

NOACA WORKSHOP SUMMARY

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

Prepared by: Athey Creek Consultants

Overview of Document

This document provides a summary of the workshop on “Improving Business Processes for More Effective Transportation Systems Management and Operations (TSMO) in Traffic Incident Management” conducted for the Northeast Ohio Areawide Coordinating Agency (NOACA) on March 14, 2019 in Garfield Heights, Ohio. The workshop educated participants about the importance of TSMO business processes and featured several tools and resources from the Second Strategic Highway Research Program’s (SHRP2) Reliability¹ emphasis area.

The workshop focused on traffic incident management and attendees worked together to develop a business process for managing impacts on local arterials during freeway incidents. It was sponsored by the United States Department of Transportation (USDOT) Federal Highway Administration (FHWA) and delivered by an American Association of State Highway and Transportation Officials (AASHTO) team that included Athey Creek Consultants.

This Workshop Summary includes the following sections:

- [Proposed Action Items for Participating Agencies](#) – Actions that area entities may consider pursuing to enhance existing practices and refine the business process developed during the workshop for improving arterial management during freeway incidents.
- [Business Processes and Application to TSMO](#) – Definitions of key terms and a brief summary of background information presented during the workshop.
- [Resources and Tools to Improve TSMO Business Processes](#) – Overview of a seven-step approach and available tools and resources to support business process improvement.
- [Business Process Improvement for Managing Arterial Impacts during Freeway Incidents](#) – Summary of participant discussion during the workshop and the related [Business Process Diagram](#) developed during the workshop.
- Supporting Materials:
 - [Appendix A: Workshop Participant List](#) – Name, role, and contact information of workshop participants.
 - [Appendix B: Workshop Agenda](#) – Order and structure of activities conducted at the workshop.
 - [Appendix C: E-tool Discussion Guide Output](#) – Log of inputs to the *E-tool for Business Processes to Improve Travel Time Reliability*² discussion guide, as provided by participants during the workshop, to step through their specific business process improvement.

¹ For more information on SHRP2 Solutions for Reliability, see: <https://www.fhwa.dot.gov/goshrp2/Solutions/Reliability/List>.

² *E-Tool for Business Processes to Improve Travel Time Reliability* (FHWA).
www.ops.fhwa.dot.gov/pian4ops/focus_areas/organizing_for_op/shrp2_le34_etool.htm

Proposed Action Items for Participating Agencies

The following high-priority action items were identified during the workshop to support the implementation and institutionalization of the [Business Process Diagram for Managing Arterial Impacts during Freeway Incidents](#) (see Figure 3) developed during the workshop.

- 1. Conduct a follow-up meeting to advance the business process.** Critical agencies should gather to establish agreements and discuss developed traffic plans, including the actions required to be able to advance and implement the business process. Specifically, for each agency this should include understanding the point of contact, level of interest in entering into agreements, and additional resources that are needed, such as agreements, technologies, staff, and other resources. As part of this meeting, determine the Traffic Overseer role for each jurisdiction, including contacts to the ODOT Traffic Management Center, to provide initial incident notification and to coordinate traffic management support during incidents that cause significant traffic delays or closures.
- 2. Identify a champion.** The responsibility to take the lead, execute, and maintain the business process should be linked to a position at either NOACA or Ohio Department of Transportation (ODOT), not individuals. The ODOT TSMO Coordinator was identified as an established position that could include responsibility for making this business process a set item that is regularly brought up for review.
- 3. Conduct additional outreach to promote the business process.**
 - Local agencies should take the business processes developed during the workshop to meetings with city officials, e.g. mayor, utilities, etc., to gather feedback and buy-in to support the business process and to identify technology upgrades and program funding for traffic signal equipment.
 - ODOT should outreach to local police and fire departments to discuss capabilities, training opportunities, and how to implement the business process.
 - ODOT is also planning to conduct Regional Traffic Incident Management (TIM) Meetings, that could incorporate the business process.
- 4. Formalize the business process.**
 - The business process could be incorporated as a part of National Incident Management System (NIMS) forms.
 - An expanded flow chart could be developed for the business process as a Visio sheet, for example, to incorporate references to memoranda of understanding (MOUs) to keep things in one place as much as possible. NOACA could potentially maintain a template and the recommended process to ensure it is available for reference by others and also initiate periodic reviews, including input and review from the Safety and Operations Council.
 - The business process may be part of a City Council resolution to enter into an agreement or MOU with ODOT on signal control.
- 5. Consider available data to assess the business process.** A variety of data sources and measures were identified, including ODOT Traffic Operations Assessment Systems Tool (TOAST) scores, Ohio State Highway Patrol (SHP) OH-1 and ODOT Transportation Management Center (TMC) measures of incident clearance times, after action reviews on major incidents, and INRIX data measures.

Additional considerations regarding the development, implementation, and institutionalization of the business process created during the workshop are found in the [7-step E-Tool Approach](#) section.

