Improving Business Processes for More Effective Transportation Systems Management and Operations (TSMO) – Traffic Incident Management

Northeast Ohio Areawide Coordinating Agency (NOACA)

March 14, 2019
Workshop Overview

**Purpose:**
Learn how to apply business process improvements to enhance transportation systems management and operations (TSMO)

**Objectives:**
- Understand business processes in the context of TSMO
- Understand how enhanced business processes can lead to improved TSMO and Traffic Incident Management activities
- Apply available tools to improve a specific business process:  
  - *Arterial management during freeway incidents*
- Understand how to apply these principles and tools to enhance other business processes in the future
Agenda

• Welcome and Introductions
• Business Process Applications and Tools – for TSMO and Traffic Incident Management
• Improving Business Processes
• Intro to Business Process Improvement for Today
  *Arterial Management During Freeway Incidents*
• Lunch Break (on-site)
• Business Process Mapping Exercise
  – Small group work
  – Report-out and discussion
  – Action planning
• Applying What You’ve Learned and Next Steps
Background on SHRP2 and Reliability Research

- Pam Hutton, AASHTO
Self-Introductions by Participants

- Name and Organization
- One thing you’d like to learn from this workshop
Feel Free to Comment or Ask Questions at Any Time
Your first TEST!

1. How often do you think you use business processes in your work?

2. How important do you think business processes are in your work?
Pre-Workshop Poll

Go to www.menti.com and use the code 37 86 23

1. Grab your phone
2. Go to www.menti.com
3. Enter the code 68 93 70 and vote!
Pre-Workshop Poll

Use and Importance of Business Process

Participant Poll Results
https://www.mentimeter.com/public/ddb49eee2bb1fa36e848f7cef2581221
Business Processes and Application to TSMO
Overview of Business Process
What is a Business Process?

A series of logically related activities or tasks performed together to produce a defined set of results.
What is a Business Process?

Process Matters!

Several “processes” may be in place, but may not be followed

Change is ever-present (e.g., staff, leadership, technology, operations, reporting needs)
# Types of Business Processes

<table>
<thead>
<tr>
<th>Management Processes</th>
<th>Operational Processes</th>
<th>Supporting Processes</th>
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</thead>
<tbody>
<tr>
<td>Govern the overall functioning of the agency’s TSMO effort</td>
<td>Define how the organization performs TSMO</td>
<td>Put in place to support the core operational processes</td>
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- **Needs identification, planning, programming, project development**
- **Operating procedures during internal/external operating agreements**
- **Training, human resource management, contracting, procurement**

*Source: Integrating Business Processes to Improve Transportation System Performance Technical Brief, FHWA-HOP-17-053, FHWA, Dec. 2017*
Business Processes Mapping
Business Process Mapping

• **Visual representation** of steps, connections, information flows, and responsibilities from start to finish

• Concise picture of the *sequences of tasks*
  – Indicates *decision points*
  – Identifies *when* the process takes place, *why* it takes place, and *who* is involved in the process & responsible for decisions

• A good business process map:
  – Can be *validated*
  – Helps identify *where delays exist*, where smooth handoffs are not taking place, and what steps may be eliminated
  – Helps to *improve* processes
Business Process Mapping Example

**Inputs:** eggs, milk, bread, butter, bacon, plates, utensils, cookware, potatoes

**Make Breakfast**

**Outputs:** scrambled eggs, toast, crisp bacon, pan-fried potatoes

- **Prepare Ingredients**
- **Cook Ingredients**
- **Serve Ingredients**

**Cook Bacon**

**Cook Eggs**

**Toast Bread**

**Fry Potatoes**

**Heat Pan**

**Pour Mixture**

**Stir Mixture**

**Add Pepper**

**Remove Eggs**
Business Process Mapping Example (with interactions)

**Participants in the Process**
- Mom
- Dad
- Suzie
- Johnny

**All:** Discuss & determine breakfast menu

**Mom** makes grocery list

**Mom buys groceries ("Inputs")**

**Dad makes breakfast**

**INPUTS:** eggs, milk, bread, butter, bacon, jam, peanut butter, cream cheese, potatoes

**MAKE BREAKFAST**

**OUTPUTS:** scrambled eggs, toast, crisp bacon, par-fried potatoes

- **PREPARE INGREDIENTS**
  - COOK BACON
  - COOK EGGS
- **COOKING INGREDIENTS**
  - TOAST BREAD
- **SERVE INGREDIENTS**
  - FRY POTATOES

- **HEAT PAN**
- **POUR MIXTURE**
- **STIR MIXTURE**
- **ADD PEPPER**
- **REMOVE EGGS**

**All:** Create dirty dishes ("outputs")

**All:** Eat breakfast ("outputs")

**All:** Discuss and evaluate breakfast ("outputs")

**All:** Eat breakfast ("outputs")

- **Suzie clears the table**
- **Suzie sets dirty dishes next to sink**
- **Johnny washes and dries dishes**

**All:** Discuss and determine breakfast menu
Business Processes - Application to TSMO and Traffic Incident Management
Transportation Systems Management and Operations (TSMO)

“Integrated strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects designed to preserve capacity and improve mobility, safety, and reliability of the transportation system.”

