



**NORTHERN VIRGINIA REGIONAL MULTI-MODAL
MOBILITY PROGRAM (RM3P) INITIATIVE**

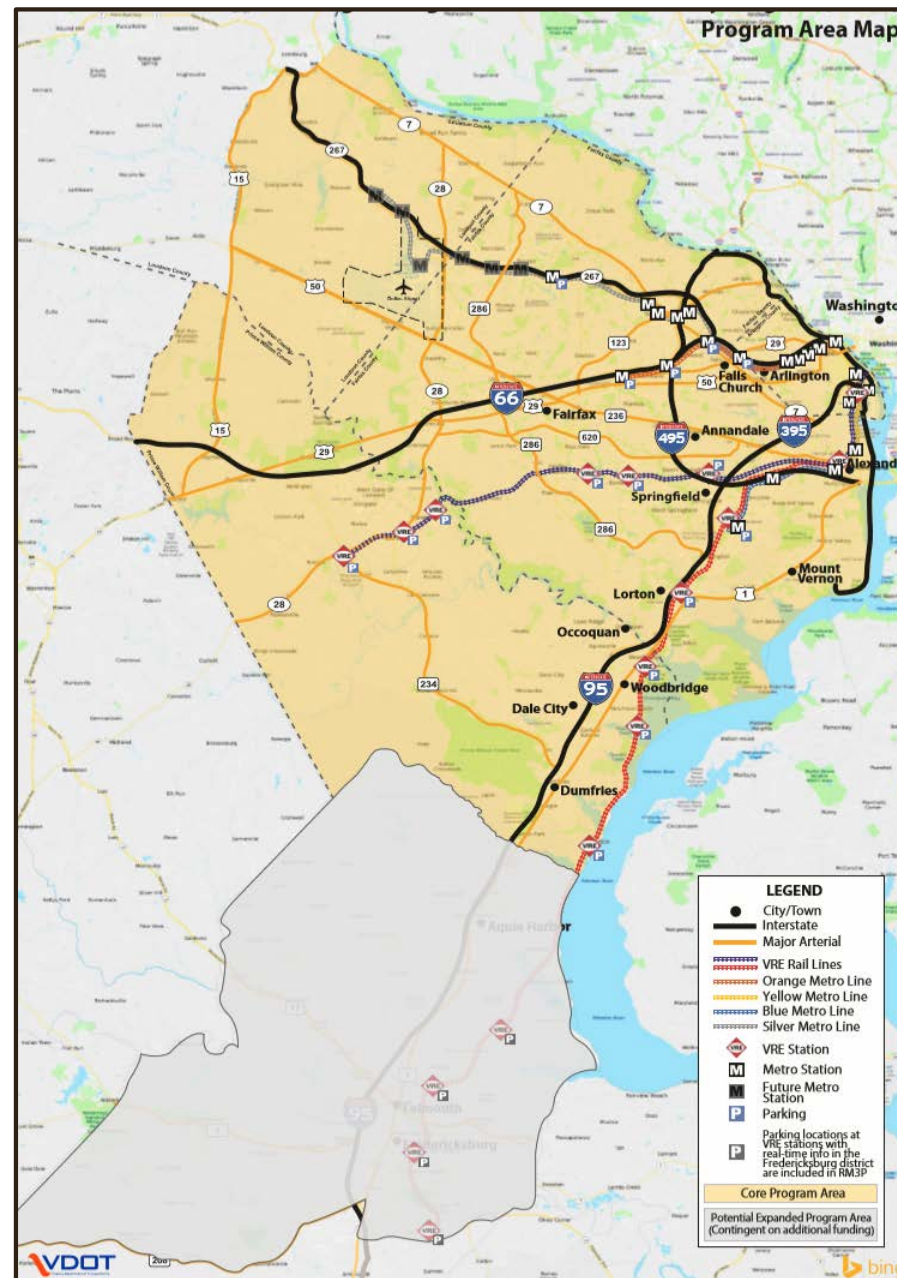
Program Overview for AI-Based DSS

Program Background

- Builds on prior VDOT studies on Integrated Corridor Management (ICM)
- Key ICM Precepts:
 - Manage at a corridor level
 - Operate multi-modally
 - Balance the load
- Conceptual shift from “Corridors” to “Region”
- Program Goals

