Traffic Incident Management
L01 e-Tool Demo
Introduction

• This e-tool is based on research conducted in SHRP2: *Integrating Business Processes to Improve Travel Time Reliability (L01)*

• The e-tool is designed to assist agencies in identifying their business processes that effect travel time reliability

• Reliability is dependent on many agencies and processes

• Opportunities exist to reduce the impact of congestion triggers
• Process – A series of actions or activities that result in a specific or desired outcome to accomplish a specific goal
  – The method by which an incident is detected (911 call, service patrol call, etc.)

• Business Process Mapping
  – Provides a visual representation of steps and connections
  – Identifies areas for improvement
  – Highlights resource needs
  – Identifies additional support needs
The e-tool can be used to assess business processes for the following operational areas:

- Incident management
- Work zones
- Planned special events
- Weather/road weather management
- Traffic control/traffic operations
- Capacity/recurring congestion
- Fluctuations in demand
Intended Use of e-tool

Includes an orientation and an application module

• Orientation module:
  – Provides background
  – Introduces case studies

• Application module:
  – Intended for use in a group setting
  – Ideally, the orientation module has already been completed
STEP 1 IDENTIFYING INFLUENCES
Identifying 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

- Also known as “big directive”
- Legislative requirement or management – level directive
- Washington State DOT (WSDOT) Joint Operations Policy Statement and Instant Tow Program
  - Directive came from the governor’s office
  - Work closely with the Washington State Patrol
Event Driven

• Caused by a specific event or hazard, like an accident

• Nevada DOT I-80 Winter Closure Program
  – Significant crash due to weather
  – Major delays
  – There was a need to prevent further instances
Needs Based

• Also known as “opportunity based”
• Evolves over time according to recurring needs
• Influences day-to-day operations
• Florida DOT Road Ranger Program
  – Need to assist distressed vehicles
  – Initially implemented to assist with work zones, later expanded to assist stranded motorists
STEP 2 DEFINING THE SPECIFIC RELIABILITY GOAL
Defining the Specific Reliability Goal

• Used to measure success
• Focuses your efforts
• Assists in the development of benchmarks
  – Reducing incident clearance time
  – Providing 24/7 operations
  – Improving resource efficiency
  – Reducing congestion
  – Reducing delays
• Road Ranger Program identified a problem with nonrecurring congestion

• Goal of alleviating congestion caused by incidents on the roadway
STEP 3
IDENTIFYING AND DOCUMENTING CURRENT BUSINESS PROCESSES
Identifying and Documenting Business Processes

• A business process:
  – Defines a series of actions or activities that result in a specific or desired outcome to accomplish a specific organizational goal
  – Is most likely something your agency does on a daily basis

• The purpose is to formally document the business process associated with one of the operational areas
Identifying and Documenting Business Processes

• Benefits
  – Better understanding of the business process
  – Identifying gaps in communications or data flows
  – Identifying missing stakeholders
  – Formalizing roles and responsibilities to ensure continuity and retaining institutional knowledge
Identifying and Documenting Business Processes

• Demonstrate multiple methods by which a visual representation of an agency’s business process can be developed

• No method is better than another

• Users are referred to the final reports of SHRP2 Integrating Business Processes to Improve Travel Time Reliability (L01) for additional information
• **Start with the basics:**
  – Which agencies or organizations are key to a successful implementation?
  – The Florida Road Rangers Program identified the following stakeholders:
    • Florida Highway Patrol
    • FDOT District Headquarters
    • FDOT District TMC
    • Private towing vendors
    • Private sponsors of the Florida Road Ranger Program
    • The motorists
Identifying and Documenting Business Processes

• Gather all documentation for your management program:
  – Standard Operating Procedures
  – Formal Memorandums of Understanding
  – Informal exchanges of information and data
  – Current management methods
  – Others

• Next, document the process or reverse engineer the current management process

  • Data flows
  • Decision points
  • Process integration points
  • Critical input and output
  • Responsible entities
  • Integration of processes
Next, create a visual representation of the operations process.

There are several approaches to mapping business processes.

In some cases, a sketch may be sufficient.

In other cases, a more comprehensive and complex drawing may be required.
Incident occurs

Motorist calls FHP to report incident

FHP officer identifies incident

FHP dispatch is notified

FHP receives incident management assistance from RR (Ex. traffic control)

TMC identifies incident

TMC RR dispatchers notified

RR operators receive request for assistance

RR operators arrive on-scene

RR operators provide assistance (Ex. debris removal)

RR assistance is completed

TMC notified that assistance is complete

Incident report is filled out

Motorist receives assistance from RR (Ex. fuel or flat tire change)

RR operators provide assistance (Ex. debris removal)

RR assistance is completed

TMC notified that assistance is complete

Incident report is filled out

Motorist completes comment card received from RR operator
• Business process modeling is more formal than the previous flow chart

• Makes connection between:
  – Those who create the process
  – Those who implement the process
  – Those who perform the process

