



THE WEBINAR WILL BEGIN AT 12:35 PM



Regional Multi-Modal Mobility Program (RM3P) Initiative

EXHIBIT 1: INDUSTRY DAY WEBINAR PRESENTATION

Welcome

Thank you for your interest and participation in the webinar.

Cathy McGhee (Director of Research and Innovation, Secretary's Office) – Program Principal

Monica Backmon (Executive Director, NVTa) – Program Sponsor

Amy T. McElwain (Program Manager, Office of Strategic Innovations, VDOT) – Program Manager

Candice Gibson (Engineer, Office of Strategic Innovations, VDOT) – Deputy Program Manager

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Industry Day Housekeeping

- If your name is not shown on the attendee list (e.g., if only your phone number is listed) – Please type in your name, organization, email address, and phone number in the Chat Room.
- If you are connected with phone only, please send your name, organization, email address, and phone number to Tiffany Winfrey, the Contracting Officer.
- You may post your questions to the Chat Room.
 - When posting to the Chat Room, preface question with topic.
 - Questions and answers will be posted on eVA prior to the due date for RFI responses.
- Please mute your microphones and turn off video streaming.

Agenda

- RFI Purpose
- RFI Schedule
- RM3P Overview
- RM3P Base-Period Timeline
- RM3P Elements and Clarifying Q&A Session
 - Cloud-Based Data Lake/Data Store
 - AI-Based Decision Support System
 - Commuter Parking Information System
 - Mobility Gap Dashboard
 - Dynamic Incentivization
- Summary

RFI Purpose

- Inform the private-sector community of the Regional Multi-Modal Mobility Program (RM3P).
- **Understand** industry practitioners' capabilities, emerging trends, innovation, limitations, and constraints in the delivery of RM3P.
- **Identify** respondents who are potentially interested in submitting proposals.
- **Understand** industry practitioners' best practices on operations & maintenance.

RFI Schedule

Date	Task	Note
June 12, 2020	Issue RFI	
June 25, 2020	Industry Day Webinar Deadline to submit clarification questions	Q&A to be posted to eVA after webinar
July 9, 2020 5:00 PM EST	Deadline to submit RFI response	Ensure Attachment A is included to list proprietary/confidential information for withholding from disclosure.
Week of July 27, 2020	One-on-One discussions	Only responders to the RFI are eligible 30 min for one program element 45 min for two program element 60 min for three or more elements

RM3P Overview

■ What is RM3P?

- Virginia's *Regional Multi-Modal Mobility Program*.
- A technology-centered schema harnessing data to optimize performance of the transportation network.
- Emphasizes integrated, multi-modal approaches.
- Engages public- and private-sector stakeholders.
- Invites travelers themselves, to be part of the solution.

■ RM3P is managed jointly by the:

- Virginia Department of Transportation (VDOT).
- Northern Virginia Transportation Authority (NVTA), and
- Virginia Department of Rail and Public Transportation (DRPT).

■ The RM3P "Journey" begins in Northern Virginia...

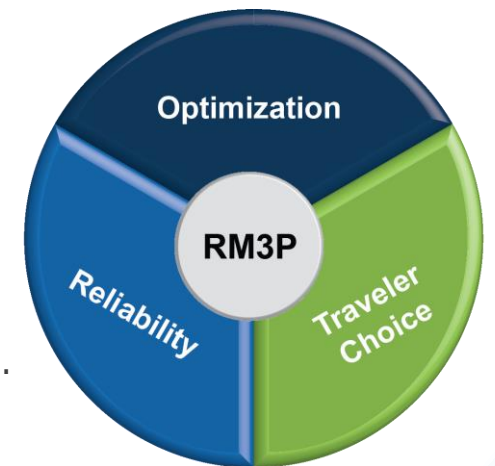
- Deployed over a period of approximately 3 years.
- Once successful, RM3P concepts are expected to be migrated to other parts of the Commonwealth.

RM3P Overview (Cont'd)

- RM3P builds on prior VDOT studies on *Integrated Corridor Management* (ICM).
- Key ICM precepts include the following:
 - Manage activities at a *corridor level*, across jurisdictions and agencies.
 - Operate *multi-modally*.
 - Focus on moving *people and goods*, rather than vehicles.
 - Emphasize *connectivity and integration*.
 - *Balance* the load.
- RM3P includes 5 program elements and is envisioned as a holistic, tightly integrated technology initiative.
- ICM planning studies conducted in Northern Virginia:
 - *North-South Corridor* (2013) –
 - Anchored by I-95/I-395
 - ICM operational strategies
 - *East-West ICM Corridor* (2017) –
 - Anchored by I-66
 - Foundational initiatives
- Concept shifted from corridor to region.

