Data Governance and Management for Better Transportation Decisions

FHWA Data Business Plan Peer Exchange

July 08, 2020

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MDOT SHA Office of Transportation Mobility & Operations (OTMO)

PRESENTATION OUTLINE

MDOT SHA TSMO Data Governance Efforts
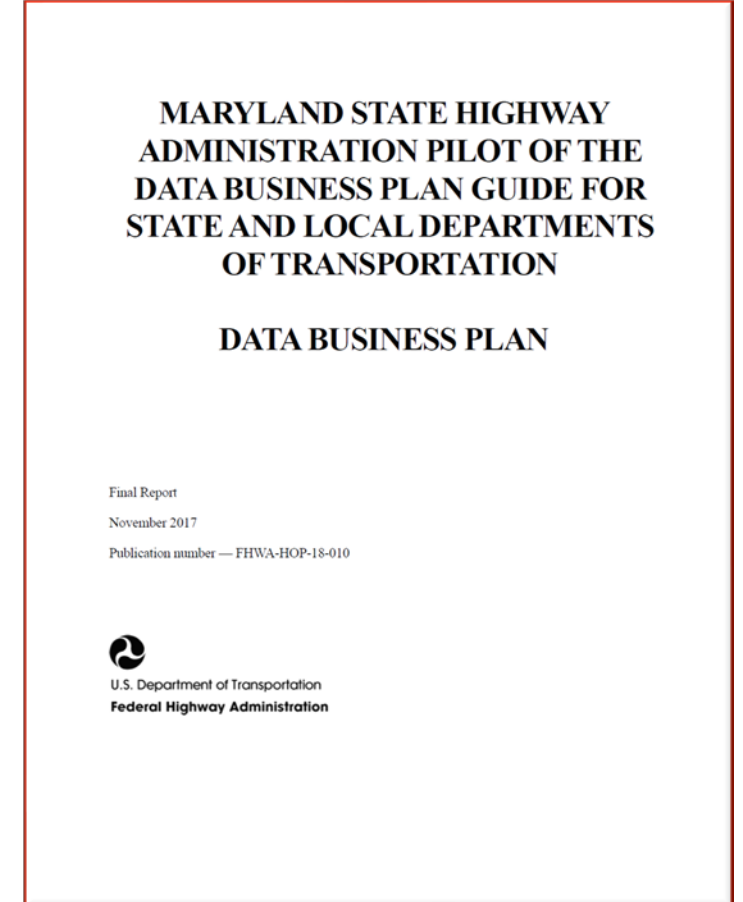
MDOT wide Data Governance Efforts

Other Data Governance Initiatives/ Opportunities

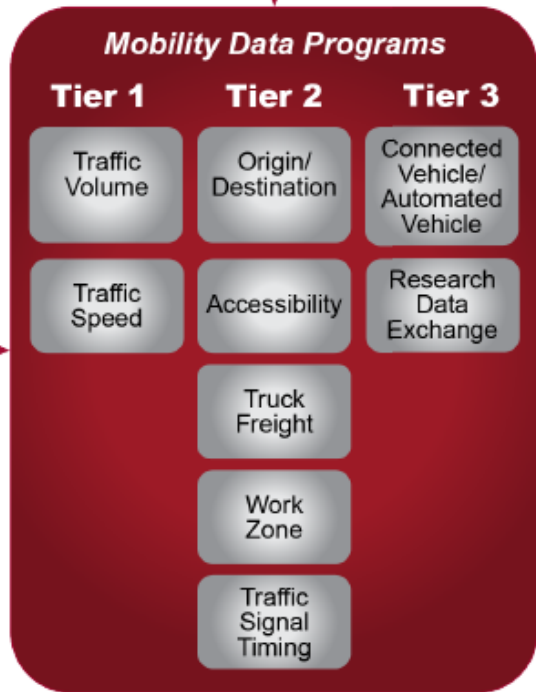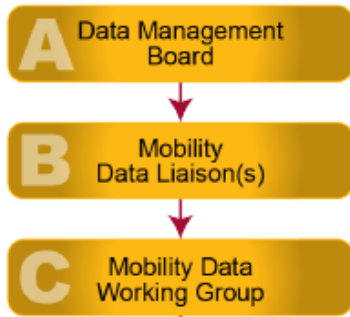# MOBILITY/ TSMO DATA BUSINESS PLAN EFFORTS

- High level action plan for improving mobility data and serve as the TSMO DBP to support TSMO Program

