

## RM3P Fredericksburg Stakeholder Summit I The ABC's of RM3P

MAY 13, 2021







## Fredericksburg Stakeholder Summit I

Thank you for attending! This event will begin in:



## We will be with you shortly!

### For best meeting experience:

- Use headphones
- Mute yourself when not speaking
- Put your cell phone on silent
- Turn off your video



## Welcome Message



Cathy McGhee

RM3P Program Principal & Executive Committee Chair

VDOT Director of Research and Innovation



### Welcome

- □ Thank you for attending!
- This event is intended to gather inputs – we want to hear from you – our stakeholders.



Ian Ollis,
RM3P Executive Committee Member
& GWRC Director of Transportation

### Polling

- We will use Poll Everywhere.
- See next slide for polling instructions.

Stacey Feindt,

RM3P Communications Working Group & FAMPO Public Involvement/Title VI Coordinator





- You can provide your inputs by:
  - Responding to the polling questions.
  - Participating in the discussions.
  - Submitting comments during discussions via the chat box.
  - Sending your feedback after the event to the team via email.



Leigh Anderson, RM3P PM Group Member & GWRideConnect Assistant Director



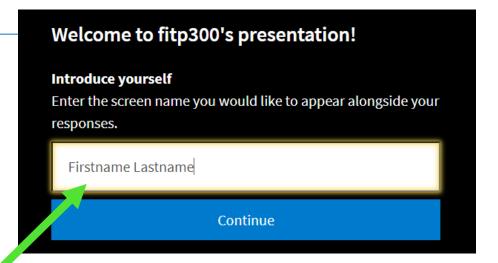
### Connecting to Poll Everywhere

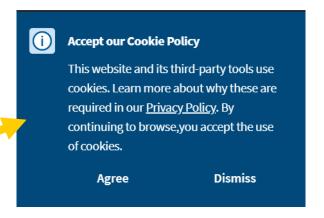
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Please enter your full name when prompted to enter your "screen name" – this way, we can get back to you after today's meetings regarding questions or comments you raise in response to the poll questions.

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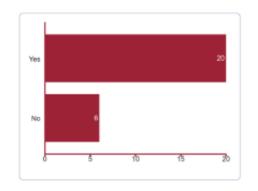






## Polling Question 1a:

### Have you visited the RM3P website? (Select one)



Response options	
Yes	
No	

Count	Percentage
20	77%
6	23%



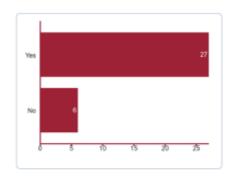
26 Responses



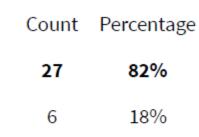


## Polling Question 1b:

# Have you ever been late to an appointment because you couldn't find parking? (Select one)



Response options	
Yes	
No	





33 Responses



## RM3P Overview







### Virginia Regional Multi-Modal **Mobility Program (RM3P)**



Candice Gibson, RM3P Deputy Program Manager

### **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.

RM3P

RELIABILITY

### **Al-Based Decision Support System**



The Al-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



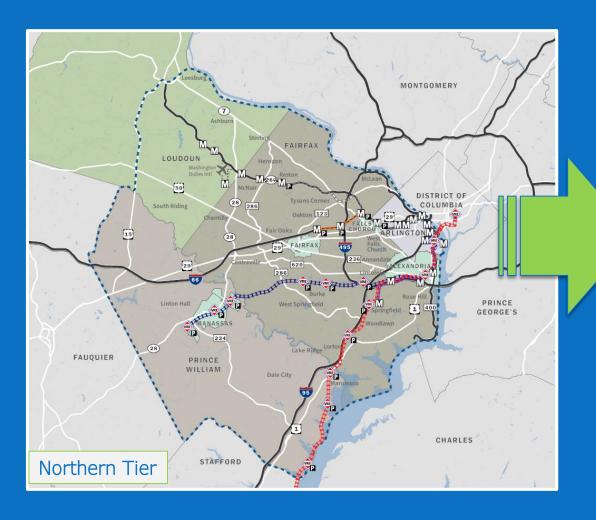
will enable mobility providers to study the impacts of "what-if" scenarios and better plan for travel demand by identifying underserved areas, especially during disruptive events.

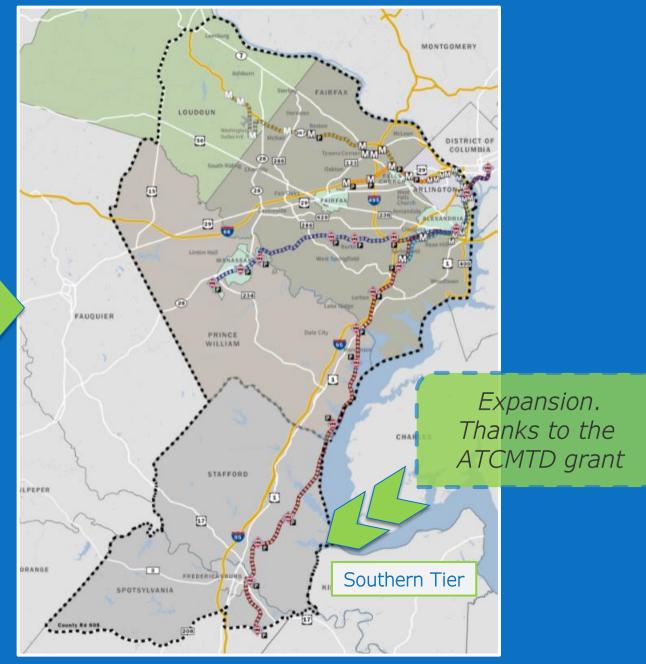
### **Dynamic Incentivization**

TRAVELS CHOICE 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.

