

Memorandum

To: DEPUTY DIRECTORS
DISTRICT DIRECTORS
DIVISION CHIEFS
DEPUTY DISTRICT DIRECTORS

Date: December 1, 1993

File:

From: **DEPARTMENT OF TRANSPORTATION**
Directors Office

Subject: Revisions to Improve Project Management in Caltrans

On July 1, 1989, District Implementation Plans for Project Management were approved and the Department officially started the implementation of Project Management. Now that we have had several years of experience working with the Project Management concept, it is time to draw from lessons learned and put in motion methods to improve our Project Management process.

The recently completed Project Management Peer Review findings and recommendations prepared by the Bechtel Corporation, the United States Army Corps of Engineers and the United States Department of the Navy were extensively reviewed by a task force comprised of District and Headquarters representatives. The task force was charged with the responsibility of reviewing the Peer Report and developing recommendations to improve Project Management.

The attached draft report is the result of a nine-month effort by the task force. It outlines revisions that will improve Project Management in the Department and provides a plan for implementation.

Please review the package and submit your comments to Irene Itamura, Division of Engineering Management, by December 20, 1993. If you have any questions please call Steve Ito, (8-464-5854),.

R. P. WEAVER
Chief Deputy Director

Attachment

**STATE OF CALIFORNIA
BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF TRANSPORTATION**

**REVISIONS TO IMPROVE
PROJECT MANAGEMENT
IN
CALTRANS**

DECEMBER 1993

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1. Governor's Executive Order D 69-88, February 1988

2. Project Management Implementation Guidelines, April 20, 1989

- 3. District Project Management Implementation Plans, June 30, 1989**
- 4 PEER Review Findings and Recommendations January, 1993**
- 5 Task Force Notes - (Available upon request)**

Acknowledgment and Approvals

This report was possible through the efforts of the following individuals:

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**James E. Roberts
Interim Deputy Director
Transportation Engineering**

Approved by:

R. P. Weaver
Interim Chief Deputy Director

James W. Van Loben Sels
Director of Transportation

Executive Summary

This report concludes a study by the task force charged with the responsibility for reviewing the recommendations of the PEER Review Report for Project Management conducted by a team from the Army Corps of Engineers, the Department of the Navy and the Bechtel Corporation. This task force was given the charge to develop recommendations to improve the Department's project management process.

The findings and recommendations of the PEER Review Report were categorized into eight key issues and recommendations by the task force. They are as follows:

I. Role and Responsibilities

PEER REVIEW REPORT ISSUE: The specific roles and responsibilities of all District employees in the Project Management process are not completely and uniformly understood. Each District has different expectations for what they expect of their Project Managers, Functional Managers and Control Units, and how they are held accountable for their actions.

TASK FORCE RECOMMENDATIONS: Define and implement statewide standards for roles and responsibilities of the Project Manager, Functional Manager, Project Control units and other Department employees.

Each key project delivery position will have a clear outline as to whom they are accountable, their degree of authority, the scope of their responsibilities and the tasks they are required to perform.

II. Reporting Structure for Project Management / Project Delivery

PEER REVIEW REPORT ISSUE: There is limited standardization between Districts for function, functional grouping, organizational hierarchy, resource assignment, or identification coding. The Department needs to develop stricter guidelines to standardize Project Management organizational elements and interrelationships within Districts to facilitate interdepartmental transfers, interfaces with outside agencies, and the development of automated control and reporting systems.

TASK FORCE RECOMMENDATION: Implement District Interrelationships for Project Delivery (Single Focal Point for Project Management Concept) with allowance for transition period (see attached chart).

The objective is to move towards more uniformity in statewide organizations that support the Project Manager by emphasizing a structure which promotes project and program delivery. The structure will provide clear lines of project delivery accountability and authority. There will be flexibility in the implementation of project management. There will be situations where the project manager will be most effective in administering the project management process as his/her primary responsibility. There will be other situations where the Project Manager will be most effective filling the responsibilities of both the project manager as well as a functional manager with supervisory responsibilities. What will be standardized statewide, will be the management of resources, the reporting and control systems, and implementation of the Single Focal Point for Project Management Concept.

III. Development of Project Management Tools

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PEER REVIEW REPORT ISSUE: Project Managers don't have sufficient tools or procedures to know how their projects are progressing against plan except at gross summary levels. Functional Managers have no way of knowing what their workload is or how to plan for it.

TASK FORCE RECOMMENDATIONS: Continue the efforts of various task forces currently underway that are looking at Project Management reporting mechanisms and project management software packages. Effective tools that provide a sufficient level of project detail are essential to the success of Project Management. The primary objective should be to provide project activity level data on schedules, budgeted resources, expenditures and amount of work complete that will satisfy the needs of the Project Manager. The information can then be rolled up to provide functional, district and Department level summaries. The target date for implementation of a fully functional project management software package for project scheduling and resourcing is July 1, 1994. This will coincide with the target dates put forth in this report.

IV. Management Support

PEER REVIEW REPORT ISSUE: Continue participation in academies and producing project development newsletters to further show management's commitment to the Project Management process and improved Project Delivery. Insist that all project-related information and decisions include the project manager. Stress "project team" commitment and accountability to Project Delivery. Expand assignment of project managers to all projects, whether locally funded, TSM, SHOPP or STIP projects.

TASK FORCE RECOMMENDATIONS: District and Headquarters Management must show support for project management by:

- Openly promoting project management concepts.
- Organizing for project management and project delivery.
- Incorporating project management concepts in the roles and responsibilities of staff.
- Delegating project-level decision authority to the Project Manager.
- Emphasizing the functional support unit's role in making and adhering to commitments for deliverables, schedules, resources and quality.
- Identifying project management tasks, providing the means and training to perform those tasks, and enforcing the performance of project management tasks.
- Adequately staffing project management positions.
- Supporting PM, FM & Project Control Academies/Forums.
- Publishing articles of Project Management accomplishments in the Project Development Newsletter.
- Developing ways to measure and analyze the performance of project delivery staff and the project management processes they use. This will be used to identify training opportunities, potential managers and areas for process improvement.
- Providing opportunities for acknowledging and rewarding the successful accomplishments of project delivery personnel.
- Obtaining approval from the Department of Personnel Administration (DPA) to provide managerial type benefits to non-supervisory Project Managers.

V. Transition Strategy

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ISSUE: The transition to the "Single Focal Point for Project Management" organization needs to be a positive structured approach. An abrupt change to the organization's culture would probably adversely affect reorganization. District management needs to embrace the concept, see the vision, then take the opportunities to move into the Project Management organization.

TASK FORCE RECOMMENDATIONS: Develop guidelines to improve project management in partnership with districts. Allow Districts to submit their transition strategies to Headquarters for approval and allow up to one year for transition contingent upon the availability of adequate resources and tools.

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VI. Communication and Training

PEER REVIEW REPORT ISSUE: The specific roles and responsibilities of all District employees in the Project Management process are not completely and uniformly understood. Methods should be provided where experience can be shared, conflicts can be resolved, solutions can be generated, suggestions can be aired, and where policies and procedures can be presented.

TASK FORCE RECOMMENDATIONS:

- Continue current Project Management Academy and incorporate Functional Manager training.
- Implement Project Management Academy "II" that emphasizes use of Project Management tools and "hands on" training and present in detail the project management process as it pertains to planning, monitoring and controlling a project. There will be a focus on Project Management human relationships i.e. team building, negotiating skills, conflict resolution, building commitment and leadership skills.
- Implement statewide Deputy District Director for Project Management "Single Focal Point for Project Management" forum (annual meetings) to discuss statewide Project Management implementation issues, air suggestions and share information.
- Implement District Project Management forums to share ideas and experiences, air suggestions, solicit input from functional support units and external "partners."
- Continue project control forums to share ideas, identify and discuss common concerns, constraints, solutions, successes and provide training on new Project Management tools.
- Write articles to be included in existing "Project Development Newsletter."
Provide basic Project Management Concept training to all project delivery staff.

VII. Project Management Procedures Manual

PEER REVIEW REPORT ISSUE: The Project Manual Procedures Manual should be rewritten in the active voice and should be more specific to the project management process and how to perform project management. Currently there are twelve different district Project Management Procedures Manuals plus a Headquarters manual. These manuals, along with the recommendations in this report, will be incorporated into one statewide Project Management Procedures Manual.

TASK FORCE RECOMMENDATIONS: The Department will establish a Statewide Project Management Procedures Manual.

VIII. Streamline Administrative Support

PEER REVIEW REPORT ISSUE: Headquarters should improve central support to the Districts such as accounting, management reporting, resource allocation, procurement, and consulting out processes to further project development:

TASK FORCE RECOMMENDATIONS: The following ongoing task force efforts should be continued and reviewed for their impacts on streamlining administrative support for Project Management.

- Division of Accounting: The Capital Outlay Support (COS) Task Force and two PEER review studies are reviewing accounting issues. This task force does not plan to get involved with accounting issues at this time.

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- Procurement: A PEER review is currently underway on procurement issues. This task force does not plan to get involved with procurement issues at this time.
- Consultant Services: A PEER review is currently underway to review consultant OVERSIGHT ISSUES. This task force does not plan to get involved with consultant services issues at this time.
- Decentralization: The Office of Engineering Project Management will work with the Division of Transportation Programming to determine whether the current cost, scope and schedule change process should be revised to delegate more authority to the District . The Office of Engineering Project Management is currently working with the Division of Administrative Services to provide clarifying guidelines for amending and administering consultant contracts.

Implementation Plan

- | | |
|--|----------|
| • Distribute Draft Report to District for Comments | 12/1/93 |
| • Draft Comments Returned to Headquarters | 12/20/93 |
| • Distribute Final Report | 1/5/94 |
| • Issue Deputy Directive | 1/5/94 |
| • Conduct Transition Guidelines Workshop | 1/12/94 |
| • Distribute Transition Guidelines to Districts | 2/1/94 |
| • District Transition Strategies Received in Headquarters | 5/1/94 |
| • Headquarters Approve District Transition Strategies | 6/1/94 |
| • Establish Project Management Evaluation Checklist | 6/1/94 |
| • Districts Commence Transition | 7/1/94 |
| • First Quarterly Departmental Project Management Evaluation | 9/30/94 |
| • Full Departmental Implementation of all Recommendations | 7/1/95 |

Body of the Report

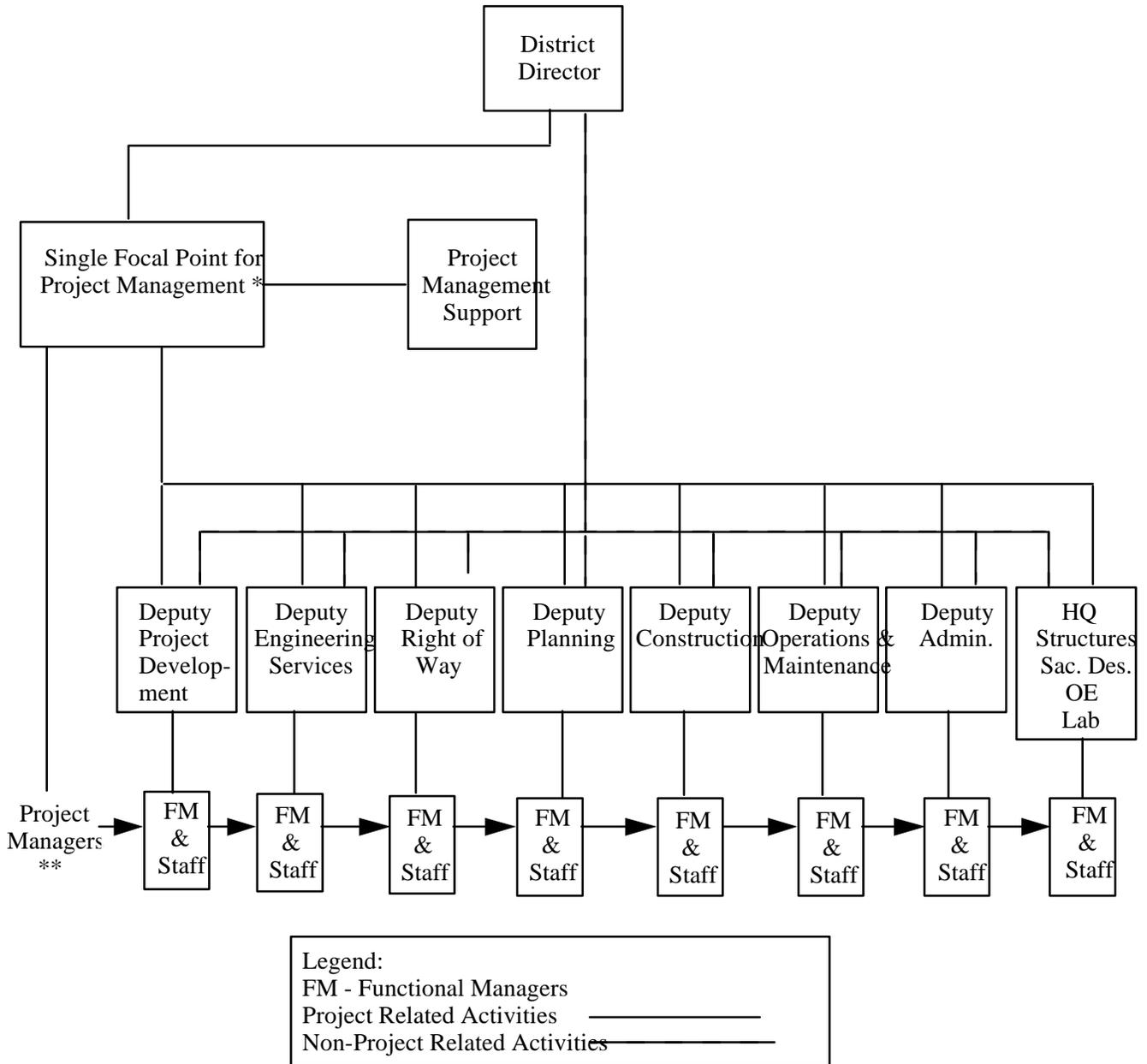
The body of the report introduces and give background information about Project Management in the Department. It also outlines the Purpose, Mission, Visions and Goals of Project Management, sets forth an implementation plan and discusses in more detail the above issues and recommendations. The report format used in the detailed discussion is as follows:

- **PEER REVIEW REPORT ISSUE** - These are the findings and recommendations of the PEER Review Report team.
- **RECOMMENDATIONS** - These are the detailed recommendations of the task force for implementation of the issue.
- **COMPLETION DATE** - These are proposed dates based on our current estimate of inter-related activity completion dates such as tools for project management
- **ARGUMENTS PRO AND CON** - These provide an indication of the impacts of the issues.

