

# Feasibility Study Report for the Logbook Redesign Project



Submitted by  
The Office of Statewide Health Planning & Development



Version 1.5  
May 18, 2005

# Feasibility Study Report

<b>1</b>	<b>EXECUTIVE PROJECT APPROVAL TRANSMITTAL</b>	<b>1</b>
<b>2</b>	<b>INFORMATION TECHNOLOGY: PROJECT SUMMARY PACKAGE</b>	<b>3</b>
2.1	SECTION A: EXECUTIVE SUMMARY	3
2.2	SECTION B: PROJECT CONTACTS	5
2.3	SECTION C: PROJECT RELEVANCE TO STATE AND/OR DEPARTMENT/AGENCY PLANS	6
2.4	SECTION D: BUDGET INFORMATION	7
2.5	SECTION E: VENDOR PROJECT BUDGET	8
2.6	SECTION F: RISK ASSESSMENT INFORMATION	9
<b>3</b>	<b>BUSINESS CASE</b>	<b>10</b>
3.1	BUSINESS PROGRAM BACKGROUND	10
3.2	BUSINESS PROBLEM	18
3.3	BUSINESS OBJECTIVES	23
3.4	BUSINESS FUNCTIONAL REQUIREMENTS	24
3.4.1	<i>Seismic Compliance Requirements</i>	24
3.4.2	<i>Construction Approval Requirements</i>	24
3.4.3	<i>Construction Oversight Requirements</i>	25
3.4.4	<i>Inspect Structural Soundness of Facilities after Disaster Requirements</i>	26
3.4.5	<i>Support FDD Operations Requirements</i>	27
<b>4</b>	<b>BASELINE ANALYSIS</b>	<b>30</b>
4.1	CURRENT METHOD	30
4.1.1	<i>Objectives of the Current System</i>	30
4.1.2	<i>Ability to Meet Workload</i>	31
4.1.3	<i>Growing Workload and Demands</i>	33
4.1.4	<i>Inputs and Outputs</i>	34
4.1.5	<i>System Provisions</i>	35
4.1.5.1	System provisions for security, privacy and confidentiality	35
4.1.5.2	Internal and External Interfaces	36
4.1.6	<i>Personnel Requirements of Current System</i>	36
4.1.7	<i>Failures of the Current System</i>	38
4.2	CURRENT SYSTEM ENVIRONMENT	42
4.2.1	<i>Expected Operational Life of a Proposed Solution</i>	43
4.2.2	<i>System Interfaces</i>	43
4.2.3	<i>Existing Infrastructure</i>	44
<b>5</b>	<b>PROPOSED SOLUTION</b>	<b>50</b>
5.1	SOLUTION DESCRIPTION	52
5.1.1	<i>Facilities Development Management Solution – Custom Development</i>	54
5.1.2	<i>Document Management Solution - Scanning / Accepting Digital Documents</i>	55
5.1.3	<i>Healthcare Structure Identification Solution</i>	57
5.1.4	<i>Mobile Information Access Solution</i>	58
5.1.5	<i>Technical Platform</i>	59
5.1.6	<i>Development Approach</i>	59
5.1.7	<i>Integration Issues</i>	61
5.1.8	<i>Procurement Approach</i>	61
5.1.9	<i>Technical Interfaces</i>	63
5.1.10	<i>Testing Plan</i>	64
5.1.11	<i>Resource Requirements</i>	64
5.1.11.1	Facilities Development Division Resources	64

5.1.11.2	Information Systems Section Resources .....	67
5.1.11.3	Consultant Resources .....	74
5.1.12	<i>Training Plan</i> .....	80
5.1.13	<i>Ongoing Maintenance</i> .....	80
5.1.14	<i>Information Security</i> .....	80
5.1.15	<i>Confidentiality</i> .....	81
5.1.16	<i>Impact on End Users</i> .....	81
5.1.17	<i>Impact on Existing System</i> .....	83
5.1.18	<i>Consistency with Overall Strategies</i> .....	83
5.1.19	<i>Impact on Current Infrastructure</i> .....	83
5.1.20	<i>Impact on Data Centers</i> .....	83
5.1.21	<i>Data Center Consolidation</i> .....	84
5.1.22	<i>Backup and Operational Recovery</i> .....	84
5.1.23	<i>Public Access</i> .....	84
5.1.24	<i>Costs and Benefits</i> .....	84
5.1.25	<i>Sources of Funding</i> .....	93
5.2	RATIONALE FOR SELECTION .....	93
5.3	OTHER ALTERNATIVES CONSIDERED .....	95
5.3.1	<i>Alternative Descriptions</i> .....	96
5.3.1.1	Alternative 1 – Enhance Current Logbook .....	97
5.3.1.2	Alternative 2 – Replace Current Logbook with COTS .....	98
5.3.1.3	Alternative 3 – Custom Development to Replace Current Logbook .....	100
5.3.2	<i>Evaluation of Alternatives</i> .....	100
5.3.2.1	Alternative Scoring .....	101
5.3.2.2	Evaluation Criteria .....	101
5.3.2.3	Criteria Prioritization .....	102
5.3.2.4	Alternative Evaluation Table .....	102
<b>6</b>	<b>PROJECT MANAGEMENT PLAN .....</b>	<b>103</b>
6.1	PROJECT MANAGER QUALIFICATIONS .....	103
6.2	PROJECT MANAGEMENT METHODOLOGY .....	104
6.3	PROJECT ORGANIZATION .....	105
6.4	PROJECT PRIORITIES .....	106
6.5	PROJECT PLAN .....	107
6.5.1	<i>Project Scope</i> .....	107
6.5.2	<i>Project Assumptions</i> .....	108
6.5.3	<i>Project Phasing</i> .....	109
6.5.4	<i>Roles and Responsibilities</i> .....	110
6.5.5	<i>Project Schedule</i> .....	114
6.6	PROJECT MONITORING .....	116
6.7	PROJECT QUALITY .....	116
6.8	CHANGE MANAGEMENT .....	117
6.9	AUTHORIZATION REQUIRED .....	118
<b>7</b>	<b>RISK MANAGEMENT PLAN .....</b>	<b>119</b>
7.1	RISK MANAGEMENT WORKSHEET .....	119
<b>8</b>	<b>ECONOMIC ANALYSIS WORKSHEETS (EAWS) .....</b>	<b>121</b>
<b>9</b>	<b>ACRONYMS AND DEFINITIONS .....</b>	<b>129</b>
<b>10</b>	<b>DETAILED DESCRIPTION OF CURRENT BUSINESS PROCESSES .....</b>	<b>132</b>
10.1	OVERSEE SEISMIC RETROFIT PROJECT .....	132
10.2	APPROVE CONSTRUCTION PROJECTS .....	133
10.2.1	<i>Create New Projects</i> .....	133
10.2.2	<i>Perform Triage</i> .....	134
10.2.3	<i>Prioritize Workload and Flow</i> .....	134

10.2.4	<i>Review Plans</i> .....	135
10.2.5	<i>Issue Building Permit</i> .....	135
10.2.6	<i>Approve Alternate Methods of Compliance</i> .....	135
10.3	MONITOR CONSTRUCTION PROJECTS .....	136
10.3.1	<i>Perform FREER</i> .....	136
10.3.2	<i>Oversee Construction Inspections</i> .....	136
10.3.2.1	Unauthorized Construction .....	137
10.3.2.2	Issue Stop Work Order.....	137
10.3.2.3	Review Post Approval Documents .....	137
10.3.2.4	Track Project Inspections.....	138
10.3.2.5	Issue Final Reports.....	138
10.4	SUPPORT FDD OPERATIONS.....	138
10.4.1	<i>Certify Inspectors of Record</i> .....	138
10.4.2	<i>Recover Cost of Monitoring Construction</i> .....	139
10.4.3	<i>Assign Project Closure Status</i> .....	139
10.4.4	<i>Archive Project Documents</i> .....	140
10.5	INSPECT STRUCTURAL SOUNDNESS OF FACILITIES AFTER DISASTERS.....	141
<b>11</b>	<b>BUSINESS PROBLEM BACKGROUND .....</b>	<b>143</b>
11.1	PLAN REVIEW PRODUCTIVITY .....	148
11.2	CONSTRUCTION OVERSIGHT PRODUCTIVITY .....	149
11.3	MANUAL PROCESSES IMPACT DISASTER INSPECTION PLANNING AND EXECUTION .....	150
11.4	FAILURE TO BILL FOR SERVICES .....	151
<b>12</b>	<b>FUNCTIONAL REQUIREMENTS TRACED TO BUSINESS OBJECTIVES .....</b>	<b>153</b>
	<b>APPENDIX A: RISK MANAGEMENT PLAN.....</b>	<b>160</b>

**TABLES**

TABLE 3-1: FDD STAFFING .....	11
TABLE 3-2: REVIEW DOCUMENTS BY PROJECT TYPE .....	17
TABLE 3-3: PLAN REVIEW TARGET SUMMARY FOR 2004.....	19
TABLE 4-1: CUSTOMER GROUPS.....	30
TABLE 4-2: USER GROUPS.....	31
TABLE 4-3: CURRENT SYSTEM PERSONNEL REQUIREMENTS.....	37
TABLE 4-4: CURRENT DATABASES .....	43
TABLE 4-5: CURRENT TECHNICAL ENVIRONMENT .....	45
TABLE 5-1: SOLUTION COMPONENT DESCRIPTIONS .....	50
TABLE 5-2: SOLUTION COMPONENTS .....	51
TABLE 5-3: DEVELOPMENT ROLES AND RESPONSIBILITIES .....	60
TABLE 5-4: FUNCTIONAL PROGRAM LEADS .....	65
TABLE 5-5: BUSINESS ANALYSTS/DATA MANAGERS.....	66
TABLE 5-6: ENTERPRISE APPLICATION ARCHITECTURE & TECHNICAL COORDINATOR.....	69
TABLE 5-7: TECHNICAL ENTERPRISE ARCHITECT - SENIOR INFORMATION SYSTEMS ANALYSTS (SPECIALIST) .....	70
TABLE 5-8: HELP DESK TECHNICAL OPERATIONS SUPPORT- STAFF INFORMATION SYSTEMS ANALYST (SPECIALIST).....	72
TABLE 5-9: SECURITY CONSULTANT TASKS BY PROJECT PHASE .....	75
TABLE 5-10: PROCUREMENT AND PROJECT MANAGEMENT ASSISTANCE BY PROJECT PHASE.....	76
TABLE 5-11: PROJECT MANAGEMENT CONSULTANT TASKS BY PROJECT PHASE .....	77
TABLE 5-12: DD&I VENDOR TASKS BY PROJECT PHASE .....	78
TABLE 5-13: IV&V AND INDEPENDENT OVERSIGHT TASKS BY PROJECT PHASE.....	79
TABLE 5-14: ALTERNATIVES CONSIDERED .....	95
TABLE 6-1: SUMMARY OF PROJECT PRIORITIES.....	107
TABLE 6-2: PROJECT MANAGEMENT ROLES AND RESPONSIBILITIES .....	110
TABLE 10-1: NPC/SPC RATINGS PER BUILDING .....	133
TABLE 10-2: PLAN REVIEW TARGETS BY PROJECT TYPE .....	134
TABLE 10-3: 2004/05 ARCHIVES STORAGE USAGE/COSTS .....	140
TABLE 11-1: BUSINESS PROBLEMS TRACED TO BUSINESS OBJECTIVES .....	143
TABLE 12-1: FUNCTIONAL REQUIREMENTS TRACED TO BUSINESS OBJECTIVES .....	153

**REVISION RECORD**

<b>DATE</b>	<b>REVISION</b>	<b>DESCRIPTION</b>
9/24/2004	INITIAL VERSION	Submitted To Department Of Finance
2/16/2005	VERSION 1.1	Draft submitted to Department of Finance
2/28/2005	VERSION 1.2	Revision submitted to Department of Finance
3/17/2005	VERSION 1.3	Updated to reflect BCP Revisions regarding staffing redirection
4/11/2005	VERSION 1.4	Schedule and EAW Funding Plan updates
5/18/2005	VERSION 1.5	Updated per DOF Review

# 1 EXECUTIVE PROJECT APPROVAL TRANSMITTAL

Information Technology Project Request  Feasibility Study Report Executive Approval Transmittal			
<b>Department Name</b>			
Office of Statewide Health Planning and Development			
<b>Project Title (maximum of 75 characters)</b>			
Logbook Redesign Project			
<b>Project Acronym</b>	<b>Department Priority</b>	<b>Agency Priority</b>	
LRP	1		
<b>APPROVAL SIGNATURES</b>			
<p>I am submitting the attached Feasibility Study Report (FSR) in support of our request for the Department of Finance’s approval to undertake this project.</p> <p>I certify that the FSR was prepared in accordance with State Administrative Manual Sections 4920-4930.1 and that the proposed project is consistent with our information technology strategy as expressed in our current Agency Information Management Strategy (AIMS).</p> <p>I have reviewed and agree with the information in the attached Feasibility Study Report.</p>			

<b>Facilities Development Division, Deputy Director</b>		<b>Date Signed</b>
<b>Printed name:</b>	Kurt Schaefer	
<b>Information Security Officer</b>		<b>Date Signed</b>
<b>Printed name:</b>	Rosa Umbach	
<b>Chief Information Officer</b>		<b>Date Signed</b>
<b>Printed name:</b>	Michael Kassis	
<b>Budget Officer</b>		<b>Date Signed</b>
<b>Printed name:</b>	Karen Miskanis	
<b>Department Director</b>		<b>Date Signed</b>
<b>Printed name:</b>	David M. Carlisle, M.D., PhD.	
<b>Agency Secretary</b>		<b>Date Signed</b>
<b>Printed name:</b>	S. Kimberly Belshé	

## 2 INFORMATION TECHNOLOGY: PROJECT SUMMARY PACKAGE

### 2.1 SECTION A: EXECUTIVE SUMMARY

1.	<b>Submittal Date</b>	<b>October 4, 2004</b> <b>Revised February 28, 2005</b> <b>Revised March 17, 2005</b> <b>Revised April 11, 2005</b> <b>Revised May 18, 2005</b>
----	-----------------------	---

		<b>FSR</b>	<b>SPR</b>	<b>PSP Only</b>	<b>Other:</b>
2.	<b>Type of Document</b>	X			
	Project Number				

		<b>Estimated Project Dates</b>	
3.	<b>Project Title</b>	<b>Start</b>	<b>End</b>
	Logbook Redesign Project	Aug. 2005	Nov. 2008
	<b>Project Acronym</b>		
	LRP		

4.	<b>Submitting Department</b>	Office of Statewide Health Planning & Development
5.	<b>Reporting Agency</b>	Health and Human Services

6.	<b>Project Objectives</b>
1	Improve Plan Review Productivity
2	Improve Construction Oversight Productivity

7.	<b>Major Milestones</b>	<b>Est Complete Date</b>
	Procurement Completed	July 2006
	DD&I Vendor Contract Start	October 2006

<b>3</b>	<b>Improve Access to Information Needed for Safety Inspections after Disasters</b>
<b>4</b>	<b>Generate More Revenue</b>

<b>Systems Development and Testing</b> Phase 1 Phase 2	<b>February 2008</b> <b>June 2008</b>
<b>User Acceptance Testing</b> Phase 1 Phase 2	<b>April 2008</b> <b>August 2008</b>
<b>Implementation</b> Phase 1 Phase 2	<b>June 2008</b> <b>October 2008</b>
<b>PIER</b>	<b>November 2009</b>
<b>Key Deliverables</b>	<b>Estimated Completion Date</b>
<b>RFP</b>	<b>August 2005</b>
<b>Vendor Contract Award Letter</b>	<b>September 2006</b>
<b>Integrated Project Plan</b>	<b>November 2006</b>
<b>Requirements Specifications</b>	<b>February 2007</b>
<b>Phase 1 System Design &amp; Development</b> <b>Phase 2 System Design &amp; Development</b>	<b>February 2008</b> <b>June 2008</b>
<b>Phase 1 Acceptance Test Plan</b> <b>Phase 2 Acceptance Test Plan</b>	<b>March 2008</b> <b>July 2008</b>
<b>Phase 1 Implementation Sign-off</b> <b>Phase 2 Implementation Sign-off</b>	<b>June 2008</b> <b>October 2008</b>

**2.2 SECTION B: PROJECT CONTACTS**

<b>Project #</b>	
<b>Doc. Type</b>	<b>FSR</b>

<b>Executive Contacts</b>								
	<b>First Name</b>	<b>Last Name</b>	<b>Area Code</b>	<b>Phone #</b>	<b>Ext.</b>	<b>Area Code</b>	<b>Fax #</b>	<b>E-mail</b>
<b>Agency Secretary</b>	S. Kimberly	Belshé	916	654-3454		916	654-3343	dtopp@chhs.ca.gov
<b>Dept. Director</b>	David	Carlisle, M.D., PhD.	916	654-1606		916	653-1448	DCarlisl@oshpd.state.ca.us
<b>Budget Officer</b>	Karen	Miskanis	916	654-1846		916	654-3200	kmiskani@oshpd.state.ca.us
<b>CIO</b>	Michael	Kassis	916	324-0017		916	322-1693	MKassis@oshpd.state.ca.us
<b>Proj. Sponsor</b>	Kurt	Schaefer	916	654-3391		916	654-2973	KSchaefer@oshpd.state.ca.us

<b>Direct Contacts</b>								
	<b>First Name</b>	<b>Last Name</b>	<b>Area Code</b>	<b>Phone #</b>	<b>Ext.</b>	<b>Area Code</b>	<b>Fax #</b>	<b>E-mail</b>
<b>Doc. prepared by</b>	Stephanie	Clendenin	916	654-2851		916	654-2973	SClenden@oshpd.state.ca.us
<b>Primary contact</b>	Deborah	Holstien	916	323-1407		916	322-1693	dholstie@oshpd.state.ca.us
<b>Project Manager</b>	Stephanie	Clendenin	916	654-2851		916	654-2973	SClenden@oshpd.state.ca.us

**2.3 SECTION C: PROJECT RELEVANCE TO STATE AND/OR DEPARTMENT/AGENCY PLANS**

1.	What is the date of your current Operational Recovery Plan (ORP)?	Date	July 2004
2.	What is the date of your current Agency Information Management Strategy (AIMS)?	Date	Dec. 2003
3.	For the proposed project, provide the page reference in your current AIMS and/or strategic business plan.	Doc.	
		Page #	

Project #	
Doc. Type	AIMS

		Yes	No
4.	Is the project reportable to control agencies?	X	
If YES, CHECK all that apply:			
X	a) The project involves a budget action.		
	b) A new system development or acquisition that is specifically required by legislative mandate or is subject to special legislative review as specified in budget control language or other legislation.		
	c) The project involves the acquisition of microcomputer commodities and the agency does not have an approved Workgroup Computing Policy.		
X	d) The estimated total development and acquisition cost exceeds the departmental cost threshold.		
	e) The project meets a condition previously imposed by Finance.		

**2.4 SECTION D: BUDGET INFORMATION**

<b>Project #</b>	
<b>Doc. Type</b>	FSR

<b>Budget Augmentation Required?</b>													
No													
Yes	X	<b>If YES, indicate fiscal year(s) and associated amount:</b>											
		<b>FY</b>	<b>2004/05</b>	<b>FY</b>	<b>2005/06</b>	<b>FY</b>	<b>2006/07</b>	<b>FY</b>	<b>2007/08</b>	<b>FY</b>	<b>2008/09</b>	<b>FY</b>	<b>2009/10</b>
			\$0		\$ 223,355		\$ 2,767,220		\$ 3,605,478		\$ 843,623		\$ 680,557

**PROJECT COSTS**

1.	Fiscal Year	FY 2004/05	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10	TOTAL
2.	One-Time Cost	\$58,358	\$923,649	\$2,918,300	\$ 3,732,242	\$385,538	\$0	\$ 8,018,087
3.	Continuing Costs	\$0	\$0	\$343,898	\$368,214	\$ 1,220,725	\$ 1,544,014	\$ 3,476,851
4.	<b>TOTAL PROJECT BUDGET</b>	<b>\$58,358</b>	<b>\$923,649</b>	<b>\$3,262,198</b>	<b>\$4,100,456</b>	<b>\$1,606,263</b>	<b>\$ 1,544,014</b>	<b>\$ 11,494,938</b>

**SOURCES OF FUNDING**

5.	General Fund							\$
6.	Redirection	\$58,358	\$700,294	\$494,978	\$494,978	\$765,640	\$863,457	\$ 3,377,705
7.	Reimbursements							\$
8.	Federal Funds							\$
9.	Special Funds (HBF)	\$0	\$223,355	\$2,767,220	\$3,605,478	\$843,623	\$680,557	\$ 8,117,233
10.	Grant Funds							\$
11.	Other Funds							\$
12.	<b>PROJECT BUDGET</b>	<b>\$58,358</b>	<b>\$923,649</b>	<b>\$3,262,198</b>	<b>\$4,100,456</b>	<b>\$1,609,263</b>	<b>\$1,544,014</b>	<b>\$ 11,494,938</b>

**PROJECT FINANCIAL BENEFITS**

13.	Cost Savings/Avoidances	\$	\$	\$	\$	\$ 544,901	\$ 1,651,783	\$ 2,196,684
14.	Revenue Increase	\$	\$	\$	\$ 7,218,500	\$ 895,700	\$ 671,700	\$ 8,785,900

**2.5 SECTION E: VENDOR PROJECT BUDGET**

<b>Project #</b>	
<b>Doc. Type</b>	<b>FSR</b>

<b>Vendor Cost for FSR Development (if applicable)</b>	<b>\$64,576</b>
<b>Vendor Name</b>	<b>Shooting Star Solutions, LLC</b>

**VENDOR PROJECT BUDGET**

1.	Fiscal Year	FY 2004/05	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10	TOTAL
2.	Primary Vendor Budget	\$0	\$0	\$1,458,980	\$2,521,216	\$52,000	\$0	\$ 4,032,196
3.	Independent Oversight Budget	\$0	\$31,007	\$54,552	\$44,639	\$14,880	\$0	\$145,078
4.	IV&V Budget <sup>1</sup>	\$0	\$72,348	\$127,290	\$104,159	\$34,719	\$0	\$338,516
5.	Other Budget <sup>2</sup>	\$14,400	\$217,800	\$230,000	\$266,000	\$90,000	\$0	\$818,200
6.	<b>TOTAL VENDOR BUDGET</b>	<b>\$14,400</b>	<b>\$321,155</b>	<b>1,870,822</b>	<b>\$2,936,014</b>	<b>\$191,599</b>	<b>\$0</b>	<b>\$5,333,900</b>

---

<sup>1</sup> IV&V and Independent Oversight will be provided by the same vendor.

<sup>2</sup> Other vendor project budget includes costs for Security Consultant and Project Management services.

**2.6 SECTION F: RISK ASSESSMENT INFORMATION**

<b>Project #</b>	
<b>Doc. Type</b>	<b>FSR</b>

RISK ASSESSMENT

Yes	No
X	

Has a Risk Management Plan been developed for this project?

**General Comment(s)**

The Risk Management Plan describes the standard processes used by the Project Management Team to implement risk analysis, risk action planning and tracking, and risk escalation. The Risk Management Plan is based upon the standard risk management approach recommended in *A Guide to the Project Management Body of Knowledge (PMBOK) 2000* by the Project Management Institute and includes processes and tools from the Department of Finance (DOF) *Information Technology Project Oversight Framework*. Risk Management for the Logbook Redesign Project is viewed as an integral part of overall project management and execution, rather than a separate process executed outside of normal project activities.

### 3 BUSINESS CASE

The Business Case provides a high-level overview of the Office of Statewide Health Planning and Development (OSHPD) Facilities Development Division (FDD) organization, projected internal and external customers, the conditions that have created the need for action, business problems and opportunities, and the desired objectives of the proposed solution. The high-level requirements that the proposed solution must address are also provided.

For reader convenience, a list of acronyms and terminology used in this document is provided in Section 9 - Acronyms and Definitions.