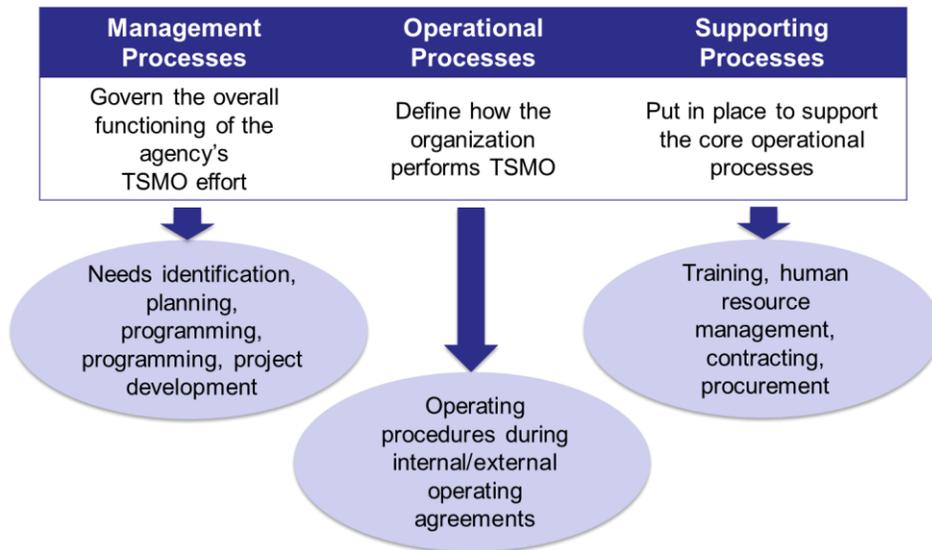
Business Processes and Application to TSMO

The term **Business Process** is defined in several SHRP2 Reliability products as *“a series of actions or activities that result in a specific or desired outcome to accomplish a specific organizational goal.”*

Attributes of Business Processes include:

- A set of structured actions that, once completed, result in a desired outcome to accomplish a specific goal
- Activities performed in a specific sequence, with defined inputs and output(s) – structured workflow
- Process that adds value
- Continued focus on re-engineering processes to improve efficiency

In the context of TSMO, business processes refer to activities such as planning, programming, project development, standard operating procedures, training, human resource management, and agreements. Figure 1 shows examples of management, operational, and supporting processes to support TSMO.



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

14

Figure 1. TSMO Business Processes

The SHRP2 “Businesses Processes for Reliability” research and implementation effort has focused on how business processes can improve TSMO, where TSMO is defined as “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 security, safety, and reliability of the transportation system management.”³ Examples of these TSMO strategies include incident management, road weather management, planned special event management, work zone management, and traffic management.

Business Process Mapping is a visual representation of the steps, connections, information flows, and responsibilities involved in a business process from start to finish. Business process mapping provides a concise picture of the sequences of tasks needed to bring a service from genesis to completion, including decision points in the process, when the process takes place, why it takes place, who is involved in the process and responsible for decisions. A good business process map can be validated (that is, represents reality) and can help stakeholders identify where delays exist, where smooth handoffs are not taking place, and what steps may be eliminated so as to improve processes.

³ Definition from *Moving Ahead for Progress in the 21st Century* (MAP-21), Federal Highway Administration, 2012.

Resources and Tools to Improve TSMO Business Processes

The seven-step approach described in this section and shown in Figure 2 was used during the second half of the workshop to help practitioners define and evaluate and improve a specific business process, and to capture key action items. The seven-step approach is summarized as follows:

- **Step 1: Influences.** At some point, it becomes apparent that a business process needs to be improved. The catalyst for action can be top down, event driven, or needs based. Examples of such influences for action are directives from senior management or elected officials (top down), a significant natural disaster that exposes gaps in current agency processes or response plans (event driven), or a recognized need for the improvement from a grass-roots level (needs based).
- **Step 2: Define the Specific Goal(s).** The second step is to identify, define and input the reliability (and other operations-oriented) goal or goals that the agency can use to measure the effect of the business process implemented. Such goals help focus agency efforts and assist in the development of benchmarks that an agency can use to determine how well the processes are addressing the identified need.
- **Step 3: Identify and Document Current Business Processes.** This step is important to understand an agency's current business processes, identify any missing stakeholders, identify gaps in communications or data flows, and formalize roles and responsibilities to ensure continuity and retention of institutional knowledge. A key element of this step is to develop a visual representation of the operations process – business process mapping – that represents the agency's process.
- **Step 4: Develop/Change and Implement Process.** This step involves identifying areas of improvement and identifying changes to be made to the business process or developing a new process. It likely involves several iterations. The implementation can be formal or informal, depending on the complexity of the process and the agencies involved.
- **Step 5: Assess Process.** Once the new process has been implemented, it is assessed or evaluated against the identified goals. This includes identifying appropriate performance measures (based on the goals developed in Step 2), collecting the necessary data, and comparing the results against pre-implementation conditions as part of a continuous improvement process.
- **Step 6: Document Process.** Once the new business process has been implemented and proven effective, it is important to document the details of the new business process, the details of the evaluation process, benefits, and the roles and responsibilities of the stakeholders. Documentation can be as simple as an interagency agreement or as complex as a multi-volume operations manual.
- **Step 7: Institutionalize Process.** The seventh step of business process integration may consist of adopting operational activities and processes, implementing formal policies, establishing training, or other actions. Institutionalization requires the buy-in and support of upper management, as well as additional stakeholders who have a vested interest in the outcomes of the business process. This step will have a direct impact on the long-term survival of a process within an organization.

