SHRP2SOLUTIONS
STRATEGIC HIGHWAY RESEARCH PROGRAM

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

Incident Management (Example)

Agency

Date

U.S. Department of Transportation
Federal Highway Administration

AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS
AASHTO

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

Welcome and Introductions

- Liaison/Champion: TBD, Host Agency

- TBD, FHWA

- TBD, AASHTO

- Self Introductions
  - Name / Agency / Job position
  - One thing you'd like to learn from this workshop

- Facilitators:
  - TBD, Athey Creek

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 and Traffic Incident Management.

- Understand how enhanced business processes can lead to improved TSMO/TIM activities.

- Apply available tools to develop and improve a discreet process.

- Understand how to apply these principles and tools to enhance additional business processes in the future.

Agenda

- Welcome and Introductions
- Business Processes and Application to TSMO
  – Overview and business process mapping
  – Application to TSMO
  – Tools for developing & documenting business processes

- Improving Business Processes
  – Preparing for Business Process Improvements
  – 7-Step Approach
  – E-tool Example

- (Agency Topic): Initial Input to E-tool
  – Overview of topic
  – Influences and reliability goal(s)
  – Scenario for mapping exercise

- Lunch Break (phone calls, e-mails, lunch)

Agenda (cont.)

- Business Process Mapping Exercise
  - Small group breakouts
  - Report out and discussion

- Continue E-tool Input
  - First iteration of changes to process
  - Looking ahead and action planning

- Applying What You've Learned and Next Steps

  - Opportunities for additional business process improvements
  - Workshop evaluation

- Closing Comments and Adjourn

Today's Agenda

Feel Free to Comment or

Ask Questions at Any Time

Pre-Workshop Poll

Your first TEST!

1. **How often do you think you use business processes in your work?**
    –   Daily
    –   Weekly to monthly
    –   On occasion
    –   Never
    –   What's a business process?

2. **How important do you think business processes are in your work?**
    –   On a scale of 1-5:
        1 = Not important
        5 = Very important

To complete the poll:
*   Go to Mentimeter® website (TBD)
*   Enter code: TBD

Pre-Workshop Poll Results

– Bring up Mentimer® site to show results of poll
– Discuss Results

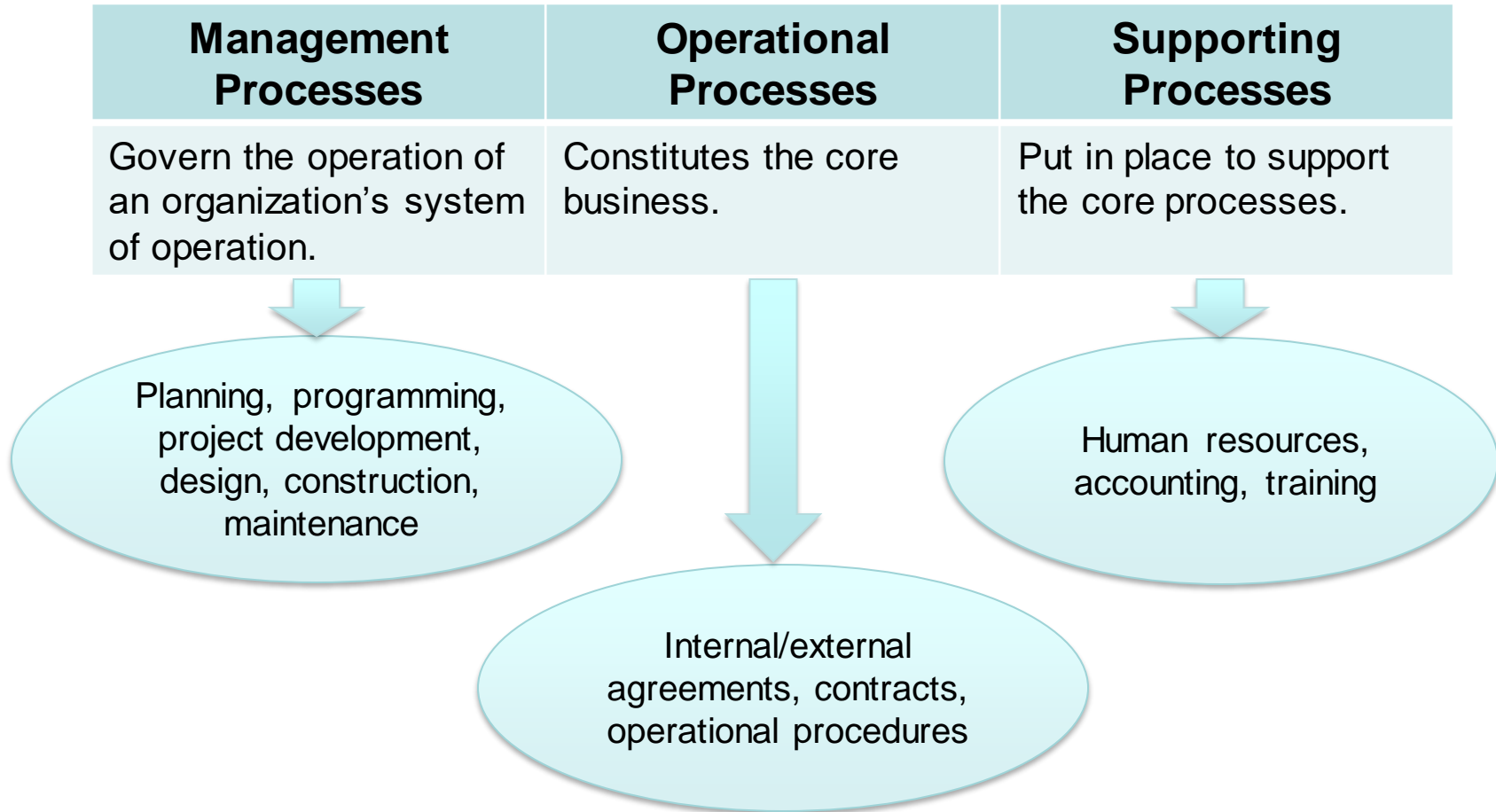# Business Process and Application to TSMO

Overview of Business Processes

What is a Business Process?

What is a business process?

*A series of logically related activities
or tasks performed together to produce a
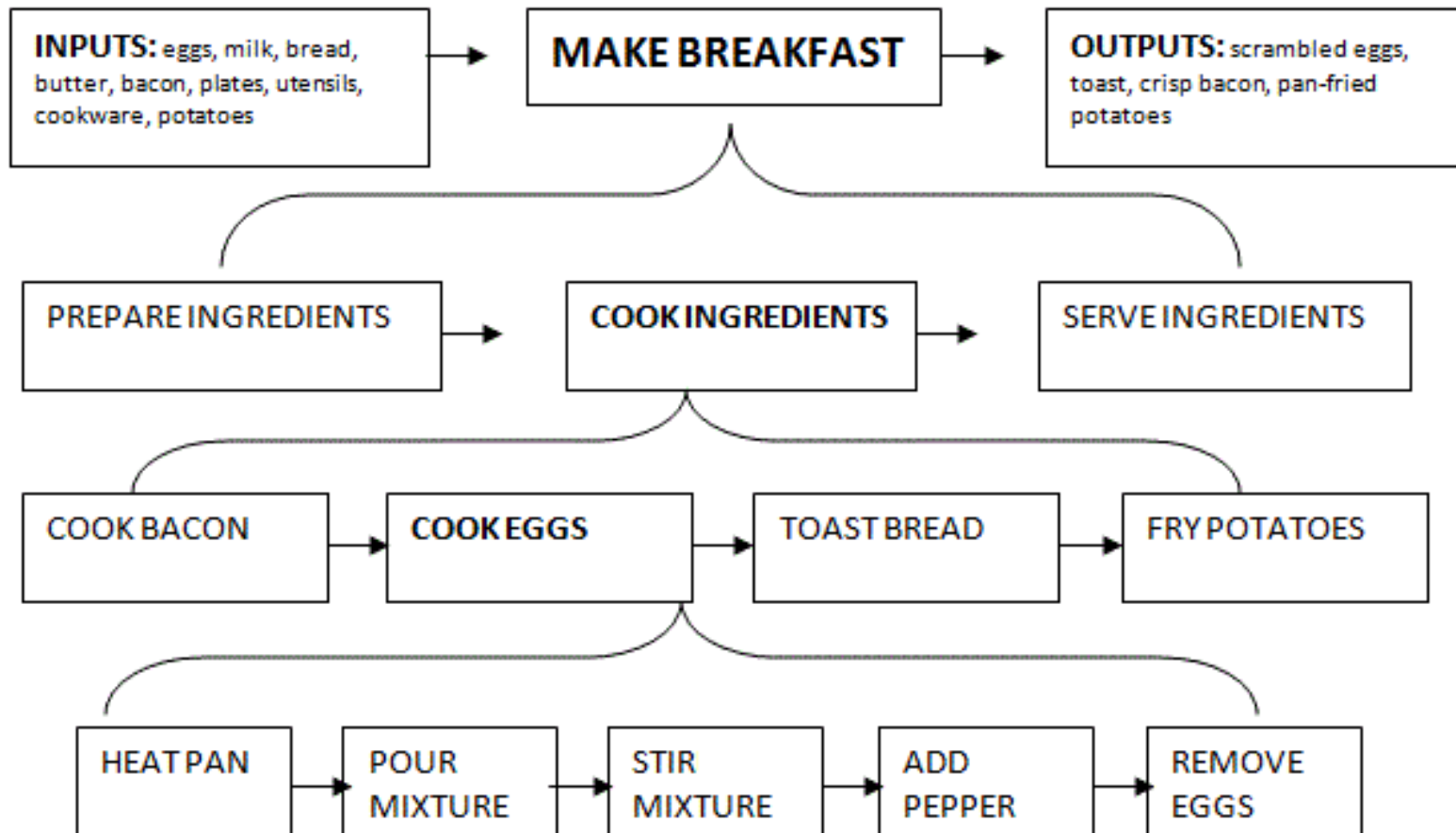defined set of results.*

Types of Business Processes

Management Processes	Operational Processes	Supporting Processes
Govern the operation of an organization's system of operation.	Constitutes the core business.	Put in place to support the core processes.

