

# THE HEADQUARTERS TRANSPORTATION ROADMAP AND HOW IT SUPPORTS THE TRANSPORTATION MANAGEMENT DIVISIONS CRITICAL MISSION

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## ABSTRACT

In September 1992, the initial Headquarters (HQ) Transportation Roadmap\* was developed by the Department of Energy's Transportation Management Division (TMD). This effort marked the first HQ programmatic roadmap. The document will be updated annually to reflect changes in the organization, mission or regulatory environment that influence TMD's program. The HQ Transportation Roadmap allows TMD to communicate its goals and objectives, capabilities, and issues facing the transportation of DOE-owned materials.

## THE ROADMAP PROCESS

The Roadmap\*\* Process is used by the U.S. Department of Energy (DOE) Office of Environmental Restoration and Waste Management (EM) to determine issue-based planning activities necessary for achieving final waste disposal, completing site remediation, and bringing waste operations into regulatory compliance. Roadmaps are developed by following a systematic planning process that largely focuses on issue identification, root-cause analysis, and issue resolution.

The roadmapping process provides for comparison of a program or installation as it *presently* exists to the way the program or installation *should* exist under full compliance with applicable regulations and DOE Orders. The goal of roadmapping is the identification of the issues that separate the two so that accurate and timely corrective activities can be formulated. In addition, roadmapping identifies more global, complex-wide issues that impede progress in achieving EM's goals.

Roadmaps are developed using a logical, structured methodology to provide a documented basis for subsequent activity project planning. The roadmap methodology includes nine steps that are grouped into three phases: assessment, analysis, and issue resolution. Fig. 1 illustrates the steps included in each phase, and the processes and deliverables associated with each step.

### PHASE I: ASSESSMENT

The Assessment Phase defines the current status and background of the program or installation. Planning assumptions are identified and documented. Regulatory drivers are cataloged, and schedules of commitments are determined. A comprehensive schedule of current key activities is prepared that shows all currently budgeted and forecasted activities for the program or the installation. In addition, logic diagrams are constructed to show the sequence of events necessary to

achieve a particular goal and to indicate interface requirements.

In Step One, the assumptions being used by the installation or program to provide for the carrying out of EM activities are identified and documented. For example, if the installation assumes that personnel resources will remain constant for performing waste operations, the assumptions document needs to clearly identify that situation. Establishing the assumptions is necessary to understand all circumstances in a broad scope, and to determine if additional action is necessary.

In Step Two, the regulatory requirements to which the installation must adhere are identified. Requirements are International, Federal, State, Tribal, and local regulations and codes; DOE Orders; and any other agreements with which DOE is required to comply. Roadmap planning must access and evaluate all requirements data to substantiate the identification and prioritization of issues. Issues are largely derived from requirements that have not been met.

Step Three comprehensively describes all commitments that a DOE program is required to satisfy. Examples of sources for commitments include Intra-Agency Agreements (IAG) and Federal Facility Agreements. This portion of the roadmap depicts committed milestones to assess timely implementation of activities and to satisfy requirements. The assessment will entail comparing committed milestones to each other and with logic diagrams to make sure the milestone can be met.

In Step Four, a schedule of key activities by waste type or program is prepared. The schedule contains all currently budgeted and forecasted activities. The schedule is not required in the final roadmap document, but is required to adequately complete the Assessment Phase. The Planned Activities Diagram is compared to the logic diagrams to find inconsistencies and, most importantly, is the basis for the Desired Activities Diagram in Step 9. In addition, logic

\* Headquarters Transportation Roadmap. United States Department of Energy, Environmental Restoration and Waste Management, September 1992, Washington, D.C.

\*\* Roadmap Methodology Document. United States Department of Energy, Environmental Restoration and Waste Management, May 15, 1991. Washington, D.C.

