Background

The concept of a capability maturity framework (CMF) emerged from the Strategic Highway Research Program 2 (SHRP2) L01 and L06 projects that promoted a process-driven approach to improve Transportation Systems Management and Operations (TSM&O).

Adapted from the software development world, the notion of CMFs rests on the following three tenets:

• Process matters: Projects fail or do not achieve desired functionality for a variety of reasons unrelated to the technology.
• Prioritizing the right action is important: Is an agency ready, how do they know, and what should they do next?
• Focus on the weakest link: What is holding the agency back in becoming a leader in a particular area?

Building on SHRP2 results, the American Association of State Highway and Transportation Officials (AASHTO) has continued development of this concept and a capability maturity concept was published as part of the TSM&O guidance. SHRP2 implementation activities have successfully used the overall framework to work with State DOTs to develop action plans to improve their TSM&O capabilities.

To continue the emphasis on capability maturity and to provide program-level guidance, Federal Highway Administration (FHWA) developed additional frameworks that focus on improvement actions for specific TSM&O program areas including:

• Traffic Management
• Traffic Incident Management
• Road Weather Management
• Planned Special Events
• Work Zone Management
• Traffic Signal Management

These frameworks are designed for agencies and regions to assess the current strengths and weaknesses and develop a targeted action plan for the program area. More details can be found of the FHWA Operations web site: http://www.ops.fhwa.dot.gov/tsmoframeworktool/index.htm.

Table 1. Capability Maturity Framework Process Overview

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

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

Step 3: Identify actions that you need to take to move to the desired levels of capability.
The Traffic Incident Management Capability Maturity Self-Assessment

Traffic Incident Management (TIM) consists of a planned and coordinated multi-disciplinary process to detect, respond to, and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible. Effective TIM reduces the duration and impacts of traffic incidents and improves the safety of motorists, crash victims and emergency responders.

The TIM Capability Maturity Self-Assessment (TIM CMSA) tool was developed by the U.S. DOT Federal Highway Administration with input from state DOTs, law enforcement, and other TIM responders. The TIM CMSA allows an agency to assess and benchmark its existing capabilities, and, upon completion, provides an Action Plan with tangible actions for the agency.

In all these instances, the use of the TIM CMSA will provide a structured approach to review the complex institutional architectures and business processes required to make TIM a success. By reviewing the “non-technical” issues in detail and implementing the prioritized actions, agencies will increase the capability and sophistication of their TIM program.

Structure

Consistent with the SHRP2 guidance, the frameworks are all described as a matrix that defines the process improvement areas and levels (from Level 1, low-level to Level 4, optimized high-level) of capability. Following a self-assessment process, specific actions are identified to increase capabilities across the desired process areas. For TIM, the process improvement areas have been slightly modified, and capabilities are described for the following categories:

- **Strategic**
  - Formal TIM Programs
  - TIM Training and After-Action Reviews
  - TIM Performance Measures

- **Tactical**
  - TIM Laws
  - Policies and Procedures for Incident Response and Clearance
  - Responder and Motorist Safety

- **Support**
  - Data Collection/Integration/Sharing

Using the Self-Assessment

The TIM CMSA tool is available at [http://www.ops.fhwa.dot.gov/tsmoframeworktool/available_frameworks/traffic_incident.htm](http://www.ops.fhwa.dot.gov/tsmoframeworktool/available_frameworks/traffic_incident.htm).

A collaborative process is recommended for using the TIM CMSA. Typically, a local lead agency will pull together the stakeholders for a day-long workshop to walk through the self-assessment. TIM stakeholders may include transportation, law enforcement, fire/rescue, emergency medical services, towing and recovery, and all other responder or TIM committee disciplines. The outcomes of the workshop are a consensus of the current capabilities across all the dimensions and an initial list of prioritized actions.

The lead agency might then convene future meetings or identify existing forums where the identified actions will be championed and implemented.

The self-assessment is not intended as a benchmarking tool, but rather as a resource for agencies to identify appropriate actions for improving management and operations of traffic incident management systems. Periodic assessments are highly recommended to take place at least annually or when significant organizational changes occur or prior to major investments in the area.

Get involved:

If interested in using the framework, or hosting a CMF workshop for your agency or region, please contact the FHWA leads for this activity:

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