Planning, programming, project development, design, construction, maintenance

Internal/external agreements, contracts, operational procedures

Human resources, accounting, training
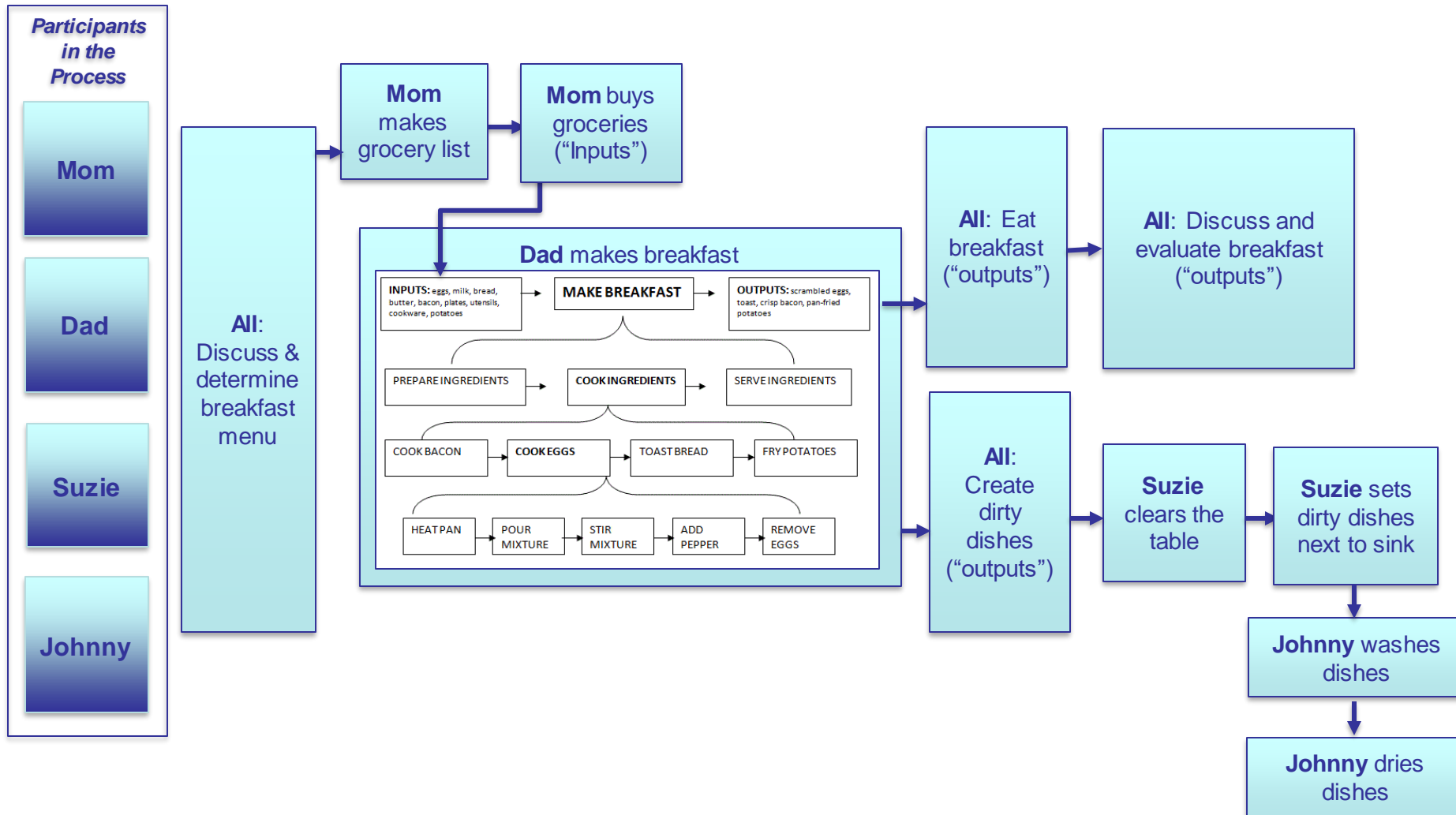
Business Processes Mapping

Business Process Mapping

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

- Concise picture of the **sequences of tasks** needed to bring a service from genesis to completion
  - 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** (represent reality)
  - Supports identification of **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

Scottsm1991

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, 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

All: Eat breakfast ("outputs")

All: Discuss and evaluate breakfast ("outputs")

All: Create dirty dishes ("outputs")

Suzie clears the table

Suzie sets dirty dishes next to sink

Johnny washes dishes

Johnny dries dishes

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Application to TSMO

Application to TSMO

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**."

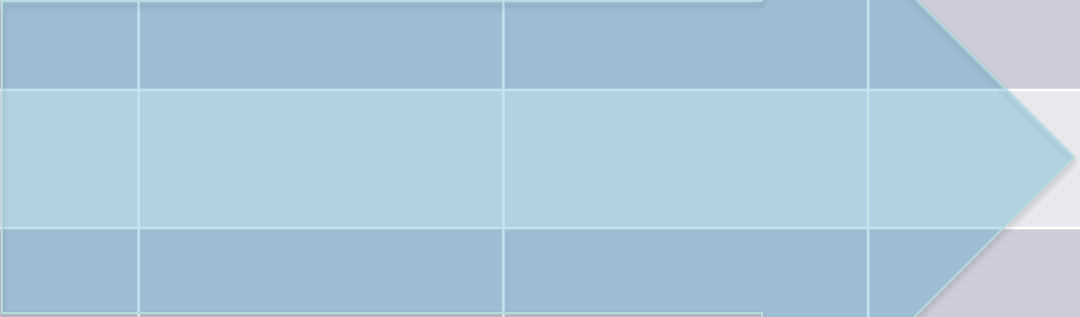*Supported by ITS technologies*

Application to TSMO

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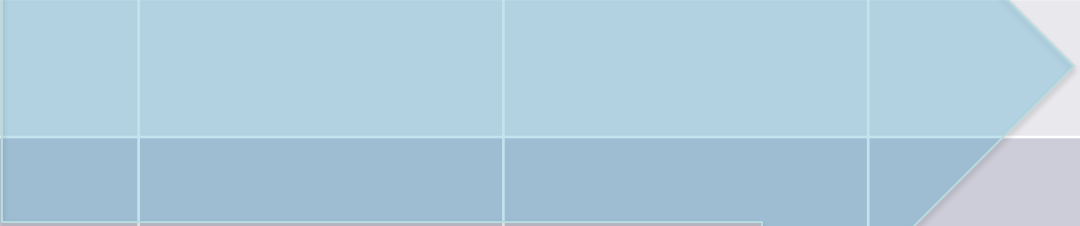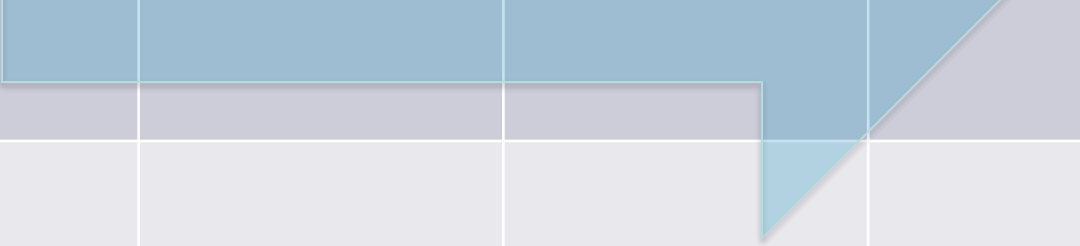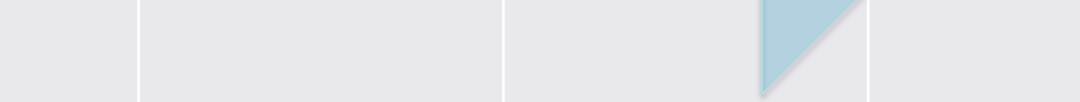
- **Traffic incident management**
- Road weather management
- Planned special events
- Work zone management
- Traveler information (511)
- Arterial management

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

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 organizational partners.

- Program planning as a business process **helps organizations prioritize** TSMO needs, objectives, and strategies.

- **Lack of effective business processes** can **hinder an agency's capacity** to advance more complex operational strategies, such as ICM or ATDM.

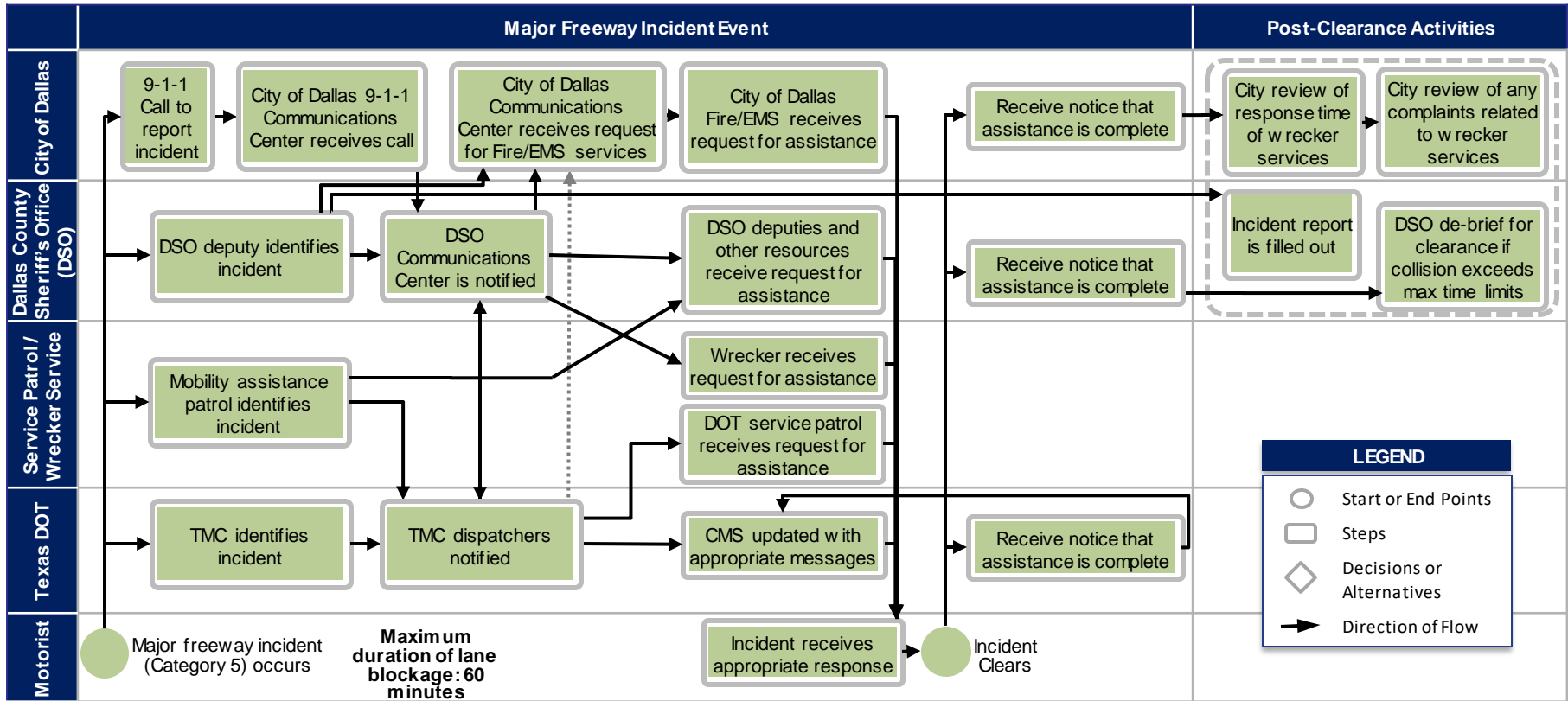# Why are Business Processes Important to TSMO?

