

## Preliminary Overview of the Proposed Resource Management System (RMS)

Scott Seymour  
Administrative Analyst  
Indiana Department of Transportation

### Introduction

The Office of Highway Development proposes that a system be developed that improves upon the present Production Scheduling System for managing projects during the preconstruction engineering phase (preliminary studies through letting dates). Driving the need for this improved management information tool (a Resource Management System) is the desire to prevent the problems associated when letting dates "roll" or extend further into the future. Such problems include, but not limited to, the timing of funds available, accountability and monitoring improvements (an important aspect as they pertain to TQM efforts and the upcoming use of project managers), and alternatives available regarding resources necessary as project priorities are shifted (the need to do "what if" scenarios).

### Current System

According to the documentation for the Production Scheduling System, the system ...identifies project scheduling responsibilities and incorporates the concept of program management. By providing not only project schedules but also program summary reports, the system places emphasis on total program control and not just simple project monitoring.

However, the current scheduling system is not a management tool, but a file of infor-

mation that contains key dates that should be met by certain stages of the project. The system lacks critical path information, graphics, resource estimating, and multiple project scheduling (i.e. prioritization of projects) necessary for managerial purposes.

### Specific Objectives of the Proposed RMS

1. Development of a method for resource estimating which will make visible the resources required vs. resources available to meet the workload within any division;
2. Development of a method for defining a network(s) based on the standard number of project types, possible project categories within project types, and the standard activities involved in each network. Then the standard resource hours required for each in each network must be determined;
3. Development of a method for establishing a critical path analysis. The critical path will determine which completion dates for a series of activities in the network must be strictly adhered to in order for the estimated letting date to remain unchanged and which activities have "flat" or slack time that can be delayed without affecting the letting date;

4. Multiple project scheduling which will provide a schedule for all projects that fills the organization's capacity, completes the highest priority projects first, and shows the impact of changing a project's priority;
5. Development of a set of guidelines that can be used by Policy and Budget for forecasting funding requirements for projects; and
6. Create a smooth interface between the RMS and existing systems such as Highway Improvement Planning (HIP), Bid Analysis Management System (BAMS), and Land Acquisition/Right-of-Way System, and the Construction Management System.

#### **Project Phases and Estimated Time Requirements**

##### **1. Requirements Phase**

This phase will begin with a definition of "what" the Resource Management System (RMS) must accomplish.

The estimated time of completion:

- 3-6 months

##### **2. Concepts Phase**

This phase will complete the definition of "what" the RMS must accomplish and begin with the definition of "how" it will work.

The estimated time of completion:

- 2-3 months

##### **3. Detailed Design Phase**

This phase will complete the definition of "how" the system works, and include the Physical screen and report layouts as well as

program specifications, data base, and file designs.

The estimated time of completion:

- Vender Application           1 month
- In-house/Consultant       2-4 months
- Total In-house               3-6 months

##### **4. Program Development Phase**

This phase will create the software necessary to implement the objectives of the RMS system.

The estimated time of completion:

- Vender application       2-4 months
- In-house/Consultant     3-6 months
- Total In-house           9-18 months

##### **5. Systems Testing Phase**

This phase will utilize personnel from each division to test the operation of the software.

The estimated time of completion:

- Vender application       2 months
- In-house/Consultant     3-4 months
- Total In-house           6 months

##### **6. Implementation Phase**

This phase will involve converting the system from a test environment to a production environment.

The estimated time of completion:

- 1-3 months

##### **7. Tuning Phase**

This phase will address the production use of RMS as the user community familiarized themselves with the system on an everyday basis. Some edits or minor changes may need to be made to the software.

The estimated time of completion:

- 6 months after implementation