Executive Summary

Attachment #1

DISTRICT REPORTING STRUCTURE FOR PROJECT MANAGEMENT / PROJECT DELIVERY

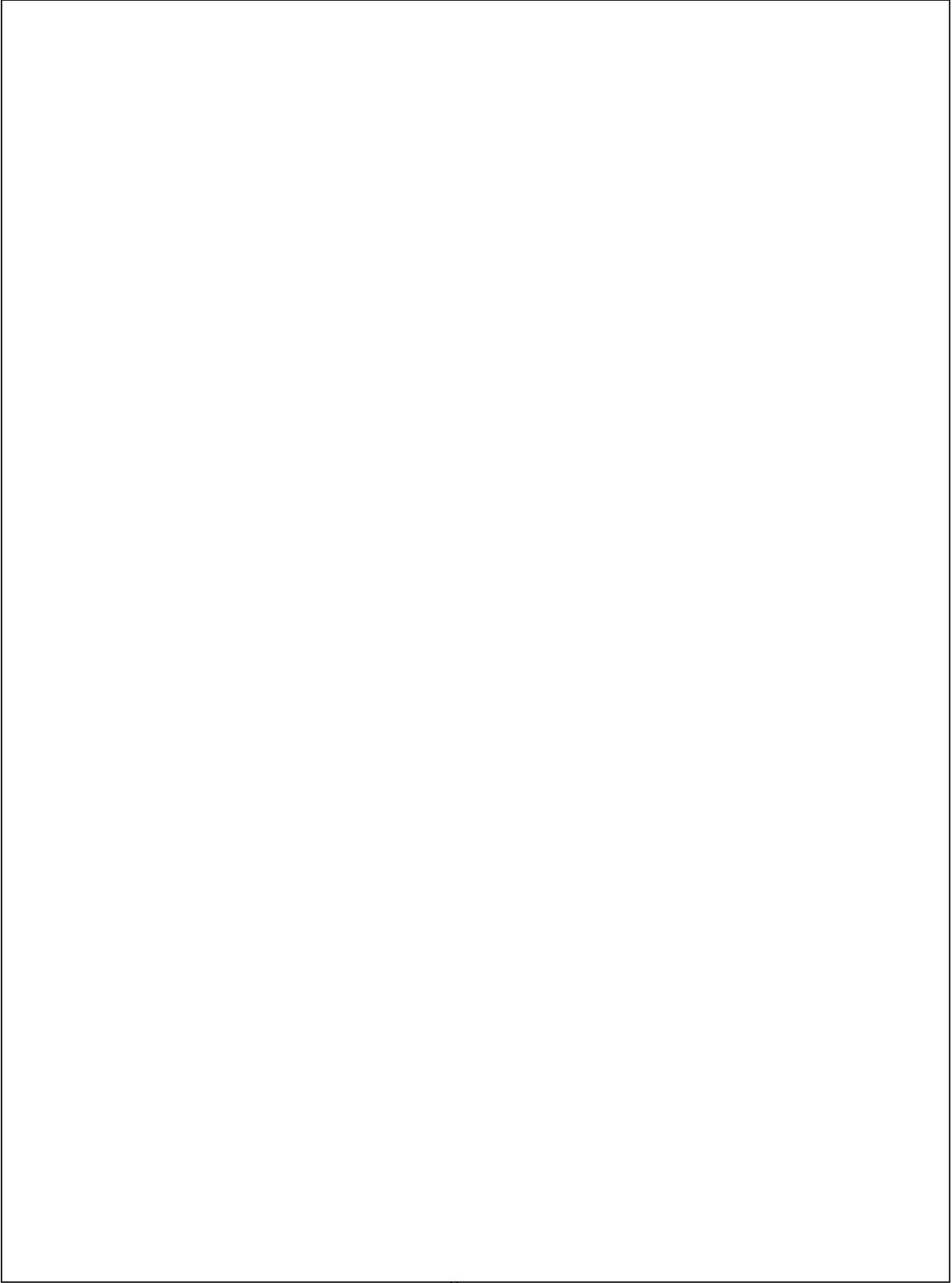


* District Director, Chief Deputy, or Deputy District Director

** There will be situations where the project manager will be most effective in administering the project management process as his/her primary responsibility. There will be other situations where the project manager will be most effective filling the responsibilities of both the project manager as well as a functional manager with supervisory responsibilities.

11/15/93

Executive Summary



Detailed Discussion

Introduction and Background

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Implementation plan

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- I. Roles and Responsibilities**
- II. Reporting Structure for Project Management / Project Delivery**
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- VII. Project Management Procedures Manual**
- VIII. Streamline Administrative Support**

REVISIONS TO IMPROVE PROJECT MANAGEMENT IN CALTRANS

Introduction

The Department started the implementation of Project Management approximately five years ago with each district implementing similar but distinct organizations for Project Management. The emphasis was on project delivery and assigning responsibility for a project to a Project Manager.

While the Department has made tremendous improvement in project delivery, the recent Project Management Peer Review Report and the draft findings of the Management audit by the Stanford Research Institute (SRI) indicate that the Department has not fully taken advantage of Project Management principles.

The Department has had several years to develop experience in project management. The recommendations in this report seek to pull together the best of these experiences and fully define the project management process and the roles and responsibilities of all units involved in project delivery. The result should be an integrated project management model that will be applied statewide.

The recommendations require that more effort be spent in the total quality management of projects. This will result in better coordination between functional units, better resource accountability, better external relationships, more accurate scope, costs and schedules and better satisfaction for our customers and stake holders. To provide this higher level of management, the Department will have to assign additional Project Managers and Project Control personnel. In the long run, the Department could see a possible reduction in the overall level of effort required to produce a project because projects will have a greater chance of being done right the first time.

Project Management will be strengthened in the areas of Project Management roles and responsibilities, reporting structure for Project Management / Project Delivery, tools for Project Management, greater support and commitment from management including the allocation of additional resources to implement these guidelines, enhanced communication, training and sharing of project management experience, a new statewide Project Management Procedures Manual, and streamlining administrative support for the project manager.

Background

The Department first published its project management procedures in the early 1960's as part of the Highway Design Manual (Black Book). By about 1967, each district within Caltrans had individual guidelines for project development. Some districts incorporated sophisticated critical path methods (CPM) into their project management system.

In 1969 and 1970, two environmental laws were passed which caused the Department to rethink its project management process. The first was the National Environmental Policy Act (NEPA) and the second was the California Environmental Quality Act (CEQA). As California's project management efforts increased, a separate document, the Project Development Procedures Manual (Gold Book) was developed in 1972. In 1973, the California Action Plan was developed to carry out the mandated goals of NEPA. This legislation required a California Transportation Plan to be delivered to the State Transportation Board.

In 1976, the Department developed a computerized database for project information called the Project Management Control System (PMCS). During the summer of 1980, the Department developed the Person Year Project Schedule and Cost Analysis program (PYPSCAN) to schedule and generate resource requirements for State Transportation Plan projects. PYPSCAN was further refined to forecast capital outlay related resources needed to develop and deliver the Department's multi-year capital programs. Utilizing PYPSCAN data, reliable information was available to Caltrans management concerning project costs, scheduling, and person-year requirements. The concept of project milestones was initiated to monitor and update incremental progress in project delivery.

During the late 1980s, there was a growing concern about the Department's ability to deliver specific projects on schedule and within budget. This concern was prompted by local tax measure authorities who were funding state highway projects and by a more widespread interest by local agencies in specific highway improvements. SB 140 (1988) and AB 471(1989) reflected this concern by establishing criteria to judge the Department's project delivery performance. These bills focused on delivering specific projects on schedule and within budget rather than just spending all available funds. The Department developed the Project Delivery Report (Green Book), Project Delivery Plan (Red Book), and the Project Development Cost Report as the documents used to report on Project Delivery.

In March of 1988, several task forces were created as part of the Governor's Executive Order No. D 69-88 to continue to improve the Caltrans Project Delivery process. One of the main objectives of this study was to advance project delivery approximately 20 to 25 percent. The key groups assigned to improve the Department's project delivery included:

- Governor's Interagency Task Force
- Local Agency Advisory Task Force
- Consulting Engineers Task Force
- Internal Caltrans Delta Team
- Caltrans Personnel Streamlining Task Force
- Caltrans Performance Evaluation System

The recommendations of the task forces had two items in common; the Department should delegate more authority to lower organizational levels and the Department should adopt a project management process similar to that being used in the Architectural and Engineering community where a single project manager is assigned to a project and given the responsibility, authority and accountability to deliver the project on time, within budget and within acceptable standards of quality.

During the fall of 1988, the Department initiated a pilot project management program in the Santa Ana Area and in conjunction with District 4 to develop the key recommendations from the designated task forces. Following this comprehensive and successful study, the Department initiated the formal implementation of Project Management. All Department personnel were introduced to the core project management concepts and formal training in basic project management concepts was given. Project Management Implementation guidelines were issued which suggested several possible ways that districts could organize for project management. District Project Management Implementation Plans were approved and formal district implementation started on July 1, 1989. In 1991, districts and Headquarters prepared Project Management Procedures Manuals and the first of several Project Management Academies was held.

On June 5, 1992 the Director of Caltrans detailed plans for additional external management studies. These included the legislatively directed management audit proposed in Senate Concurrent Resolution

No. 72 ((Stanford Research Institute (SRI) study)), the Governor appointed "Little Hoover Commission", and several Peer Reviews that would be sponsored by the department.

On October 7, 1992, a Project Management Peer Review was initiated . The objective of the peer review was to provide an independent review and evaluation of the Department's efforts in implementing project management and to make recommendations in areas where changes were needed to effectively utilize project management. The peer review focused on the effectiveness of project management implementation in the Department, the acceptance of a project management structure by project managers and functional managers, and project management cost and schedule control procedures. The Project Management Peer Review results and recommendations were published in January, 1993.

A peer review task force was formed with district and Headquarters representatives. The objective of the task force was to analyze the recommendations contained in the Project Management Peer Review Report and apply them to improve the implementation of Project Management in the Department. The task force meeting notes and comments are available upon request.

Purpose, Mission, Vision and Goals for Project Management

Purpose

The purpose of Caltrans Project Management is to improve the Department's project delivery performance. This is accomplished by assign one person (Project Manager) the responsibility for delivering a quality project that will accomplish the project objectives, be on time, within budgeted resources and will be planned, designed and constructed to acceptable practices and standards.

Mission

The mission for Caltrans Project Management is to deliver all programmed projects and to ensure that all Caltrans' program commitments are met on a timely basis, are within programmed value, are cost effective, will enhance the transportation system, and will meet the needs of our clients, partners and the people of California.

Vision

The vision for the Department is to have a continuously improving Project Management organization with uniformity statewide which is adaptable to the changing demands of a transportation agency within government service. Such an organization will be devoted to the delivery of a quality project, on time and within budget by making effective use of time and resources.

The project manager in such an organization will be responsible for the project from the inception of the initial study through the completion of construction and final voucher of the project. The project manager will be authorized to make decisions on Caltrans' behalf for the project and will be responsible for meeting scope, cost, schedule, budgeted resource and quality targets established by Department management in cooperation with our clients and partners.

All Department employees will know and perform their Project Management roles and responsibilities . All Department functions involved with project delivery will be aligned to support Project Management and project delivery needs.

Goals

The goal is to implement the eight key recommendations put forth in this document.

Implementation Plan

- Distribute Draft Report to District for Comments 12/1/93
- Draft Comments Returned to Headquarters 12/20/93
- Distribute Final Report 1/5/94
- Issue Deputy Directive 1/5/94
- Conduct Transition Guidelines Workshop 1/12/94
- Distribute Transition Guidelines to Districts 2/1/94
- District Transition Strategies Received in Headquarters 5/1/94
- Headquarters Approve District Transition Strategies 6/1/94
- Establish Project Management Evaluation Checklist 6/1/94
- Districts Commence Transition 7/1/94
- First Quarterly Departmental Project Management Evaluation 9/30/94
- Full Departmental Implementation of all Recommendations 7/1/95

ISSUES AND RECOMMENDATIONS

I. ROLES AND RESPONSIBILITIES

PEER REVIEW REPORT ISSUE:

The specific roles and responsibilities of all District employees in the Project Management process are not completely and uniformly understood. Each District has different expectations for what they expect of their project managers, functional managers and control units, and how they are held accountable for their actions.

RECOMMENDATIONS:

Define and implement statewide standards for roles and responsibilities of the Project Manager, Functional Manager, Project Control units and other Department employees.

The objective is to clearly define the roles and responsibilities of department employees in the project management process. Outlined below are roles and responsibilities of various personnel expressed in terms of their accountability, responsibility, authority and tasks. These will serve as a guide for the development of detailed duty statements.

DISTRICT DIRECTOR ROLES AND RESPONSIBILITIES

Authority

The District Director has the approval authority and responsibility to ensure the project development process is executed in accordance with Statewide policies and guidelines. This includes establishing District guidelines, setting project goals, priorities, and allocating resources to accomplish the District's goals.

Responsibility

The District Director has full responsibility, within the delegations provided, for the efficient administration, operation and maintenance of all programs, functions and activities within the district for the Department of Transportation.

Tasks

- Promulgate project management principles and processes.
- Establish a reporting structure for project delivery that is conducive to the success of project management.
- Implement District policies and practices supportive of the project management process.

- Define the responsibilities of project delivery personnel and delegate appropriate authority.

SINGLE FOCAL POINT FOR PROJECT MANAGEMENT ROLES AND RESPONSIBILITIES

Accountability

The Single Focal Point for Project Management is accountable to the District Director.

Authority

The Single Focal Point for Project Management has the approval authority and responsibility to ensure that capital outlay project delivery is executed in accordance with Statewide policies and guidelines. This includes holding Project Managers, Functional Deputy Directors and Functional Managers accountable for the making and adhering to project commitments of scope, schedule, cost, resources and quality, resolving project delivery conflicts, setting project goals and priorities, establishing district guidelines, and controlling capital support resources to accomplish the District's program goals.

Responsibility

The Single Focal Point for Project Management is responsible for the implementation of Project Management in the district, to ensure that all District Capital Outlay projects undergo a project management process and are properly planned, staffed, managed, and controlled to meet District and project cost and schedule objectives, to directly supervise project managers and to coordinate with Functional Deputies.

