

# Management and Operations: Putting It All Together

*A Discussion about Future Direction*

Arizona Transportation Academy

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# Overview

- First, let's summarize key points from prior presentations + a brief self-assessment
- Then let's have a dose of reality
- Followed by putting together three concepts – M&O, performance measurement, and planning for operations
- Consider implications of cultural change
- And wrap up with the real challenge of communicating concepts

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# What Are Your Take-Aways from Presentations So Far?

- Funding shortfall . . . OK, what else?
- Importance of performance measures as a sales tool
- Maintenance/management and Operations being the future
- Importance of collaboration for common good
- Budgeting for the lifecycle
- Importance of SMART objectives

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# Transportation Mobility and Safety

- **Consider all facilities and conditions**
  - Arterials as well as freeways
  - Recurring and non-recurring congestion
- **Benefits of operations exceed those of new construction; just not as visible**
- **Performance measurement is essential**
  - What doesn't get measured, doesn't get done
  - How can mobility and safety be improved if we don't understand the needs?
- **Customer service is an important part of operations**

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# Performance Measurement

- **Why do?**

1. Accountability
2. Proactive public relations for agency
3. Levels the playing field for operations
4. Sound business practice (can do our job better)

- **Questions for considering improvement**

1. What are the conditions like out there?
2. How does this compare to my peers?
3. Are things better or worse (trends)?
4. Did my program have anything to do with it (investments)?




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# Planning for Operations

- Changing world . . . and operations can make a difference
- Objectives-driven, performance-based approach is needed in the 21<sup>st</sup> Century
- Collaboration between planners and operators key to more effective planning
- Lots of products and outreach activities available to help

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# In Sum, Three Key Concepts

- Transportation System Management and Operations (TSM&O) or M&O (It's not "O & M"!)
- Performance measurement
- Planning for operations . . . which requires linking planning and operations



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# Arizona DOT Operations Action Plan Heading in Right Direction

- Well-informed traveling public
- Performance measurement
- Effective management processes
- Operational partnerships
- Leveraging regional infrastructure
- Customer service (e.g., incident management)
- Staff competence

*However, should it be “Operations and Planning Action Plan”?*

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# The Reality Exacerbates Challenge

- Funding shortfall worsening!
- Reauthorization delayed . . . and priorities already shifting (although not likely to change M&O and performance measurement priorities)
- Environmental and energy pressures will increase
- Urbanization and congestion increasing
- ?

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# The Three Concepts – Simply Put!

- M & O
- Performance measurement
- Planning for operations

*Leading to a mix of capital and operations investment*

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# Concept #1 -Management & Operations (M & O)

SAFETEA-LU: An integrated program to optimize performance of existing and planned infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services and projects designed to preserve capacity and improve security, safety and reliability.

AZ DOT Operations Action Plan: Management of transportation systems and traffic flow to enhance safety and mobility through the application of ITS technology and regional collaboration.

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# Operations Includes

- Traffic Incident Management
- Travel Information Services (for roadways and for transit)
- Freeway Management
- Automatic Vehicle Location for Transit
- Traffic Signal Coordination
- Work Zone Traffic Management
- Roadway Weather Information
- Electronic Payment (for transit, parking, tolling)
- Freight Management (ports and transfer areas)
- And coordination of highway, rail, transit, bicycle, and pedestrian operations

*Underpinned by regional operations collaboration and coordination*

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# M & O Addresses Concerns

## TSM&O Strategies

- Traffic incident management
- Traveler information services
- Freeway management
- Traffic signal management
- Transit priority systems
- Work zone traffic management
- Road weather management
- Electronic payment services
- Freight management
- Special events planning



## Transportation Concerns

- Commuter congestion
- Traffic incidents
- Goods movement
- Special events
- Homeland security
- Emergency response & management
- Modal choices
- Work zones
- Weather

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# How Is The Region Doing?

TSM&O Strategies	Local	Metro	Statewide	Evacuation	Weather	ATIS	Security	Data
<i>1. Incident Management</i>	B	B	?					
<i>2. Traveler Information</i>	N/A	B	C+/B					
<i>3. Freeway Management</i>	N/A	B	C					
<i>4. Traffic Signal Mgmt.</i>	B	C	C+					
<i>5. Transit Priority Systems</i>	C	C	D					
<i>6. Work Zone Management</i>	A-D	N/A	PB					
<i>7. Weather Management</i>	B-	N/A	C					
<i>8. Electronic Payment</i>	B	B	D					
<i>9. Freight Management</i>								
<i>10. Special Events Planning</i>	A	B	?					

