

## Simplifying Development of Transportation Management Operations Technician Position Descriptions

### TMC Staffing Challenges

The transportation management center (TMC) systems engineering process involves more than just planning and design of the TMC infrastructure. Other important activities in the design of a TMC include developing a concept of operations for the TMC and developing staffing plans and resource requirements for the TMC. It is vitally important that the TMC be staffed with transportation management operations technicians (TMOTs) who possess the appropriate knowledge, skills, and abilities to perform effectively, because the TMOTs are in some ways responsible for the safety of all who travel on the roadways in their jurisdiction.

Unfortunately, from a human resources perspective, TMOT position descriptions are more difficult to develop than those for other positions in state and local transportation departments. The TMC Pooled-Fund Study recognized the need for a resource to aid agencies in determining and preparing job classifications, recruitment and training requirements, and career paths for TMOTs. The *TMC Operator Requirements and Position Descriptions* project was initiated to create that resource.

### Developing a Framework for Describing TMOT Activities

In Phase 1 of the *TMC Operator Requirements and Position Descriptions* project, researchers compiled a list of sixteen “task integral” TMC functions (i.e., functions that can be broken down into individual tasks that will be performed by TMOTs in TMCs). In this context, a TMC function is defined as an on-going purpose for which a set of related activities is conducted in the TMC. The activities that comprise a function are tasks, which are discrete work elements conducted by TMOTs.

The specific knowledge, skills, and abilities (KSAs) required to perform each task were then identified. The KSA is a standardized way of expressing the capabilities required to perform in a specific position.

- TMOT knowledge is defined as the intellectual possession and command of information necessary to qualify for the TMOT position and the information that must be acquired after assuming a position in order to perform TMOT tasks.
- TMOT skill is defined as an assessment of the level of proficiency in exercising knowledge and/or performing TMOT tasks in terms of performance time and accuracy.
- TMOT ability is defined as the basic intellectual and physical capabilities necessary to perform in a TMOT position, acquire the necessary skills, and apply the necessary knowledge.

### The Sixteen Task Integral TMC Functions

- Provide Travel Information
- Records Management
- Congestion Management
- Failure Management
- Incident Management
- Special Event Management
- Traffic Flow Monitoring
- Emergency Management
- Provide/Coordinate Service Patrols
- Reversible and High Occupancy Vehicle (HOV) Lane Management
- Traffic Signal System Management
- Transit Vehicle Monitoring
- Advanced Public Transportation Systems (APTS) System Management
- Environmental and Roadway Weather Information Systems (RWIS) Monitoring
- Overheight Vehicle Management
- Rail Crossing Management

### Requirements Matrices and the Position Description Development Process

The TMOT functions and tasks and the associated KSAs were organized into a set of requirements matrices, and a step-by-step process for using the requirements matrices to derive the KSAs needed for a specific TMOT position was developed. However, this manual process was fairly tedious and time-intensive, and the need for a software tool implementing the process was recognized.

### TMCOps: The TMOT Position Description Creation Tool

In Phase 2 of the *TMC Operator Requirements and Position Descriptions* project, researchers developed an interactive Web-based tool known as TMCOps (<http://tmcoops.gtri.gatech.edu>) that implements the step-by-step process developed in Phase 1 and provides additional functionality. TMCOps also presents the documentation developed in Phase 1, fully updated and revised for Web presentation. This information was supplemented with new material developed for the tool to assist users in understanding functions, tasks, KSAs, performance levels, and other concepts essential to the development of position descriptions. The tool also utilizes materials developed in Phase 1 to generate customized lists of testable skills and training programs for TMOTs.

## Inputting Data Into TMCOps

The core of TMCOps is the Interactive Dialog, which gathers information from the user about the functions and tasks performed by TMOTs in the TMC of interest and uses that information to build the list of KSAs required to perform those functions and tasks. Two variations of the Interactive Dialog are available: the full dialog, in which the user must fully characterize the TMC of interest by selecting each individual function and task performed in the TMC of interest, and the streamlined dialog, which presents to the user only tasks that affect the inclusion or exclusion of related KSAs from the KSA list. The full dialog takes longer to complete but provides the user with more functionality than the streamlined dialog, which is designed for users who want to obtain the list of required KSAs as quickly as possible.

Users can create TMCOps user accounts that allow them to save their work securely into the TMCOps database and access their information from any location at a later time.

## Creating Output Products with TMCOps

TMCOps can generate three types of output products: lists of testable skills, training programs, and position descriptions.

The lists of testable skills consist of sets of measurable skills that can be developed into skills tests for evaluating TMOT performance. The "Assessing Skill Level" tutorial provides information on how to use a list of testable skills to evaluate skill level.

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The training programs are outlines that form the basis on which full training programs can be developed. The "Developing a Training Program" tutorial provides information on how to develop a training program outline into a full training program.

A position description, also called a job description, is a brief written explanation of a job. It is a summary of the job functions and includes the job title, purpose, tasks, responsibilities, and other information such as qualifications, work aids, equipment, conditions, and co-worker relationships. Position descriptions serve many purposes. They may be used to explain a position to potential applicants and to establish the classification and pay scale of a position, and may also be used for employee orientation, training, employee development, performance evaluation, promotion, and succession planning.

TMCOps allows users to tailor the structure and content of the position descriptions they generate. Some position description content is automatically generated by the tool, and instructional text to assist users in providing additional content is provided by the tool. The tool also provides several tutorials pertaining to position descriptions.

## Other Information in TMCOps

The full text of the *TMC Operator Requirements and Position Descriptions* and *Selected TMC Position Descriptions* documents, created in Phase 1 and fully revised and updated in Phase 2, are presented as a part of TMCOps. Additionally, a full glossary and list of acronyms is provided, along with a context-sensitive help system to assist users in using the tool.

Ten tutorials were written specifically for TMCOps to help users better understand functions, tasks, position descriptions, and other topics in order to use the tool more effectively. The list of tutorials appears below.

### The TMCOps Tutorials

- Distinguishing Functions and Tasks
- Creating New Functions or Tasks
- Determining the Performance Level of a New Discrete Task
- Selecting or Defining KSAs
- Understanding Position Descriptions
- Writing Position Descriptions
- Understanding the Factor Evaluation System
- Classifying Positions under the Factor Evaluation System
- Developing a Training Program
- Assessing Skill Level

Visit TMCOps on the Web at <http://tmcopts.gtri.gatech.edu>.

For More Information about the TMC Pooled-Fund Study, See  
<http://tmcpfs.ops.fhwa.dot.gov>

Call the FHWA Toll-Free Help Line:  
(866) 367-7487