- Example of how other areas within MDOT SHA could approach the process of developing similar plans

- Recommendations for MDOT SHA to enhance data governance activities at an enterprise level

MARYLAND STATE HIGHWAY ADMINISTRATION PILOT OF THE DATA BUSINESS PLAN GUIDE FOR STATE AND LOCAL DEPARTMENTS OF TRANSPORTATION

DATA BUSINESS PLAN

Final Report

November 2017

Publication number — FHWA-HOP-18-010

U.S. Department of Transportation
Federal Highway Administration

Stakeholder Outreach → Data Assessment → Mobility Data Framework

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Source: 2017 FHWA Data Business Plan – **MD Pilot**

Interaction, structure, and components to integrate and report on mobility data

MDOT DATA GOVERNANCE EFFORTS

DATA…DATA…DATA…

MDOT comprises of six business units and an Authority. Strategic, Tactical, Operational Activities at the TBUs generates a highly complex set of data streams…

Many ways to looks at the Data Streams…

By MODE – Highway, Transit, Air, Water, Other…

By FUNCTION - Planning, Engineering, Operations, Maintenance, Performance Management

By PERFORMANCE AREA – Safety, Mobility, Asset Management, Administrative, Business Transactions

By SOURCE - Internal vs External Data

MDOT DATA GOVERNANCE & DATA HUB

- **Data Governance & Data Hub Overview**

- **Where Do We Want to Be?**
  - Vision, Goals, and Objectives
  - Principles to Guide Implementation

- **What Did We Learn?**
  - MDOT's Current State
  - Gaps in Data Governance
  - Review of Notable Practices

- **What Do We Need to Do?**
  - Develop an MDOT Data Hub
  - Take Action to Address Gaps in Data Governance

- **How Can We Monitor and Evaluate Data Governance Implementation?**

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DATA GOVERNANCE AND DATA HUB

May 2019

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PRINCIPLES & DIMENSIONS TO GUIDE DATA GOVERNANCE IMPLEMENTATION

People
- Staff resources and training
- Organization
- Culture

Processes
- Procedures and documentation
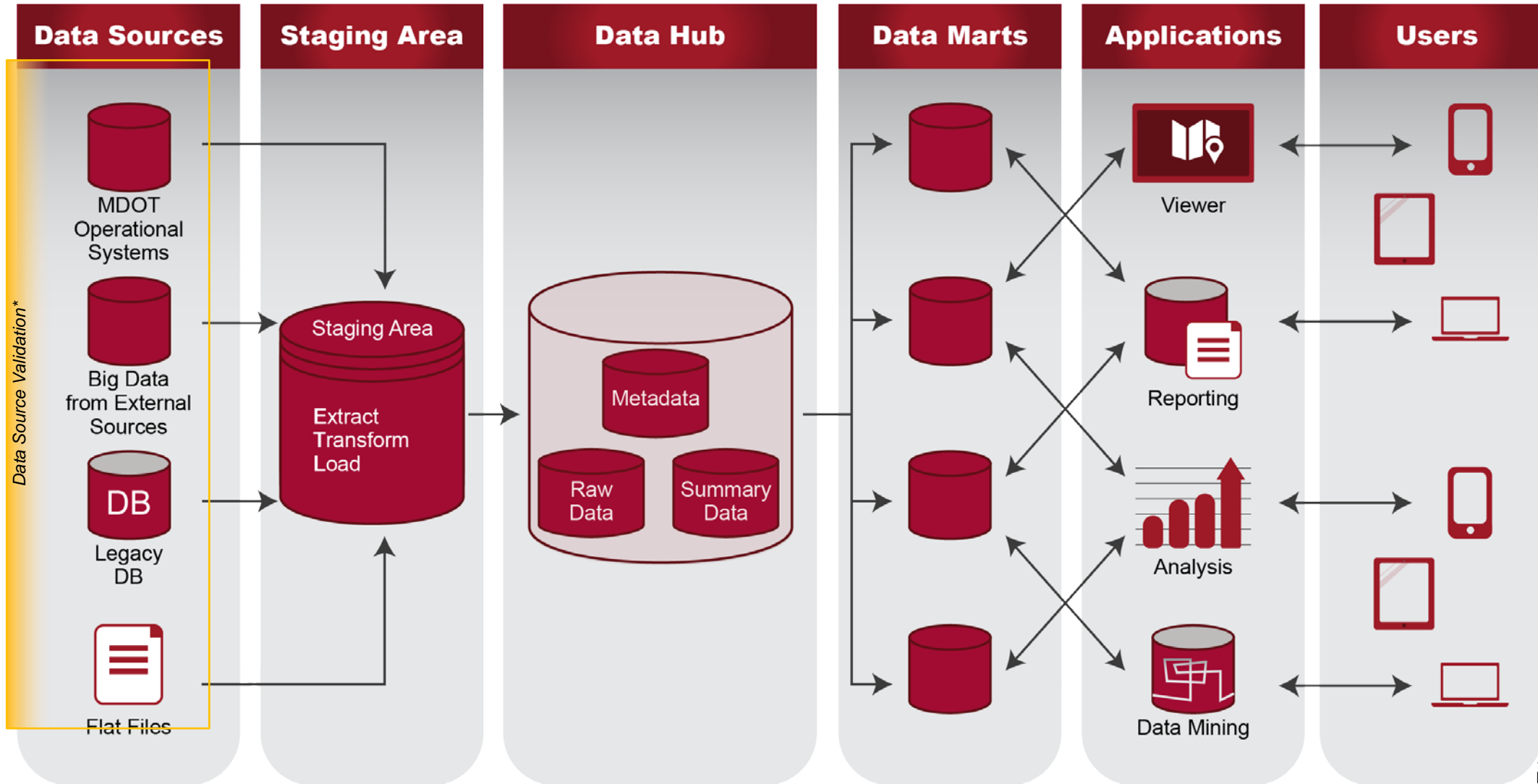- Accountability and incentives