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# Concept #2 – Performance Measurement

- **Traditional approach – process oriented**

- Number of potholes filled
- Linear miles of asphalt laid
- Traffic signals installed
- ?

- **21<sup>st</sup> Century approach – outcome oriented**

- Travel time from Point “A” to “Point B”
- Arrival time (plus or minus of “X” minutes)
- Incident clearance time
- ?

# Vocabulary Matters - Goals

Goals describe desired end-states, for example:

- AZ DOT will optimize the operation of the state-wide operated highway system
- The “X” region will provide a reliable regional transportation system
- The “X” region will ensure effective transportation responses to emergencies

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# Vocabulary Matters - Objectives

## Characteristics of objectives:

- **S**pecific. Sufficient to guide variable approaches
- **M**easurable - quantitatively
- **A**greed. Consensus among partners
- **R**ealistic. Can be accomplished
- **T**ime-bound. Identified time-frame for accomplishment

*Tough to do!*

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# Operations Objectives - Examples

- By [year] reduce the clearance time of traffic incidents on freeways and major arteries from a current average of “X” minutes to an average of “Y” minutes.
- By [year] decrease average annual traveler delay associated with road closures, major incidents, and weather-related conditions on interstate highways by 20 percent from 2010 levels.

*Performance measurement requires quantifiable objectives – tough to do!*