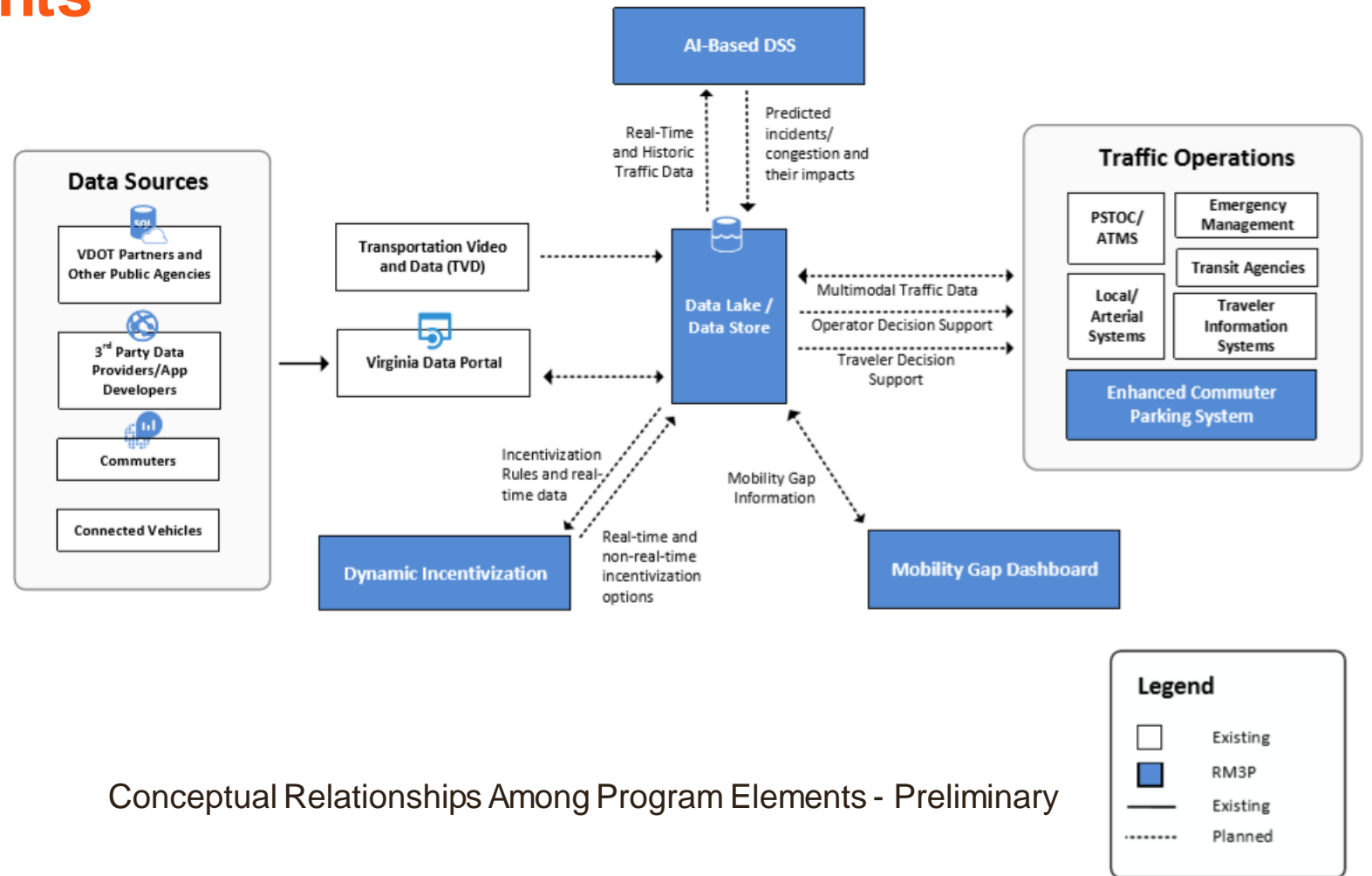


Program Area Map



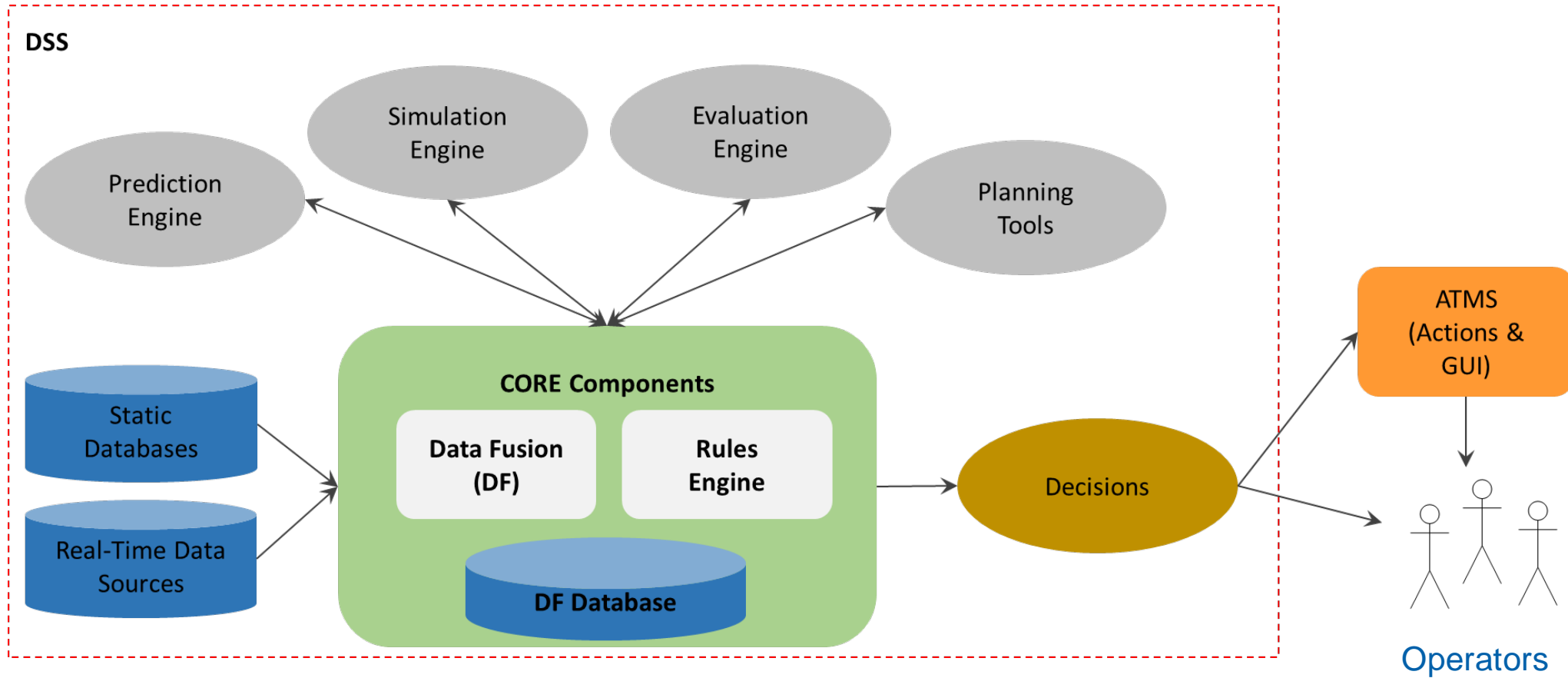
RM3P Program Elements

- Data Lake/Data Store
- AI-Based DSS
- Enhanced Commuter Parking
- Mobility Gap Dashboard
- Dynamic Incentivization



Conceptual Relationships Among Program Elements - Preliminary

Components of a Decision Support System



Choosing the Right DSS

What are the Needs, Decisions and Goals of the DSS?