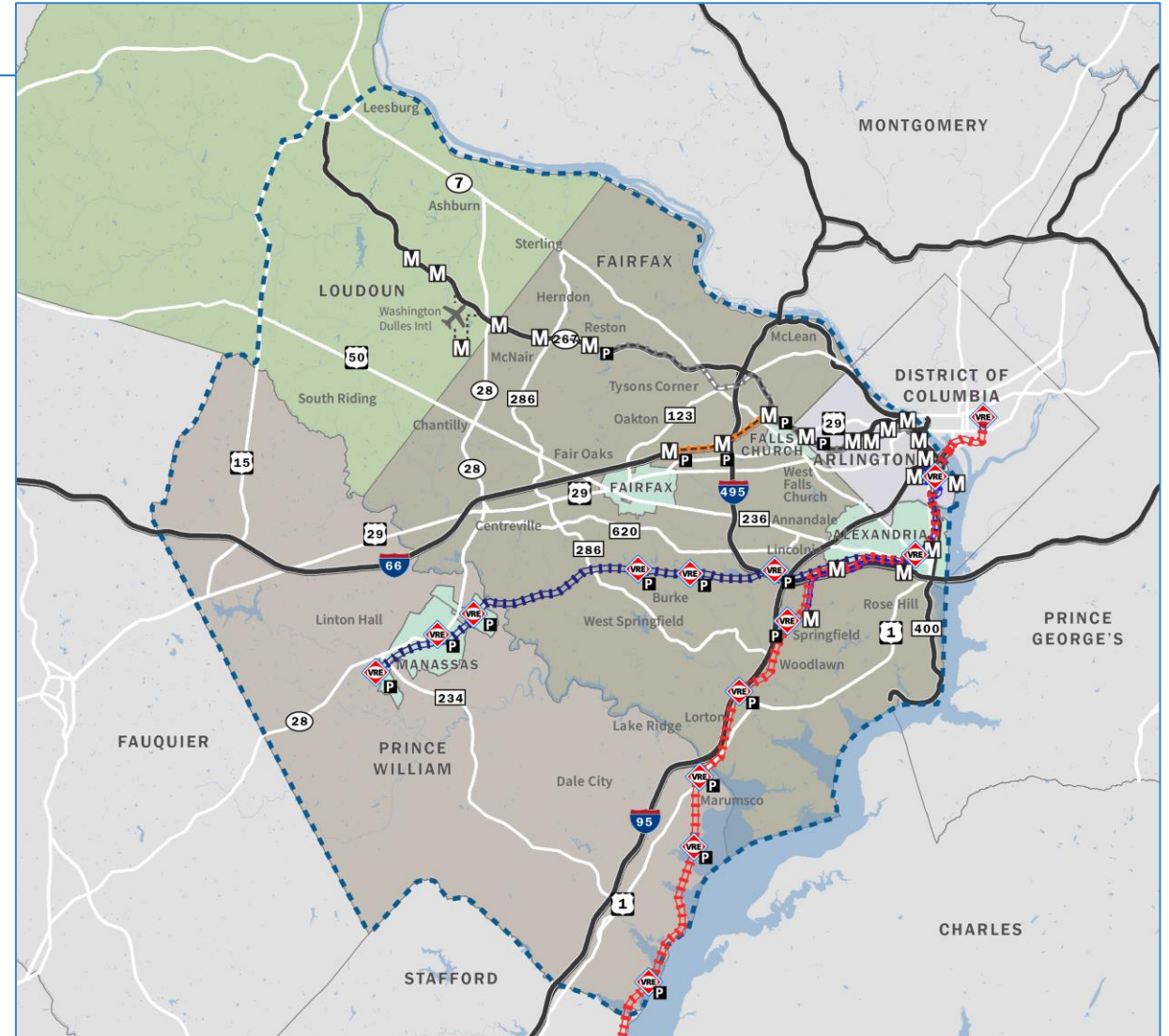
RM3P Overview (Cont'd)

- Collaborative program to **improve safety, reliability, and mobility** for Virginia travelers.
 - Encompasses all modes of travel across Northern Virginia.
 - Draws on the operational capabilities and support of public agencies and private-sector organizations.
 - Relies on the wisdom of travelers to engage in sensible transportation decision-making, when presented with sufficient information and a range of choices.
 - Harnesses new and emerging technologies to share real-time information, support collaborative actions and decision-making by regional partners, and incentivize travelers to modify transportation choices.
- RM3P is a **technology deployment initiative** with these goals:
 - *Optimization* – Optimize transportation system performance by improving the efficiency of agency responses to travel disruptions
 - *Reliability* – Enhance travel time reliability.
 - *Traveler Choice* – Support on-demand, multi-modal trip options for travelers.