• Business Process Modeling Notation (BPMN) is detailed in L01 Report
<table>
<thead>
<tr>
<th>POLICY LEVEL/ORGANIZATIONAL STRUCTURE</th>
<th>SPECIFIC PROCESS (FDOT INCIDENT RESPONSE ROAD RANGER SERVICE, FLORIDA)</th>
<th>EVALUATION/DOCUMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FLORIDA HIGHWAY PATROL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for Road Ranger (RR) program determined</td>
<td>FHP officer identifies incident</td>
<td>Incident reports and comments compiled</td>
</tr>
<tr>
<td>Private toll vendor selected</td>
<td>FHP dispatch is notified</td>
<td>Performance monitoring reports generated</td>
</tr>
<tr>
<td>Set up RR program</td>
<td>FHP receives incident management assistance from RR (Ex. traffic control)</td>
<td></td>
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<tr>
<td>Integrate program into TMC operations</td>
<td></td>
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<tr>
<td><strong>FDOT DISTRICT HEADQUARTERS OFFICE</strong></td>
<td></td>
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<tr>
<td><strong>FDOT DISTRICT TMC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PRIVATE TOW VENDOR</strong></td>
<td></td>
<td></td>
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<tr>
<td>Proposal for providing services</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PRIVATE SPONSOR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proposal for providing financial sponsorship</td>
<td>NOTE: Sponsorship may be provided at any point in the process as a means to supplement the Road Ranger services provided</td>
<td></td>
</tr>
<tr>
<td><strong>MOTORIST</strong></td>
<td></td>
<td>Motorist completed comment card received from RR operator</td>
</tr>
<tr>
<td>Incident occurs</td>
<td>Motorist calls <em>FHP to report incident</em></td>
<td></td>
</tr>
<tr>
<td>RR operators request for assistance</td>
<td>RR operators arrive on-scene</td>
<td></td>
</tr>
<tr>
<td>RR operators provide assistance (Ex. debris removal)</td>
<td>RR assistance is completed</td>
<td></td>
</tr>
<tr>
<td>TMC notified that assistance is complete</td>
<td>Incident report is filled out</td>
<td></td>
</tr>
</tbody>
</table>
STEP 4
DEVELOPING/CHANGING AND IMPLEMENTING PROCESS
Developing/Changing and Implementing Process

- **STEP 4: IMPLEMENT PROCESS**
- **STEP 4: DEVELOP/CHANGE PROCESS**
- **STEP 5: ASSESS PROCESS**
Develop/Change Process

• Utilize map from Step 3 and influences described in Step 1
• Change business process to reflect changes in:
  – Policy
  – Procedures
  – Decisions made by the group
• Timeframe for moving forward to implementation
  – Depends on agency’s ability to develop/change the current business process
  – Unique for each agency and each situation
  – Formal or informal in nature
Implement Process

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

• Be sure to involve all stakeholders
  – Office managers
  – Operators
  – Field workers

• Timeframe for moving forward to Step 5
  – Needs to be sufficient to allow for stabilization of new process
  – Each iteration of implementation of refined process may reduce time
FDOT Example

- **Florida Road Rangers Program**
  - Involved FDOT, highway patrol, service providers, private sponsors
  - A loss of funding caused a change in the business process
  - The new process was implemented involving all stakeholders
ASSESSING THE PROCESS
Assessing the Process

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

• **Necessary Information:**
  – Measure of success
  – Method of continuous evaluation
  – Necessary data

• **Benefits:**
  – Better communication with senior managers and the public
  – Ongoing performance measurement
  – Measurement against pre-implementation conditions
• FDOT Road Rangers
  – Performance measures used such as miles of freeway patrolled, number of patrols, number of assists provided to motorists, and customer feedback
  – Benefits have significant impact on travel time reliability
STEP 6 DOCUMENTING THE PROCESS
Documenting the Process

- Occurs once the new process has been implemented and proven effective

- Includes:
  - Details of new business process
  - Details of evaluation process
  - Benefits
  - Lessons learned
  - Roles and responsibilities of stakeholders
Documenting the Process

- Helps to demonstrate performance
- Facilitate easier updates

**Example of documentation**
- Internal memorandums
- Informal memorandums of understanding
- User guides
- Agreements between stakeholders

**Other types**
- Evaluation meetings
- Reports
- Flowcharts
• Florida Road Rangers Program
  – Ongoing performance measurement efforts
  – Customer surveys
  – Benefit-cost analysis
STEP 7
INSTITUTIONALIZING THE PROCESS
• The way in which a new or changed process is incorporated into existing policies or management programs

• Starts at the higher levels

• Important to link to firmly established agency goals
• **Stakeholder buy-in**
  
  – Requires more than adoption of operational activities or processes
  
  – Example, strong initial buy-in from FDOT and FHP for Road Ranger program was key to its continuing operations

• **Tangible results**
  
  – Benefits and outcomes must be tangible and directly related to each agency and operating unit
• Developing formal documentation that is accessible and available to everyone
  – Example, inter-agency agreement on a network directory

• Ensure documentation is sustainable
  – Documents such as MOUs that require formal approval have a better likelihood of outlasting informal agreements
Florida Road Ranger Program

• **Strong buy-in from:**
  – FDOT
  – Florida Highway Patrol (FHP)
  – Tow Vendors

• **Private sponsorship needed**
  – Recruitment was successful due to institutionalization of the process