



# *Advancing Planning for Operations – An Update*

**Boston, Massachusetts  
July 2010**

**Mr. Egan Smith  
FHWA, Office of Planning,  
Environment & Realty**

- Introduction to Planning for Operations
- Overview of Model Plans Desk Reference
- Next Steps Moving Forward

# What is Planning for Operations?

- Enhance and strengthen both planning & operations functions to support regional operations in the 21<sup>st</sup> Century.
- Enhance regional decision-making process so that operations investments are on par with investments in construction & system preservation.

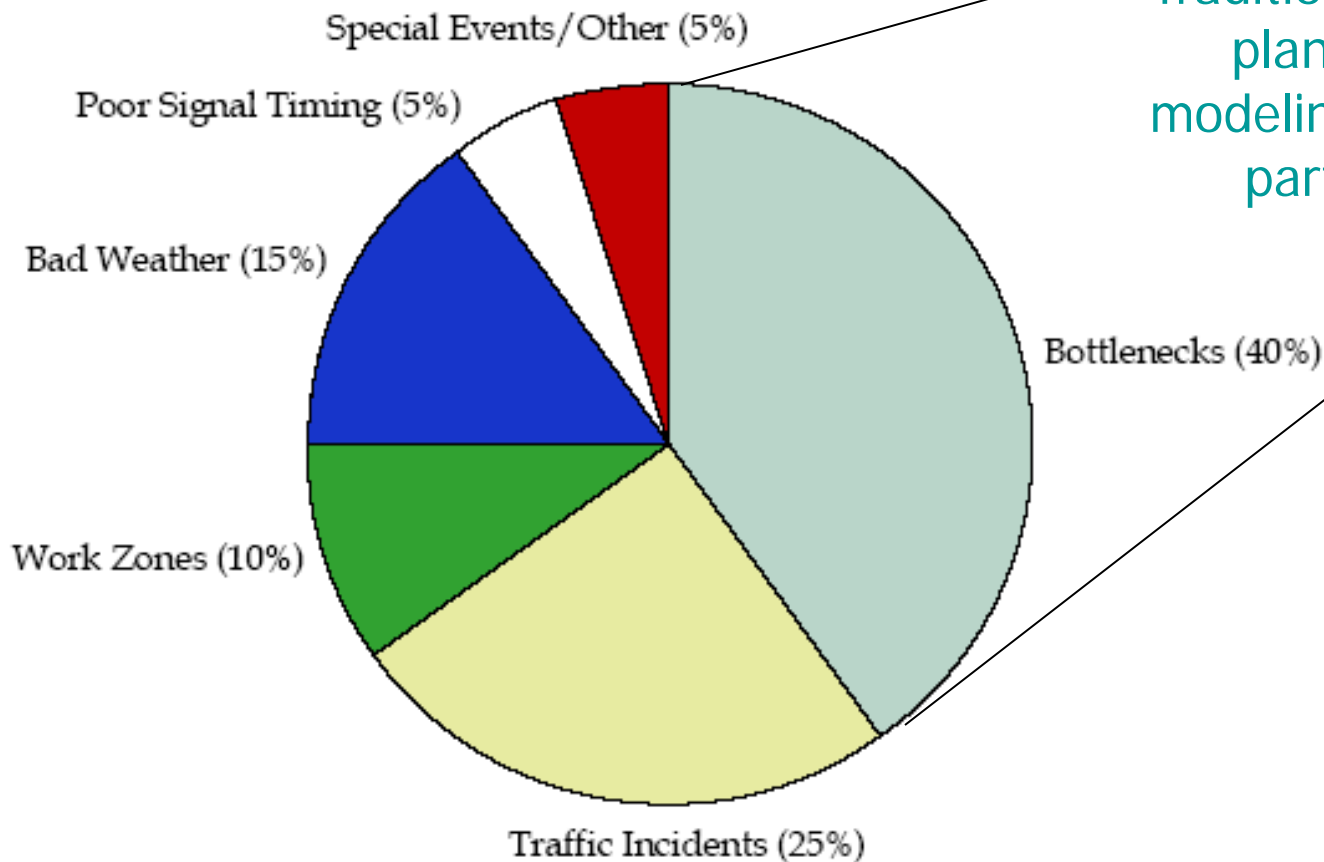
# Planning for Operations: *Program Goal*