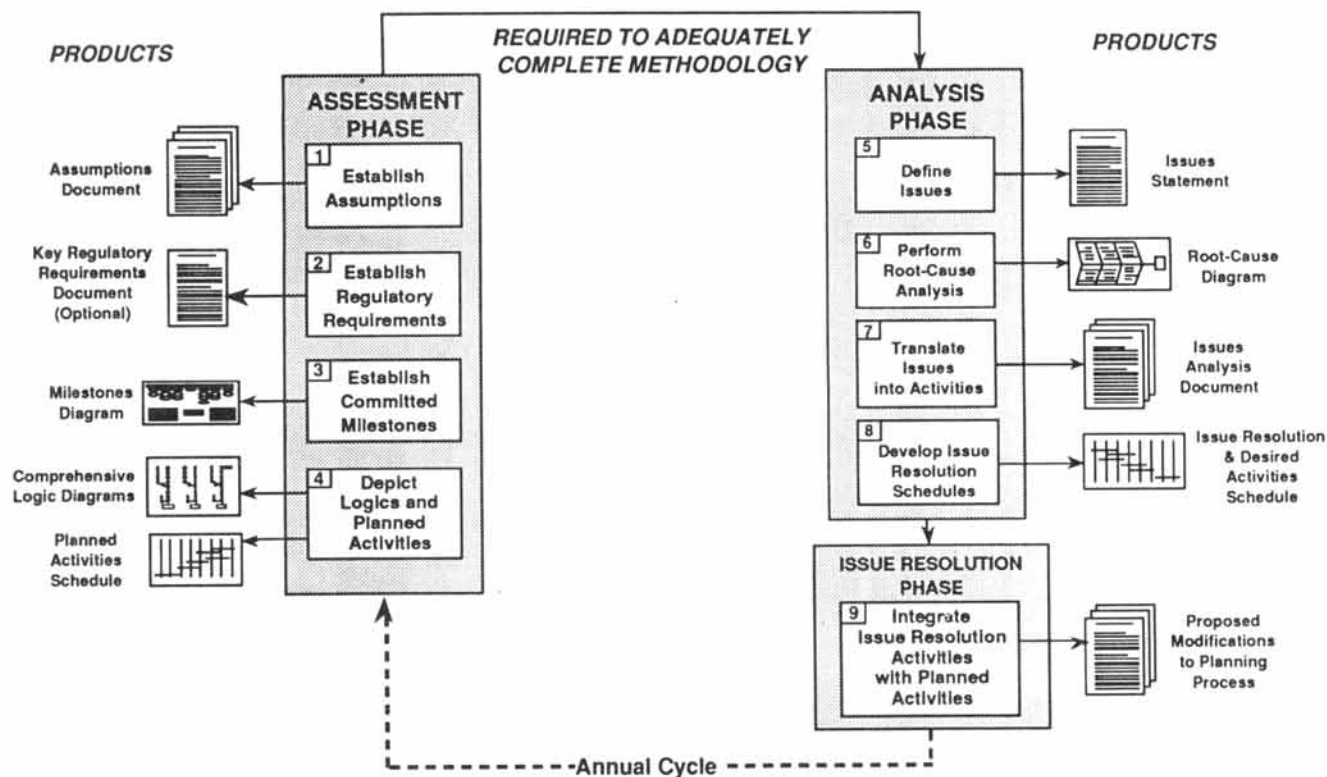


Fig. 1. Roadmap process and products.

diagrams are constructed to show the sequence of generic steps necessary to achieve a particular goal, and to identify which of these are addressed by current activities.

## PHASE II: ANALYSIS

The Analysis Phase consists of determining the key issues and actions needed for resolution of the identified issues. It builds upon data collected in the Assessment Phase, but also relies on the judgement and experience of both management and staff with respect to the needs of the program or installation. The Analysis Phase is accomplished in four steps which include identifying issues, doing root cause analysis, translating these into activities, and constructing a time line for issues resolution.

In Step Five, the identification of issues which hinder accomplishment of EM objectives is completed. Issues are identified using both "top-down" and "bottom-up" approaches. In the top-down approach, a list of issues is prepared based on senior management knowledge and experience. Issues are also identified from the bottom up by analyzing the data collected in the Assessment Phase to determine where the planned activities fall short of achieving the identified milestones and commitments. The issues are then reduced to simple statements of fact that describe the issue [e.g., "Packaging for a particular waste or material is not available"]. These statements are collected in an issues statement document that streamlines the analysis process in the next step, but is not required for inclusion in the final roadmap document.

In Step Six, the issues are analyzed to determine their root causes. The product that results from this step, the fishbone diagram, is not required for inclusion in the final roadmap document, but this step is necessary to adequately complete the Analysis Phase. The step helps structure the breakdown of issues, usually through a group discussion, into the smallest

component deemed appropriate by the roadmap team. Each component is analyzed to determine its root cause. The cause then becomes a subcomponent of the issue and is reanalyzed. This process continues until the roadmap team feels they have a clear understanding of the fundamental problems that surround each issue so that corrective actions can be formulated.