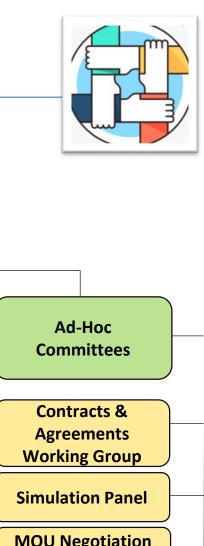


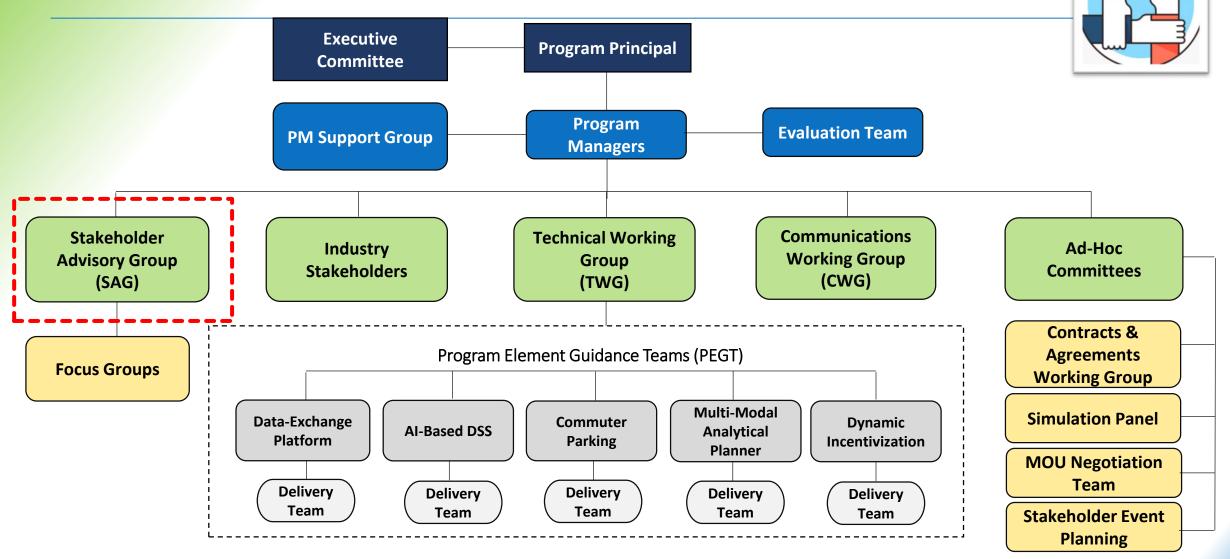
## RM3P Regional Boundaries





### The RM3P Team







### Strategic Guidance for RM3P



Cathy McGhee
Director of Research
and Innovation, VDOT



Monica Backmon Executive Director, NVTA



Jennifer DeBruhl
Chief of Public
Transportation, DRPT



Bob Osmond Chief of Tech & Business Strategy, VDOT



Kevin Gregg Chief of Maintenance & Operations, VDOT



Hari Sripathi
Director of Innovation, VDOT



Bill Cuttler Construction Manager, VDOT



Marcie Parker Fredericksburg District Engineer, VDOT



Ian Ollis
Director of
Transportation, GWRC



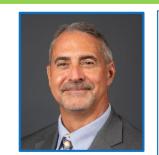
Iris Vaughan
ITS/Operations/LPA
Engineer, FHWA