Tasks

Planning

- be an advocate for Project Management and promote the project management process not only throughout the district, but also to external agencies, other districts and Headquarters.
- make sure all projects are assigned a PM and allocate resources to provide a sufficient number of Project Managers, Functional Managers and Control personnel so that the project management process will not be compromised and the project is realistically planned, managed, controlled and staffed.
- assign resources and balance the competing priorities of all projects to make the most efficient use of district resources to meet the District's capital outlay program.
- review and approve the consultant selection and administration process to ensure that it adheres to the Department's guidelines and supports the project objectives.

Monitoring

- monitor, evaluate, control and report on program delivery.
- commit the necessary resources and tools to the Project Control unit so they can provide project activity level data on schedules, budgeted resources, expenditures and amount of work complete that will satisfy the needs of the Project Manager and roll the information up to provide functional, district and Department level summaries.

- require the Project Manager to use project management tools to monitor their projects and make sure they are involved in the coordination between the Functional Units and Project Control
- ensure that the Project Control units provide workload scheduling and leveling information for the functional units. Require that the Functional Managers utilize these tools and services to analyze workload and then commit to resources and schedules.
- monitor the performance of Project Managers and Functional Managers to ensure that each project meets its objectives and that each Project Manager and Functional Manager and support staff is receiving adequate training, coaching and experience and the workload is commensurate with the PMs and functional staff's ability to do the work and ability to handle stress.

Controlling

- be the decision maker in conflicts between Project Managers, Functional Deputies and Functional Managers.
- adjust project scope, schedule, cost, resources and priorities as needed.
- ensure that project changes are documented and reported to the appropriate district and Headquarters personnel and entered in the appropriate computer systems (i.e. district PM software and PMCS)
- hold the Functional Deputies and Managers accountable for cost, schedule and quality of their portion of the project. Insure that the Functional Deputies and Managers accept their redefined roles and responsibilities, and their reporting relationships under the Single Focal Point for Project Management structure. Stress the Functional Manager's role as a vital member of the delivery team.
- provide a process for Functional Managers to resolve quality versus delivery conflicts. Under the Project Management process, it is the Functional Manager's responsibility to raise any concerns through their chain of command. However, this should be viewed as a last resort; it should not be a substitute for good faith negotiations with the Project Manager. The burden of raising concerns or conflicts is a functional responsibility and does not fall upon the Project Manager. The Project Managers and the Functional Managers must seek mutually acceptable resolution of issues.

Development

- ensure all staff have adequate project management related training.
- monitor the training, experience and performance of Project Managers and Functional Managers to ensure that each Project Manager and Functional Manager and support staff is receiving adequate training, coaching and experience and the workload assigned is commensurate with the PMs and functional staff's ability to do the work and ability to handle stress.
- conduct quarterly Project Management Forums where project delivery personnel can share "lessons learned", receive recognition, and identify and implement ways to improve the project management process.
- attend periodic Single Focal Point for Project Management meetings which will identify "lessons learned" and other project management issues on a statewide basis.

PROJECT MANAGER ROLES AND RESPONSIBILITIES

Accountability

The Project Manager is directly accountable to the Single Focal Point for Project Management and the District Director.

Responsibility

The Project Manager is responsible for:

- ensuring delivery of all assigned projects within scope, cost, schedule, budget resources, and to acceptable Caltrans' standards and practices commensurate with the Department's ability to deliver projects within existing policy and procedures, regulatory requirements, District resources, and the civil service system.
- managing and facilitating the development and engineering administration of the project from inception through completion of the construction contract. In certain situations, when long term monitoring of a mitigation site is required as an environmental commitment, the Project Manager's roles and responsibilities carry on to the successful completion of that environmental commitment
- assembling a project delivery team of FMs, local representatives and permit agencies as appropriate, to ensure project completion on schedule, within budget, while maintaining the overall quality of the project.
- managing all project activities towards conformance to Caltrans' standards, policy and procedures, and past practices.
- supporting pre construction activities and facilitating contract administration of the contract by the Resident Engineer.

Authority

- Directs all project team members on resolution of project cost, schedule, quality and resources available for the project and coordinates the work of all team members.
- Addresses issues raised by project team, and exercises delegated authority to resolve issues. If authority of the Project Manager is exceeded or impacts projects outside of his/her jurisdiction, the manager communicates unresolved project issues with an action plan to resolve these issues to the Single Focal Point for Project Management in a timely manner. Action plan must contain a recommended action, the rationale for the recommendation, and the evaluation of the impacts to project schedule and cost of each of the considered alternatives. If authority needed is beyond the District's delegated authority, the appropriate Headquarters' function will be consulted in a timely manner.
- Holds Functional Managers accountable to mutually agreed upon schedule and deliverables.
- Assumes the lead role in negotiations as necessary to meet project schedule and budgeted costs.
- Reviews and signs off recommending approval on pre-programming or candidate project documents, e.g., PSR, PSSR, NBSSR, as indication of Project Manager's commitment to project scope of work, schedule, cost, and resources necessary to deliver project upon programming.

- Recommends approval of decision documents e.g., Project Report/Environmental Document, Project Approval Report, Project Change Request, Cooperative Agreements, Freeway Agreements, to upper management.
- Approves PS&E submittal to Headquarters Office Engineer by signing title sheet of contract plans and PS&E report and its Attachment A.
- Assumes the lead role, coordinates and obtains approval for permits and cooperative agreements when funding is controlled by other agencies. The Project Manager communicates the need to get concurrence of agreement for relinquishing and unparrying projects. Monitors progress and performance to ensure schedules and cost are maintained.
- The Project Manager will answer any concerns or issues by elected officials concerning projects within their respective jurisdictions. Attend and conduct meetings and public hearings as necessary. Provide timely updates to inform officials of any changes in the status of projects.
- Is the single point of contact to provide information relative to specific projects.
- Attends and conducts meetings and public hearings.
- Resolves issues with a Functional Manager over policy, standards, schedules, or costs. It is the responsibility of the Functional Manager to elevate the issue to upper management if dissatisfied with the Project Manager's decision.
- Ensures that right of way certification, permits and agreements necessary for listing, advertisement, and award of the construction contract are obtained.
- The classification of the Project Manager should be at a level appropriate to the complexity and political sensitivity of the project. He/She will also have enough authority to effectively negotiate with Functional Branch Chiefs in the district. The Project Manager will be at the branch chief level and depending on the size of the district be either at a senior or supervising classification.

Tasks

Planning

- The PM will be involved in the planning process or have access to planning information to properly formulate project scope and incorporate all the factors that will satisfy the project's customers and stake holders.
- PM is responsible for the preparation of and concurs in Project Study Reports.
- When a project is programmed, the PM will negotiate agreements with Functional Managers, Headquarters support units, e.g., Headquarters Office Engineer, Central Design, Structures, OPPD, Budgets; etc. and external control agencies/stake holders for deliverables, schedules and capital support.
- The Project Manager will identify, analyze and compensate for scope, schedule and cost risk factors.
- PMs will have options when FM resources are not available. The options would be either to adjust schedules to meet FM availability, involve management intercession to elevate project priority or secure functional resources through consultant contracts .
- The Project Manager is the decision maker in identifying realistic scope, cost and schedule of the programmed project.
- The Project Manager develops project work plans (scope of work, schedules, resource distribution, budget and commitments of the Functional Managers) with input from Project Team members.

- PMs participate in consultant selection process for consultant services.
- The PM organizes "start-up" meetings with Resident Engineers, Construction Engineers, and design staff to transfer the Resident Engineer's file, discuss major commitments concerning the project and reach an agreement on functional involvement. The PM obtains information required by the Resident Engineer for consultant prepared PS&Es. The PM participates in partnering sessions with the contractor.

Monitoring

- The PM will set up a baseline target for scope, schedule and cost (both capital and support costs) and develop adequate controls with which to monitor schedule/deliverable completion, functional unit resource budgets and expenditures and percent of work accomplished using Project Management software.
- The PM will have a project level budget for resources, as well as a functional unit and activity resource breakout. The PM will have an electronic and hard copy schedule identifying activities/tasks to a sufficient detail to adequately monitor the progress of the project.
- The PM prepares project status reports and recognizes critical issues early on and identifies projects to be discussed for resolving problems.
- The PM will visit FMs regularly and or conduct Project Team and Trend meetings to monitor scope, schedule, resource utilization and percent of work complete. Impacts to scope, schedule or cost will be immediately assessed and mitigated to the degree possible.
- The PM, with the assistance of the Project Control Unit will monitor and ensure that the district's project management control system and the Headquarters Project Management Control System (PMCS) are kept up to date on a continuous basis.
- The PM reviews expenditures charged to assigned projects to insure proper charges to projects.
- The PM will have preliminary decision authority over scope, cost and quality . When electing to deviate from established quality standards, the PM will be cognizant of risks and potential outcomes and will consider advice and alternate solutions from FMs and Headquarters advisory units to meet the project objectives.
- The PM and FM will adhere to schedule and deliverable commitments and will be held accountable to the Single Focal Point for Project Management, District Director and the Director of the Department.
- The PM submits Final Engineering Cost Report for assigned projects.
- The PM ensures that project requirements with the externals, e.g., freeway agreement, cooperative agreement, permits from regulatory agencies, utility relocation plans; etc., are met.
- The PM manages project requirements with Headquarters support units, e.g., Headquarters Office Engineer, Central Design, Structures, OPPD, Budgets, etc.
- The PM keeps District Management and HQ , as necessary, informed and aware of the overall project status.
- The PM monitors the status of construction engineering and project costs.
- The PM monitors milestones and costs in the construction claims phase such as proposed final estimate, return of exceptions, District Hearings, Boards of Review and final estimates.
- The PM tours the construction site with the Construction Engineer and or Resident Engineer to discuss various features about the project.

Controlling

- Changes to scope, cost or schedule will be documented and reported immediately to the Single Focal Point for Project Management. The report shall identify the magnitude and reason for the change and contain an action plan to mitigate the change and a revised risk assessment for the remainder of the work.
- The PM understands that the Single Focal Point for Project Management will have final decision authority for scope, cost and schedule changes with a view towards overall program delivery, district wide resource availability and priorities.
- The PM will immediately prepare and transmit the necessary project change control documents for both district and Headquarters approved changes and ensure that the PMCS is updated to reflect approved changes.
- The PM elevates issues and problems whose resolution exceeds their delegated authority. Solving problems and resolving issues are a key part of the Project Manager's responsibilities.
- In accord with the Single Focal Point for Project Management, the PM explains and documents all delays and cost increases to Headquarters' as well as to regional and local agencies as necessary.
- The PM will coordinate with the Resident Engineer and or the Construction Engineer to expedite the timeliness of decisions so as not to cause delays or otherwise impact the contractor.
- The PM will negotiate agreements with other Functional Managers to meet project commitments.
- The PM will be available to the claims team for consultation.

Development

- PMs, FMs and district personnel will be trained on basic project management principles and how these principles relate to their specific duties. District management will reinforce the importance of using project management principles with the goal of delivering a project with minimal changes to baseline scope, cost and schedule.
- Individual PM training and accomplishments will be tracked and assessed by district management. Strengths and deficiencies will be noted to identify additional training required, readiness for more challenging projects, selection for awards and incentives or reassignment to other job duties.
- The PMs will maintain continuous contact with functional groups, other PMs, other district employees and district managers and attend periodic PM forums. The purpose is to identify and share "lessons learned" and ways to improve the practice of project management in the district and the Department.
- The PM is aware of and takes advantage of recommended training for project managers.
- The PM will improve the quality of future PS&Es by facilitating feedback to design and other functional units regarding contract changes and claims and will chair a post construction review.

FUNCTIONAL DEPUTY ROLES AND RESPONSIBILITIES

Accountability

The Functional Deputy is accountable to the Single Focal Point for Project Management for capital outlay support project delivery tasks. He/She is accountable to the District Director for non-capital outlay related work.

Responsibility

The Functional Deputy is responsible for:

- ensuring the quality of products produced by functional support units by providing appropriately trained staff and/or consultants.
- ensuring that functional support units commit and adhere to deliverables and schedules with Project Managers.
- resolving workload and resource conflicts resulting from competing project and program needs and/or issues of quality or standards within his/her jurisdiction. If a conflict arises between the Functional Manager and the Project Manager, it should be resolved by the Project Manager. If the conflict impacts the work of more than one Project Manager, the Functional Deputy will attempt resolution within his/her jurisdiction. If necessary, the Functional Deputy will seek resolution with the Single Focal Point for Project Management.
- satisfying both capital and non-capital needs without compromising either one. This can be accomplished by establishing guidelines for prioritizing work and by developing alternatives such as contracting out for consultant services, working overtime, borrowing staff, hiring retired annuitants, streamlining processes, identifying areas where quality can be relaxed and etc.

Authority

The Functional Deputy has supervisory authority over assigned functional support units.

Tasks

Planning

The Functional Deputy makes sure that functional support units are adequately staffed, equipped, trained and motivated.

He/she ensures that workload standards are developed for various deliverables so that resource impacts and schedules can be predicted as project commitments are made.

He/she makes sure that Functional Managers and functional support unit staff understand the project management process, make schedule and resource commitments with Project Managers for deliverables and adhere to those commitments.

He/she tries to maintain a stable staffing level by making sure that Functional Managers, as much as possible, negotiate resource commitments for times when staff are available.

The Functional Deputy develops alternatives for times when staff resources are exceeded, i.e. contracting out for consultant services, working overtime, borrowing staff, hiring retired annuitants, streamlining processes, identifying areas where quality can be relaxed and etc. He/She establishes and maintains technical standards, safety standards and operational procedures for the district in his/her functional area and has a clearly defined exception process where applicable.

Monitoring

The Functional Deputy monitors the on time delivery, quality and quantity of deliverables produced by his/her staff.

He/She monitors resource utilization and compares it against budgeted resources.

Control

The Functional Deputy resolves resource and quality problems by making use of resources that within are his/her span of control.

If the Functional Deputy cannot resolve a capital outlay project related problem, he/she elevates the problem and a proposed solution to the Single Focal Point.

He/she makes sure that all project related actions are well documented in a timely manner.

Development

The Functional Deputy makes sure all functional staff are adequately trained and that continuous feed back for product improvement occurs not only within the functional support units, but also to the Project Manager and other district staff.

FUNCTIONAL MANAGER ROLES AND RESPONSIBILITIES

Accountability

The Functional Manager is accountable to the Project Manager and Single Focal Point for Project Management for Capital Outlay Project related work and to the appropriate District Functional Manager for non-project related work.