#### 3.1 BUSINESS PROGRAM BACKGROUND

The State of California, the most populous state in the Union and the most prone to disasters causing mass structural damages, has 1,733 healthcare facilities with approximately \$2.6 billion in construction projects in fiscal year 2003/2004. FDD is responsible for the structural safety of California's health facilities<sup>3</sup>, which includes:

- Developing California building codes and regulations to ensure State of California health facilities are consistently built and structurally sound for health care recipients and providers,
- Approving construction documents (plans, specifications, pre-approvals, and geotechnical/engineering geologic reports) and issuing Building Permits pursuant to building codes and regulations,
- Monitoring the construction of facilities pursuant to building codes and regulations,
- Reviewing and approving seismic evaluations, compliance plans, and structural and non-structural performance category ratings as mandated by Senate Bill 1953 (Chapter 740, Statutes of 1994),
- Inspecting the structural soundness of facilities following an emergency, such as earthquakes or other natural and man-made disasters, and
- Recovery of its costs for services rendered as a self-funded business operation.

The monitoring of facility construction projects is supported and performed by FDD Plan Review, Construction Oversight<sup>4</sup>, Seismic Retrofit Program (SRP), and Support staff. The inspection of health facilities after a disaster is performed by Construction Oversight staff assigned to the Emergency Operations Center (EOC). Figure 3.1 illustrates the functional business units of FDD which will be used for purposes of discussion in this FSR.

---

<sup>3</sup> Facilities include hospitals and skilled nursing facilities (SNF's).

<sup>4</sup> Construction Oversight staff are also referred to as "field staff".

FDD staff have a wide range of skill sets, including: office support; administrative support; business analysts; data entry; architects, structural, mechanical and electrical engineers; fire and life safety officers; managers; and division executives.

FDD is regionally organized to address the state's facility construction needs. Plan Review and Construction Oversight (Field Staff) are organized into six geographical regions and an Expedite Region<sup>5</sup>. The geographic regions include North Region, Coastal Region, Central Region, South Region, North Los Angeles Region, and South Los Angeles Region. FDD is located in two Sacramento offices and one Los Angeles office. Field staff typically travel between construction sites and a base of operations (such as a personal home office) and are distributed throughout the state. Field staff do not have State offices as a base of operations.

The SB 1953 Group, located in Sacramento, administers the Seismic Retrofit Program enacted by Senate Bill 1953 (Chapter 740, 1994) (SB 1953) for the entire state. The Seismic Retrofit Program, comprised of structural engineers, reviews and approves the seismic evaluation reports and compliance plans of acute care facilities as they are submitted to OSHPD.

The management and administrative support functions are performed by staff located primarily in the Sacramento office. This category includes Accounting, the Administrative Services Unit, the Facilities Support Unit, Regulations/Legislation Unit, Quality Assurance Unit, Contract Management Unit, and student assistants.

The current number of positions (including vacancies) in each of these categories is shown in Table 3-1 below.

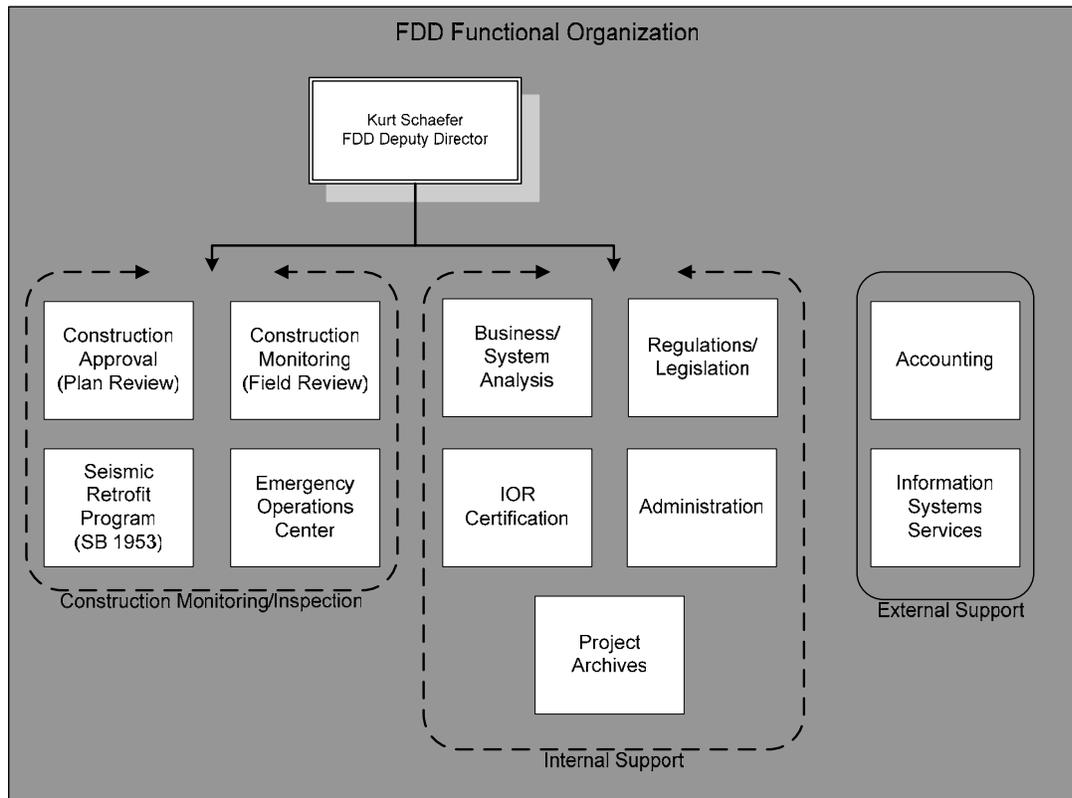
**Table 3-1: FDD Staffing**

<b>Staff Category</b>	<b>Count</b>
Plan Review	74
Construction Oversight	65
Seismic Retrofit Program	8
Management and Administration	56
<b>TOTAL</b>	<b>203</b>

---

<sup>5</sup> The Expedite Region consists of Plan Review staff and is responsible for providing expedited and special project plan reviews.

FIGURE 3.1: FDD FUNCTIONAL ORGANIZATION CHART



In order to perform its responsibilities for monitoring facility construction projects and inspecting facilities, FDD performs the following business functions:

- Oversee Seismic Retrofit,
- Approve Construction Projects,
- Oversee Construction Projects,
- Support FDD Operations, and
- Inspect Structural Soundness of Facilities after Disasters.

Figure 3.2 below gives a high-level graphical representation of the FDD Business Process. A more detailed description of each functional business process is given in Section 10 - Detailed Description of Current Business Process.

#### Oversee Seismic Retrofit

SB 1953 requires that California's 433 general acute care hospitals with 2,692 buildings meet specific seismic safety requirements by a phased series of deadlines in the years 2001, 2002, 2008, 2013, and 2030. The FDD SRP developed the regulations and codes per SB 1953 mandate and is responsible for monitoring facilities' compliance efforts.

Table 10-1 in Section 10 lists the number of buildings pending Structural Performance Category (SPC) and Non-Structural Performance Category (NPC) rating approvals. This table is useful in understanding the multiplier affect of the SPC/NPC rating categories. For example, the 2,002 buildings requesting approval for NPC 1, must still request rating approvals for NPC 2, 3, 4, and 5 if they are to continue providing acute care services through the year 2030 and beyond.

Each seismic retrofit project for SB 1953 compliance includes multiple stages that involve FDD personnel:

- Review of seismic retrofit compliance plans for a facility (which often includes several hospital buildings at each facility).
- Review of construction project plans to implement the facility's compliance plans:
  - A facility may have separate construction plans for multiple buildings.
  - Each building may have multiple projects as it progresses from lower to higher rating levels over time.
  - Each project requires plan review for construction approval.
  - Each approved project requires construction oversight.

Reviews of compliance plans will be completed in the near future, although amended compliance plans will require future review. However, the review of SPC/NPC upgrade requests will continue through 2030.

Reviews of construction plans will continue for many years as will monitoring of construction as plans are approved and retrofit construction begins. In the meantime, "normal" construction projects for new facilities, remodeling, additions, or demolition will continue as well. These standard types of projects also include plan review for approval of construction plans and construction oversight as discussed below.

### Approve Construction Projects

Regional Plan Review staff review, approve, and/or deny health facility construction plans. There are several types of construction projects ranging from new acute care facilities to remodeling of existing facilities. The amount of time needed for each type of review varies based on the complexity of the project and the disciplines needed for review. The plan review process involves consultation with the client and collaboration between FDD staff assigned to the review. Upon approval of the construction plans, a building permit is issued and the facility may begin the construction process.

### Oversee Construction Projects

Upon plan approval or the start of construction, FDD performs oversight of the construction process to ensure that the facility conforms to the approved design plans and complies with California Building Codes. The monitoring process determines when construction is completed and may identify unauthorized construction. Change orders

are reviewed for approval. When the facility notifies FDD that construction is complete, the project is inspected and the project closure process is initiated.

#### Inspect Structural Soundness of Facilities after Disasters

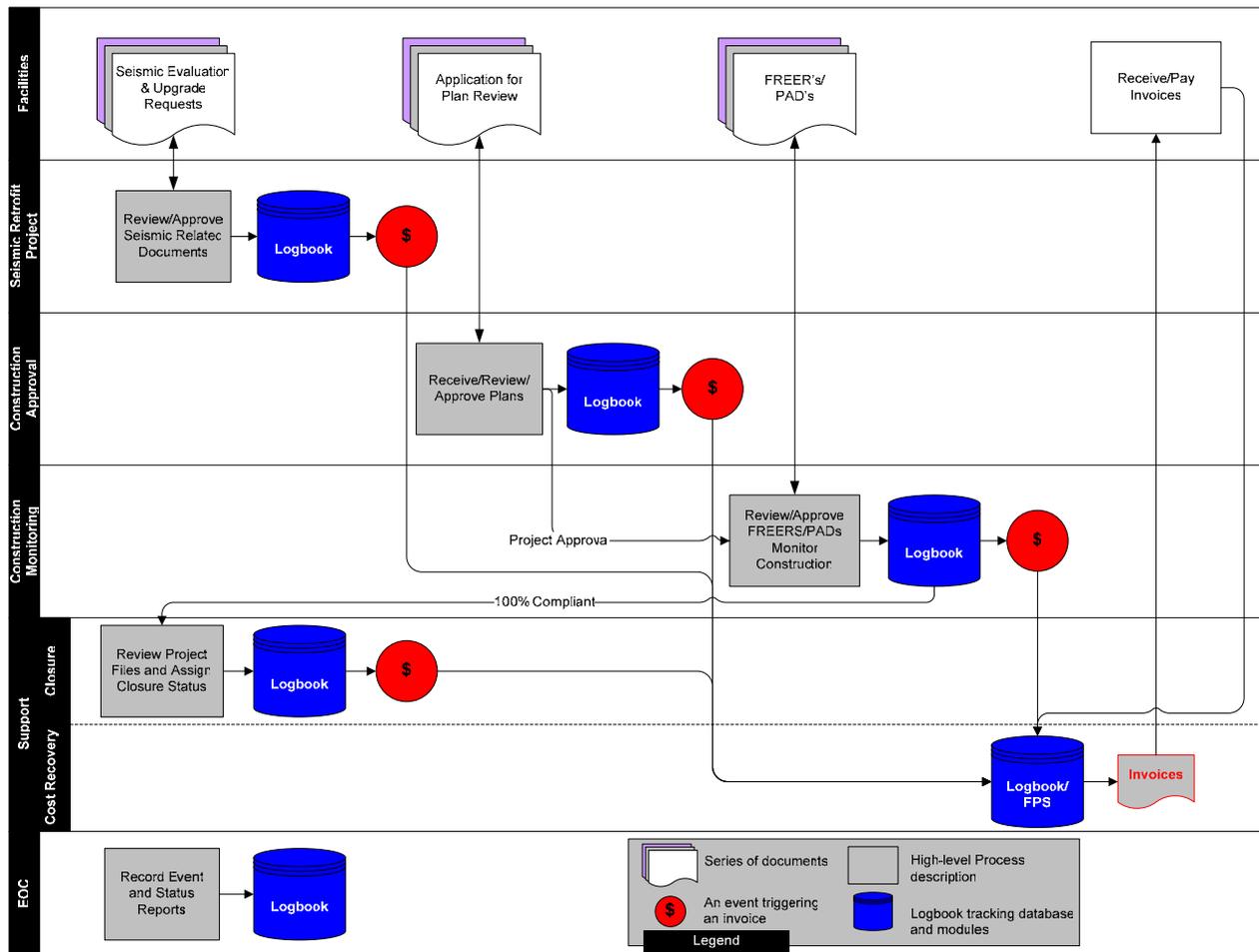
OSHPD's responsibility to provide emergency assessment of healthcare facilities' structural safety is carried out through FDD's Emergency Operations Center (EOC). The EOC is activated immediately upon notification of a disaster, usually an earthquake, which may impact the state's healthcare facilities and their ability to provide services. Notification may be received from the Office of Emergency Services (OES), Emergency Medical Services Agency (EMSA), the OSHPD Director, news sources, or from FDD staff. Within two hours of the declaration of an event, FDD staff assigned to the EOC report for duty; computer resources are deployed; communication channels with OES, EMSA, and other state agencies are opened; and the process of identifying facilities located in the event area is begun. Using structural performance categories of the buildings in the impacted area and examination of the building plans, the EOC staff prioritize facilities to be inspected and determine response needs. Response teams are deployed to facilities needing inspection within 12 to 36 hours based on the expected or reported damage magnitude. Inspectors report back on the safety of buildings to provide healthcare services to the public. This information is provided to OES, EMSA and other state agencies responsible for emergency responses. The inspections are expected to be completed within 10 days, but may continue for weeks depending on the size of the area impacted, the number of buildings in the impact area, accessibility to the sites, and if there are continuing significant aftershocks or additional events in other areas of the state.

#### Support FDD Operations

The support functions within FDD include:

- Certification of Inspectors of Record,
- Cost Recovery (invoicing and collections),
- Project Closure (ensuring that all records, including project costs, are complete), and
- Archiving Project Documents for future use.

FIGURE 3.2: HIGH-LEVEL FDD PROCESSES



### Extent of Information Technology Use

The Logbook Tracking Database System (Logbook)<sup>6</sup> is the primary information technology tool used by FDD business units in all of the business operations discussed above. The Logbook consists of eight distinct modules used to monitor over three thousand (3,000) construction projects per year and over seventy thousand (70,000) projects to date. The Logbook modules are called Project Tracking, FPS, IOR, SB 1953, Archive Records, EOC, and Management Reports. There is also a Log Admin Module which is used by system administrators to control access to the system and maintain system tables.

The Logbook is a mission critical system supporting the FDD business functions and objectives. How each business function uses Logbook is discussed below:

<sup>6</sup> Section 10 Detailed Description of Current Business Processes describes the current system in more detail.

- The Oversee Seismic Retrofit Project function uses the Logbook SB 1953 Module to track all the affected facilities and buildings, record SPC/NPC ratings and rating history, record all documents received throughout the compliance effort, and record all SRP staff comments.
- The Approve Construction Projects function uses the Logbook Project Tracking Module to record new projects and corresponding information. Plan Review staff use the Project Tracking Module to record actual time spent reviewing, and generate reports from Mechanical Engineers, Architects, Electrical Engineers, Structural Engineers, and Fire and Life Safety Officers. Logbook updates the FPS module with information on new projects and project changes for billing.
- The Oversee Construction Projects function also uses the Logbook Project Tracking Module to track and record field reports for construction oversight. Logbook's IOR Module is used by the Regional Compliance Officer (RCO) to verify IOR (Inspector of Record) qualifications, eligibility, and workload. The Project Tracking Module is used to record staff hours per project, track Post Approval Documents (PADs), and track changes in estimated construction costs.
- The Manage IOR Certifications support function uses the Logbook IOR Module to manage the list of certified IOR's. The IOR Module records IOR contact information, classification, and certification expiration date. The list of certified IOR's is uploaded and updated on the OSHPD FDD website throughout the year, allowing facilities to select qualified IOR's for their construction projects.
- The Close Finished Project support function uses Logbook's Project Tracking Module to search for deficient project information, assign closure status, forward project costs to accounting for cost recovery, and designate when project files are moved to the archives.
- The Accounting support function uses the Facilities Project Sub-System (FPS) Module to invoice for FDD services or to refund clients for any changes in project costs since project initiation.
- The Archives support function uses the Logbook Archive Records Module to track the location of project files that have been stored in the archives.
- The Inspect Structural Soundness of Facilities after Disasters function uses the Logbook EOC Module to record new events, query hospital and project statuses, query hospital facility SPC/NPC ratings, identify hospital facility and building locations, log inspection statuses and reports, and report event statuses to internal and external parties.
- The Regulations/Legislation Unit uses the data from the Logbook during legislative analysis and during the development and revision of regulations governing healthcare facility construction. The data is produced by the Management Reports Module of Logbook.

FDD's workflow is determined by project type. The project type determines the variety and quantity of documents to be reviewed and tracked in the Logbook database

throughout the construction project lifecycle. Table 3-2 below summarizes the number of review documents currently tracked in Logbook by project type. These numbers continue to grow as new projects are initiated and as existing projects progress through their lifecycles.

**Table 3-2: Review Documents by Project Type**

Number of Review Documents	Project Type and Description
382	E - Facilities Development Examinations (FDE) reviews used when FDD deems a project needs extensive re-examination of a facility's revised plans. Also used for surgery dialysis clinic reviews.
140,402	S - Project for alterations or modifications to health facilities, which does not affect the primary structure, with the exception of any building used or designed to be used, for a Skilled Nursing Facility (SNF) or Intermediate Care Facility if the building is of single-story, wood-frame or light steel frame construction.
23,052	G - Annual Building Permit (ABP) which allows application for plan review and approval of future minor sub-projects at skilled nursing or intermediate care facilities (SNF/ICF) for a fiscal year.  G-Sub- This is a sub-project to the ABP for minor repairs or alterations which do not affect the structural system of a building. Each sub-project requires a separate additional application for plan review and approval.
74,847	H - Projects for new hospitals, additions, or remodels to existing hospital facilities which do affect the structural system of a building. These projects do not include single-story, wood-frame or light steel frame construction.
574	I – Projects submitted for incremental plan review and construction. Incremental design, bidding and construction or “fast tracking” is a process by which construction of a building is commenced prior to completion of the plans and specifications for the total project. Each incremental project consists of a master project and any number of increments.

Logbook is also used to track the large volume of documents submitted for the Seismic Retrofit Program (deadline extensions, evaluation reports, compliance plans, test plans, geotechnical and engineering geologic reports, and requests for SPC/NPC rating upgrades) for each of the approximately 3,000 buildings which must comply with SB 1953.

### 3.2 BUSINESS PROBLEM

As a result of the Needs Assessment<sup>7</sup> conducted for FDD, several business problems have been identified that affect FDD's ability to meet its mission to regulate the design and construction of healthcare facilities to ensure they are safe and capable of providing services to the public throughout a building's lifecycle. The purpose of this service is to ensure that healthcare operations are not compromised and loss-of-life does not occur as a result of flawed construction, especially during a natural disaster such as an earthquake<sup>8</sup>.

The Needs Assessment documented many manual processes and deficiencies in the existing Logbook system that make tracking, sharing, and storing information needed to perform FDD's business functions cumbersome and time consuming. These were found to be the main causes of problems that were affecting FDD's ability to effectively carry out its mission.

The problems identified are in line with three of the five problem considerations in the Department of Finance guidelines and include:

- 1) Providing necessary services more efficiently and effectively (streamlining necessary services),
- 2) Obtaining information that is not currently available, and
- 3) Generating more revenue.

The business problems that put FDD's mission at risk are listed below. A more detailed discussion of these business problems is given in Section 11 - Business Problem Background where Table 11-2 is also provided to show the correspondence between business problems and the business objectives given in Section 3.3.

#### 1. Construction plan reviews do not meet targeted timelines.

Construction projects must be reviewed and approved before construction can begin. FDD's goal is to process applications for construction plan approvals within the following timelines:

- Review for all projects except "H" projects<sup>9</sup> will be completed within 60 days for the initial review, within 30 days for backcheck reviews, and within 30 days for review of all Post Approval Documents (PADs).

---

<sup>7</sup> Needs Assessment, Facilities Development Division, Office of Statewide Health Planning and Development, July 2004.

<sup>8</sup> The State Architect's Office has a similar role with schools throughout the State.

<sup>9</sup> H - Projects are for new hospitals, additions, or remodels to existing hospital facilities which do affect the structural system of a building. These projects do not include single-story, wood-frame or light steel frame construction.

- Reviews on “H” projects over \$50 million will be completed according to the time schedule negotiated with the client.

The table below shows that in 2004, FDD was able to meet the plan review targets less than 88% of the time for new projects and Post-Approval reviews. Backcheck review targets were met less than 90% of the time. Not meeting plan review targets affects the facility construction schedule, potentially adds to project costs, increases risks to meeting public healthcare needs, and impacts the seismic safety of healthcare facilities.

**Table 3-3: Plan Review Target Summary for 2004**

Office	60 day New Construction: S&G Projects		30 day Backchecks: S&G Projects		30 Day Post-Approvals: I,H,S,G Projects	
	Goal NOT Met	Percentage Met	Goal NOT Met	Percentage Met	Goal NOT Met	Percentage Met
Los Angeles	51 out of 400	87.3%	50 out of 576	91.3%	270 out of 1342	79.9%
Sacramento	107 out of 907	88.2%	126 out of 1169	89.2%	108 out of 1389	92.2%
TOTAL	158 out of 1307	87.9%	176 out of 1745	89.9%	378 out of 2731	86.1%

Overall, 712 out of the total 6,183 documents to be reviewed (or 11.5%) were not reviewed within the targeted timelines. While the percentage of reviews not completed on time might not seem significant, the actual impact to the facility can be considerable depending on the type of project.

The major impact of not completing reviews on target is from Post-Approvals on H and I type projects. H and I<sup>10</sup> projects are very complex, with values in the hundreds of millions of dollars and duration spanning years in some cases. These projects require large numbers of documents to be reviewed. Post-Approvals are reviews that are performed as the result of change orders that are submitted after construction has started. If construction must be halted until the

---

<sup>10</sup> I – Projects are submitted for incremental plan review and construction. Incremental design, bidding and construction or “fast tracking” is a process by which construction of a building is commenced prior to completion of the plans and specifications for the total project. Each incremental project consists of a master project and any number of increments.

Post-Approval change order is approved, the facility may incur additional costs when FDD is not able to meet its commitment of a 30-day review.

Failure to meet FDD plan review targets is caused primarily by manual processes for routing and storing construction plans during the review process as described in more detail in 10.2 - Approve Construction Projects. The plan approval process requires considerable data entry into the Logbook by Program Technicians (PTs) and Plan Review staff to track the location of hardcopy construction plans and the review status as the plans are routed through multiple reviewers in a serial manner. Increases in the elapsed time for a review are caused by the serial review process rather than by resource constraints. Processes supporting more concurrent reviews would help bring FDD closer to meeting the plan review productivity targets for more projects.

**2. Construction Oversight visits to all active projects are not made at least once every calendar quarter.**

FDD's performance objective for construction oversight is that Construction Oversight staff will visit all active projects at least once every calendar quarter and file observation reports. Construction Oversight staff work from home offices and visit facilities that are distributed throughout the state.

In the last quarter of 2004, construction oversight visits were made to only 1,607 of the 3,049 active construction projects. This was an average of 53% projects visited across all regions. The percentage of projects visited in each region ranged from a low of 39% to a high of 59%.

Construction Oversight is hampered by manual processes for storing, sharing, and tracking information and the fact that Construction Oversight staff are dependent on remote connections to communicate with the Office and the system. Remote connectivity usually is in the form of dial-up phone access from a home office since Construction Oversight staff do not have a base of operations in an OSHPD facility. Construction Oversight staff file inspection reports by either using the slow dial-up RAS connections from their home offices or by emailing or faxing reports to PTs who then enter the information into the Logbook. In the instances where staff fax or email reports to be key entered by PTs, duplication of effort and data input errors often result.

The need to return to a home base to file reports limits the number of hours staff have available for visits for construction oversight. The inability to visit all open projects can lead to construction delays, which may increase construction costs to facilities and delay OSHPD's granting of occupancy, thereby delaying provision of needed healthcare services. Construction approval delays also holdup completion of upgrades to the seismic safety of buildings being addressed by SB 1953 requirements for seismic retrofits.