- Improve performance of regional transportation systems through
  - An objectives-driven, performance-based approach to planning for operations
  - Enhanced collaboration & coordination between planners and operators
  - Effective integration of the Congestion Management Process (CMP) and Management & Operation (M&O) strategies in the Metropolitan Transportation Plan

## **The Result:**

***Improved Performance of Our Existing  
Transportation System***

# Sources of Congestion: National Summary



Traditional transportation planning (demand modeling) only takes this part into account

# Need to Think Beyond Traditional Capacity Projects

- Limited funding for large-scale capacity projects
- Long-time to plan, assess, and build new infrastructure
- Potential adverse impacts on communities, land use, air quality, etc.

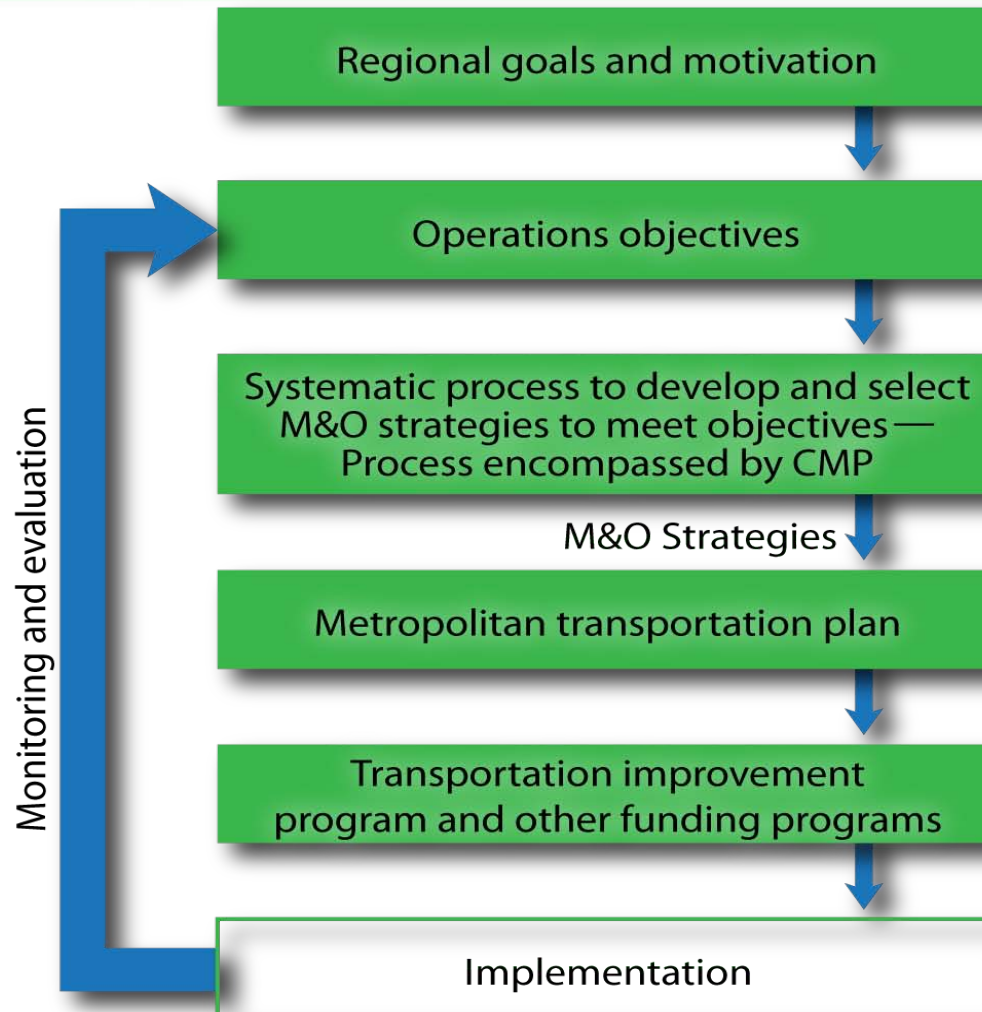
***There exists the need to address traveler concerns through better Management & Operations***