Goal to move from one level to the next

	1 - Performed	2 - Managed	3 - Integrated	4 - Optimized
Business Processes				
Systems & Technology				
Performance Measurement				
Culture				
Organization & Staffing				
Collaboration				

Examples of TSMO - Related Business Processes

- Establish new **lines of communication** among stakeholders

- Develop new **agreements / update existing agreements** with partners and stakeholders

- Enhance **organizational support** to accommodate TSMO
  - Staffing, retention, training

- Evaluate and revise **operating procedures & processes**
  - To meet specific reliability goals
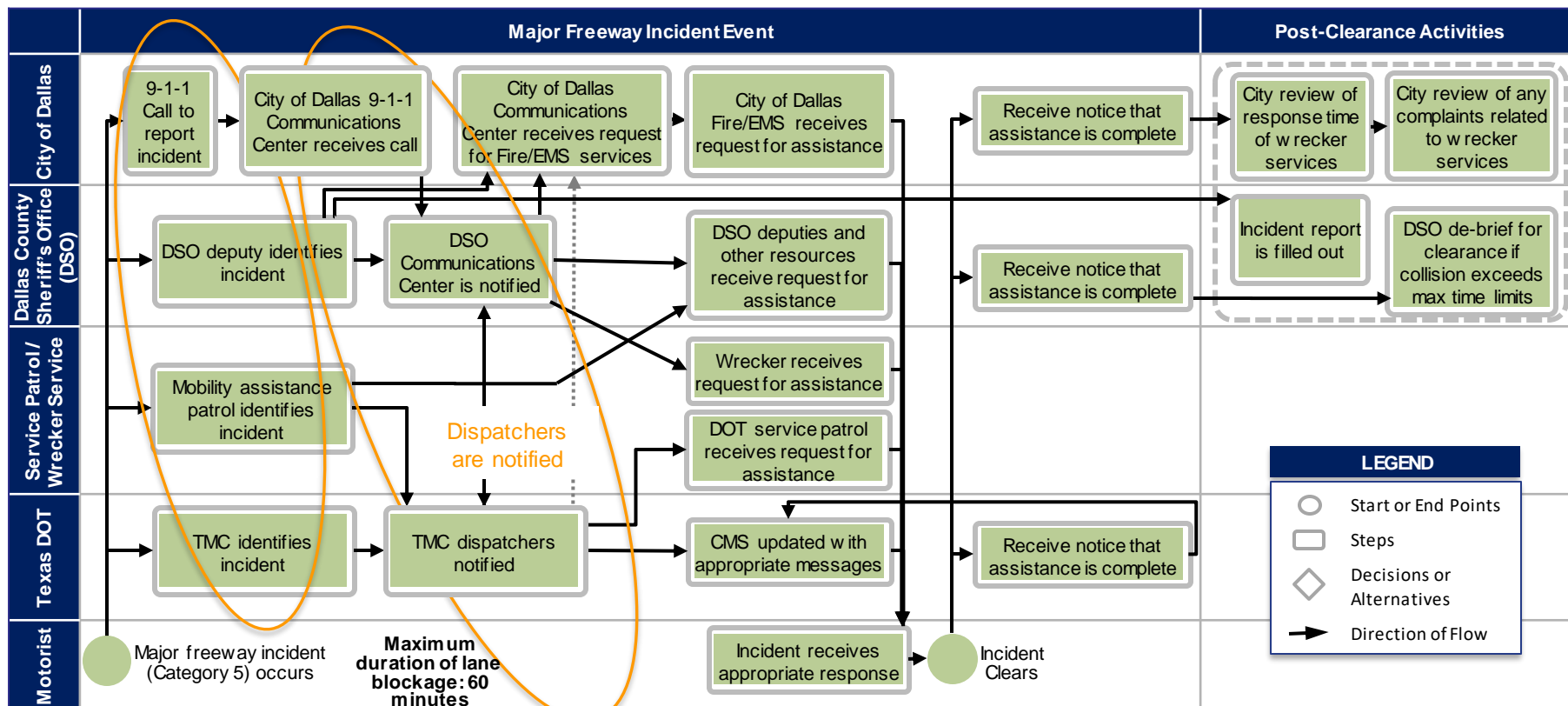
Example:
Dallas Major Freeway Incident

	Major Freeway Incident Event	Post-Clearance Activities

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

Dallas County Sheriff's Office (DSO): DSO deputy identifies incident → DSO Communications Center is notified → DSO deputies and other resources receive request for assistance → Receive notice that assistance is complete → Incident report is filled out → DSO de-brief for clearance if collision exceeds max time limits

Service Patrol / Wrecker Service: Mobility assistance patrol identifies incident → Wrecker receives request for assistance → DOT service patrol receives request for assistance

Texas DOT: TMC identifies incident → TMC dispatchers notified → CMS updated with appropriate messages → Receive notice that assistance is complete

Motorist: Major freeway incident (Category 5) occurs — Maximum duration of lane blockage: 60 minutes — Incident receives appropriate response → Incident Clears

LEGEND
- ◯ Start or End Points
- ▭ Steps
- ◇ Decisions or Alternatives
- → Direction of Flow

Example:
Dallas Major Freeway Incident

Example:
Dallas Major Freeway Incident

Example:
Dallas Major Freeway Incident

Example:
Dallas Major Freeway Incident

Brainstorming Activity

What business processes do you use in your work?

Management Processes	Operational Processes	Supporting Processes
Governs the operation of an organization's system of operation.	Constitutes the core business.	Put in place to support the core processes.

Planning, programming, project development, design, construction, maintenance

Internal/external agreements, contracts, operational procedures

Human resources, accounting, training
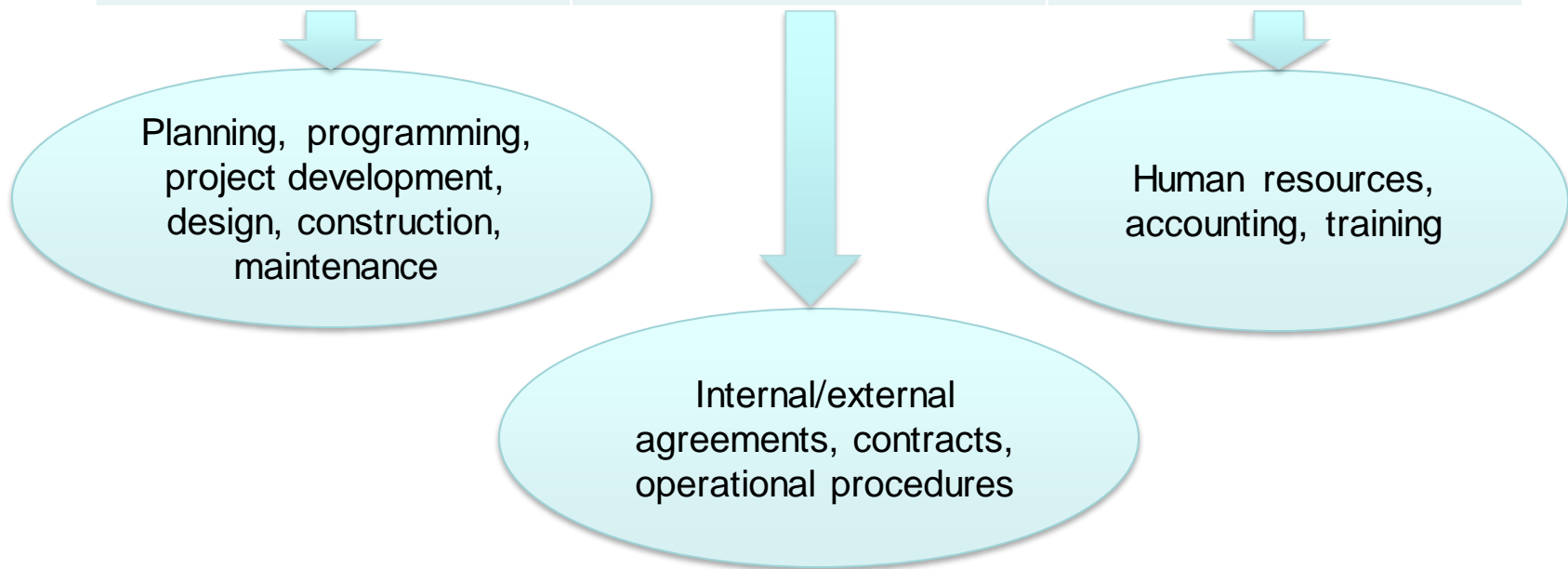
Issues and Challenges

- Business processes and changes **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
  - Some processes not geared towards TSMO, or beyond the control of DOT
  - People generally don't like change
  - Need to make the case for business processes

Issues and Challenges

No two agencies or regions are alike.