Technologies
- Data assets
- Information systems
- Tools for Data Governance implementation

1. VALUABLE
2. AVAILABLE
3. VALIDATED
4. SECURED
5. CLEAR
6. EFFICIENT
7. ACCOUNTABLE

AASHTO Reference:
https://data.transportation.org/

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MDOT DATA HUB – CONCEPTUAL FRAMEWORK

OTHER DATA GOVERNANCE INITIATIVES/ OPPORTUNITIES
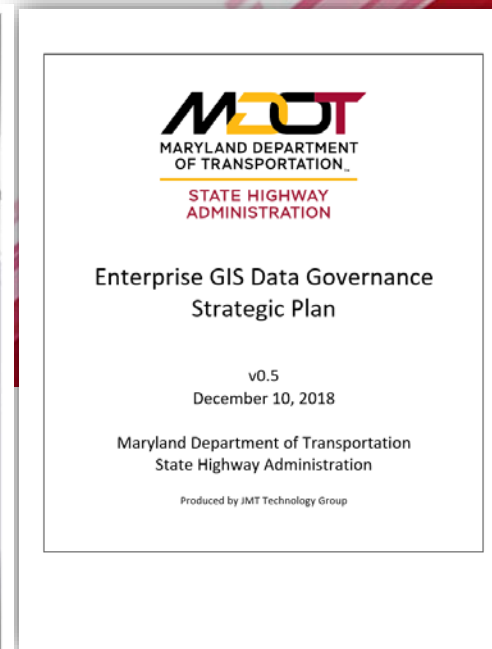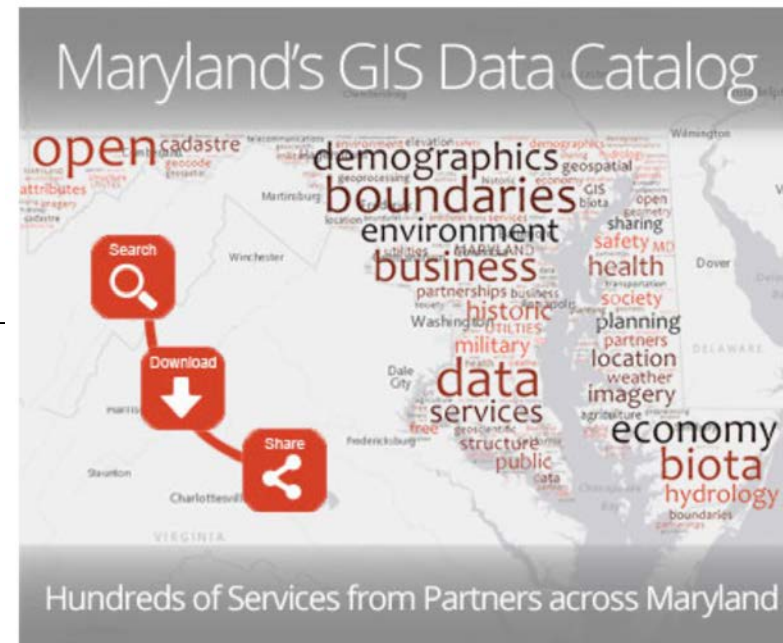
MD & MDOT SHA GEOSPATIAL DATA GOVERNANCE & MANAGEMENT

Policies, standards and procedures to collect, manage, disseminate, utilize, and archive enterprise data and related applications.

