RM3P High-Level Overview

October 1, 2021

Regional Multi-Modal Mobility Program
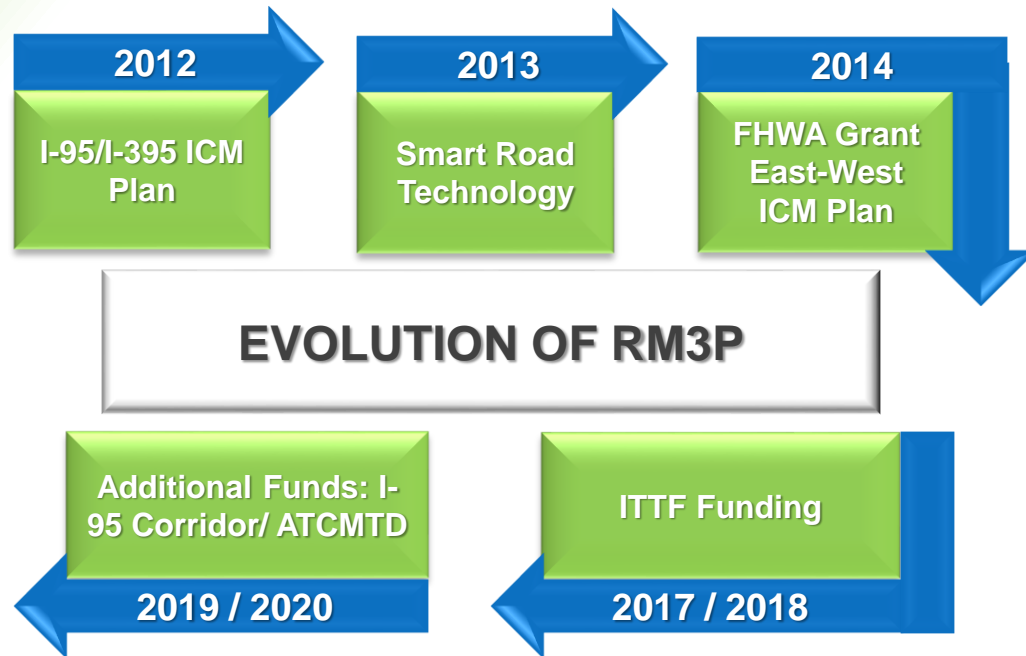
The Mission

"*Leverage the collaborative use of*

real-time data

by Virginia's public and private sectors

to improve travel safety, reliability, and mobility,

and

to give the public the tools

to make more informed travel choices."

RM3P

Evolution of RM3P

- Integrated Corridor Management (ICM) Plans
- Partner, NVTA, acknowledges ICM matching vision of NVTA's long-range regional plan, TransAction
- NVTA and Commonwealth of Virginia co-sponsor implementation of a large portion of the ICM Plans - RM3P
- Innovative Technology Transportation Funds

2012 — I-95/I-395 ICM Plan

2013 — Smart Road Technology

2014 — FHWA Grant East-West ICM Plan

EVOLUTION OF RM3P

2019 / 2020 — Additional Funds: I-95 Corridor/ ATCMTD

2017 / 2018 — ITTF Funding

> ➤ *Public transit infrastructure & services*
> ➤ *Safe and reliable transportation services*
> ➤ *Existing transportation network capacity*
> ➤ *New and emerging technologies*
> ➤ *Efficient and sustainable transportation network*
> ➤ *Establish a model that can be replicated*

Regional Multi-Modal Mobility Program

RM3P

RM3P

Travel Decisions Powered by Data

Virginia Regional Multi-Modal Mobility Program (RM3P)

RM3P is a collaborative program to improve safety, reliability, and mobility for travelers in the Northern Virginia region. Through the RM3P initiative, public and private sector transportation safety and service providers across Northern Virginia will adopt technologies to improve multi-modal travel conditions. Funded under the Commonwealth of Virginia's Innovative Technology and Transportation Fund (ITTF), the RM3P is led by the Virginia Department of Transportation (VDOT), the Northern Virginia Transportation Authority (NVTA), and the Virginia Department of Rail and Public Transportation (DRPT).

Data-Exchange Platform

The Data-Exchange Platform (DEP) will be a reliable, continuously updated, cloud-based data storage and exchange system. It will be used by regional partners and third-party providers to capture, process, and exchange information on real-time and historic multi-modal travel conditions. This platform will feed necessary data to other RM3P program elements and disseminate value-added and full-grown data produced by these elements.