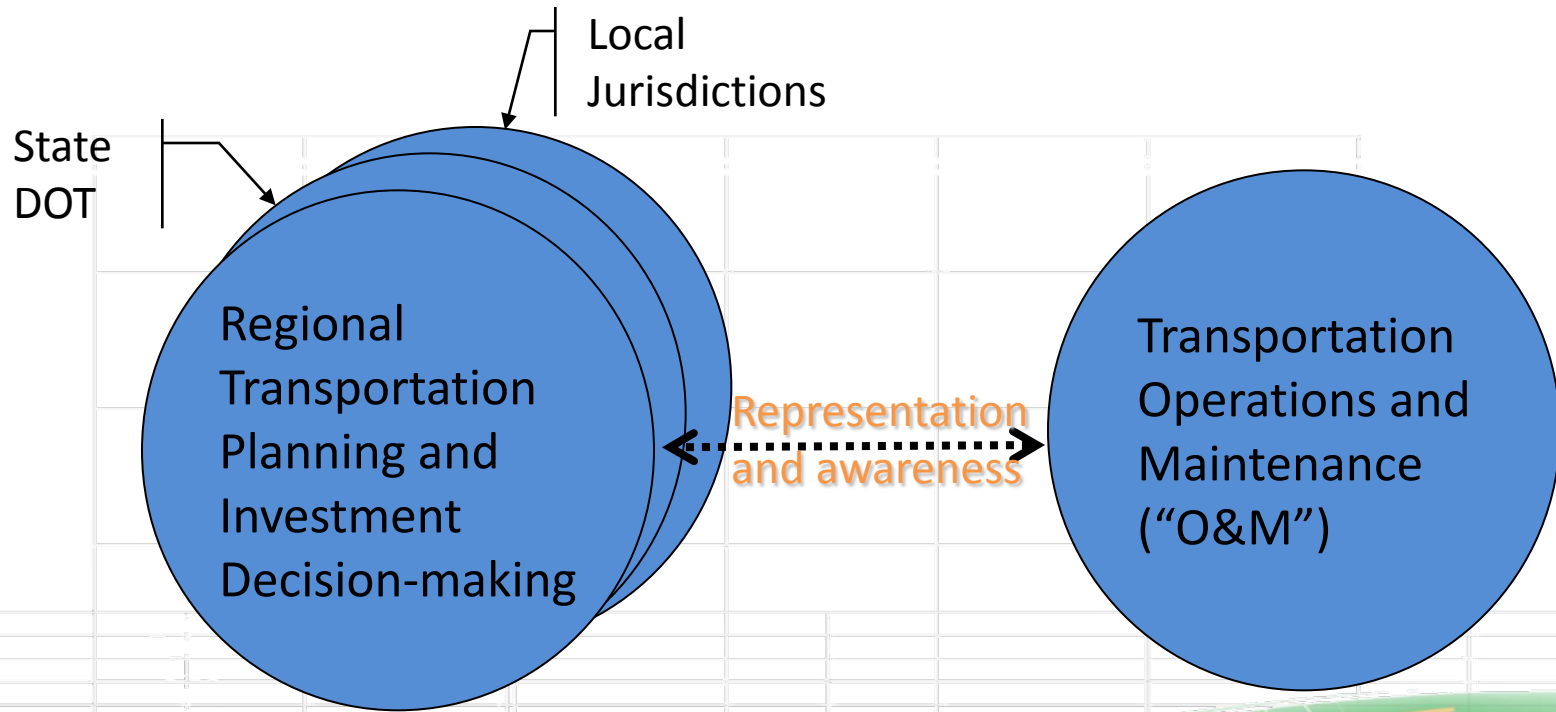
# Regional Goals and Objectives

- **Goal #1**
  - Objective 1.1
  - Objective 1.2
  - Objective 1.3
- **Goal #2**
  - Objective 2.1
  - Objective 2.2
  - Objective 2.3
- **Goal #3**
  - Objective 3.1
  - Objective 3.2
  - Objective 3.3



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# Concept #3 – Planning for Operations – First the Traditional Approach



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# Regional Transportation Planning and Investment Decision Making Traditionally

Regional  
Transportation  
Planning and  
Investment  
Decision-  
making

- ✓ Involves elected-appointed officials
- ✓ Collectively develops the regional plan
- ✓ Has a long-term planning focus (20 years) for capacity expansion
- ✓ Develops the congestion management system
- ✓ Recommends near-term (1-5 years) project funding through TIP
- ✓ Addresses projects of local and regional significance
- ✓ Analyzes historical trends and patterns

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# Transportation “Operations and Maintenance” Traditionally

Transportation  
Operations and  
Maintenance  
 (“O&M”)

- ✓ Jurisdictional/Agency-focused
- ✓ Preventive and corrective maintenance orientation
- ✓ Focus on peak periods
- ✓ Limited access to ‘real-time’ information
- ✓ Targeted cross-jurisdictional coordination for specific functions
- ✓ Output-based performance measures

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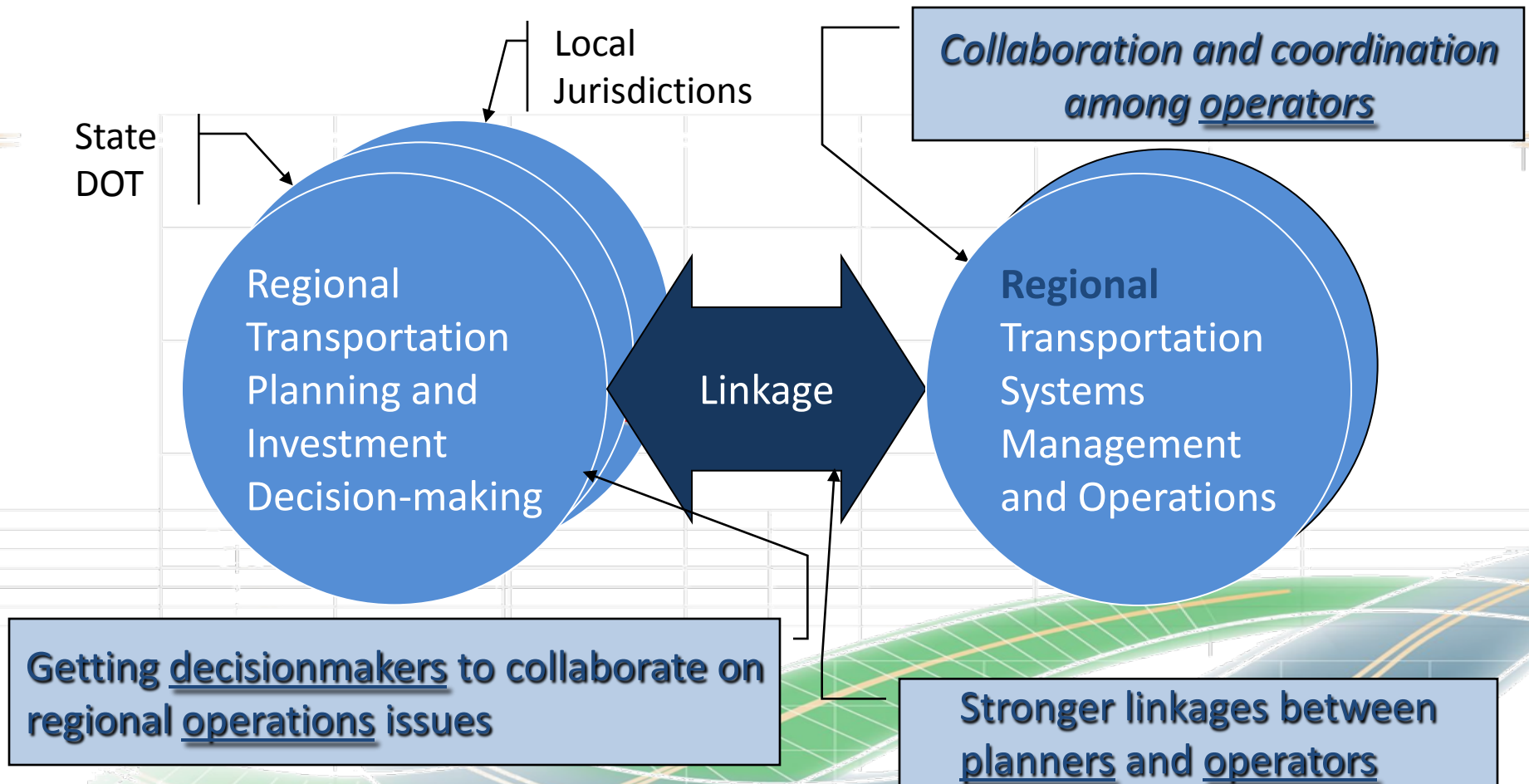
# Sometimes We Do Work Together