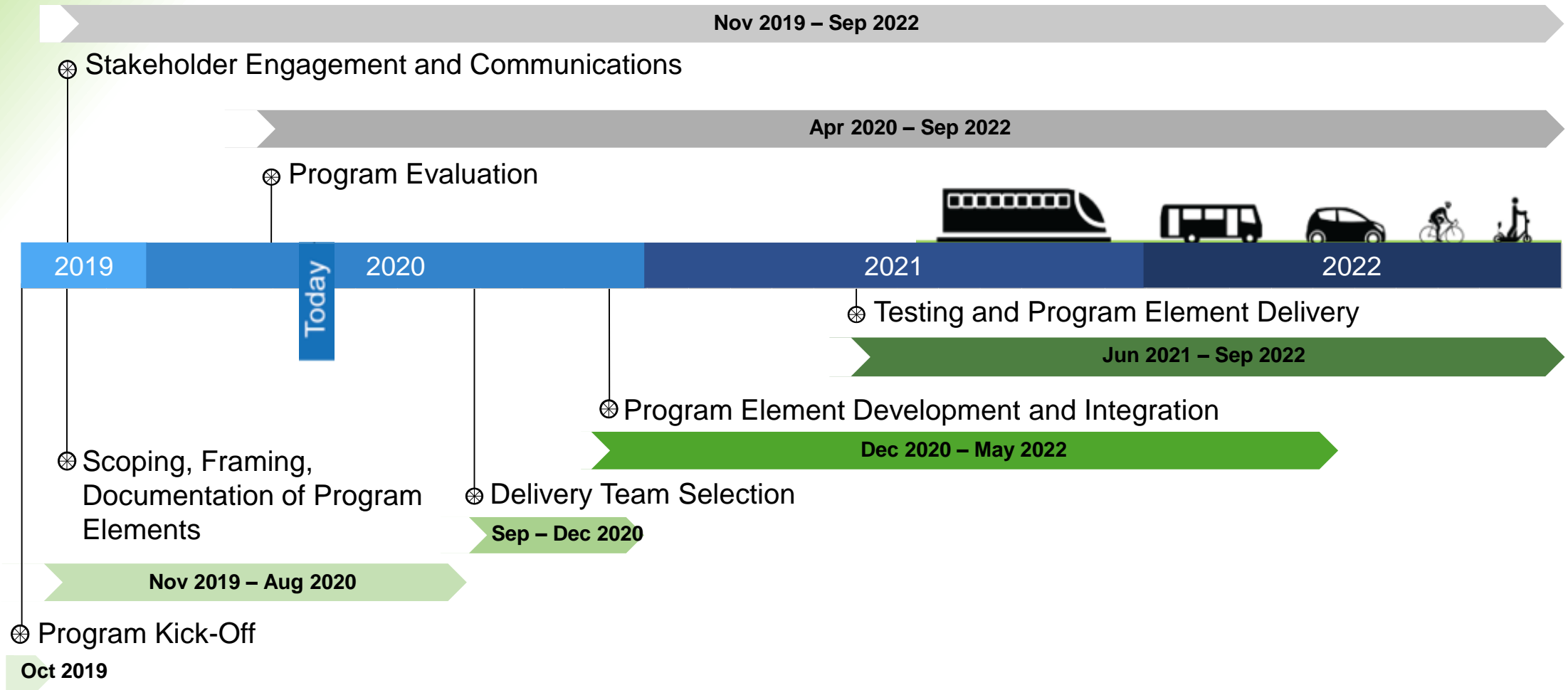
RM3P Overview (Cont'd)

- Northern Virginia
- Freeways, Express Lanes anchored by I-495, I-395/I-95, I-66, VA-267
- Arterials
Parallel or cross anchor corridors
- Metrorail
Orange, Silver, Blue, Yellow
- Commuter rail
VRE
- Bus
Regional, commuter, and local
- Commuter parking lots
- Bike infrastructure



RM3P Base-Period Timeline

36 Months (October 2019 – September 2022)



RM3P Elements and Clarifying Q&A Session

Please enter your questions in the chat room

Questions & answers will be posted at eVA after Industry Day

RFI Response Content – General

- **Company Introduction** – One to two paragraphs.
- **Overview of Capabilities** – Experience, thoughts, and approaches to providing RM3P solutions.
- **Planning Cost Information** – Advise on commercial price list to support planning cost estimate.
- **General Delivery Approach** – Insights and perspectives on the optimal approach to developing and delivering RM3P.
- **Operations & Maintenance** – Best practice on sustaining similar systems.
- **VITA Qualification** – VITA pre-qualification status.