AI-Based Decision Support System

The AI-Based Decision Support System (AI-DSS) will help predict the impact of disruptions to the transportation network and provide coordinated response options to agencies. The automated tool for operators will use travel data to monitor emerging conditions and recommend plans for coordinated, multi-agency responses to congestion, incidents, and events.

Multi-Modal Analytical Planner

The Multi-Modal Analytical Planner (MMAP) will be a collaboration tool for transportation service providers to pinpoint unmet needs in the transportation network. This highly interactive tool will enable mobility providers to study the impacts of "what-if" scenarios and better plan for travel demand by identifying underserved areas, especially during disruptive events.
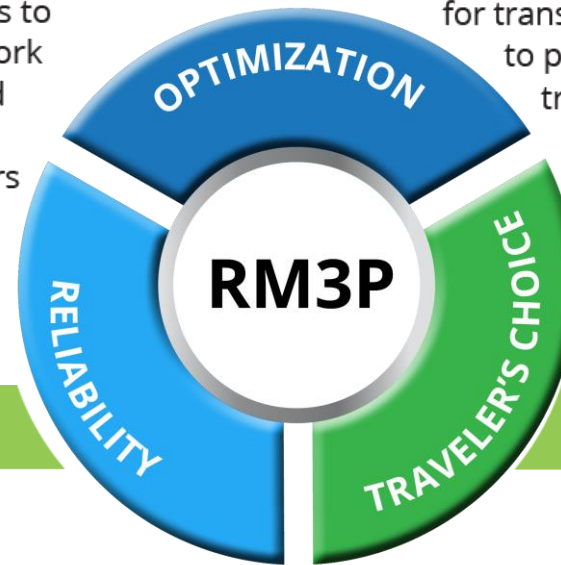
Commuter Parking Information System