- Emergency response
- Natural disasters
- Special events
- Mega projects
- Air quality
- ITS projects

*Basis for enhanced collaboration*

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# 21<sup>st</sup> Century Collaboration



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# Implications for Planning Process

## *Traditional Planning Process*

- ✓ Elected/appointed officials
- ✓ Collective regional plan development
- ✓ Long-term planning focus
- ✓ Near-term project funding
- ✓ Projects of local and regional significance
- ✓ Historical trends

## *Planning Influenced by TSM&O*

- ✓ Operations thinking influences vision and goals
- ✓ Measurable objectives identified
- ✓ Decisions engage operations managers
- ✓ Operations/capital mix optimized
- ✓ Performance measures reflect objectives
- ✓ Regional performance informs planning
- ✓ Regional concept(s) for transportation operations

Improving transportation *system* performance

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# Implications for Transportation Operations

## Typical "O&M"

- ✓ Jurisdictional/Agency focused
- ✓ Maintenance oriented
- ✓ Peak-period focused
- ✓ Limited real-time information
- ✓ Targeted coordination for specific events
- ✓ Output-based measures

## Regional TSM&O

- ✓ Regional cross-jurisdictional, multi-agency, multi-modal *system*
- ✓ Real-time information sharing 24/7 to support operations decisions
- ✓ Deliberate and sustained collaboration and coordination
- ✓ Customer-focused performance measures
- ✓ Regional forums for collaboration
- ✓ Regional concept(s) for transportation operations



Improving transportation *system* performance

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# Why Link Planning and Operations?

- Customer expectations for improved system performance
- New technologies, especially ITS
- Environmental, community and funding constraints
- Benefits of operational strategies, especially in the 3 – 5 year timeframe
- Federal requirement – “promote efficient system management and operations”

*Leads to better investment decision making*

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# Regional Cooperation

- Who should be engaged?

- ?
- ?
- ?
- ?
- ?
- ?
- ?

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# Rationale for Including Operations in Planning Context

- More objective (rather than subjective) approach to addressing operations
- Focused transportation investment prioritization
- Improved resources allocation
- Increased accountability and measurement of performance
- Engaging the operations community in a more substantive way

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# The “Cultural Shift” – Making It Happen

- **Build on current planning and collaborate process**
- **Think TSM&O (M&O)** – operational strategies to address challenges
- **Think performance** – and that means quantitative measurement
- **Link planning and operations**
- **Involve operators and users of system**

*Create a mix of capital and operations projects  
in investment decisions*

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# Outcomes of “Cultural Shift”

- Well developed – and continuous – relationships among key agencies (state, MPOs, public safety, etc.) and jurisdictions
- Shared vision, goals and objectives among planners, operators, and public safety providers for transportation system performance
- More effective allocation of resources
- Enhanced information sharing
- Integration of state/regional systems and organizational processes

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# OK – Agree with Three Concepts But How to Get Decision Makers on Board

Let's start with quick survey:

- How many of you have been a senior appointed official or an elected official?
- What's your impression of these folks in how they make decisions?
- How many of you get frustrated because elected officials don't seem to listen or comprehend what your saying?

