4. Maintenance and Materials Management

- **The Superintendent of Operations has various oversight responsibilities that impair his ability to effectively manage maintenance activities within the Project Operations Section. This impairment manifests itself in a lack of comprehensive policies and procedures, the absence of comprehensive performance measurement and reporting tools, and weak maintenance planning and scheduling processes. In addition, the Section has not established strong systems for materials management or for the control of tools and equipment.**

- **The Hetch Hetchy Enterprise should evaluate its maintenance organization to develop a new organizational structure that incorporates efficient supervisory assignments and minimizes supervisory pay differentials. The Budget Analyst found that the Project Operations Maintenance Section assigned staff in a manner that resulted in supervisory differential pay for the section's staff. Three Water and Power Maintenance Supervisor I positions have each been assigned to manage three Operating Engineer, Universal positions, which are higher paid positions, resulting in the payment of supervisory pay differentials to each of the Water and Power Maintenance Supervisor I positions, equal to approximately $16,000 to $17,000 in increased pay annually per position. The Hetch Hetchy Enterprise could save approximately $48,000 to $51,000 annually in salary costs for the three Water and Power Maintenance Supervisor I positions currently receiving supervisory pay differentials by reorganizing the maintenance work crews.**

Project Operations Maintenance Section's Management

The Hetch Hetchy Enterprise's Project Operations Maintenance Section, the term used in this report for the three Project Operations maintenance organizations as a consolidated entity, has been in existence in one form or another since at least the 1930s. The Project Operations Maintenance Section is responsible for maintenance and operations of the Hetch Hetchy reservoir and hydroelectric power generation systems, including the water and hydroelectric power transmission systems.

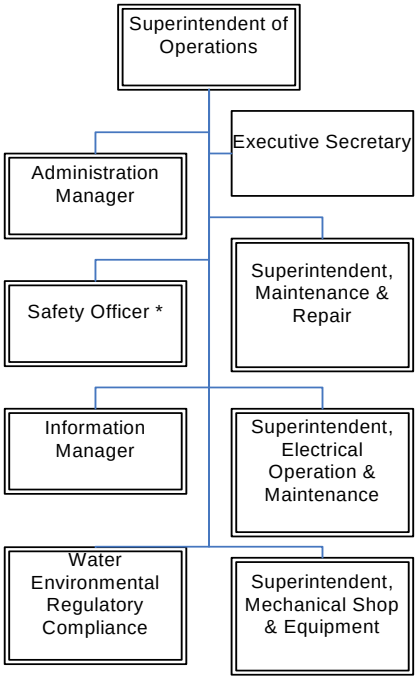
Project Operations Maintenance Section's Organization

The Project Operations Maintenance Section consists of administrative and maintenance management functions as shown in the organizational chart in Exhibit 4.1 below. The Project Operations Maintenance Section is managed by the Superintendent of Operations. The Superintendent of Operations' direct reports include an Administration Manager, an

Information Manager, a Water Environmental Regulatory Compliance Officer, and three Superintendents responsible for maintenance and operations.

Exhibit 4.1

Project Operations Maintenance Section Organizational Chart



* Reports to the Public Utilities Commission's Bureau of Environmental Regulation and Management

The combined responsibility of the three maintenance units in the Project Operations Maintenance Section is to provide reliable water and power deliveries to the City and County of San Francisco and the City's customers by effectively maintaining the water and power storage and delivery systems, including the following system components: watersheds, reservoirs, dams, penstocks,[1] tunnels, pipelines, valve houses, powerhouses and power generators, switchyards, distribution systems, transmission systems, electronic monitoring and control systems, and various support facilities.

Maintenance Management Policies and Procedures

The maintenance function is the subject of keen interest in industry and government, and there are profound changes taking place in maintenance and reliability management. Much of the discussion is taking place as part of the development of an "asset management" approach, a topic that the Budget Analyst is reviewing and evaluating and

[1] A "penstock" is a conduit that transports an accelerated flow of water to **a** facility such as a hydroelectric plant.

will report on later in the course of this management audit. In many organizations, the maintenance function has not been regarded as a core activity and has been relegated to an inferior status compared to other organizational functions. That situation is changing, as equipment reliability has become a critical metric in assessing an organization's performance or level of service.