The Commuter Parking Information System (CPIS) will entail a real-time, app-based parking availability information system that provides reliable information about parking space availability at lots serving bus, vanpool, and carpool commuters.
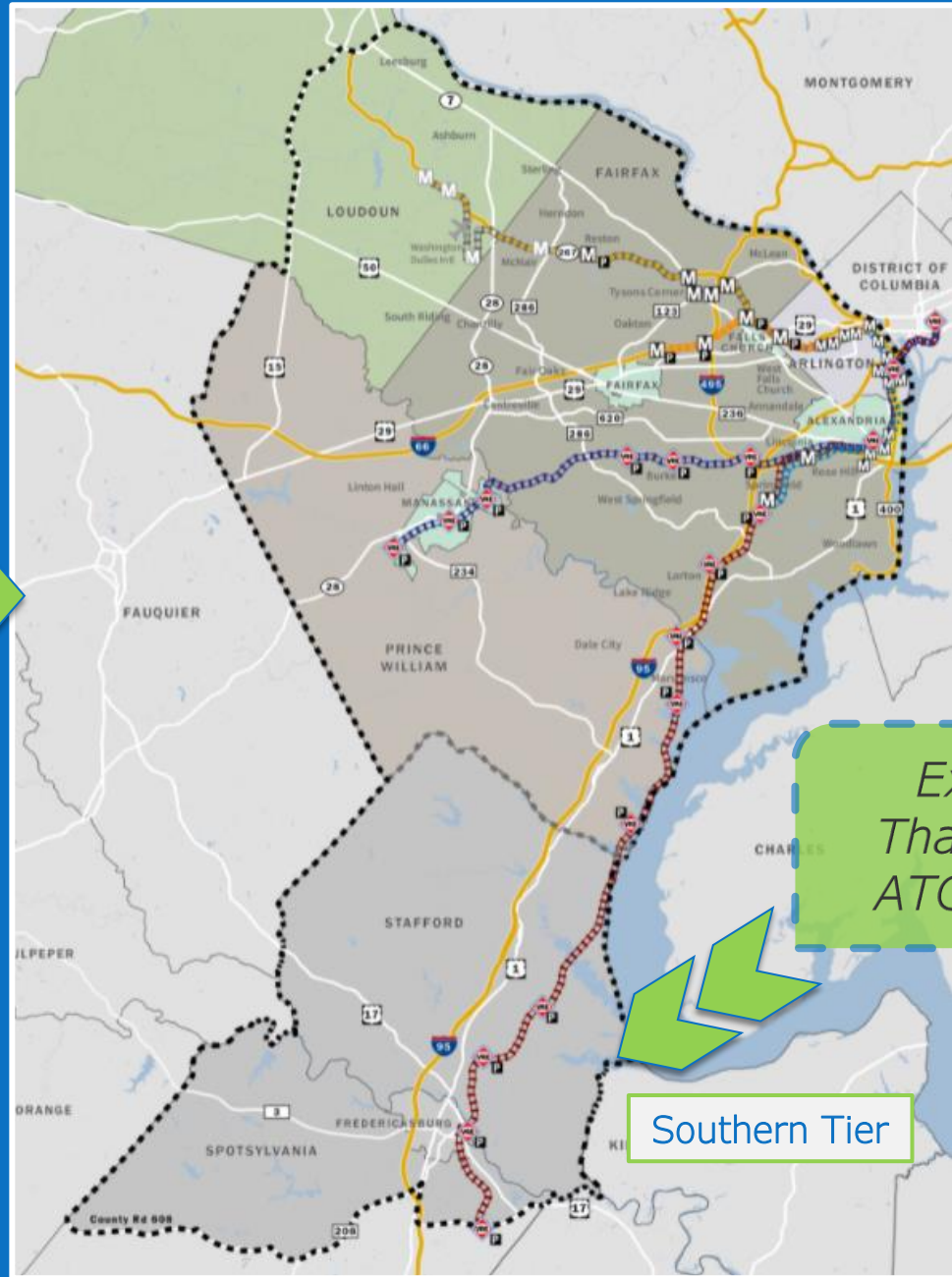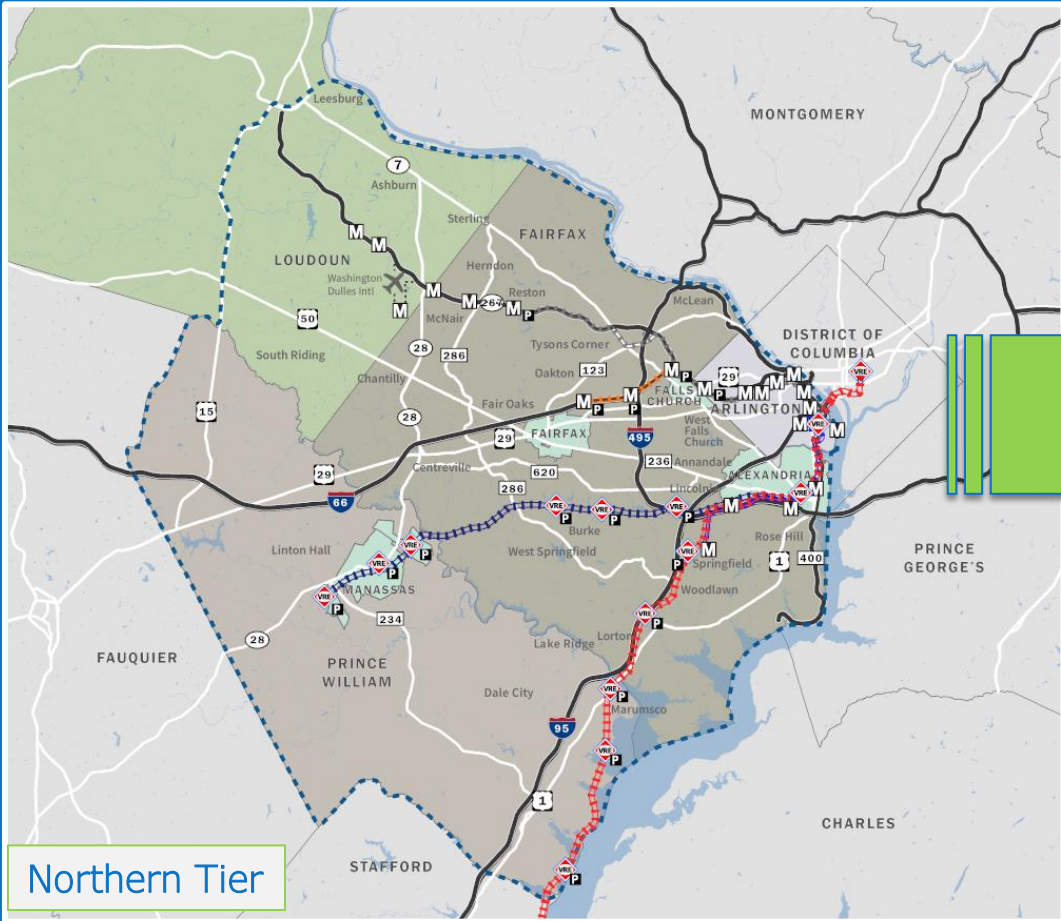
Dynamic Incentivization

Dynamic Incentivization (DI) will be a data-driven system offering the public incentives to modify their travel choices and behaviors in response to real-time travel conditions. The incentives will be offered by regional agencies and third-party providers.