Responsibility

The Functional Manager is responsible for determining, assigning and monitoring resources to project and non-project related activities and for managing, supervising and training staff. He/She is to make commitments for scope, cost, schedules, resources and deliverables with Project Managers and adhere to those commitments. He/She is responsible for quality control management of projects and is the technical advisor in the District for a particular specialized function e.g., electrical, landscaping, geotechnical, right of way, and, as such, oversees that technical function in the District.

Authority

- The Functional Manager is, in general, at the Branch Chief level; e.g., Senior and Supervising levels in small and large districts, respectively.
- The FM authorizes expenditures of assigned resources.
- The FM supervises and administer activities of assigned staff in conformance with Caltrans technical standards and project commitments.
- The FM contracts out for services that cannot be performed within the unit.
- The FM resolves issues raised by staff or elevates them to the Single Focal Point for Project Management for resolution.
- The FM ensures the engineering accuracy and adequacy of plans, specifications and estimates produced by staff.

Tasks

Planning

- FMs will predict resource availability and be held accountable for schedule, capital support and deliverables.
- Provides input to the Project Manager on the project workplans, including negotiations for resources to complete quality functional work for the project on time and within budget.
- Commits to scope of work, schedule, cost, and resources as agreed to in the individual project work plans.
- Maintain sufficient skilled staff to support District's programs.
- Assigns technical staff matching skills and experience of personnel to the needs of individual projects.
- Contracts for consultant services to support the Project Manager's needs to meet project delivery and provides appropriate level of consultant oversight.

Monitoring

- Encourages active participation of staff members assigned to Project Teams to assist the Project Manager in timely project delivery.
- Monitors expenditures versus allocated resources for functional work on each assigned project.
- Reviews design standards for technical accuracy and ensures that all project work meets Caltrans' technical standards, policies and procedures, and past practices.
- Ensures the technical quality of the specialized work performed in development of the project and is accountable for all functional work done by staff on the project.
- Assists the Project Manager in fulfilling project requirements with the external agencies, e.g., freeway agreements, permits from regulatory agencies, cooperative agreements; etc.

Control

- Resolves conflicts with the Project Manager and escalates unresolved issues to upper management.
- Reports project progress to and as directed by the Project Manager.
- Negotiates changes to previously approved project work plan with the Project Manager.
- Provides input to the Project Manager on decisions regarding technical issues, including standards, criteria, and work plan revisions for scope, schedule, cost and resources.
- Functions as the District's Program Advisor for non-capital outlay support programs, e.g., Property Management, Maintenance, Legal; etc.
- Provides functional support to the District for other programs besides capital outlay, e.g., Permits, Operations, Maintenance, Legal; etc.

Development

- Provides administrative supervision, including evaluation of work performance, training, and development of staff.

PROJECT MANAGEMENT CONTROL UNIT ROLES AND RESPONSIBILITIES

Accountability

The Project Control Unit is accountable to the Project Manager and Single Focal Point for Project Management.

Responsibility

Provide District management and the Project Managers with accurate, timely and relevant project control information and support.

Authority

As granted by the Single Focal Point for Project Management and Project Manager.

Tasks

Planning

- Assists Project Managers in the development of detailed project workplans for individual projects.
- Assists Functional Managers in development of resource and workload planning tools and reports.
- Assists District management with project planning and workload scheduling.
- Suggests workload leveling.
- Assists in obtaining commitments between Project Manager and functional manager.

Monitoring

- Assists Project Managers in project trend or status meetings on individual projects.
- In cooperation with the Project Manager prepares and issues District cost and schedule reports.
- Develops management exception reports.
- Monitors the work progress and resources expended on individual projects. Alerts the Project Manager of deviations from the delivery plan.
- Assists District management in preparing the total capital outlay staffing requirements for the District.
- Prepares a master schedule summarizing all the individual project schedules and resource requirements.
- Coordinates the monthly project status review meetings involving District management, Project Managers, and functional managers.
- Keeps PMCS database updated with current project schedule information.
- Maintains inventory of projects assigned to Project Managers.
- Provides focal point in District with HQ Office Engineer for PS&E appointments and advises Project Manager if rescheduling of appointment is necessary.

Control

- As delegated by the Project Manager and Single Focal Point for Project Management
- Coordinates the 30/60/90 day CTC project commitments with HQ Division of Programming.

Development

- Attend all available training on project management software and department supported information systems i.e.. data warehouse, PYPSCAN, PMCS.

PROGRAM MANAGEMENT UNIT ROLES AND RESPONSIBILITIES

Accountability

Accountable to the Single Focal Point for Project Management for Project Delivery. (It is not required that this unit be under project management.)

Responsibility

Ensures that a sufficient number of high priority candidate projects are available to be programmed in the SHOPP, STIP and TSM program documents.

Authority

As delegated by the Single Focal Point for Project Management.

Tasks

Planning

- Provides assistance to District management in prioritizing all candidate projects for future year programming of the STIP, SHOPP, TSM, and IRRS projects.
- Coordinates RTIP's and FTIPs with local transportation commissions and the MPO's.

Monitoring

- Maintains the Districts project inventory, including the candidate projects list by program in the PMCS database.
- Keeps PMCS database updated with current project cost and scope information.

Control

- Prepares funds requests to HQ Budgets.

Development

- Attend all available training on project management software and department supported information systems i.e. Data Warehouse, PYPSCAN, PMCS.

HEADQUARTERS ROLES AND RESPONSIBILITIES

Accountability

Headquarters Project Management staff are accountable to Headquarters Managers under the Deputy Director Transportation Engineering, the Chief Deputy Director, and to the Director of Transportation.

Authority:

Responsibility:

Headquarters Project Management is responsible for:

- Developing and implementing ways to continuously improve project management processes statewide.
- Evaluating district's project management processes for the purpose of finding better ways of doing things.
- Organizing and supporting Project Management forums and training
- Assisting districts with project management related issues such as tool development, training, management support etc.
- Reporting on program delivery for the Department
- Representing and supporting project management on statewide task forces and studies.

Tasks:

- Implement a Roving Reviewer who is a facilitator, coordinator and single point of contact between the District Project Management team (Single Focal Point for Project Management, Project Managers, Functional Managers and Project Control) and Headquarters. This position is temporary for one year and will be reevaluated at the end of the term. The primary role of the Roving Reviewer is to assist Statewide (Districts and Headquarters) in the implementation of Project Management policies and procedures to ensure compliance and uniformity.

The Roving Reviewer responsibilities include but are not limited to the following:

- The Reviewer is to determine if: the established project management guidelines have been followed; goals and priorities have been attained; adequate capital support resources allocated to attain goals; application of policies consistent; impact of problems when policies not followed.
- The Reviewer will act as a facilitator to identify issues and concerns raised by the Project Managers, Functional Managers and / or Project Control Units, then recommend solutions to Headquarters for implementation statewide. The Reviewer will set up conferences / meetings as needed to resolve problems and get concerns from the districts for resolution.
- The Reviewer will recommend current policies be amended, deleted and/or new policies be added as necessary and will be responsible for seeing that Project Management Policy and Procedures Manual is updated.
- The Reviewer will determine the need for statewide meetings, seminars, forums and Project Management Academies. Responsibility for making modifications to meet needs; solicit main topics for discussions; prepare agenda items; invite guest speakers, coordinate activities; identify who will attend and notify all attendees.

- The reviewer will make presentations to Executive and Management recommending improvements and prepare written reports as needed.
- The Reviewer will visit each District as needed, meet with Project Managers Functional Managers, Control Units and Headquarters personnel to share findings and implement improvements.
- The Reviewer will facilitate meetings to review existing goals, objectives and priorities. The Reviewer will determine if uniformity is applied consistently and statewide.
- The Reviewer will follow up, make verbal and written recommendations of findings. The Reviewer is to encourage two-way communication between Districts and their respective upper management.

COMPLETION DATE FOR ROLES AND RESPONSIBILITIES: June 30, 1994

ARGUMENTS PRO:

- Will improve Project Delivery.
- Minimize current confusion over roles and responsibilities.
- Reduces conflict by emphasizing authority of the PM.
- Enable District personnel to concentrate on Project Delivery.
- Allow for easier intra District transfers.
- Encourages more team commitment and responsibility towards Project Delivery by emphasizing FM role in scope, cost and schedule, in addition to quality.
- Provides basis for holding Project Delivery team members accountable to their individual commitments for deliverables, schedule and resources by implementing tools with which to track and evaluate performance.
- Has potential for Person Year (PY) savings by allowing early detection and resolution of Project Delivery problems.

ARGUMENTS CON:

- Cannot be successful without adequate performance monitoring tools for both Project Manager (PM) and Functional Manager (FM). Tools may take a long time to develop.
- High potential for conflict if adequate authority and management support are not given to project managers.
- Districts may have a difficult time accepting and implementing required changes.

DRAFT

OPERATIONAL RESPONSIBILITY MATRIX

I. PROJECT STUDY REPORT DEVELOPMENT	Project Manager	Project Development	Functional Branch	
Coordination	L/S	T	S	
Resources	L	S	S	
Staffing	I	L	L	
Tech Issues (alt/align/etc.)	I	L	L	
Drawings (Tech)	I	L	L	
Prelim Cost Estimate Preparation	R	L	S	
Prelim Schedule Development	R	L	L	
PYPSCAN	L	I	I	
Headquarters Reviews	S	S	S	
II. PROJECT REPORT DEVELOPMENT	Project Manager	Project Development	Functional Branch	
Development				
Coordination	L/S	T	S	
Resources	L	S	S	
Staffing	I	L	L	
Environ. Document	I	S	L	
Tech Issues (alt/align/etc.)	I	L	L	
Drawings (Tech)	I	L	L	
Cost Estimate Preparation	A	L	S	
Schedule Development	A	L	L	
Cooperative Agreements	R	L	S	
Freeway Agreements	I	L	S	
Permits	I	L	L	
PYPSCAN Updates	L	S	S	
Headquarters Reviews	S	S	S	
Consultant Contract Administration				
Prepare SOW	R	L	L/S	
Negotiate Contracts	S	L	L/S	
Administer Contracts	S	L	L/S	
Audit Consultants	S	L	L/S	

III. PLANS SPECIFICATION & ESTIMATES	Project Manager	Project Development	Functional Branch	
Project Development				
Coordination	L/S	T	S	
Resources	L	S	S	
Staffing	I	L	L	
Tech Issues (alt/align/etc.)	I	L	L	
Drawings (Tech)	I	L	L	
Specifications	I	L	L	
Detailed Cost Estimates	A	L	S	
Detailed Schedule	A	L	L	
Cooperative Agreements	R	L	S	
Freeway Agreements	I	L	S	
Permits	I	L	L	
ROW Agreements	I	S	L	
PYPCAN Updates	L	S	S	
Headquarters Reviews	S	S	S	
Consultant Contract Administration				
Prepare SOW	R	L	L/S	
Negotiate Contracts	S	L	L/S	
Administer Contracts	S	L	L/S	
Audit Consultants	S	L	L/S	
IV. CONSTRUCTION				
	Project Manager	Project Development	Functional Branch	Construct
Coordination	L/S	S	S	L
Resources	L	I	I	S
Staffing	I	I	I	L
Tech Issues (alt/Align/etc.)	I	S	S	L
Drawings (Tech)	I	S	S	L
Specifications	I	S	S	L
(1)Construction Allotment Changes	A	I	I	L
Contractual Construction Schedule	I	I	I	L
Change Orders & Claims	I/R	I/S	I/S	L
PYPCAN Updates	L	I	I	I
Headquarters Reviews	S	I	I	L
Consultant Contract Administration				
Prepare SOW	R	I	L/S	L
Negotiate Contracts	S	I	L/S	L
Administer Contracts	S	I	L/S	L
Audit Consultants	S	I	L/S	L

LEGEND

L-Lead Responsibility
S-Support Responsibility
R-Recommend

NOTES

1-Prior to the CONSTRUCTION Phase (IV) the Construction is included as part of the Functional A-Approve Branches

I-Informational Use Only
T-Technical Lead Responsibility

II. REPORTING STRUCTURE FOR PROJECT MANAGEMENT / PROJECT DELIVERY

PEER REVIEW REPORT ISSUE:

There is limited standardization between Districts for function, functional grouping, organizational hierarchy, resource assignment, or identification coding. The Department needs to develop stricter guidelines to standardize Project Management organizational elements and interrelationships within Districts to facilitate interdepartmental transfers, interfaces with outside agencies, and the development of automated control and reporting systems.

Project Management is an organizational design and philosophy by which District management can enlist the support of employees and organize work to become more effective so the barriers of limited time and resources in which to accomplish tasks can be overcome. Change opens up opportunities for organizational and individual growth.

RECOMMENDATION:

Implement District Reporting Structure for Project Delivery (Single Focal Point for Project Management Concept) with allowance for transition period (see attached chart).

The objective is a more uniform district reporting structure that supports the Project Manager (PM) and emphasizes project and program delivery and that is applied statewide.

All units with project delivery responsibility (Project Managers, functional support groups including Construction, Right of Way, Planning, and Project Control, etc.) will be accountable to a "Single Focal Point for Project Management" responsible for project delivery .

Project Managers will secure the services of personnel from functional areas through a negotiated contract arrangement. Project Managers will use resources made available by Functional Managers and their support groups. Functional support units will act as pools of specialists who will be available on a time-sharing basis. Functional Managers will have the authority to allocate staff and resources to project tasks within their functional jurisdiction. Functional Managers will give priority to project delivery related work over non-project work. Functional Managers will be responsible and accountable for committing to, and adhering to, deliverables and schedules with Project Managers as well as for maintaining acceptable product quality. Functional support units will contract for and administer consultant contracts when services cannot be provided by state forces.

Project Managers will have decision authority, full responsibility and accountability on issues of scope, schedule, cost and quality for their projects. When the decisions of the Project Manager impact projects outside of his/her jurisdiction, the Single Focal Point for Project Management will resolve the issue.

For large projects the Project Manager may perform strictly project management duties. For smaller projects, the Project Manager may have other duties i.e. supervision of a functional unit, administrative duties, etc. However, project management duties will have highest priority and Project Managers will not be assigned more projects than they can adequately manage. Factors such as Project Manager experience, Project Manager skills, Project Manager stress tolerance,

past Project Manager delivery performance, and non-project management duties assigned to a Project Manager will be taken under consideration when assigning the number of projects to a Project Manager and the overall numbers of Project Managers needed by a district.