### Al-Based Decision Support System (Al-DSS): Team Composition

### **Project Procurement Panel**



Kevin Gregg, Executive Representative, VDOT



Candice Gibson,
Project Manager,
VDOT

Cathy McGhee, Secretary's Office

Amy McElwain, VDOT

Mena Lockwood, VDOT

Ken Earnest, VDOT

Joshua Nicholas, Arlington County

Xavier Harmony, DRPT

Timothy Bean, VDOT

### **Technical Advisors:**

Taran Hutchinson, MATOC

Paul Szatkowski, VDOT

### Program Element Guidance Team

Ken Earnest, VDOT

Taran Hutchinson, MATOC

William Truong, MATOC

James Hamre, WMATA

Gregory Edwards, WMATA

Neil C. Johnson, VSP Division 7

Joshua Nicholas, Arlington County

Norvel Cooksey, VDOT

Sanhita Lahiri, VDOT

Joseph Warner, VDOT

Gregory Finch, VSP Division 2



Candice Gibson Liaison, VDOT



Mena Lockwood, Liaison, VDOT



Kevin Miller, Lead, Kapsch



### Commuter Parking Information System (CPIS): Team Composition

### Project Procurement Panel



Ian Ollis, Executive Representative, GWRC

Cathy McGhee, Secretary's Office

Stephen Crim, Arlington County

Scott Cowherd, VDOT

Heidi Mitter, VDOT

Shane Sawyer, VDOT

Linda LaSut, VDOT

**Technical Advisors:** 

Fatemeh Allahdoust, VDOT



Amy McElwain, Project Manager, VDOT

### Program Element Guidance Team

Scott Cowherd, VDOT

Christine Hoeffner, VRE

Belinda Barrett, WMATA

Scott Gross, Loudoun

Shane Sawyer, VDOT

Linda LaSut, VDOT

Heidi Mitter, VDOT

Phil Rogers, WMATA



Amy McElwain, Liaison, VDOT



Stephen Crim, Liaison, Arlington



Imran Inamdar Lead, Kapsch

# Al-Based Decision Support System (DSS)

Regional Multi-Modal Mobility Program

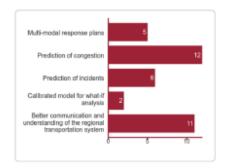




## Polling Question 2:

What do you think is the most important Decision Support System element for your agency?

(Select one)



Response options	Count	Percentage	700/
Multi-modal response plans	5	14%	78%
Prediction of congestion	12	33%	Engagement
Prediction of incidents	6	17%	
Calibrated model for what-if analysis	2	6%	36 Responses
Better communication and understanding of the regional transportation system	11	31%	



#### VIEW ANIMATION VIDEO

# Commuter Parking Information System

Regional Multi-Modal Mobility Program

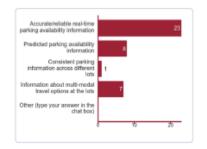




## Polling Question 3:

What do you think is the most important type of parking information for commuters?

(Select one)



Response options	Count	Percentage	050/
Accurate/reliable real-time parking availability information	23	59%	85% Engagement
Predicted parking availability information	8	21%	
Consistent parking information across different lots	1	3%	39 Responses
Information about multi-modal travel options at the lots	7	18%	
Other (type your answer in the chat box)	0	0%	



## AI-DSS Panel Discussion











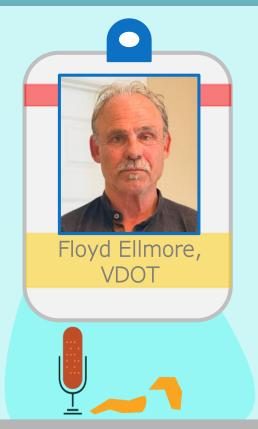


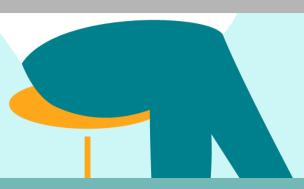


























AI-DSS Q&A SESSION

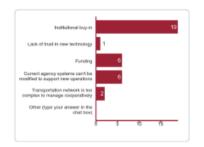




## Polling Question 4a:

## What is the biggest challenge to the successful implementation of DSS?

(Select one)



Response options	Count	Percentage	74%
Institutional buy-in	19	56%	14%
Lack of trust in new technology	1	3%	Engagement
Funding	6	18%	
Current agency systems can't be modified to support new operations	6	18%	34 Responses
Transportation network is too complex to manage cooperatively	2	6%	
Other (type your answer in the chat box)	0	0%	

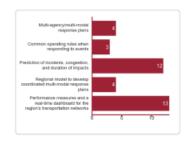




## Polling Question 4b:

## Which of the following DSS benefits are you most looking forward to?

(Select one)



Response options	Count	Percentage	700/
Multi-agency/multi-modal response plans	4	11%	Engageme
Common operating rules when responding to events	3	8%	
Prediction of incidents, congestion, and duration of impacts	12	33%	36 Responses
Regional model to develop coordinated multi-modal response plans	4	11%	
Performance measures and a real-time dashboard for the region's transportation networks	13	36%	





## **CPIS Panel Discussion**



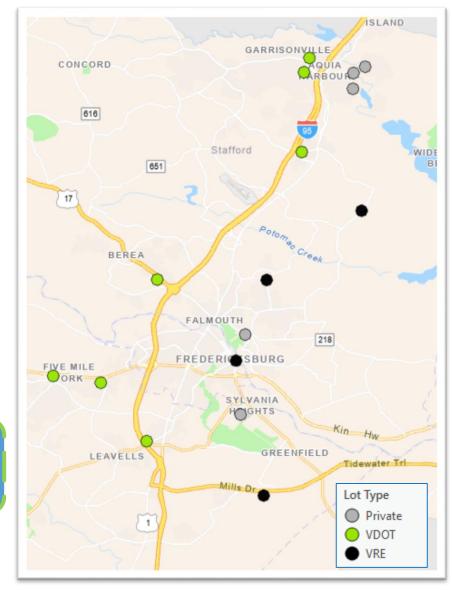


## Fredericksburg I-95 Corridor Park-and-Ride Lots

Statistical Summary		
Total Park-and-Rides	11	
VRE Stations (including 8 sub-lots for the Fredericksburg Station)	4	
VDOT Lots*	7	
Total Parking Spaces	~7.3K	

Privately-owned parking lots are not part of the project scope.