*Supported by ITS technologies*
Application to TSMO

TSMO Strategies

- Traffic incident management
- Road weather management
- Planned special events
- Work zone management
- Traveler information (511)
- Arterial management

- Managed Lanes
- Integrated Corridor Management (ICM)
- Active Traffic Management (ATM)
- Transportation Demand Management
- Ramp metering
Application to TSMO

Traffic Incident Management Strategies

- Pre-planning responses for various scenarios
- Relationships, coordination, communication among responding parties
- Traveler information during incidents
- Performance measures to drive improvements (e.g. clearance times)

TIM Partners:
- Transportation agencies
- Emergency responders
- Law enforcement
- Towing companies
- TMC operators
Why are Business Processes Important to TSMO?

• Successful *operational activities and relationships* are highly dependent upon effective business practices.

• Helpful in *breaking down organizational barriers*, improving *coordination*, and increasing *efficiency*.

• Documentation of business processes *enables efficient transition with staff turnover* and new partners.

• *Lack of effective business processes* can hinder an agency’s capacity to perform complex operational strategies.
Why are Business Processes Important to TSMO?

Goal to move from one level to the next

<table>
<thead>
<tr>
<th></th>
<th>1 - Performed</th>
<th>2 - Managed</th>
<th>3 - Integrated</th>
<th>4 - Optimized</th>
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Examples of TSMO Business Processes

• Include TSMO in **planning and programming** processes
  – Traffic management plans, checklists, key points of contact

• Establish **lines of communication**
  – Regional committees - NOACA Safety & Operations Council

• Develop **agreements** with partners and stakeholders
  – Resource sharing
  – Working relationships (DOT, law enforcement, local agencies)

• Enhance **organizational support** to accommodate TSMO
  – TSMO divisions established
  – TIM training

• Create or revise **operating procedures & processes**
  – SOPs for various traffic management scenarios
North Central Texas Council of Governments (NCTCOG)
Dallas Major Freeway Incident Clearance
**Example: NCTCOG Dallas Major Freeway Incident Clearance**

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<th>Major Freeway Incident Event</th>
<th>Post-Clearance Activities</th>
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<td>Receive notice that assistance is complete</td>
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<td>DSO deputy identifies incident</td>
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**Legend**
- **Start or End Points**
- **Steps**
- **Decisions or Alternatives**
- **Direction of Flow**
The incident is identified by one or more entities.

**Major Freeway Incident Event**

- 9-1-1 Call to report incident
- City of Dallas 9-1-1 Communications Center receives call
- City of Dallas Communications Center receives request for Fire/EMS services
- City of Dallas Fire/EMS receives request for assistance
- DSO deputy identifies incident
- DSO Communications Center is notified
- DSO deputies and other resources receive request for assistance
- Wrecker receives request for assistance
- DOT service patrol receives request for assistance
- CMS updated with appropriate messages
- Incident receives appropriate response
- Incident Clears

**Post-Clearance Activities**

- Receive notice that assistance is complete
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- Receive notice that assistance is complete
- City review of response time of wrecker services
- City review of any complaints related to wrecker services
- Incident report is filled out
- DSO de-brief for clearance if collision exceeds max time limits

**Legend**

- Start or End Points
- Steps
- Decisions or Alternatives
- Direction of Flow
The incident is identified by one or more entities

- Major freeway incident (Category 5) occurs
  - Maximum duration of lane blockage: 60 minutes

Example: NCTCOG Dallas Major Freeway Incident Clearance

**Major Freeway Incident Event**

- 9-1-1 Call to report incident
- City of Dallas 9-1-1 Communications Center receives call
- City of Dallas Communications Center is notified
- DSO deputy identifies incident
- Mobility assistance patrol identifies incident
- TMC identifies incident
- TMC dispatchers notified
- Incidents receive appropriate response