**3. The time to retrieve facility building plans and other facility information during emergency responses impacts the timeliness of building structural safety inspections and poses the risk of loss of life.**

When the EOC is activated in response to a disaster, response planners need access to current facility building plans in order to prioritize inspection team deployment to those facilities likely to have had structural damage based on the type of construction and seismic safety ratings. Depending on where the hardcopy plans are housed, retrieval could take from a few minutes for those that are in the Office to several days for plans that must be retrieved from archives. If the plans for a facility are not immediately available, response planners have to make decisions based on incomplete information since inspection teams need to begin inspections within 12 to 36 hours of the disaster. As a result, teams may not be sent to the facilities most likely to have incurred damage first.

As inspection teams are dispatched to facilities in the disaster area, they may also require construction plans to perform evaluation of a building's structural safety. For those plans that must be retrieved from the FDD Archives or the State Records Center (SRC), the amount of time it takes (up to several days) could mean that the inspectors do not have all the information needed to perform the required inspection and report on the building's safety to house healthcare services, thus delaying reports to EMSA and OES needed to make safety decisions for the public welfare.

In addition to building plans, EOC personnel need timely access to other facility and disaster information in order to make decisions on which facilities must be inspected, the priority for inspections, and resources needed to conduct them. Currently, this information is located across the various Logbook modules; in other OSHPD systems such as the Automated Licensing Information and Report Tracking System (ALIRTS) for licensing information or the Enterprise Geographic Information System (EGIS) for geographical information; or hard copy documents. Information from OES's Response Information Management System (RIMS) must also be considered in the decision-making process. The lack of integration between these sources of information means that manual processes are used to look up and consolidate the information for decision makers. This can be time consuming and error prone in an emergency response situation.

Delays in receiving facility plans and manual processes for gathering other information hamper the decision making and inspection processes. This could increase the risk of loss of life if buildings with collapse hazards are not quickly identified. Conversely, slowness to identify facilities that are safe for providing services may limit the public's access to needed care.

**4. The inability to invoice clients for SB 1953 Compliance Reviews negatively impacts cost recovery efforts.**

As a self-funded business operation, it is important that FDD recover its costs by billing for services rendered. The current system does not support billing for SB 1953 reviews which represent a significant portion of FDD's workload, both now and in the future.

Processes are not in place to perform billing for FDD's SB 1953 review as mandated. Billing for these services has not been attempted due to the overwhelming impact that modifying the current system or implementing time-consuming manual processes would have on FDD and accounting staff to process the large volume of SB 1953 projects. This results in FDD not being able to collect fees for SB 1953 reviews. It is estimated that through FY2007/08, the amount of services that will need to be billed is approximately \$7.2 million dollars. By this time it is expected that the majority of seismic retrofit compliance plan reviews will have been completed and billed. However, this billing function would still be needed in succeeding years until all seismic retrofit projects have been completed.

### 3.3 BUSINESS OBJECTIVES

To fulfill its business program responsibilities, FDD has established the following business performance objectives. These performance objectives are derived from the division's mission to regulate the design and construction of healthcare facilities to ensure they are safe and capable of providing services to the public.

1. Applications for construction plan approvals will be processed in a timely manner to meet the following timelines:
  - Review for all projects except "H" projects will be completed within 60 days for the initial review, within 30 days for backcheck reviews, and within 30 days for review of all Post Approval Documents.
  - Reviews on "H" projects over \$50 million will be completed according to the time schedule negotiated with the client.
2. Construction Oversight staff will monitor construction by visiting all active projects at least once every calendar quarter.
3. In order to minimize the risk of loss of life and identify buildings safe for healthcare services after disasters such as earthquakes, OSHPD will have access to facility construction plans and other information needed to prioritize assessments of facility structural soundness within two hours of the activation of the EOC. Building plans will be available to inspection teams carrying out the assessments within 12 to 36 hours after activation of the EOC.
4. OSHPD will ensure invoicing and collection of fees for services rendered for seismic retrofit compliance evaluation.

### **3.4 BUSINESS FUNCTIONAL REQUIREMENTS**

In order to satisfy the business objectives discussed above, the proposed solution must fulfill the following business functional requirements. These functional requirements were derived through a thorough Needs Assessment that focused on the FDD functional units and on the business objectives discussed in Section 3.3. The Needs Assessment addressed missing application functionality as well as opportunities for process improvement. Following are a list of functional requirements by functional unit as identified by FDD staff. Section 12 contains Table 12-1: Functional Requirements Traced to Business Objectives which maps these functional requirements to FDD's business objectives.

#### **3.4.1 Seismic Compliance Requirements**

1. Track reviews by the SB 1953 unit for SPC and NPC compliance of new projects.
2. Receive electronic notice of project closure status.
3. Track SPC/NPC ratings and upgrade effective dates.
4. Receive electronic notice of building construction actual start dates.
5. Track Geotechnical and Engineering Geologic Report reviews.
6. Track design criteria reviews.
7. Support reporting of hospital compliance status.
8. Allow plan reviewers and field reviewers' access to hospital SB 1953 compliance status and review reports.
9. Develop secure web reporting capability to facilities regarding compliance status and ratings.
10. Develop standard facility, building, and project identification scheme that provides linkage to other OSHPD databases, such as ALIRTS.

#### **3.4.2 Construction Approval Requirements**

1. Support the electronic submittal of applications for Building Permits and supporting documents.
2. Support scanning capability of hardcopy documents for electronic storage and file retrieval.
3. Electronically receive, store, and assign plans to the appropriate projects.
4. Electronically document and record plan review comments and discrepancies.
5. Create system-generated notifications for project changes that impact accounting codes.
6. Develop system controls for billing and activity codes.
7. Provide capability to generate ad hoc and analytic reports.

8. Provide management and executive level revenue reports.
9. Automate and track plan review workflow and routing.
10. Automate system sharing of project data with SRP and Field Staff.
11. Be able to uniquely identify each building within a facility.
12. Develop consistent and standard facility, building, and project identifiers.
13. Provide capability to forecast staff workload per project parameters.
14. Provide the capability to forecast Office workload with a forecast projects function.
15. Interface with the ALIRTS (licensing) system.
16. Automate the maintenance of California Fire Departments table.
17. Notify SRP of new building construction and closure of new building construction.
18. Notify SRP staff when buildings are decommissioned.
19. Track alternate method of compliance/program in Logbook.
20. Track Geotechnical and Engineering Geologic Report outsourced reviews, including specific reports reviewed and approved. Also, track report amendments
21. Monitor the progress of projects and issue system-generated notifications for missed documents or dates.
22. Provide secure web reporting to facilities.
23. Track design criteria in Logbook.
24. Integrate stand-alone 'Comments' databases with Logbook for use in reviews.
25. Provide standard time reporting capability.
26. Track expiration of plan approvals and extensions of plan approvals.
27. Track approval of Fixed Hospital Equipment Anchorages (Pre-Approvals).

### **3.4.3 Construction Oversight Requirements**

1. Standardize time reporting.
2. Provide web-enabled time reporting tool with system controlled activity and billing codes.
3. Provide remote access to TIO forms to support monitoring of construction projects.
4. Generate field review reports.
5. Provide remote access to project files and documents.
6. Provide electronic building codes and regulations for electronic searches.
7. Provide remote access to Mileage log reporting.

8. Provide capability to electronically record field review comments while in the field.
9. Provide capability to electronically record deficiencies remotely and in the field.
10. Provide capability for structural engineers to electronically annotate plans and reports/forms with drawings and/or written notes.
11. Standardize field review reports with drop down menus, check boxes, and code/comment look-up capabilities.
12. Provide capability to create more than 1 page of a field review.
13. Provide capability to print and email forms and reports while in the field to all or subset of project contacts.
14. Include Field Staff in list of project contacts to be courtesy copied on all project communications starting with plan approval and throughout the construction phase.
15. Provide field staff capability to receive electronic files from project staff while in the field.
16. Provide field staff capability to upload received files to Logbook while in the field.
17. Provide capability to store electronic forms.
18. Provide a consistent and accurate means for collecting, receiving, and storing inspection logs from IORs.
19. Provide capability to research projects for final inspections.
20. Automate the maintenance of CAFD table.
21. Store partial and incomplete reports with system reminders to complete report at next login.
22. Electronically notify SRP staff and Field Staff of construction start dates.
23. Track expiration of building permits and extensions of building permits.

#### **3.4.4 *Inspect Structural Soundness of Facilities after Disaster Requirements***

1. Standardize facility and building identification.
2. Store digital photographs of all facilities and buildings.
3. Provide response teams with capability to report inspection status via web-enabled report form.
4. Develop capability to electronically receive status reports and electronically populate Logbook.
5. Maintain capability to manually enter status reports in the event electricity and internet connectivity is not available.
6. Standardize the inspection reports with drop-down menus, check-boxes, and code/comment look-up capabilities.
7. Track facilities visited by EOC inspectors.

8. Track facility inspection status.
9. Integrate GIS to overlay epicenter map with map of hospitals in earthquake zone.
10. Graphically identify hospital risk ratings on the GIS map.
11. Provide refresh capability of GIS map as statuses are reported and recorded in Logbook.
12. Generate standard and ad hoc reports on demand.
13. Generate a prioritized list of needed inspections.
14. Support assignment of inspectors to hospitals.
15. Track building modifications to facilities during the "no-permit" period following an earthquake.
16. Interface with the licensing system to provide information on all facilities including those that have not had construction since the establishment of Logbook.
17. Map other facility identifiers to the OSHPD facility ID.
18. Interact with RIMS and GIS to produce interactive reports.
19. Support trial runs and post-mortem reports for analysis.
20. Provide integration between FDD locations.
21. Support coordination of the EOC with the State Office of Emergency Services (OES) during disaster planning and response, including the capability of EOC staff to access FDD information from remote locations.
22. Provide the capability to transmit data to and receive data from OES.

### **3.4.5 Support FDD Operations Requirements**

#### **Project Closure**

1. Receive system-generated notification following field review reporting of final reports.
2. Automatically generate a reminder for projects to send in final docs/approvals for Project Closure.
3. Provide system controls and audit trails for project changes that impact billing.
4. Monitor the progress of projects and issue flags for missed documents or dates.
5. Maintain capability to designate project closure status.
6. Electronically inform SRP staff of project closure status.

#### **Inspector of Record Requirements**

7. Support user customizable IOR letters and notices.
8. Allow IOR search capabilities by region and county.

9. Support C-Level examinations and certifications.
10. Track 12 specialty areas for IOR certification.
11. All IOR processes and databases shall be integrated into the Logbook system.
12. Provide IOR workload analysis.
13. Provide web interface to list of active IORs.

**Archives Requirements**

14. Provide a database of all archived files with sufficient detail for tracking and retrieval.
15. Provide archived file locator information to support retrieval of archived files within 1 to 2 days during normal operations and within 2 hours during emergency operation.
16. Provide FDD staff in both Sacramento and Los Angeles with read and request access to the archive database.
17. Reduce manual data entry of locator information into the database.
18. Accommodate expanded quantity of identifying codes.
19. Support paper, digital, and/or microfilm archives according to FDD policy.

**Accounting Requirements**

20. Align revenues with costs.
21. Generate notices for accounting actions based on project status.
22. Use uniform billing activity codes.
23. Use business rules in the validation of PT entered data to avoid accounting errors.
24. Generate notices of project changes for accounting actions.
25. Provide audit trails.
26. Provide clear and understandable invoice statements.
27. Identify outstanding invoices by facility.
28. Track Exam Fees for IOR examinations.
29. Provide capability to change and adjust accounting entries following Generally Accepted Accounting Practices and State Administrative Manual.
30. Perform refunds according to approved regulations.
31. Track pre-design meeting fees.
32. Track special examination fees.
33. Track clinics fees.
34. Track Pre-Approval fees.

### **Training Requirements**

35. Training must be provided to users.
36. Training must be flexible to accommodate diverse technology levels, skill sets, and organizational levels.
37. Training should include system built help and how-to functions.
38. On-line training manuals must be available for web-users.
39. On-line training manuals must be available for remote users.

## 4 BASELINE ANALYSIS

The purpose of this section is to provide a clear understanding of the current tools and methods of operation that support the FDD's business functions. This section builds upon and draws conclusions from the Business Case provided in Section 3, provides a framework for exhibiting the full technical and work process implications of the existing system, and provides a baseline to assess the Proposed Solution in Section 5.

### 4.1 CURRENT METHOD

#### 4.1.1 Objectives of the Current System

The objective of the Facilities Development Division, in accordance with State law, is the safe and compliant construction of healthcare facilities throughout the State of California through objective plan reviews and construction oversight activities. As such, the regulations governing FDD's functions are enacted as law in the State and provide for the mandatory participation of healthcare facility owners and architects (FDD customers). To this end, the current system must assist customers and facilitate project completion<sup>11</sup> by meeting the business objectives outlined in Section 3.3 Business Objectives.

Healthcare facilities with construction projects planned or in progress are the customers of the current system. Stakeholders in the system include OSHPD Executive staff, Governor's Office staff, the State Office of Emergency Services, and the citizens of California who are dependent on structurally sound health care facilities for their health care needs. The major customers to be served by the current system and their roles are summarized below:

**Table 4-1: Customer Groups**

Customer Group	Role
Health Care Facilities	Requestors of OSHPD FDD construction oversight services.
OSHPD Executive Staff	Information Requestors.
Inspectors of Record	Information Requestors.
Legislative Analysts	Information Requestors to develop legislation.
FDD Regulations/Legislation Unit	Information Requestors to support a stance on pending legislation and to develop building codes and regulations.
Governor's Office	Information requestors.
Local Government	Information requestors.

<sup>11</sup> Some provision is available in the State law to provide for the greater public safety in the presence of non-compliant customers; however, this is rarely used.

The Logbook system must also meet the needs of its primary users who utilize the system to perform FDD business functions. These include FDD staff from the functional areas of Plan Review, Construction Oversight, SRP, EOC, and IOR Certification. Staff from Accounting and other support functions are also users of the Logbook. User roles are explained in the table below:

**Table 4-2: User Groups**

<b>User Group</b>	<b>Role</b>
<b>Plan Review Staff</b>	Accept project applications. Triage project plans. Provide review and approval of project plans.
<b>IOR Certification Staff</b>	Receives, records, and tracks IOR applications. Certifies IORs. Maintains and provides list of certified IORs for OSHPD website and other FDD business units. Proctors exams.
<b>Construction Oversight Staff</b>	Monitors construction progress, IOR activities, and compliance with approved plans. Reports on construction status to FDD office.
<b>FDD Management</b>	Manages the day to day operations of FDD.
<b>SRP Staff</b>	Reviews and approves seismic evaluation reports and compliance plans. Assigns SPC/NPC ratings per building. Reviews facility requests for SPC/NPC rating upgrades.
<b>EOC Staff</b>	Inspect the structural soundness of facilities following an emergency and verify safe occupancy for the safety of patients and providers.
<b>Data Management/Business Analysts</b>	Provide business technical support to business users. Act as liaison between business users and technical staff.
<b>Accounting Office Staff</b>	Perform cost recovery of FDD services.
<b>FDD Budget Analyst</b>	Manages and projects the FDD budget using data from Logbook, as necessary.
<b>Program Technicians (PTs)</b>	Process plan review applications; data entry into Logbook for project status tracking, timesheets, etc.; manage project files; research project closure requirements; support invoicing.
<b>Archives Staff</b>	Logs files received for archiving; tracks location; transfers files to State Records Center.

#### **4.1.2 Ability to Meet Workload**

FDD historically received a relatively standard and consistent flow of construction projects and managed their workload accordingly. Logbook sufficiently tracked and monitored the projects through completion. However, the enactment of SB 1953 had and continues to have a multi-faceted impact on FDD's workload and the Logbook's ability to support the workload. Over the past three years, the volume of work has doubled for SRP and Plan Review staff, and increased by over 50% for Construction Oversight staff. The current workload is expected to continue increasing for the next few years while facilities strive to comply with the SB 1953 compliance deadline for

2008. To meet these existing and anticipated workloads, FDD staff grew from about 158 to over 200 in FY 2004/05. The ways in which SB 1953 impact FDD's ability to meet its workload are:

- SB 1953 launched facilities into a feverish attempt to comply with the mandates, which resulted in SRP staff being inundated with evaluations, compliance plans, test documents, and requests for rating upgrades. There are 2,692 buildings impacted by SB 1953.
- As the 433 facilities strive to meet the SB 1953 deadlines, they are submitting applications for building permits for seismic retrofit projects to Plan Review staff. A single building may have several SB 1953 related projects. These project applications compound the volume of non-SB 1953 related projects (regular construction) currently received by Plan Review.
- Each project has a minimum of five documents that must be recorded and tracked in Logbook.
- As projects are approved, the workload will shift to Construction Oversight staff that already have problems meeting FDD business objectives due to deficiencies in the existing Logbook system and workflow processes.
- The increase in projects will dramatically increase the cost recovery efforts of FDD and the Accounting section staff. The controls and audit trails for changes made to project financial information will need to be enhanced.
- As projects are closed, FDD is required by law to retain copies of all project files. In recent years, archival space has been limited at both the FDD office and the SRC. As projects are expected to continue increasing, FDD and SRC may not be able to physically retain all the hardcopy records required by law.

There is a significant duplication of work within the FDD. From the receiving of applications to the filing of final reports, nearly every process is performed twice: once by the originator of the data, and again by the staff manually keying data into Logbook. This duplication, compounded by the dramatic increase in workload, results in the system being unable to meet the current and anticipated FDD workload. FDD does not have enough staff to manually key all the data needed to perform FDD's mission while keeping pace with the influx of work.

Several productivity issues that affect FDD's ability to meet its workload are discussed in Section 3.2 Business Problem.

- Serial processes for plan review affect the ability of FDD to meet plan review targets. Reducing the elapsed time for plan reviews can be done by employing processes that improve workflow management and support concurrent reviews and collaboration with customers.
- The ability of Construction Oversight staff to visit open construction projects at least once per quarter would be enhanced by processes that made more time available for reviews by reducing the need to return to home offices to communicate with the system and reduce data entry.
- The time needed to access building plans and other information during emergency operations after a disaster affects the effectiveness of determining

building structural safety. Processes that made more information available in a quicker manner would improve the emergency response function.

- An increase in manpower would be needed to either manually bill or modify the existing system to address the lack of processes to invoice for the large number of Seismic Retrofit reviews expected through FY 2007/08. A system with improved integration would make recovery of these costs more efficient.

#### **4.1.3 Growing Workload and Demands**

The current system satisfies a decreasing percentage of the FDD's business and is increasingly becoming both cumbersome in its maintenance and dubious in its reliability. Continuing use of the current system is demanding additional staff and burdening the responsiveness of the FDD in its main functions. This includes the inability of the FDD to accurately describe the state-wide conditions of some in-construction or in-plan review healthcare facilities and the continuing unreliability of the current system to respond to customer demands.

Healthcare in the state is growing but the current system is not. Technology has advanced in the commercial architecture world to the use of electronic plans and work-collaboration. The FDD has responded only by the tacit addition of larger work/process changes while generally failing to maintain its currency with respect to the industry it serves. This is a diverging trend that continues to worsen, slowing the State's ability to serve its customers and building a repository of suspect data that may lead FDD monitoring activities astray during an emergency<sup>12</sup>.

As the construction industry implements new techniques or as building codes change, FDD must be responsive to changes in Code and Regulations. Modifications to the Logbook to accommodate new codes, standard practices, and regulations is often time consuming, cumbersome, and regularly requires programming changes. Just as SB 1953 significantly added to system and staff requirements, possible future legislation to ensure the structural integrity of healthcare facilities could expand similar requirements on long-term care facilities. There are likely to be other legislative mandates that will require significant system modifications. Unlike in years past, the healthcare industry is changing rapidly. FDD's current system does not have the flexibility to easily respond to change.

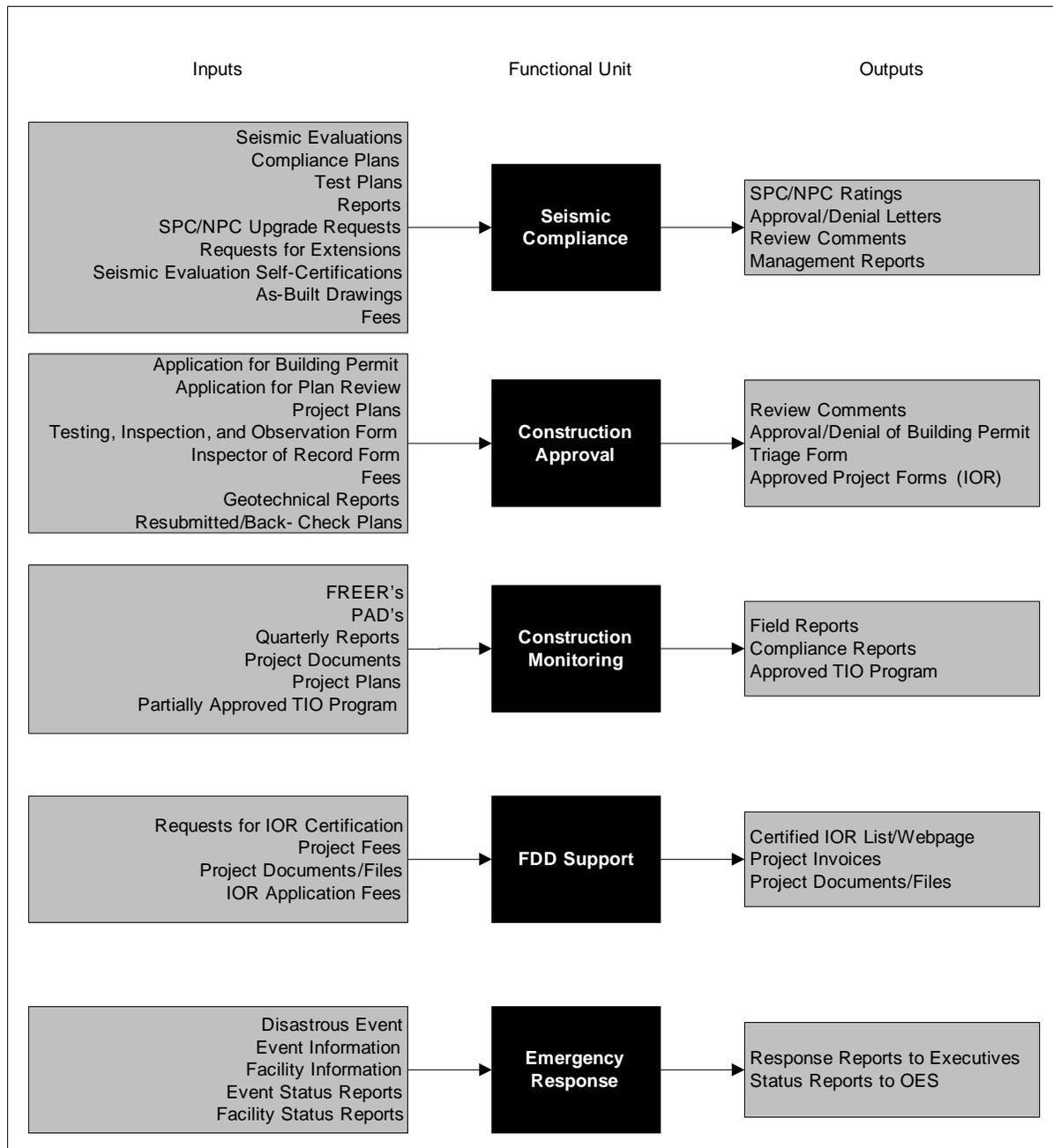
---

<sup>12</sup> An emergency with respect to the current system is limited to events which may cause structural damage to healthcare facilities, generally earthquakes of a specific magnitude. As such, FDD is involved with life-or-death decisions and is expected to operate in the public interest at all times.

### 4.1.4 Inputs and Outputs

FDD receives a variety of inputs and generates a variety of outputs. Figure 4.1 lists the inputs and outputs per functional unit.

FIGURE 4.1: INPUTS AND OUTPUTS



The current system provides data to FDD, OSHPD, and Health and Human Services Agency (HHSA) for the management of healthcare facility construction, the analysis and centralized management of an emergency, and ultimately the administration of state law. Some data is provided to the billing and accounting function, performed by staff external to the FDD.

Data is entered into the current system through manual data entry performed by plan reviewers, field staff, program technicians, and other support functions. The lack of controls on data values leads to data integrity concerns. The tools available for remote data entry often result in dual work, first by field staff and then by PTs. These factors impact the confidence in the outputs produced by the system.