# How do we effectively integrate CMP and M&O into our planning process?

- A viable approach
- Measurable objectives
- A systematic process that includes performance measures for developing and selecting M&O strategies
- Collaboration to create more effective management & operations

# The Approach







# Objectives-Driven, Performance-Based Approach



U.S. Department of Transportation  
Federal Highway Administration  
Federal Transit Administration

Transportation Plan includes:

- Goals and measurable objectives that advance operational performance outcomes of the transportation system
- Performance measures used to track progress toward objectives
- M&O strategies to meet the measurable objectives

***M&O strategies are programmed & implemented in collaboration with local agencies***

# Operations Objectives that are SMART

Operations objectives to be included in the plan are developed through collaboration with a broad range of regional participants and reflect regional values.

**Specific.** Sufficient to guide approaches

**Measurable.** Quantitative measurement

**Agreed.** Consensus among partners

**Realistic.** Can be accomplished

**Time-Bound.** Identified time-frame for accomplishment

# Benefits of the Objectives-Driven, Performance-Based Approach

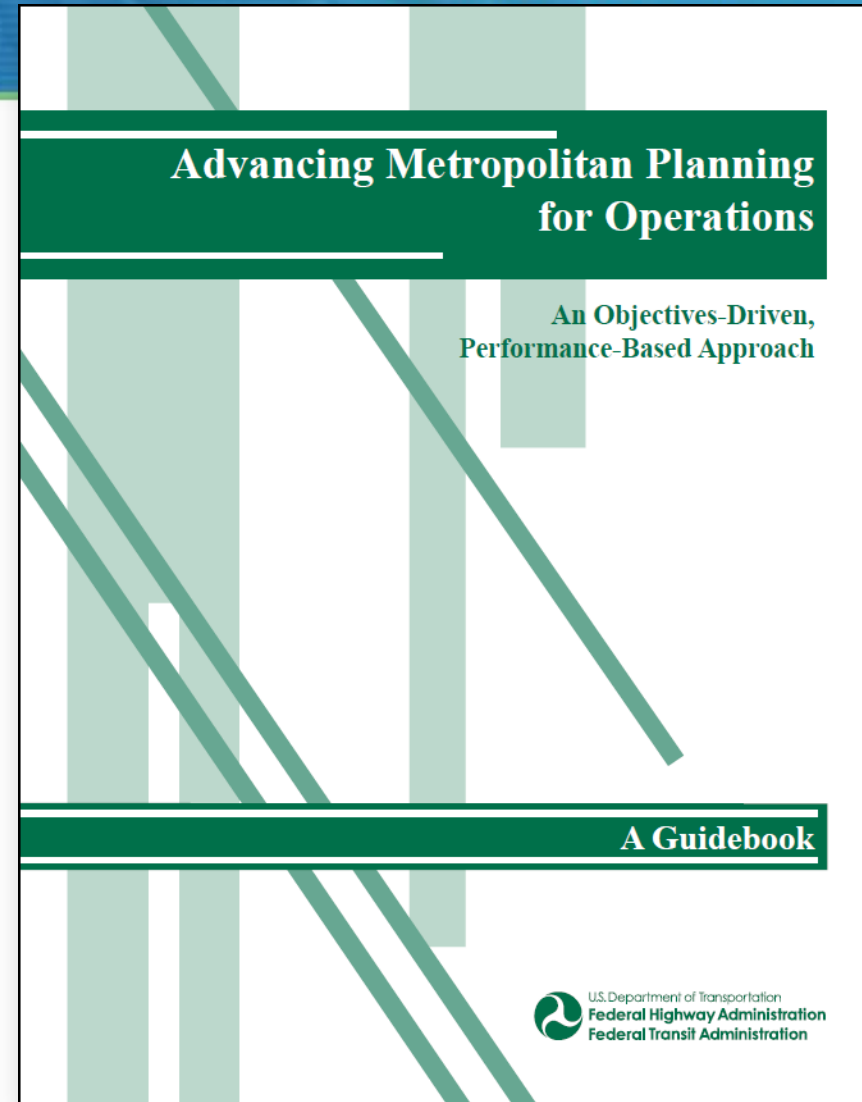
- Operators & planners work together developing & addressing short-term & long-term system performance objectives
- Agencies effectively prioritize investments to achieve agreed upon objectives
- System performance outcomes are improved
- Implemented performance measures *demonstrate accomplishments*