\* The Fredericksburg parking project focuses on the 7 VDOT lots.





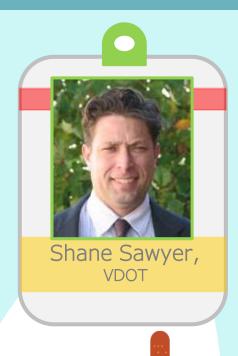






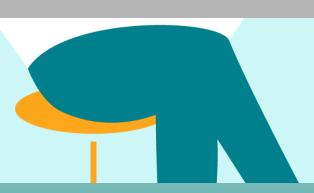




























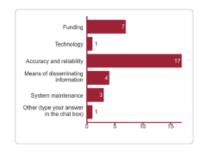
CPIS Q&A SESSION



## Polling Question 5a:

Based on your experience, what is the most difficult challenge (institutional and/or technical) to collecting and disseminating real-time parking information?

(Select one)



Response options	Count	Percentage	720/
Funding	7	21%	1270
Technology	1	3%	Engagement
Accuracy and reliability	17	52%	
Means of disseminating information	4	12%	33 Responses
System maintenance	3	9%	
Other (type your answer in the chat box)	1	3%	



**8**—×

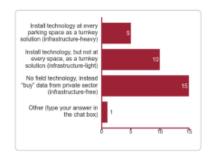
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## Polling Question 5b:

What do you think is the preferred solution to collecting real-time parking information?

(Select one)



Response options	Count	Percentage	67%
Install technology at every parking space as a turnkey solution (infrastructure-heavy)	5	16%	Engagement
Install technology, but not at every space, as a turnkey solution (infrastructure-light)	10	32%	31
No field technology, instead "buy" data from private sector (infrastructure-free)	15	48%	Responses
Other (type your answer in the chat box)	1	3%	





## Regional Cooperation & Coordination

Key to Successful Implementation of AI-DSS and CPIS

Candice Gibson RM3P Deputy Program Manager



## **Concluding Remarks**



Cathy McGhee

RM3P Program Principal & Executive Committee Chair

VDOT Director of Research and Innovation





## Thank You for Your Participation

Please provide any additional comments by sending us an email at: rm3p@vdot.virginia.gov

See You Again at Summit II – Collaboration is Key
May 26 at 1PM









# RM3P Fredericksburg Stakeholder Summit II Collaboration is Key

MAY 26, 2021







## Fredericksburg Stakeholder Summit II

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### Welcome Message



Marcie Parker
RM3P Executive Committee Member &
VDOT Fredericksburg District Engineer



### Welcome

- You can provide your inputs by:
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  - Participating in the discussions.
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  - Sending your feedback after the event to the team via email.



Leigh Anderson, RM3P PM Group Member & GWRideConnect Assistant Director



Finn Vigeland, Consultant Team Support

### Polling

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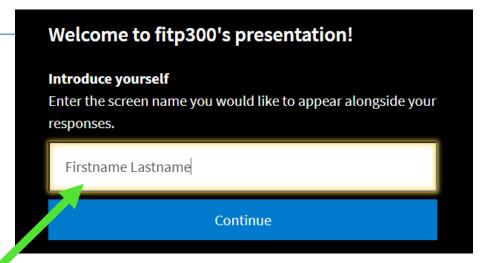
### Connecting to Poll Everywhere

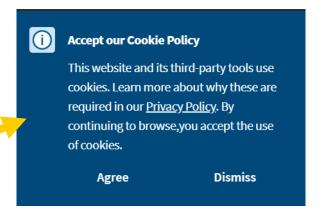
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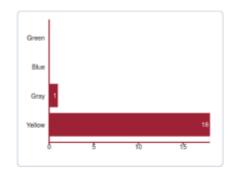






### Polling Question 1:

## Which of the following is not an RM3P color? (Select one)



Gray Yellow
CHOV
Blue
Green
Response options

Count	Percentage	79%
0	0%	
0	0%	Engagement
1	5%	
18	95%	19
		Responses



### Summit I: Overview & Findings





### Al-Based Decision Support System (Al-DSS)

#### Summit I Stakeholder Feedback

#### Most important Decision Support System component

Congestion prediction 33%

Better communication and understanding of regional transportation system

31%

Incident prediction

Multi-modal response plans

14%

Calibrated model for what-if analysis 5%

Biggest challenge to successful implementation of DSS

Institutional buy-in 56%

Funding 18% Current agency systems cannot be modified to support new operations 18%