- Unique **institutional policies and cultures**
- Different **organizational structures** and **reporting relationships**
- Variation in **stakeholders**
- Different **approaches** to carrying out processes
- Varying and sometimes changing **levels of institutional readiness** and **leadership support** for TSMO
- Different **TSMO strategies** require different types of business processes

Tools for Developing Business Processes

Tools for Developing Business Processes

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)**
  - Assess various aspects of an operations program
  - Online self-assessment tools to identify actions & business process improvements

- **Primer: "*Improving Business Processes for More Effective Transportation Systems Management and Operations*"**
  - Developed under the Second Strategic Highway Research Program (SHRP2) L01 (Businesses Processes for Reliability)
  - Guidance with 7-step approach to improve business processes

- **E-Tool for Business Processes to Improve Travel-Time Reliability**
  - For use in group setting, to create or improve a business process

Capability Maturity Frameworks

FHWA Capability Maturity Frameworks (CMF)

- Assess Capabilities Specific to TSMO Areas:
  - Traffic incident management, work zones, planned special events, road weather management, traffic management, traffic signal management

- Identify Improvements and Actions

- Online Assessments:
  - Full assessment
  - One-minute assessment

Available at:
https://ops.fhwa.dot.gov/tsmoframeworktool/index.htm

TSMO Business Process Primer

Helps transportation agencies accomplish the following:

- Understand the **importance of developing sustainable business processes** to effectively advance TSMO as a mainstream, core agency function

- Assess agency **business processes related to TSMO**, and identify their unique requirements

- Identify **constraints and gaps** within agencies' current business processes

- Engage **the right stakeholders** to identify needs and develop actions and strategies that can improve business processes to support more effective TSMO programs

Improving Business Processes for
More Effective Transportation Systems Management and Operations

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AMERICAN ASSOCIATION of STATE HIGHWAY and TRANSPORTATION OFFICIALS
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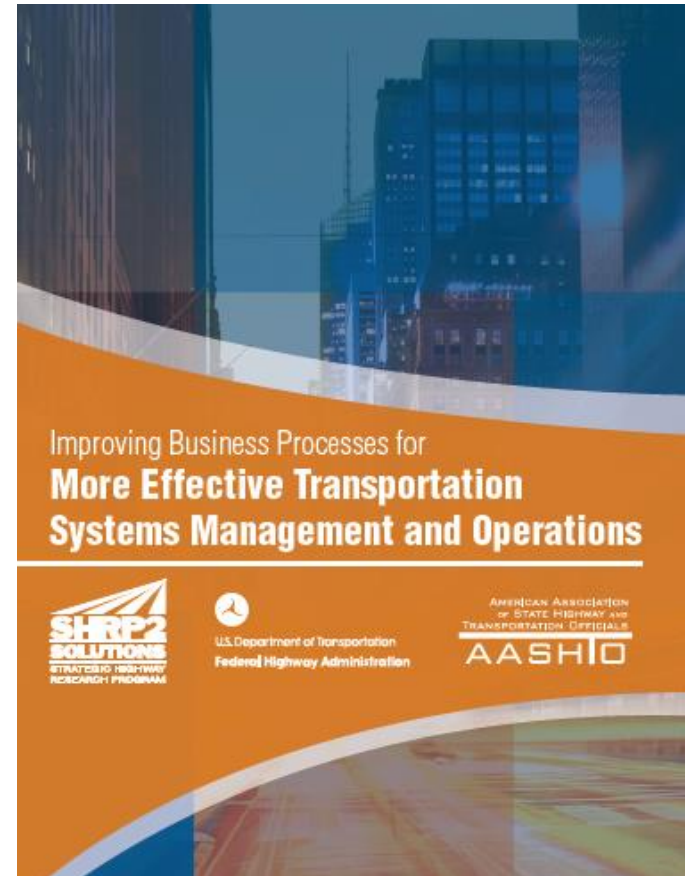
TSMO Business Process Primer – Layout

1. Introduction
2. Business Process Development
3. Traffic Incident Management
4. Work Zones
5. Planned Special Events
6. Road Weather Management
7. Traffic Management
8. Checklist for Getting Started
9. Available Resources

- Business process issues
- Case studies – agencies or regions that have elevated effectiveness of TSMO by addressing business processes
- Example questions to consider in identifying specific business process issues
- Business process challenges
- Potential stakeholders

Introduction to E-Tool

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

- An interactive E-tool that transportation agencies can use to:
  - Define and evaluate their current business processes
  - Identify improvements to these business processes to enhance operations
  - Help remove barriers to implementing and maintaining improved processes
  - Capture key action items and next steps.
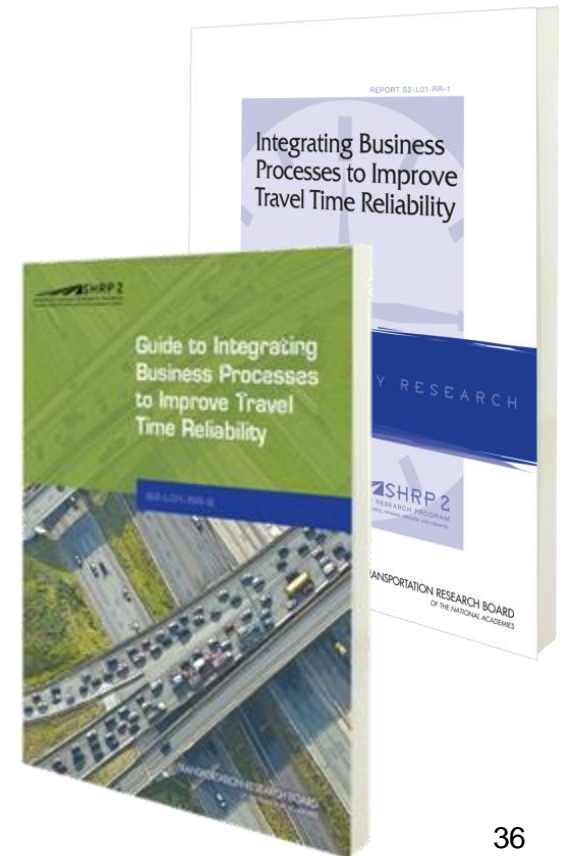
Application of E-Tool

- **E-tool can be used to help define and assess business processes for the following areas:**
  – Traffic incident management
  – Work zones
  – Planned special events
  – Road weather management
  – Multi-agency Operations/Traffic Management

Available at:
http://www.fhwa.dot.gov/goshrp2/Solutions/Available/L06_L01_L31_L34/Organizing_for_Reliability_Tools

SHRP-2 LE-34 E-Tool
- Download the zip file

E-Tool (L34)
- Download the report

Click on "DOWNLOADS"

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** (e.g. workshop, gather stakeholders for focused working sessions)

Strategic Highway Research Program (SHRP2)
Improving Business Processes for Better Travel Time Reliability E-Tool

Input Template for Application of E-Tool

Project Name: [   ]

This document is a template for to document inputs as found in the *eTool for Business Processes to Improve Travel Time Reliability*[1], a downloadable tool designed to help agencies improve business processes for better travel time reliability. This document is intended to compliment the e-tool and provide a mechanism for agencies to save and share inputs, in an editable document format, with collaborators/stakeholders working together on a common process.

Travel time reliability is a measure of the consistency of a trip duration based on a specific time of day and route. Integrating a business process to improve travel time reliability is a seven-step process that is detailed in this input template. The following process diagram shows each step.
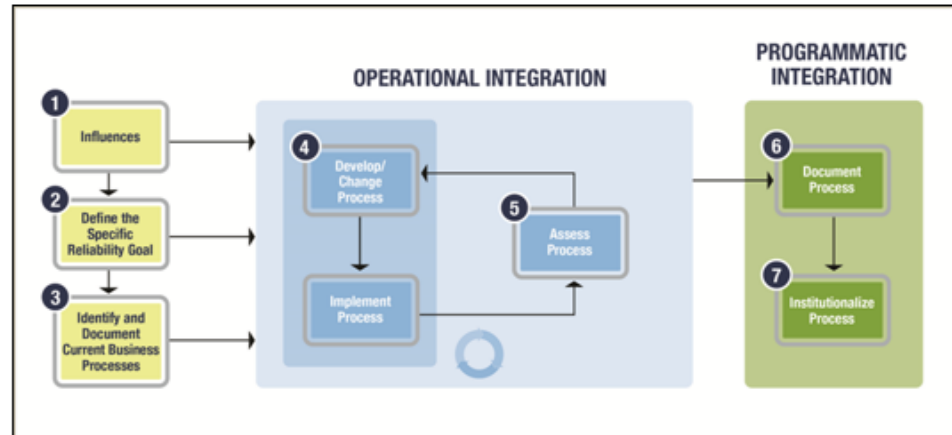
This template is intended to help walk a group of stakeholders through the input process. The objectives of this template are:

- To support the integration of business processes within and between agencies working towards a common reliability goal.
- To promote operational and institutional integration within and between agencies.
- To utilize all seven steps of the methodology for developing, analyzing, and integrating business processes.
- To provide a place to store the documentation and efforts of the group.