COMPLETION DATE: See Item V. "Transition Strategy"

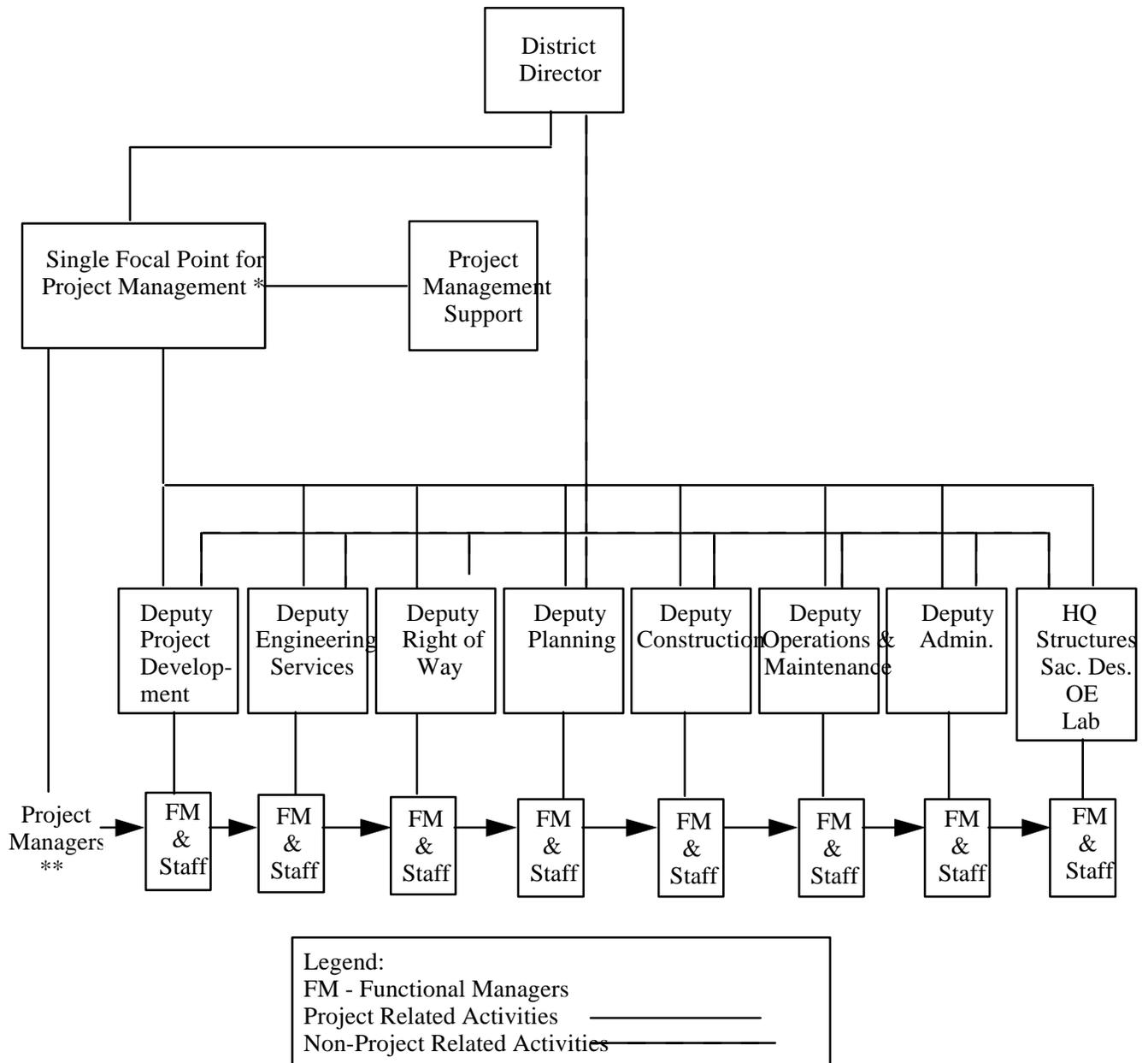
ARGUMENTS PRO:

- Gives the Project Manager more authority over resources for assigned projects.
- Rapid response to contingencies.
- More support from functional organizations.
- Effective utilization of resources.
- Coordination across functional lines improved.
- Balance between time, cost, quality, and performance.
- Better information transfer horizontal and vertical.
- Strong technical base easier to develop.
- Morale problems less frequent.
- Conflicts resolved more easily.
- Excellent training for future project managers.

ARGUMENTS CON:

- Will probably require more resources; e.g., monitoring and controlling personnel, PMs and FMs, depending on workload guidelines for PMs. This may adversely impact Project Delivery.
- Project personnel report to more than one boss.
- More complex to monitor and control individual work plans.
- Functional manager may have different priorities.
- May require Districts to restructure their organization and redirect resources.
- Potential for conflict with traditional project development organization.
- Tools not yet in place to support "Matrix" organization.

**DISTRICT REPORTING STRUCTURE FOR
PROJECT MANAGEMENT / PROJECT DELIVERY**

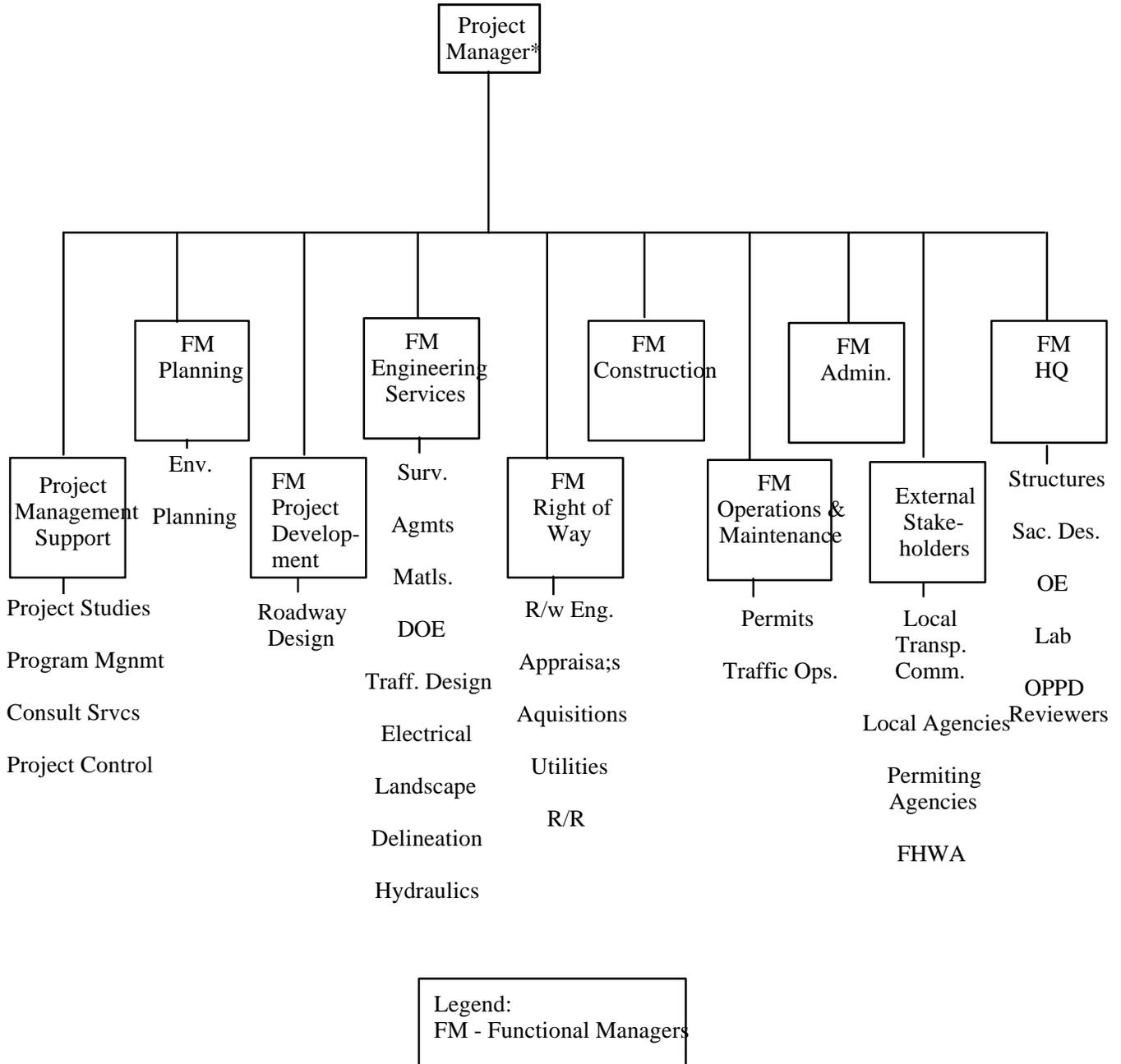


* District Director, Chief Deputy, or Deputy District Director

** There will be situations where the project manager will be most effective in administering the project management process as his/her primary responsibility. There will be other situations where the project manager will be most effective filling the responsibilities of both the project manager as well as a functional manager with supervisory responsibilities.

11/15/93

INDIVIDUAL PROJECT TEAM ORGANIZATION



* There will be situations where the project manager will be most effective in administering the project management process as his/her primary responsibility. There will be other situations where the project manager will be most effective filling the responsibilities of both the project manager as well as a functional manager with supervisory responsibilities.

III. DEVELOPMENT OF PROJECT MANAGEMENT TOOLS

PEER REVIEW REPORT ISSUE:

Project Managers don't have sufficient tools or procedures to know how their projects are progressing against plan except at gross summary levels. Functional Managers have no way of knowing what their workload is or how to plan for it.

The PEER Review Report identified the following weaknesses in the tools currently being used by the department:

8.1 PYPSCAN

PYPSCAN and Project Management can co-exist but identified conflicts must be attended to first:

- There is a real need to revise PYPSCAN to retain its budgeting value. PYPSCAN algorithms must be modified to reflect current project development needs, especially in the front-end planning processes.
- The PMCS database must be modified to be more receptive to project needs. Not everyone knows how to enter schedule commitments that go against pre-established lead times in the PMCS database. There is no way to correct initial PY allocations or to accommodate changes due to scope changes.
- PYPSCAN revisions directed by the project take up to three months to process before they are reflected in the PMCS database. Management reporting from PMCS is not sufficiently flexible or timely for project needs.

8.2 PSCP (PYPSCAN Conversion Program) "Blackbox"

- The Districts need more responsive and timely access to project information in the mainframe PMCS database whether it be from add-on software such as a "Black Box" or improvements to the existing PYPSCAN system.
- Workload Leveling.
- Project and functional management must get a handle on resource needs to compare against available work force.

8.3 Data Warehouse

- Headquarters should concentrate on developing better control tools, methods, procedures, management reporting formats and training programs to support District activity. Headquarters should also take the lead in developing Caltrans specific software that has common application throughout the State. Headquarters should focus on establishing broad guidelines to assist the Districts to choose appropriate project control hardware and software.
- For Caltrans to have project "control", the following control elements must be improved:
 - Budgeting process to ensure all project participants and elements are included at reasonable productivity and production rates.
 - The budget and schedule are developed in sufficient detail to be monitored during design.
 - Scope change control process is improved to be able to identify potential scope changes, evaluate each change for cost and schedule impact, and obtain management approval before incorporation.

- Quantitative control tools, methods and procedures used in private industry (such as a quantified approach to evaluating engineering progress and performance) are employed to monitor work performed against a pre-defined budget.
- Critical items and recommended actions are surfaced for management's attention in time to take corrective measures.
- Project status meetings are held routinely with all affected parties to discuss project progress, performance, critical issues and future activities.
- Charging practices must be improved so that actual time spent is charged where the effort is expended regardless of budget or ulterior motive.
- Project reporting must be more substantive, timely and responsive to management's needs.

8.4 Corporate Database (PMDBS)

ENHANCED REPORTING:

The following are suggested areas for enhanced reporting:

Project

- Progress and performance.
- Near term activities.
- Critical Items.
- Staffing availability against forecast needs over time by resource group.

District

- Comparative analysis.
- Workload.
- Financial/Funding Status.
- Exception reporting.
- Productivity ratios.

Headquarters

- Comparative analysis.
- Workload.
- Critical issues.

What are the minimal necessary reporting requirements?

The type and extent of project reporting should vary with the intended audience. Managerial levels in the Districts and Headquarters should receive summarized status information complete with recommended actions when necessary. Working levels on the project should receive more detailed information with audit trails to centralized accounting systems.

Generally, project reporting should be the minimal amount needed to address the following issues:

- Project Delivery plan approvals.
- PY and cost expenditures by organizational element by project.
- Project progress and performance against plan.
- Resource requirements against available staffing.
- Status of funding against plan.
- Scope, cost and schedule deviations from plan.
- Recovery recommendations for deviations from plan.

Is project reporting among Districts standardized?

No, Headquarters should concentrate on refining the base accounting and PMCS databases to make them more comprehensive and responsive to District needs, provide the Districts with better data extraction tools (such as the Black Box), and improve standardized reporting formats and review procedures.

8.5 Training

Provide training for management and users on standardized reports and ad hoc reporting.

RECOMMENDATIONS:

Continue the efforts of various task forces currently underway that are looking at Project Management reporting mechanisms and project management software packages. Effective tools that provide a sufficient level of project detail are essential to the success of Project Management. The primary objective should be to provide project activity level data on schedules, budgeted resources, expenditures and amount of work complete that will satisfy the needs of the Project Manager. The information can then be rolled up to provide functional, district and Department level summaries. The target date for implementation of a fully functional project management software package for project scheduling and resourcing is July 1, 1994. This will coincide with the target dates put forth in this report.

The PEER Review Task Force has outlined the requirements for the new Project Management software and these have been given to PM database task force for input to their project. The Project Management task force will be available to review system development and for consultation; however, system development will be left to the experts.

Recommendations with regard to existing systems and other efforts are as follows:

- 8.1 PYPSCAN - Update existing system for interim.
- 8.2 PSCP (Blackbox) - Apply statewide by District.
- 8.3 DATA WAREHOUSE - Develop data warehouse.
Provide single project identifier, Standardize Source Units, Activity Codes, Define fields and criteria for reports and PM software and implement.
- 8.4 CORPORATE DATABASE (PMDBS)- Develop engineering management ad hoc reports in relational database on mainframe with download capability to PC's.
- 8.5 TRAINING-Develop training for management and users on reports.

