PREP
   Jan-Aug 2021

4. SOLUTION TEAM SELECTION
   Aug 2021 – Nov 2022
   ✓ RFQ to prequalify vendors
   □ RFP to select optimal team of vendors
   □ Contract execution

5. DEVELOPMENT DEPLOYMENT OPERATIONS
   2023 – 2025

6. OPERATIONS
   2026 – TBD

WE ARE HERE

Target for Notice-to-Proceed (NTP): December 2022/January 2023
Next Steps: Looking Forward after Contract Award

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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