RM3P

OPTIMIZATION

RELIABILITY

TRAVELER'S CHOICE

VDOT

NORTHERN VIRGINIA TRANSPORTATION AUTHORITY

DRPT

RM3P Regional Boundaries

Northern Tier

Southern Tier

Expansion. Thanks to the ATCMTD grant

5

Data-Exchange Platform

The Data-Exchange Platform (DEP) will be a reliable, continuously updated, cloud-based data storage and exchange system. It will be used by regional partners and third-party providers to capture, process, and exchange information on real-time and historic multi-modal travel conditions. This platform will feed necessary data to other RM3P program elements and disseminate value-added and full-grown data produced by these elements.
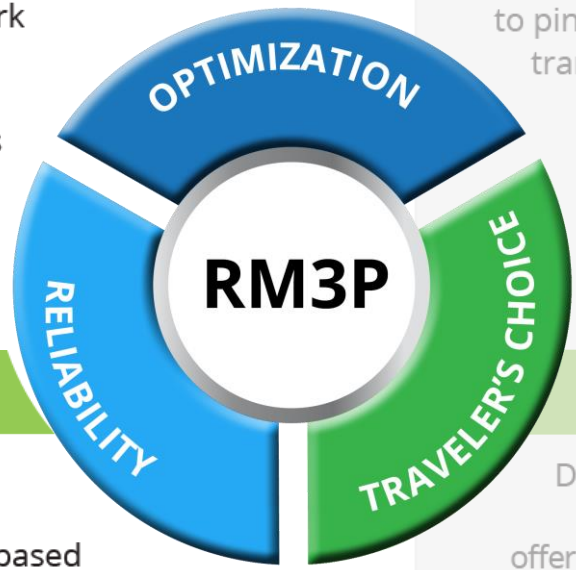
AI-Based Decision Support System

The AI-Based Decision Support System (AI-DSS) will help predict the impact of disruptions to the transportation network and provide coordinated response options to agencies. The automated tool for operators will use travel data to monitor emerging conditions and recommend plans for coordinated, multi-agency responses to congestion, incidents, and events.

Commuter Parking Information System

The Commuter Parking Information System (CPIS) will entail a real-time, app-based parking availability information system that provides reliable information about parking space availability at lots serving bus, vanpool, and carpool commuters.

Multi-Modal Analytical Planner

The Multi-Modal Analytical Planner (MMAP) will be a collaboration tool for transportation service providers to pinpoint unmet needs in the transportation network. This highly interactive tool will enable mobility providers to study the impacts of "what-if" scenarios and better plan for travel demand by identifying underserved areas, especially during disruptive events.