COMPLETION DATES: At this time, completion dates are still tentative pending further development by the Data Base Management System (DBM) Task Force.

- 8.1 PYPSCAN
July 1994 - PYPSCAN modifications incorporated in interim until relational database systems completed (i.e., formula updates and schedule algorithms for environmental projects).
- 8.2 PSCP
Jan. 1994 - Assign PSCP contract to Headquarters for statewide implementation and analysis.
- 8.3 Data Warehouse
Sept. 1993 - Phase 1 Data Warehouse on-line.
Oct. 1993 - Ad hoc report capability.
- 8.4 Corporate Database (PMDBS)
Dec. 1993 - Corporate Data Model.
Jan. 1994 - CPM System Development/Software selection.
Jul. 1994 - Phase 2 Corporate database.
- 8.5 Training
Oct. 1993 - Phase 1 Data Warehouse Training .
Jan.. 1995 - Phase 2 Corporate Database Training.

IV. MANAGEMENT SUPPORT

PEER REVIEW REPORT ISSUE:

Continue participation in academies and producing project development newsletters to further show management's commitment to the Project Management process and improved Project Delivery. Insist that all project-related information and decisions include the project manager. Stress "project team" commitment and accountability to Project Delivery. Expand assignment of project managers to all projects, whether locally funded, TSM or STIP projects.

RECOMMENDATIONS:

District and Headquarters Management must show support for project management by:

- Openly promoting project management concepts.
- Organizing for project management and project delivery.
- Incorporating project management concepts in the roles and responsibilities of staff.
- Delegating project-level decision authority to the Project Manager.
- Emphasizing the functional support unit's role in making and adhering to commitments for deliverables, schedules, resources and quality.
- Identifying project management tasks, providing the means and training to perform those tasks, and enforcing the performance of project management tasks.
- Adequately staffing project management positions.
- Supporting PM, FM & Project Control Academies/Forums.
- Publishing articles of Project Management accomplishments in the Project Development Newsletter.
- Developing ways to measure and analyze the performance of project delivery staff and the project management processes they use. This will be used to identify training opportunities, potential managers and areas for process improvement.
- Providing opportunities for acknowledging and rewarding the successful accomplishments of project delivery personnel.
- Obtaining approval from the Department of Personnel Administration (DPA) to provide managerial type benefits to non-supervisory Project Managers.

The key to the success of Project Management will be instilling in the delivery staff a will to succeed. It is Management's responsibility to see that staff is motivated, that good work is rewarded, and that poor performance is improved. Specific actions that should be taken by Management in this regard include:

Establish the Project Manager position as the foremost career path to upper management. It should be made clear that the skills necessary to be successful in top management are best acquired by fulfilling the role of Project Manager. This must be more than words. If a high percentage of management appointments do not come from the Project Management ranks, this will not be taken seriously.

Give serious consideration to who will be appointed to the position of Project Manager. The Project Manager position should only be filled with individuals who have already established their ability to manage and deliver a project or product. Furthermore, the candidate should exhibit the entrepreneurial characteristics that are necessary to be successful in the position. Foster an

atmosphere that takes pride in competition with the private sector. Healthy competition fosters achievement while unhealthy competition fosters resentment. Management must emphasize this healthy competition. When in-house staff out performs consultant staff, management should highlight it without being critical of the consultants.

Establish a system for acknowledging and rewarding superior performance. Management should single out superior performance and acknowledge it publicly. Recognition at District executive staff meetings would be appropriate. District Directors meetings should be considered for acknowledgment of exemplary performance. Both Project and Functional Management staffs should be recognized.

Institute a program of "lessons-learned" to ensure superior performance is replicated.

The districts may elect to: institute an employee suggestion program and publicly acknowledge employee suggestions that improve working conditions, performance and quality, utilize "On-The-Spot Cash Awards" and "Certificates of Appreciation" to reward superior individual and team performance, encourage project manager recognition of superior employee or team performance.

Ensure that Project Managers attend ground breaking and ribbon cutting ceremonies and that they are formally recognized at these functions. Functional Managers who played a significant role in a project should also be invited to these ceremonies. Implement the suggestion in the Peer Report to have award certificates printed and made available for Project Managers to use to acknowledge superior performance by functional staff.

COMPLETION DATE FOR MANAGEMENT SUPPORT:

- Continuous

ARGUMENTS PRO:

- Academies and forums are key to training personnel.
- Communication is key to success.
- Department commitment to Project Management.
- Management's primary responsibility is to facilitate and empower the project managers and to insure that District staff is committed to Project Management.

ARGUMENTS CON:

- Requires experienced and high caliber personnel necessary to provide training.
- Requires use of limited resources to provide articles for newsletters.
- Resistance to change and staff to implement policy and procedures.

V. TRANSITION STRATEGY

ISSUE: The transition to the "Single Focal Point for Project Management" reporting structure for project management and project delivery needs to be a positive structured approach. An abrupt change to the organization's culture would probably adversely affect the reorganization. District management needs to embrace the concept, see the vision, then take the opportunities to move into the Project Management organization.

RECOMMENDATIONS:

Develop transition guidelines in partnership with districts. Allow Districts to submit their transition strategy to Headquarters for approval and up to one year for transition contingent upon the availability of adequate resources and tools.

The objective is to provide a structured and positive transition to a district reporting structure that supports the Project Manager and project delivery process. The transition strategy is as follows:

- | | |
|--|----------|
| • Distribute Draft Report to District for Comments | 12/1/93 |
| • Draft Comments Returned to Headquarters | 12/20/93 |
| • Distribute Final Report | 1/5/94 |
| • Issue Deputy Directive | 1/5/94 |
| • Conduct Transition Guidelines Workshop | 1/12/94 |
| • Distribute Transition Guidelines to Districts | 2/1/94 |
| • District Transition Strategies Received in Headquarters | 5/1/94 |
| • Headquarters Approve District Transition Strategies | 6/1/94 |
| • Establish Project Management Evaluation Checklist | 6/1/94 |
| • Districts Commence Transition | 7/1/94 |
| • First Quarterly Departmental Project Management Evaluation | 9/30/94 |
| • Full Departmental Implementation of all Recommendations | 7/1/95 |

The transition strategy provides for district input at several points in time. The goals are for each district to have a Headquarters approved transition plan by June 1, 1994, for districts to commence implementation July 1, 1994 and full implementation of all recommendations, including manuals, tools and all applicable staff training by July 1, 1995.

District implementation proposals should describe how the district intends to meet the objectives as outlined in these guidelines and a schedule for implementation. Districts will submit current & proposed organization charts and an edited Responsibility Matrix. (see example Responsibility Matrix Table following the section on Roles and Responsibilities.)

COMPLETION DATE: July 1, 1994 for commencement of implementation.

ARGUMENTS PRO:

- Will avoid bad experiences and negative opinions that may result from abrupt changes and poorly implemented procedures.
- Will give Districts time to embrace concept and make Project Management a positive experience.

- Will give the District time to incorporate their unique way of doing business into the Single Focal Point for Project Management organizational concept and to develop a new Project Management "culture."

ARGUMENTS CON:

- May be difficult to get Districts to agree to move to a Project Management organization especially if resources and tools are not available.
- May be difficult to clearly define a project management reporting structure.
- Will be difficult to enforce conformance, especially if District has had successful Project Delivery performance.

VI. COMMUNICATION AND TRAINING

PEER REVIEW REPORT ISSUE: The specific roles and responsibilities of all District employees in the Project Management process are not completely and uniformly understood. Methods should be provided where experience can be shared, conflicts can be resolved, solutions can be generated, suggestions can be aired and policies and procedures can be presented.

RECOMMENDATIONS:

- Continue current Project Management Academy.
- Implement Project Management Academy "II" that emphasizes use of Project Management tools and "hands on" training; e.g., developing project work plans, conducting trend or status meetings and Project Management strategies.
- Incorporate functional manager training with PM Academy.
- Implement statewide Deputy District Director for Project Management "Single Focal Point for Project Management" forum (annual meetings) to discuss statewide Project Management implementation issues, air suggestions and share information.
- Implement District Project Management forums to share ideas and experiences, air suggestions, solicit input from functional support units and external "partners."
- Continue project control forums to share ideas, identify and discuss common concerns, constraints, solutions, successes and provide training on new Project Management tools.
- Write articles to be included in existing "Project Development Newsletter."
Provide basic Project Management Concept training to all project delivery staff.

DISTRICT PROJECT MANAGEMENT FORUM:

- Management shall establish forums where the Project Managers can regularly meet and discuss project successes and failures. These can be useful mechanisms to facilitate the sharing of information about situations that do not occur frequently, but that have the potential to cause project delays. These forums will also be used as a tool to facilitate the Project Management implementation efforts. Project Management successes can be discussed as well as areas requiring further attention. These forums should also be used to discuss and evaluate employee suggestions dealing with Project Management, delivery efficiency improvements, etc. These meetings should be structured and should be held on a regular basis.
- Each District will determine the actual frequency and develop their own meeting agenda. The Deputy District Director for Project Management will be responsible for scheduling and coordinating these forums. Attendance by functional staff as well as staff from neighboring Districts should be encouraged.

STATEWIDE PROJECT MANAGEMENT FORUM:

- A statewide Project Management forum will be established for the Deputy District Directors for Project Management. Responsibility for establishing and conducting this forum lies with the Office of Engineering Project Management. This forum will meet on an as-need basis, but no less frequently than once per year.

STATEWIDE PROJECT CONTROL FORUM:

- A statewide Project Control forum currently exists. This forum will continue.

EMPLOYEE SUGGESTIONS & CONCERNS

- Use the existing employee suggestion program to field employee frustrations, complaints, concerns and productivity issues. These concerns can be addressed publicly at the project management forums or in an employee newsletter, and corrected by the suggestion/award program.

PROJECT MANAGEMENT ACADEMY

- The current Project Management Academy provides an introduction to the various facets of the Department and how these areas impact a project. A second Academy, that will incorporate the revisions put forth in this document, will be developed. The second academy will emphasize a task oriented "hands on approach" to the roles of the Project Manager and Functional Managers. It will present not only what the duties of the Project Managers are, but how they can perform those duties in a realistic setting.

NEWSLETTERS

- The districts and Headquarters will publish articles of Project Management accomplishments and lessons learned in the Project Development Newsletter.

COMPLETION DATE: Startup by June 30, 1994

ARGUMENTS PRO:

- Will improve Project Delivery.
- Clarifies Project Management roles, responsibilities, policies and procedures by providing stronger guidelines.
- Reduces conflict by opening lines of communication.
- Focuses District personnel on Project Delivery.
- Allows for more team commitment towards Project Delivery.
- Has potential for PY savings by allowing early detection and elimination of Project Delivery problems.

ARGUMENTS CON:

- Will require staff time and District travel expenses to participate in academies and forums.
- Need resources to accelerate development of tools to have in place before holding academies.

VII. PROJECT MANAGEMENT PROCEDURES MANUAL

PEER REVIEW REPORT ISSUE: The Project Management Procedures Manual should be rewritten in the active voice and should be more specific in:

- Definition of the Project Management process in Caltrans.
- Objectives of the Project Management process.
- Roles and responsibilities for the project manager, functional manager, control unit, program management, and all senior District and Headquarters management.
- Functional responsibilities and interrelationships of each project team member.
- Relationships between the project, District management and Headquarters management.
- Interfaces with Headquarters, other agencies, and the public.
- Allocation and control of project resources.
- How a project scope, cost and schedule budget is developed.
- How formal commitments are obtained from functional units to participate in project development process.
- How project cost and schedule progress and performance are tracked against budget.
- How conflicts between scope, cost, schedule, resources and quality are resolved.
- Participation in consulting out selection and administration processes.
- A common work breakdown structure and description to be used for all Caltrans projects statewide.
- Project control tools and methods to be used to develop a project budget and to monitor it thereafter.
- Project reporting formats and timing for project control and management oversight.

RECOMMENDATION:

The Project Management Procedures Manual will be rewritten and published in stages as issues and recommendations on how to revise project management in the department are resolved.

The Project Management Procedures Manual will not only cover what the project management process is, but it will clearly define how the processes are performed. It will present the roles, responsibilities and tasks of various Departmental staff and also describe how those tasks are performed (with examples where appropriate). The manual will cover in detail all the items listed above that were surfaced in the PEER Review Report.

The project management process is expected to be continuously evolving and improving. As evaluations are made and suggestions implemented, the manual will be updated to reflect the changes.

COMPLETION DATE: June 30, 1994

ARGUMENTS PRO:

- Improves Project Delivery.
- Clarifies current confusion over Project Management roles, responsibilities, policies and procedures by providing stronger statewide guidelines.

- Standardizes Project Management concepts, reports to Headquarters, monitoring and tracking of projects and resources.

ARGUMENTS CON:

- Will require substantial development, training and maintenance effort.
- Districts may have a difficult time accepting and implementing required manual procedures.
- Performance monitoring tools may take two to three years to develop.
- Difficult to enforce conformance, especially if Districts are delivering their projects.

VIII. STREAMLINE ADMINISTRATIVE SUPPORT FOR PROJECT MANAGEMENT

PEER REVIEW REPORT ISSUE: Headquarters should improve central support to the Districts such as accounting, management reporting, resource allocation, procurement, and consulting out processes to further project development:

- 7.1 Accounting: There is a lack of timely, responsive accounting records. The accounting system does not permit accountability down to the working element. Expended data is not available until seven to eight weeks after the fact. The present accounting system will not accept changes to correct errant charges. Codes of account are too numerous, redundant, inconsistent in terms of reported detail, and do not support current technology. The accounting system must be modified to produce both PY and expenditure data by source. The accounting systems and codes of account must be made more responsive to projects' needs to be able to compare actual PY and cost expenditures against a predefined project budget by detailed working element, and to collect and analyze historical expenditures for future trends.
- 7.2 Procurement: The procurement process is very cumbersome, often taking six months or longer to purchase minor items. Investigate means to loosen reins on Districts. Headquarters should concentrate on strengthening procurement guidelines and focusing on overseeing the Districts' conformance to these guidelines rather than micro-managing them.
- 7.3 Consultant Services: The current consulting out selection and change order approval process routinely takes over nine months to administer. This is too long and burdensome. The process is deep in inefficiencies, redundancy and misguided procedures. On-call consultant agreements are not used effectively. Consultant administration procedures should be strengthened.
- 7.4 Decentralization: Headquarters should investigate ways to pass on more accountability and responsibility to the Districts; and the Districts to the project manager. Areas to be investigated include more responsibility to approve scope, cost and schedule changes; involvement in the allocation of District PYs; more authority and freedom to procure needed equipment and supplies and to select, advertise, amend and administer consultant contracts.

