North Central Texas
Regional Multimodal Transportation Operations Management Summit
## NCT Summit Agenda Day 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8:30 – 8:45am</td>
<td>DFW Regional Mobility Roadmap</td>
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<tr>
<td>8:45 – 9:45am</td>
<td>Peer Agency Panel – Multimodal TSMO Planning</td>
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<tr>
<td>9:45 – 10:30am</td>
<td>Facilitated Group Discussion – TSMO in the DFW Region</td>
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<tr>
<td>10:45 – 11:00pm</td>
<td>Break</td>
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<tr>
<td>11:00 – 12:30pm</td>
<td>Integrated Regional Operations</td>
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<tr>
<td>12:30 – 1:30pm</td>
<td>Lunch</td>
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<tr>
<td>1:30 – 3:00pm</td>
<td>Integrated Regional Operations (Continued)</td>
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<tr>
<td>3:00 – 3:15pm</td>
<td>Break</td>
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<tr>
<td>3:15 – 4:00pm</td>
<td>Performance Management Based Operations</td>
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NCT TSMO Summit

MULTIMODAL TSMO PLANNING
PEER AGENCY PANEL
Peer Agency Q&A
MULTIMODAL TSMO PLANNING
TSMO IN THE DFW REGION
Business Processes

• Formal scoping, planning, programming and budgeting
  – Strengths
  – Weaknesses
Systems and Technology

- Use of systems engineering, systems architecture standards, interoperability, and standardization
  - Strengths
  - Weaknesses
Performance Measurement

• Measures definition, data acquisition, and data utilization
  – Strengths
  – Weaknesses
Culture

• Technical understanding, leadership, outreach, and program legal authority
  – Strengths
  – Weaknesses
Organization and Workforce

• Programmatic status, organizational structure, staff development, and recruitment and retention.
  – Strengths
  – Weaknesses
Collaboration

• Relationships among public safety agencies, local governments, MPO, and the private sector.
  – Strengths
  – Weaknesses
INTEGRATED REGIONAL OPERATIONS
INTEGRATED REGIONAL OPERATIONS IN THE DFW REGION
PLACEHOLDER FOR INTEGRATED REGIONAL OPERATIONS SLIDES
INTEGRATED REGIONAL OPERATIONS
REGIONAL GAPS AND OPPORTUNITIES
Integrated Regional Operations

• Strengths
• Weaknesses
• Gaps
• Opportunities
• Ideal Integrated Regional Operations Program in DFW Region
• Next Steps/Action Items
PERFORMANCE MANAGEMENT BASED OPERATIONS
OVERVIEW OF PERFORMANCE MANAGEMENT BASED OPERATIONS
Four Guiding Questions

1. What are conditions like out there?
2. Where do we, our stakeholders, and our customers want to be?
3. Are things better or worse (trends)?
4. Did my program have anything to do with it (investments)?

*We cannot answer these fundamental questions without performance measurement.*
Why Performance Measures?

“What gets measured gets managed!”
Why Do Performance Measurement?

• We were forced to by…
  – Legislative mandate or agency initiative
  – Funding increase proposal

• Accountability and transparency
  – Decision makers, the public, our bosses
  – What did we produce with their money?

• Proactive public relations for the agency
  – Maintain visibility of transportation
  – Data + Analysis + Communication = Credibility
Why Do Performance Measurement? (Internal Story)

• How will we get better? How do we compare?
• Who gets paid to reduce congestion and crashes?
  – Anyone?
• Allows operations to compete in idea marketplace
• Similar to other data intensive programs
• Tell a good story for budget justification
  – % of pavements in good or better
  – # of structurally deficient bridges
  – # of operating dynamic message signs
Performance Measurement Today
(What is going on out there?)

• Lots of data to support performance measurement
  – Quality, completeness, and coverage
  – Many data sources for the same measurement (e.g., travel time)
  – Collection/acquisition/preparation cost

• Measures
  – Are we measuring the right things?
  – Targets and benchmarks

• Interpretation
  – Understanding “outside of our control” factors
  – Allocation of funding based on performance
Strategic Planning: Foundation for Performance Based Management

- What do we want to achieve with operations? What are our goals?
  - State and regional goals
  - DOT goals in strategic plan
  - LRTP

- Performance measures are a vital part of the strategic planning process
  - Where we are vs. where we want to be
  - Used to track progress toward meeting goals and objectives
Performance Measures:

Key Considerations

- Clear link to agency goals
- Relevant to policy-makers and the public
- Intuitive or easy to understand
- Outcome influenced by agency program and policy decisions
- Communicate the core mission of the organization
- Reliable data must be available
- Manageable number of measures
- Must be capable of showing a trend
Performance Measures and the Planning Process

- Regional goals and motivation
- Operations objectives
  - Systematic process to develop and select M&O strategies to meet objectives
    - Define performance measures
    - Determine operations needs
    - Identify M&O strategies
    - Evaluate M&O strategies
    - Select M&O strategies for the plan
- M&O strategies
- Metropolitan transportation plan
- Transportation improvement program and other funding programs
- Implementation
## Examples of Transportation System Performance Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Measures</th>
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<tbody>
<tr>
<td>Travel time</td>
<td>Average travel times; Average travel speeds</td>
</tr>
<tr>
<td>Congestion extent</td>
<td>Lane miles of congested conditions</td>
</tr>
<tr>
<td></td>
<td>Average hours of congestion per day</td>
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<tr>
<td>Delay</td>
<td>Vehicle-hours of recurring delay</td>
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<tr>
<td></td>
<td>Non-recurring delay</td>
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<tr>
<td>Incident occurrence/delay</td>
<td>Median minutes from time of incident to clearance</td>
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<tr>
<td>Travel time reliability</td>
<td>Buffer time; Buffer time index</td>
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<tr>
<td>Transit performance</td>
<td>On-time performance</td>
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<td></td>
<td>Transit travel times in comparison to personal vehicle travel times</td>
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<tr>
<td>Customer satisfaction</td>
<td>Percent reporting being satisfied</td>
</tr>
<tr>
<td>Person throughput</td>
<td>Peak hour persons moved per lane</td>
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Performance Measures:

Key Considerations

- **When?** Peak, Off-peak, Weekend
- **Where?** Corridors, sub-regions, metro areas, state
- **What?** Need both vehicle and person-based performance measures
- **Why?** … did it happen? Requires long period of inter-agency & intra-agency cooperation
- **How?** Examine 3 dimensions of congestion:
  - How bad? Where bad? When bad?
- **Another How?** Linking - Have a few measures that connect across applications and time frames
WHAT THEY TELL YOU

Level 1
- Travel conditions are unreliable (Variable over time)

Level 2
- What’s causing unreliable travel (e.g., incidents, weather, work zones)

Level 3
- What aspects of operations, management, and construction need to be improved

MEASURES

Overall Reliability
- e.g., buffer index

Delay by Source
- e.g., vehicle-hours

USED BY

Lower Management
- Public Relations
- Planners

Mid-Management
- Operators
- Planners

Upper Management
- Operators
- Field Managers

Activities, Procedures, and Policies

INCIDENT TIMELINE

Incident Occurs 6:35 A.M.
Incident Recorded into CAD (Detection) 6:42 A.M.
Incident Verified 6:47 A.M.
Personnel Dispatched and Actions Initiated 6:49 A.M.
Responders Arrive to Scene 6:50-7:00 A.M.
Incident Cleared and Actions Canceled 7:15 A.M.
Return to Normal Conditions 8:26 A.M.

Detection Time 1
Verification Time 2
Dispatch Time 3
Response Time 4
Clearance Time 5
Time to Normal Conditions 6
Setting Performance Targets: Options

• Look at peer performance
• Avoid “level” targets at first – use “change” instead
  – “Are things better or worse?”
  – Easiest, least controversial way to get started
• Set “hard” targets or “% change” targets that are considered to be achievable in the short term
  – Examine & extend recent trends in the performance measure
• Normalize targets to allow desirable outcomes
  – Congestion change tied to jobs or population
Reporting, Accountability, Decision Making

• You have goals, you have data, you have measures – what is next?
• Hint – You’re already behind; have a story first!
• Develop measures and meanings
• Report the results!!
  – To the public & decision makers
  – To system operators and planners
• Use them!! -- Funding decisions, operational strategies, new designs, before/after, new data
Real-Time Applications

• Tailored to local issues, tastes, public understanding and terms – **Whatever works!**
  – Developing “generic” guidelines -- difficult
  – Lots of examples are available
• Use the historical real-time information
  – Relatively new, but detailed data sets
• Peak period usually; off-peak important for just-in-time manufacturing
• Color coding very useful
Reporting

• The big difference between audiences is not what you **SAY**, but **HOW** you say it and **WHAT** measures you highlight
• Use examples and summaries to illustrate the key points
• Use chart title to tell story
• Use captions to note key points
• **What is the “ask”?** (“what they do after they hear you”)
Lessons for Plan Development:
Getting Started

• Get the key people involved from the start and keep them “in the loop”
  – Includes senior-level people involved in transportation planning and programming

• Allocate plenty of time for developing consensus goals
  – Write a memo – spend 2 years implementing
  – …or, spend 6 months gaining consensus, implement along the way
Performance Measure System Design

• How do the performance measures get reported? How often?
• How are performance measures used by:
  – Those who have required them?
  – Staff level?
• What have been the costs of:
  – Data collection?
  – Analysis and reporting?
• Where are the overlaps? How can they be better coordinated? More efficient?
Key Considerations

• What are the most important stories?
  – What do the audiences need to know?
• How do the measures connect with the likely decisions and investment options?
• What are the most important measures? (Recognizing there will be many measures)
• Where does the data come from?
• What is the “ask”? (“what they do after they hear you”)
Operations
Performance Measurement Plan

• Fewer measures are better
  – “Measure like you mean it”

• Choose measures that are understandable to intended audience
  – Internal staff and bosses
  – General public & decision makers

• Get started now, use current data and I.T.

• Focus on known and big problems; estimate the rest
Summary

• Start slow, but start now! Perfect data and analysis rarely occurs.
• There is no perfect set of measures.
  – Data, analysis, audiences evolve
• Use existing data assets; ensure quality control.
• Data + Analysis + Communication = Credibility (Need all 3)
• Data-facilitated decisions improve all factors in the process.
• If you don’t tell your story with your data and measures – someone else will.
Operations Performance Measures: Resources

- FHWA Operations Performance Measures Website
  - http://www.ops.fhwa.dot.gov/perf_measurement/example_programs.htm

- Other Sources
  - AASHTO Standing Committee on Performance Measures
  - TRB Performance Measurement Committee
  - I-95 Corridor Coalition Probe Vehicle Data Project/Performance Measures Project
PERFORMANCE MANAGEMENT BASED OPERATIONS CONT.
PERFORMANCE MANAGEMENT BASED OPERATIONS IN THE DFW REGION
PLACEHOLDER FOR OVERVIEW OF PERFORMANCE MANAGEMENT BASED OPERATIONS IN DFW REGION