Step Seven is a two-part process that results in an issues analysis document. First, issue statements from Step Five are converted into need statements for resolving the issue. Second, the needs are then converted into activities that satisfy the need. An example is that a site does not have a package to ship a particular waste. The need is that a package be developed to meet a site agreement milestone. The activity is to assess packaging inventories to meet the package need or design a new package. The issues, needs, and activities are all organized into an issues analysis document. The activities identified in this document form the foundation of corrective action to be incorporated in the overall planning scheme.

In Step Eight, issues resolution and desired activities schedules are prepared. An analysis of the following items enables one to determine the best time frame for performing issue resolution activities: current activities; issues; commitments; assumptions; activities needed to resolve those issues; and logic diagrams for managing activities. The analysis results in the issue resolution and desired activities schedule. The schedule allows the matching of scheduled resolution of issues to new activities and illustrates precisely when each activity should be performed.

## PHASE III: ISSUE RESOLUTION

The Issue Resolution Phase, Step Nine, merges the issue resolution activities with ongoing and planned activities. Specific recommendations for modifications, additions, and deletions to current plans are developed and reviewed by senior management. The additions and deletions to the current

planned activities are captured into a proposed modification to Technical Task Plans (TTPs). At the same time, issues that cannot be addressed by the program are raised to appropriate levels of management.

The roadmap methodology leads to a clear understanding of actions that are required for resolution of problem-causing issues. Its successful completion and timing results in the development of a useful issues-driven planning tool that is integrated with the entire EM-five-year planning process and serves to expedite progress in the achievement of long-term goals.

The roadmap sections are each individually structured to satisfy the need for planning documentation. The products are used to communicate planning information, and they are also evidence of planning completeness. Roadmap information is a step in sound project management that includes recognition of strategic goals, determination of current status and issues identification and activity planning. The roadmap products as a whole support the budget request by relating activities to needs and issue resolution.

### OVERVIEW OF TMD (EM-561)

DOE's Transportation Management Division (TMD), which resides in the Office of Environmental Restoration and Waste Management, Office of Technology Development, develops and implements effective strategies, techniques, methods, and policy guidance for safe, secure, efficient, and cost-effective transportation of DOE materials, including hazardous materials (particularly radioactive), hazardous substances, and hazardous and mixed wastes. TMD is responsible for: facilitating and coordinating shipping activities (i.e., transportation operations activities such as negotiating rates and services, developing carrier selection standards, etc.) on behalf of the responsible DOE program; providing training to ensure compliance and enhance safety for DOE and contractor employees on applicable regulations and procedures for handling and transporting hazardous materials (including radioactive), wastes, and substances; maintaining a significant research and development activity to ensure packagings that are regulatory compliant, efficient, cost-effective and safe are available to meet program requirements; maintaining data systems and technologies to enable DOE and other interested parties to retrieve and analyze information on DOE transportation and packaging activities. TMD also performs assessments of the DOE field transportation and packaging operations to assure they are in compliance with all applicable regulations and DOE operating procedures and guidelines.

### TMD'S APPROACH

TMD developed the Headquarters Transportation Roadmap for a number of reasons: to provide an avenue to raise transportation issues; to provide a baseline for TMD planning; to assist site transportation personnel to become involved with the EM Roadmap Process; and to integrate transportation planning across program lines. TMD encountered unique situations applying the roadmap process. Two teams were developed to create the document. The first team organized was the Core Team which consisted of DOE headquarters staff and contractors. The Core Team provided overall direction and guidance concerning the process and the products. Then, the Subject Matter Specialists team was assembled from DOE staff and contractors from various DOE sites across the U.S. The Subject Matter Specialists contributed individual expertise and an overall field perspective.

The initial meetings were held to generate assumptions. Once the assumptions were catalogued, the team created the regulatory drivers document, committed milestones diagram and logic diagrams. The Subject Matter Specialists generated the regulatory drivers document and the logic diagrams. The regulatory drivers section was extensively reviewed to assure that the full scope of regulations that apply to DOE transportation activities were represented.