- **Data Development**
  - MDOT SHA Geospatial Data Integrity-Data Submission Policy & Procedure
  - Maryland iMap Data Submission Policy

- **Data Sharing & Security**
  - DoIT Account Management Policy

- **Application Development**
  - MDOT SHA Standard Web Map Configuration in AGOL
  - MDOT SHA Web App Documentation in AGOL

- **Enterprise GIS Data Inventory**
  - Documented in standardized template

MD iMAP
Maryland's Mapping & GIS Data Portal

Maryland's OPENDATA Portal

Maryland's GIS Data Catalog

Hundreds of Services from Partners across Maryland

Enterprise GIS Data Governance Strategic Plan

v0.5
December 10, 2018

Maryland Department of Transportation
State Highway Administration
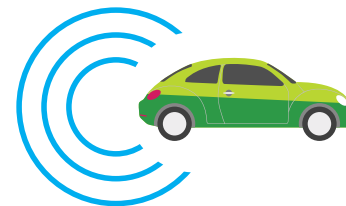
Produced by JMT Technology Group

- **Real time applications**
  - System Monitoring
  - Incident Mgmt.
  - ATM/ ICM
  - Maintenance/ SOGR
- **Archived data applications**
  - Planning/ TSMO
  - Asset Management
- **Performance Management**

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OPERATIONS

Transportation Network

ATMS/ DSS

SLOW TRAFFIC AFTER NORWEST BVD EXPECT DELAYS

511 Travel Info

WORK ZONE

WEATHER   TRAFFIC   ROAD CONDITIONS

RITIS, IMAP, TBUs Data Hub(s)

Travelers

Transportation Management Agencies/ Companies

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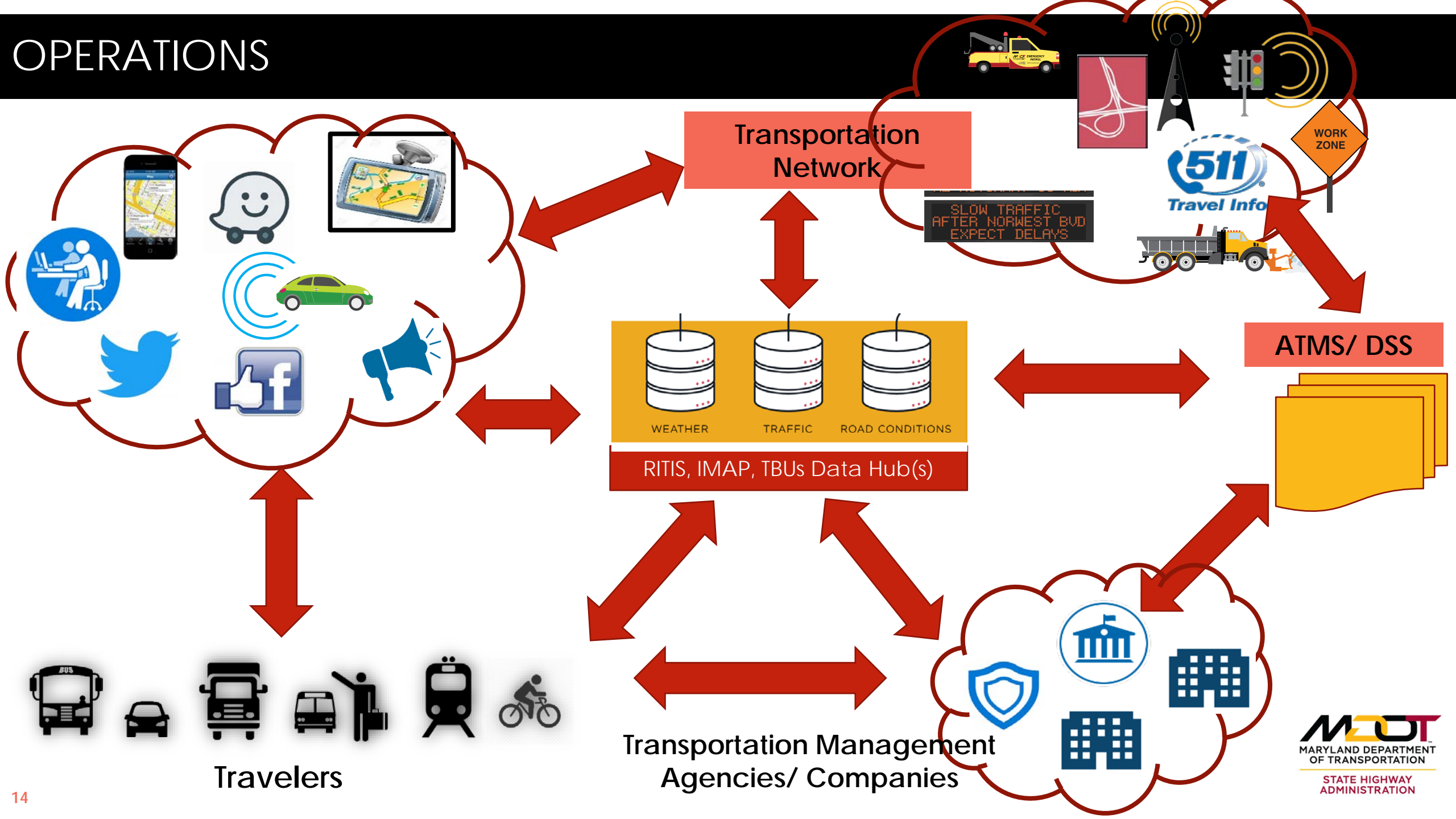
LONG RANGE AND TSMO PLANNING