#### **4.1.5 System Provisions**

In general, the current system provides a very small amount of automation assistance and assurance to the FDD. The key functional components provided by the current system are:

- Record of existing healthcare facilities that have applied for plan review during the existence of the Logbook System.
- Status of projects including plans, in-construction, and seismic retrofit projects.
- Inspectors (of record).
- Billing information and accounting interface.
- Customer information available to customers.
- Plans archive information.

The new system shall provide these functions:

- Record of existing healthcare facilities.
- Status of projects including plans, in-construction, and seismic retrofit projects.
- Inspectors (of record).
- Billing information and accounting interface.
- Customer information available to customers.
- Plans archive information.
- More information available in archives.
- Rapid access to archive information.
- Record of existing healthcare buildings, increased information about building and site construction.
- Accessible (retention of) building plans, including as-built plans.
- Accessible (retention of) Geotechnical and Engineering Geologic Reports.
- Accessible (retention of) plan review comments and notices.
- Accessible (retention of) correspondence.
- Accessible code books and materials specifications.
- Detailed emergency facility, site, and building information and seismic effect analysis.

##### **4.1.5.1 System provisions for security, privacy and confidentiality**

Security is an important component of OSHPD's information technology infrastructure. Logbook was not designed for the current OSHPD infrastructure which has evolved to address the needs for a secure computing environment. Logbook's outdated design makes it difficult to run and maintain in the existing security infrastructure. As a result,

the Logbook may operate correctly in some cases and fail in others and require additional maintenance activities to provide user access to the system.

Today's complex technical environment requires constant patching of the desktop operating system (OS), the network operating system (NOS), the data base management system (DBMS), the Web Server and the desktop components such as MS Office and Crystal Reports. Patches are provided for identified critical security vulnerabilities and threats. The frequency of these patches is weekly. Every security patch applied has the potential of bringing parts of the system or the entire system down. Because of the multiple programs, different coding standards and software versions, different parts of the system are affected differently by software patches. Many of these patches require recoding of entire software routines to allow them to continue to work.

Another security problem is the absence of a complete system back to front audit trail and logging process. Audit trails that have been built into the system are associated with specific components - front to back logging has not been implemented. Because audits and logs are done in various places, it would be extremely difficult to identify or track a security incident in the current environment.

The OSHPD Information Security Officer (ISO) is responsible for Department-wide security programs by developing and overseeing compliance with policies and procedures regarding the security of information assets. The FDD, in conjunction with the ISO, are currently reviewing the different types of data that may be stored by the proposed system. Although it is known that no confidential data, such as HIPAA data, social security numbers, or birthdates are involved, some sensitive or proprietary information, such as an architecture firm's properly-labeled "proprietary" plans, construction documents, or reports are involved and may require the consideration of security protections in the proposed system (depending upon the results of this review).

#### **4.1.5.2 Internal and External Interfaces**

There are no automated internal and external interfaces in the current system. Logbook is standalone. All data is manually input by staff. Frequently, information is copied from a computer or computer generated report into the Logbook. The availability of an interface would eliminate duplication of work and reduce the data-entry errors found in the Logbook. In particular, more automated sharing of facility information from the ALIRTS system would avoid re-entry of facility identifiers, location, and other licensing information needed in the Logbook system. The lack of an automated interface with the Office of Emergency Services could contribute to lags in communicating vital life-saving information between FDD and the OES in an emergency. Improvements in data sharing with the OSHPD Enterprise Geographic Information System (EGIS) would also be of benefit to emergency response planning and execution. The current processes for information sharing are primarily manual.

#### **4.1.6 Personnel Requirements of Current System**

The current Logbook Tracking Database System is supported by a combination of FDD, ISO, and ISS resources as described in Table 4-3.

**Table 4-3: Current System Personnel Requirements**

Position	PYs	Organization	Responsibilities
Staff Services Manager I (SSM I)	1	FDD	Management oversight of FDD staff responsible for information technology.
Associate Governmental Program Analyst (AGPA)	1	FDD	Lead analyst on FDD IT projects. Facilitates all Information Technology activities for the Division and participates in office-wide IT projects. Serves as the Division's primary point of contact with the Department's Information Systems Section.
Associate Governmental Program Analyst (AGPA)	1	FDD	Lead Business Analyst for FDD Responsible for defining business requirements for updates to the system. Generate custom reports for Executive Management. Provide first line help for data errors/discrepancies. Provide training to Logbook users.
Staff Services Analyst (SSA)	1	FDD	Serve as FDD business analyst responsible for defining business requirements for updates to the system. Generate custom reports for Executive Management. Provide first line help for data errors/discrepancies. Provide training to Logbook users.
Network and Help Desk Services	4.3	ISS	Provides networking and Help Desk services to support the FDD information technology infrastructure including telecommunications, desktops, operating system upgrades, and office productivity tools.
Associate Programmer Analyst (Specialist) Staff Programmer Analyst (Specialist)	2.5	ISS	Perform ongoing maintenance and upgrades to the Logbook application. Design, develop and test enhancements to the current application. Generation of more complex custom reports.
Information Security Officer	.4	ISO	Provides direction and guidance on security issues. Coordinates security issues with the State data center. Oversees maintenance and updates to the security components of the application and system.

#### 4.1.7 Failures of the Current System

The Logbook system was originally created to follow project documents through the review cycle up to Plan Approval. It was initially a desktop application created by users within FDD. As the need to expand upon its functionality was identified, efforts were undertaken to design and develop the current Logbook system. At that time, the selected approach used the existing database table structure rather than redesigning a relational database. Over the years, FDD business analysts and ISS applications staff have worked to add modules and functions to address changing business needs and regulations. However, the system is outdated, difficult to maintain, poorly documented, not available to key FDD staff in the field, and lacks the capabilities to support many important FDD business functions. These include the ability to rapidly activate the Emergency Operations Center with data needed for decision making, the ability to bill clients for SB 1953 services, meet plan review timelines, and meet construction oversight timelines.

Failures described in 4.1.2 through 4.1.5 above are summarized below.

Failure	Section	Description
Ability to meet Workload	4.1.2	The current system fails to provide predictable and reliable support to much of the Staff it is expected to support, requiring long turn-around times, data errors, and work-arounds that circumvent workflows and controls.
Growing Workloads and Demands	4.1.3	The current system cannot meet increasing demands for quality, rapid turnarounds, and industry-standard practices especially when coupled with the growing quantity of engineering work processed by the FDD.
Inputs and Outputs	4.1.4	The current system does not interface with any other automation system whether internal or external to the FDD. This failure demands excessive and error-prone manual data entry and promotes the absence of information that is otherwise needed by the staff, especially during an emergency.
Security Provisions	4.1.5	The current system was not designed for the current OSHPD security infrastructure and thus requires additional maintenance and support. Audit trails are deficient and not in keeping with current security provisions.

FDD must obtain additional information not currently available in the existing Logbook to better manage FDD's statewide effort as well as accommodate new legislation and industry demands. Managing this statewide effort requires accurate data on active and

pending projects as well as accurate information on the amount of time staff devote to various activities.

### **Lack of Confidence in Management Reports**

The FDD Executive, management, and business staff face challenges in effectively managing departmental and personal workload and project activities due to a lack of reliable information in Logbook. Logbook has many predefined reports available to management and business staff in managing the FDD statewide effort. However, FDD staff view reporting from the Logbook system as a difficult and cumbersome task. The reports built into the system are often not used or may require electronic or manual exportation to MS Excel for manipulation and restructuring prior to use.

### **Low Confidence in Accuracy of Data**

Many FDD staff expressed low confidence in the accuracy of the report data. In some cases, this may be due to poor controls on data entered into the system. In other cases, the lack of confidence is due to improperly constructed user queries because of a lack of understanding of Logbook's database table structure or the inability to sufficiently define user reporting requirements for report design.

Some specific reporting problems experienced by FDD staff include:

- FDD staff are unable to quickly and accurately estimate existing and projected workload.
- FDD staff must use the assistance of business analysts to generate reports for specific information due to the Logbook's complicated table structures and inadequate query capability.
- Efforts to define project backlogs and staffing needs are primarily manual because of shortcomings in what Logbook is currently designed to track and how data is entered.
- The time reporting tool, I-Timesheet, is not integrated with Logbook. Neither I-Timesheet nor the Logbook timesheet provides for time code or project code verification. Due to problems with remote access discussed later, many users submit manually prepared timesheets. These problems lead to inaccuracies in time reporting.
- The Logbook system does not fully accommodate the construction review process outlined in the Testing, Inspection, and Observation Forms.
- The Logbook does not allow assigning multiple and specialized Inspectors of Record to a project.
- Projects requiring additional reviews that are part of the standard review cycle can not be flagged (e.g., projects spanning multiple years).

The inability to easily generate ad hoc reports, the lack of confidence in standard reports, and data redundancies and inconsistencies contribute to FDD managers not receiving the information needed to make decisions in a timely manner.

### **Impact on FDD Customers**

The failures of the current system have impacted FDD's customers and led to low customer satisfaction with services. FDD currently provides project information to clients on-line, through i-Logbook. However, the information provided is difficult to understand, because it is coded using Logbook activity codes and terminology, which are foreign to clients. In order for clients to determine the status of a project, they must search for the acronym definition on a separate webpage. The current web-functionality is not easy to navigate or understand.

Some of the problems discussed earlier also have a negative impact on customer satisfaction. These include:

- Limitations on available hours for Field Staff to monitor construction projects impact their ability to respond to facilities' needs and schedules.
- The inability of FDD to accept electronic plan and file submissions means that facilities who have electronic capability to submit digital files must print out plans and mail them to FDD, which slows the submission process and adds to facility costs.
- Lost hardcopy documents must be replaced at facility expense.
- The plan review cycle is subject to delays because of the inability to conduct real-time collaborative reviews.
- Tools to manage departmental workload are insufficient to efficiently respond to client schedules.
- Insufficient information is provided to facilities regarding SB 1953 compliance status and ratings.

These failures are primarily due to the technical obsolescence of the current system and the related problems this presents in providing a viable and responsive tool for FDD. These include:

**System Maintenance.** There is extreme concern about how much longer the current system can be maintained to support the critical FDD business functions and required new functionality. The existing Logbook database system consists of multiple application components and databases (refer to Table 4-4: *Current Databases*), which have been developed in multiple software languages, using different utilities and third party components and maintained during different time frames by different groups of programmers and consultants. Major components used to build the system are outdated, no longer supported, and incompatible with OSHPD's supported Enterprise Technology Architecture. Because the system was developed in so many separate components, maintenance activities require that the programmer or consultant review code throughout all of the programs, identify interdependencies, and code and test needed modifications throughout the system. It is not uncommon for a fix or enhancement to be made that has a ripple effect causing problems in other parts of the system. Many hours of extra time are spent on any coding changes to avoid problems

because of the lack of an integrated system with documented coding and development standards

Unsupported/Outdated Components. The existing system contains more than 200 reports, which have also been developed and maintained in various technologies, during different time frames, by different groups of programmers. Some of these reports were developed using version 7 of 'Crystal Report' software. Currently, Crystal Reports supports version 11 of their software and minimum support is available for their older versions. Other reports in the system utilize Microsoft products (MS-Word, MS-Access) installed on the user PCs and need programming changes whenever any changes (including upgrade to a newer version) are made to MS-Word or MS-Access on a user PC. All the reports should be modified to use same database (SQL Server) and technology (Crystal Report 11). However, this would entail a major re-write of the system and all existing ISS support resources are committed to keeping the system running and are not available for upgrade activities.

System Documentation. The existing Logbook database system is not well documented. This makes the error finding and fixing process more complex and time consuming. Programmers and consultants working on the system have to review the code throughout the entire system to insure that all components of the system are working properly and data integrity is maintained.

Operating System Compatibility. A necessary part of workstation and server maintenance includes the upgrade of operating system software (such as the migration of Windows 95 to Windows 98 to Windows 2000, etc.). These upgrades include patches that are applied to desktop and server operating systems and system-level tools. Logbook's design makes keeping current with operating system upgrades difficult. Additional maintenance activities are needed to correct problems such as replaced or missing operating system files needed by Logbook for correct operation.

Lack of System Integration. The Seismic Retrofit Program (SRP) enacted by SB 1953 is responsible for monitoring facilities' compliance efforts to conform to the mandated timelines for improving the seismic safety of California's healthcare facilities. FDD has added staff to meet the workload demands presented by the SRP and made enhancements to the existing Logbook system in an SB 1953 Module. However, productivity of the SB 1953 unit is negatively impacted by the lack of integration between the SB 1953 Module and the Logbook Tracking Module. As a result, information that needs to be shared between SB 1953 personnel and other FDD personnel is not always readily available. This is caused by the following problems:

- No automatic notification of project closure status to SB 1953.
- No automatic notification of building construction start dates to SB 1953.
- Lack of access by Plan Review and Field Staff to SB 1953 compliance status and review reports.
- Inconsistent identification schemes: The SB 1953 database uses a building identifier for tracking NPC and SPC compliance ratings of

buildings, whereas the main Logbook database uses a facility identifier as the key.

## 4.2 CURRENT SYSTEM ENVIRONMENT

A significant factor leading to the current status of the Logbook system is its database structure and the lack of integration between modules added over the years. The impact of how the Logbook evolved is seen in the difficulty staff experience in generating ad hoc reports and the fact that dual data entry is sometimes required. A brief chronology of major events in the evolution of the Logbook Tracking Database System illustrates how these problems came about:

- In the early 1990's, FDD staff set up two desktop databases for use in Sacramento and Los Angeles. The databases were used to:
  - Track building project status during plan and field review.
  - Provide information to a mainframe billing system to recover the cost of construction reviews and monitoring activities required by law.
- In the late 1990's, an effort was undertaken to merge the project tracking and billing desktop database applications.
  - The first phase moved each of the desktop applications to server based databases. A consultant was hired to help convert the tracking database to PARADOX. The billing database was converted to a Delphi database.
  - The second phase combined the PARADOX and Delphi databases in order to conform to OSHPD supported development standards of SQL-server and the VB6 language. It was decided to maintain the primary database table structures inherited from the desktop applications rather than designing a new database. This phase also combined the Sacramento and Los Angeles data into common tables and became the basis for the current Logbook architecture.
- Since 2000, ISS, FDD business analysts, and consultants have made several enhancements to the Logbook system. These include modules for the Emergency Operations Center and for monitoring hospital earthquake retrofits as required by SB 1953. Recent enhancements include referential integrity, I-Logbook (web-enabled functionality), and redesign of I-Logbook to better work with portable handheld devices such as the TREO.

The evolutionary development of Logbook has led to a complicated table structure. This complicated table structure reduces staff ability to quickly query and report from the system and results in the need for ISS to program new reports. Reports generally reflect inaccurate or incomplete data. This has led to a lack of confidence in the data recorded in the system, the growth of separate databases used by managers and staff to track project status and documentation, and a series of work-

rounds to meet staff needs. The table below shows both the main databases of the Logbook system (SQL Server) and ancillary databases that are not integrated with the main database:

**Table 4-4: Current Databases**

Type of Database	Database Name	Size	# of Projects	Description
SQL Server 2000 (SP4)	Logbook	1772 MB	70,931	Client/server Logbook
	FPS	1359 MB	34,701	Accounting
	I-Logbook	116 MB	6,719	Internet Logbook
Microsoft Access	Logmerge	217 MB	70,664	Management reports
	Pre-Approvals	2 MB	648	Track pre-approved anchorage equipment for hospital construction
	Forecasts	1.5 MB	154	Track upcoming projects and predict future revenue

The short-comings of the existing Logbook system, compounded by the enactment of SB 1953 and the previous temporary reduction of staff positions, has significantly contributed to the existing business problems.

#### **4.2.1 Expected Operational Life of a Proposed Solution**

Most parts of the proposed solution are expected to last several decades (as the current system has worked for almost two decades). Use of GPS, digital (scanning and electronic plan) technology and the core data repository are stable technologies that will be designed to provide for FDD's current responsibilities, and include design flexibility that enables simple modifications or enhancements when legislative changes become evident or when future staff bring different skills or processes to the FDD. As a result, the system is given a 20 year life when consideration is made for upgrades to hardware and software including database upgrades, operating system upgrades, security enhancements, application enhancements, and ongoing technology refreshes for desktops, laptops, remote devices, plotters, and scanners.

#### **4.2.2 System Interfaces**

There are no automated interfaces in the current Logbook system environment.

### 4.2.3 Existing Infrastructure

A centralized, automation tool<sup>13</sup> provides data collection and reporting in support of FDD's state-wide business. This tool is integral to the business processes of the FDD, is critical to the provision of services, and is necessary for the fulfillment of FDD's State-mandated responsibilities.

The automation tool, in productive use for many years, consists of a database located in Sacramento, a series of business and reporting applications, and the communications network necessary to make the data and applications available to FDD personnel working throughout the State. OSHPD maintains a secure network infrastructure with separate database authentication. Web and database servers are maintained in separate, protected DMZ's<sup>14</sup>. Additional software applications used with the Logbook system include Visual Basic 6, Crystal Report 7.0, Sheriden Data Widget 3.1 and WORD 2000.

The majority of automated applications, including the database and telecommunications networks, are supported and maintained for the business users by applications programmers, network services staff, and help desk support staff in OSHPD's Information Systems Section (ISS) and by two supervisors, three analysts, and students within FDD. The tool includes several unsupported variations and add-ons that are used to increase the productivity of the tool, to provide functionality not available through the supported tool, or to circumvent inoperative controls or access barriers.

This section describes the high-level details of the technical environment in preparation for developing FSR cost evaluations.

#### **Environment**

- **Servers:** Several servers provide central database management, internet access, network management, server-to-server data sharing, print and data routing, and other centralized services for all Logbook activities. Most servers are located in Sacramento. Those servers located in the Los Angeles office provide local services and communications support to the Los Angeles office. All servers run a current version of Microsoft Windows and/or Novel Netware operating systems.
- **Desktops/Laptops/Handheld Devices:** FDD operates about 175 desktop workstations located in OSHPD offices in Sacramento and Los Angeles. Approximately 50 laptops are used primarily by Field Staff. All workstations are generally well maintained and have current versions of most software. The oldest desktop workstations are Pentium 4 processors that operate at 1.9MHz or faster and

---

<sup>13</sup> In this case, the described automation tool is considered one part of FDD's complete "system" that is used to accomplish assigned business objectives. The other two parts are business processes and staffing skills. The automation tool is computer and technology centric. This includes all that is needed to deliver automation services, to implement business controls, and to accomplish repetitive processing for the organization.

<sup>14</sup> Demilitarized zone, a computer or small subnetwork that sits between a trusted internal network, such as a corporate private LAN, and an untrusted external network, such as the public Internet.

run the MS Windows 2000 operating system<sup>15</sup>. Other installed software includes MS Office and Internet Explorer, Novell Netware and GroupWise, Crystal Reports, and Symantec Antivirus. Workstation images are highly standardized and centrally managed with updates deployed through 'push' technology by Network Services. Approximately 75 PDAs have been assigned to Field Staff and administrative staff in the Sacramento and Los Angeles offices. These devices are used for telephone and wireless internet connections for email and web access.

- **Printers:** Printers, both black & white and color, are LAN attached in each office with drivers and connectivity centrally managed. In addition, portable and desktop printers for use in remote offices are provided to Field Staff.

The table below summarizes the current technical environment.

**Table 4-5: Current Technical Environment**

Type of Hardware	Quantity	Location	Functions	Operating System
Servers	2	Sacramento	Database Server	Windows 2000
			Web Server	Win 2003 Standard Edition
	1	Los Angeles	Local Services and Communications Support. T1 connection to Sacramento servers.	Novell 6.5
Workstations <sup>16</sup>	175 desktops 50 laptops	Sacramento, Los Angeles Field Staff	Access to OSHPD applications. Internet Access. Office Productivity Tools including MS Office, Internet Explorer, Novell Netware and GroupWise, Crystal Reports, and Symantec Antivirus.	MS Windows 2000 or MS Windows XP
Printers	10 to 15	Sacramento, Los Angeles	LAN attached in each office with drivers and connectivity centrally managed.	Not applicable
	102	Field Staff	Portable and desktop printers assigned to Field Staff.	
Handheld Devices	75 Treo <sup>®</sup> PDAs	Field Staff (52) Office Staff in Sacramento and Los Angeles	Telephone, wireless internet connection for email and web access	Palm OS

<sup>15</sup> The FDD and OSHPD are in the process of converting all PCs to Windows XP.

<sup>16</sup> Workstation images are highly standardized and centrally managed with updates deployed through 'push' technology by OSHPD Network Services.

### **Operations & Maintenance**

- Application and database operations and management (O&M) are provided by staff from OSHPD's Information Systems Section (ISS). This includes routine activities of application and database monitoring and tuning, reviewing application design specifications from FDD business analysts, application development, database administration, web administration, troubleshooting, error determination and resolution, and testing<sup>17</sup>. Activities also include resolving data access problems, and installing application and operating system releases. Some capacity planning, availability, and performance planning is conducted on an as needed basis. The later applies to some rather long application latency times experienced at the Los Angeles and 1831 9<sup>th</sup> Street offices. While some availability and performance problems are reported, in general these do not constitute serious problems for the user groups.
- Change management for the application consists of source identification (legislative, user needs, et cetera), problem identification and change initiation, some change analysis (including change alternatives costing and decision processes), a set of design specifications, code testing, and limited as-built documentation.
- Security is governed by a rigorous LAN policy that provides tight security for both Logbook applications and data. Additional security is also provided by Logbook application modules in the form of user authentication. Sacramento servers (main data stores) reside in a protected environment. Security policies are enforced by conducting security and anti-virus scans, performing security audits, patch management, and maintenance of firewalls.

### **Training**

- Technical: ISS staff receive training on current database, operating system and security technologies as identified in the ISS staff training plan.
- End-user: End user training, including training and reference materials, is available for some Logbook modules.
- System/technical documentation: very little current documentation is available.

### **Help Desk**

A help desk activity is provided through the ISS and the FDD. It includes problem logging, routing, and tracking. This activity includes assistance with establishment of connectivity and resolution of application anomalies; support of desktop and peripheral devices, desktop applications and e-mail; procurement support and asset management; management of desktop images and client software.

### **Redundancy, Backup & Disaster Recovery**

Regular backup processes including daily differentials and weekly full backups are used with off-site storage of data at a secure archive facility. Backups include data, application software, and source code. The Logbook system is considered a critical

---

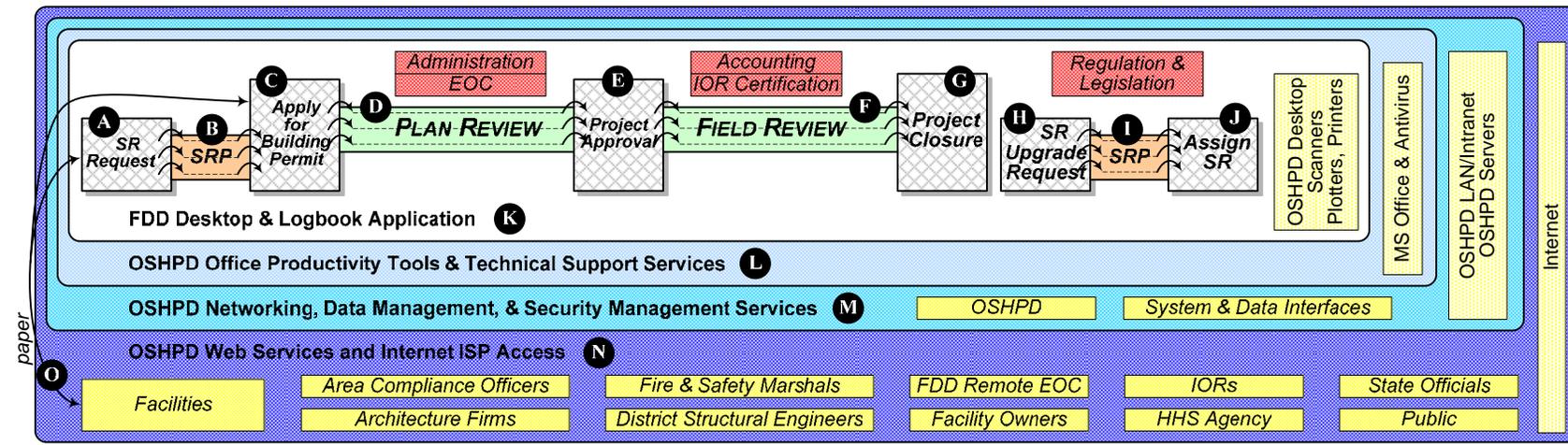
<sup>17</sup> Application design, including business requirements and technical design specifications, are developed by FDD analysts. These staff also provide desktop support for the logbook application.

application in FDD's Business Continuity Plan. Recovery strategies at the OSHPD are in place to provide single-day restoration of Logbook data and applications.