RM3P Program Elements

- Data Lake/Data Store
- AI-Based Decision Support System (DSS)
- Commuter Parking Information Systems
- Mobility Gap Dashboard
- Dynamic Incentivization

Cloud-Based Data Lake/Data Store

Foundational element – share data with four RM3P elements.

A cloud-based central repository used by regional partners and third-party providers to capture, process, aggregate, and exchange information on real-time and historical multi-modal travel conditions.

■ Baseline Scope:

- Specific data sources included in the Data Lake/Data Store will be based on use cases defined by the other program elements.
- Develop a **hybrid data architecture** that leverages the “hub-and-spoke” model for most use cases and a “point-to-point” model for exceptional use cases.

■ Implement key supporting technologies and processes:

- Enterprise service bus for real-time communications.
- Support for **real-time data feeds**, current-state data, and the storage of **historical data**.
- Defining **authoritative master data sets** that provide a single source of “truth” when data elements overlap.
- **Fusing data** from multiple sources into a single data set to be used for analysis.
- Execution of **data-quality checks** to ensure the accuracy and completeness of the data received.

Cloud-Based Data Lake/Data Store (Cont'd.)

■ Expected Outcomes:

- Highly scalable data-storage and data-processing for data store.
- Obtain real-time and historic data from various input sources systems, including data developed by RM3P program elements.
- Provision of data to various output data consumer systems.
- Comply with the rules and guidelines prescribed by VITA in procuring cloud-based solutions.
- Transparent on system usage & performance (e.g., uptime, speed of processing queries).

■ Targeted Audiences:

- Regional/municipal transportation operations centers, transportation agencies, transit agencies, transportation planners, etc.
- Data generators/consolidators and other store managers.
- App developers.

Cloud-Based Data Lake/Data Store – RFI Questions

- Summarize your experience implementing real-time data storage and processing solutions for the transportation industry.
- A theoretical technology solution to address the following use case
 - A set of employee-facing applications need near real-time (< 1 second) access to a single data feed that provides consistent, curated and authoritative data generated by combining real-time streams from more than twenty unique and independently operated traffic signaling systems.
 - The independent traffic signaling systems may have similar data fields and types, but they may have values and headers that will need to be modified to create the single data feed. For example, one system might have a field called “STATUS” with values of “green, yellow, and red” and another might have a similar field called “Indicator” with values of “1, 2, and 3” that align with the green, yellow, and red status.
- Describe your experience developing and implementing real-time and near real-time data curation services – such as data quality, data mastering, data fusion, etc. – in support of a centralized Data Lake/Data Store.

AI-Based Decision Support System

Heart of the program – a tool for operators to collaborate responses.

Automated tool to predict emerging conditions, with machine learning capabilities, and recommend and continuously improve response plans for coordinated, multi-agency, multi-modal responses to congestion, incidents, and events.

■ Baseline Scope:

- Deploy a **predictive analytics engine** to predict when incidents and congestion are likely to occur.
- Develop **simulation model** to develop and analyze response plans, and perform after-action analysis.
- Develop **business rules** and multi-agency/multi-modal response plans in partnering with regional agencies.
- Develop **rules engine** to assist operators with the selection and distribution of response plans.
- Develop **GUI** for agencies to coordinate response actions.

Predictive Analytics
1. Develop scope and area of region for prediction using available data
2. Evaluate prediction services vs. development of prediction engine.
3. Contract/develop prediction engine
4. Deploy & integrate with operations.

Domain Knowledge
1. Collect response plans
2. Create multi-agency/multi-modal plans
3. Use model to evaluate and update plans
4. Develop logic for selecting plans

Pattern Recognition
1. Procure rules engine software
2. Setup rules logic
3. Setup agency approval process
4. Integrate data from data warehouse.

Modeling
1. Use existing models within region
2. Develop an offline multi-modal model
3. Model and update response plans
4. Evaluate response plan use and impact

AI-Based Decision Support System (Cont'd.)