Planning Data

- Census Data
- DLLR Employment Data
- Auto/Truck Count data
- NHTS/ACS.MPO HTS Data

- TAZ/Block-Level Socioeconomic Data
- Existing/Future Transportation Networks
- Future Investments (CLRP, TIP, CTP, etc.)
- Sector Plans, TODs, Activity Centers, etc.

Operations Data

- Signal Data
- Lane Configurations
- Probe/Speed Data
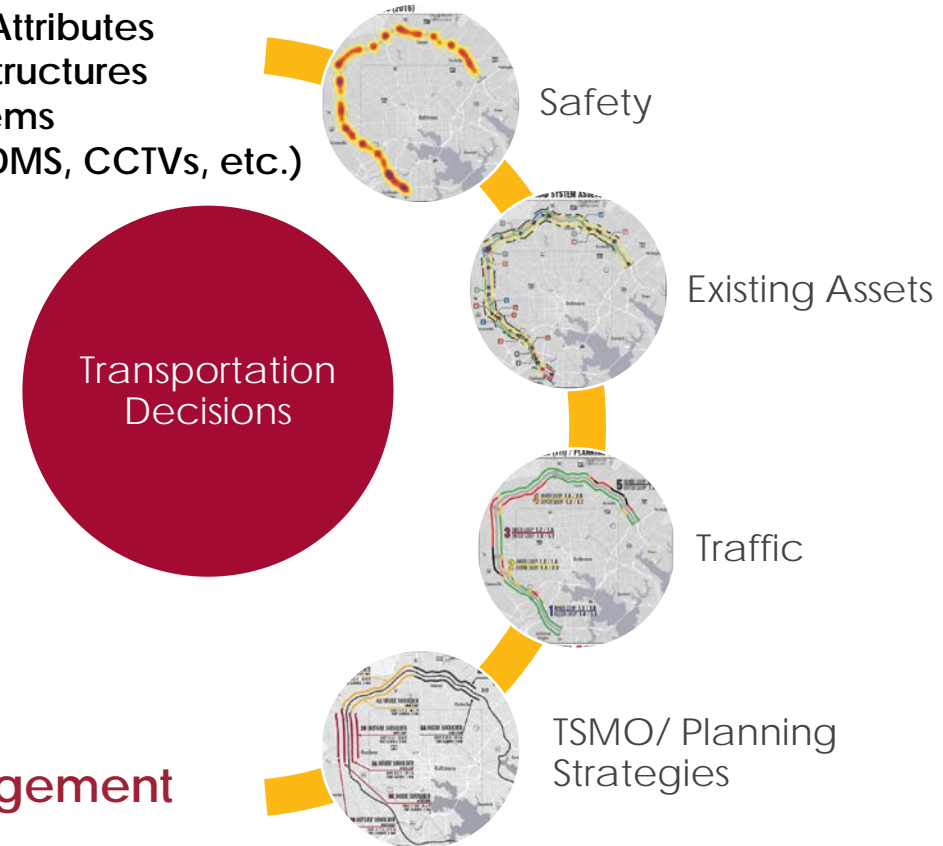- Turning Movements
- Work Zone Limits
- Incident/Safety Data