### **Application Environment**

The current system in its environment is depicted in Figure 4.2. It identifies the FDD business flow and how it operates in the OSHPD technical environment.

FIGURE 4.2: APPLICATION ENVIRONMENT



**A→B→C** Seismic Rating Request

- A Facilities request seismic rating.
- B SRP staff review and approval seismic rating requests.
- C Facilities apply for Plan Review.

**C→D→E→F→G** Plan Approval and Construction Oversight

- C Facilities apply for Plan Review. This is for all Applications for Plan Review including those that come from A and B.
- D Plan Review staff review application packet.
- E Plan Review staff issue plan approval and building permit for construction.
- F Field Review staff monitor construction compliance with State building codes and review and approve Post Approval Documents. Field Review staff issue 100% final reports, prompting project closure.
- G Regional Compliance Officer approves project closure status. Projects are closed with or without compliance. Project documents are forwarded to the FDD Archives office.

**H→I→J** Seismic Rating Upgrade Request

- H Facilities submit a request for seismic rating upgrade following construction completion.
- I SRP staff review seismic upgrade request.
- J SRP staff assign seismic rating.

**K** Desktop and Logbook Application, which includes the OSHPD standard desktop and printers.

**L** OSHPD office productivity and technical support tools, including antivirus, help desk, and GroupWise.

**M** OSHPD networking, data management and security management services. This includes system level data interfaces, OSHPD access, LAN/Internet, and server systems.

**N** OSHPD web services and internet ISP access, includes system level access for most external customers and staff.

**O** Facilities submit paper documents.

## 5 PROPOSED SOLUTION

The business functions to be addressed and the complexity of technology to be integrated into a proposed solution warrant a business-based procurement rather than a technical solution. An RFP will be developed to describe the target system to be acquired through refinement of the functional requirements identified in this FSR. Upon selection of a vendor's proposal and prior to contract signing, a Special Project Report (SPR) will be submitted to DOF updating the costs, schedule, and approach for the proposed solution. Section 5.1.8 Procurement Approach gives more detail on how the business-based procurement will be carried out.

The following options were considered for the scope of the business-based procurement to meet the objectives and functional requirements described in Section 3:

- 1 – Enhance the Existing Logbook System
- 2 – Replace the Existing Logbook System with a COTS Solution
- 3 – Replace the Existing Logbook System via Custom Development

Option 3 – Replace the Existing Logbook System via Custom Development – is the selected approach. These options and the rationale for choosing this approach are discussed in more detail in Section 5.3 Other Alternatives Considered.

In considering possible solutions to meet the functional requirements it was advantageous to view the solution in terms of its major functional components since it is unlikely that one solution will meet all of these needs. Rather, the total solution must include these distinct, yet integrated, components in order to meet the requirements of the core business functions of Emergency Operations Center activation and response, construction approval, and construction monitoring and inspection. Support functions for document archiving, cost recovery and IOR Certification functions must also be provided and integrated with the core functions. The solution components are described in the table below and in more detail in Section 5.1.

**Table 5-1: Solution Component Descriptions**

Solution Component	Description
Facilities Development Management	Performs functions of current Logbook System with added functionality to fulfill unmet needs and resolve problems
Document Management	Allows receipt, review, archiving, and retrieval of building project documentation in electronic formats

Solution Component	Description
Healthcare Structure Identification	Identification of facility and building locations using GIS technology for use in field and plan review, seismic retrofits monitoring and emergency response after seismic events.
Mobile Information Access <sup>18</sup>	Provides secure online access: <ul style="list-style-type: none"> <li>To facilities for application submission and status updates</li> <li>To support collaborative plan review</li> <li>For remote access by Field Staff</li> <li>For emergency response needs</li> </ul>

A mapping of the solution components to the business needs of FDD functional units is shown below.

**Table 5-2: Solution Components**

Solution Component	Construction Oversight/Inspection Functions				Support Functions		
	Plan Review	Field Review	Seismic Retrofit Program	EOC	Archives	Cost Recovery	IOR Certification
Facilities Development Management	X	X	X	X	X	X	X
Document Management	X	X	X	X	X		
Healthcare Structure Identification	X	X	X	X			
Mobile Information Access	X	X	X	X		X	X

<sup>18</sup> Mobile Information Access as used in the FSR will be defined as providing access to facilities and FDD remote users.

## 5.1 SOLUTION DESCRIPTION

The total solution proposed for Logbook redesign fully integrates the individual solutions described below and replaces the current system consisting of add-on modules and poorly integrated database tables through a business-based procurement as described in Section 5.1.8 Procurement Approach. This solution eliminates many of the problems caused by lack of integration between existing modules and provides additional functionality required to meet the business objectives.<sup>19</sup>

The proposed system for the FDD is planned to be housed at the Health and Human Services Data Center (HHSDC) with the document management devices (plotters and scanners) and the test environment residing at OSHPD. The proposed system will be supported by OSHPD's ISS Section. The total cost of the proposed solution is

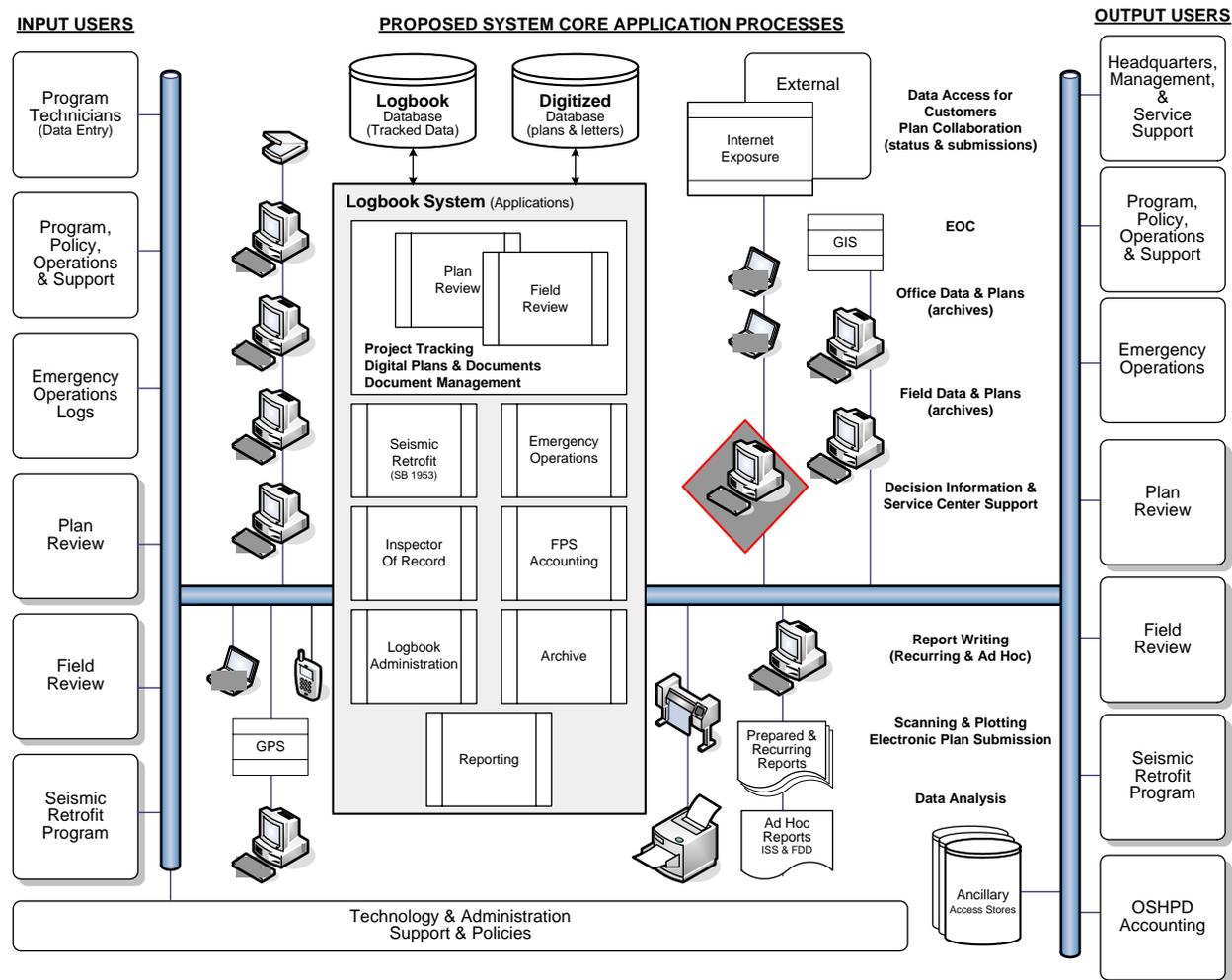
<b>One-time IT Project Costs</b>	<b>\$8.0</b>
<b>Continuing IT Project Costs</b>	<b>\$3.4</b>
<b>Total Proposed Solution costs</b>	<b>\$11.4</b>

Figure 5.1 graphically depicts the proposed FDD environment.

---

<sup>19</sup> It is possible that we will find that one or more of these components can be combined for purposes of procurement document preparation. If this will simplify the procurement process, we will do so.

FIGURE 5.1: PROPOSED ENVIRONMENT



### **5.1.1 Facilities Development Management Solution – Custom Development**

The solution for Facilities Development Management must fulfill the requirements for Plan Review, Field Review, EOC, and the SRP. In addition, it must provide the functionality necessary for the supporting functions of Archives, Cost Recovery, and IOR Certification. The essential features needed in this solution are those of the existing Logbook system with enhancements to meet unfulfilled needs and correct existing problems.

In considering the alternatives for the Facilities Development Management solution, it was found that custom development is the preferred approach. Custom development of the Facilities Development Management solution has a high probability of satisfying FDD users since existing system constraints would not apply. Screens, reports, workflow, and the database structure would be designed to meet current needs of the various FDD business functions including seismic retrofit monitoring, construction plan submission, plan review, construction oversight, and project closure. In other words, FDD would be able to define the system as it would like it to work today, rather than adapting to any undesired idiosyncrasies of an existing system or a Commercially-available Off-the-Shelf (COTS) solution. It will be of paramount importance to deploy the new system into an environment that is:

- Consistent with the OSHPD's Enterprise Technical Architecture,
- Compliant with OSHPD data standards,
- Connected to and/or shares data with other systems,
- Developed using OSHPD's standards for software development,
- Compliant with ISO security policies, and
- Operated and maintained easily by OSHPD ISS staff.

#### **Advantages**

- The most significant advantage to this approach would be meeting a significant number of FDD's business needs through a formal methodology that prioritizes those needs and selects a vendor that implements the desired solution. The customization inherent in this approach would ensure that FDD's unique business processes are addressed.
- Assuming that the approach to data conversion was sound, confidence in data integrity would be improved.
- A custom solution is more likely to fit OSHPD's information systems strategy.
- A custom solution will provide a system that is consistent with the OSHPD Enterprise Technical Architecture (ETA) and information strategy. This provides for a system that can easily be supported and maintained.

- Changes brought about by legislation or department policy are more easily accommodated in custom solutions than through modifications to a COTS package that may have been designed for a different industry domain.

### **Disadvantages**

- Training of FDD staff on a custom system may require more effort than training on enhancements to the current system. There is the potential for impacts to productivity resulting from the introduction of a new system.
- If new technology is introduced, additional skills from ISS staff may be needed.

### **Costs**

The costs of the proposed customized Facilities Development Management system are listed in the EAW contained in Section 8.

<b>One-time IT Project Costs</b>	\$3.1
<b>Continuing IT Project Costs</b>	\$1.4
<b>Total Facilities Development Management costs</b>	\$4.5

#### **5.1.2 Document Management Solution - Scanning / Accepting Digital Documents**

FDD's staff need the ability to have ready access to building plans and specifications and the correspondence related to projects both in the office and in the field in order to provide acceptable levels of customer service. During emergency responses, this need is even more critical. Even though hospitals are required to keep copies of as-built plans on hand, they may not be readily available in an emergency. Field access to electronically stored plans would solve this problem.

The current requirements state a need to track the location of both active and archived hardcopy files. A solution that takes advantage of digital technology and reduces the need to track and store hardcopy files would meet the needs of the plan review, field review, SRP, IOR Certification, Archives, and EOC by allowing multiple reviewers access to documentation simultaneously if needed.

This solution would take the form of a COTS document management system with supporting hardware. Some customization can be expected for integration with other solution components. Using a phased-in approach, facilities would be requested to submit plans, specifications, and other project documentation in digital formats instead of on hardcopy. The COTS solution would provide FDD with the capability to view and review digital files in a variety of industry standard formats. Reviewers would be able to use "layering" capabilities to annotate plans with comments that are accessible to all reviewers and to select various views of digital drawings.

For those cases where hardcopy documents were still received, FDD support staff would use the scanning technology to digitize, store, and index the documents into the Document Management System. Since most architectural firms use CAD tools to prepare building plans, it is assumed that most building plans would be received in

digital form within a short time and that the volume of manually scanned documents would be small within a short period of time.

Although not part of this solution, FDD could use the scanning technology to digitize the large amount of documentation held in archives.

### Advantages

- Since all project documentation, both scanned and digitally received, would be readily accessible, the need for filing and archiving hard-copies would be greatly reduced.
- The ability of staff to easily share documents would be improved.
- Digital documents could be viewed from multiple locations.
- The processes for receiving applications, routing, and storing plans would be streamlined.
- The growing need for physical storage of hardcopy building plans and other project documentation in FDD offices and the State Records Center would be reduced.
- Retrieval of archived electronic material would be simplified since requests for a storage box containing multiple projects would no longer be needed.
- As facilities perform upgrades to buildings over time, FDD would be able to establish a digital library of “as-built” plans for the state’s healthcare facilities.
- This option eliminates the disadvantages of a solution that only scans hardcopy plans and documentation by allowing facilities to submit documents in digital form.
- At the same time, it allows facilities to still submit hardcopy documents if needed.
- This option minimizes the need for additional staff to scan large volumes of hardcopy documents.
- With the systems redundancies planned, staff will always have access to building plans and other project documentation.
- Electronic plans would allow for quicker response for the EOC staff during a disaster.

### Disadvantages

- Additional technical staff will be needed to support integration with other applications, desktop and network connectivity, and new hardware and software.

### Costs

The costs of the proposed Document Management system are estimated in the EAW’s contained in Section 8 as follows:

<b>One-time IT Project Costs</b>	\$2.1
<b>Continuing IT Project Costs</b>	\$0.9
<b>Total Document Management costs</b>	\$3.0

### 5.1.3 Healthcare Structure Identification Solution

In order to perform the field and plan review functions, oversee seismic retrofit plans, and respond appropriately to disasters, FDD needs the capability to uniquely identify not only the location and characteristics of healthcare facilities, but in the case of acute care facilities, the location and characteristics of individual buildings and structures.

Currently, the database for the SRP identifies buildings, whereas the main Logbook database uses a facility identifier as a key. Since facilities often self-identify buildings by names or numbers that change over time, there are often inconsistencies in the database that make it hard for reviewers to be sure they are reviewing the appropriate building at a particular facility. These problems could be overcome by incorporating GPS readings for individual buildings within a facility and linking this information with other needed attributes such as the type of service performed in the building, its NPC and SPC ratings, and any project(s) affecting the building.

The only viable option to implement a Healthcare Structure Identification Solution is customization of a COTS solution with GPS mapping tools and interaction with GIS so that a database of building locations could be built and used by the building construction monitoring and inspection functions, especially for EOC operations. Integration with OSHPD's Enterprise GIS database would also be required. Without dedication of significant resources early on, it will take time to build up the GPS information for all of the healthcare facilities and buildings within FDD's domain.

#### Advantages

- A relational database including unique identifiers for facilities and buildings tied to their geographic location would make emergency responses by staff from outside of the disaster area more efficient and thus reduce the risk of loss of life resulting from affected buildings.
- A comprehensive structure identification solution would improve the effectiveness of communication between FDD and clients.
- Generation of consolidated lists of cost recovery information by facility or building for plan review, field review, and seismic retrofit will be more consistent because of the identifiers established.
- The infrastructure in the proposed solution is expandable to potentially serve other FDD and OSHPD needs (although no such needs are identified at this time).

#### Disadvantages

- Some staff may be resistant to changes in processes employing GPS technology.

#### Costs

The costs of the proposed Healthcare Structure Identification system are estimated as follows in the EAW's:

<b>One-time IT Project Costs</b>	\$1.5
<b>Continuing IT Project Costs</b>	\$0.6
<b>Total Healthcare Structure Identification costs</b>	\$2.1

#### **5.1.4 Mobile Information Access Solution**

One of the major shortcomings of existing functionality is the lack of viable remote access to project information by field reviewers and facilities alike. The application process could be made more efficient by allowing facilities to submit application forms online. The plan review process could be improved by allowing real-time collaboration between FDD and facilities. Field reviewers need remote access to project information and plans to make decisions, submit reports, and report billing codes. Facilities need the capability to check on the status of projects and to take advantage of the desired Document Management solution described earlier. Emergency responders need to quickly pull up information on facilities in a disaster area while in the field.

The proposed Mobile Information Access solution would use web-enabled technology to provide external access to information. Security for this system is the responsibility of OSHPD. User authentication is an identified requirement. HHSDC is responsible for the physical security of the servers, operating systems, and connectivity. However, OSHPD is responsible for security relating to the application (such as ports, data, access, and etc.) and all interconnectivity.

The only option considered for implementing this solution is custom development using industry standard tools and security standards and policies.

#### **Advantages**

- A system tailored to meet the remote computing needs would greatly enhance the use of the system by making information available when and where it is needed.
- Facilities would be less dependent on calls to PT's for project status.
- Relationships between the State and facilities will be improved and strengthened.

#### **Disadvantages**

- There may be additional costs incurred in implementing the secure infrastructure needed to support the use of wireless technology for Mobile Information Access capabilities.
- The speed of hand-held devices may limit their acceptance for use in the field.
- The availability of building project information to facilities could lead to requests for even more extensive information.
- HHSDC does not provide operational recovery services for servers.

#### **Costs**

The costs of the proposed Mobile Information Access solution are estimated as follows in the EAW's:

<b>One-time IT Project Costs</b>	\$1.3
<b>Continuing IT Project Costs</b>	\$0.5
<b>Total Mobile Information Access costs</b>	\$1.8

### **5.1.5 Technical Platform**

Changes to the existing technical platforms are dependent on the vendor solution selected. However, several upgrades or changes are expected including WAN upgrades, increases in bandwidth needs, security enhancements to support wireless connectivity and web-enabled access, integration with GPS technology, data storage needs, and operational recovery needs. Discussions with HHSDC were started during preparation of this FSR to identify probable upgrades and data center readiness. The upgrades to the existing OSHPD technical platform will be initiated during the design phase so that they will be in place when development begins. The upgrades will be performed by ISS resources, both current staff and requested additions as specified in Section 5.1.11.2 in coordination with the selected DD&I vendor and HHSDC. The ISS Enterprise Application Architect & Technical Coordinator and the Technical Enterprise Architect will have key roles in designing, procuring, and managing the installation of the needed upgrades to the infrastructure.

### **5.1.6 Development Approach**

The proposed solution requires customization of the Facilities Development Management and Mobile Information Access components and integration with COTS packages for Document Management and Healthcare Structure Identification. Use of OSHPD's software development methodology based on IEEE standards will be required of the systems integrator. It is also assumed that an onsite development environment will be used by the DD&I vendor with key personnel onsite at OSHPD. The development approach will also utilize the services of an independent verification and validation vendor with project oversight responsibilities to ensure that the solution is technically sound and meets FDD's business and technical requirements. A security consultant will be brought in at key points in the project to ensure that system and data security requirements and design meet State Administrative Manual, OSHPD and industry standards. The security consultant will also assist in developing an operational recovery strategy for the critical FDD application system.

In-house staff also will be directly involved in all phases of development as noted below:

- It is anticipated that OSHPD ISS technical staff will be directly involved with the integration vendor throughout the systems development life cycle. While the bulk of systems development will be the responsibility of the vendor, ISS resources will have responsibilities related to review of requirements specifications and design, implementation of the solution in OSHPD's information systems infrastructure, and for assumption of operation and maintenance of the system.
- FDD program staff and business analysts will also be directly involved with the integration vendor throughout the systems development lifecycle. Their responsibilities will include review of system specifications and requirements, participation in system design, testing, preparation of training materials and user documentation, and implementation planning.

- An FDD project director supported by the PMO and a project manager consultant will provide overall project management during development.
- The OSHPD ISO role in development includes planning for the security and operational recovery of the system. A security consultant will assist the ISO.

The roles of OSHPD staff and contractors for key project functions are summarized in Table 5-3 below. This table demonstrates the sharing of responsibilities between OSHPD and contractors for this project.

**Table 5-3: Development Roles and Responsibilities**

Function	OSHPD Role	Contractor Role
Project Management	<ul style="list-style-type: none"> <li>▪ Overall project manager</li> <li>▪ Project administration</li> </ul>	<ul style="list-style-type: none"> <li>▪ Project management support</li> </ul>
Project IV&V	<ul style="list-style-type: none"> <li>▪ Overall project oversight</li> <li>▪ Implementation of IV&amp;V recommendations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Independent project oversight and IV&amp;V services</li> </ul>
System Integration	<ul style="list-style-type: none"> <li>▪ Requirements specifications</li> <li>▪ Design Review</li> <li>▪ Software development</li> <li>▪ Software Testing</li> <li>▪ Data Center Coordination</li> <li>▪ Implementation Planning including staff and client training</li> <li>▪ Participate in development effort to ensure knowledge transfer for continued maintenance and support.</li> <li>▪ Acceptance testing</li> <li>▪ User documentation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Software development</li> <li>▪ Hardware installation</li> <li>▪ Systems integration</li> <li>▪ Software testing</li> <li>▪ Software implementation and configuration</li> <li>▪ Training of FDD and ISS staff</li> <li>▪ System and integration testing</li> <li>▪ System documentation</li> </ul>
Operational Recovery and Security	<ul style="list-style-type: none"> <li>▪ Requirements specifications</li> <li>▪ Design Review</li> <li>▪ Develop operational recovery plan</li> <li>▪ Maintain security of the application and data</li> </ul>	<ul style="list-style-type: none"> <li>▪ Security Planning</li> <li>▪ Security scans</li> </ul>

A two-phase development and implementation schedule has been deemed appropriate for the Logbook Redesign Project based on the proposed approach and anticipated scope of the effort. The first phase will implement the Facilities Development Management, Document Management, and Mobile Information Access components over approximately eighteen months. The second phase will implement the Healthcare Structure Identification component with development starting about one year after the start of Phase 1. Phase 2 is expected to take about one year. The development and implementation schedule will be revised twice: first, during the RFP development process; and second, upon contract award to the DD&I vendor, one of the initial tasks will be refinement of the project schedule based on the vendor's proposal and FDD needs. The proposed project schedule is given in Section 6.5.5.

### **5.1.7 Integration Issues**

Implementing FDD's total solution requires integration between COTS packages for Document Management and Healthcare Structure Identification capabilities with the customized Facilities Development Management system and the Mobile Information Access component. The systems integration vendor will be responsible for ensuring that all components successfully and efficiently interoperate. New or modified interfaces to the OSHPD accounting system, licensing system, and the Enterprise GIS system are also required. ISS will be responsible for assuring all solution components are integrated with OSHPD's infrastructure including network security, desktop applications, and operating systems.

### **5.1.8 Procurement Approach**

In conjunction with this FSR, OSHPD will develop an Information Technology Procurement Plan (ITPP) in accordance with Department of General Services Management Memo 03-05 to describe the overall strategy for accomplishing and managing the acquisition process according to current procurement guidelines. Because of the anticipated scope, the technologies to be integrated into the solution, and cost of this project, we expect to use a business-based procurement for the prime integration vendor. For the other contract services, competitive procurements or leveraged purchasing agreements will be used based on the procurement options available at the time and approved by DGS.

FDD and ISS resources will construct an RFP for the prime integration vendor that describes the required business functionality at a level that permits vendors to propose solutions that are consistent with OSHPD's Enterprise Technical Architecture (ETA) and that meets the objectives for Logbook redesign outlined above.