**Post-Clearance Activities**

- Receive notice that assistance is complete
  - City of Dallas Fire/EMS receives request for assistance
  - DSO deputies and other resources receive request for assistance
  - Wrecker receives request for assistance
  - DOT service patrol receives request for assistance
  - CMS updated with appropriate messages

- Incident report is filled out
  - City review of response time of wrecker services
  - City review of any complaints related to wrecker services

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<td>Multiple entities receive requests for assistance and respond to the incident, as needed</td>
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**LEGEND**
- ◼ Start or End Points
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- △ Decisions or Alternatives
- ← Direction of Flow

- Motorist: Major freeway incident (Category 5) occurs
  - Maximum duration of lane blockage: 60 minutes
- TMC identifies incident
  - TMC dispatchers notified
  - CMS updated with appropriate messages
  - Incident receives appropriate response
  - Incident Clears
- City of Dallas Communications Center receives call
  - DSO deputy identifies incident
  - DSO Communications Center is notified
  - DSO deputies and other resources receive request for assistance
  - Wrecker receives request for assistance
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- City of Dallas Fire/EMS receives request for assistance
  - City of Dallas 9-1-1 Communications Center receives call
  - City of Dallas 9-1-1 Call to report incident
- City of Dallas Communications Center receives request for Fire/EMS services

- City of Dallas 9-1-1 Call to report incident
- City of Dallas 9-1-1 Communications Center receives call

- Maximum duration of lane blockage: 60 minutes

- The incident is identified by one or more entities

- Dispatchers are notified
Washington State DOT - Instant Tow Program
Example: WSDOT Instant Tow Dispatch Program

### Policy Level / Organizational Structure

**WSDOT Operations**
- Incident verified via WSDOT cameras or motorist call(s)
- Incident blocking ≥1 lane of traffic?
- Instant Tow not needed
- Incident verified via WSDOT cameras or motorist call(s)
- WSP Dispatch is notified of incident
- WSP Trooper dispatched
- WSP Dispatch continues to monitor incident
- Situation arises that negates need for tow?
- WSP Dispatch notifies tow operator that tow is not needed
- Instant Tow operator notified ≤10 minutes of original dispatch?
- Instant Tow operator arrives on the scene
- Do conditions on arrival still necessitate tow?
- Instant Tow operator provides tow
- Instant Tow service complete
- Motorist receives tow
- Motorist reimburses Instant Tow operator for expenses
- Instant Tow dispatch

**Washington State Patrol (WSP)**
- Tow operator accepts assignment for week long on-call
- WSP adds tow operator to Instant Tow Dispatch Program
- WSP Dispatch is notified of incident
- WSP Trooper dispatched
- WSP Dispatch continues to monitor incident
- Instant Tow operator notified ≤10 minutes of original dispatch?
- Instant Tow operator arrives on the scene
- Do conditions on arrival still necessitate tow?
- Instant Tow operator provides tow
- Instant Tow service complete
- Motorist receives tow
- Motorist reimburses Instant Tow operator for expenses
- Instant Tow dispatch

**Instant Tow Operator**
- Tow operator requests participation in Instant Tow Dispatch Program
- Instant Tow operator on-call for the week
- Instant Tow dispatched
- Instant Tow operator completes accountability form
- Instant Tow service complete
- Performance monitoring reports generated

**Motorist**
- Incident occurs

### Specific Process
(WSDOT incident response using Instant Tow Dispatch and Washington State Patrol)

**Evaluation / Documentation**
- Instant Tow activity reports compiled
- Performance monitoring reports generated
- WSP CAD system provides data on Instant Tow activity

### LEGEND
- Start or End Points
- Steps
- Decisions or Alternatives
- Direction of Flow

### Example: WSDOT Instant Tow Dispatch Program

#### Specific Process

(WSDOT incident response using Instant Tow Dispatch and Washington State Patrol)

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<td>Reimburse tow operator for dry run</td>
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<td>WSP manages Instant Tow Dispatch Program</td>
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<tr>
<td>WSP Dispatch is notified of incident</td>
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<tr>
<td>WSP Trooper dispatched</td>
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<tr>
<td>WSP Dispatch continues to monitor incident</td>
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<tr>
<td>WSP Dispatch notifies tow operator that tow is not needed</td>
<td></td>
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<tr>
<td>WSP Trooper on scene provides approval to tow vehicles</td>
<td></td>
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<tr>
<td>Instant Tow operator notified ≤10 minutes of original dispatch?</td>
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<tr>
<td>Instant Tow operator completes accountability form</td>
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<tr>
<td>Instant Tow operator provides tow</td>
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<tr>
<td>Motorist</td>
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<tr>
<td>Incident occurs</td>
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<tr>
<td>Instant Tow operator on-call for the week</td>
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<tr>
<td>Instant Tow dispatched</td>
<td>Motorist receives tow</td>
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<tr>
<td>Instant Tow operator for expenses</td>
<td>Motorist reimburses Instant Tow operator for expenses</td>
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<tr>
<td>Instant Tow operator completes</td>
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</table>

