Effects of Smart Architecture on Safety and Efficiency in Transportation

JEREMY DILMORE, P.E.
TRANSPORTATION SYSTEM MAINTENANCE
AND OPERATION ENGINEERING - FREEWAYS
FLORIDA DEPARTMENT OF TRANSPORTATION

Problem

- Limited Funds
- Slow increase in lane miles added
- Fast increase in vehicle miles travelled
- i.e. Demand is outpacing supply

Needs

- Increase efficiency
  - Better Signal Timing
  - Demand Management/Congestion Pricing
  - Focus on Person Throughput
- More choices
  - Modes of Transportation
  - Express Lanes
- Dynamic system responses to system changes
  - Incident Management

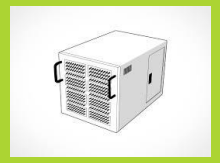
Smart Architecture

Presentation

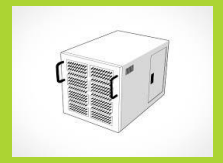
- Analytics
- Operations Dashboards
- Data Quality

Outcomes

- Investment Evaluation and Selection
- Signal Timing Adjustments/Incident Response
- Automated Asset Maintenance



Data Center



Open Data

Private Sector Specialty Apps

Private Network

Cellular

Web Services

Sensors Sources

3rd Party Sources

Schneider - Design

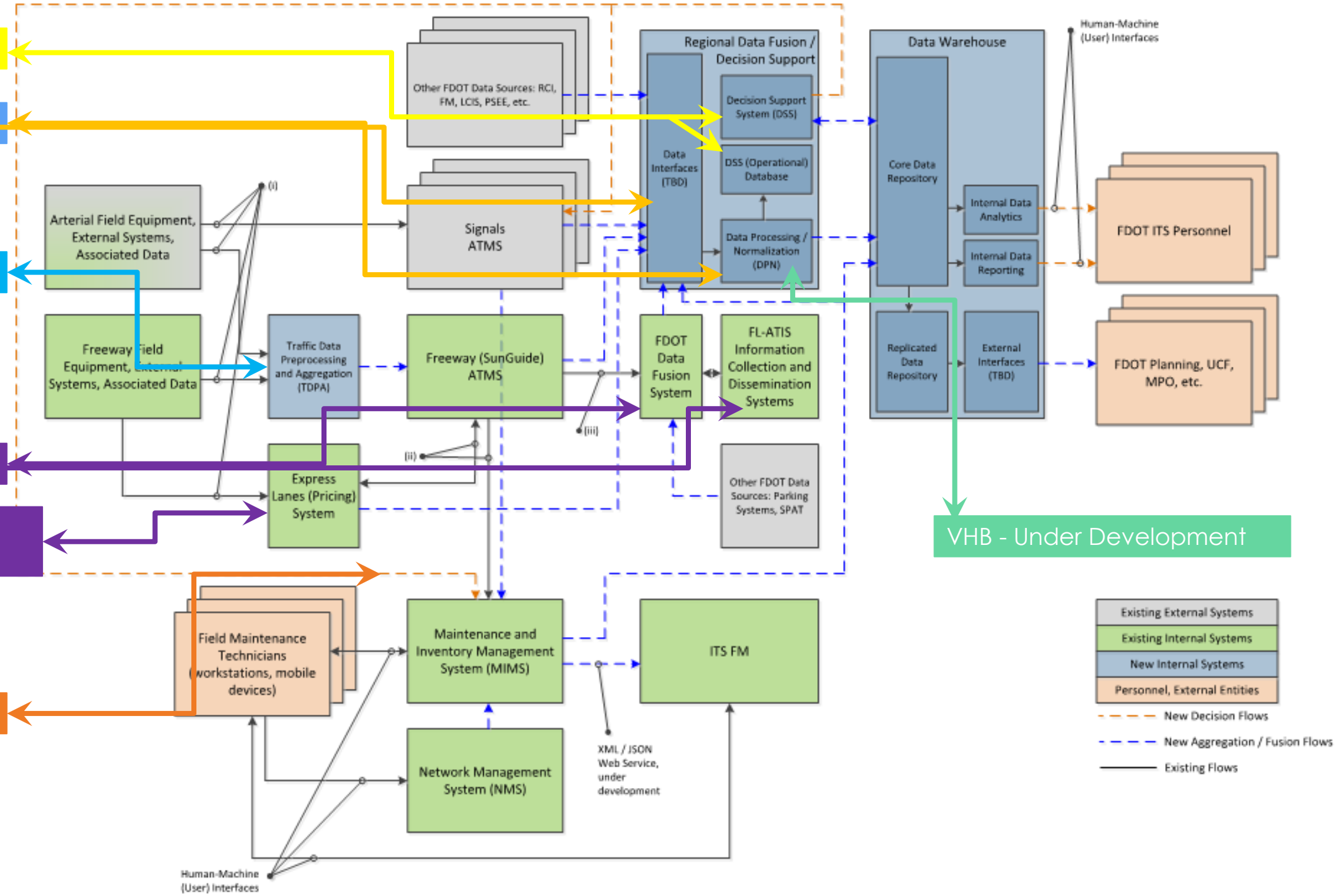
EPIC – Design

Selected - AECOM

RFP to be released

AECOM -Under Development

IBI – Complete



Expected Impacts

- Improved Reliability
  - 20%-40% Reduction in Incident Durations
  - 10%-15% Reduction in delay on arterials
- Demand reductions during peak periods
  - 5% Reduction Peak Hour Demand
- Reduction in congestion results in safety improvement

Take Away

- Until cars drive closer congestion will still be present
  - Connected Vehicles
  - Autonomous Vehicles
- Benefits exist in aggregate
- Biggest impacts due to effects on planning
  - Building right project

Contact Information

- Jeremy Dilmore, P.E.
- 719 S Woodland Blvd
  DeLand, FL 32720

- 386 943-5360
- Jeremy.Dilmore@dot.state.fl.us