Transportation network too complex

6%

Lack of trust in new technology

2%

### DSS benefits stakeholder are most looking forward to

Performance measures and realtime dashboard for regional transportation networks

36%

Prediction of incidents, congestion, and impact durations

33%

Multiagency/multimodal response plans

11%

Regional model to develop coordinated multimodal response plans

11%

Common operating rules when responding to events

8%

#### **Panelists**



Candice Gibson, VDOT



Floyd Ellmore, VDOT



Gregory Finch, VSP

### **Commuter Parking Information System (CPIS)**

#### **Panelists**

### Summit I Stakeholder Feedback



Leigh Anderson, GWRC



Shane Sawyer, VDOT



Jamie Jackson, FRED

Most important Commuter Parking Information type

Accurate/reliable real-time parking availability

59%

Predicted parking availability information 21%

Information about multi-modal travel options at the lots 18%

across different lots

Consistent

parking info

2%

#### Challenges to collecting/disseminating Real-Time Parking Information

Accuracy & reliability 52%

Funding 21% Means of information dissemination 12%

Technology

Maintenance

9%

Preferred solution to collecting Real-Time Parking Information

No field technology – buy data from private sector (infrastructurefree)

48%

Install technology, but not every space (infrastructure-light) 32%

Install technology at every parking space as a turnkey solution 16%



# Commuter Parking Information System (CPIS)



### **CPIS** Overview



#### Goals

- Reduce single-occupancy vehicle (SOV) trips.
- Facilitate multi-modal trips.

### Strategy

- Help travelers plan trips with transfer from personal vehicle to transit or shared-use vehicles.
- Help travelers choose among multiple options to park and transfer.
- Information and confidence in parking availability will encourage drivers to leave cars for part of trips.

### Approach

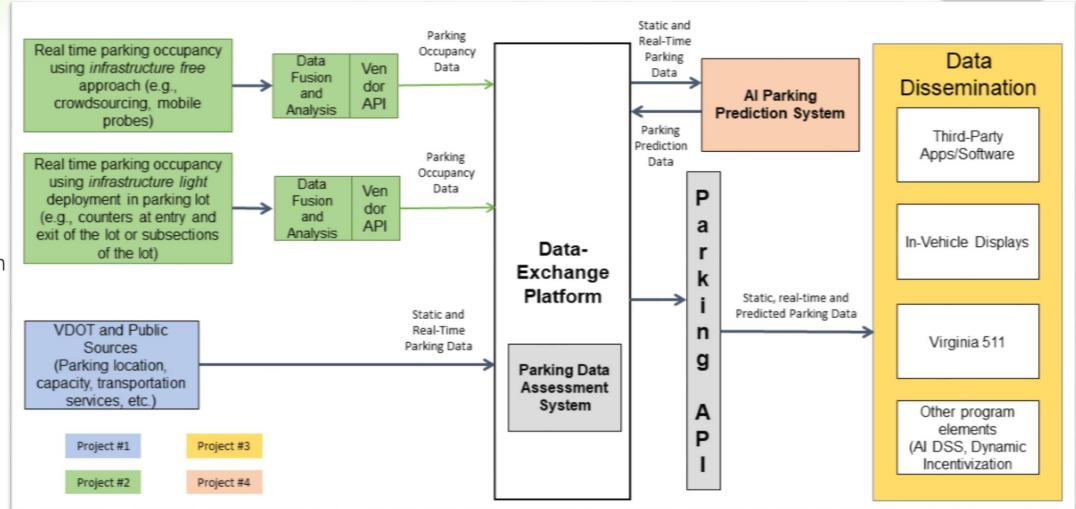
- Gather static parking information, real-time availability data, and historical parking availability data from parking lots at transfer points across the region.
- Predict parking availability.
- Distribute parking data from all sources using common access point and format.
- Share parking data with trip information providers and trip planning tools.



### **CPIS** Architecture



- Data Collection
- Data Validation
- Data Distribution
- Prediction





### Smart Parking Insight (CPIS Project #2)



### Collection Options

- Infrastructure-light Entry/exit counting, wide-area video recognition.
- Infrastructure-free Crowdsourcing, active, passive, or 3<sup>rd</sup> party.

#### **Data Validation**

- Independent data validation.
- Primary measure is timeliness of lot status changes .
- Vendor payment depends on quality.

### Data-as-a-Service (DaaS)

- Turnkey service Vendor responsible for all installation, maintenance, operations, etc.
- Data license is broad, but not exclusive Vendor may commercialize data.
- Lot status is required, additional data (counts) if available.

### Multiple Awards Up To 3 - Mix-and-Match

- Reduce risk.
- Take advantage of solutions suited to specific circumstances.
- Extend contract to additional lots and localities.