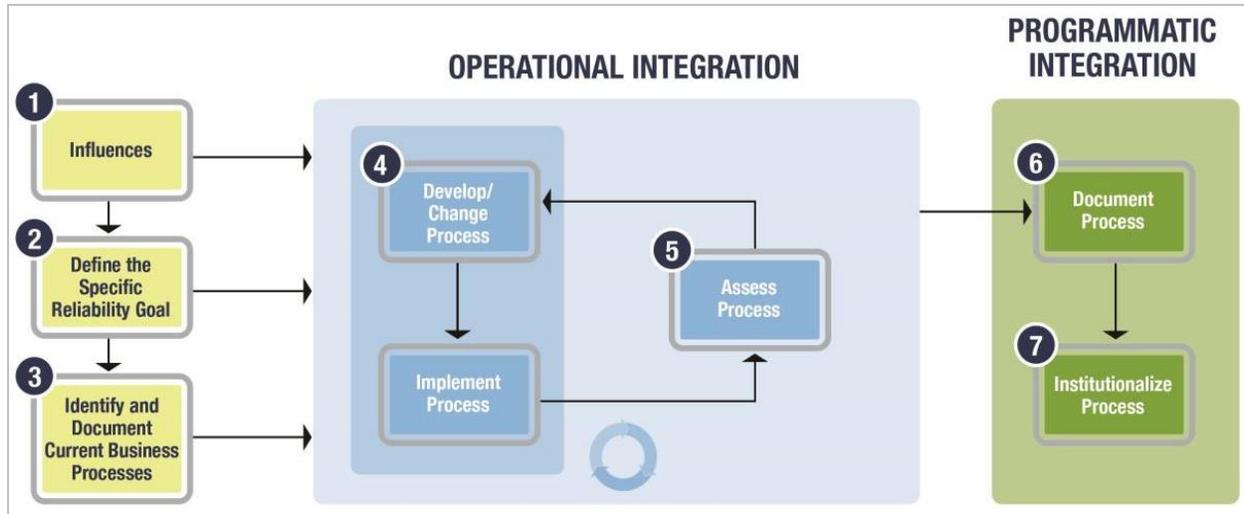


Figure 2. Seven-step approach for business process improvements

Available resources for assisting agencies with improving TSMO business processes include:

- *Primer on Improving Business Processes for More Effective Transportation Systems Management and Operations*, a guidance resource for using the a seven-step approach to improve business processes within traffic incident management, work zone management, planned special events, road weather management, and traffic management. Content includes business process issues, case studies, questions to consider when identifying business process issues, business process challenges, and potential stakeholders. <https://ops.fhwa.dot.gov/publications/fhwahop16018/fhwahop16018.pdf>.
- *E-tool for Business Processes to Improve Travel Time Reliability*, a downloadable tool for applying the seven-step approach to improve a TSMO business process in a group setting. www.fhwa.dot.gov/goshp2/Solutions/Available/L06_L01_L31_L34/Organizing_for_Reliability_Tools
- *FHWA Business Process Frameworks to support TSMO*, featuring Capability Maturity Frameworks (CMFs) and supporting documentation for road weather management, planned special events, traffic incident management, traffic management, traffic signal management, and work zone management. <https://ops.fhwa.dot.gov/tsmoframeworktool/index.htm>.

Business Process Improvement for Managing Arterial Impacts during Freeway Incidents

This section presents a summary of the discussion during the workshop. During introductions, participants volunteered their personal goals or objectives for the workshop, as follows:

- Move the needle forward; a regional self-assessment identified a weakness in TSMO business processes.
- Create a business process that can be used in the future to coordinate with agencies beyond the people at the workshop.
- Brainstorm solutions.
- Identify ways to get traffic through.
- Develop new relationships and contacts with cities in the district and bridge a gap to help agencies manage arterials and improve signal coordination without the need for extensive studies that local agencies may lack resources to support.
- Understand different entities to unify operations approaches.
- Better prepare for incidents and move traffic better.
- Better coordinate with other agencies.
- Gather ideas for developing a plan for incident management on the I-480 bridge construction project.
- Understand what all stakeholders plan to do during an incident in order to better respond.
- Increase interactions between staff with signal systems and incident management backgrounds.
- Improve coordination to mitigate traffic impacts.
- Improve the process to reduce backups on city streets and keep traffic moving.
- Improve coordination with neighboring agencies and departments.
- Understand role that statewide TSMO program and state TMC may have to assist, and also better understand some best practices that are already implemented in this area.
- Understand TSMO to better serve communities.
- Understand current capabilities and see how they match to goals for TSMO.