# Finalized Interim Guidebooks



## *“Advancing Planning for Operations for Metropolitan Areas”*

*Provides practitioners a thorough  
understanding of the approach and its  
elements*



# Resources Supporting “The Approach”

- *Advancing Metropolitan Planning for Operations: The Building Blocks of a Model Transportation Plan Incorporating Operations - A Desk Reference*
- *Statewide Opportunities for Integrating Operations, Safety, and Multimodal Planning: A Reference Manual*
- *Innovative Analysis Methods Report & Upcoming Workshops*



# *Why? An Approach Document Only Gets You So Far...*



U.S. Department of Transportation  
Federal Highway Administration  
Federal Transit Administration

- Resources Needed to Provide Help Getting Started
- Provide Opportunities to Advance Good Practice for Operations Objectives & Performance Measures
- Provide Technical Tools to Better Grasp How do We Model Operations in Planning?

# Model Transportation Plans

Product Envisioned: A Desk Reference –  
**Not** A Guidebook

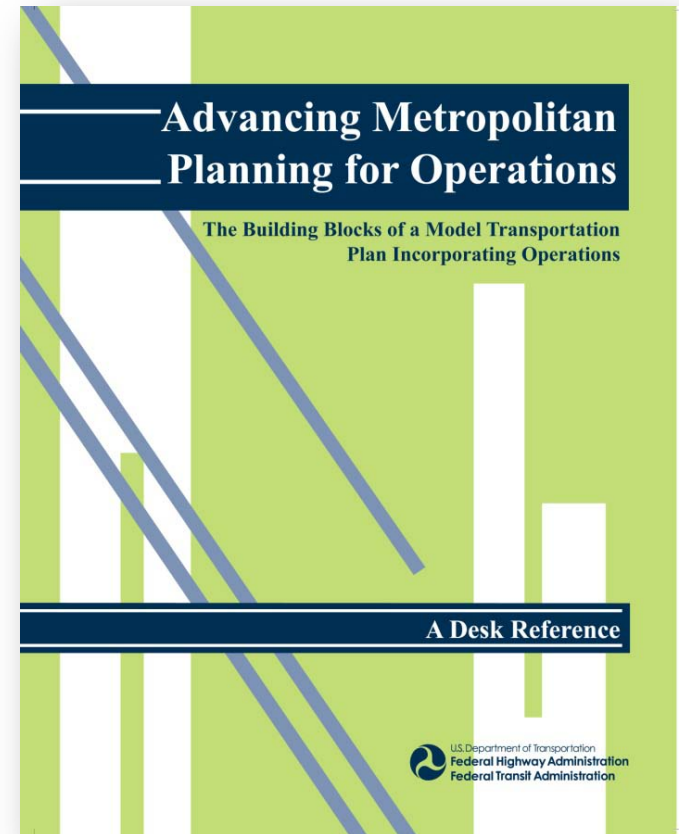
- The Goal: Provide Tools of Operations Objectives to Get Planners & Operators Started Advancing Operations Strategically



# Advancing Metropolitan Planning for Operations:

## The Building Blocks of a Model Transportation Plan Incorporating Operations

### A Desk Reference





# Model Transportation Plans

- *Illustrate A Plan* Showing Strategic Operations in Planning
- Menus of Regional Operations Objectives & Associated Performance Measures
- Identify Supporting Operations Programs & Projects MPOs Can Advance
- Potential Safety Benefits from Meeting Operations Objectives

# Desk Reference Contents



U.S. Department of Transportation  
Federal Highway Administration  
Federal Transit Administration

- Section 1, Introduction
- Section 2, Developing Operations Objectives
- Section 3, Menu of Operations Objectives
- Section 4, Model Transportation Plan
- Section 5, References and Resources

# Menu of Operations Objectives

## System Outcomes:

Efficiency      Reliability      Other System Options

## Operations Focus Areas:

Arterial Management	Emergency / Incident Management
Freeway Management	Special Event Management
Freight Management	Transit Operations & Management
Traveler Information	Travel Demand Management
Work Zone Management	Travel Weather Management

# Developing Operations Objectives that are *SMART*



U.S. Department of Transportation  
Federal Highway Administration  
Federal Transit Administration

Operations objectives to be included in the plan are developed through collaboration with a broad range of regional participants and reflect regional values.