#### LEGEND

- **Start or End Points**
- **Steps**
- **Decisions or Alternatives**
- **Direction of Flow**

## Example: WSDOT Instant Tow Dispatch Program

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>WSDOT Operations</td>
<td>Incident verified via WSDOT cameras or motorist call(s)</td>
<td>Instant Tow activity reports compiled</td>
</tr>
<tr>
<td>WSP manages Instant Tow Dispatch Program</td>
<td>WSP Dispatch is notified of incident</td>
<td>Performance monitoring reports generated</td>
</tr>
<tr>
<td>WSP adds tow operator to Instant Tow Dispatch Program</td>
<td>Incident blocking ≥1 lane of traffic?</td>
<td>WSP CAD system provides data on Instant Tow activity</td>
</tr>
<tr>
<td>Tow operator accepts assignment for week long on-call</td>
<td>Instant Tow operator on-call for the week</td>
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<tr>
<td>Tow operator requests participation in Instant Tow Dispatch Program</td>
<td>Instant Tow dispatched</td>
<td></td>
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<tr>
<td>Instant Tow Operator</td>
<td>Instant Tow operator arrives on the scene</td>
<td></td>
</tr>
<tr>
<td>Motorist</td>
<td>Incident occurs</td>
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Example: WSDOT Instant Tow Dispatch Program

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<td>Washington State Patrol (WSP)</td>
<td>Incident verified via WSDOT cameras or motorist call(s)</td>
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<td>Instant Tow Operator</td>
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<td>Motorist reimburses Instant Tow operator for expenses</td>
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</tbody>
</table>

As incidents occur, WSP dispatchers notify Instant Tow operators as needed.

Situation arises that negates need for tow?
- Yes: WSP Dispatch notifies tow operator that tow is not needed
- No: Instant Tow operator notified ≤10 minutes of original dispatch?
  - No: Dispatch cancelled - no reimbursement to Instant Tow operator
  - Yes: Instant Tow operator completed accountability form

Do conditions on arrival still necessitate tow?
- No: Instant Tow operator provides tow
- Yes: Instant Tow service complete

Timing of notifications is used to determine reimbursement.

Example: WSDOT Instant Tow Dispatch Program

As incidents occur, WSP dispatchers notify Instant Tow operators as needed.

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<td>Tow operator accepts assignment for week long on-call</td>
<td>WSP CAD system provides data on Instant Tow activity</td>
</tr>
<tr>
<td>Motorist</td>
<td>Incident occurs</td>
<td>WSDOT evaluates the program</td>
</tr>
</tbody>
</table>

Timing of notifications is used to determine reimbursement.
### What Business Processes Do You Use in Your Work?

<table>
<thead>
<tr>
<th>Management Processes</th>
<th>Operational Processes</th>
<th>Supporting Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Govern the overall functioning of the agency’s TSMO effort</td>
<td>Define how the organization performs TSMO</td>
<td>Put in place to support the core operational processes</td>
</tr>
</tbody>
</table>

- **Management Processes**
  - Needs identification, planning, programming, project development

- **Operational Processes**
  - Operating procedures during internal/external operating agreements

- **Supporting Processes**
  - Training, human resource management, contracting, procurement

*Source: Integrating Business Processes to Improve Transportation System Performance Technical Brief, FHWA-HOP-17-053, FHWA, Dec. 2017*
Tools for Developing Business Processes
Business processes can be developed at a relatively low cost!

However they can be difficult to accomplish
- Requires input of multiple individuals
- Current processes are often entrenched
- People generally don’t like change
- Need to make the case for business processes

No two agencies or regions are alike
- Unique institutional policies and cultures
- Different organizational structures / reporting relationships
- Variation in stakeholders
There is no one-size-fits-all solution to developing and improving business processes...