Current business processes. An informal poll at beginning of the workshop via Mentimeter® showed that of the 24 respondents, most (10) use business processes daily, with some saying they use business processes weekly to monthly (6), on occasion (6), or did not know what a business process was (2); no one responded that they never use a business process. When asked how important business processes are to their work, 17 of 24 participants responded that business processes are very important, and the remaining 7 responded that they are somewhat important.

Participants identified the following examples of business processes that are currently used or needed:

- Fire departments have business processes reflecting a goal to arrive at an incident, mitigate the situation, and open lanes to traffic as soon as possible. This process is documented in Standard Operating Guidance (SOG), which training officers use to train new staff.
- ODOT has many established processes, many of which need to be revisited since updates and new technologies have occurred over time. These processes should also be revisited with staff to remind them of things that are being missed now.
- FHWA has a business process for practice reviews covering specific elements of ITS and operations that involves an interview to understand an agency's process to document and share findings with others.

Business process improvement and traffic incident management overview. Brian Blayney of NOACA provided a background and overview of the current processes and challenges. He introduced the two scenarios identified to consider in developing the business process:

- **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 at 5:00 PM on a weekday.
 - The incident has blocked all lanes of traffic on I-90 WB, such that 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 and SR 301.
- **Scenario 2: Incident I-480 WB in the Bridge Construction Zone**
 - A major incident has occurred on I-480 WB near the major bridge construction work zone at 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 and Trans Blvd / Granger / Brecksville, to I-77

7-step E-Tool approach for Improving Arterial Management during Freeway Incidents. Next, the workshop shifted to interactive sessions focused on the business process for improving arterial management during freeway incidents into existing processes. Workshop participants walked through the 7-step approach as a group to begin thinking about the development, implementation, and institutionalization of the process. This section summarizes the inputs provided by the group, while the full [E-tool Discussion Guide Output](#) from this exercise is in a later section of this document.

Step 1 – Identify Influences. The group identified the impetus for developing this business process as bottom up. A variety of influences were identified, such as:

- Arterials are becoming congested during freeway incidents, which small operational changes and traffic signal coordination between jurisdictions could help alleviate.
- Uncontrolled diversion to arterials can be managed better with pre-planning, for a more consistent response that considers unintended consequences like wide-turns that trucks may not easily navigate.
- There are opportunities to understand everyone's roles and responsibilities during an incident and identify how agencies can help one another by bringing resources to bear in assisting adjacent jurisdictions.
- Identifying needed resources can help make a case to leadership.

Step 2 – Define Goals. Participants defined the following as possible goals for this process improvement:

- *Improve Safety.* This includes improving first responder safety on arterials and at the incident, and reducing secondary crashes.
- *Improve Resource and Staffing Identification and Use.* Specific comments were made regarding effectively assigning officers to incidents; relying on neighboring communities for mutual aid during times when multiple incidents have occurred and more staff are needed; limiting the amount of resources that are needed for incident response while still being effective; identify resources like signs, sand, or assistance with traffic signal plans to assist local or neighboring agencies during an incident, times they can be accessed, associated points of contact, and have these resources available in a timely manner; and using dynamic message signs (DMS) and truck-mounted attenuators (TMAs) at the back of the queue, and having them onsite in a timely manner.

- *Improve Coordination.* This included improving agency communications, coordination, and cooperation in general, as well as having all appropriate entities involved in a unified command in a specific amount of time;
- *Improve Mobility.* Specifically, prevent gridlock and provide better information to the traveling public online and via social media, e.g. Waze, OHGO, and TomTom.
- *Improve Incident Response.* This involved being able to better control the incident itself and reducing the time to respond to and clear an incident.

Step 3 – Identify the Current Business Process. Participants first considered current business processes and available resources for managing arterial impacts for freeway incident scenarios. The following items were discussed in the large group regarding existing challenges and the current business process:

- Signal timing plans and technologies.
 - Signal timing plans are generally not available for incidents. Some are now being developed for ODOT signals where timing plans can be activated remotely.
 - Cities and villages have control over ODOT routes in their jurisdiction. Thus, signal timing plans would be implemented by the cities if they have the capability to do so, and some would need assistance. An agreement could be created to allow temporary ODOT control during certain circumstances.
 - Traffic that diverts to arterials is not managed, whether a road is closed and traffic is actively diverted from the freeway or drivers voluntarily chooses to divert.
 - There are no current plans to install gates on entrance ramps to facilitate a freeway closure during an incident and free up law enforcement, but that option is available in the updated statewide ITS architecture and has come up in past discussions as an option to consider.
- Available guidance.
 - A Playbook is available that includes wayfinding signs. This was developed about 15 years ago and will be updated as part of an Advanced Traffic Management System (ATMS) project. The detour routes are being integrated into a mapping system so staff can view detour routes on a mobile device in the field. This is available at playbook.dot.state.oh.us using the Internet Explorer web browser; this webpage cannot be accessed in other browsers because of how it was developed several years ago.
 - Fire departments use standard operating guidelines, but these mostly pertain to safe practices for vehicle fires and crashes, creating a barrier for lane closure, setting up cones, etc., rather than arterial traffic management or diversion issues.
 - A Work Zone incident management plan should be developed by the contractor for large projects. When ODOT predicts queue lengths for lane closures, that calculation estimates impacts to local roads but does not consider how to manage that impact yet.
- Law enforcement.
 - The law enforcement role is different depending on whether officers are responding to the incident or closing the road in a neighboring jurisdiction; officers will not actively direct traffic along the detour route since they do not know which vehicles are diverting through traffic and which are local traffic.
- Social media, traveler information, and public inquiries.
 - The City of Avon contacts school bus garages and posts information on Twitter.
 - When interstates back up, Ohio SHP Dispatch receives many calls from the public to ask what is going on and what are appropriate detour routes.