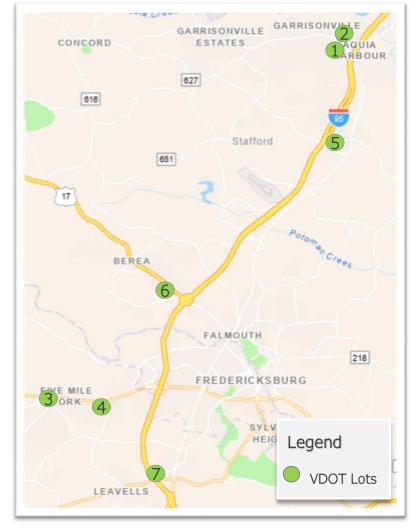


### Fredericksburg I-95 Corridor Park-and-Ride Lots

Priority	Lot Name	Owner	Jurisdiction	Total Spaces	Occupancy	Transit Service	Designated Slugging/ Carpool/ Kiss & Ride
1	South Commuter Lot (Mine Rd)	VDOT	Stafford	750	100%	Yes	Yes
2	Staffordboro Blvd	VDOT	Stafford	1863	57%	Yes	Yes
3	Route 3 West/ Gordon Rd	VDOT	Spotsylvania	1061	36%	No	Yes
4	Old Salem Church	VDOT	Spotsylvania	667	59%	Yes	No
5	Courthouse Road/Rt. 630	VDOT	Stafford	1100	N/A	No	No
6	Falmouth/Rt. 17	VDOT	Stafford	1034	43%	No	No
7	Houser Drive	VDOT	Spotsylvania	821	46%	No	No

Based on VDOT's 2018/2020 Lot Inventory.

The Fredericksburg parking project focuses on the 7 VDOT lots (~7.3K parking spaces).





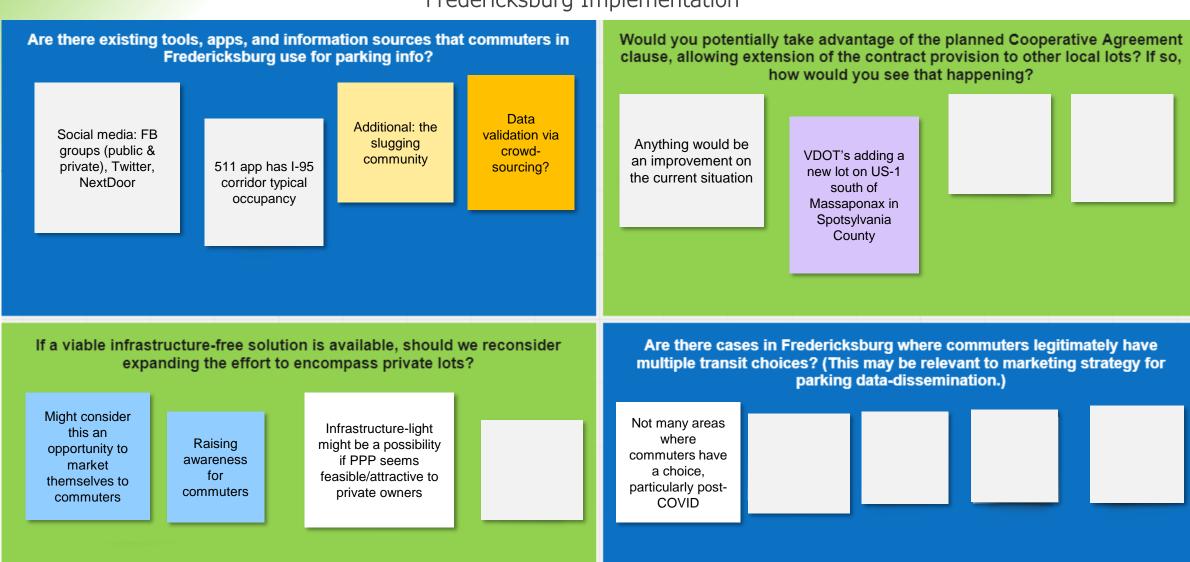
### **CPIS Facilitated Discussions**





### CPIS Facilitated Discussion I

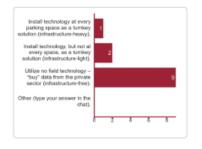
#### Fredericksburg Implementation





### Polling Question 2:

Now that we have discussed CPIS in more detail, what do you perceive to be the preferred solution to collecting real-time parking availability data? (Select one)