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[1] *eTool for Business Processes to Improve Travel Time Reliability*. FHWA.
www.ops.fhwa.dot.gov/plan4ops/focus_areas/organizing_for_op/shrp2_le34_etool.htm

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Improving Business Processes

Preparing for Business Process Improvement

- **Engage Stakeholders**
  - Critical for effective process improvements
  - Involving multiple perspectives can raise awareness of potential or actual issues that might not otherwise be identified

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

- **Facilitate forum for examining business processes**
  - Workshop / structured discussions using e-Tool

7-Step Approach for Improving Business Processes
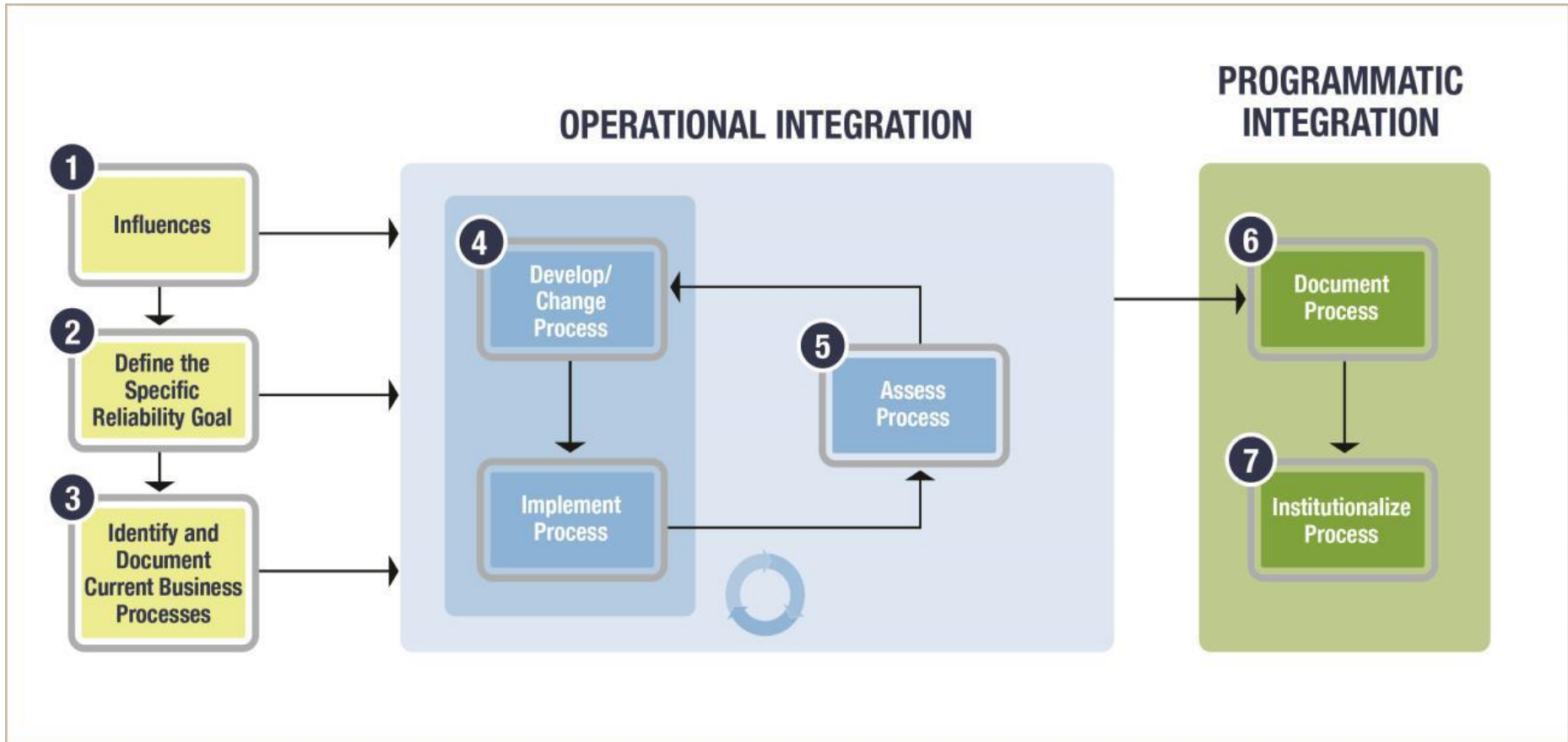
Step 1 - Identify Influences

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
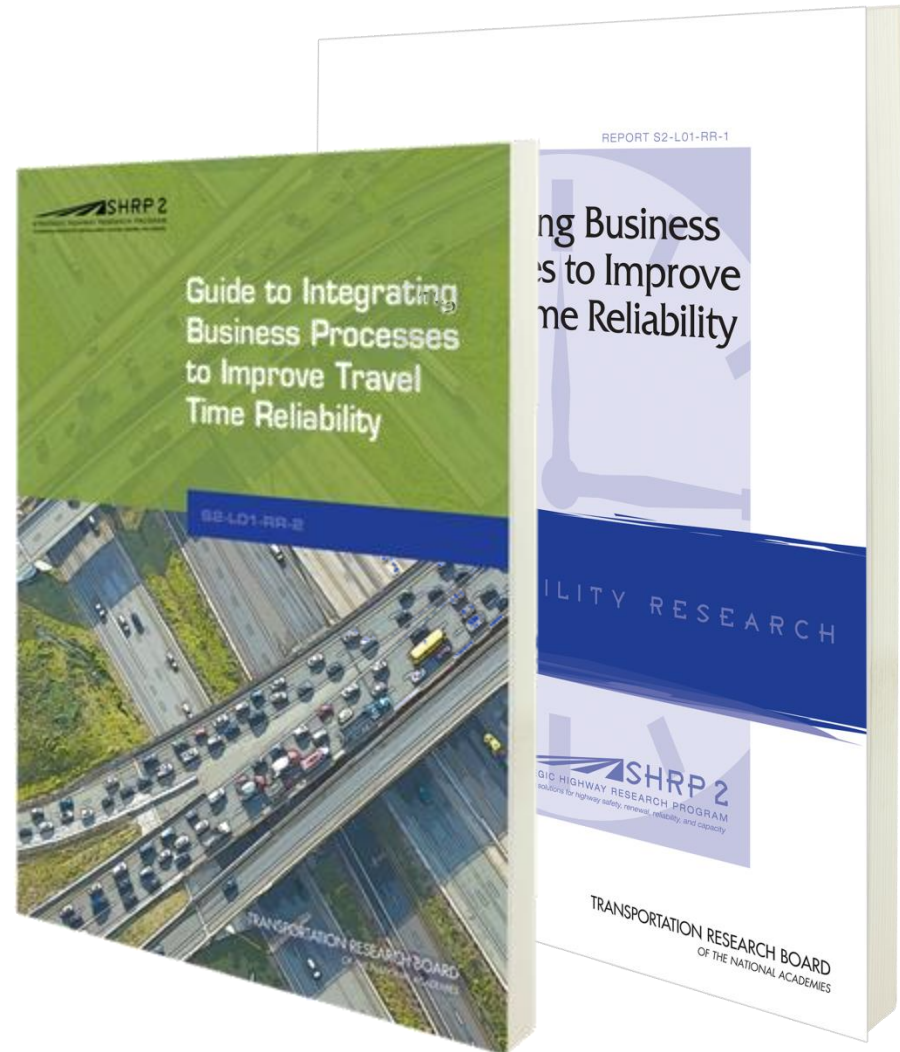
Top Down Influences

- Also known as "big directive"
  - Legislative requirements
  - Directives from agency management
  - New event 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 or hazard
  - Fatality in a construction work zone
  - Weather event causing significant impacts to travelers
  - Major incident with significant closure times, 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
  - Florida DOT Road Rangers
    - Initially implemented for work zones
    - Later expanded to assist stranded motorists

2 – Define Reliability Goals

- Used to measure success
- Focuses your efforts
- Assists in developing benchmarks
  - Reducing incident clearance time
  - Providing 24/7 operations
  - Improving resource efficiency
  - Reducing congestion
  - Reducing delays
- Could be a performance measure

2 – Define Reliability Goals

Examples:

- Provide incident clearance within 60 minutes for major freeway incidents

- Achieve on-time performance service within 5% of scheduled times for all major transit bus routes

3 - Identify and Document 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 specific organizational goal
  - Is likely something your agency does on a daily basis

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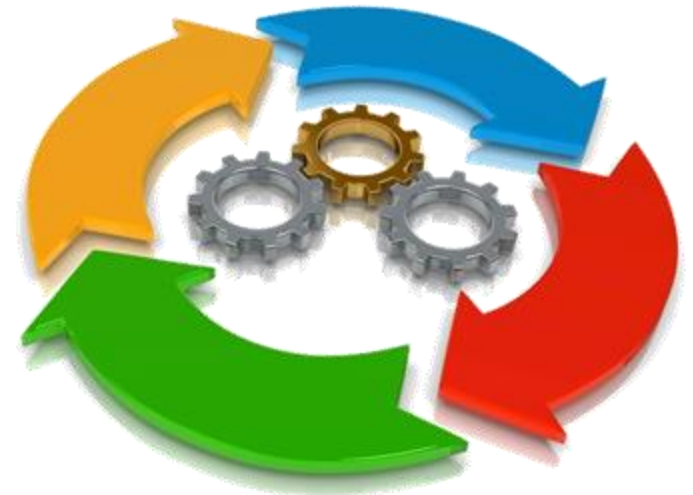
3 – Identify and Document Business Processes

Purpose:

- Better understand your current process

- Identify appropriate stakeholders

- Identify gaps in communications or data flows

- Formalize roles and responsibilities to:
  – Ensure continuity
  – Retain institutional knowledge

3 - Identify and Document Business Processes

- **Gather background information:**
  - Standard Operating Procedures
  - Formal Memorandums of Understanding
  - Informal exchanges of information and data
  - Current management methods
  - Other

3 – Identify and Document Business Processes

- Document the process or reverse engineer the current process

  - Data flows
  - Decision points
  - Process integration points

  - Critical input and output
  - Responsible entities
  - Integration of processes

- Create a visual representation of the process

Business Process Mapping

3 – Identify and Document Business Processes

Business Process Mapping – Symbols
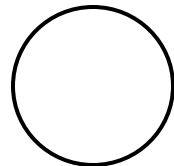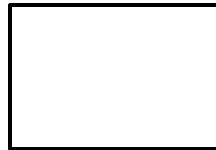
| Start or End Point | Steps in a Process | Decisions or Alternatives | Direction of Flow |
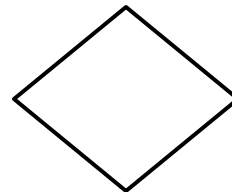
3 – Identify and Document Business Processes