The Project Operations Maintenance Section does not have a consolidated policies and procedures manual to assist in controlling maintenance operations. A policies and procedures manual would serve to standardize such maintenance functions as setting maintenance priorities, controlling tools and equipment, recording maintenance time, providing an overview of MAXIMO,[2] and providing means of increasing "wrench time."[3] Examples of additional topics appropriate for inclusion in policies and procedures manuals are shown below in Table 4.1.

Table 4.1

Maintenance Management Policies and Procedures Manual Example Contents

• Work Order Procedures	• Preventive Maintenance
• Backlog Tracking	• Warranty Tracking
• Daily Work Schedule	• Failure Analysis
• Weekly Maintenance Plan	• Contractor Control
• Job Card Procedure	• Job Control
• Work Assignment Monitoring	• Procedure and Form Revision
• Mechanical Inspection	• Management Reporting

Source: Water Pollution Control Division's *Maintenance Management Policies and Procedures Manual*

The Project Operations Maintenance Section's maintenance operations are unique in the City, and the facilities, machinery, and apparatus for conveying water and power to the City are unlike those of other City departments. Many of the facilities, machines, and devices are very old and, although still reliable, outdated in functionality, construction, and/or fabrication.

[2] MAXIMO is the Computerized Maintenance Management Software System used throughout the Public Utilities Commission.

[3] Productivity is frequently measured by "wrench time" which is defined as the amount or percentage of time that a craftsperson is actually using his or her tools to perform maintenance work. Wrench time is a measure of the craftsperson's productivity, and is impacted by a variety of factors, such as the amount of time spent waiting for parts, traveling to and from the job site for tools or materials, or waiting for equipment to be made available for maintenance.

The workforce of the Project Operations Maintenance Section is aging and many long-term staff will retire in the next few years, as discussed in Section 5 of this report. Without well-defined written policies and procedures, much of the skill and knowledge of these long-term staff in operating and maintaining the Hetch Hetchy Enterprise's unique water and power systems will not be effectively passed to younger maintenance staff. The knowledge and skill of the long-term staff should be recorded in a detailed set of policies and procedures manuals prior to the departure of the organization's knowledge base.

Policies and procedures serve multiple functions, including the following:

- A self-regulating control standard for performing work.
- An efficiency and effectiveness tool incorporating best practices or lessons learned.
- A training tool for newly assigned personnel.

The absence of an up-to-date maintenance policies and procedures manual is a serious deficiency that should be corrected on a priority basis. The policies and procedures manual should be a dynamic document, continually incorporating updated information. The Project Operations Maintenance Section can use appropriate sections of other departments' policies and procedures manuals as starting points in the development of their own. However approached, a good policies and procedures manual is a guidance, control, and training tool that the Project Operations Maintenance Section needs to develop on a priority basis.

The Hetch Hetchy Enterprise has worked without written policies and procedures for many years. Although the Superintendent of Operations has assigned responsibility for developing written policies and procedures to the Information Manager, the Projects Operations Section has not developed a clear work plan or timeframe for development of the written policies and procedures manual. The Acting Director, Water Operations, in conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Maintenance Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

Maintenance Planning and Scheduling

In addition to the lack of documented procedures, the Hetch Hetchy Enterprise's Project Operations Maintenance Section does not have adequate procedures for planning and scheduling maintenance work. Maintenance planning and scheduling is a vitally important aspect of maintenance effectiveness and efficiency. Effective maintenance operations can be planned and scheduled in a manual mode, as currently described in the Water Pollution Control Division's *Maintenance Management Policies and Procedures Manual*, or, as is the practice in many organizations, using a computerized maintenance management software system. Although the MAXIMO Computerized Maintenance Management Software system is standard among all of the Public Utilities Commission's

enterprise departments, the enterprise departments have not implemented the MAXIMO system uniformly. The Hetch Hetchy Enterprise has not implemented the MAXIMO system to the same extent as the Clean Water Enterprise's Water Pollution and Control Division.

The Project Operations Maintenance Section currently uses the MAXIMO Computerized Maintenance Management Software system for material tracking, cost tracking, and purchasing. However, the Project Operations Maintenance Section uses the MAXIMO Computerized Maintenance Management Software system minimally for planning and not at all for scheduling maintenance operations, although this function is one of the major benefits of a computerized maintenance management software system.