RECOMMENDATIONS: The following ongoing task force efforts should be continued and reviewed for their impacts on streamlining administrative support for Project Management.

- 7.1 Division of Accounting: The Capital Outlay Support (COS) Task Force and two PEER review studies are reviewing accounting issues. This task force does not plan to get involved with accounting issues at this time.
- 7.2 Procurement: A PEER review is currently underway on procurement issues. This task force does not plan to get involved with procurement issues at this time.
- 7.3 Consultant Services: A PEER review is currently underway to review consultant OVERSIGHT ISSUES. This task force does not plan to get involved with consultant services issues at this time.
- 7.4 Decentralization: The Office of Engineering Project Management will work with the Division of Transportation Programming to determine whether the current cost, scope and schedule change process should be revised to more District flexibility. The Office of Engineering Project Management is currently working with the Division of Administrative

Services to provide clarifying guidelines for amending and administering consultant contracts.

COMPLETION DATES:

Responsibility:

- 7.1 Accounting Division
- 7.2 Procurement
- 7.3 Contracting Out
- 7.4 Eng. Mgmt. Division June 1994

Appendices

- **Deputy Directive - Revisions to the Implementation of Project Management**
- **Deputy Directive - Managing Resources for Capital Outlay Support**
- **Department Mission and Visions Applicable to Project Management**
- **Exceptions to PEER Report**

Appendix:

DRAFT

California Department of Transportation

DEPUTY DIRECTIVE

Number:

Refer to:

Directors Policy: Project Delivery

Effective Date: January 3, 1994

Title: **Revisions to Improve Project Management**

POLICY The following items will be implemented to revise the way project management is implemented in the Department:

1. *Roles and Responsibilities* - The Department will establish statewide roles and responsibilities relating to project management for District Management, Project Managers, Functional Managers, Project Control Units, Program Management Units, and Headquarters Management. The Department will develop or modify duty statements as necessary to accurately reflect the project management related roles and responsibilities of Project Managers and Functional Managers and all Department employees and ensure that all understand their duties and how they personally fit into the overall Project Management picture. The Project Manager will have a larger role. He/she will be responsible for the project from inception of the initial study (planning) through final voucher (construction). If the project involves long term environmental commitments beyond construction, these will also become the responsibility of the Project Manager. The Project Manager will ensure that the cost and schedules in the programming documents are updated in a timely manner as refinements or changes occur. The Functional Managers role will also be expanded to include developing workload and performance standards, projecting workload and resource requirements, monitoring resource expenditures and providing consultants when needed. Functional Managers will be held accountable for committing and adhering to project deliverables and schedules with the Project Manager. The role of the Project Control units will also increase to provide the necessary services.
2. *Reporting Structure for Project Management / Project Delivery* - The districts will develop a reporting structure for project delivery. For the purposes of project delivery, all project delivery line functions will be accountable to a Single Focal Point for Project Management who will be strongly committed to project management. This will provide a clear line of authority, responsibility and accountability for both project managers and functional managers and will ensure a project oriented focus in the resolution of resource conflicts. (see attachments 1&2)
3. *Development of Project Management Tools* - The Department will develop various computerized data management tools which will provide scope, cost, schedule, resource and expenditure information at the project level. Information will roll up to district and department levels to provide summary data. Target implementation date is July 1, 1994. .

Appendix:

4. *Management Support* - District and Headquarters Management will demonstrate support for Project Management by participation in academies and forums, delegating authority to the Project Manager, providing incentives to motivate Project Delivery personnel, allocating additional resources to implement these guidelines and emphasizing the importance of Project Management to all employees on a continuous basis. The Department will seek to obtain approval from the Department of Personnel Administration to provide managerial type benefits to non-supervisory Project Managers.
5. *Transition Strategy* - The Department will establish guidelines for the districts to develop a transition strategy to move from their current existing district organizations to the more uniform statewide Project Management organization.

The transition strategy will provide for district input . The goal is for each district to have a Headquarters approved transition plan by June 1, 1994, for districts to commence implementation July 1, 1994 and full implementation of all recommendations, including manuals, tools and all applicable staff training by July 1, 1995.

6. *Communication and Training* - Districts and Headquarters will establish or continue various Project Management forums and academies to facilitate Project Management implementation, provide training for Project Managers, Functional Managers and other Department staff, communicate lessons learned and seek to continuously improve the practice of Project Management in the Department.
7. *Project Management Procedures Manual* - Headquarters will establish a statewide Project Management Procedures Manual detailing Project Management principles and processes.
8. *Streamline Administrative Support* - The Department will improve and streamline administrative support for Project Management.

DEFINITION/BACKGROUND

The above items are a result of the project management peer review of the Department and recommendations of the project management task force.

RESPONSIBILITIES

The Division Chief of Engineering Management and District Directors are responsible for the implementation of this Deputy Directive.

APPLICABILITY

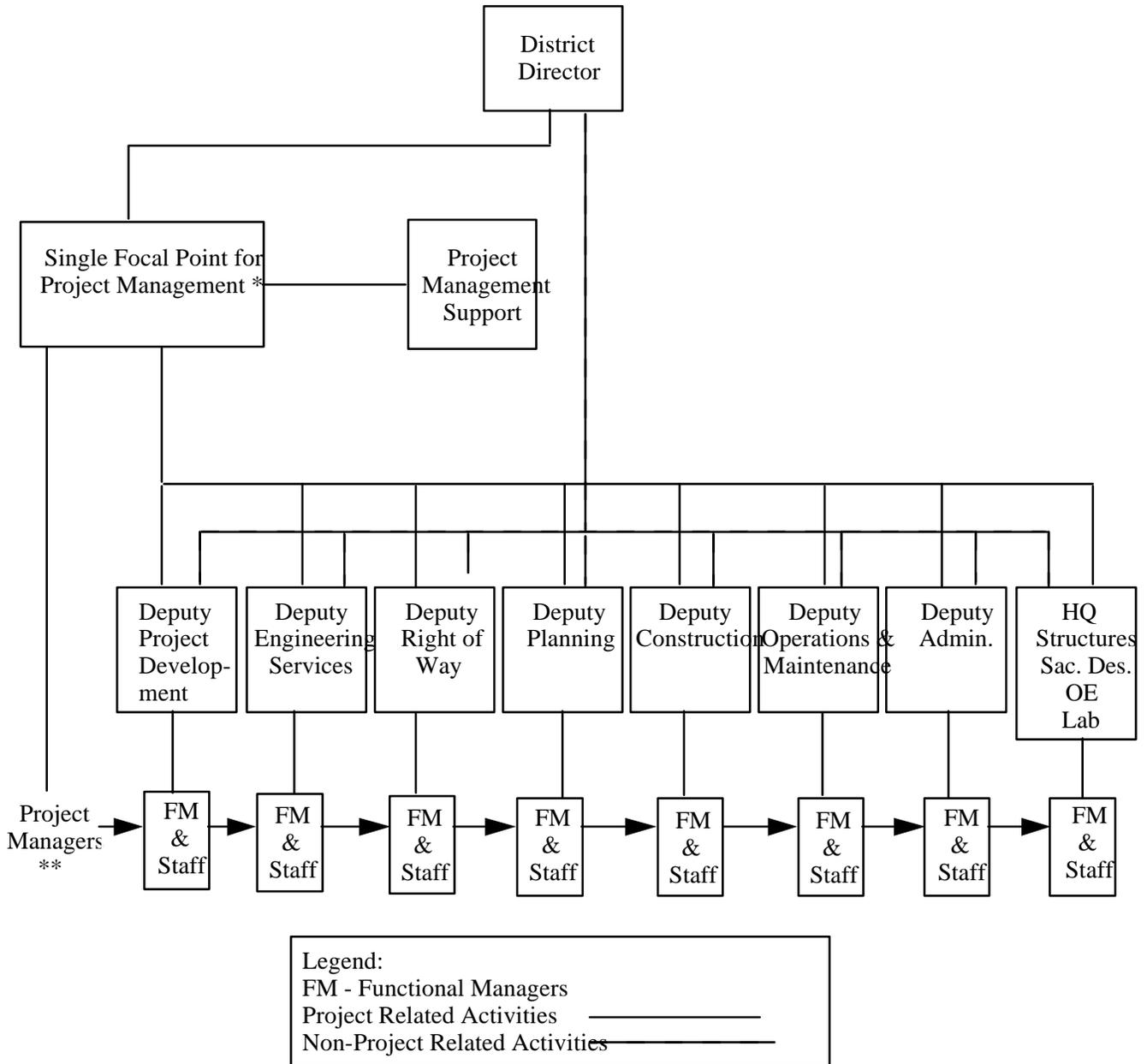
This policy applies to all capital outlay support employees.

JAMES E. ROBERTS
Interim Deputy Director
Transportation Engineering

Appendix:

Attachment #1

**DISTRICT REPORTING STRUCTURE FOR
PROJECT MANAGEMENT / PROJECT DELIVERY**



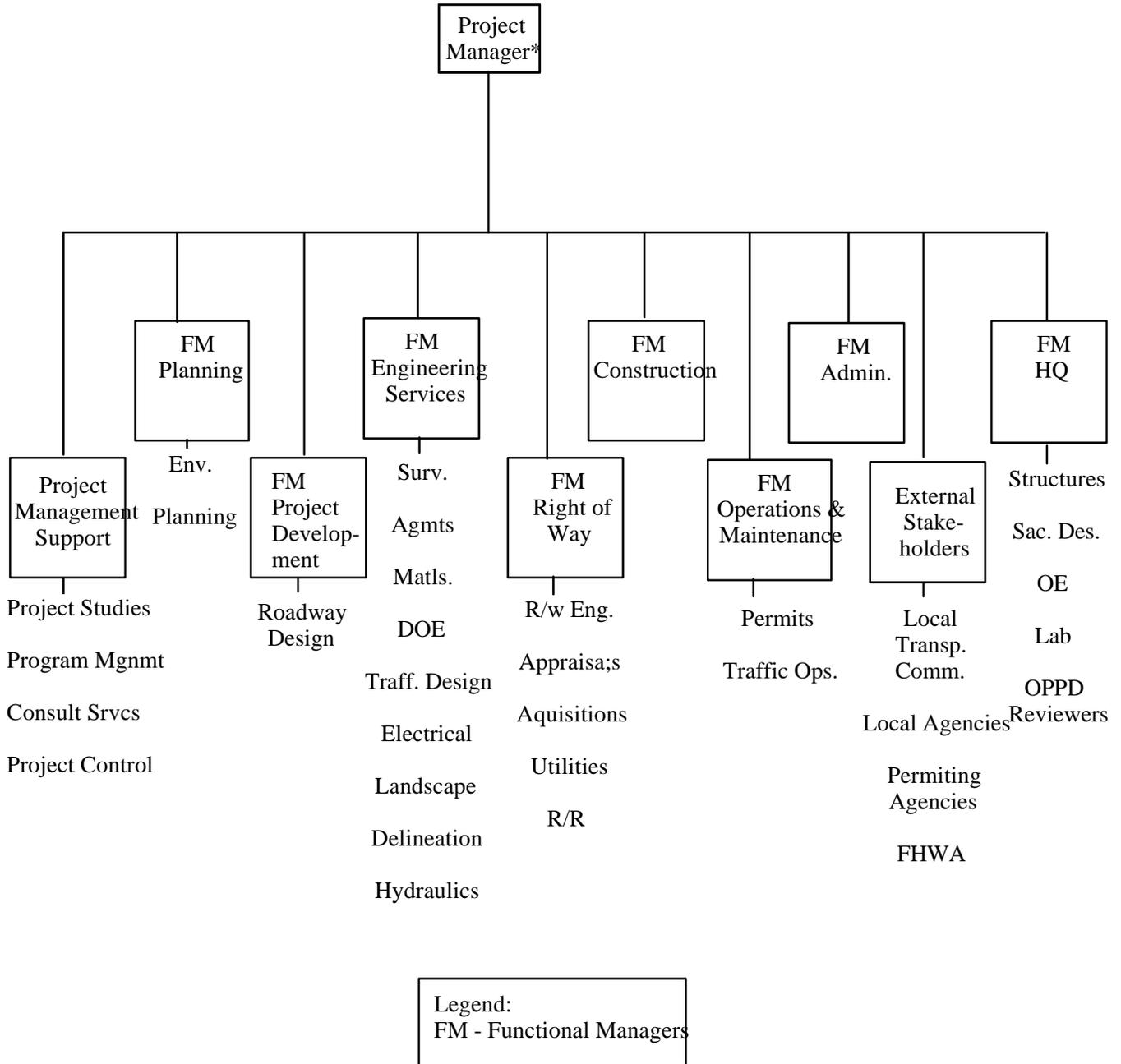
* District Director, Chief Deputy, or Deputy District Director

** There will be situations where the project manager will be most effective in administering the project management process as his/her primary responsibility. There will be other situations where the project manager will be most effective filling the responsibilities of both the project manager as well as a functional manager with supervisory responsibilities.

11/15/93

Appendix:

INDIVIDUAL PROJECT TEAM ORGANIZATION



* There will be situations where the project manager will be most effective in administering the project management process as his/her primary responsibility. There will be other situations where the project manager will be most effective filling the responsibilities of both the project manager as well as a functional manager with supervisory responsibilities.

DEPUTY DIRECTIVE

Number:

Refer to:

Directors Policy: Project Delivery

Effective Date:

Title: Managing Resources for ~~Project Delivery~~ CAPITAL OUTLAY SUPPORT

POLICY

Caltrans establishes a support budget for each project and manages within that budget. It also establishes an annual budget for each non-project Capital Outlay Support category and manages within that budget.

TO ALLOCATE AND MANAGE AN ANNUAL CAPITAL OUTLAY SUPPORT BUDGET THAT IS DRIVEN BY THE NEEDS OF THE INDIVIDUAL PROJECTS AND THEIR ASSOCIATED NON-PROJECT CATEGORIES. TO ESTABLISH AND MANAGE A PROJECT LIFETIME SUPPORT BUDGET THAT IS A REFLECTION OF THE PROJECT NEEDS.