But there are tools agencies can use to IDENTIFY / DEVELOP / IMPROVE business processes within unique environments
Tools for Business Processes

- **FHWA Capability Maturity Frameworks (CMF)**
  - Online self-assessment tools to identify actions & business process improvements

- **Primer: “Improving Business Processes for More Effective Transportation Systems Management and Operations”**
  - Guidance with 7-step approach to improve business processes

- **E-Tool for Business Processes to Improve Travel-Time Reliability**
  - Use in group setting to create or improve a business process
### Capability Maturity Frameworks

**Assess capabilities, identify improvements, select actions**

**Online Assessments:** Work Zone Management, Traffic Management, Signal Management, Special Event Management, Incident Management, Road Weather Management

<table>
<thead>
<tr>
<th>Dimensions or Process Areas</th>
<th>What is it</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Process</td>
<td>Plans, Programs, Budgets</td>
<td>Ad-Hoc, Low Level of Capability</td>
<td>Managed, Medium Level of Capability</td>
<td>Integrated, High Level of Capability</td>
<td>Optimized, Highest Level of Capability</td>
</tr>
<tr>
<td>Systems &amp; Tech</td>
<td>Approach to Building Systems</td>
<td>Statement of Capability</td>
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<tr>
<td>Performance Measurement</td>
<td>Use of Performance Measures</td>
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<tr>
<td>Workforce</td>
<td>Improving Capability of Workforce</td>
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<tr>
<td>Culture</td>
<td>Changing Culture and Building Champions</td>
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<tr>
<td>Collaboration</td>
<td>Improving Working Relationships</td>
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</tbody>
</table>

**Process Improvement Areas**

**Capability Levels**

**Step 1** Self-Assessment: Work with your stakeholders to assess where you are in terms of the capabilities in each area

**Step 2** Identify areas of improvement and the desired levels of capability to improve program effectiveness

**Step 3** Identify actions that you need to take to move to the desired levels of capability

Available at: [https://ops.fhwa.dot.gov/tsmoframeworktool/index.htm](https://ops.fhwa.dot.gov/tsmoframeworktool/index.htm)
TSMO Business Process Primer

Helps transportation agencies accomplish the following:

- Understand the **importance of sustainable business processes** to effectively advance TSMO

- Assess **business processes**

- Identify **constraints and gaps** within current processes

- Engage **the right stakeholders** to help improve business processes
1. Introduction
2. Business Process Development
3. Traffic Incident Management
4. Work Zone Management
5. Planned Special Events
6. Road Weather Management
7. Traffic Management
8. Checklist for Getting Started
9. Available Resources

- Business process issues
- Case studies
- Questions to identify business process issues
- Potential stakeholders
E-Tool - Discussion Guide

- Developed as a follow-up to SHRP2’s *Integrating Business Processes to Improve Travel Time Reliability (L01)* research

- E-tool used as a discussion guide to:
  - Define and evaluate current business processes
  - Identify improvements
  - Capture inputs and action items

- Orientation module and application module

- Available at: www.fhwa.dot.gov/goshrp2/Solutions/Available/L06_L01_L31_L34/Organizing_for_Reliability_Tools
Improving Business Processes
Preparing for Business Process Development
Preparing for Business Process Improvement

• **Engage Stakeholders**
  – Critical for effective process improvements
  – Raises awareness of issues that might not otherwise be identified

• **Assemble Relevant Materials**
  – Planning documents (TSMO plans, ITS architecture)
  – Organizational structures (org charts, levels of authority)
  – Agency mission statement, goals, objectives
  – Performance measures and data
  – Agreements, policies, guidelines
  – Current operating procedures

• **Facilitate a forum for examining business processes**
  – Workshop or structured discussions
7-Step Approach for Improving Business Processes
7-Step Approach for Improving Business Processes

1. Influences
2. Define the Specific Reliability Goal
3. Identify and Document Current Business Processes
4. Develop/Change Process
5. Assess Process
6. Document Process
7. Institutionalize Process

Operational Integration

Programmatic Integration
Step 1 - Identify Influences

What made it apparent that there is a need to improve a business process in order to improve travel time reliability?

- TOP DOWN
- EVENT DRIVEN
- NEEDS BASED
Top Down Influences

• Also known as “big directive”
  – Legislative requirements
  – Directives from agency management
  – New venues or expansions driven by elected officials
    • Need for coordinated special event management with new event facilities
    • Need for signal retiming with new development
Event Driven Influences

- Caused by a specific event
  - Fatality in a construction work zone
  - Weather event causing significant impacts to travelers
  - Major incident with significant closure times and traffic disruption
  - May be accompanied by media and public perception impacts
Needs Based Influences

• Also known as “opportunity based”
  – Initiated at grass-roots level
  – Evolves over time according to recurring needs
  – Influences day-to-day operations
  – E.g. Florida DOT Road Rangers Highway Assistance Program
    • Initially implemented for work zones
    • Later expanded to assist stranded motorists
2 – Define Goals