Example Business Process Map: Dallas Major Freeway Incident
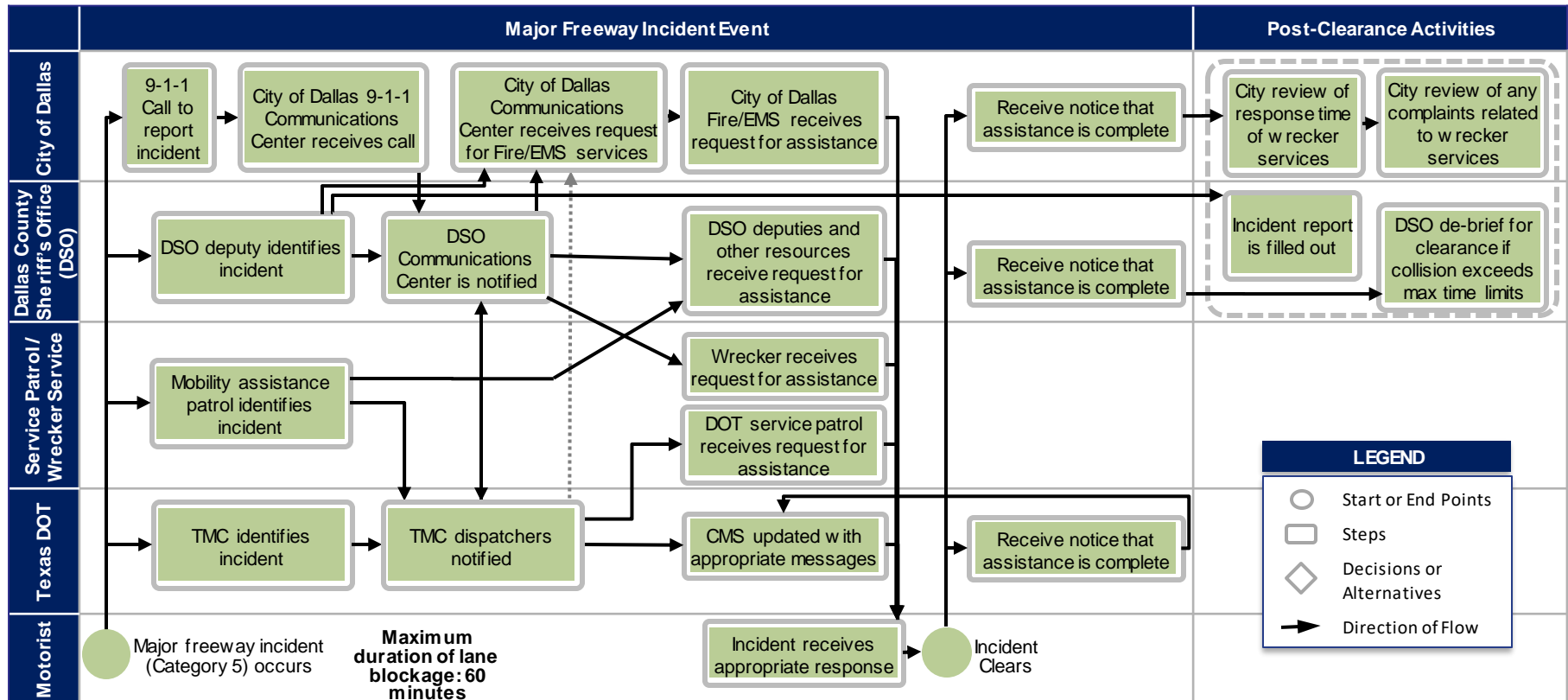
4 – Develop/Change Process

- Utilize process map developed for Step 3

- Change or develop business process to reflect:
  - Influences
  - Reliability goals
  - Policy
  - Procedures
  - Input from stakeholders

4 - Implement Process

- The approach to this step varies:
  - Number of agencies involved
  - Depth of process

- Be sure to involve all stakeholders

- Timeframe for implementation
  - Depends on agency's ability to develop/change the current business process
  - Unique for each agency and each situation
  - Needs to be sufficient to allow stabilization of new process
  - May include more than one iteration to implement/assess

Important to determine the effectiveness of the newly developed process

STEP 4: IMPLEMENT PROCESS

STEP 4: DEVELOP / CHANGE PROCESS

STEP 5: ASSESS PROCESS

5 – Assessing the Process

- **Elements of Assessment:**
  - Identify measures of success
  - Outline methods of continuous evaluation
  - Identify data needed
  - Review results against reliability goals

- **Benefits:**
  - Better communication with stakeholders
  - Opportunity for ongoing performance measurement
  - Comparison to pre-implementation conditions

6 – Documenting the Process

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

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

6 – Documenting the Process

- Facilitates updates to processes as conditions change

- Examples of documentation:
  - Internal memorandums
  - Informal memorandums of understanding
  - User guides
  - Agreements between stakeholders

- Other types
  - Evaluation meetings
  - 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!
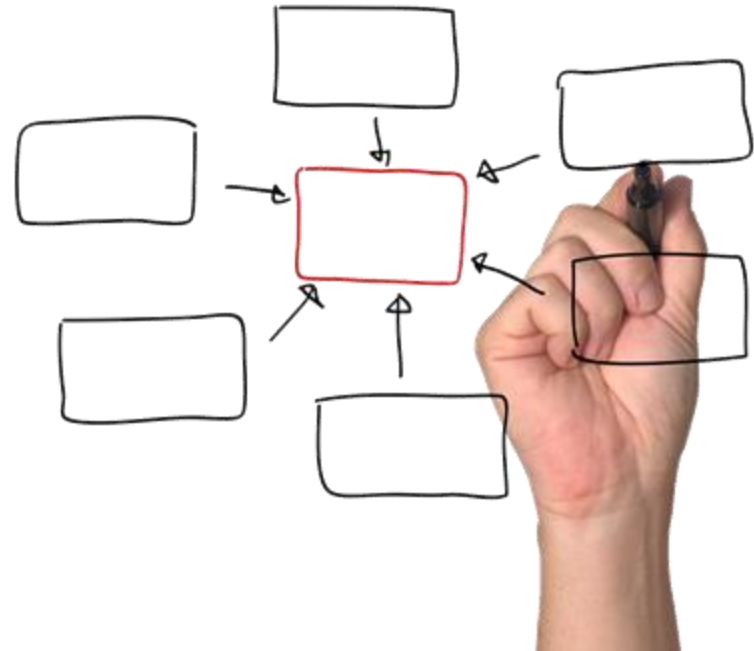
7 - Institutionalizing the Process

- Strategies for Institutionalizing Process

  – Obtain buy-in and ongoing support

  – Make documentation of process accessible and available

  – Maintain documentation – keep it current

  – Communicate performance to inform management and decision-making

E-tool Example:

Washington State DOT Joint Operations Policy Statement and Instant Tow Program

Overview: WSDOT E-tool Example

Washington State DOT Joint Operations Policy Statement (JOPS) and Instant Tow Dispatch Program

- Collaborative effort of Washington State DOT & Washington State Patrol (WSP)
  - Goal to reduce incident clearance times

- Instant Tow Dispatch Program:
  - Streamlined process to identify/report disabled vehicles and initiate tow operator
  - As soon as an incident is verified on CCTV camera, a tow truck can be dispatched without prior verification from WSP trooper
  - Program estimated to save average of 15 min for clearance, compared with having an officer first respond to the incident
  - Tow operators are reimbursed for "dry runs" if call is not canceled within 10 minutes

- JOPS Agreement: Defines how incident management programs will be conducted, employees responsible, & performance measures.

E-Tool Example (WSDOT)

Welcome to the Application of e-tool! Here, the seven steps to help improve travel time reliability through improving business processes are implemented. This module is intended for use with a group of stakeholders and will help walk through the process, store the groups' decisions and documentation, and prepare a final report of the effort. As each step of the methodology is completed, a check will appear in the navigation panel on the left side of this screen next to the appropriate step to indicate completion of that step. The *Case Studies* and *Resources* pages may be accessed at the left side panel at any time.

The objectives of this Application of e-tool module are:

 • To support the integration of business processes within and between agencies working towards a common reliability goal.
 • To promote operational and institutional integration within and between agencies.
 • To utilize all seven steps of the methodology for developing, analyzing, and integrating business processes.
 • To provide a place to store all of the documentation and efforts of the group.

In order for this module to better align with the process that will be assessed by the group, please chose which type of process you will be assessing, and then choose the case study that most closely resembles that process. For more information on the specific case studies, please go to the Case Studies section of this module. Once you have made your choice, click Next to move on to Step 1.

To return to the home page, please use the "Return to Home Page" button in the menu bar to the left or just close this window using the standard window close mechanism above.

What type of process will you be assessing?

Incident Management ▼

E-Tool Step 1 (WSDOT)

Step 1: Identifying Influences

The first step in this methodology involves determining what influences made it apparent that there is a need to improve business processes in order to improve travel time reliability. There are three categories of influences identified in the SHRP2 Report: Integrating Business Processes to Improve Travel Time Reliability. They are top down, also known as "big directive", event driven, and needs or opportunity based, also known as "grassroots".

TABLE 3.1. TIER LEVELS FOR PROCESS INFLUENCES		
TIER	**DESCRIPTION OF INFLUENCE**	**CASE STUDIES**
Tier 1: Big Directive (Top Down)	Big-directive influences are typically legislative requirements or management-level directives. Broad external factors such as safety concerns, economic parameters, or larger governmental accountability initiatives also may drive the influence. Big-directive influences tend to greatly accelerate process development, integration, and change and also increase accountability of those responsible for implementing.	• WSDOT Joint Operations Policy Statement and Instant Tow Program • NCDOT Traffic and Safety Operations Committee • Kansas Speedway Special Event Traffic Management
Tier 2: Event Driven	Event-driven influences are caused by a specific event or hazard that prompts a need for improving process integration. The initial event can prompt change, but if the event does not recur, momentum or support for the change can erode over time.	• MDOT Work Zone Traffic Control Modeling • NDOT I-80 Winter State-Line Closures
Tier 3: Needs Based/ Opportunity Based (Grassroots)	Needs-based/opportunity-based influences evolve over time according to recurring needs. These types of changes typically affect day-to-day operations and begin at the grassroots level of an organization.	• Florida Road Rangers Freeway Service Patrol Program • The Palace at Auburn Hills Special Event Traffic Management • San Pablo Avenue Signal Retiming • AZ Tech Regional Archived Data Server • United Kingdom Active Traffic Management

E-Tool Step 1 (WSDOT)

To complete Step 1, choose the type of influence applicable to the current process from the drop-down menu below. Use the box below to describe the influences for the process that caused a need to improve travel time reliability.

When finished, click Next at the top/bottom of the screen to move on to step 2.

Choose type of influence: Top-down ▼

Please describe your influences:

The influence for the WSDOT was a top-down influence. A request from the governor's office that WSDOT and WSP collaborate on performance monitoring and accountability goals for incident response and traffic incident clearance times was very important. It made an already strong working relationship between WSDOT and WSP even stronger and increased the accountability placed on both agencies to meet the 90-min clearance time. WSDOT and WSP were required to jointly report the progress toward the 90-min incident clearance goal specified in the Government Management Accountability Performance program. This requirement led to the focus on developing strategies and practices to reduce incident clearance time and minimize the impacts of incidents on freeway mobility.