■ Expected Outcomes:

- Furnish guidance to agencies on response options to address adverse conditions.
- Improved regional coordination among agencies, resulting in more streamlined and efficient responses to conditions.
- Support the full range of transportation management agencies and services across the region.
- An efficient automatic tool that runs analysis within user-defined time period.

■ Target Audiences:

- Regional roadway operators for interstates, arterials, toll roads, private express lanes.
- Transit operators – rail and bus.
- Regional operations coordinator (MATOC).
- Incident management teams (police, fire and rescue, hazmat cleanup, etc.); and emergency patrols.

AI-Based Decision Support System – RFI Questions

- Summarize your experience developing and implementing decision support systems, including those for the transportation industry. Describe specific DSS solutions and where they have been implemented.
- One potential technology being considered is a predictive analytics engine to predict incidents and congestion risks within the RM3P region. Based on your experience, what data is needed and how many days of data do you normally expect in order to train a prediction engine to reliably predict both risk of an incident and risk of congestion? How large of a geographic area should be considered in a prediction engine?
- Another area of interest is using modeling to develop and evaluate response plans. The Northern Virginia region currently has several macroscopic models for planning purposes, and a handful of mesoscopic models to support specific projects within the region. What is your experience in using modeling to develop and analyze multi-modal response plans? Based on your experience, is developing a regional mesoscopic model feasible for the size of the RM3P region and, if so, how long would you estimate it will take to develop and calibrate such a mesoscopic model?
- What is your experience with developing new incident response plans by combining existing agency plans, working with stakeholder groups to develop new multi-modal/multi-agency plans, and evaluating those response plans for expected benefits? What approach would you recommend for developing multi-agency, multi-modal response plans? What is your experience and recommended approach to improving response plans over time?

Commuter Parking Information System

A key element to improve reliability and support multimodal

Provides commuters with reliable expected parking space availability for lots serving rail, bus, and vanpool/carpool commuters. An infrastructure-light solution to minimize field device installation and disseminating parking information and data through established third-party applications.

■ Baseline Scope:

- Static Data & Typical Usage Data:
 - Standardized static parking lot information (e.g., location, services available).
 - Typical usage in using historic parking occupancy data and manual counts.
- Real-time Availability Data:
 - Integrate **real-time parking information** from existing sources in the region.
 - Deploy cost-effective & **infrastructure-light technology** to detect occupancy status in subsections of the lot.
 - Develop **Parking Data-Processing System** and integrate outputs with the Data Store.
 - Develop **Parking API**.
 - **Integrate** with other RM3P elements.

Commuter Parking Information System (Cont'd.)

■ Expected Outcomes:

- Empower public- and private-sector parking information sharing with travelers.
- Communicate parking availability data to operators and commuters.
- Support other program elements – Incentivization, Mobility Gap Dashboard, and DSS.
- Standardize regional commuter parking lot information sharing.

■ Targeted Audiences:

- Commuter lot users.
- Internet search engines.
- Mobility/navigation apps and companies and parking information providers.
- Traveler information service providers.
- Public parking planners/operators (e.g., VDOT, VRE, WMATA, etc.) and local jurisdictions.

Commuter Parking Information Systems – RFI Questions

- Please describe parking solutions that meet these key criteria: (1) Use data analytics (e.g., crowdsourcing, probe, and historic parking data) to determine parking occupancy, (2) Minimize the need for field device installation and maintenance in the parking lots, and (3) Disseminate parking information and data through third-party providers.
- Describe specific parking solutions that you have implemented. How have these solutions addressed the criteria above? At what locations have the system(s) been deployed? Who are the clients? Do standards or specifications for these solutions exist?
- How accurate is the technology?
- Does your system provide the ability to integrate parking data from – and disseminate parking data to – third-party entities? Please describe current partnerships with third-parties such as distributors of navigation apps, search engines, trip planners, crowdsourcing platforms, etc.

Mobility Gap Dashboard

A collaborative planning tool that leads to future MaaS

A data-driven, user-friendly, and scenario-based analytical tool that identifies gaps in the transportation service network and enables mobility providers to better meet demand by highlighting those areas that are overserved or underserved. The mobility providers will be able to assess and plan the resources necessary to meet multi-modal customer demand.

■ Baseline Scope:

- Analytics
 - Develop **data management tools** representing baseline demand and capacity across all modes throughout the region.
 - **Multi-modal macroscopic model** to calculate the combined effects of multiple simultaneous regional events including ability to correctly predict mode shifts.
- User Interface
 - Develop a **map-based user interface** to show the ratio of demand-to-capacity on the map for all modes.
 - Add adjustments from a library or create a manual adjustment and save for later.