• Used to measure success
• Focuses your efforts
• Assists in developing benchmarks
  – Reduce incident clearance time
  – Provide 24/7 operations
  – Improve resource efficiency
  – Reduce congestion/delays
  – Implement more effective plans for managing incidents
2 – Define Goals

Examples:

• Provide incident clearance within 60 minutes for major freeway incidents

• Reduce traffic impacts to arterials during freeway incidents

• Achieve actual travel times through work zones within 10% of anticipated travel times
3 - Identify and Document Current Business Processes

• As previously discussed, a **business process**:  
  – Defines a series of actions or activities that result in a specific or desired outcome to accomplish a goal  
  – Is likely something your agency does on a daily basis

• This step documents the existing business process
3 – Identify and Document Current Business Processes

Why?

- Better understand your current process
- Identify appropriate stakeholders
- Identify gaps in communications or data flows
- Identifies roles and responsibilities to:
  - Ensure continuity
  - Retain institutional knowledge
Change or develop new business process to reflect:

- Influences, goals, policy, procedures
- Input from stakeholders
- How could the process be improved?
4a – Develop/Change Process

• Document the process
  ➢ Critical inputs and outputs
  ➢ Data flows
  ➢ Decision points
  ➢ Responsible entities

• Create a visual representation of the process

Business Process Mapping
Business Process Mapping – Symbols

- Start or End Point
- Steps in a Process
- Decisions or Alternatives
- Direction of Flow
NCTCOG Dallas Major Freeway Incident Clearance

Major Freeway Incident Event

- 9-1-1 Call to report incident
- City of Dallas 9-1-1 Communications Center receives call
- City of Dallas Communications Center receives request for Fire/EMS services
- City of Dallas Fire/EMS receives request for assistance
- DSO deputy identifies incident
- DSO Communications Center is notified
- Wrecker receives request for assistance
- DOT service patrol receives request for assistance
- TMC identifies incident
- TMC dispatchers notified
- CMS updated with appropriate messages
- Incident receives appropriate response
- Incident Clears

Post-Clearance Activities

- Receive notice that assistance is complete
- Receive notice that assistance is complete
- Receive notice that assistance is complete
- Incident report is filled out
- DSO de-brief for clearance if collision exceeds max time limits
- City review of response time of wrecker services
- City review of any complaints related to wrecker services

LEGEND

- Start or End Points
- Steps
- Decisions or Alternatives
- Direction of Flow
4b - Implement Process

• The approach to this step varies
  – Number of agencies involved
  – Depth or complexity of process

• Involve all stakeholders

• Timeframe for implementation
  – Needs to be sufficient to allow stabilization of new process
  – May include more than one iteration to implement/assess
5 – Assessing the Process

Important to determine the effectiveness of the newly developed process
5 – Assessing the Process

Assessment:

– Identify measures of success
– Outline methods of continuous evaluation
– Identify data needed
– Review results against the defined goals
6 – Documenting the Process

- Formal documentation occurs once the process has been implemented and proven effective
- Includes:
  - Details of the business process
  - Assessment procedures
  - Benefits
  - Lessons learned
  - Roles and responsibilities
6 – Documenting the Process

• Facilitates updates to processes as conditions change

• Examples of documentation:
  – Internal memoranda
  – Memoranda of understanding
  – Agreements between stakeholders
  – User guides
  – Reports
  – Flowcharts
7 - Institutionalizing the Process

- Process is embedded into existing policies or programs
- Starts at higher levels and survives changes in management
- Linked to established agency goals
- Documentation is key!
Strategies for Institutionalizing Process

– Obtain buy-in and ongoing support
– Link to agency goals
– Make documentation accessible and available
– Maintain documentation – keep it current
– Communicate performance to inform management and decision-making
NOACA Region Business Process:
Arterial Management During Freeway Incidents
Background and Goals for Process Improvement

Brian Blayney, NOACA
Tony Toth, Ohio DOT
Scott Ockunzzi, Ohio DOT
Background

Pre-Planning for Traffic Incident Management

• “Arterial Management” during major freeway incidents
Goals

• Have a plan to manage traffic impacts
  – Anticipate primary diversion routes
  – Plan for diverted traffic
  – Identify critical locations
  – Minimize impacts on local communities

• Develop relationships
  – Collaborate
  – Share experiences
  – Learn from one another
Expected Outcomes

- Develop a mapped-out process for managing traffic
  - Steps, roles, responsibilities
  - Share with other jurisdictions through Safety and Operations Council, other agencies to help in similar planning
Expected Outcomes

