ICM in the Montgomery County, Maryland I-270 Corridor

Equa Igbinosun

Maryland State Highway Administration

MOITS Policy & Technical Task Force Meeting

October 9, 2007

Today's Objectives

- Update ICM Project Status
- Review Con Ops Highlights
- Introduce Requirements

ICM Program Context

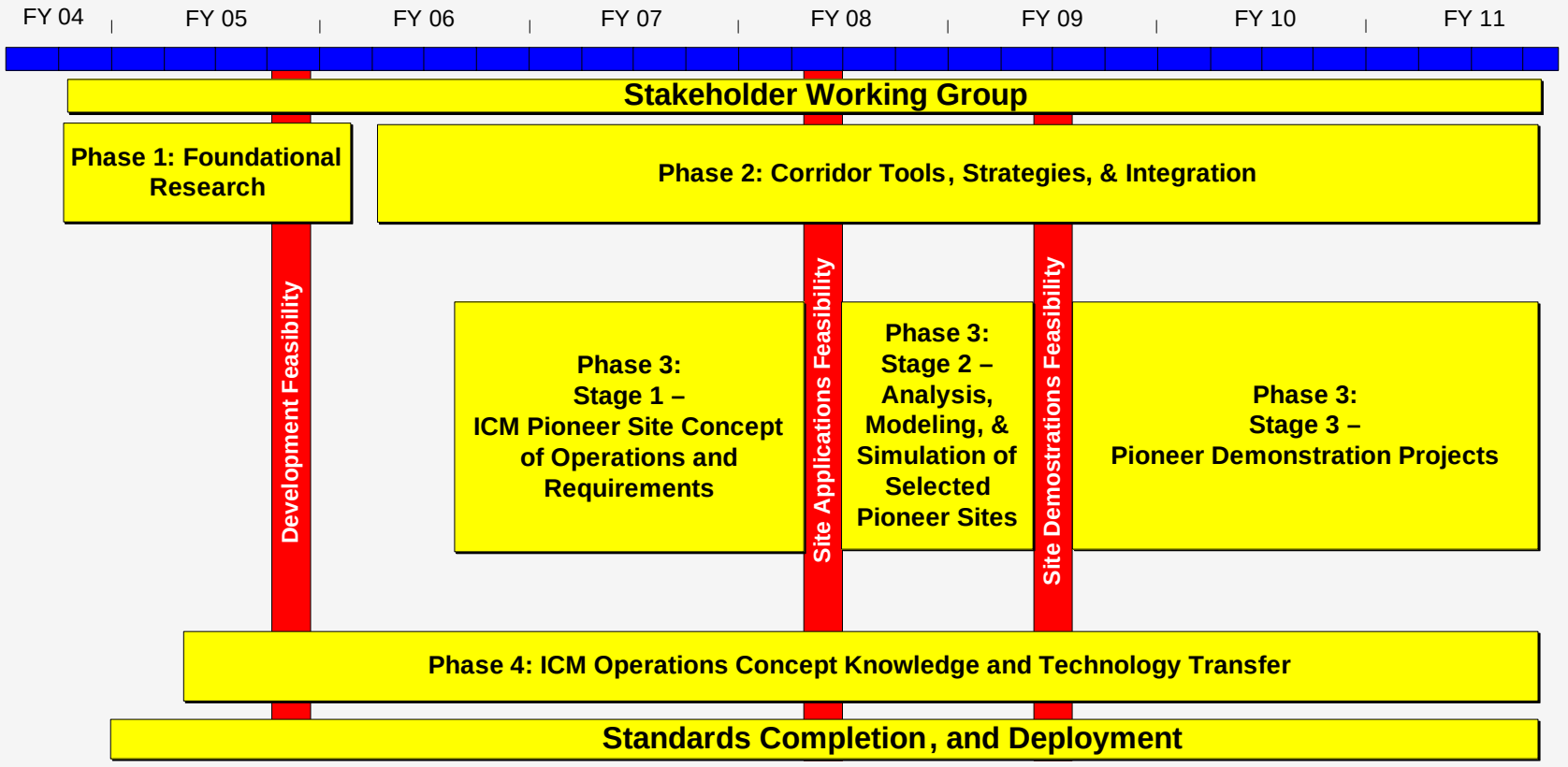
ICM Program Phases

- Phase 1: Foundational Research
- Phase 2: Corridor Tools, Strategies, and Integration
- ***Phase 3: Corridor Site Development, Analysis, and Demonstration***
- Phase 4: Knowledge and Technology Transfer

Stages in ICM Phase 3

- ***Stage 1: ICM Concept of Operations and Requirements***
- Stage 2: ICM Analysis, Modeling, and Simulation
- Stage 3: ICM Demonstration Project