- Stakeholder input and needs definition
- Defined Functional Requirements

What are the current capabilities?

- ITS device functionality
- Automation and staffing
- Current ATMS and future operations
- Modular system

What is the level of sophistications desired?

- Predictions & Forecasts
- Modeling and Simulation
- Planning support



Example Opportunities for DSS

Single System Applications Knowledge Based

- Freeway incident response
- Construction event approvals and scheduling
- Event Notifications

Visualization

- Performance measures
- Planning guidance (GIS or BI-based)

AI/Machine Learning

- Incident prediction
- Incident duration and severity

Hybrid Applications – Multiple Systems

Data-Driven

(Analytics/Prediction + Business Rules)

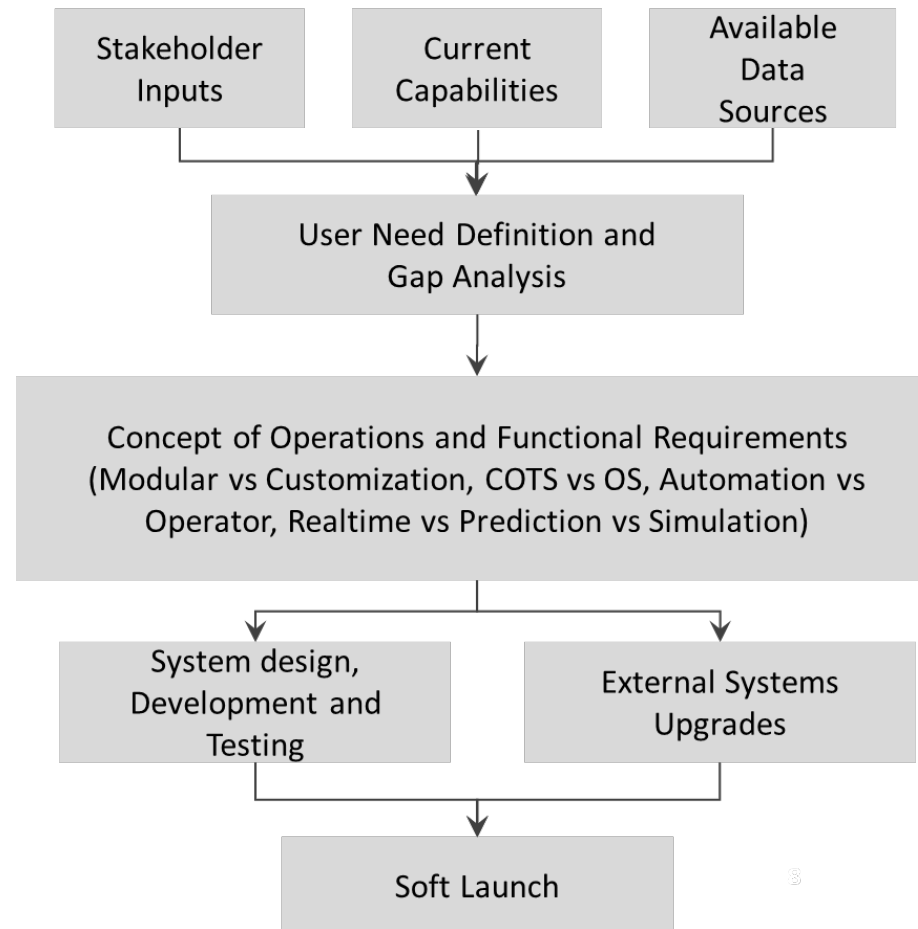
- MDSS Winter Maintenance
- Asset Management

Modeling-Driven

(Simulation + Analytics + Business Rules)

- Multimodal ICM event response

The DSS Design Process



Summary

Decision Support Systems rely on a toolbox of subsystem that can be applied alone or in combination to help with a variety of problems.

Things to consider when choosing which tools to select :

- **Type of problem**
- **Complexity of the decisions**
- **Is the problem data driven?**
- **What type of modeling is required?**
- **Size of the region or system**
- **Budget**
- **Type of devices associated with the system**
- **Number of stakeholders**