The RFP will describe the target system to be acquired through refinement of the functional requirements identified in this FSR. Development of the RFP will be a collaborative effort between the Department of General Services, HHSDC and OSHPD. FDD, ISS, and ISO with technical assistance provided by contract services will work with DGS and HHSDC to ensure that the RFP is constructed to conform to competitive procurement standards and that it includes detailed technical requirements that are traced to the FSR's business requirements. The OSHPD PMO will act as a liaison with Department of Finance and Department of General Services and the OSHPD Enterprise Application Architect & Technical Coordinator will serve as the liaison with HHSDC to foster a successful procurement.

The RFP will specify:

- The technical requirements – the anticipated integration points, data conversion responsibilities, the technical environment, development standards, and constraints,
- The implementation and/or deployment requirements — the organizational governance and compliance matters that will influence how to deploy the solution,

- The administrative requirements — the administrative requirements associated with implementation such as testing, development, and deployment criteria, and rules governing the competition
- The plan – timeline for selection and implementation of a solution, commitments for State resources, milestones, and measurements, and
- The business requirements – the business requirements associated with the operational needs of FDD, including security, data privacy, systems operations and maintenance.

Further, as part of the management and development of the procurement document, OSHPD will utilize the contract services to:

- Develop evaluation metrics and complete evaluation reports,
- Evaluate vendor responses and written proposal evaluations,
- Develop a Selection Process that minimizes agency risk,
- Provide Project Oversight Management of the Selection Process,
- Provide revisions/amendments as required by DGS during the procurement development and selection processes, and
- Deliver and conduct a walk-through of the bidder response evaluation.

The target system envisions integration of these four major components:

- Facilities Development Management,
- Document Management System,
- Healthcare Structure Identification System, and
- Mobile Information Access.

The target system must meet the business requirements listed in Section 3.4 in order to support FDD's mission to protect the lives and safety of California's citizens by ensuring sound construction of healthcare facilities in the state. To reflect the relative importance of the business requirements to FDD's operations, OSHPD will utilize a prioritization process for the detailed requirements in the RFP by first assigning relative priorities to each business functional requirement, then to the detailed requirements derived from the business requirements. This process will be driven by the business needs of FDD.

Upon approval of this FSR by the Department of Finance and approval of the ITPP by the Department of General Services, the RFP will be developed and submitted to vendors following a rigidly adhered to Acquisition Schedule. The Acquisition Schedule will generally include the following activities:

- a. Submission of RFP to potential vendors,
- b. Bidders Conference,
- c. Addendum releases if necessary as bidders identify requirements and RFP changes,
- d. Receipt of Letters of Intent and Signed Confidentiality Statements,

- e. Submission of Written Responses to bidder questions,
- f. Confidential Discussions – as necessary and with approval of the Project Sponsor,
- g. Evaluation of Responses – Administrative and Technical Reviews,
- h. Public Cost opening,
- i. Notice of Intent to Award issuance, and
- j. Services Start Date.

The Acquisition Schedule will be expanded to provide more detail in the ITPP. The high-level planned procurement timeline is shown below<sup>20</sup>:

<b>Task</b>	<b>Estimated Duration</b>
Develop RFP & Release to Bidders	9 months
Respond to Questions Confidential Discussions Receive Final Proposals	12 months
Evaluate Final Proposals Notice of Intent to Award Contract Start Date	2-3 months

Prior to contract award to the DD&I vendor, OSHPD will submit a Special Project Report (SPR) to update any changes to the cost, scope or schedule given in this FSR resulting from the selected proposal.

### **5.1.9 Technical Interfaces**

The proposed system includes several necessary technical interfaces that provide services to the FDD staff and customers, collect data from or share data with neighbor systems, and share accounting data with the OSHPD Administration Division's accounting system. The following bullets describe each of the interfaces.

- Web and intranet interface delivers the proposed systems resources to FDD and customer sites (both inside and outside the FDD domain) and receives data from FDD staff and customers. This is the primary user interface for the proposed system. Access security manages all aspects of the interface.
- GIS interface is expected to provide OSHPD and OES geographic, spatial, and geologic information and related computing services for both routine and emergency operations. This interface will take the form of the FDD system

---

<sup>20</sup> OSHPD will submit an SPR describing the selected vendor's proposed solution and any changes in the scope of work after completion of the procurement process, but prior to signing a contract.

providing GPS data for facility and building locations as well as building specific information such as NPC/SPC ratings to EGIS, the OSHPD Enterprise GIS. EGIS will provide the capability to combine the FDD system information with geologic information to be used for planning and executing building inspections after a seismic event. An interface with OES will provide ongoing updates on building safety status as inspections are completed.

- ALIRTS system interface will provide facility and building specific information used by the FDD staff. This interface may receive the ALIRTS data from the OSHPD data warehouse.
- OSHPD Administration Division's accounting system will send and receive accounting and reconciliation information with the proposed system.

#### **5.1.10 Testing Plan**

Testing of the new system and its components will require OSHPD and the vendor to plan, execute, and complete unit and system testing with oversight by the IV&V vendor. System testing will include load and performance testing to ensure that concurrent user requirements are met. Acceptance testing will include testing of all functionality for both internal and external users. Backup and recovery procedures will be tested. Test plans will follow IEEE and internal OSHPD ISS standards and will be conducted in accordance with existing test procedures. The FDD Project Manager must review and approve test results.

#### **5.1.11 Resource Requirements**

Costs for proposed resource requirements are summarized in the Economic Analysis Worksheets. Resource requirements fall into these categories: FDD staff, ISS staff, and consultants. The following sub-sections describe how these resources will be used on the project and for continuing support.

##### **5.1.11.1 Facilities Development Division Resources**

FDD will provide internal resources for the Logbook Redesign Project who will be active participants during procurement and who will be part of the project management team for the systems design, development, and implementation phase. The roles of Project Director, Project Coordinator, Functional Program Leads and Business Analyst/Data Managers will be filled by FDD staff. The general project management responsibilities that will be performed by the Project Director and Project Coordinator are described in Section 6.5.4 Roles and Responsibilities. Functional Program Leads representing multiple disciplines will be drawn from administration, plan review, field staff, and program technician staff. These personnel and the two Business Analyst/Data Managers will be actively involved throughout all phases of the project. The tasks to which they will be redirected for the duration of the project and their roles after implementation are summarized in the tables below. FDD staff will also be redirected to perform one-time project related tasks such as key entry of data into the new system for information not in existing databases; for example, GPS component data.

**Table 5-4: Functional Program Leads**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	
Represent needs of program area during procurement Assist in development of functional requirements specifications Assist in development of evaluation criteria Review RFP Evaluate Bidder Proposals	Lead functional program team during requirements phase. Review requirements document Identify business process changes	Lead functional program team during design phase. Participate in design review sessions Review General Design Document Review Detailed Design Document	Lead functional program team during development phase Review test plans, test results Review Training Plans	Lead functional program team during implementation phase Coordinate functional area implementation /rollout activities Review user documentation Participate in training of FDD program staff Participate in Acceptance Testing Document business process changes	System User (All) Document Scanning and Indexing (PTs)

**Table 5-5: Business Analysts/Data Managers**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	
Assist in development of functional requirements specifications Assist in development of evaluation criteria Review RFP Evaluate Bidder Proposals	Review requirements document	Participate in design review sessions Review General Design Document Review Detailed Design Document	Review test plans, test results Assist in acceptance test design Assist in developing Training Plans	Assist in implementation planning Review user and system documentation Receive training needed for first line support and reporting Participate in Acceptance Testing Document business process changes	Perform Data Management tasks Perform business analysis for evolving needs Provide user training and first line system support Develop queries and reports

### 5.1.11.2 Information Systems Section Resources

The Information Systems Section will provide technical assistance and support to the Logbook Redesign Project during system procurement, design and implementation, and ongoing maintenance and operations. ISS currently provides FDD with network and help desk support and applications maintenance for the Logbook system. ISS resources will continue to perform these functions during the development of the replacement system. In addition, they will assist in the procurement phase by providing research and advice to the Project Team during procurement, design and implementation for areas such as application integration, infrastructure design, technical reviews, security, storage considerations, operational recovery design and support, and testing. Upon retirement of the existing Logbook system, applications programmers will be redirected to provide support for the replacement systems. Networking and Help Desk support services likewise will continue for maintenance and operation of the existing system during development of the replacement system and will then be redirected to maintenance and support of the new system upon its implementation.

The level of support needed from ISS will increase upon initiation of the procurement phase of the project and require additional resources. This is due to the high level of support provided by existing applications programmers, network and help desk support staff in order to keep the current technically obsolete and difficult to maintain Logbook system operational.

OSHPD will redirect two PYs to fulfill the one-time and ongoing needs for ISS support for the Logbook Redesign Project. The following additional ISS positions have been identified to provide the additional services needed during the procurement and development of the system and its ongoing maintenance and operation:

- Senior Programmer Analyst (Specialist) – Enterprise Application Architect & Technical Coordinator. This position will fill the role of ISS Technical Coordinator on the Logbook Redesign Project Team as outlined in Section 6.5.4 and serve as the high level technical lead coordinator all technical aspects of the project. In addition, this position will oversee all application development functions from requirements definition through maintenance and support and ensure consistency with OSHPD application, data, and Web standards.
- Senior Information System Analyst (Specialist) – Technical Enterprise Architect. This position will provide technical support throughout the development lifecycle to ensure integration of solution components with the existing OSHPD computing and security infrastructure by performing research, systems analysis, design and configuration of the technical infrastructure to support and provide reliable and secure connectivity and access. Integration of the document management, workflow automation, wireless accessibility and interfaces with GIS will be additional responsibilities.

A BCP requesting one additional PY to coincide with the beginning of the DD&I phase of the project will be submitted for the 2006/07 fiscal year.

- Staff Information System Analyst (Specialist) – Help Desk Support. This position will participate in the development lifecycle by performing research and reviews, installing and configuring software and hardware, and testing support. Ongoing help desk support will be provided for system problem identification and resolution for hardware and software supporting document management and remote wireless devices. Other responsibilities include applying patches, upgrades and maintenance, inventory tracking, licensing, and purchasing support.

The tasks to be performed by these additional ISS resources during the Procurement, Design, Development and Implementation Phases, and for On-going support are shown in the tables below.

**Table 5-6: Enterprise Application Architecture & Technical Coordinator**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	
<p>Lead technical team during procurement phase</p> <p>Coordinate all HHSDC activities. Serve as a liaison with HHSDC technical, management and administrative staff.</p> <p>Oversee extraction of current business rules and program code from the legacy application</p> <p>Coordinate development of application, database, integration and interface requirements and technical specifications</p> <p>Review RFP</p> <p>Evaluate Bidder Proposals</p>	<p>Lead technical team during requirements phase.</p> <p>Coordinate all HHSDC activities and serve as HHSDC liaison</p> <p>Identify all HHSDC requirements</p> <p>Work with network administrators, system developers and HHSDC technical staff to define interface requirements between application components and network, desktop, security, operating system and other existing infrastructure components</p> <p>Review requirements document</p>	<p>Lead technical team during design phase.</p> <p>Coordinate all HHSDC activities and serve as HHSDC liaison</p> <p>Identify all HHSDC design issues</p> <p>Identify, coordinate, monitor all HHSDC tasks and integrate with project schedule</p> <p>Coordinate the procurement and installation of HHSDC technical components</p> <p>Coordinate technical activities with DD&amp;I technical team</p> <p>Coordinate infrastructure upgrade activities with OSHPD technical staff and integrate with project schedule</p> <p>Review Design Document</p>	<p>Lead technical team during development phase</p> <p>Coordinate the installation, testing and integration of HHSDC technical components</p> <p>Coordinate technical activities with DD&amp;I technical team</p> <p>Coordinate and test all system interfaces</p> <p>Track application and integration problems and change requests</p> <p>Oversee development activities. Review test plans, test results, application code, data models and other technical documentation</p> <p>Assist in most complex programming tasks</p>	<p>Lead technical team during implementation phase</p> <p>Coordinate all HHSDC activities and serve as HHSDC liaison</p> <p>Oversee initial client support: assess support requirements &amp; work closely with ISS sections to ensure users have tools &amp; skills necessary to use their systems.</p> <p>Coordinate, test and troubleshoot application, interface and integration components</p> <p>Track system defects and change requests</p> <p>Review all system and user documentation</p> <p>Coordinate support of all implementation and rollout activities</p> <p>Coordinate training of OSHPD technical staff on support and maintenance of new system</p>	<p>Plan, staff &amp; assign maintenance activities and coordinate the involvement of ISS technical specialists, vendors, and contract personnel</p> <p>Oversee administration, monitoring and troubleshooting of web servers</p> <p>Work with ISS specialists, HHSDC staff, and technical consulting staff to resolve operational problems or support issues</p> <p>Ensure database system quality, resolve data access problems.</p> <p>Monitor and Identify systems integration conflicts. Identify and initiate actions to implement required fixes and perform the most complex system integration programming tasks.</p>

**Table 5-7: Technical Enterprise Architect - Senior Information Systems Analysts (Specialist)**

Procurement	Design, Development and Implementation				On-going
	Requirements	Design	Development	Implementation	Maintenance and Support
<ul style="list-style-type: none"> <li>• Perform complex systems research, analysis &amp; planning to define network enterprise architecture, infrastructure, and interface requirements for RFP.</li> <li>• Research specifications and review industry best practices to prepare the security design of the network infrastructure technology components to adhere to industry and OSHPD's security standards.</li> <li>• Coordinate security consultant activities</li> </ul>	<ul style="list-style-type: none"> <li>• Participate in requirements sessions and define network enterprise architecture, infrastructure, and interface requirements</li> <li>• Review and approve all requirements documents</li> <li>• Work with ISO and other ISS technical specialists to prepare and/or update policies, procedures, diagrams, and documentation for the network, security and communications</li> </ul>	<ul style="list-style-type: none"> <li>• Design and document systems upgrades and patching of the network infrastructure components (hardware and software) to support the Logbook Redesign System (routers, hubs, switches, security and firewall components).</li> <li>• Work with network &amp; communications vendor (SBC), other third-party vendors, the OSHPD ISO, and other ISS and HHSDC technical experts to identify</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare, review and coordinate activities for the Project Plan for the Enterprise Architecture requirements. Schedule and monitor technical tasks to integrate with overall project plan and prepare Change Control documents</li> <li>• Configure and install all required hardware and software infrastructure updates or configuration changes required to meet business and</li> </ul>	<ul style="list-style-type: none"> <li>• Research, analyze, design, test, define and coordinate the installation, configuration, testing, and implementation of the mobile information access components</li> <li>• Review system administration and user documentation</li> <li>• Perform security scans of all system components</li> <li>• With ISO to integrate backup, recovery, security and disaster recovery operations and procedures into the Office's operational</li> </ul>	<ul style="list-style-type: none"> <li>• Provide highest-level technical support by handling the resolution of the most complex technical problems with hardware (desktops, laptops, scanners, handheld devices, wireless components, etc.), and software (Internet Browsers, etc.) and security or systems patches</li> <li>• Coordinate technical Help Desk calls with SBC, other third-party vendors, ISS and HHSDC subject matter experts to identify and resolve complex network, communication, capacity, and bandwidth technical issues</li> <li>• Maintain and support the operation and backup of FDD's Emergency Operations Center (EOC). Perform recovery tasks to make the EOC operational in the event of an emergency.</li> <li>• Manage and monitor communications, protocols, LAN/WAN performance, UPS devices, batteries, cabling systems, power panels/circuits, a/c, to support network and communication components</li> <li>• Maintain, develop, and support backup, bandwidth, power, storage and server capacity plans</li> <li>• Conduct, review, analyze, verify and</li> </ul>

Procurement	Design, Development and Implementation				On-going
	Requirements	Design	Development	Implementation	Maintenance and Support
<ul style="list-style-type: none"> <li>Ensure compliance to audit, quality, and security standards during design, development &amp; testing. Define security vulnerabilities, assess risk and determine mitigation strategies</li> </ul>	<ul style="list-style-type: none"> <li>enterprise architecture</li> <li>Define security vulnerabilities , conduct risk assessment and planning</li> <li>Define backup, recovery, and disaster recovery requirements</li> </ul>	<ul style="list-style-type: none"> <li>hardware and software procurement needs for infrastructure installations and upgrades</li> <li>Ensure compliance to audit, quality, and security standards</li> <li>Review and approve Design Document</li> </ul>	<ul style="list-style-type: none"> <li>security requirements</li> <li>Track , monitor &amp; troubleshoot infrastructure problems and change control items</li> </ul>	<ul style="list-style-type: none"> <li>recovery plan and FDD's Emergency Operations Center plan</li> <li>Participate in DD&amp;I vendor training on on-going maintenance and support</li> </ul>	<ul style="list-style-type: none"> <li>report results of security scans to identify vulnerabilities. Plan, review, analyze, coordinate, manage and report on all aspects of the Security Technical Infrastructure</li> <li>Perform the most technically complex tasks in support of the security technology infrastructure. Define security vulnerabilities, assess risk and determine mitigation strategies</li> <li>Monitor, evaluate, and review configuration to ensure servers, routers, hubs, switches, modems, are protected from unauthorized users. Work with ISO to grant and assign rights and monitor access to systems</li> <li>Ensure configuration management standards are adhered to by tracking and documenting changes of installation techniques, and installation of upgrades and new technologies</li> </ul>

**Table 5-8: Help Desk Technical Operations Support- Staff Information Systems Analyst (Specialist)**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	Support
	<ul style="list-style-type: none"> <li>• Research &amp; define requirements for remote and wireless computing devices and software.</li> <li>• Research &amp; define requirements for FDD client installation objects and images for hardware and software application components (GIS, Database, document management, applications, etc.) for local and remote devices to support the new systems and for updates &amp; patches</li> <li>• Review requirements documents and ensure compatibility with supported desktop, laptop &amp; remote device hardware</li> </ul>	<ul style="list-style-type: none"> <li>• Install, configure, test, &amp; deploy remote &amp; wireless computing devices &amp; software.</li> <li>• Research and define requirements for document management scanners &amp; plotters. Ensure compatibility with network protocols &amp; standards</li> <li>• Develop Help Desk procedures to support the Logbook system for laptop, desktop, hand-held devices &amp; remote devices</li> <li>• Research, identify, plan &amp; conduct the procurement of hardware &amp; software and provide asset management (track hardware and software inventory, licenses, maintenance and warranties).</li> <li>• Research &amp; define requirements for FDD</li> </ul>	<ul style="list-style-type: none"> <li>• Install, configure, test &amp; deploy drivers for document management scanners &amp; plotters. Ensure compatibility with network protocols and standards</li> <li>• Develop Help Desk procedures to support the document management system components</li> <li>• Install, configure, create, test &amp; deploy FDD client installation objects and images for hardware and software application components (GIS, Database, web access, applications, etc.) for local &amp; remote devices to support the new systems &amp; for updates and patches.</li> <li>• Research, identify, plan &amp; conduct the procurement of documents</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor &amp; Troubleshoot laptop, desktop, hand-held devices and remote devices</li> <li>• Monitor &amp; Troubleshoot client installation objects and images for hardware and software application components</li> <li>• Develop procedures to support the document management system components</li> <li>• Install, configure, create, test and deploy FDD client installation objects and images for document management components</li> <li>• Log, track,</li> </ul>	<ul style="list-style-type: none"> <li>• Provide 1st tier technical support for all System helpdesk calls. Log, track, monitor, and schedule all helpdesk requests. Provide triage and initial troubleshooting and elevate requests to the appropriate level of technical support</li> <li>• Provide technical support for remote and wireless computing devices and software.</li> <li>• Maintain, provide user assistance, troubleshoot and resolve problems with document management scanners, plotters and desktop software.</li> <li>• Maintain, provide user assistance, troubleshoot and resolve problems with client software images and objects.</li> <li>• Research, configure, deploy, &amp; maintain anti-virus, inventory, security, version upgrades and performance enhancements for computer hardware and software services.</li> <li>• Identify, plan &amp; provide procurement support for desktop, remote device,</li> </ul>

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	Support
	and remote devices <ul style="list-style-type: none"> <li>• Research &amp; identify on-going support requirements</li> </ul>	client installation objects and images for hardware and software application components	management components (plotters, scanners, desktop software and drivers)	monitor, and schedule all helpdesk requests during system implementation and rollout	scanner, plotter and other hardware and software updates. <ul style="list-style-type: none"> <li>• Browser support &amp; compatibility</li> </ul>

### 5.1.11.3 Consultant Resources

The proposed solution requires assistance from contractors to augment state staff.

- Shooting Star Solutions, LLC is currently contracted to provide these services:
  - Project management support vendor to provide guidance, direction and continuity to the FDD project manager across all project phases,
  - Procurement assistance vendor to define procurement specifications and RFP documents.
- Additional consultant support to be procured includes the following:
  - Project Management vendor to manage the systems design, development, and implementation phase of the Logbook Redesign Project. Project Manager Responsibilities are also described in Section 6.5.4 Roles and Responsibilities.
  - IV&V and Independent Project Oversight vendor to provide oversight of procurement, design, development and deployment of the technical solution.
  - Security consultant for requirements development during the procurement phase, design, development, testing and implementation of security requirements.
  - Systems integration vendor(s) to provide software development and testing to deliver the required functionality and ensure that all components are successfully integrated.

Tasks to be performed by each consultant during the Procurement, Design, Development and Implementation phases and for On-going support are shown in the tables below.