**S**pecific. Sufficient to guide approaches

**M**easurable. Quantitative measurement

**A**greed. Consensus among partners

**R**ealistic. Can be accomplished

**T**ime-Bound. Identified time-frame for accomplishment

# Menu of Operations



U.S. Department of Transportation  
Federal Highway Administration  
Federal Transit Administration

## Objectives: The “*Fact Sheets*”

### The Contents:

- Operations Objectives
- Performance Measures
- Anticipated Data Needs
- Data resources & partners
- M&O Strategies to consider
- Safety-Related benefits

# How Does This Look?

System Efficiency: Duration of Congestion	
<b>General Description</b>	These objectives focus on managing the duration of recurring congestion (roadway or intersection) on the transportation system. Common expressions of recurring congestion are volume-to-capacity (V/C) ratio and level of service (LOS), which is measured in terms of travel speed or delay. In areas where there is extensive congestion, the degree or intensity of congestion can be revealed, particularly for areas that experience significant congestion (spatially and/or temporally).
<b>Operations Objectives</b>	<ul style="list-style-type: none"> <li>• Reduce the daily hours of recurring congestion on major freeways from X to Y by year Z.</li> <li>• Reduce the number of hours per day that the top 20 most congested roadways experience recurring congestion by X percent by year Y.</li> </ul>
<b>Performance Measures</b>	<ul style="list-style-type: none"> <li>• Hours per day at LOS F or V/C &gt; 1.0 (or other threshold).</li> </ul>
<b>Anticipated Data Needs</b>	<ul style="list-style-type: none"> <li>• Hourly traffic volume data (e.g., traffic counts); inventory of facilities (number of lanes, presence/frequency of signals/intersections, etc.); calculations or estimates of capacity by hour of the day.</li> </ul>
<b>Data Resources and Partners</b>	<ul style="list-style-type: none"> <li>• ITS data (continuous traffic counters), traffic count programs, studies.</li> <li>• GIS or other database of system inventory.</li> <li>• State DOTs, regional planning councils, MPOs, highway districts, cities, counties, and traffic management centers.</li> </ul>
<b>M&amp;O Strategies to Consider</b>	Strategies designed to reduce recurring congestion, such as traffic signal coordination; travel demand strategies that encourage shifts in travel mode, time, or route; and, congestion pricing strategies that encourage shifts to off-peak periods.
<b>Safety-related Benefits</b>	<p>An indirect benefit from reductions in the duration of congestion is the lower rate of exposure to incident-causing conditions. A management program aimed at reducing congestion can also help address aggressive driving. Drivers put in situations where their travel is significantly delayed tend to drive more aggressively, increasing the opportunity for traffic crashes.</p> <p>SOURCE: Neuman, Timothy r., Ronald Pfefer, Kevin I. Slack, Kelly Kennedy Hardy, Richard Raub, Roy Lucke, Richard Wark. <i>NCHRP REPORT 500 Guidance for Implementation of the AASHTO Strategic Highway Safety Plan Volume 1: A Guide for Addressing Aggressive-Driving Collisions</i>. 2003</p>

# Fact Sheets: The Key Components

- **Operations Objective:**
  - Reduce the regional average travel time index by X percent per year.
- **Associated Performance Measure:**
  - Travel time index (the average travel time during the peak period, using congested speeds, divided by the off-peak period travel time, using posted or free-flow speeds).
- **Data Needs:**
  - Travel speed data during peak and off peak periods across a network of facilities (freeways, highways, arterials, LRT, BRT, bus routes, etc.).