# Decision Makers – How to Influence

- Communications a real challenge – technical versus “plain speak”
- Understand the context within which decision makers operate
- KISS!

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# A Decision Maker's Question

Question: What improvements are being made to the region's travel forecasting model?

Answer: We have expanded our cordon to include the entire MSA with 2191 zones, added a speed-feedback procedure, and employed a post-processor to compute VOC and NoX emissions.

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# Another Decision Maker's Question

Question: How do you address the issue of induced demand?

Answer: The auto ownership model is sensitive to improved transit accessibility, the trip distribution model responds to changes in zone-to-zone travel times, and of course the assignment model has a capacity constraint feature with speed feedback.

# A Very Reasonable Question

Question: How do models address choices between highway and transit?

Answer: The mode choice procedure employs a sequential multinomial logit (NML) model with two-tier transit walk-shed, and uses ALOGIT software.

# The Real World – Competing Imperatives for Decision Makers

- Economic development/jobs versus environmental and quality of life concerns
- Residential quality of life versus commuter cut-through traffic
- The “American dream” versus sprawl
- Expanded services versus anti- or no-tax advocates
- Air quality requirements versus mobility needs
- Social imperatives and school needs versus transportation need  
+ immigration

**“I am elected from a place, by its people. My job is to speak up for their interests and concerns. It’s that simple”**

**- John Milliken, former member of Arlington Board and Secretary of Transportation (Virginia)**

# Factors That Affect Decision Makers

- Limited time to address any issue
- Tendency to have some particular area of interest (especially elected officials)
- Elected officials very dependent on staffs
- Sensitivity to process (or train might get derailed!)
- Respect for colleagues' turf
- Inter-personal relationships usually the key to getting things done
- Elected officials like to be given credit and recognition for successes
- Sensitivity to fiscal constraints
- Jargon – elected officials prefer “plain speak”

*And, importantly, elected officials like to get re-elected!*

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# A Couple More Quotes

“The chair of the legislative committee has great power. The chair controls the agenda, the testimony, and the amount of time allotted to the issue. Committee members defer to the chair and it is rare the chair does not prevail”

- Thomas D. Rust, Member, House of Delegates, Virginia

“My role as staff is to understand and synthesize. I don’t need or want persuasion from outside groups. I want facts and analysis.”

- Pierce Homer, former Secretary of Transportation, Virginia

“Three key points need to be made in any communication: 1) What action do you want me to take? 2) Why should I support this action? and 3) How does it impact my constituents?”

- Sarah Siwek, President of Sarah J. Siwek and Associates

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# Outreach Principles to Consider

- Understand/Appreciate the environment in which elected/senior appointed officials operate
- Identify key leaders and champions relevant to the issue being pursued
- Appreciate that decision makers are heavily influenced by peers
- Express issues and recommendations in a manner that will be relevant and understood by decision maker
- Consider how funds can be leveraged
- Design a path that includes staff; they influence both substance and process
- Don't wait until an issue is critical to establish a relationship
- Be realistic and forthright
- Appreciate need for short-term products or deliverables
- ***Listen to them!***

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# A Few Final Observations

- Create advocacy within the planning process (e.g., an M&O Committee within MPO)
- Create annual report (short and meaningful; not a puff piece)
- Understand that planning world is different (!); figure out how to collaborate
- Don't make issues (e.g., performance measures) more difficult and expensive than need be ("perfect is the enemy of the good")
- Stick to it; it will take time!

*Cultural change and changing resource allocation –  
Very tough challenges; will require leadership engagement*

# References

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- Regional Transportation Operations and Collaboration and Coordination, A Primer for Working Together to Improve Transportation Safety, Reliability, and Security; FHWA-HOP-03-008
- Getting More by Working Together, Opportunities for Linking Planning and Operations, A Reference Manual; FHWA-HOP-05-010

# Points of Contact

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