**Table 5-9: Security Consultant Tasks by Project Phase**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	
<ul style="list-style-type: none"> <li>• Develop RFO Security requirements</li> <li>• Evaluate existing security policies, procedures and standards</li> <li>• Define updates to existing security policies and standards for wireless and document management components of the system</li> <li>• Develop RFP section related to security</li> <li>• Develop evaluation criteria for security requirements</li> <li>• Review RFO</li> <li>• Evaluate Bidder Proposals</li> <li>• HHSDC security coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Define security requirements</li> <li>• Design Security Logs and audit trails</li> <li>• Risk assessment / risk mitigation strategies</li> <li>• Review requirements document</li> <li>• Review security policies and procedures</li> <li>• Revise existing security policies and procedures</li> <li>• Develop Wireless Security policies, procedures and standards</li> <li>• Begin Operational Recovery Planning: identify backup schedule, redundancy and system restoration needs</li> <li>• Develop Security Test Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Review Design Document</li> <li>• Security requirements traceability: ensure security requirements are incorporated into the design of the system</li> <li>• Risk Assessment: Identify security strategies for reducing vulnerabilities associated with the system design</li> <li>• Coordinate system security with HHSDC, begin discussions with HHSDC ISO to identify HHSDC security risks</li> <li>• Identify any new requirements related to new vulnerabilities, new laws, or changes in technology</li> <li>• Define Test Cases</li> </ul>	<ul style="list-style-type: none"> <li>• Risk Assessment</li> <li>• Security requirements traceability: ensure security requirements are built into the system</li> <li>• Develop test scripts and test data</li> <li>• Review unit test results</li> <li>• Conduct system security testing</li> <li>• Evaluate security test results</li> <li>• Update ORP</li> <li>• HHSDC and OSHPD Security Scan (infrastructure security readiness)</li> <li>• Wireless field tests</li> </ul>	<ul style="list-style-type: none"> <li>• Security requirements traceability: ensure security requirements are built into the system</li> <li>• Security Acceptance Testing</li> <li>• Publish any revised or new security policies or procedures, and provide training</li> <li>• Security Scan of HHSDC infrastructure and application components</li> <li>• Work with HHSDC and OSHPD technical staff to resolve any security issues</li> </ul>	<ul style="list-style-type: none"> <li>• On-going risk assessment.</li> <li>• Review security logs and audit trails.</li> <li>• Quarterly scanning of HHSDC and OSHPD infrastructure and application components</li> <li>• On-going coordination with HHSDC ISO</li> <li>• Annual Operation Recovery Plan.</li> <li>• Security testing of major revisions and version releases.</li> </ul>

**Table 5-10: Procurement and Project Management Assistance by Project Phase**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	
<ul style="list-style-type: none"> <li>• Develop Procurement Plan (ITPP)</li> <li>• Coordinate efforts of FDD,ISO, and ISS resources to develop requirements for DD&amp;I vendor RFP</li> <li>• Develop the procurement document, including proposal evaluation criteria, through coordination with OSHPD and DGS</li> <li>• Maintain the procurement schedule</li> <li>• Support proposal scoring</li> <li>• Provide project management support and guidance</li> </ul>	<ul style="list-style-type: none"> <li>• Review Detailed Requirements Specifications for conformance to FSR and RFP</li> <li>• Provide support and guidance for management of project schedule, risk, change, and communications</li> </ul>	<ul style="list-style-type: none"> <li>• Review System Design Document</li> <li>• Provide project management support and guidance for management of schedule, risk, communications, and change</li> </ul>	<ul style="list-style-type: none"> <li>• Review key System Development documentation</li> <li>• Review System Test Plan</li> <li>• Provide project management support and guidance for management of schedule, risk, communications, and change</li> </ul>	<ul style="list-style-type: none"> <li>• Review Acceptance Test Plan and Environment Readiness Assessment</li> <li>• Review Implementation Plan</li> <li>• Provide project management support and guidance for management of schedule, risk, communications, and change</li> </ul>	

**Table 5-11: Project Management Consultant Tasks by Project Phase**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	
	<ul style="list-style-type: none"> <li>• Develops and maintains the Integrated Project Plan for FDD, ISS, ISO, DD&amp;I vendor, IV&amp;V vendor</li> <li>• Develops and executes the Project Management Plan and subsidiary plans for management of scope, cost, schedule, resources, risk, etc.</li> <li>• Reports project status to Project Director, PMO</li> <li>• Manages traceability of detailed requirements to RFP</li> <li>• Reviews project team and DD&amp;I vendor workplans and deliverables</li> </ul>	<ul style="list-style-type: none"> <li>• Maintains the Integrated Project Plan, Project Management Plans</li> <li>• Coordinates project team design review</li> <li>• Reports project status to Project Director, PMO</li> <li>• Manages requirements traceability of design to detailed requirements</li> <li>• Reviews project team and DD&amp;I vendor workplans and deliverables</li> </ul>	<ul style="list-style-type: none"> <li>• Maintains the Integrated Project Plan and Project Management Plans</li> <li>• Coordinates activities of project team during system development</li> <li>• Reports project status to Project Director, PMO</li> <li>• Manages traceability of test plans to requirements</li> <li>• Reviews project team and DD&amp;I vendor workplans and deliverables</li> </ul>	<ul style="list-style-type: none"> <li>• Maintains the Integrated Project Plan and Project Management Plans</li> <li>• Oversees development and execution of implementation plan</li> <li>• Reports project status to Project Director, PMO</li> <li>• Reviews project team and DD&amp;I workplans and deliverables</li> </ul>	<ul style="list-style-type: none"> <li>• Performs project close-out</li> <li>• Conducts post-implementation evaluation</li> </ul>

**Table 5-12: DD&I Vendor Tasks by Project Phase**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	
<ul style="list-style-type: none"> <li>Respond to RFP</li> </ul>	<ul style="list-style-type: none"> <li>Work with Project Manager to define work breakdown structure and schedule for system component development and implementation</li> <li>Develop detailed technical requirements specifications for all system components</li> <li>Report status, issues, and risks to the Project Manager</li> <li>Provide updates to the Integrated Project Plan</li> </ul>	<ul style="list-style-type: none"> <li>Conduct application design sessions</li> <li>Develop system design specifications for review and approval by FDD, ISS, and ISO according to project schedule</li> <li>Conduct design reviews</li> <li>Prepare integration plan</li> </ul>	<ul style="list-style-type: none"> <li>Code and test system components</li> <li>Develop and execute system test and integration test plans</li> <li>Report test results</li> <li>Prepare system documentation for turnover to OSHPD ISS</li> <li>Develop training plan for each system component</li> </ul>	<ul style="list-style-type: none"> <li>Prepare training materials and support user training</li> <li>Determine environment readiness</li> <li>Perform roll-out activities</li> </ul>	<ul style="list-style-type: none"> <li>Perform system maintenance during warranty period</li> </ul>

**Table 5-13: IV&V and Independent Oversight Tasks by Project Phase**

Procurement	Design, Development and Implementation				On-Going
	Requirements	Design	Development	Implementation	
<ul style="list-style-type: none"> <li>• Conduct reviews to ensure sound procurement management practices are established and followed</li> <li>• Maintain the requirements traceability matrix to ensure procurement document requirements map to FSR</li> <li>• Support evaluation of proposals traceability to RFP requirements</li> <li>• Perform risk management reviews</li> </ul>	<ul style="list-style-type: none"> <li>• Continue project planning reviews and perform project tracking reviews (schedule, cost, change, resources, etc.)</li> <li>• Conduct requirements management reviews</li> <li>• Evaluate requirements specifications against standards</li> <li>• Trace detailed requirements to RFP requirements</li> <li>• Review requirements phase deliverables</li> <li>• Perform risk management reviews, including technical risks</li> <li>• Provide Independent Project Oversight</li> </ul>	<ul style="list-style-type: none"> <li>• Continue project planning reviews and project tracking reviews</li> <li>• Participate in design reviews to verify design practices meet standards and best practices and that design conforms to requirements</li> <li>• Verify effectiveness of change management processes</li> <li>• Evaluate the general system design</li> <li>• Participate in design reviews</li> <li>• Perform risk management reviews, including technical risks</li> <li>• Provide Independent Project Oversight</li> </ul>	<ul style="list-style-type: none"> <li>• Continue project planning reviews</li> <li>• Continue project tracking reviews</li> <li>• Participate in code reviews</li> <li>• Evaluate software test plans and results</li> <li>• Trace test results to requirements</li> <li>• Perform risk management reviews, including technical risks</li> <li>• Provide Independent Project Oversight</li> </ul>	<ul style="list-style-type: none"> <li>• Continue project planning reviews</li> <li>• Continue project tracking reviews</li> <li>• Review training plans</li> <li>• Review implementation plan</li> <li>• Verify user acceptance and sign-off</li> <li>• Verify equipment readiness for implementation</li> <li>• Review system maintenance and operations plans</li> <li>• Perform risk management reviews, including technical risks</li> <li>• Provide Independent Project Oversight</li> </ul>	<ul style="list-style-type: none"> <li>• Submit final IV&amp;V report</li> <li>• Perform Close-out reviews</li> </ul>

### **5.1.12 Training Plan**

Training of FDD staff and external customers is an essential part of the proposed solution. The DD&I vendor will be required to develop a Training Plan which will identify a strategy and approach for training all FDD staff on the new system and to provide training materials. Training will include a series of initial training sessions as each system component is made available to FDD and OSHPD staff. These initial sessions are planned for both Northern California and Southern California for each project implementation phase. The training plan will also include ongoing training after the system is implemented so that staff who change responsibilities or new staff are properly trained to use the relevant system components.

In addition, a strategy for assisting FDD customers to effectively utilize the features of the new system will also be developed and implemented. This will most likely take the form of instruction bulletins and help text for web users.

Technical training for ISS staff will address the development, maintenance, and user administration skills needed to support the new system and include knowledge transfer as needed to be provided by the systems integration vendor.

### **5.1.13 Ongoing Maintenance**

Ongoing maintenance encompasses:

- ISS labor for system operation and maintenance,
- Periodic system modifications needed to keep current with building code and regulations changes,
- Hardware upgrades,
- Software licenses,
- Data Center services for hardware and software located at HHSDC, and
- Maintenance charges for COTS package support.

The cost of these services is discussed in Section 5.1.24, *Costs and Benefits*, and in Section 8, *Economic Analysis Summary*.

### **5.1.14 Information Security**

Because the proposed solution includes remote access to FDD data and possibly proprietary client information, information security is a key component of the proposed solution. The OSHPD ISO will be involved in all phases of the project and, with adequate security consultant resources, will develop security requirements for the system, conduct security risk planning and analysis, review applicable project deliverables, perform security scans of the system, and conduct testing for security requirements. OSHPD maintains a security infrastructure that adheres to the requirements of the State Administrative Manual, industry best practices and HIPAA security standards. A major investment in security assessments, updates and improvements was made as part of the Medical Information Reporting for California (MIRCal) system that collects confidential patient data. Because OSHPD maintains an

integrated LAN/WAN infrastructure, this level of security is enforced on all Information Technology systems and data. OSHPD's security infrastructure is rigorously maintained, tested, patched and kept current. The proposed solution builds upon OSHPD's secure environment and includes these specific security provisions:

- Appropriate firewall,
- Two-factor user authentication with the use of tokens that provides data access and functionality based on user rights profiles,
- Front to Back audit trails providing details of all database transactions to ensure data integrity and accountability,
- Web security requirement including secure transmission using security certificates,
- Encryption of sensitive data during transmission; and
- Application security requirements including multi-level access control to the application.

#### **5.1.15 Confidentiality**

Confidentiality of client proprietary information will be assured through the two-factor user authentication process that will only let a facility see information for their own projects and prevent facility users from seeing information restricted to FDD users.

#### **5.1.16 Impact on End Users**

A business based information systems solution has been proposed that will result in a significant benefit to FDD customers, the general public, and FDD business users as a result of the proposed solution.

- FDD clients will benefit, because the proposed solution will improve services to FDD's customers by taking advantage of current technology and by providing FDD staff with the tools they need to be more effective. FDD clients will be better informed of project statuses and information via an enhanced web-interface. Additionally, the proposed solution will better position FDD to assist facility seismic compliance efforts by improving the monitoring and tracking functions between the Logbook modules.
- The general public will benefit, because the proposed solution will position FDD to fulfill its mission to ensure the structural safety of facilities, especially before, during, and after a seismic event.
- FDD business users will benefit, because the proposed solution will provide needed business process and tool enhancements to maintain service levels in an increasingly complex environment. The impact will be significant, because the proposed solution will advance the tools to current technological standards and streamline the business processes. Staff skills will be redirected to better support client and FDD needs. The proposed solution will provide better management controls and reporting capabilities that will allow more effective management of FDD resources.

The benefits to FDD staff and its customers include:

- Improved tools for monitoring the structural safety of facilities before, during, and after seismic events
- Better means of coordinating emergency response between the EOC and OES
- Improved business processes and tools to maintain customer service objectives
- Better management controls and reporting capabilities to support management of FDD resources
- Improved services to customers through the use of current technology
- Enhanced project status information readily available to clients and FDD staff
- Reduction of the dependence on stand-alone databases for reviews
- Improvements to business processes through the use of appropriate technology to readily share project plans and data.

The implementation of the proposed solution will result in some changes to business processes and the re-alignment of staff responsibilities to support these changes.

- Currently PTs are required to perform many tasks that result in duplication of processes that are performed by both management and field staff from their home offices. The majority of these tasks consists of staff time management processes and project status data entry to the existing logbook system. The proposed system would address removing the redundancies in receipt of project application and plan review submittals that are performed by both office PT staff and plan review staff. This would minimize delays in initial receipt and input of project information. As facilities adapt to submitting applications and digital plans through the web interface, the role of PTs will evolve to be more oriented to providing support to the facilities to perform these tasks rather than “chasing paper” and key data entry. The proposed solution will provide for 3 PY efficiency in PT workload. These PY’s savings will be redirected to scanning and indexing hardcopy plans and documents into the Document Management System.
- Plan Review Staff will be able to simultaneously view plans on screens rather than routing large hardcopy plans from person to person. At the same time, the proposed solution will accommodate staff who are not responsive to change by allowing the submittal of hardcopy reports as well as electronic submissions. To address these and other changes, the RFP will include detailed training requirements to address the needs of FDD staff and its customers.
- Construction Oversight Staff currently spend on average one workday a week per person at their home offices preparing required project reports, completing weekly timesheets, and either inputting information into Logbook via RAS dial-up access or faxing documents to the PT’s to have them enter information into Logbook. The proposed solution will provide the Construction Oversight Staff the ability to complete reports electronically and interface with the Logbook while in the field. Staff will no longer have to complete manual reports and reenter the

report data into Logbook, nor will there be a need for the use of PT's to enter information for the Construction Observation Staff. The staff time saved as a result of the solution (estimated efficiency of 13.2 PY) will be redirected back into Construction oversight activities to increase the number of open projects visited during a calendar quarter.

#### **5.1.17 Impact on Existing System**

Data in the existing system will be converted to the new database. The existing Logbook and its ancillary stand-alone databases will be retired upon implementation of the new system. ISS staff currently allocated to maintaining the retired system will be re-directed to support the system. The new system adds many degrees of complexity, including document management, electronic transmission of plans, mobile information access, GIS, GPS and electronic interfaces with other OSHPD systems. It is anticipated that this technologically complex environment can be supported with minimal additions of OSHPD technical resources (refer to section 5.1.11.2 – *Information Systems Section Resources*).

#### **5.1.18 Consistency with Overall Strategies**

The proposed solution is consistent with the overall FDD strategy specified in the OSHPD Agency Information Management Strategy (AIMS), December 2003. By supporting process improvements and enhancing staff efficiency, FDD's ability to meet performance goals including review timelines will be enhanced through implementation of the proposed solution. The proposed solution will allow FDD to measure the effectiveness of its operations in meeting its mission and communicate this information to appropriate organizations.

#### **5.1.19 Impact on Current Infrastructure**

Wide screen monitors for viewing digital plans, scanners, plotters, and handheld GPS devices will be added to the existing infrastructure. Current desktops, PDAs, and laptops may need to be upgraded to support the selected software. Storage to handle graphic images, security to protect data during wireless transmissions, and telecommunications bandwidth will also be impacted by the proposed solution. Telecommunications and network infrastructure components are expected to be expanded to handle increased traffic between Los Angeles and Sacramento and to support wireless remote connectivity.

#### **5.1.20 Impact on Data Centers**

There will be moderate impact on HHSDC. The proposed solution uses HHSDC services that are currently supported. OSHPD began discussion with HHSDC at the early planning phases of this project. Requirements specific to the housing and operation of system components at HHSDC will be developed in cooperation with HHSDC during the RFP process. The proposed technical lead will serve as a liaison with HHSDC and coordinate all project activities related to housing the system at HHSDC. This is a model that has been used successfully in past projects and ensures

communication, cooperation and coordination between OSHPD and HHSDC. Additionally, OSHPD will request that HHSDC assign a project manager to support this effort.

#### **5.1.21 Data Center Consolidation**

At this time the consolidation effort is not considered a major risk. However, in the event that HHSDC is not able to support to the project due to technical or resource conflicts, OSHPD is prepared to maintain the system locally until HHSDC is able to host the system. OSHPD maintains a mature, secure, and stable network, web and applications infrastructure. Capacity exists within the OSHPD LAN room to house the servers. The backup, web and communications capacity would be adequate to support the proposed system. In the event that HHSDC could not house the system, ISS resources allocated to HHSDC related activities would be re-directed to supporting the system locally.

#### **5.1.22 Backup and Operational Recovery**

The selected vendor(s) will be required to include backup and recovery processes in their proposals. HHSDC will perform backup and recovery of systems housed there. However, OSHPD will plan and provide for the operational recovery of all proposed solution components.

#### **5.1.23 Public Access**

General Public access will continue to be provided through the FDD web-site (<http://www.oshpd.ca.gov/fdd/>) where general information on FDD operations is provided. Facility responsible parties for hospital and long term care construction projects will be provided access to submit applications and view their project status via a User-ID and password controlled area of the FDD web-site.

#### **5.1.24 Costs and Benefits**

The costs for the proposed solution are detailed in the Economic Analysis Worksheets in Section 8. The total one-time implementation cost for the proposed solution is estimated at **\$8.0 million**. Continuing project costs are estimated at **\$3.4 million** from implementation through FY 2009/2010 for Total Project Costs estimated at **\$11.4 million**.

These project costs are for all components for one time development and 1 full year of ongoing baseline and include:

	<b>Cost Item</b>	<b>Units</b>	<b>Rate</b>	<b>One-time</b>	<b>Total Annual On-going</b>
1	<p><u>Project Management</u> OSHPD Project Management: For the DD&amp;I phase OSHPD Project Management will be outsourced to a Project Management Consultant. The project management services will begin in September 2006 continuing through the end of the project (November 2008).</p> <p>DD&amp;I Project Management: The prime DD&amp;I Vendor's project management services are calculated at 15% of the total contract services cost.</p>	Contract Services	\$120	\$ 673,200	
			10%	367,796	
2	<p><u>Project Oversight &amp; IV&amp;V</u> Project oversight and IV&amp;V services are to be provided by one vendor. The overall costs for both services is estimated at 10% of the total contract services cost. The cost for each service is shown separately to reflect the relative amount of effort and technical skill levels expected for each.</p>	IV&V Contract Services		338,516	
		Project Oversight Contract Services	10%	145,078	
3	<p><u>Requirements Definition</u> Requirements definition includes the acceptance of requirements by the contract services provider(s), validation (including addition, deletion, or change) of requirements by FDD and OSHPD, and some detailed planning. It is measured in units of hours and calculated at approximately one half of the cost of design.</p>	1,883	\$120	226,000	
4	<p><u>Design</u> Design includes development of all technical and detailed designs, establishment of environments, and some continued planning (test, conversion, installation, and et cetera). It is measured in units of hours and calculated based upon workload estimates for each of the four project components.</p>	3,767	\$120	452,000	
5	<p><u>Code and/or Build</u> Coding is the completion/execution of designs and plans that create the components and includes unit level testing, programmer level documentation, and environment development. It is measured in units of hours and calculated based upon workload estimates for each of the four project components.</p>	6,300	\$120	756,000	

	<b>Cost Item</b>	<b>Units</b>	<b>Rate</b>	<b>One-time</b>	<b>Total Annual On-going</b>
6	<u>Test</u> Testing is the assembly of coded and environmental pieces into a working solution that is closely similar to the final product. A variety of tests are performed that engage a defect resolution process to ensure complete and accurate solution. Test includes installation which is the “productionalization” effort that makes the end-solution available to FDD and OSHPD for use in their work. It is measured in units of hours and calculated based upon workload estimates for each of the four project components. The estimate should be about the same as the estimates for coding.	7,000	\$120	840,000	
7	<u>Data Conversion and Purification</u> Data conversion includes a process to cleanse the legacy system data and move that data into the new system, both for testing and for the end solution. It is measured in units of hours and calculated based upon workload estimates for each of the project components that has data to be converted. The rate varies because of anticipated involvement by FDD and OSHPD staff (which are about 47% less costly than contract services workers).	3,200	\$80-120	336,000	
8	<u>Pilot(s)</u> Two project components include a pilot to assist with assimilation of the technology and workflow. It is measured in units of hours and calculated based upon workload estimates for the project components.	3,750	\$80	300,000	
9	<u>Custom Software Warranty Support</u> Warranty support is the continuing contract services providers’ effort needed to guarantee (and repair as necessary) that the implemented solution continues to function properly for a period of time. It is measured in units of hours and calculated based upon a 90 day warranty and the anticipated warranty workload for each of the project components.	750	\$120	90,000	
10	<u>ALIRTS Interface Upgrade</u> The preferred solution includes interoperability upgrades to the OSHPD ALIRTS system. OSHPD’s data warehouse (for reporting and inter-departmental data sharing) is not included in this estimate. The estimate for this includes a standard IEEE-based lifecycle including acquisition, requirement/ design, code, test, convert, install, and maintain. It is measured in units of hours and calculated based upon workload estimates for each of the interface.	2,080	\$120	249,600	

	<b>Cost Item</b>	<b>Units</b>	<b>Rate</b>	<b>One-time</b>	<b>Total Annual On-going</b>
11	<u>Documentation and Help Structures</u> Documentation and help services costs are for the publication of technical and user manuals (from design and test documentation) and the development of a help infrastructure. These are used by end-users and the help desk during testing, regular work, and training. It is measured in units of hours and calculated based the anticipated documentation workload for each of the project components.	457	\$120	54,800	
12	<u>Initial Training</u> Training includes a series of initial training sessions to make the new system components available to the FDD and OSHPD staff and materials to provide for ongoing (recurring) training of new staff. Two initial training sessions are planned (one in Northern California and the other in Southern California). It is measured in units of hours and is calculated based on the anticipated training workload for each of the project components.	4,500	\$80	360,000	
13	<u>Ongoing Training</u> Training includes continuous training sessions to make the system components available to the new staff and as staff take on new responsibilities. It is measured in units of hours, is calculated based the anticipated training workload for each of the project components.	520/yr	\$80		83,200
14	<u>Additional Contract Services</u> A specialized security consultant to assist the OSHPD ISO with development and oversight of Departmental security policies and standards related to integration of the preferred solution technologies. It is shown in hours and is based on the ISO's total dollar estimate.	580	\$250	145,000	
15	<u>Server Hardware Platforms and System Software</u> Server hardware includes the purchase of 12 servers (including system-level software such as MS Windows Server) at costs that vary by the size and task of the server. For this estimate, 8 of these servers are expected to be deployed to HHSDC, 2 to the OSHPD ISS Office, and 2 to the FDD office in Los Angeles.	12	\$2,500 to \$3,500	36,500	
16	<u>Office and Field Workstation Platforms and System Software</u> Office platforms include upgrades to large panel monitors for 75% of the Plan Review Staff (approximately 41 FDD staff). This also includes about 85 portable handheld devices for communication and use of the GPS technology.	Monitors 41  Handheld 85	\$1,500  \$1,250	167,750	

	<b>Cost Item</b>	<b>Units</b>	<b>Rate</b>	<b>One-time</b>	<b>Total Annual On-going</b>
17	<u>Scanning and Plotting Devices</u> Scanners and plotting devices are estimated to be 2 large scanners, 2 small scanners, 2 fast scanners, and 3 plotters. These are deployed to Sacramento and Los Angeles. The rate shows the average cost for this particular composition.	9	\$8,846	115,000	
18	<u>Telecommunications Devices</u> Telecommunications hardware for OSHPD to support upgraded telecommunications service with Los Angeles office and remote users (from handhelds, laptops, and facilities submitting application files), including equipment necessary for network security.	3	\$10,000 \$ 8,000 \$12,500	30,500	
19	<u>Database and Application Software</u> The database and application software estimate includes 4 new licenses for MS SQL Server, 4 scanning licenses, and 2 document management licenses. The rates for these are listed in this order.	4 4 2	\$1,200 \$1,000 \$123,600	256,000	
20	<u>HHSDC Enterprise Storage</u> HHSDC is planned to provide enterprise data storage for all project components. The amount of storage is estimated 240GB.	240	\$29 per GB/mo		334,080
21	<u>Telecommunications Upgrades</u> An increase in telecommunications capacity (from one T1 to two T1 lines) between FDD's Los Angeles office and Sacramento including authentication certificates. For redundancy a dedicated VPN Service solution will be added to the system. This solution will provide data connectivity to the Kress building in the event of an OSHPD system failure.  DS3 upgrade to handle increased Internet traffic for remote users and facilities submitting digital applications. Replaces existing T1 line for Internet traffic.	Initial On-going	\$15,000 \$1632/mo	15,000	59,652
22	<u>HHSDC Database Support</u> HHSDC will provide MS SQL Server database support (system-level Database Administration) for the production and test servers located at the HHSDC. This estimate includes the assumption that OSHPD ISS does not maintain MS SQL Server qualified system-level database administrators.	4	\$410/mo		34,440

	<b>Cost Item</b>	<b>Units</b>	<b>Rate</b>	<b>One-time</b>	<b>Total Annual On-going</b>
23	<u>HHSDC Server Operations and Support</u> Server operations and support are HHSDC services necessary to provide the raised floor for FDD servers deployed there and limited operating system and connectivity support. Server deployment is provided by project plan schedules. Internet hosting is expected to remain at OSHPD.	Installation  Per server 8	\$30,000  2,200/mo	30,000	844,800
24	<u>HHSDC Administrative Overhead</u> Calculated at HHSDC's flat overhead rate of 14.7% of non-lease and non-purchase based services	HHSDC Services	14.7%		175,567
25	<u>Anticipated Upgrades to Hardware and Software</u> These upgrades and required maintenance agreements for COTS (and system-level) software are based on a flat 30% of the initial software cost. These costs begin in year 3.	30% HW	COTS SW varies		345,486

	Cost Item	Units	Rate	One-time	Total Annual On-going
26	<p><u>Technical (ISS) Staffing Increases (Redirection of Program Staff and New Position)</u></p> <p>The following positions will be added to the ISS staff for a total of 2 PY's. These PY's will be redirected from program staff beginning in FY 05/06.</p> <ul style="list-style-type: none"> <li>Senior Programmer Analyst (Specialist) – Enterprise Application Architect &amp; Technical Coordinator. This position will serve as the project's Technical Coordinator and act as a technical liaison with the DD&amp;I contractor, Security Contractor, HHSDC management and staff, and ISS Application and Network Support staff and oversee all application development functions from requirements definition through maintenance and support to ensure consistency with OSHPD application, data, and Web standards (starting FY 05/06).</li> <li>Senior Information Systems Analyst (Specialist) - Technical Enterprise Architect. This position will provide accurate identification of infrastructure requirements, design, integration, installation, and testing, to ensure that all application components are available as well as design and configure the integration of the system with the existing OSHPD computing infrastructure to enable system integrity while meeting security requirements (starting FY 05/06).</li> </ul> <p>1 new PY will be added in 06/07 during the DD&amp;I and Maintenance Phases:</p> <ul style="list-style-type: none"> <li>Staff Information System Analyst (Specialist) - Help Desk Support Technician. The help desk position provides technical support during development for the research, review, installation, integration, configuration, and testing of software and printers, scanners, and plotter drivers to ensure compatibility with the supported computing environment. Upon implementation, this position will provide dedicated helpdesk, problem identification and resolution support for the system (starting FY 06/07).and resolution support for the system.</li> </ul>	05/06 2PYs	05/06 \$180,000	615,000	300,000
		06/07 1 PY	06/07 \$81,000	189,000	135,000

	<b>Cost Item</b>	<b>Units</b>	<b>Rate</b>	<b>One-time</b>	<b>Total Annual On-going</b>
27	<u>Redirected Program Staffing</u> For assistance during the procurement and DD&I phases	05/06 2.65PY  06/07 2.5 PY  07/08 2.5 PY  08/09 0.8 PY		822,512	0
28	<u>Redirection of ISS Resources</u> The 7.7 PYs will be redirected from maintenance and support of the existing system to the new system after implementation.	08/09 5.1 PY  09/10 7.7 PY		0	808,328
29	<u>Other Costs</u> Include OE&E associated with PYs and DGS Procurement Costs	DGS \$75,000		406,834	429,497
	<b>TOTAL</b>			<b>8,018,087</b>	<b>3,476,851</b>

## Benefits

### Improved Plan Review Productivity

The Plan Review process has established performance goals for the review and approval of facility construction plans of either 60/30/30 or 80/40/30 days depending on the type of project. While not all factors that affect the ability to meet these goals are under FDD's control, the proposed solution provides FDD the capability to implement technology that allows FDD to interact with clients using industry standard tools for plan review, workflow management, and document management that will improve the productivity of the plan review process. Improved productivity will primarily be achieved through the ability of multiple staff to perform simultaneous reviews of automated plan review images, rather than the current system of sequential review of hardcopy documents. After implementation, FDD expects to meet the plan review 60/30/30 guidelines on average 95% of the time as reported in the quarterly management reports.

