

# Roadway Capital Projects

## Summary

The County Transportation Division is responsible for managing a safe and balanced regional transportation network of major east County arterials, roads in the unincorporated areas, and the Willamette River bridges and bikeways. Since 1983, the Division's responsibility has been reduced from 1000 miles to 350 miles of roads as cities have assumed more control. The County retains jurisdiction over some roads in Gresham and the smaller cities. The Bridge Section in the Division maintains the six Willamette River Bridge crossings as well as other bridges within Multnomah County. The Planning Section develops a long-range, capital improvement plan every two years. The Engineering Section designs and completes construction of specific road projects identified in the plan.

Our review focuses on planning and project management of roadway capital projects. The objective of our audit was to determine whether systems are in place to ensure that roadway capital projects are properly planned and effectively managed.

Road projects generally involve staff from Planning and all six units of the Engineering Section. However, most of the staff devoted to roadway capital projects are from the Design, Construction and Project Engineering Units, which collectively have approximately 20 employees. County engineers design road projects, contract for construction and manage the project to completion. Roadway capital construction contracts managed by Engineering vary in size from a few thousand dollars to several million dollars. Since January 1996, Engineering has advanced or completed approximately 40 roadway capital projects worth over \$19,000,000.

Project management differs from operational management. In contrast to many County services that are on-going, those supplied by Engineering have a definite start and finish and result in a unique product. Projects proceed by inter-related or dependent steps. Careful planning and monitoring are required to ensure that projects are completed on time, at the least possible cost, and at an acceptable quality level.

Events in the recent past have impacted Engineering's ability to provide effective project management. During the last 3 years, Engineering has dealt with staff turnover, emergency roadway projects from winter storms, increased development, and the lack of a full-time transportation director. We believe that these circumstances, combined with an absence of written procedures have weakened project management systems.

Careful planning provides the groundwork for good management. Improvements are needed in the roadway capital planning process. Criteria used to prioritize roadway projects should be thoroughly reviewed. Information in planning documents could be better communicated and management could better monitor implementation of roadway capital plans. Management began addressing these issues during our audit.

We used the Project Management's Institute's Guide to the Project Management Body of

Knowledge (PMBOK) to assess project management controls over roadway capital projects in Engineering. PMBOK provides guidance for project management through principles and techniques to control project risk. We found that improvements could be made in each of the PMBOK areas of Integration, Scope, Time, Cost, Quality, Human Resources, Communications, Risk, and Procurement.

During the audit, we discovered that Engineering was in general agreement on the significant improvements that were needed. Given this environment, we modified our approach to the audit. Rather than narrowing our attention to specific problems and conducting quantitative analyses to determine their fiscal impacts, we broadened the audit to examine controls throughout the entire capital project management system for roads. We focused on working with management to address a broad range of project management issues. Engineering's dedicated commitment to process improvements provides us with a high level of confidence that needed improvements will be made.

In addition to this report, we provided a detailed, technical report of our analysis to management and reviewed it with them. We extended the time normally provided for an audit response so that a project plan could be prepared. The Division's response conveys a strong commitment to high quality project management and details a plan for addressing issues in this report. Engineering intends to make provisions for proposed changes in their 1999-2000 budget. This office will perform audit follow-ups at later dates to ensure that proposed changes have been implemented.

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