# The Illustrative Model Plan



U.S. Department of Transportation  
Federal Highway Administration  
Federal Transit Administration

- Illustrate applications of Objectives-driven, Performance-based Approach for Operations in a Plan
- Show Basic, Advanced & Comprehensive levels of this Integration



# The Illustrative Model Plan

- Highlights from two Plan Chapters
  - Chapter 2: Regional Goals & Objectives
  - Chapter 5: System Management & Operations
- Visually Shows How to Apply Operations Goals in Achieving Regional Goals
- Illustrate connections between:
  - Regional Goals
  - SMART Operations Objectives
  - M&O Strategies
  - Operations Programs



# The Desk Reference is a Toolbox that..

- Provides Specific Tools Utilizing the Objectives-driven Performance-based Approach
- Get ideas for Operations Objectives to include in an MPO Plan
- ***How Does This Look in Practice?*** Show how to shape Operations-related portions of a Plan that incorporate Operations Objectives & Performance Measures



# Desk Reference also helps you to...

- Find Operations Objectives for specific Operations areas such as traveler information or specific modes such as transit
- Learn what Performance Measures & Data are needed to track Operations Objectives
- Find potential M&O Strategies to Improve transportation system Efficiency & Reliability

# Innovative Analysis Methods Report & Outreach



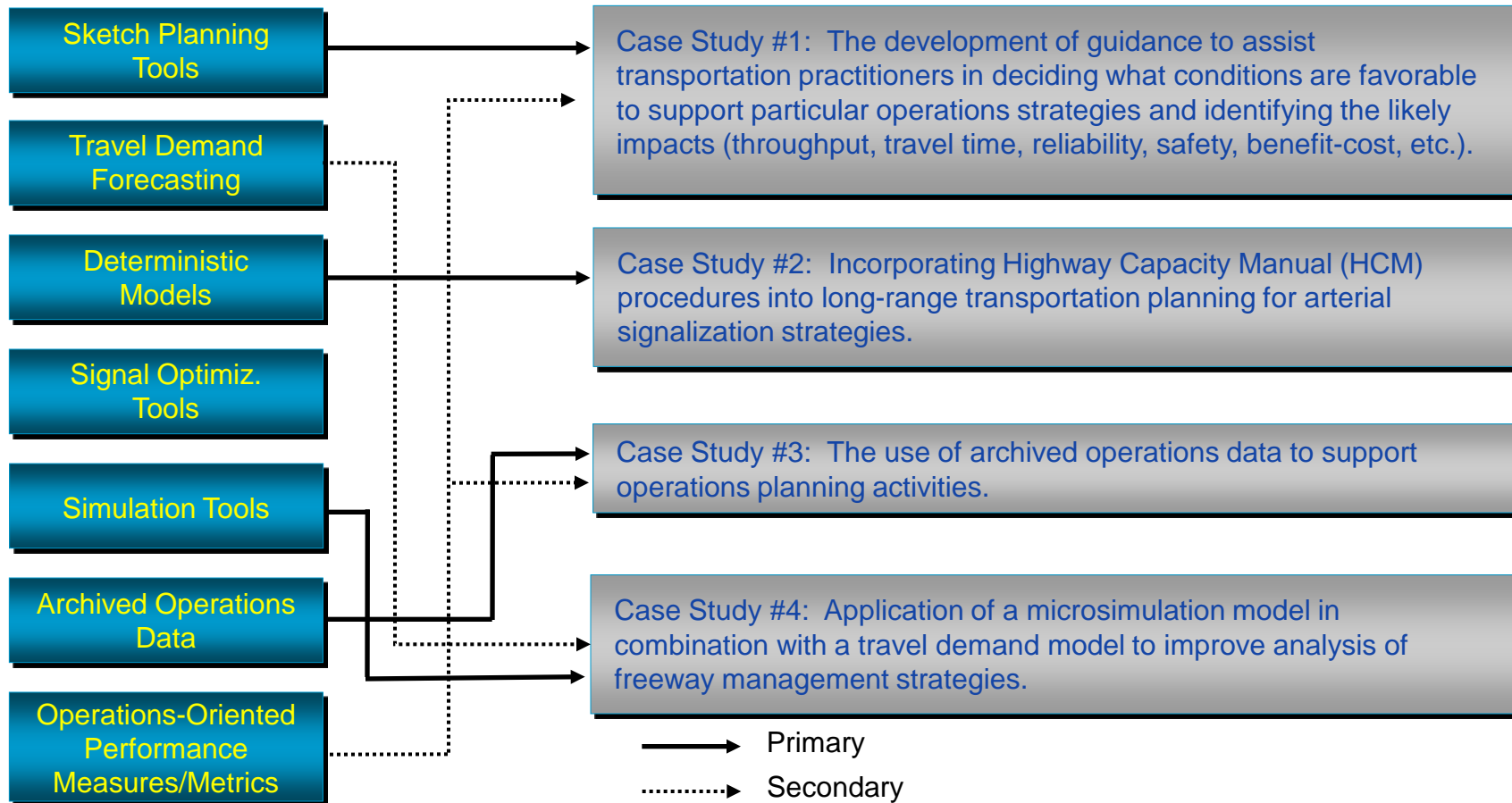
- Fall 2009: Report Completed Showcasing Technical Tools available to Planners & Operators to model Operations program in Planning process
- First Workshops Held
  - January 25 at Dallas-Fort Worth MPO
  - April 1 - Atlanta, GA
  - May 25 – Milwaukee, WI
  - July 20 – Vancouver, WA
- Next Workshop – August 25<sup>th</sup> – Kansas City
- *More Workshops to Come Around the Country through 2011...*