• Identify resources that may be needed in the future
  – Training
  – Equipment and materials
  – Planning
  – Agreements
Scenario #1: I-90 WB, PM
Scenario #2: I-480 WB, AM
Current Processes: Challenges

Challenges faced in current processes

• Notifying ODOT, media, adjacent communities
• Coordinating inter-agency efforts via radio communication (state/county/multiple local jurisdictions)
• Knowing what resources are available (staff, equipment, material)
• Managing of traffic at ramps entering and exiting the freeway
• Managing of traffic along arterials once traffic signals are overwhelmed with diverted traffic
• Having too few emergency responders to perform critical tasks
Applying the 7-Step Approach
“Managing Arterials during Freeway Incidents”
Applying the 7-Step Approach
Overview of Steps:

Step 1: Identify Influences

Step 2: Define Goals

Step 3: Discuss Current Processes
- What works well? What needs improvement?
- What have been some challenges?

Step 4a: Develop/Change Process
- *Breakout groups:*
  - Group 1: Incident on I-90 WB in Lorain County
  - Group 2: Incident on I-480 WB in Bridge Construction Zone
- *Large group* - reconvene for reports from small groups

Steps 5-7: Assess, Document, Institutionalize the Process
Steps 1-2: Influences and Goals

Influences and Goals:

• Step 1 - Influences
• Step 2 – Define Goals
Step 3 - Current Processes

- What are your current processes for managing traffic during major incidents?
- What works well? What needs improvement?
- What have been some challenges?
Lunch Break (On-site)
Business Process Mapping Exercise
Scenarios and Instructions for Small Group Breakouts
Scenarios / Breakout Groups

Group 1: Incident on I-90 WB in Lorain County

Group 2: Incident on I-480 WB in Bridge Construction Zone
Scenario 1:  
*Incident on I-90 WB in Lorain County*
An incident has occurred on I-90 WB, between the SR 254 and SR 611 interchanges.

It is 5:00 PM on a weekday.

The incident has blocked all lanes of traffic on I-90 WB. Therefore a full closure of I-90 WB is required.

This incident will require a lengthy cleanup with the closure in place for 12-18 hours.

Traffic is expected to divert to the following arterials:

- SR 254
- SR 301

(See maps on the following slides)
Scenario 1: I-90 WB in Lorain County

DETOUR 1:
Detroit Road/Colorado Avenue
5.9 miles

DETOUR 2:
Abbe Road/Colorado Avenue
5.5 miles

SEE HANDOUT
Scenario 2:
Major Incident on I-480 WB in the Bridge Construction Zone
Scenario 2: I-480 WB Bridge Construction Zone

– A major incident has occurred on I-480 WB near the major bridge construction work zone.
– It is 5 AM on a weekday.
– It is expected to take 3-4 hours to clear the incident, well into the morning rush hour.
– The crash has blocked 2 lanes; 2 lanes remain open.
– Traffic is expected to divert to the following arterials:
  • Trans Blvd / Granger / Brecksville / Rockside, to I-480
  • Trans Blvd / Granger / Brecksville, to I-77
(See map on the next slide)
Scenario 2: I-480 WB Bridge Construction Zone

DETOUR 1:
Trans Boulevard/Granger/Brecksville/Rockside
5.5 miles

DETOUR 2:
Trans Boulevard/Granger/Brecksville to I-77
7.3 miles

SEE HANDOUT
Split into 2 groups:
- I-90 WB in Lorain County
- I-480 WB major bridge construction zone

Your agencies will work together map out a process for managing traffic during the incident.

Consider previous experiences:
- How can traffic management be improved?
- What are the expected impacts to arterials, and how can these traffic impacts be better managed?
Process Mapping Exercise

Use Flip Chart Paper or White Board

- Identify key stakeholders and points of contact
- Identify start and end points
- Show key inputs, outputs, steps, and decision points
- Indicate who is responsible for each step

Reference your handout during process mapping:

- Identify incident details
- Engage stakeholders
- Conduct traffic control (freeway & arterials)
- Provide traveler information
- Monitor traffic impacts
- Update stakeholders on incident status

➢ Assign a reporter – who will provide an overview of your process map during report-outs
Step 4a – Develop Process  
Business Process Mapping Exercise

REMINDERS:
• Visual representation of steps & connections
• Concise picture of sequence of tasks
  – Identify when each step takes place and who is responsible
  – Call out decision points
• A good business process map should:
  – Show where improvements can be made
  – Where smooth handoffs are not taking place
  – What steps may be eliminated
Dispatchers at the TMC, Sheriff’s Office, and City of Dallas are notified so they can request assistance.