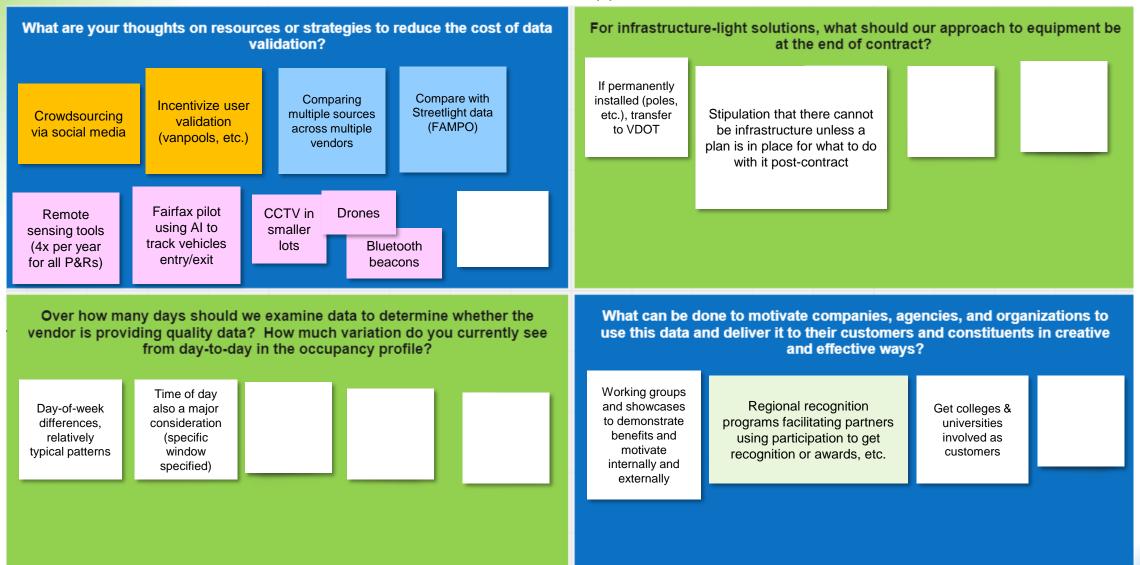


Response options	Count	Percentage	50%	
Install technology at every parking space as a turnkey solution (infrastructure-heavy).	1	8%	Engagement	
Install technology, but not at every space, as a turnkey solution (infrastructure-light).	2	17%	12	
Utilize no field technology - "buy" data from the private sector (infrastructure-free).	9	75%	Responses	
Other (type your answer in the chat).	0	0%		



### **CPIS Facilitated Discussion II**

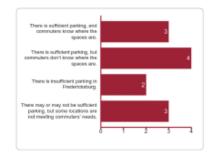
#### General Approach





### Polling Question 3:

# How would you assess the state of parking availability, and commuter knowledge of it, in Fredericksburg?



Response options	Count	Percentage	50%
There is sufficient parking, and commuters know where the spaces are.	3	25%	Engagement
There is sufficient parking, but commuters don't know where the spaces are.	4	33%	12
There is insufficient parking in Fredericksburg.	2	17%	Responses
There may or may not be sufficient parking, but some locations are not meeting commuters' needs.	3	25%	





# AI-Based Decision Support System (AI-DSS)



### **AI-DSS Overview**

#### Description

- Uses the content of the RM3P Data-Exchange Platform (DEP), and other data sources, as input for operational decision-making.
- Sends and stores decisions made in DEP.
- Facilitates multi-agency, multi-modal coordinated responses and the ability to begin predicting congestion/incidents & parking availability and their associated impacts.

#### **Expected Outcomes**

- Furnish guidance to agencies on response options to address adverse conditions.
- Improve regional coordination among agencies, resulting in a more streamlined and efficient responses to conditions.
- Support the full range of traffic and transit management agencies and services across the region.

### Target Audience

Regional operators for interstates, arterials, toll roads, express lanes, and parkways; transit operators; MATOC (regional operation facilitator); incident management teams (police, fire and rescue, hazmat cleanup, etc.); emergency patrols, and parking guidance systems.



### AI-DSS Approach

### Baseline Scope

- □ Deploy a Predictive Analytics engine to predict when incidents and congestion are likely to occur, predict parking availability in AM peak.
- Create business rules and develop multi-agency/multi-modal response plans using existing standard operating procedures and response plans from regional agencies, and workshops with operators.
- Develop rules engine to assist operators with the selection and distribution of response plans for incidents/congestion conditions across the region.



Offeror will provide a Software-as-a-Service to implement the scope – technology choices will be determined by the Offeror's proposal and associated expertise