Mobility Gap Dashboard (Cont'd.)

■ Expected Outcomes:

- Encourage transportation/mobility service providers to implement changes that optimize investments and services.
- Common data-driven tools to facilitate cross-agency coordinated planning.
- Support first-mile/last-mile service options development.
- Transparent on tool performance and usage.

■ Targeted Audiences:

- State, regional, and local transit providers/operators and transportation planners.
- Transportation demand management providers.
- Transportation investment decision makers.
- Private mobility partnering providers.

Mobility Gap Dashboard – RFI Questions

- Describe the data sources and modeling techniques you recommend for supporting this initiative.
- Describe (and give examples) of user interfaces you recommend for assisting transportation professionals with these planning tasks that will not require knowledge or experience with modeling. Please include screen shots of example user interface.
- Identify and describe projects you have performed that are similar to the Mobility Gap Dashboard.

Dynamic Incentivization

The only direct customer facing element to encourage travelers to be part of the solution

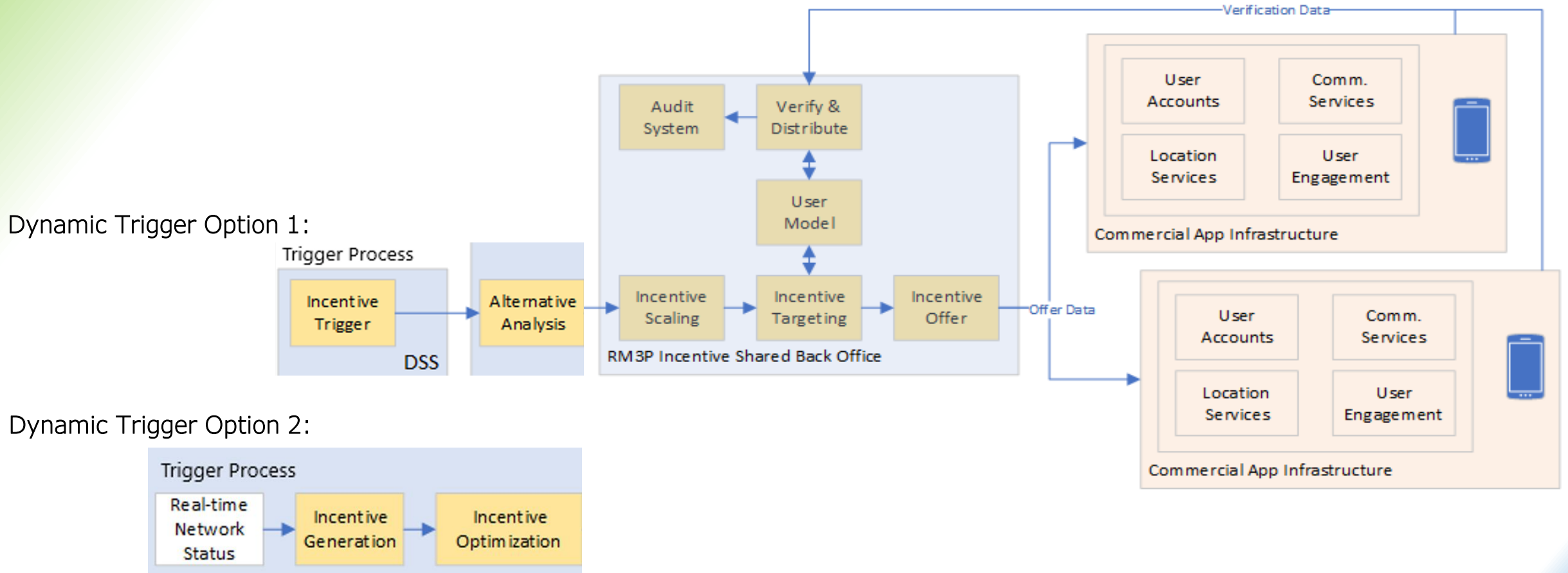
A data-driven system with the capability of dynamically triggering incentive offers to commuters to modify travel choices and behaviors based on pre-determined rules in real-time response to current traffic and transportation network conditions to avoid crashes, work zones, and other congested conditions. Periodic challenges, gamification features, or loyalty programs are desired to help sustain customers' interest and promote long-term behavioral changes.