E-Tool Step 2 (WSDOT)

Step 2: Defining the specific reliability goal

The second step in this methodology is to identify and define the reliability goal or goals that the agency can use to measure the effect of the business process implemented to improve travel time reliability. A reliability goal focuses agency efforts on the problem at hand regardless of any specific process used to achieve that goal. Goals also assist in the development of benchmarks that an agency can use to determine how well the process is meeting the identified need.

Reliability goals may include

- Reducing incident clearance time
- Providing 24/7 operations
- Improving resource efficiency
- Reducing congestion
- Reducing delays

E-Tool Step 2 (WSDOT)

Use the area below to describe the reliability goal for this process. Be sure to choose a measurable goal related to improving travel time reliability.

When finished, click Next at the top/bottom of the screen to move on to step 3.

Please describe your reliability goal(s):

The primary reliability goal that WSDOT was trying to achieve was the 90-min incident clearance time; the Instant Tow Dispatch was one of several strategies that were developed and implemented to work toward achieving that overarching clearance time goal. During the initial pilot test of the Instant Tow Dispatch Program, it was not clear how well the program would contribute to meeting that goal, so there were no specific goals established for the program other than monitoring the impact of the program on reduced incident clearance. WSDOT planned to evaluate the program after the initial pilot test to determine the costs and benefits of the program. It is also important to note that goals and performance for WSDOT's transportation system and transportation program are very closely tracked and reported in the Gray Notebook, a quarterly publication of WSDOT. The Gray Notebook covers a variety of measures, ranging from project delivery, infrastructure condition, and safety statistics, and it addresses mobility as a key measure. Among the mobility measures that are publicly reported are freeway travel times and incident response times.

E-Tool Step 3 (WSDOT)

Step 3: Identifying and Documenting Current Business Processes

Once reliability goals are identified, it is important to identify and document the current business process and workflow. A business process defines a series of actions or activities that result in a specific or desired outcome to accomplish a specific organizational goal. The process includes actions that are taken every day, but the connections between all stakeholders, their roles, the communication or data flows, and the intersection of those data or communication flows may not have been formally mapped at this point. The purpose of this step is to formally document the current process to visually facilitate a better understanding of that process.

There are important benefits in documenting the existing or baseline processes. One benefit is understanding how the data flows, the decisions points, and where the process integration occurs. Understanding the critical entities and actions that effect travel time reliability and performance on a broader scale will help an agency identify areas for improvement. By documenting the current processes, the agency or stakeholders will also be able to identify critical gaps or issues and key components or enablers to establish a more efficient process. Documenting the processes also helps to identify stakeholders that are missing from the current process, and formalize roles and responsibilities to improve the continuity of the business process with personnel changes.

E-Tool Step 3 (WSDOT)

To describe your existing process, either upload a pertinent Business Process Model file or describe the process in the box below. When finished, click Next at the top/bottom of the screen to move on to step 4.

Upload new or select existing Business Process Model file:

Upload   Open   Remove

Please describe your existing process (optional):

Although the Business Process Modeling Notation (BPMN) was not used to document other similar tow programs in existence at the time, the JOPS Agreement did clearly document each of the incident management programs that did exist. The JOPS Agreement is unique in that it not only clearly defines how incident management programs will be done in Washington, but it also identifies specific employees from both WSDOT and WSP who are responsible for each program and sets performance measures for the programs. The document is signed by the Washington State secretary of transportation and the chief of the Washington State Patrol and is collectively reviewed and updated each year by WSDOT and WSP.

E-Tool Step 3 (WSDOT)
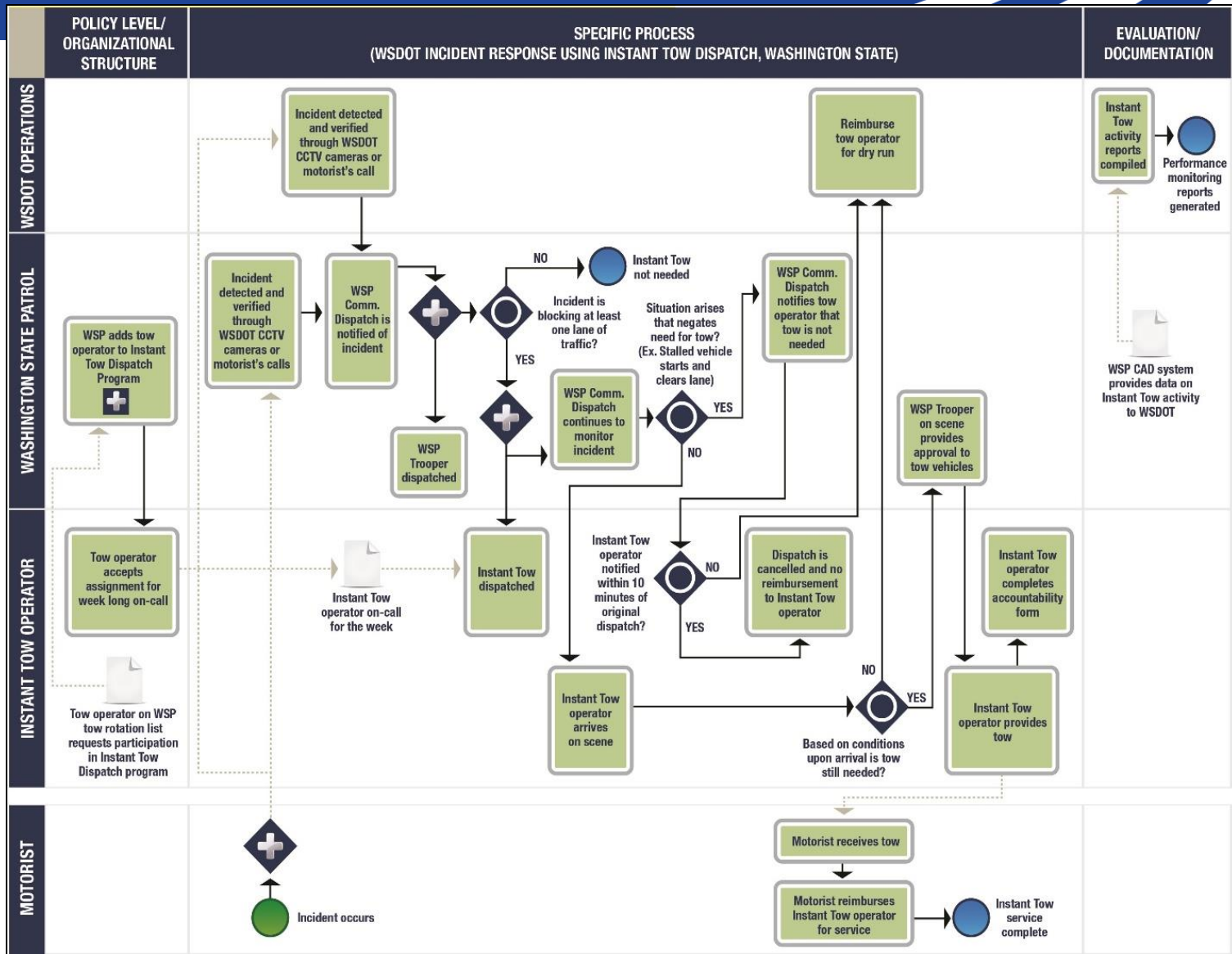
E-Tool Step 4 (WSDOT)

Step 4: Developing/Changing and Implementing Process

This step is broken down into two parts. The first, develop or change the process, builds upon the process map built in step 3. Solutions to identified needs and goals are addressed here and incorporated into the existing process maps. Utilizing the influences identified in Step 1 will help to guide the changes in processes to improve travel time reliability. Involving key personnel that work closest to the process is beneficial, as they will have extra incentive to produce an effective process.

Once the changes to the business process or processes have been identified, the updated or new process can be implemented. The approach to this implementation will vary based on factors such as the number of agencies involved and the depth of the process within the agency's broader operations strategy. It is important to be sure to involve all stakeholders in the implementation stage, as buy-in is key to the success of the overall process. Stakeholders may include a broad range of people, from office managers to workers in the field and their input will be important to the successful implementation of the identified business process changes needed to improve travel time reliability.

E-Tool Step 4 (WSDOT)

Because step 4 may have multiple iterations before it is deemed acceptable to move on, this tool will allow the storage of information for multiple iterations.

To add an iteration, click the Add button then update the process maps and use the text box at the bottom of the page to describe how the changes were implemented.

To view or edit an old iteration, click on the appropriate iteration.

When finished, click Next at the top/bottom of the screen to move on to step 5.

Iterations:

Iteration 1

Add	Remove

Add New Or Changed Process Documents in Iteration 1:

Upload	Open	Remove

E-Tool Step 4 (WSDOT)

Please describe your newly developed or changed process in Iteration 1 (optional):

In Washington, the Instant Tow Dispatch Program initially began as a program on the Tacoma Narrows Bridge. Although it was successful in reducing clearance times, it was not sustainable because tow operators were not reimbursed for dry runs, which occurred when they were dispatched to tow a vehicle and the vehicle had been removed from the lanes before the tow operator arrived. Without a reimbursement program, tow operators did not want to continue participating in the Instant Tow Dispatch Program. Through the reimbursement program that WSDOT initiated, WSDOT found it could maintain active participation by tow operators and yet still provide the Instant Tow Dispatch Program at a very low cost. WSDOT has several examples of changes that were made to the initial program to improve the process, better meet performance measures, and satisfy all of its partners.

Please describe how you will implement your process in Iteration 1:

WSDOT implemented the changes as information was collected and change was deemed necessary. The implementation step worked closely, in an iterative manner, with assessment of the process and changes in the process.

E-Tool Step 5 (WSDOT)

Step 5: Assessing Process

Step 5 involves assessing the process. Some level of assessment is important to determine the effectiveness of that process. Step 5 is the third part of the iterative cycle introduced in step 4. The results of this assessment are then either fed back into step 4 in order to make additional changes, or are used in moving forward to the next step of the overall process.

Ensuring that a measure of success, a method for continuous evaluation, and data needed to complete the evaluation is important. These things provide a means to communicate the effectiveness of the process with senior managers and vital staff. By measuring the effectiveness of the process, opportunities are available to periodically evaluate performance in an ongoing effort for improvement of travel time reliability. It is also important to assess processes against pre-implementation conditions; this will provide an opportunity to determine if any changes made to business processes are effective at improving travel time reliability.