DEFINITION/

BACKGROUND

Support budgets include:

- ~~• Personal service costs expended by Caltrans staff. These costs are measured both in hours and dollars.~~
- ~~• Operating expenses, including consultant and student costs. These costs are measured in consultant hours, student hours and dollars.~~
- **PROJECT DIRECT AND INDIRECT COST BY CALTRANS' STAFF, INCLUDING STUDENT.**
- **PROJECT DIRECT AND INDIRECT COST BY CONSULTANT.**

THE ABOVE WILL BE MEASURED IN HOURS AND DOLLARS.

- **PRO-RATA SHARE OF PROJECT OVERHEAD COST (DOLLARS ONLY).**

Stewardship of resources is not only good management, it is also required by law. Government Code 14524.16 requires Caltrans to annually to report its cost of project development and to keep the average cost of project delivery below 20 percent of capital cost. The cost of project delivery includes a pro-rata share of overhead.

RESPONSIBILITIES

THE DEPUTY DIRECTOR OF TRANSPORTATION FINANCING

- **ALLOCATES THE LEVEL OF CAPITAL OUTLAY SUPPORT BASED ON THE GOVERNOR'S APPROVED BUDGET.**

Appendix:

THE DEPUTY DIRECTOR OF TRANSPORTATION ENGINEERING

- **MAKES ALL DECISIONS RELATING TO THE WORKLOAD FOR CAPITAL OUTLAY SUPPORT .**
- **RECOMMENDS BUDGET CHANGE PROPOSALS FOR CAPITAL OUTLAY SUPPORT TO THE DIRECTOR .**

The Chief, Division of Engineering Management:

- Provides overall direction for the management of Capital Outlay Support. This includes direction for the development and management of budgets for project support and non-project Capital Outlay Support Expenditure Authorizations (EAs). Non-project categories capture overhead costs and owner-operator costs.
- Coordinates with the District Directors and Division Chiefs to develop the **STATEWIDE** Capital Outlay Support workload. ~~and~~
- ~~Develops~~ **Develops** recommendations for the appropriate resource mix. **BY SUMMARIZING DISTRICTS AND DIVISIONS GENERATED PROJECTS WORKLOAD NEEDS.**
- **DEVELOP AND MAINTAIN AN AUTOMOTIVE SYSTEM THAT WILL SUBALLOCATE AND TRACK CAPITAL OUTLAY SUPPORT RESOURCES AT THE STATEWIDE, PROGRAM, DISTRICT, PROJECTS, SOURCE UNITS LEVELS.**
- **STANDARDIZATION OF ACTIVITY CODES AND SOURCE UNITS TO ENSURE ACCURATE RECORDING OF EXPENDITURES.**

The Chief, Division of Budgets:

- Provides each District Director and appropriate Division Chiefs with an annual allocation of Capital Outlay Support resources, based on workload.
- Provides District Directors and Division Chiefs with sufficient guidance on anticipated future resources to make informed commitments.

The Chief, Division of Accounting:

- Provides District Directors, Division Chiefs and Project Managers **AND FUNCTIONAL MANAGERS** with the cost accounting structure and with timely and accurate monitoring reports needed to manage their programs and projects.
- Monitors expenditure data to ensure that costs are recorded accurately and consistently.

District Directors and Division Chiefs:

- Subdivide annual Capital Outlay Support allocations among all the Capital Outlay Support EAs that are to be charged.
- Establish a lifetime budget for each project. The project lifetime budgets are based on **PYPSCAN OR OTHER METHODS THAT CAN BE SUBSTANTIATED .**
- Ensure the sum of the budgets for each future year is not greater than the future resources anticipated by the Chief, Division of Budgets.

Appendix:

- Appoint a manager for each EA. For multi-phase EAs, the manager is also the project manager. ~~There is a single project manager for all phases of each project (EA phases K, 0, 1,2 and 3.)~~
- Manage their programs within their annual allocations.

Project Managers:

- Deliver quality products on time and within budget. The budget includes both Capital Outlay and Capital Outlay Support.
- Ensure proper project scope and resource determination necessary to meet commitments.
- Suballocate resources and decide what charges may be made to their projects.
- **MANAGE CAPITAL OUTLAY SUPPORT BUDGET FOR PROJECT AND ENSURE THAT SUPPORT COST IS LESS THAN 20% OF PROJECT CAPITAL COST.**

FUNCTIONAL MANAGERS:

- **DELIVER PRODUCTS AND SERVICES TO THE PROJECT MANAGER TO ENSURE THE DELIVERY OF THE PROJECT.**
- **REACH AGREEMENT WITH THE PROJECT MANAGER ON THE RESOURCES NEED OF THE FUNCTIONAL UNITS IN SUPPORT OF THE PROJECT.**
- **MANAGE SUBALLOCATION FOR PROJECTS WITHIN THE FUNCTIONAL AREA.**

Managers and Supervisors:

- Ensure that employees charge all time and expenses accurately, make timely charges and make corrections when necessary. Expenses include personal services and operating costs, measured both in hours and dollars. Functional managers negotiate with project managers to produce particular components of projects within the constraints of project budgets.
- Empower employees with appropriate tools, resources and training to use their time as productively as possible.

Employees:

- Use their time productively and charge all time and expenses accurately to the projects they are working on.
- Make timely charges and any necessary corrections.

APPLICABILITY

All Caltrans employees, consultants and student assistants involved in project delivery.

Appendix:

R.P. WEAVER
CHIEF DEPUTY DIRECTOR

Appendix:

Department's Missions and Visions Applicable to Project Management

Mission

"Caltrans is a good steward of its resources. This mission is fundamental to the success of all other activities at Caltrans. It stresses that the Department must be well managed and have strong internal operations. It also means making good transportation investment decisions and focusing finite resources to best meet the needs of Caltrans' customers."

"Caltrans is a good steward of transportation resources while reducing the cost of doing business. The intent is to treat resources as finite and ensure their optimal use by developing a business oriented approach to the Department's management of operating funds, personnel, facilities and equipment. The intent is also to improve the efficiency and cost-effectiveness of internal operations."

Vision

"Caltrans is an excellent organization in the eyes of the people of California. Qualities of an excellent organization include self-starting, high energy, top performance, innovation; strong internal partnerships; a fundamental sense of integrity, discipline and professionalism; and a constant drive to improve. They also include being highly responsive, determining and meeting the needs of our customers; working with a sense of urgency; and honoring our commitments and promises."

"Caltrans provides quality transportation products and services meeting the needs of its partners and customers. This pertains to the full range of transportation products, services and strategies developed directly by Caltrans or through partnerships with others. It includes developing products which fully meet the needs of our customers and partners. It also includes balancing timeliness, quality and cost-effectiveness in product delivery and constantly striving to improve products and services."

"Caltrans is the leader in transportation in California and the United States. This is the bottom-line statement of how well we are achieving our vision. We must reclaim the public view that where there is something new and challenging, or where there is a critical problem to be solved, Caltrans is the organization to get the job done in the transportation industry. It means demonstrating a new form of leadership by exhibiting a willingness to work in several different roles and formats with our partners to find solutions, while still ensuring that the task is accomplished and standards are met. It also means a willingness to share knowledge and expertise while maintaining a tradition of professionalism and technical excellence."

"Caltrans is in touch with the people of California by building public and private partnerships for mobility and meeting the needs of its customers. The intent is to improve our interactive communication with the public, interest groups and the transportation community to better understand and incorporate their transportation interests into our plans, programs and projects. It is to provide prompt, responsive and courteous service to the public and other agencies. Act as a catalyst to create inclusive and mutually beneficial partnerships for both ongoing and project-specific needs, and be receptive and fully involved in partnerships established by others in all areas of mobility."

"Caltrans improves delivery of all transportation services. The intent is to cover all aspects of transportation projects and services. It includes products delivered directly by the Department and those in which Caltrans assists and guides delivery on regional and local systems for all modes. It includes meeting commitments, improving efficiency, making delivery cost-effective, improving quality and improving levels of service."

Appendix:

Project Management PEER Report Exceptions

The task force has reviewed recommendations made in the PEER Review Report. From these reviews, we have identified the following recommendations that the task force does not concur with, and are advising you of these differences. The items in bold italics are directly from the report.

I. *Establish the Project Manager's employee classification level as Senior in all districts.* (Summary - Page 2, III.A.1. - Peer Review Report Reference)

The PEER Review Report indicates other employee levels can be used for project managers if justified by the complexity or sensitivity of the project. The Task Force differs as indicated below in how these different classifications would be assigned.

Rather than focusing on employee classification to establish the level of the Project Manager, in general, the level should be at the Branch Chief position in all Districts for the following reasons:

- All Branch Chiefs statewide have the same level of authority.
- All Senior T.E.s statewide do not have the same level of authority.
- In most districts, Branch Chiefs are at the Senior T.E. level
- Traditionally, in larger districts, Branch Chiefs are at the Supervising T.E. level to deal with larger and more complex and sensitive issues of project and program.
- Senior T.E. level gets complicated with the Senior as first line supervisor. For example, in a small district, the Senior T.E. would be a Branch Chief, Project or Functional Manager, and a first line supervisor.

Recommendation:

Recommend that the Districts choose the appropriate classification level depending upon the complexity and political sensitivity of the project. Either a senior or supervising level can be utilized. However, the project manager, in general, will be at the branch chief level or at a level that is equivalent or higher than the functional managers.

II. *Merge Project Control Units with Program Management* (Summary - Page 2, III.A.1)

Appendix:

The Project Control units assist the Project Managers in developing individual project workplans, conducting trend or status meetings and updating the workplans. They should also be responsible for updating project data in PMCS based on input from the Project Managers.

Program Management ensures that sufficient high priority projects are available for programming in the SHOPP, STIP and TSM program documents.

Project Control should be under the Deputy for Project Management. It is not essential that Program Management be merged into the Project Control unit.

Recommendation:

Recommend that Project Control Units be included under the Project Management organization to support the Project Management function. The key elements of scheduling project milestones (PYPSCAN updates), scheduling CPM work plans and tracking project status should be consolidated within Project Control Units. The Program Management unit can be either a separate organization within Project Management or located outside of Project Management.

- III. *Expand Program Management Responsibilities to include support to the Project Managers to: develop project budgets, monitor project progress and performance, and prepare project status reporting.*** (Summary - Page 2, III.A.1.)

This recommendation was based upon moving project control units into Program Management. Monitoring of project progress and the preparation of project progress status reports are key functions of Project Management.

Responsibilities need to be assigned to assist the "Single Focal Point for Project Management" responsible for project management with the allocations of capital outlay support resources to project and functional managers.

Recommendation:

Recommend that project monitoring and status reporting be established within the project control unit. Development of project budgets can either be a separate function within Project Management or also incorporated into the project control unit.

- IV *Institute an employee suggestion program and publicly acknowledge employee suggestions that improve working conditions, performance and quality.*** (Summary - Page 7, III.C.5.)

Recommendation:

Appendix:

Recommend that a new suggestion system not be implemented as it duplicates the Merit Award process. This type of system is very time consuming to implement properly, and it was not felt that there were enough benefits to warrant establishing a separate system.

V. *Insist that all project related information and decisions include the Project Manager.* (Summary - Page 5, III.C.1.)

This statement is too broad to be really meaningful. The Task Force is recommending a separation of responsibilities between the project manager and the functional manager. Under this concept, the project manager does not have to be included in every day type decisions regarding project development and/or contract administration of any project. The project manager should, however, be knowledgeable about the status, issues and progress of the project on an ongoing basis.

Recommendation:

Recommend that project managers be involved in decisions regarding scope, cost, schedule and resource changes on the project since the project manager is held accountable for project delivery. These decisions include environmental commitments, freeway agreement negotiations, right of way commitments, etc.

VI. *Expand assignment of Project Managers to all projects whether locally funded, TSM, or minor projects.* (Summary - Page 5, III.C.1.)

Many minor projects do not need individual project managers. A project manager can be assigned for the minor program rather than to individual projects.

Recommendation:

Recommend Project Managers be assigned to all **major** projects. Major projects include all projects greater than \$300,000; those included in the STIP, HSOPP, or TSM regardless of dollar value, and corridor-type projects or politically sensitive and critical projects, as determined by the District.

VII. *Central Design and Office of Structures could be improved if they were forced to implement the project management process.* (Summary - Page 6, III.C.2.)

This could be misunderstood. Under the Project Management organization recommended by this Task Force, both the Sacramento Design Center and the Office of Structures would be considered functional units. There can only be one project manager for each project and this responsibility is in the District project management organization.

Appendix:

Both the Sacramento Design Center and the Office of Structures are planning on implementing project management concepts in setting up their units that coordinate with the District Project Management staff.

Recommendation:

Recommend that the Sacramento Design Center and the Office of Structures be considered functional units. The supervisors of these units will not be considered to be project managers; however, they can utilize project management concepts to coordinate project information with and obtain decisions from the district project managers.

VIII. *Insist that a sound scope-change control program be employed so there are no cost or schedule surprises at Advertisement* (Summary - Page 8, III.D.3.)

A process for handling scope, cost and schedule changes already exists. Problems with cost or scope changes at the time the project is brought to vote before the California Transportation Commission (CTC) also continues to exist.

Special circumstances occur when a regulatory agency's permit requirements, which may come in or be issued after PS&E or just before the advertisement date, include a cost or scope change that may impact the project.

Recommendation:

Recommend that the existing change approval process be reemphasized with the District Directors. The Project Management Branch will be working with the Division of Transportation Programming to review the current guidelines and ascertain if revisions need to be developed to deal with this problem.

IX. *The Report recommends that each Project Manager be assigned no more than nine (9) projects.* (Findings - Page 10, #2c)

The span of control for effective project management depends on many project variables: Projects in the environmental phase take less project management effort; some projects, i.e., rehabilitation projects take less project manager effort than other projects; a project manager should be responsible for a corridor regardless of the number of segments or project phases, etc.

Recommendation:

Recommend that the districts assign a reasonable number of projects for a project manager. This will vary depending on the complexity and critical need of the projects, as well as the manager's abilities. Guidelines will be developed as part of the Task Force effort.

Appendix:

X. Nowhere in the PEER Review Project Report is the resource consequence of implementing project management discussed.

Establishing guidelines for assignment of project managers to projects (IX above), may require more project managers and functional staff to properly address focused attention of more project managers. Fully implementing project management may require additional staff, at least initially, for the project control units.

Recommendations:

Recommend that staffing plans for implementation of project management be part of the transition plans submitted to the Deputy Director for Transportation Engineering. The transition plans should address how the Districts will handle the staffing, tools and training required to implement their project management organizations. Since there was a BCP processed for project management when the concept was originally implemented, it is unlikely that additional resources can be recommended as a requirement for a revised project management implementation plan.