■ Baseline Scope

- Back-end services available to multiple approved partner apps.
 - Create and publish **real-time incentive offers** so that multiple public-facing apps can provide the incentives.
 - **Verify compliance** for dynamic incentive rewards and progress toward loyalty program goals.
 - To the extent possible, use existing apps and their established market presence and proven technology.
- Integrations
 - **Customize or extend existing incentive app** to support dynamic incentives.
 - **Integrate with DSS** – trigger dynamic incentive creation as part of incident response.
 - **Integrate with parking system** – free or discounted parking at multi-modal hubs offered as reward.

Dynamic Incentivization (Cont'd.)

- App-agnostic approach – open architecture
- Incentives trigger (real-time) – via integration with DSS or from back office provider



Dynamic Incentivization (Cont'd.)

■ Expected Outcomes:

- Provide a sustainable, dynamic strategy that incentivizes commuters to be part of the transportation solution.
- Incentivization options will change in real-time, depending on conditions and rules.
- Users can choose their preferred incentivization app.
- Accountable on the use of public funds that complies with relevant regulations (e.g. tax code).
- Protect customer privacy while producing relevant data for the analysis of incentive effectiveness.

■ Targeted Audiences:

- Single-occupant vehicles/solo drivers.
- Providers (e.g., public libraries), transit operators, TDM providers/commuter program.
- Large employers (e.g. military installations).
- Occasional non-driving users (e.g. transit users) – for reinforcing shared mode use.

Dynamic Incentivization – RFI Questions

- Please comment on factors which contribute to widespread adoption and consistent usage of incentivization systems. Include issues such as program goals, structure, marketing and outreach, and make specific suggestions where possible.
- Provide insights and experience on how best to balance between customer privacy protection and being able to verify that incentive requirements have been met. If possible, discuss this in the context of the aforementioned multi-app environment.
- Please describe any experience your firm has in dynamically generating incentives in response to current traffic conditions and events. Include discussion on tools used by triggering mechanisms (traffic models, artificial intelligence, etc.), as well as the environment (geographic coverage) and results (reliability, accuracy). You may include work concepts that have not yet been deployed, but please distinguish between what is conceptual vs. research vs. production.
- Please describe your experience and recommendations for working with third parties that provide incentives to customers. Include discussion on recruiting incentive providers, managing the value distribution process, and determining what types of incentives work best in specific situations. Provide a discussion on funding strategies that were observed or initiated.
- Describe any current partnerships for reward offerings and/or managing the “loyalty” components of incentivization programs.