ICM Program Overview



I-270 ICM Stage 1 Status

- Draft Concept of Operations – Completed
- Data and Modeling Inventory – Completed
- Revised Concept of Operations – Completed
- System Requirements/Initial Draft – Completed
- Requirements
  - Final Draft Requirements – December 20, 2007
- Final Documents – March 14, 2008
  - Final Con Ops
  - Final Requirements

Con Ops Highlights

Operational Needs Areas

- Incident and Emergency Management
- Traffic Signals
- Transit and Commuter Management
- Traveler Information
- Infrastructure

ICM Goals

1. Optimize mobility, reliability, and safety
2. Strengthen corridor-level decision support
3. Enhance reliable, real-time information to customers
4. Promote multi-modalism

ICM Framework

- Focus on corridor optimization
- Establish operations management infrastructure to address both near- and long-term needs
- Define approach that builds on state, regional, and local initiatives
- Add value to existing initiatives by enhancing functionality and deploying prototypes
- Emphasize realistic, manageable projects
  - Rapid deployment
  - Inexpensive deployment
  - No significant policy or institutional changes required

Key ICM Approaches

1. Enhance information-exchange among stakeholders, strengthen responsiveness, and improve flow of real-time information to travelers (RITIS)

2. Enable arterial signals to adjust automatically to changing traffic conditions

3. Deliver transit vehicle and schedule status information to commuters (CAD/AVL)

4. Deliver parking availability information to commuters

5. Measure operations performance

System Requirements Overview

Requirements Process

- Transforms user needs identified in the Con Ops into system requirements
- Defines *what* the system is expected to do
  - Does not define *how* the system will meet the requirements
  - *How* is defined during the Design process
- Emphasis on specifying hierarchical requirements

Key Types of Requirements

- Data Requirements
- Functional Requirements
- Interface Requirements
- Performance Requirements
- Quality Requirements
- Other

Categories of Requirements

- Freeway Data
- Arterial Data
- Transit Data
- Multi-Modal Data
- Data Exchanges with Other Systems
- ITS Device Control and Monitoring
- Parking Management
- Decision Support
- Performance Measures
- Policies, Procedures, and Standards
- System Security
- Other

Sample Requirements

D	Requirement	Need	Source	Allocation	Comment	Crit
Freeway Data and Dissemination to Travelers (Requirements 100-299)						
	The I-270 ICMS database shall include the types of corridor freeway data listed in Table 3.		ConOps – Throughout	DC	Data types listed throughout ConOps. Examples: o An Archive Management Center that collects transit, traffic, and other data from all stakeholders in the corridor. o Operations data collected by RITIS, including incident data, response times, clearance times, volumes, speeds, etc.	
-010	The I-270 ICMS shall retain all freeway data collected online for a period of at least TBD days.		D-100	DC	Related ConOps Examples: o Archive corridor transportation, traffic, transit, and incident response data for performance measurement. o It will also archive data for use in transportation-related studies and performance evaluations.	
	The I-270 ICMS shall collect the corridor freeway data listed in Table 3 from the MD CHART system.		ConOps § 3.5, p. 39, and others	DE	ConOps Example: SHA has detectors on the I-270 corridor used to feed into CHART.	
010	The I-270 ICMS shall perform error detection, error correction, and reasonability checks on all freeway data collected.		ConOps – Throughout	DQ	Many “reliability” needs throughout ConOps. Example: o There is a need to expand corridor-wide information sharing to help disseminate reliable and real-time traveler information to the commuters.	

Sample Requirements (Cont'd.)

D	Requirement	Need	Source	Allocation	Comment	Crit
020	The I-270 ICMS shall disseminate collected freeway traveler data to travelers specified in Table 3.		ConOps – Throughout	TI	ConOps Examples: o Travelers need access to accurate, reliable, and multi-modal travel information, both pre-trip and en-route. o Travelers need travel conditions information in sufficient detail that they can make "smart" decisions about staying the course, selecting alternate routes, shifting travel modes, skipping or postponing travel, etc. o Travelers need information about alternative routes/modes when conditions so dictate.	
020-	The I-270 ICMS shall disseminate freeway data to travelers via a publicly accessible web site.		ConOps § 1.6, Table 1-4, p. 12 (under Prototype and Deploy Enhanced RITIS)	TI	ConOps Text: Provide real-time corridor traveler information, including transit, to travelers via the Web, 511, mobile devices, and in-vehicle devices.	
020-	The I-270 ICMS shall disseminate freeway data to travelers via mobile devices.		ConOps § 1.6, Table 1-4, p. 12 (under Prototype and Deploy Enhanced RITIS)	TI	ConOps Text: Provide real-time corridor traveler information, including transit, to travelers via the Web, 511, mobile devices, and in-vehicle devices.	
020-	The I-270 ICMS shall disseminate freeway data to travelers via e-mail.		ConOps § 3.5, p. 38	TI	ConOps Text: Enhanced Data Dissemination – Sharing information with the public through notification services (fax, pager, email, Web-based Real Simple Syndication (RSS), WAP/PDA access, etc.).	

Questions?