***Technical Tools to Model Operations in  
Planning***

# Current Methods and Tools

## Tool Types

## Case Studies



# Statewide Planning for Operations & Safety



- Project Commenced November, 2008 with Initial Peer Exchange May 2009
- Follow-up Peer Exchange Conducted Mid-November 2009
- Final Reference Guide Published August 2010
- Strong Example of Operations working with Planning & Safety to Advance Joint Product Initiative

***Use Momentum From Overall Guidebooks  
Outreach to Advance Performance-Based  
Approach with the States***

# *What is Coming Next?*

- “Hands On” Technical Assistance Workshops Across the Country Fall 2010
- Two Day Duration Events – Exercise Driven
- Focus of Fall Workshops: Go Beyond the Approach & Help MPO’s and States Strategically Advance Operations

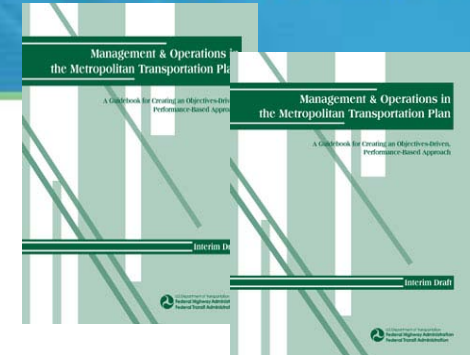
# The Road Map

- *Benchmarking Existing Program*
  - Evaluate Success by Areas in Adopting Planning for Operations practices
  - Implement Method Monitoring Progress integrating Operations in Metro & Statewide Plans utilizing Annual Certification Reviews
- *Travel Demand Management*
  - Develop guidance to analyze traffic impacts of Demand Management Actions in the Transportation Planning Process
- *Congestion Management Process: A Guidance Document*



- ***Primer on Operations supporting Livability and Sustainability***
- ***Primer on Applying Regional ITS Architectures to Support Planning for Operations***

# Planning for Operations: *Website Resources*



- **FHWA Planning for Operations Website**

<http://www.plan4operations.dot.gov>

- ***Advancing Metropolitan Planning for Operations: An Objectives-Driven, Performance-Based Approach - A Guidebook***

<http://www.ops.fhwa.dot.gov/publications/fhwahop10026/index.htm>

- ***A Primer - Statewide Opportunities For Linking Planning & Operations***

<http://www.ops.fhwa.dot.gov/publications/fhwahop08028/index.htm>

- ***Applying Analysis Tools in Planning for Operations***

<http://www.plan4operations.dot.gov/casestudies/analysis.htm>

- ***National Transportation Operations Coalition Webcast Archive (Feb. 23, 2010 and Jan. 25, 2010)***

[http://ntoctalks.com/web\\_casts\\_archive.php](http://ntoctalks.com/web_casts_archive.php)

# For More Information



- Contact:
  - *Egan Smith, FHWA-Planning,*  
[Egan.Smith@dot.gov](mailto:Egan.Smith@dot.gov), 202-366-6072
  - *Rick Backlund, FHWA-Operations,*  
[Richard.Backlund@dot.gov](mailto:Richard.Backlund@dot.gov), 202-366-8333
  - *John Sprowls, FTA-Office of Planning*  
[John.Sprows@dot.gov](mailto:John.Sprows@dot.gov), 202-366-5362