Dynamic Incentivization

Dynamic Incentivization (DI) will be a data-driven system offering the public incentives to modify their travel choices and behaviors in response to real-time travel conditions. The incentives will be offered by regional agencies and third-party providers.
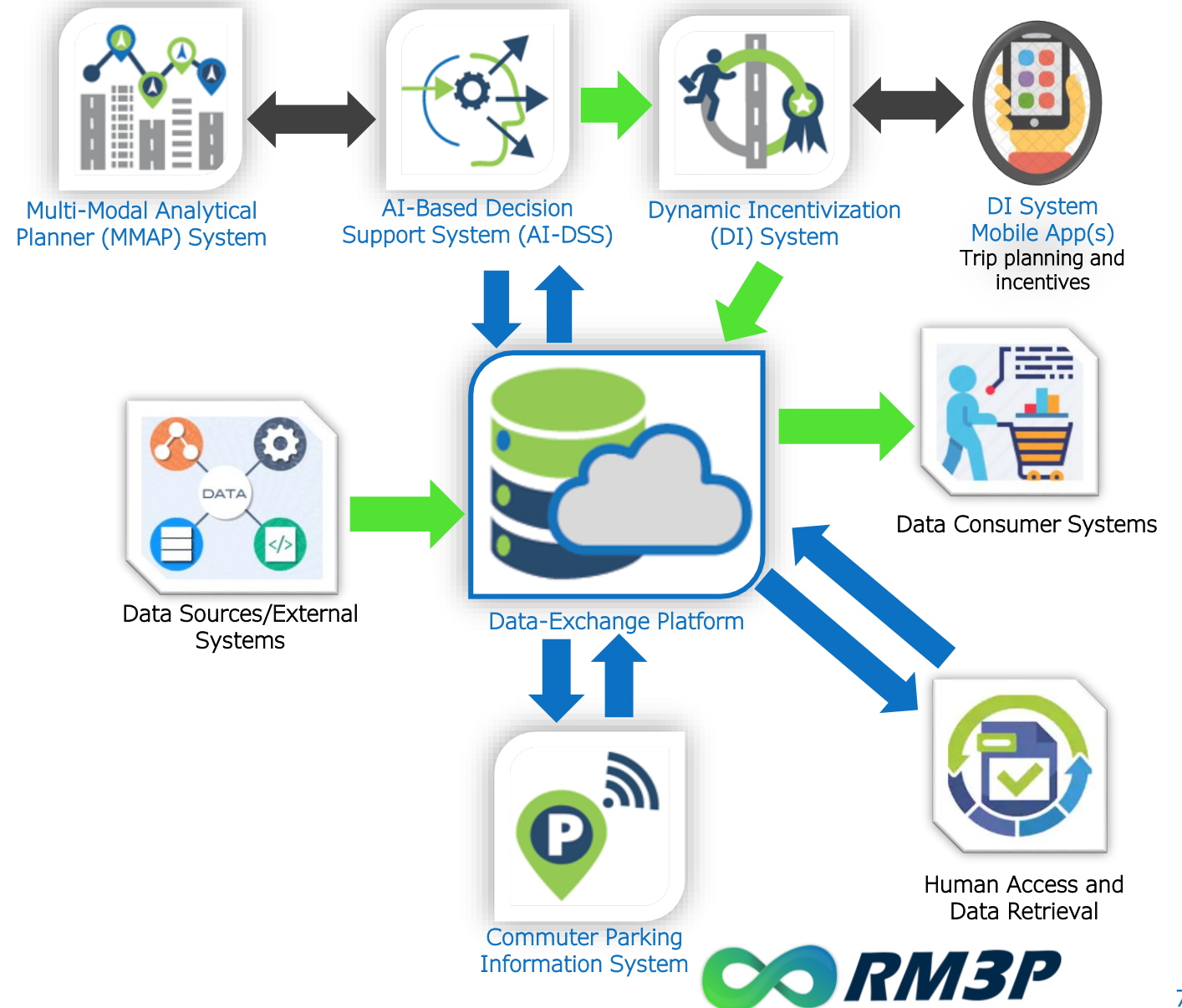
RM3P
OPTIMIZATION — RELIABILITY — TRAVELER'S CHOICE

RM3P
Travel Decisions Powered by Data

ATCMTD helps Fund RM3P

In 2020, Federal Highway Administration (FHWA) awarded a grant, valued at more than $4 million, to the Virginia Department of Transportation (VDOT), under the Advanced Transportation & Congestion Management Technologies Deployment (ATCMTD) program. The grant funding will support expansion of the RM3P footprint and functionality into the Metropolitan Fredericksburg (Stafford and Spotsylvania Counties and the City of Fredericksburg), with the implementation of two sets of projects – expansion of decision support system capabilities and deployment of predictive parking availability information using Artificial Intelligence (AI) for the I-95 corridor. The grant, subsequently, helped advance collaboration and partnership with FHWA and the Fredericksburg Area Metropolitan Planning Organization (FAMPO).

VDOT — DRPT — U.S. Department of Transportation Federal Highway Administration — FAMPO Fredericksburg Area Metropolitan Planning Organization

RM3P Architecture & Cross-Cutting Themes

- Data-Exchange Platform (DEP) is RM3P's data ingestion, data smoothing, data storage and data distribution system.

- Interfaces with all other RM3P systems (AI-Based DSS, Parking, Multi-Modal Analytical Planner, Incentivization) to provide and receive data.

- Interfaces with all data source systems (VDOT ATMS, Transit systems, 3rd Party Data Providers such as INRIX, etc.)

- Interfaces to allow Data Consumer Systems to obtain RM3P data

- Interface to allow Humans to query for RM3P data

Multi-Modal Analytical Planner (MMAP) System

AI-Based Decision Support System (AI-DSS)

Dynamic Incentivization (DI) System

DI System Mobile App(s)
Trip planning and incentives

Data Sources/External Systems

Data-Exchange Platform

Data Consumer Systems

Commuter Parking Information System

Human Access and Data Retrieval

Where Are We on Our Journey?

Regional Multi-Modal Mobility Program