### AI-DSS Facilitated Discussions

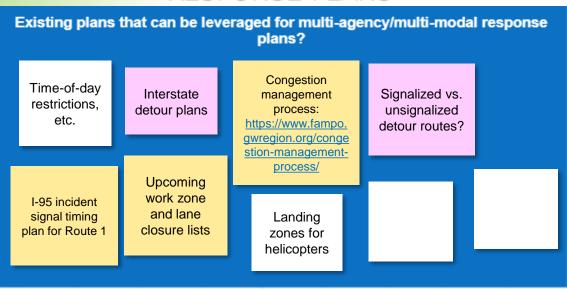


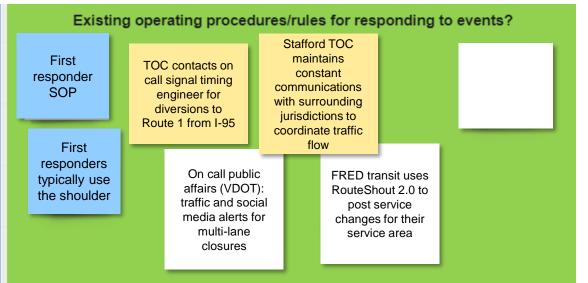


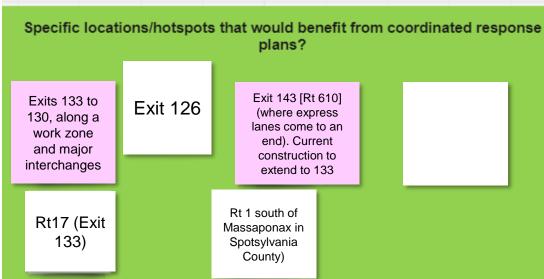
### AI-DSS Facilitated Discussion I

#### **RESPONSE PLANS**

#### **RULES**



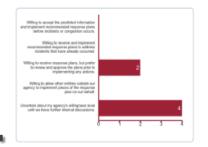




If your agency agrees to the rules – would you want to be notified for every event where a response plan is needed? Would you be open to the system providing some automation of response actions (i.e., change traffic signal plan, DMS message)?

Balance between automation and user interface to minimize failure points





### Polling Question 4:

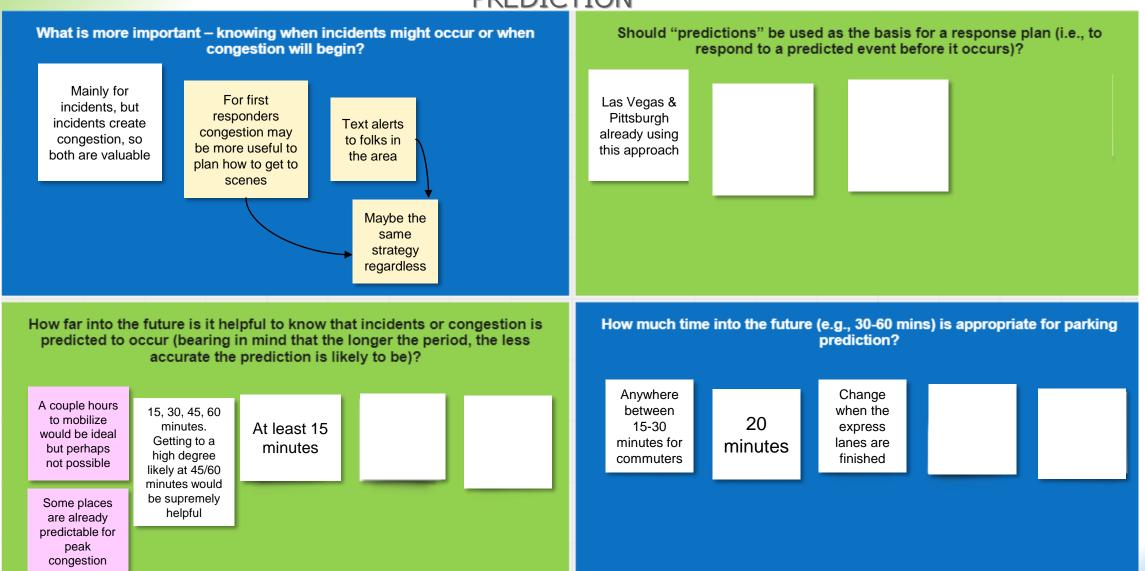
Based on your preliminary understanding of the plans, how willing is your agency to be a part of a coordinated AI-DSS response team?

Response options	Count	Percentage	250/
Willing to accept the predicted information and implement recommended response plans before incidents or congestion occurs.	0	0%	Engagement
Willing to receive and implement recommended response plans to address incidents that have already occurred.	0	0%	6 Responses
Willing to receive response plans, but prefer to review and approve the plans prior to implementing any actions.	2	33%	
Willing to allow other entities outside our agency to implement pieces of the response plan on our behalf.	0	0%	
Uncertain about my agency's willingness level until we have further internal discussions.	4	67%	



### AI-DSS Facilitated Discussion II

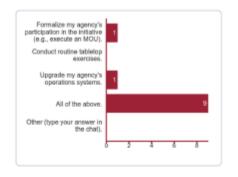
#### **PREDICTION**





### Polling Question 5:

# What action do you think will best contribute to the success of AI-DSS?



Response options	Count	Percentage	46%
Formalize my agency's participation in the initiative (e.g., execute an MOU).	1	9%	Engagement
Conduct routine tabletop exercises.	0	0%	
Upgrade my agency's operations systems.	1	9%	11 Responses
All of the above.	9	82%	
Other (type your answer in the chat).	0	0%	

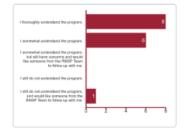


## **Q&A SESSION**



### Polling Question 6:

8==× Now that we have completed both sessions of the Summit, how do you rank your understanding of RM3P?



Response options	Count	Percentage	63%
I thoroughly understand the program.	8	53%	Engagement
I somewhat understand the program.	6	40%	
I somewhat understand the program, but still have concerns and would like someone from the RM3P Team to follow up with me.	0	0%	15 Responses
I still do not understand the program.	0	0%	
I still do not understand the program, and would like someone from the RM3P Team to follow up with me.	1	7%	



**8**—×



### Thank You for Your Participation

Please provide any additional comments by sending us an email at: rm3p@vdot.virginia.gov