Project Operations Maintenance is authorized two Classification 7262 Maintenance Planner positions in the FY 2004-2005 Annual Salary Ordinance. However, only one of the maintenance planners is working full time in that classification. The second maintenance planner actually serves as the Maintenance Manager of a maintenance section with 24 total staff, managing carpenter and painter craftsmen, gardeners, and the Moccasin Office Water and Power Maintenance crew, in addition to performing a small amount of maintenance planner tasks.

In contrast to the Project Operations Maintenance Section's minimal planning and scheduling function, the Clean Water Enterprise's Water Pollution Control Division's Planning Section has ten planner positions, including the Planning/Scheduling Supervisor, which are fully engaged in the management of the Water Pollution Control Division's maintenance operations. Further, the planner assigned to each trade is a skilled journeyman in that trade. For example, the Electrical Planner is an Electrical Journeyman and the Instrumentation and Control Planner is an Instrumentation and Control Journeyman. The Water Pollution Control Division's Maintenance Section is authorized 140 positions. The Hetch Hetchy Enterprise's Project Operations Maintenance Section is authorized 133 positions, including 25 Power Generation Technician positions.

Need for Improved Planning and Scheduling of Maintenance Projects

As previously stated, wrench time is a critical determinant of maintenance productivity and, therefore, of a maintenance organization's effectiveness. Maintenance industry literature cites productivity rates, as measured by wrench time, of approximately 25 percent to 35 percent as typical for maintenance organizations performing maintenance operations similar to those of the Project Operations Maintenance Section. Significant productivity improvement can be expected through implementation of a computerized maintenance management software system including adequate planning and scheduling processes. For example, given the distances from the Project Operations Maintenance Section's shops to some of the facilities requiring maintenance, one-way travel times of up to one and one-half hours, and longer during winter months, are required to reach the work sites. Under such conditions, failure to bring a critical tool or replacement part can drastically affect a day's productivity. Maintenance planning and scheduling can greatly reduce such occurrences.

The Project Operations Maintenance Section:

- Does not set or track productivity measures such as wrench time.
- Does not use the scheduling module in MAXIMO, which reportedly has deficiencies that are being fixed by the vendor.
- Only uses the MAXIMO planning module on a very limited basis.

In order to reduce the percentage of non-productive time in its maintenance activities and improve its overall maintenance performance, the Project Operations Maintenance Section should thoroughly integrate planning and scheduling into its maintenance operations, including using MAXIMO to the extent of that system's capabilities.

Maintenance Management Performance Measurement and Reporting

The Project Operations Maintenance Section has inadequate maintenance management reporting. Reporting is a basic and essential component of professional management. Comparison of actual performance to planned accomplishment is absolutely necessary to an effective and efficient operation. Planning and controlling is a dynamic process: learning gained from actual experience should be incorporated into updated standards and to new plans. Accurate reporting is required by (a) maintenance managers in order to improve their operations, and (b) executive management in order to assess the performance of maintenance management and to coordinate the activities or operations and support functions with the maintenance function.

Although the Project Operations Maintenance Section collects data on time charged to work order, it does not enter reliable estimated times into the MAXIMO system. As a consequence, the Project Operations Maintenance Section is unable to measure productivity (actual hours of work performed compared to estimated hours of work to be performed). Further, in order to determine compliance (all hours compared to planned hours), all outstanding work and performance measures must be entered into MAXIMO, but the Project Operations Maintenance Section does not enter all performance measures.

When requested to produce maintenance reports on data collected in MAXIMO, the Project Operations Maintenance Section staff are readily able to comply on subjects such as preventive maintenance, maintenance backlogs, or unscheduled work performed. However, unlike the Clean Water Enterprise's Water Pollution Control Division, which reports its maintenance performance quarterly for the months ending in March, June, September, and December by publishing a *Management by Objectives Report*, the Hetch Hetchy Enterprise's Project Operations Maintenance Section does not produce such a report. The *Management by Objectives Report* produced by the Water Pollution Control Division uses efficiency and effectiveness ratios and other metrics that show the performance of most of the maintenance crews and related disciplines assigned to the its Maintenance Division. The primary metrics developed are shown below:

Table 4.2

Management by Objective Report Characteristics

Report Section Name	Type Measure	Numerator	Denominator
Productivity	Efficiency	Estimated Hours Required to Complete the Job	Actual Hours Expended to Complete the Job
Compliance	Effectiveness	Hours of Priority 1 Work Planned	Hours of All Work Performed
Backlog	Combination Efficiency and Effectiveness	Work Planned, In Progress, and Awaiting Completion	None

Source: Budget Analyst' Analysis of *Management by Objectives Report*

The *Management by Objectives Report* is a useful management tool. The Project Operations Maintenance Section should produce its own *Management by Objectives Report*, and, as the Budget Analyst recommended in the Water Pollution Control Division audit report, add to the usefulness of the report by setting standards for each of the management by objectives measures, adjusted for seasonal variations.

Using MAXIMO Data to Justify and Analyze Resource Requests

A *Backlog Report* generated by the Project Operations Maintenance Section from data in MAXIMO and dated November 4, 2004, shows a total of 32,245 estimated labor hours for work orders approved in MAXIMO. The data include all of the Project Operations Maintenance Section's trades and support personnel assigned to work orders in MAXIMO. The 32,245 labor hours equal approximately 19.5 full time equivalent (FTE) positions, using a factor of 1,650 annual work hours available per FTE, after deducting time for leave.

To be useful for planning maintenance operations and for allocating resources, the Project Operations Maintenance Section should analyze the workload for each maintenance shop individually (for example, the mechanical shop or the plumbers shop). Also, the Project Operations Maintenance Section should determine the nature of the tasks for each work order, since some tasks listed are purely administrative. For example, the carpenter foreman's task of "Estimate, Plan, Order Materials, Schedule, Administrate and Inspect Jobs" is allocated 2,080 hours for the fiscal year, although these tasks are administrative support rather than direct maintenance work. Further, the Project Operations Maintenance Section should establish time estimating procedures in order for reports to reflect accurate and useful time estimates for each of the work orders. Instructions must be clear as to whether time estimates for each of the work orders should exclude travel or other non-productive time.

The MAXIMO Computerized Maintenance Management Software system has extensive data collection and reporting capabilities, including backlog, planned work, and maintenance history data. Given these capabilities, the Project Operations Maintenance

System's requests for maintenance resources should be accompanied by backlog, planned work, and maintenance history data.

The Public Utilities Commission is currently undertaking implementation of a department-wide asset management program, which includes identifying all assets, including historical costs, maintenance history, and projected future costs and lifespan. In conjunction with the asset management program implementation, the Project Operations Maintenance Section should develop accurate workload data, such as preventive maintenance work required by each asset.

Control of Tools and Equipment

The Project Operations Maintenance Section does not have adequate inventory records of tools and equipment for all areas. Tools and equipment of a specified value should be inventoried, informally tracked, and re-inventoried on an annual basis. The tools and equipment maintained in the Moccasin main tool room and the machine shop were inventoried in September of 2004, which is also the date of the most recent vehicle inventory. The stationary generators were inventoried in October of 2004. The air pressure and liquid propane tanks were inspected in May and June of 2004. However, Project Operations Maintenance did not have inventory records for tools and equipment assigned to the electrical shop, the electronic technician shop, or to the electrical line crews. In explanation for this deficiency, the Superintendent, Electrical Operations and Maintenance, has stated that although new tools and equipment are added to the asset listings of his maintenance section, annual inventories have not been conducted.

Although Project Operations Maintenance does not have a maintenance procedures requiring that tools be marked for inventory control purposes, prescribed best practices mandates such a procedure. Many but not all of the tools that we inspected were appropriately marked. The Superintendent of Operations should require that all Project Operations Maintenance Section tools be appropriately marked.

The Project Operations Maintenance Section's Materials Management

The mission of the Project Operations Maintenance Section's Materials Management staff members is to provide required materials at the correct location, at an economical cost, and in a timely manner. Their three functions are:

- Procurement: the function of procurement is to procure materials, equipment, and spare parts at an economical price and in a timely manner.

- Inventory Control: the function of inventory control is to ensure that the storeroom is stocked with critical items and items whose usage warrants stocking.

- Storeroom Operation: the function of the storeroom is to receive, store, issue or deliver material to users in the most efficient means available.