Major Freeway Incident Event

City of Dallas Communications Center receives call → DSO deputy identifies incident → Wrecker receives request for assistance → Receive notice that assistance is complete

City of Dallas Communications Center receives request for Fire/EMS services → DSO deputies and other resources receive request for assistance → Receive notice that assistance is complete

City of Dallas Fire/EMS receives request for assistance → Wrecker receives request for assistance → Receive notice that assistance is complete

DOT service patrol receives request for assistance → Receive notice that assistance is complete

Service Patrol / Wrecker Service

City of Dallas Communications Center is notified → Incident receives appropriate response

DSO deputy identifies incident → Receive notice that assistance is complete

Mobility assistance patrol identifies incident → Receive notice that assistance is complete

TMC identifies incident → Receive notice that assistance is complete

TMC dispatchers notified → Receive notice that assistance is complete

City of Dallas Communications Center receives response time of wrecker services

Post-Clearance Activities

Receive notice that assistance is complete → City review of any complaints related to wrecker services

Receive notice that assistance is complete → City review of response time of wrecker services

Receive notice that assistance is complete → DSO de-brief for clearance if collision exceeds max time limits

Incident report is filled out

City review of response time of Fire/EMS services

City review of any complaints related to wrecker services

Incident Clears

Example Business Process Map: Dallas Major Freeway Incident Clearance

LEGEND

Start or End Points
Steps
Decisions or Alternatives
Direction of Flow

9-1-1 Call to report incident

Major freeway incident (Category 5) occurs

Maximum duration of lane blockage: 60 minutes
Process Mapping Exercise - TxDOT

**METRO**
IH 35 (West of Downtown SA)

- **Internal**
  - TransE
  - TMC
  - APD
  - PIO
  - IMD/Drive TX
  - Area Office
  - Maint.
  - Bridge
  - Env.
  - Utility

- **External**
  - UTSA
  - Hospital
  - Elected Officials
  - MPO
  - County/City
  - PD
  - Fire
  - VIA
  - Chamber of Com.
  - C&O/B
  - Media/Waze
  - Utility

**Engage TSMO Coordinator**

- Identifying Stakeholders (Internal & External)

**Communicate w/ Stakeholders**
- TSMO Coordinator
- Identify TSMO Task Leads (TL)

**Identify Needs**
- Basic Public Outreach
- Minimize Impacts
- Identify data needs & gaps
- Obtain data (ADT, Mainline & FR) (travel times, O-D)
- Identify Assets
- Ensure SWZ Funding

**Need SWZ?**

- Yes
- Can existing ITS handle?
  - Yes
  - No
- No

- No
Responsible Parties
- RCE - Resident Const. Eng.
- Inspectors
- Contractor(s)
- Designers
- Office of Const. & Matt.
- Law Enforcement
- TMC - Traffic Management Center
Small Group Breakouts (60 minutes)

Group 1: Incident on I-90 WB in Lorain County
Group 2: Incident on I-480 WB in Bridge Construction Zone
Re-Convene in Large Group
to Report Out and Review Mapping
Step 4a - Re-convene to Review Mapping

Re-Convene in Large Group:

• Report-out from Small Groups
  – Share process maps: key steps, responsibilities, decision points

• Discussion
  – Similarities and differences among process maps?
  – What do you like about each map?
  – Can maps be merged?
Looking Ahead
Continue Documenting 7-Step Approach:

- Step 4b – Implement the Process
- Step 5 – Assess the Process
- Step 6 – Document the Process
- Step 7 – Institutionalize the Process
Action Planning
Action Planning

• **Develop Actions**
  – Small groups or all work together?
  – Develop action items
  – Identify top 3 actions

• **If Small Groups - Report Out**
  – Report on your group’s top 3 actions

• **Large group discussion**
  – Prioritize and document highest priority actions
Applying What You’ve Learned and Next Steps
**Additional TIM Business Process Improvements**

- Are TIM needs collectively assessed, reviewed, and acted upon on a routine basis?
- Is TIM integrated into formal state or regional planning process(es)?
- Do standardized TIM response systems (protocols) exist?
- Is TIM performance used to influence and/or improve operations?
- Is TIM understood and integrated into agency leadership?
- Is agency leadership actively involved in TIM decisions?
- Is the TIM program supported by a succession plan?
Next Steps and Wrap-Up

• PDH Tracking Form
• Workshop Evaluation

Next Steps:
• Workshop Summary Report – to be distributed to agency champion
  ➢ Business process map
  ➢ Action items
THANK YOU for your participation!