Traffic Management Capability Maturity Framework

U.S. Department of Transportation
Federal Highway Administration

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 CMF rests on the following three tenets:

- Process matters: Projects fail or do not achieve desired functionality for a variety of reasons not related 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) 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 on the FHWA Operations web site: http://www.ops.fhwa.dot.gov/tsmoframeworktool/index.htm.

Table 1. Capability Maturity Framework Process Overview

Process Improvement Areas   **Capability Levels**

Dimensions or Process Areas	What is it	Level 1 Ad-Hoc, Low Level of Capability	Level 2 Managed, Medium Level of Capability	Level 3 Integrated, High Level of Capability	Level 4 Optimized, Highest Level of Capability
Business Process	Plans, Programs, Budgets	Statement of Capability			
Systems & Tech	Approach to Building Systems		**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
Performance Measurement	Use of Performance Measures				
Workforce	Improving Capability of Workforce				
Culture	Changing Culture and Building Champions		**Step 3** Identify actions that you need to take to move to the desired levels of capability		
Collaboration	Improving Working Relationships				

The Traffic Management Capability Maturity Framework

This framework is intended for agencies or regions to assess current capabilities with respect to traffic management. The framework looks at the agency's ability to monitor, manage, and control traffic and the agency's ability to coordinate traffic information.

Broadly, the framework assesses the capability to efficiently manage the movement of traffic on streets and highways and includes corridor management approaches. The capability levels and the actions are focused and defined from a traffic manager's perspective. The actions may require other agencies to be the responsible party, which is intended to foster multi-agency collaboration and dialogue about traffic management at the regional level.

The use of the framework is recommended for agencies considering Integrated Corridor Management (ICM) or Active Transportation and Demand Management (ATDM) applications or if there are changes being planned for existing Traffic Management Center operations.

A multi-stakeholder approach is recommended to review the framework and identify improvement actions. Typical stakeholders include city and state traffic managers in the region, selection of traffic operators, transportation planners, law enforcement representatives and transit operators.

Structure

Consistent with the SHRP2 guidance, the frameworks are all described as a matrix defining 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. Capabilities are described for the following 6 areas:

1. Business processes

2. Systems and technology

3. Performance measurement

4. Culture

5. Organization and workforce

6. Collaboration

Using the Framework

A Traffic Management CMF and a supporting interactive tool have been developed. The current version of the framework is available at http://www.ops.fhwa.dot.gov/tsmoframeworktool/available_frameworks/traffic.htm.

A collaborative process is recommended for using the traffic management capability maturity framework. Typically, a local agency champion will pull together the stakeholders for traffic management in the area for a day-long workshop to walk through the framework.

In using the framework the stakeholders first determine their capability level using the self-assessment. Then, through use of the web-based tools, stakeholders identify, filter, and compile a set of actions appropriate to the region or agency. The outcomes of using the framework are consensus around the current capabilities across all the dimensions and an initial list of prioritized actions tailored to the region or agency.

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

The framework 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 management systems. So while periodic assessments are not required, revisiting the tool when significant organizational change occurs or prior to major investments in the area is recommended.

Figure 1. Screenshot of Tool

Get involved:

If interested in using the framework, or hosting a capability maturity framework workshop for your agency or region, please contact the FHWA leads for this activity:
Jim Hunt (jim.hunt@dot.gov) or
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