Although the Materials Management staff members provide services for all three of the Project Operations Maintenance Section's Superintendents, the Materials Management staff members report to the Superintendent, Mechanical Shops and Equipment. The Materials Management function has four permanent positions and one as-needed clerk, as follows:

- Classification 1938 Stores and Equipment Assistant Supervisor (this position has been temporarily exchanged to a Classification 1936 Senior Storekeeper).
- Classification 1931 Senior Parts Storekeeper.
- Classification 1929 Parts Storekeeper.
- Classification 1934 Storekeeper (vacant).
- Classification 1426 Senior Clerk Typist.

Lack of a Materials Management Policies and Procedures Manual

The Materials Management staff members do not have documented polices and procedures, a significant deficiency. The Project Operations Materials Section plans to develop a materials management policies and procedures manual.

Examples of topics covered in materials management policies and procedures manuals are as follows:

Table 4.3

Materials Management Policies and Procedures Manual Example Contents

• Policy and Functions of Materials Management	• Authorization to Withdraw Materials from the Warehouse
• New Stock Requests	• Receiving
• Warehouse Issues and Credits	• Bin Locations
• Warehouse Scheduled Deliveries	• Low Value Items (Free Stock)
• Back Orders and Stock Reservations	• Repaired Components (Stock)
• Inventory Stratification	• Cost of Ordering and Cost of Carrying
• Active Inventory	• Inactive Inventory
• Technical Review	• Cycle Inventory
• Purchase Requisitions	• Management Reporting

Source: Water Pollution Control Division's *Maintenance Management Policies and Procedures Manual*

The Acting Director, Water Operations, in conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Materials Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

Storeroom Operations

The Project Operations storeroom is clean and well organized. The auditor tested bin locations for item and number correspondence with inventory records and noted no discrepancies. Adjacent to the area containing the storeroom, shops, and other maintenance facilities is a storage yard containing poles and various fittings, scrap metal, and miscellaneous items that are not in inventory. Many of the items are very large and do not appear to be in danger of being stolen. However, the yard items are the property of the City and County of San Francisco and they should be brought under control or disposed of. The Budget Analyst recommends that selected staff members of the Hetch Hetchy Enterprise's Maintenance Engineering and Project Operations Maintenance Sections determine the usefulness of the items in the yard, bring items selected for retention under inventory control, and that surplus items be reported as such or otherwise disposed of.

Concerning inventory turnover, which provides information on how much the storeroom is used, calculations based on the Materials Management inventory value of $255,129, and issuances from inventory of $363,489, yield an inventory turnover rate of 1.42, which compares favorably with inventory turnover rates that we have observed in other departments. An inventory turnover rate of 1.42 means that 8.4 months are needed to completely turn over the value of the inventory maintained by Materials Management staff members for the period reviewed.

Table 4.4

Issuances from Inventory

Month	Issued Amount
Jul - Sep 2003	$73,759
Oct –Dec 2003	93,829
Jan - Mar 2004	87,656
Apr - Jun 2004	108,336
Total	**$363,489**