Logic diagrams are usually prepared for activities with a well-defined point of conclusion/endpoint. TMD activities/roles are more support, process oriented, which made logic diagram generation more challenging. The major areas for logic diagram creation were packaging, transportation logistics, training, HQ program management and regulatory compliance. In all, thirty logic diagrams were created covering the TMD areas of responsibility. This was the most time-consuming aspect of the process due to the magnitude of detail the logic diagrams incorporated.

When the Assessment Phase was completed, the Analysis Phase began. The Core Team generated a set of issues and prepared them for review and input by the Subject Matter Specialists. Once a set of issues was agreed upon, root-cause activities began. Dividing the issues into fundamental problems and defining activities to resolve them proved valuable for all involved. The field operations' perspective on complex issues was useful to orient resolution activities. In all, 13 primary issues were identified.

Several wide-ranging issues were identified concerning TMD's operations. Issues that TMD could address were acted upon through TTP modifications to incorporate resolution activities. Other issues were transmitted to appropriate levels of management for action.

Once the draft document was complete, it was sent for review by the Subject Matter Specialists. Comments were organized and addressed. Then, the draft roadmap was reviewed by the transportation points of contact for other DOE Program Secretarial Offices (PSO), Defense Programs (DP), Office of Civilian and Radioactive Waste Management (RW), Energy Research (ER), Security Affairs, Nuclear Energy (NE), New Production Reactors (NPR), etc. This was done because TMD's mission is to support DOE-wide transportation management (logistics/packaging) activities. Comments received from the PSOs were addressed, and the document was produced for distribution.

### 1993 HQ TRANSPORTATION ROADMAP

The 1992 HQ Transportation Roadmap has proven to be an effective planning and communication document. The Regulatory Drivers section has been beneficial in budget justification to the Office of Management and Budget (OMB). While the 1992 roadmap was good, it can be improved. The 1993 edition will concentrate on defining and developing the roles and responsibilities, logic diagrams and root-causing issues. TMD's roles and responsibilities are deemed important to document because transportation management activities have been moved from one DOE program to another. Each movement has fractured transportation management activities by leaving in doubt what roles and responsibilities remained or moved to the new program. Therefore, the identification and communication of TMD's roles and responsibilities to other DOE programs is vital, so that duplication of activities can be avoided. To accomplish the task of defining TMD's roles and responsibilities, a new team, the Steering Committee has been formed. The Steering Committee is



made up of transportation points of contact for DOE programs DP, ER, RW, and NE. To date, several Steering Committee Meetings have been conducted and a draft roles and responsibilities document has been created. This draft with input from TMD will be reviewed and revised as necessary. The roles and responsibilities will be circulated to other DOE programs for validation and review.

Currently, the Subject Matter Specialists are updating the logic diagrams which entails adding regulatory drivers, budget information, and more detail in terms of decisions and activities. This will create a better tool to identify issues.

The 1993 Roadmap Team will dedicate more time and effort on defining the primary causes to issues. This will be accomplished through wider participation by Subject Matter Specialists and allotting more time in the document's creation to root-causing. The goal of this and future updates is to clarify what TMD's role is, the issues confronting the program and communicating this within EM and DOE.

### CONCLUSION

The initial effort involved with the production of the 1992 HQ Roadmap proved to be extremely successful from many standpoints. Working through the process proved enlightening to the team members in terms of directing their focus on problem areas of which they were previously unaware. In

addition, the product allowed others to become aware not only of the direction that HQ was proceeding but shed much light on details of the subject matter under study and the steps being taken to correct certain problems and attain objectives.

Of the utmost importance is the refinement process which flowed out of this roadmap for the undertaking of the 1992 version. Lessons learned from this earlier effort have been employed in guiding the revision process. Now that TMD has an initial HQ Transportation Roadmap in hand, its personnel are better able to develop meaningful long range plans and to identify impediments to completing its cross-programmatic mission. The 1993 edition is planned for distribution in late July. Indications are that it is a far more complete and understandable document and will again be of tremendous value in future planning and implementation processes.

### REFERENCES

1. Headquarters Transportation Roadmap, United States Department of Energy, Environmental Restoration and Waste Management, Transportation Management Division, September 1992.
2. Roadmap Methodology Document, United States Department of Energy, Environmental Restoration and Waste Management, May 15, 1991.