E-Tool Step 5 (WSDOT)

Iterations created in step 4 are viewed and edited for step 5.

To view or edit an iteration, click on the appropriate iteration.

The requested information below is designed to assist the group in completing this step and determining the next step forward.

Iterations:

Iteration 1

Please describe the performance measures you will be assessing in Iteration 1:

WSDOT and WSP had several measures, such as response time, number of tows, and cost of the program, to monitor the impact and effectiveness of the program.

Please describe the methods you will use to evaluate your performance measures in Iteration 1:

The University of Washington Transportation Research Center was also asked to study the initial pilot program.

E-Tool Step 5 (WSDOT)

Please describe the data you will need to evaluate your performance measures in Iteration 1:

Please enter the collected data you need to evaluate your performance measures in Iteration 1:

Please detail the findings/results of your evaluation in Iteration 1:

The study found that without the Instant Tow Dispatch Program it would take an average of 18 min to dispatch a tow truck after an incident was detected and verified. With the Instant Tow Dispatch Program, it takes an average of 3 min to dispatch a tow truck. The program has reduced the time for a tow truck to arrive at an incident by approximately 15 min for most incidents. WSDOT looked at the saving this created in terms of lost time and wasted fuel resulting from congestion and estimated that for less than $1,000 per year to operate the program, WSDOT would see annual benefits of approximately $6.5 million to $11.1 million.

E-Tool Step 6 (WSDOT)

Step 6: Documenting Process

Documentation typically occurs once the process has been implemented and proven effective. Documentation is intended to provide detailed steps of the business process, the evaluation process, and the stated benefits and lessons learned. Documentation should also include the roles and responsibilities of the stakeholders involved in the future.

Documentation will help to demonstrate performance against the goals identified in Step 2 and will also facilitate easier updates and modifications to the process in the future. If time is not available to prepare detailed process models, it is recommended that at minimum, key steps, relationships, information exchanges, and other details be documented. These types of documentation can be achieved through developing internal memorandums, informal memorandums of understanding (MOU), user guides, or other complex agreements between stakeholders.

E-Tool Step 6 (WSDOT)

Below is an area available to describe the documentation for this process, as well as an option to upload the documentation. Large documents, such as user guides, and diagrams should be uploaded. To access a document that has been uploaded, select the document, and then click Open. When finished, click Next to move on to the final step.

Please describe how you will document your process/changes:

The JOPS Agreement includes the Instant Tow Dispatch Program objective; roles and responsibilities, including those of lead staff from WSDOT and WSP; performance measures; and reporting requirements. Annual updates of the JOPS Agreement ensure that any changes to any of the joint programs included in the agreement can be captured and require the signature of the Washington secretary of transportation and the chief of the Washington State Patrol.

Save   Cancel

Upload new or select existing Process Documentation file (Optional):

Upload   Open   Remove

E-Tool Step 7 (WSDOT)

Step 7: Institutionalizing the Process

The seventh and final step is institutionalizing the process. It is the way in which a new or changed process is incorporated into existing policies or management programs. Institutionalizing typically starts at the higher levels of an organization, but must be able to survive changes in management and personnel. The most successful business processes rely on linking the process to firmly established agency goals, objectives, or mission-critical activities.

There are four main strategies and considerations to keep in mind when institutionalizing processes. The first item to keep in mind is the importance of buy-in and ongoing support for the process. If the stakeholders do not support and encourage the use of identified business processes, it may not remain a viable process. The second strategy that will greatly assist in institutionalizing business processes is developing formal documentation that is accessible and available to all stakeholders. This formal documentation and accessibility of the documentation will help institutionalize implemented processes to improve travel time reliability.

The third consideration is focusing on the sustainability of the documentation. Formal agreements tend to last longer than informal ones. Lastly, remember that performance management programs can provide an important back-check and justification for continued support of implemented processes. A success performance management program extends beyond monitoring and reporting on key performance indicators by using the outcomes to better inform management and programmatic decisions.

E-Tool Step 7 (WSDOT)

Use the text box below to describe how the process will be institutionalized. Keep the strategies and considerations discussed above in mind when completing this section.

Please describe how you will institutionalize your process:

The JOPS Agreement provides the higher level policy for the Instant Tow Dispatch Program by establishing roles and responsibilities and lead staff. A set of standard operating guidelines was developed for the Instant Tow Dispatch Program, which was rolled out in several urban areas around the state over time. With specific staff assigned from both WSDOT and WSP in the JOPS Agreement, accountability for continuing the program is clearly defined; the annual update of the JOPS Agreement reinforces the continued desire of WSDOT and WSP leadership to keep the program.

E-tool Output Report (PDF)

Initial Input to E-Tool for Agency Topic

Overview of Agency Topic

INSERT AGENCY-SPECIFIC
SLIDES HERE

(This will provide context for their related efforts and the specific topic chosen for e-tool input and mapping exercise)

Overview: Implementing the 7-Step Approach

Steps 1-2:

- Facilitators will gather your input to populate the E-tool

Step 3:

- Small group exercise to develop process mapping diagrams
- Re-convene to report out and discuss

Step 4: Looking Ahead

- Facilitators will gather your input to populate input to E-tool for process iteration and associated action planning steps

Steps 5-7: Looking Ahead

- Facilitators will document input and action planning steps

Initial Input to E-Tool

Step 1 – Influences

What is the primary influence that led to (insert chosen topic/process for improvement)?

- Top Down

- Event-Driven

- Needs Based

Initial Input to E-Tool

Step 2 – Specific Reliability or TSMO Goal(s)

- Define a reliability goal here
- Provide specific examples (e.g. reduce clearance times)

(Work with the champion in advance to pre-think this goal, as this may drive the chosen process/scenario for the group exercise)

Initial Input to E-Tool

Step 3 – Identify and Document Current Business Process

- What challenges exist around this process?

- What process steps are already in place? Need to be created?

- Has any business processing mapping been done?

Business Process Mapping Exercise

Business Process Mapping:

- Visual representation of steps & connections, start to finish
- Concise picture of sequence of tasks
  - Indicate decision points – where yes/no decision is required
  - Identify when the process takes place, why it takes place, and who is responsible for decisions
- A good business process map should:
  - Show where improvements can be made
  - Where time delays exist
  - Where smooth handoffs are not taking place
  - What steps may be eliminated

This exercise is only a starting point
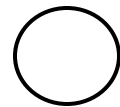
Business Process Mapping Exercise – Scenario

(Add 1-2 slides about the specific process/scenario that's been identified for development in small group)

- – E.g. Major incident occurs on freeway during rush hour, 2 lanes closed on 3-lane freeway, HP and DOT coordinate on incident response to open all lanes
- – E.g. Winter storm is 4 hours away, communications and planning is needed to initiate traveler information, share updates, prepare for potential closures, etc.

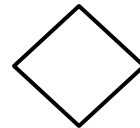# Business Process Mapping Exercise – Breakout Groups

Break into small groups

1. List responsible entities and define acronyms
2. Create a business process map

   ➢ Data flows
   ➢ Decision points
   ➢ Critical inputs and outputs
   ➢ Process integration points

Start or End Point

Steps

Decisions or Alternatives

Direction of Flow

Business Process Mapping Exercise – Breakout Groups

(Add site-specific questions as appropriate after scenario is known)

Review Initial Mapping and Discussion

Review Initial Mapping and Discussion

Convene Back in Large Group:

- Report-Out from Small Groups
  - After initial mapping is complete, each group reports out to the full group
  - Share process maps: key steps, responsibilities, decision points

- Discussion
  - Similarities and differences among groups' process maps
  - Areas where potential improvements may have been identified

Continue E-tool Input

Continue E-tool Input

- **Continue entering information into E-tool**
  - Step 4 – Develop/Change Process and Implement
  - Looking Ahead to Step 5 – Assess Process
  - Looking Ahead to Step 6 – Document Process
  - Looking Ahead to Step 7 – Institutionalize Process

Step 4 – Develop/Change Process and Implement

Discussion:

- First iteration of updates to process:
  - What changes to the process were suggested, if any?
  - Where is further discussion/development needed to reach consensus on process?

- Implementation
  - Is review & input from other stakeholders needed? (e.g. management, leadership, other groups)
  - Timeframe for implementation?

Step 4 – Develop/Change Process and Implement

Step 4 – Develop/Change Process and Implement

Action Planning:

- – Key actions and timeline
- – Partners and resources needed

Looking Ahead – Step 5

Step 5 – Assess the Process

Discussion:

– Identify performance measures

– What evaluation methods can be used?

– Data needs?

Looking Ahead – Step 5

Step 5 – Assess the Process

Action Planning:

- Key actions and timeline
- Partners and resources needed

Looking Ahead – Step 6

Step 6 – Document the Process

- Internal memorandums, informal memoranda of understanding, user guides, stakeholder agreements

Discussion:

- What mechanism(s) should be used for documentation?
- Who is responsible for maintaining this documentation?

Looking Ahead – Step 6

Step 6 – Document the Process

Action Planning:

– Key actions and timeline

– Partners and resources needed

Looking Ahead – Step 7

Step 7 – Institutionalize the Process

- Incorporate into existing policies or programs
- Start at the higher levels
- Link to established agency goals

Discussion:

- How can you help to institutionalize the process?
- Who needs to be involved?
- What agency goals are relevant?

Looking Ahead – Step 7

Step 7 – Institutionalize the Process

Action Planning:

– Key actions and timeline

– Partners and resources needed

Applying What You've Learned and Next Steps

Applying What you Learned

Opportunities for Additional TIM Business Process Improvements

Question

What other business process improvements for TIM might apply to your agency?

Instructions

Use the questions on the next slide to develop a list of potential business process improvements.

Applying What you Learned

Opportunities for Additional TIM Business Process Improvements

- Are TIM needs collectively assessed, reviewed, and acted upon on a routine basis?

- Are funds available for TIM activities?

- Is TIM integrated into the formal state or regional planning process(es)?

- Do standardized TIM response systems (protocols) exist?

- Is TIM performance used to influence and/or improve operations?

- Are performance based contracts and/or specifications utilized for TIM? If not, are there opportunities to do this?

- 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

- Workshop Evaluation
  - ➢ Please complete and return before leaving today

Next Steps:

- Workshop Summary Report – to be prepared and distributed to agency champion
- Business Process Mapping Support

THANK YOU for your participation!

Contacts:

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