Source: Project Operations Materials Management Office

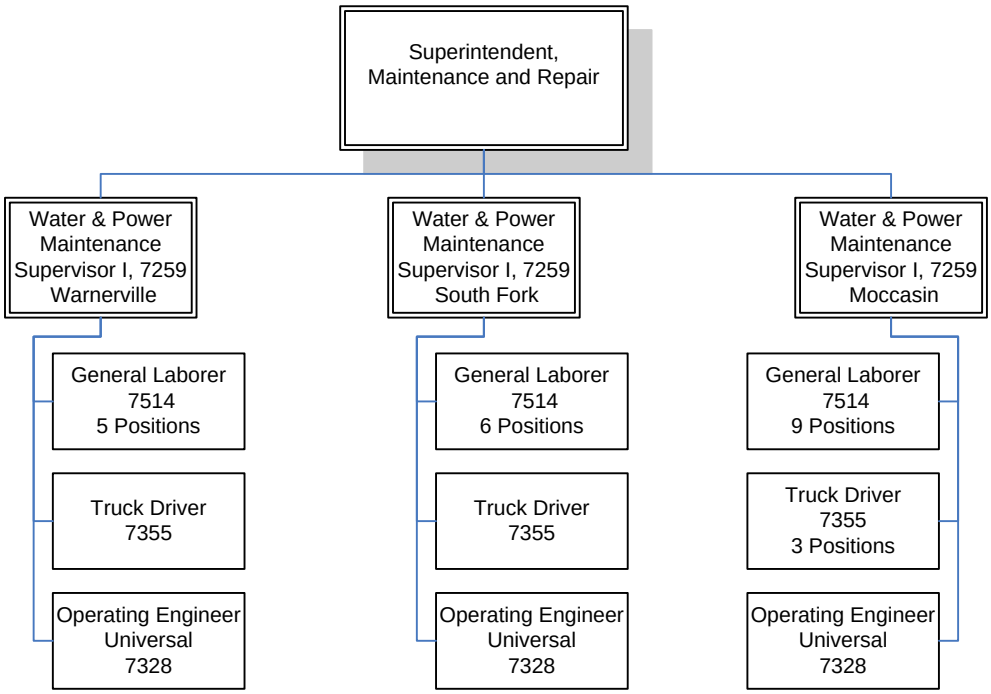
Organizing Project Operations Maintenance to Reduce Unnecessary Supervisory Pay Differentials

The Project Operations Maintenance Section has assigned classifications to work crews in a manner that causes supervisory pay differentials. Supervisory differential pay is an additional payment to an employee who has supervisory responsibility for another employee, but in the absence of such additional pay (the "differential") the subordinate would be paid more than the supervisor. During FY 2003-2004, the Project Operations Maintenance Section had a total of eight employees who received a supervisory pay differential at some point during the fiscal year. Further, the Manager, Maintenance Engineering, also received a supervisory pay differential throughout FY 2003-2004. Of the nine employees assigned to Moccasin who received a supervisory pay differential at some point during FY 2003-2004, at no time during the fiscal year were there less than six employees receiving the supervisory pay differential.

Shown below in Exhibit 4.2 is the organizational structure of the three Water and Power Systems Maintenance crews. The crews are assigned to Warnerville, Moccasin, and South Fork and are responsible for maintenance and repair of roads and right-of-ways, and support of pipeline, dam, powerhouse, and support facility maintenance.

Exhibit 4.2

Organizational Chart of Water and Power Systems Maintenance Crews



The salary range for the Classification 7259 Water and Power Maintenance Supervisor I position is $2,120 to $2,577 per pay period, or $55,332 to $67,260, annually. The single-step salary for the Classification 7328 Operating Engineer, Universal position is $2,764 per pay period, or $72,140, annually. According to the Project Operations Administration Section, two of the three Classification 7259 Water and Power Maintenance Supervisor I incumbents would be receiving Step 2 compensation and one incumbent would be receiving Step 1 compensation. Since the three incumbents are receiving approximately 5 percent more in Supervisory Differential Pay than the Classification 7328 Operating Engineer, Universal incumbents are paid, the Classification 7259 Water & Power Maintenance Supervisor I incumbents are each receiving approximately $16,000 to $17,000 annually more than they would without the Supervisory Differential Pay.

By contrast, a November of 2000 Project Operations Maintenance Section organizational chart shows the Classification 7328 Operating Engineer, Universal positions all reporting to just one Classification 7259 Water & Power Maintenance Supervisor I position.

In response to a query about the extent of supervisory pay differential payments, the Budget Analyst was informed that the Public Utilities Commission's Human Resource Services Division is conducting a review of the Project Operation Maintenance Section's use of supervisory pay differentials, acting assignment pay, and as-needed pay. The Project Operations Maintenance Section should evaluate its maintenance organizations, including the development of a new organizational structure that incorporates efficient supervisory assignments that require no or a minimum of supervisory pay differentials. The Public Utilities Commission should submit the proposed Project Operations Maintenance Section organization, including an analysis of cost savings resulting from reduced application of supervisory pay differentials, for review by the Board of Supervisors, prior to completion of Phase IV of the ongoing management audit.