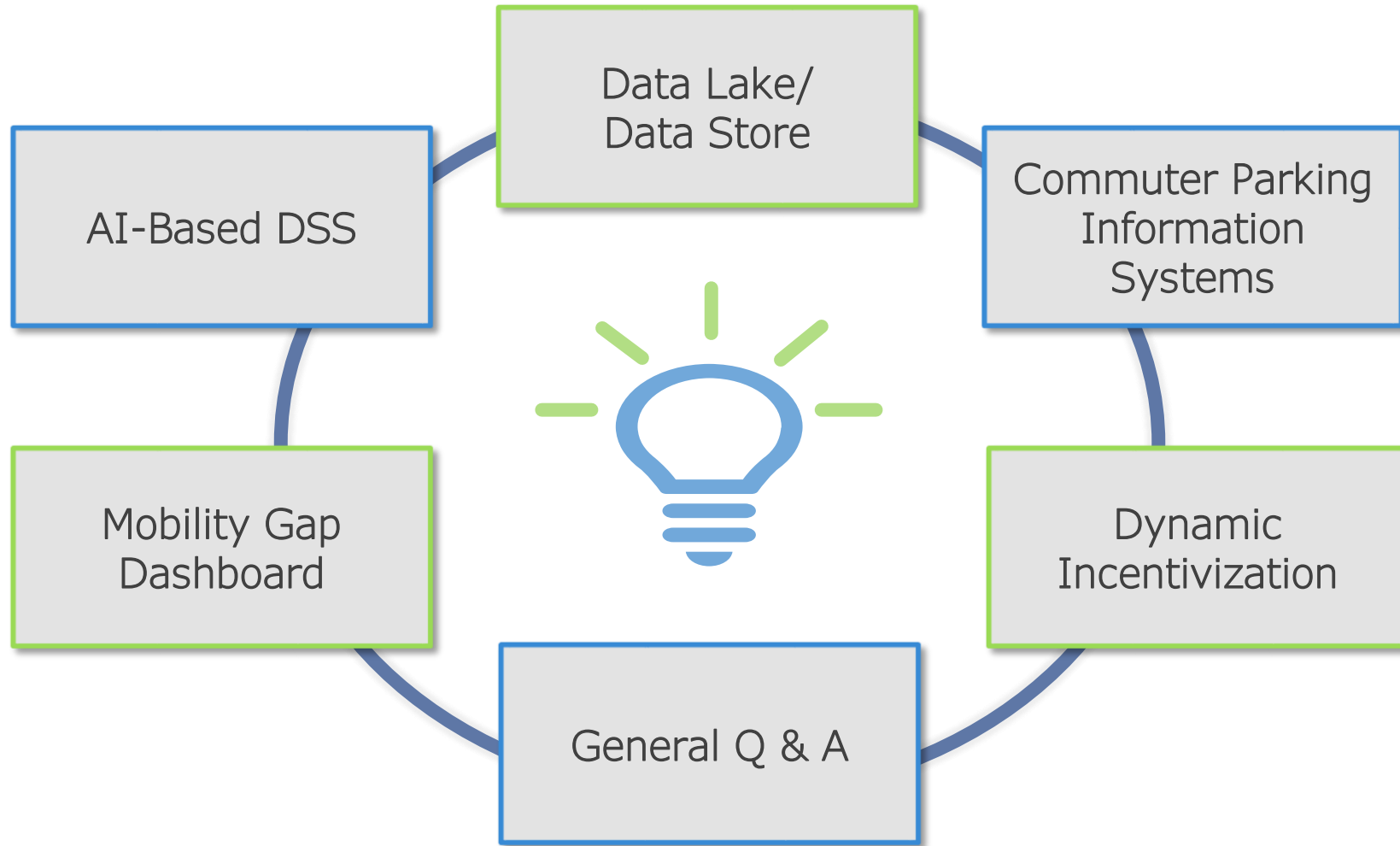
Questions from RFI Recipients

1. Page 1 of the RFI requires a “signature in ink,” but Page 6 requires submission of an electronic proposal package. Is it acceptable for the offeror to submit scanned copies of required ink-signed documents?
2. Do the two bullets listed under Page 8 Section 7.b. represent a single use case or a choice of two use cases?
3. Would this program be considered a brand new contracting requirement or is there a an incumbent vendor currently providing some type of RM3P?
4. With an anticipated program schedule of a Jan 2021 – Oct 2022 overall solution delivery, is there a likelihood for a potential RFP release before the end of 2020?
5. Has funding been secured for this project as of yet?
6. VITA registration (pg 8): Does DBE certification from our home state qualify our firm to apply for VITA pre-qualification or do we need to apply for SWaM certification?
7. Can a firm submit qualifications as part of a team to showcase work under a particular program element?

Questions from RFI Recipients (Cont'd)

8. Page 6, 6.3, Question - Can we assume an electronic signature is acceptable given the RFI can be submitted electronically?
9. Page 8, #6, VITA Qualifications. Question - Can you please further explain the process for our firm to apply for/obtain VITA qualification? Does this require Agency sponsorship?
10. I have a general question whether there will be an opportunity for finding teams for RFI and potentially RFP later? (Entire question copied here for full context: I am interested in responding to RFO for RM3P. I have a general question whether there will be an opportunity for finding teams for RFI and potentially RFP later? My firm is a small company with leading technologies, but would love to work with a primary contractor together.)
11. Can you please provide us the specific Terms and Conditions that shall apply to your RFI solicitation and response?
12. Would VDOT prefer to receive responses from a team representing multiple organizations to offer a comprehensive set of solutions covering all five program elements? If yes, how will VDOT ensure the competitiveness of our combined team response, provided the RFI responses are subject to public inspection?
13. Would VDOT be willing to increase the page limitations for a team representing multiple organizations?

Q&A from the Chat Room



Summary

- Submit additional written questions by June 25th 5:00 PM EST.
- Answers to respondents' questions will be posted to www.eva.virginia.gov.
- Written RFI responses will be accepted up until July 9th 5:00 PM EST
- Contract Officer will reach out to, and invite each written response vendor for one-on-one discussions with VDOT and RM3P Team representatives
 - Optional
 - Conducted Virtually
 - Late-July

ATTACHMENT A

PROPRIETARY/CONFIDENTIAL INFORMATION

SUMMARY FORM

SECTION/TITLE	PAGE NUMBER(S)	REASON(S) FOR WITHHOLDING FROM DISCLOSURE

* Identify the reason for withholding from disclosure in accordance with the Code of Virginia § 2.2-4342F

Don't forget to complete Attachment A



THANK YOU

RM3P Management Team

TIFFANY WINFREY

Contract Officer

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