- The ODOT Statewide TMC is not always consistently notified of an incident, and generally does not post information on social media about events unless can see it on a camera. Staff are currently working to make it easier for others at ODOT to post information in a consistent way.

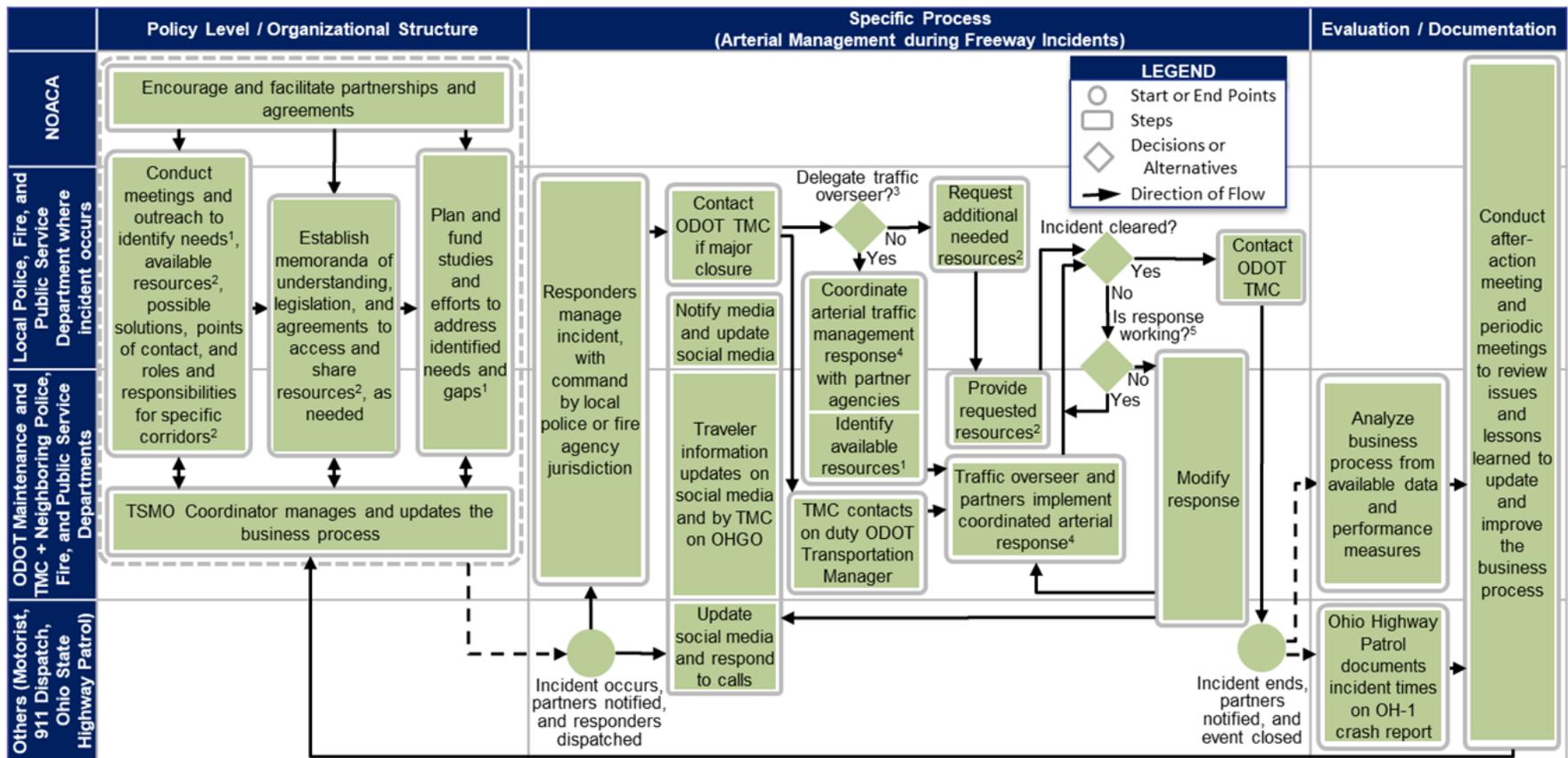
Step 4 - Develop and Implement the Process. Workshop participants divided into two groups to discuss the two identified freeway incident scenarios described at the beginning of this section for incidents on I-90 westbound in Lorain County and I-480 westbound in the bridge construction zone. Each group was asked to consider the following as they developed a business process diagram for the scenario:

- **Considerations throughout the Process**
 - How do interactions with others occur, and when? (consider Traffic Management Center, emergency responders, media.)
 - What are the roles and responsibilities? (staffing for traffic control, key contacts)
 - Who provides traffic control assistance? (consider ODOT, neighboring communities, contractors, consultants)
- **Freeway Traffic Management**
 - How will on-site traffic control be conducted?
 - How will traffic be moved away from the incident? (consider lane closures, temporary devices, staffing)
 - How will lane closure(s) be implemented?
 - How will traveler information be provided (dynamic message signs, temporary devices)? Who is responsible for taking action at the scene and at locations upstream?
- **Managing Traffic Impacts on Arterials**
 - What is the traffic impact to arterials?
 - How will traffic control on arterials be handled? Will staff be needed at intersections? Will neighboring jurisdictions or others need to assist?
 - Will adjustments to signal timing be needed? How might this be achieved?

The groups identified the following considerations for developing a new business process:

- Prioritize assets, including staff and equipment resources, e.g. communicate and coordinate about law enforcement presence at signals across multiple jurisdictions.
- Time of day considerations for some routes and/or incidents may require special attention at other times than just peak periods.
- Previous experiences of local jurisdictions and other stakeholders should be used to identify small operational changes that could increase the level of service during an incident.
- An opportunity exists to improve traffic signal equipment (e.g. controllers, remote connectivity, centralized control, etc.) to remotely implement pre-planned incident signal timing plans that would not require law enforcement to be at the signal.
- Inter-agency agreements may be needed to clarify and define roles and responsibilities during an incident, being mindful of local agencies' control of signals.
- Agencies should improve their use of social media to inform public in order to manage travel demand proactively by providing travelers with timely alerts and updates.
- Incident command would make the decision to implement a temporary change to arterial traffic signal operation affecting one or more jurisdictions.

Ultimately, there were no major differences between the business process diagrams developed in these two small groups. The outputs from these two small groups were used to inform the development of a single Business Process Diagram for Managing Arterial Impacts during Freeway Incidents in Figure 3. This diagram reflects the business process and supporting interactions as suggested by workshop participants during the workshop.



1. Needed resources may involve new technologies like gates or upgraded signal controllers, for example.
2. Available resources may include intelligent transportation systems (ITS) and staff who can provide assistance by managing traffic and closures, e.g. sharing data and cameras, accessing controllers to implement alternate signal timing plan on-site or remotely, truck-mounted dynamic message sign.
3. The Traffic Overseer will be the incident commander initially, then may be delegated to another person able to coordinate a multi-jurisdictional response at the local level, e.g. police supervisor, road/signal manager, or ODOT manager.
4. Arterial response will vary based on available staff and technologies, and could include remote or on-site traffic signal timing adjustments, deploying incident detour signs, related dynamic message sign (DMS) messages, closures, and diverting traffic.
5. This may be answered through input received by a command center, local and neighboring agency staff, and camera operators at the Ohio DOT Transportation Management Center (TMC).

Figure 3. Business Process Diagram for Managing Arterial Impacts during Freeway Incidents

In order to implement the new business process, the group felt the following were important considerations to increase awareness and further enhance the process:

- A follow-up meeting should be conducted with all involved agencies to develop agreements and discuss diversion route planning, including the actions required to be able to advance and implement the business process. Specifically, this should include understanding each agency's point of contact, level of interest in entering into agreements, and additional resources that are needed, such as agreements, technologies, staff, and other resources.
- Local emergency and public service managers should present the business processes to elected officials (mayors and councils) to obtain their feedback and buy-in.
- ODOT and local maintaining agencies should consider seeking funding to make technology upgrades to traffic signal equipment to allow temporary changes in signal operation at critical intersections along major diversion routes.
- A champion should be identified to take the lead and execute the business process. This could be either NOACA or ODOT TSMO Coordinators.
- Examine the Master ODOT TSMO plan, which includes some items that relate to this topic. Each ODOT region includes an initiative for Regional TIM Meetings that is modeled on District 12; District 3 is looking to initiate this, perhaps breaking out meetings by corridors or interdependent routes.
- ODOT should outreach to local police and fire departments to discuss capabilities and training opportunities. ODOT could share a 2-hour presentation on incident management, a 2-hour TIM training, and/or could also recap this workshop and discuss how to implement the business process.

Step 5 – Assess the Process. Participants identified the following data sources and measures for assessing the newly developed business process:

- Use ODOT TOAST scores as an indirect measure. These scores rank all segments of state-maintained routes in a way that considers travel time reliability, delay and congestion, bottlenecks, clearance times, freight volumes, and other measures that affect real-time operations.
- Obtain INRIX data measures.
- Monitor the frequency or number of times the incident response plan is used.
- Chart incident clearance times from both the Ohio OH-1 crash reports and the ODOT TMC measure.
- Track resources used to support traffic diversion for each major freeway incident and compare the effects on traffic operation before and after the new processes are implemented.
- Conduct after-action reviews on major incidents.