Conclusions

The Project Operations Maintenance Section is responsible for maintenance and operation of the Hetch Hetchy Enterprise's reservoirs and hydroelectric power generation systems. The Project Operations Maintenance Section lacks written policies and procedures for maintenance and materials management. Many of the Project Operations Maintenance Section's staff are long-term employees approaching retirement, and the failure to record the Project Operations Maintenance Section's operating and maintenance procedures could impair the Hetch Hetchy Enterprise's efficient operation and maintenance of its systems once long-term staff have retired. The Superintendent of Operations has assigned the Information Manager responsibility for overseeing the development of maintenance and materials management policies and procedures, but as of the writing of this audit report, the Budget Analyst has not been provided with a schedule for developing the policies and procedures manuals.

The Hetch Hetchy Enterprise should adopt practices to better manage the Project Operations Maintenance Section's maintenance and materials management functions. The written policies and procedures for maintenance management should include (a) the setting of maintenance priorities, (b) procedures to control tools and equipment inventories, (c) recording maintenance time, (d) efficient use of the MAXIMO Computerized Maintenance Management System capabilities, and (e) increasing "wrench time" or productive use of maintenance staff time. The Hetch Hetchy Enterprise should also adopt management by objectives, similar to those used by the Clean Water Enterprise, including setting standards for each of the objectives, adjusted for seasonal variations. The Hetch Hetchy Enterprise should produce regular management by objectives reports to improve the performance of maintenance functions.

The Hetch Hetchy Enterprise does not efficiently use the MAXIMO Computerized Maintenance Management System's capabilities. For example, the Project Operations Maintenance Section uses MAXIMO minimally for planning maintenance work and not at all for scheduling. The MAXIMO Computerized Maintenance Management Software system has extensive data collection and reporting capabilities, including backlog, planned work, and maintenance history data. Given the data collection and reporting

capabilities of MAXIMO, maintenance resource requests should be accompanied by backlog, planned work, and maintenance history data.

The Hetch Hetchy Enterprise should evaluate and reorganize its maintenance organization, to develop a new organizational structure that incorporates reasonable spans of control and efficient supervisory assignments that require a minimum of supervisory pay differentials. The management audit found that the Project Operations Maintenance Section assigned staff in a manner that resulted in supervisory differential pay for the section's staff. The Department should submit the proposed Project Operations Maintenance Section organization, including an analysis of cost savings resulting from reduced application of supervisory pay differentials, for review by the Board of Supervisors, prior to completion of Phase IV of the ongoing management audit.

Recommendations

The Public Utilities Commission General Manager should:

4.1 Submit a Project Operations Maintenance Section organizational chart and supporting materials to the Board of Supervisors Finance and Audits Committee following a review of that organization's structure and allocation of positions.

The Acting Director of Water Operations should:

4.2 In conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Maintenance Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005**.**

4.3 In conjunction with the Superintendent of Operations and the Information Manager, should establish a timeline for development of the Materials Management Policies and Procedures Manual, and report on the status of the manual development to the Acting General Manager, Operations, prior to June 30, 2005.

4.4 Ensure that the Project Operations Maintenance Section incorporates automated planning and scheduling processes into its everyday maintenance activities, including forming a Planning and Scheduling Group with the talent and management support required to accomplish the job.

4.5 Ensure that the Project Operations Maintenance Section initiates maintenance reporting on a continuing, periodic basis. The *Management by Objectives Report* produced by the Water Pollution Control Division is a useful model.

4.6 Use MAXIMO reports when deciding on resource allocations.

4.7 Ensure that all tools and equipment are inventoried annually.

4.8 Ensure that the items in the storage yard adjacent to the shops area are brought under inventory control or disposed of.

4.9 Review the Project Operations Maintenance Section's organizational structure in order to improve its economy and efficiency.

Costs and Benefits

The Budget Analyst's recommendations can be accomplished with existing staff. Implementation of the Budget Analyst's recommendations would provide reasonable assurance that the Project Operations Section is performing its maintenance functions in an efficient and timely manner.

Three Water and Power Maintenance Supervisor I positions have each been assigned to manage three Operating Engineer, Universal positions, which are higher paid positions, resulting in the payment of supervisory pay differentials to each of the Water and Power Maintenance Supervisor I positions, equal to approximately $16,000 to $17,000 in increased pay annually per position. The Hetch Hetchy Enterprise could save approximately $48,000 to $51,000 annually in salary costs for the three Water and Power Maintenance Supervisor I positions currently receiving supervisory pay differentials by reorganizing the maintenance work crews.