Asset Data
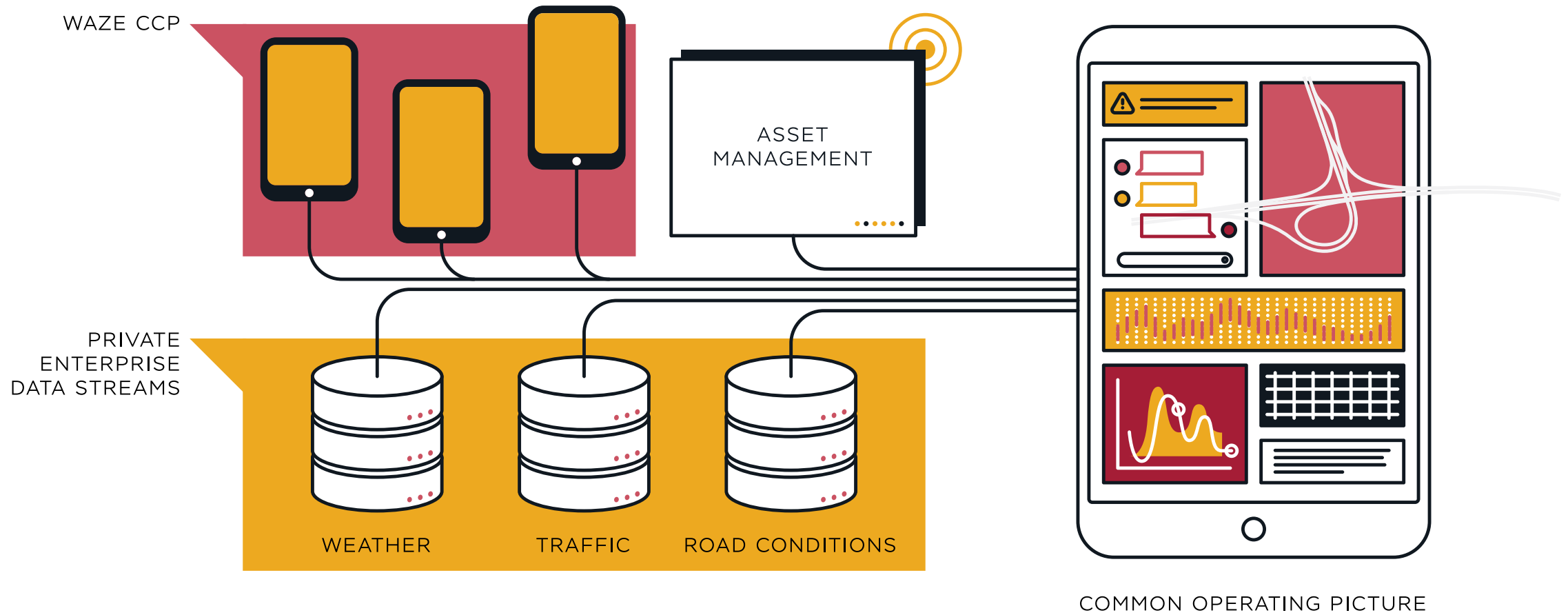
- Centerline Attributes
- Pavement Attributes
- Roadway Structures
- Signal Systems
- ITS Assets (DMS, CCTVs, etc.)

Transportation Decisions

Safety

Existing Assets

Traffic

TSMO/ Planning Strategies

Performance Management

- INFRASTRUCTURE CONDITIONS
- SEGMENT, CORRIDOR & SYSTEM PERFORMANCE

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ASSET MANAGEMENT

WAZE CCP

PRIVATE ENTERPRISE DATA STREAMS

ASSET MANAGEMENT

WEATHER   TRAFFIC   ROAD CONDITIONS

COMMON OPERATING PICTURE

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NEXT STEPS

- Formalize Data Governance Structures for new Data streams

- EDC-5 Crowd Sourcing for Ops (Waze CCP) and Road Weather Management Strategies

- Work with FHWA on WZDx and other data exchanges

- Work with private sector, industry and associations for standardizing CAV and CATS data

- Review and refine Data Management Structures (on prem and/ or cloud services)

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QUESTIONS?
THANK YOU!

CONTACT INFORMATION

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