Step 6 – Document the Process. Several places to document the new business process were identified.

- The business process could be incorporated as a part of National Incident Management System (NIMS) forms. There is a new system in Lorain County to complete these forms and reduce duplication, and there could be an opportunity to pre-plan one.
- An expanded flow chart could be developed for the business process as a Visio sheet, for example, to incorporate references to memoranda of understanding (MOUs) to keep things in one place as much as possible. NOACA could potentially maintain a template and the recommended process to ensure it is available for reference by others and also initiate periodic reviews, including input and review from the Safety and Operations Council.
- The business process may be part of a City Council resolution to enter an agreement or MOU with ODOT on signal control.

Step 7 – Institutionalize the Process. The group identified one potential way to institutionalize the new business process was to tie the responsibility for this process to a position, not individuals. Specifically, the ODOT TSMO Coordinator was noted as an established role who could ensure this business process is regularly brought up for review and improvement.

Appendix A: NOACA Workshop Participant List

Improving Business Processes for More Effective Transportation Systems Management and Operations (TSMO), March 14, 2019

Name (by last name)	Organization and Area	E-Mail
Ken Bernstein	Village of Valley View FD	kbernstein@valleyview.net
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*Workshop support staff

Appendix B: NOACA Workshop Agenda



Photos Courtesy of FHWA

Agenda

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

Traffic Incident Management

Arterial Management During Freeway Incidents

Hosted by: Northeast Ohio Areawide Coordinating Agency (NOACA)

March 14, 2019
8:30 AM – 4:00 PM

Ohio DOT District 12
5500 Transportation Boulevard, Garfield Heights, Ohio, 44125

8:30 – 9:00 AM	<p>Welcome and Introductions</p> <ul style="list-style-type: none"> • Welcome • Purpose of Workshop and Agenda Overview • Background on SHRP2 and Reliability Research • Self-introductions and Interests 	<p>Brian Blayney, NOACA Tony Toth, Ohio DOT Treeta Sekela, FHWA</p> <p>Dean Deeter, Athey Creek</p> <p>Pam Hutton, AASHTO</p> <p>Self-introductions by All</p>
9:00 – 10:00 AM	<p>Business Processes and Application to TSMO</p> <ul style="list-style-type: none"> • Overview of Business Processes • Business Process Mapping • Application to TSMO and Traffic Incident Management <ul style="list-style-type: none"> ○ Discussion: What business processes do you use in your work? • Tools for Developing Business Processes <ul style="list-style-type: none"> ○ Capability Maturity Frameworks, Primer, E-tool 	<p>Dean Deeter and Jeremy Schroeder, Athey Creek</p> <p>Discussion by All</p>
10:00 – 10:15 AM	Break	
10:15 – 10:30 AM	<p>Improving Business Processes</p> <ul style="list-style-type: none"> • Preparing for Business Process Improvement • 7-Step Approach 	Athey Creek

10:30 – 11:30 AM	NOACA Region Business Process: Arterial Management During Freeway Incidents <ul style="list-style-type: none"> • Background and Goals for Process Improvement • Applying the 7-Step Approach • Influences and Goals • Current Processes for Managing Traffic During Major Incidents 	Brian Blayney, NOACA Tony Toth, Ohio DOT Scott Ockunzzi, Ohio DOT Facilitated by Athey Creek Discussion by All
11:30 AM – 12:00 PM	Lunch (On-site – delivery with individual payments)	
12:00 – 2:00 PM	Business Process Mapping Exercise: Arterial Management During Freeway Incidents <ul style="list-style-type: none"> • Scenarios and Instructions • Small Group Breakouts <ul style="list-style-type: none"> – Group 1: Incident on I-90 WB in Lorain County – Group 2: Incident on I-480 WB in the Bridge Construction Zone • Re-convene and Report Out • Discuss Similarities/Differences in Process Maps 	All
2:00 – 2:15 PM	Break	
2:15 – 2:45 PM	Looking Ahead <ul style="list-style-type: none"> • Continue 7-step Approach: Implement, Assess, Document, Institutionalize the Process 	All
2:45 – 3:30 PM	Action Planning <ul style="list-style-type: none"> • Small Group Breakouts • Groups Report Out • Discussion and Documentation of Actions 	All
3:30 – 4:00 PM	Applying What You’ve Learned and Next Steps <ul style="list-style-type: none"> • Additional Business Processes for Traffic Incident Management • Workshop Evaluation • Closing Comments 	All NOACA, ODOT, FHWA

Appendix C: E-tool Discussion Guide Output

Report for Project: **Improving Arterial Management during Freeway Incidents**

Type of process assessed: **Incident Management**

Case study best matching process: **Case Study 1: Washington State DOT Joint Operations Policy Statement and Instant Tow Dispatch Program**

Type of influence identified: **Bottom up**

Influence description:

- **Arterials are getting congested during freeway incidents.**
- **Uncontrolled diversion to arterials can be managed better with some pre-planning.**
- **Want a more consistent response.**
- **Need to understand everyone's role in the process.**
- **Opportunities to identify how agencies can help one another – if not involved in primary incident, could bring more resources to bear in assisting on secondary aspects.**
- **Give forethought to unintended consequences on arterial routes e.g. there could be higher traffic in both directions or challenges with wide turns on some routes for trucks.**
- **Lack of traffic signal coordination between community jurisdictions can increase congestion and backups.**
- **Identify resources that are needed to help make case to leadership.**
- **Prioritize assets, e.g. communicate and coordinate law enforcement presence at signals across multiple jurisdictions.**
- **Time of day considerations – some routes and incidents may require special attention at any time, not just peak.**
- **Use available data to identify small operational changes that could increase the level of service.**
- **Opportunity to have better traffic signal technology to remotely implement pre-planned incident signal timing plans that would not require law enforcement to be at the signal.**
- **There is a need to have agreements in place to understand roles and responsibilities during an incident, and respect local control of signals.**

Goals:

- **Ability to have all appropriate entities involved in a unified command in a specific amount of time.**
- **Ability to limit the amount of resources that are needed for incident response, but still be effective.**
- **Some communities are not aware that they can contact ODOT for resources (e.g. sand or assistance with traffic signal plans) to assist during an incident. Resources need to be available in a timely manner in order to be effective and remain part of future incident responses.**
- **Prevent gridlock.**
- **Improve first responder safety on arterials and at the incident.**
- **Effectively assign officers to incidents and rely on neighboring communities for mutual aid during times when multiple incidents have occurred and more staff are needed.**
- **Reduce secondary crashes.**
- **Control the incident itself.**
- **Improve agency communications, coordination, and cooperation.**
- **Use of DMS and TMAs at back of the queue, and having them onsite in a timely manner.**

- **Identify resources like signs, etc. that can be available to local agencies and reduce time to respond to and clear an incident.**
- **Provide better information to the traveling public, e.g. via Waze, TomTom.**
- **Identify various resources, what times they are available, and contact information**

Business process model files associated with the process:

Description of existing process:

- **Traffic that diverts to arterials is not managed, whether a road is closed and traffic actively diverted from the freeway or chooses to divert.**
- **A playbook is available that includes wayfinding signs; developed about 15 years ago and will be updated as part of an ATMS book. Routes are being integrated into a mapping system to view detour routes on a mobile device in the field. Playbook.dot.state.oh.us (Internet Explorer only)**
- **Standard operating guidelines are available, but mostly regarding safe practices for vehicle fires and crashes, creating a barrier for lane closure, setting up cones, etc.**
- **Law enforcement role is different depending on whether responding to the incident or closing the road in a neighboring jurisdiction; officers will not direct traffic on the detour route since not know who is diverting and who is local traffic**
- **ODOT TMC is not always consistently notified of an incident**
- **Avon contacts school bus garage and Twitter**
- **Improve use social media to inform public**
- **Signal timing plans are generally not available – some are getting developed for ODOT signals, timing plans can be activated remotely.**
- **When interstates back up, Ohio Patrol dispatch receives many calls to ask what is going on and what are appropriate detour routes.**
- **ODOT TMC generally does not post information on social media about events unless can see it on a camera; working to make it easier for others to post information and do so in a consistent way.**
- **Work Zone incident management plan should be developed by the contractor for large projects. When ODOT predicts queue length for lane closure, that calculation estimates impacts to local roads but does not consider how to manage that impact yet. Cities and villages have control over ODOT routes in city – signal timing plans would be implemented by the cities if they have the capability, some need assistance. An agreement could be created to allow temporary ODOT control during certain circumstances.**

Operational Integration Iteration 1:

Implementation description: **Follow-up meeting with critical parties to establish agreement and discuss the traffic plan, including the actions required to be able to implement the plan (agreements, technologies, resources)**

Local agencies would take it to a meeting with city officials, e.g. mayor, utilities, etc., to get their feedback.

Program technology upgrades for traffic signal equipment.

Identify champion to take the lead and make it happen – NOACA or ODOT and TSMO Coordinators

Process evaluation description: **ODOT toast scores are an indirect measure – ranks all segments of state-maintained routes – travel time reliability, delay and congestion, bottlenecks, clearance times, freight volumes, etc. that affect real-time operations.**

INRIX data measures

Frequency / number of times the incident response plan is used

OHP's OH 1 reports track incident clearance times; TMC measure is separate but could also be used. This is still new, and also has a block for closures.

Assessing resources used would be tracked separately for each jurisdiction and have to be assembled.

After action reviews on major incidents

Incident clearance times

Process documentaiton description: **Part of NIMS forms, new system in Lorain County to fill out forms and reduce duplication. Could pre-plan one.**

Flow chart for business process – Visio sheet with references to MOUs, keep things in one place as much as possible; maybe NOACA would maintain a template and recommended process for periodic review, including Safety and Operations Council input and review, that is available for reference by others.

City Council resolution to enter agreement with ODOT on signal control.

Process documentation files:

Process institutionalizing description: **ODOT TSMO Coordinator is an established role and can make this business process a set item that is regularly brought up for review – tie this in with the position, not individuals.**