Emerging Transportation Scene

- **21st Century Economy (Globalization & Urbanization)**
  - Metropolitan Areas as Economic Engines (18 Mega Regions)
  - Global Connectivity and Market Accessibility

- **Impacts on Transportation Infrastructure**
  - Increase in population (439 mil to 597 mil by 2050)
  - Increased demand for transportation services
  - Congestion Delays, Bottle-necked Modal Systems

- **Transportation Infrastructure Investments**
  - Infrastructure Deficit (state-of-good-repair/$225 billion/year)
  - Overall System Deterioration
Current State-of-Play

– Modally Invested
– Independently Managed
– Competing for Resources
Role of Technology

Traffic Management

Traffic Knowledge

- Re-Active
- Knowing
- Guiding
- Informing
- Predicting
- Pro-Active

Source: USDOT – ATDM Framework
How can we handle the Emerging Scene?

- **What Do People/Shippers Want?**
  - End-to-End Travel Solutions (on-time arrival/just-in-time delivery)
  - Travel Choices by time-of-day, mode, route
  - Traveler Information on CMS/511, mobile apps, in-vehicle, etc.

- **Need to develop “Synergy”**
  - Executive Leadership Level (Organized by Functions)
  - Program Management Level (Organized by Business Units)
  - Project Delivery Level (Organized by Jurisdictions)

- **Need to have an “Integrated Approach”**
  - Institutional (common purpose & vision)
  - Functional (unified mission)
  - Information Sharing (collaborative decision making)
Why Integration

• To Balance Demand with Supply

USDOT's ATDM (Active Transportation Demand Management) Framework
Initiative Goals

- **Enhancing System Efficiencies**
  - Adopting an All-Roads-All-Modes Approach

- **Achieving Economies of Scale**
  - Incorporating ITS and Operational Elements early on in the Planning and Project Development Processes

- **Development of an Integrated Transportation Systems Management Practice**
  - Connecting Agency Functions, Programs and Modal Elements
  - A Framework for Collaboration and Engagement
• Phase I - A **Synthesis** of the State-of-the-Practice

• Phase II- **Integration Framework** to identify interdependencies and linkages among agency functions, modal elements, and program areas.

• Phase III - **Implementation Plan** for deploying the framework recognizing the role of key institutional, business, and technical aspects of agencies
National Guidelines

Approaches to Linking Planning and Operations

Three Major Elements in Integrated Framework

- Operations Needs
- M&O Strategies
- Performance Measures

M&O Consideration in Planning Process

Opportunity for Linkage

- Institutional Agreement
- Data & Analysis Tools
- Business Process

Regional Concept for Transportation Operations

Source: FDOT Research Project on “Synthesis of the State-of-the-Practice” - Phase I of Linking Planning & Operations Initiative
The RCTO can be used to translate outputs of the planning process into specific operations objectives, short-term strategies, and project specifications to be included in the MTP and TIP.

Source: Regional Concept for Transportation Operations The Blueprint for Action A Primer FHWA-HOP-07-122

Source: FDOT Research Project on “Synthesis of the State-of-the-Practice” - Phase I of Linking Planning & Operations Initiative
Integration Levels

**Statewide**
- Establishment of goals, objectives and strategies that support the larger agency mission
- Support integration at other levels

**Regional**
- Interaction between state DOT, at regional or district-level office, in coordination with MPOs and other agencies
- Data sharing and analysis tools provide key opportunities

**Corridor**
- Integration within planning studies and corridor system M&O activities
- Use of operations data and tools in planning studies and multidisciplinary teams

**Project**
- Integration within project development
- Representatives of each function (operations, safety, multimodal planning, etc.) interact

Source: FDOT Research Project on “Synthesis of the State-of-the-Practice” - Phase I of Linking Planning & Operations Initiative
Cross-Functional Collaboration & Synergy

- **Multi-Level Collaboration**
  - Executive Leadership Level
  - Modal Level
  - Program Management Level

- **Institutional Coordination, Partnership, Training, Organization, and Education**

- **Regional Considerations** coordination with regional partners

- **Regulation and Policy** Statewide and Regional ITS Architecture

- **Integrated Approach**

- **Operations** transportation Plans and Corridor Studies

- **Data, Analysis Tools and Performance Measures**

Source: FDOT Research Project on “Synthesis of the State-of-the-Practice” - Phase I of Linking Planning & Operations Initiative
Multi-Modal Integration – A Conceptual View

[Diagram showing the integration of different transportation modes and their impacts on economic growth and land use development.]

Source: FDOT Research Project on Synthesis of the State-of-the-Práctice (Phase I of Linking Planning & Operations Initiative)
Potential Outcomes

- **Build stronger connections** between transportation planners, engineers, and operations managers.

- **Instill operations thinking** into the planning process and infrastructure projects development activities.

- **Promote inter-jurisdictional coordination** among transportation agencies and with public safety entities.

- **Integrate operational elements** into program and project development activities and processes – helps planners meet regional goals and operations folks get support for O&M activities from planning processes.
Integration Activities Underway

- Freight Logistics and Planning – I95 CC & ITS America
- Commercial Vehicle Operations (CVO) Strategic Plan
- TSM&O – Statewide Task Team, Regional Forums/Workshops
- Regional Concepts for Transportation Operations Development
- Transportation Alternatives Studies – US 301/I-595
- Future Corridors – Develop short-term elements
- Other Activities – D4 ICM, AV, CV, IDEA, EIM, etc.
- Knowledge Technology Transfer – FHWA’s P4O & P2P Workshops, FDOT Research Center’s Implementation Projects, etc.
Potential Integration Opportunities in Modeling

- **New Path Ways**
  - Use of ITS Data for Planning & Predictive Analysis
  - ROI/Cost-Benefit Analysis
  - Alternative Modeling Approaches

- **New Data, Big Data**
  - Sensor, Video, Cellular Data
  - O-D Estimation by Time-of-Day

- **Applications Oriented**
  - Active Demand Management – ICM, Managed Lanes, Park-n-Ride
  - Active Supply Management – ATM/Speed Harmonization, HSR, APM
  - Dynamic Mobility Applications – Rideshare, Re-Routing, Modal Shifts

- **Strategic Management**
  - Linking Investments to Outputs and Outcomes
  - Enterprise Level Data & Information Management
Acknowledgements

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FHWA Videos on
ATDM - https://www.youtube.com/watch?v=qd8xy0ozSXl
Regional Models of Cooperation - https://www.youtube.com/watch?v=tRtl1PfLgW4

Thank You!

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