An additional factor in improving plan review productivity will be the reduction in time PTs spent entering project information into the Logbook system and locating hardcopy documents. The estimated 3 PY efficiency in PT workload will be redirected to scanning and indexing hardcopy plans and documents into the Document Management System, which will improve the overall efficiency of FDD functions.

### Improved Construction Oversight Productivity

The productivity of Construction Oversight is measured by the number of open construction projects visited per month. Through implementation of technology that will reduce the time Construction Oversight staff spend entering inspection status and timesheet information, as well as provide them remote access to needed information such as construction plans, building codes, and notes, it is expected that staff time available for construction oversight activities will be increased. The reduction in staff time for returning to a home office to prepare and submit reports is estimated at 13.2 PYs. This savings will be redirected to increase the average number of open projects visited during a calendar quarter by 25 percent.

### Improved Facility Structural Inspections after Disasters

Document management capabilities allowing the rapid retrieval of facility construction information, remote information access capabilities, and more automated data sharing with ALIRTS and OES will allow improvements in the access to needed information for activating the EOC during emergencies and for inspectors to perform assessments of building structural safety. With the new technology capabilities, OSHPD will meet its goal of obtaining facility construction information within 2 hours of activation of the EOC 100% of the time for facilities with digital images in the database. Enhancements to information integration with other internal and external data sources will make it possible for decision makers and inspectors to have the needed information in a timelier manner. Improved response capabilities using digitized plans are consistent with the goals of the Federal Department of Homeland Security when responding to domestic terrorist activities.

### Increased Revenue

Improving revenue generation can be accomplished by billing for all services as required, in particular SB 1953 evaluation reviews. The proposed system will include functionality to generate automated invoices for all of FDD's services. It is anticipated that upon implementation, additional revenues for SB 1953 reviews will be invoiced totaling approximately \$7,218,500. With the addition of automated invoices and collection notices for Preapprovals and Special Exam fees, OSHPD estimates a savings in Accounting personnel of .04 PY. This savings will be redirected back to the collection function to attempt telephone contact with severely past due accounts.

Additional advantages to OSHPD of implementing the proposed solution include:

- Reduced risk of system failure through replacement of a technically obsolete and difficult to maintain system with one better suited to OSHPD's infrastructure and strategic direction.
- Cost avoidance through the reduction in the rate at which project files are transferred to archived storage. (FDD storage space needs will be reduced by 2,340 square feet over 5 years after implementation. Similarly, the rate at which increases in costs for storing archived hardcopy files at the State Records Center are expected to decrease by 15% per year beginning 5 years after implementation.)

- Cost savings to be realized as a result of a reduction in the number of plans to be mailed back to facilities. (Estimated at \$37,500 from implementation of digital images through FY2009/2010.)
- Better customer relations with facilities through service improvements, including the capability to submit project plans electronically and monitor project review status through web-enabled technology.
- More efficient use of staff time as a result of web-enabled technology and document management capabilities that permit remote access to system functionality, reduce duplication of effort, and foster collaboration between staff and with customers.
- Improved data integrity as a result of database integration and controls on data entry.
- More effective emergency response that protects the life and safety of citizens through the use of GIS/GPS technology, remote information access, and improvements to internal and external interfaces.

#### **5.1.25 Sources of Funding**

The funding source for implementing the proposed solution is the Hospital Building Fund.

## **5.2 RATIONALE FOR SELECTION**

The proposed solution meets the objectives and requirements resulting from the business needs assessment conducted by FDD in the preparation of this FSR. The business process improvements identified in the needs assessment are also supported by the proposed solution. The proposed solution aligns with OSHPD's information technology strategy and FDD's strategic direction. The following major objectives will be met through implementation of the proposed solution:

### **Improve system stability and meet changing regulations and business practices**

The proposed solution meets this objective by specifying development of a custom solution aligned with OSHPD's current technology infrastructure. The proposed solution will overcome the obstacles inherent in the existing Logbook system due to its database structure through a redesigned database that will foster ease of change when needed. In addition, developing a new application will allow implementation of security provisions during the design process as opposed to adding them later as had to be done with the current Logbook.

### **Increase tool functionality to meet FDD business needs for external access, data sharing, reporting, invoicing, and emergency response**

The proposed solution will allow Field Review personnel to easily interact with the system to conduct business remotely in a secure and timely manner. Efficiency of the Plan Review process will be improved, by replacing manual processes with automated processes and lessening the dependency on stand-alone databases. Improvements in sub-system integration will support data sharing with other departmental systems. A

restructured database will increase user confidence in ad hoc and standard management reports. Through improvements in time and project billing code reporting functions, accuracy and timeliness of invoicing will be improved. Accurate and easily accessible facility location information to be used by inspectors during disaster response will make this process more effective.

**Provide training appropriate to user needs**

Training appropriate to the needs of both internal and external users is included in the proposed solution. The training for FDD staff will be tailored to job functions to be performed, experience level, and technical background of the staff members.

**Support multiple business environments**

One complete enterprise-level system to be used by all FDD functional units regardless of physical location is proposed. The implementation of the solution will allow for flexibility in workflow to accommodate individual styles while maintaining standardized inputs.

The following assumptions were applied in the selection of the proposed solution:

- Existing levels of ISS support will be augmented to support the increase in automation.
- The proposed solution will maintain consistency with the OSHPD and HHSDC direction for telecommunications and network infrastructure
- Responsive proposals will be received from a sufficient number of bidders.
- COTS packages for the Document Management and Healthcare Structure Identification components of the solution are readily available and able to be integrated with other components of the proposed solution.
- The proposed solution will leverage existing investments in OSHPD's information technology infrastructure wherever supported by the FDD business needs.

### 5.3 OTHER ALTERNATIVES CONSIDERED

A number of alternatives for implementing each of the solution components described earlier in Section 5 were considered. As part of the research conducted to arrive at a recommended solution, FDD reviewed the system being implemented by the Department of the State Architect (DSA). The DSA monitors and inspects schools in the state for compliance with building and safety codes. The needs of DSA architects and engineers in performing these functions are very similar to those in FDD. This includes the ability to review construction plans in digital form, remote access to project data, and tracking of project status. The experiences of DSA in the implementation of their system were considered in selecting a recommended solution. The choices FDD considered and the alternative solutions they formed are summarized below. The resulting options are:

- 1 – Enhance the Existing Logbook System
- 2 – Replace the Existing Logbook System with a COTS Solution
- 3 – Replace the Existing Logbook System via Custom Development

All three of these alternatives include the Document Management Solution of scanning and accepting digital documents, the Healthcare Structure Identification Solution, and the Mobile Information Access Solution. Only one possible solution was identified for each of these latter two solution components.

**Table 5-14: Alternatives Considered**

Facilities Development Management	Option	Document Management	Option	Healthcare Structure Identification	Option	Mobile Information Access	Option
Retain Existing Logbook	Reject						
Enhance Existing Logbook	1	Scanning Only	Reject				
COTS Replacement	2	Accept Digital Documents	Reject				
Custom Development	3	Scanning & Accept Digital Documents	1, 2, 3	Custom/ COTS	1, 2, 3	Custom	1, 2, 3

The options considered, but rejected are discussed below.

For the Facilities Development Management solution, retaining the existing Logbook Tracking database system was rejected as a viable option. This option was not considered since we have demonstrated that the business requirements of the Field Review, EOC and SRP functions are not being met by the current system. There are

significant shortcomings as well in Plan Review, cost recovery, archiving, and the IOR certification process.

In considering the Document Management solution, these options were considered but rejected on the grounds that they did not fulfill the functional requirements:

#### 1) Scan Only

The features of this limited scope option would include software and hardware to scan in building plans and specifications as they are received from facilities. While this option would reduce the need to store large volumes of plans in the FDD offices and archives and facilitate document sharing, it was rejected as a viable option for these reasons:

- Facilities would still need to produce and mail in large volumes of paper copies since this option does not support FDD's receipt of building plans and specifications in digital formats either through online submissions or on digital media.
- Additional FDD support staff may be needed to perform scanning and indexing tasks.
- There is no capability for reviewers to add notes to the scanned images.

#### 2) Accept Digital Documents Only

In this option, facilities would be requested to submit plans and specifications in digital formats instead of on hardcopy. In order to minimize negative impacts to facilities not able to comply, hardcopy documentation would continue to be accepted. This option would use COTS software that would allow viewing and reviewing digital files in various industry standard formats. Although this option represents an improvement over the Scan Only option, it has several disadvantages that led to its rejection from further consideration:

- Until all facilities are submitting project documentation in digital formats, hardcopy files would still need to be processed, routed, and stored as they are today.
- Other project documentation such as correspondence received as hardcopy would need to be maintained in hardcopy files.
- The task of finding associated paper documents for a project would remain.

### **5.3.1 Alternative Descriptions**

FDD considered two other viable alternatives in addition to the proposed solution to meet the business objectives and functional requirements. The description of each alternative is given below and includes a brief assessment of costs, benefits, recommendations, and reasons for exclusion.

All three alternatives include the same options for document management, healthcare structure identification, and Mobile Information Access. These solution components are described in detail in Section 5.1, Solution Description. Therefore, only the options for the Facilities Development Management Solution are discussed for each alternative.

### 5.3.1.1 Alternative 1 – Enhance Current Logbook

This alternative seeks to preserve most of the existing Logbook system and make system enhancements where needed to more fully meet FDD's business requirements and overcome the problems with the current system. A key factor in this approach is an effective database redesign and database conversion. Interfaces to licensing and accounting applications would need to be improved as well.

This alternative would require a combination of in-house program and information systems staff and vendor staff throughout the system development lifecycle to define detailed requirements, design, develop, test, and implement system enhancements. Management of a large development project would also be required.

#### Advantages

- Users are already familiar with the existing system and would need minimal re-training. Similarly, ISS and FDD support staff would not need retraining to continue providing the current levels of application support. The database redesign could address many of the issues with the current system.
- Enhancing the current Logbook system could also preserve OSHPD's investment in current technology.
- In the short-term, this option could be more economically feasible than other alternatives.

#### Disadvantages

- The difficulties experienced in maintaining the current Logbook in OSHPD's secure environment and during upgrades to the operating system and desktop environment would continue.
- There is currently widespread dissatisfaction among FDD staff with the existing system including lack of confidence in the data within the system. Overcoming resistance to perceived shortcomings in the existing system will require considerable effort through outreach and training.
- Some of the existing modules would need to be completely re-written. In particular, the current IOR Certification module provides so little functionality, it would be better to start from scratch and design a system that is fully integrated with the rest of the Facilities Development Management Solution.
- A thorough gap analysis would need to be performed to ensure that all business requirements are addressed in the enhancements. This could add considerable time to the development process in comparison to starting with a fresh design.
- There is the potential for degradation of system response and access problems as additional security requirements are implemented in the existing system.

## Costs

The estimated costs for Alternative 1 – Enhance the Existing Logbook System are summarized as follows:

<b>One-time IT Project Costs</b>	<b>\$ 8.5</b>
<b>Continuing IT Project Costs</b>	<b>\$ 3.4</b>
<b>Total Costs for Alternative 1 – Enhance Existing Logbook</b>	<b>\$11.9</b>

### 5.3.1.2 Alternative 2 – Replace Current Logbook with COTS

Market research shows that there are several established vendors with offerings that meet a portion of the FDD needs for plan review and field review business functions. However, these COTS solutions would need significant customization to meet unique FDD business needs, especially for the functions related to Emergency Operations, the Seismic Retrofit Program, and IOR certification. Interfaces with the licensing and accounting applications would need to be addressed through customization or integration with other modules. If the selected COTS did not provide integration with a document management system, additional customization would be needed.

Several commercially available COTS packages that could provide some of the FDD proposed solution were reviewed. This review was intended only to answer the question of whether or not a COTS solution would offer cost savings and thereby be mandated during the procurement of services. The conclusion is that neither COTS package offers a substantially large enough savings as to warrant the restriction of the procurement to such a package. This determination shall not preclude a bidder from competitively offering a solution that includes a COTS package.

In general both COTS packages provide some key pieces to meeting FDD's requirements. However, both packages provide many more features than needed (such as project planning for construction foremen). These excess features would either require additional staffing by the FDD to be incorporated as new processes or be switched off. The effect of the later on the useful parts of the COTS tool remains unknown.

The following Codes are used in the table:

**M** - Solution is expected to meet or exceed FDD requirements without substantial modification.

**E** - Solution is expected to meet FDD requirements with substantial modifications.

**X** - Solution is expected to meet FDD requirements with substantial modifications and require a substantial change in business and/or technology processes.

**DNM** - Solution is not expected to meet FDD requirements.

Package Solution	Logbook Data	Digital Data	Infrastructure	Field Access	Emergency Operations	Customizations	Relative \$ Cost
Cadallyst / Construct	E	M	X	M	E	E	+20%
Autodesk	E	M	X	X	M	E	+ 25%

**Logbook data** is the data used by the FDD to manage projects and define buildings, facilities, and sites. The content of this data is generally textual.

**Digital data** is the data that is the plans and digitized documents used in the review and archiving of building plans. The content of this data is generally digital (images).

**Infrastructure** is the FDD, ISS and OSHPD computing and networking system, including policies and procedures for its use.

**Field Access** is the ability of FDD field staff and customers of FDD to access authorized data from the FDD system, including plans, status, codes, and correspondence as the site work demands.

**Emergency Operations** is the ability of the FDD staff to use any and all data and interfaces to analyze and craft responses in an emergency situation.

**Customizations** quantifies the amount of customizations expected in order that the COTS tools perform as a part of the overall solution. This includes managing the excess functionality provided by the COTS package.

**Relative \$ Cost** is the approximate total cost including implementation and 5 years of maintenance relative to the cost of the custom solution.

### Advantages

- Customization of COTS can lead to robust systems that meet user defined needs if the proper resources are applied.
- Depending on the skill level of the COTS vendor and the flexibility of the product, this has the advantage of building upon an existing system with proven capabilities.
- Comparisons between vendors of similar products can be made through customer references and product demonstrations.
- In order to maintain market share, COTS vendors routinely provide package updates to maintain compatibility with operating system upgrades, fix bugs, and add customer requested features.

## Disadvantages

- Flexibility to meet a wide range of staff skill levels, varying project characteristics, and evolving business practices are likely to add to the needed customization of a COTS solution.
- Depending on the scope of customization needed and the flexibility of the system selected, tailoring a COTS solution to meet FDD's needs could be a time-consuming and expensive option.
- While the initial cost of a COTS solution might seem attractive, the costs of customization and maintenance once the system is operational are likely to outweigh any initial cost benefits.
- FDD may be required to adjust its business processes to conform to controls built into the COTS or pay for customization.
- The COTS identified so far are not specifically written for hospital construction monitoring requirements.
- The software industry is rather volatile with companies frequently merging or going out of business. COTS packages may be changed and may then no longer fit FDD needs. While there are steps that can be taken to mitigate these risks, there is still the possibility for less than satisfactory continued support and maintenance.

## Costs

The estimated costs for Alternative 2 – Replace Current Logbook with COTS are summarized as follows:

<b>One-time IT Project Costs</b>	<b>\$ 8.1</b>
<b>Continuing IT Project Costs</b>	<b>\$ 3.4</b>
<b>Total Costs for Alternative 2 – COTS Replacement</b>	<b>\$11.5</b>

### 5.3.1.3 Alternative 3 – Custom Development to Replace Current Logbook

Alternative 3 is the proposed solution. This alternative is described in detail in Section 5.1, Solution Description.

#### 5.3.2 Evaluation of Alternatives

The primary factors considered in selecting the recommended alternate included:

- Likelihood of meeting FDD business requirements and
- Possibility of ISS providing ongoing support and maintenance

In considering the alternatives for the Facilities Development Management solution, the alternative of building a custom application and integrating it with the other components was the solution that best met these conditions.

The following sections describe the process used to determine the recommended solution.

### 5.3.2.1 Alternative Scoring

Each of the relevant criteria are explained and given a score between 0 and 3:

- 0** the lowest score, indicates that the alternative does not fulfill the criteria and is rejected outright
- 1** the alternative fulfills some of the requirements of the criteria but fails to adequately meet all of FDD's needs
- 2** the alternative fulfills all or enough of the relevant criteria, including current and future needs to be considered a useful and complete solution
- 3** the highest score, indicates that the alternative exceeds the expected fulfillment of the relevant criteria.

### 5.3.2.2 Evaluation Criteria

The following four criteria are used to differentiate the alternatives and determine which best provides for the organization:

- Function** Ability of the alternative to meet current and anticipated business needs of the FDD staff within its environmental and operational constraints. This includes concepts such as business needs as reported in FDD's *Business Needs Assessment*, FDD customer and staff expectations, security, software expandability, and solution portability.
- Development** Ability of the alternative to support a comprehensive and lower-risk development methodology that both delivers a correct and accurate solution and that supports the needs of FDD staff throughout implementation (design, development, testing, roll-out, and warranty support). This criterion does not include the cost of development.
- Support** Ability of the post-installation (production) alternative to operate well and cooperatively submit to FDD requests for modification including the ease of normal operations, the simplicity of system maintenance and on-going training, and the compatibility of the alternative's technology with a changing OSHPD and HHSDC environment. This criterion includes dependency risks derived from the alternative's relationship with third-parties (such as a COTS company, OSHPD collaboration, and the HHSDC). This criterion does not include the cost of post-implementation operations and support.
- Cost** Cost of the alternative for implementation and on-going support. Lower cost receives a higher score based on the percentage of the alternative's cost estimates that is in excess of the lowest cost alternative. Cost is defined as the alternative's cost over the five-year horizon provided in the EAW's. For example, the lowest cost estimate receives a score of 3. Then the next higher cost receives a score that is less than 3, having

been reduced from 3 by the percentage difference between its cost estimate and the lowest cost estimate.

### 5.3.2.3 Criteria Prioritization

Not all criteria are equal in importance to the FDD. For example, the Cost and Function criteria have more importance in identifying the best alternative than do the development and support criteria. Therefore, the scores assigned to each criterion are weighted by (i.e., the 0-3 score is multiplied by) the following factors:

- Function is given a weight of 5.
- Development is given a weight of 3.
- Support is given a weight of 3.
- Cost is given a weight of 4.

### 5.3.2.4 Alternative Evaluation Table

The alternatives are identified in the evaluation table and awarded points based on that alternative's ability to meet the criteria. Then the scores are adjusted by weight and summed to determine the best alternative for the FDD. The highest score is the best alternative and is called the preferred solution in this FSR.

Alternative Weight	Function 5	Development 3	Support 3	Cost 4	Total
Retain Existing Logbook	0	-	-	-	-
Enhance Existing Logbook	15	3	3	11.9	32.9
COTS Replacement	10	6	6	11.5	33.5
Custom Development	15	9	9	11.4	44.4

Since the Custom Development alternative has the highest score, it is the preferred solution.

## 6 PROJECT MANAGEMENT PLAN

### 6.1 PROJECT MANAGER QUALIFICATIONS

OSHPD will use a project management team approach for management of the Logbook Redesign Project. This team will be comprised of personnel from FDD, the Project Management Office, ISS, the ISO, a Project Management contractor, and a project management support consultant.

#### Project Director

OSHPD's Project Director for the Logbook Redesign Project is Stephanie Clendenin. Ms. Clendenin is a Staff Services Manager I in the Facilities Development Division and in this role oversees the technical development, implementation and maintenance of the Logbook Database System for the plan review/construction oversight activities of the Division. Ms. Clendenin serves as the Division's representative on the Department's various information technology committees. In 2004, Ms. Clendenin transferred to the Facilities Development Division from OSHPD's Accounting Office. As OSHPD's Accounting Administrator, Ms. Clendenin provided oversight for the development of the FPS Accounting System and for the development and implementation of the accounting functions for SB 1953. Additionally, Ms. Clendenin served as project manager for OSHPD's business process redesign and implementation of the California Automated Travel Expense Reimbursement System (CALATERS) in 2002. Ms. Clendenin completed coursework in Project Management at the University of Phoenix in 1999.

#### Project Manager

The services of a project management consultant will be procured for management of the project team's efforts during the design, development, and integration phase. The project management RFO will specify desired qualifications including substantial experience in managing projects of similar size, scope, complexity and technology. A background in successfully applying IEEE systems development standards will be essential. Similarly, qualifications will include Project Manager Professional (PMP) certification from the Project Management Institute or equivalent certification.

#### Project Coordinator

Karamel Jett will serve as the FDD Project Coordinator for the Logbook Redesign Project. Ms. Jett has extensive experience as a lead business analyst on various FDD IT projects. In this capacity Ms. Jett facilitates all Information Technology activities for the Division and participates in office-wide IT projects. She directs and facilitates the development and implementation of automated solutions to facilitate the Division's work and serves as the Division's primary point of contact with the Department's Information Systems Section (ISS). Karamel has performed in a lead capacity on the Logbook database team on projects to implement SB 1953 and automation of anchorage pre-approval and special examination fee collection. Karamel has also been responsible for developing information for RFPs and RFQs, for evaluation and selection of contractors throughout the bid contract process. These project coordination and procurement tasks along with her functional knowledge of FDD make her a valuable member of the project team.

The Project Director, Project Manager, and Project Coordinator will receive support and assistance from:

#### Project Management Office

The OSHPD Project Management Office representative for the Logbook Redesign Project is Deborah Holstien, PMP, a senior information systems analyst. Ms. Holstien has extensive experience in the full life cycle of a project from initiation through closeout. She has overseen and managed multiple projects since joining OSHPD over nine years ago, including the MIRCAl Core Phase and Expanded Phase projects. In addition, she is OSHPD's representative to the Department of Finance and the Department of General Services for the Logbook Redesign Project. Deborah completed the U.C. Davis Extension Project Management Certificate Program in September 2002 and is certified as a Project Management Professional by the Project Management Institute.

#### Project Management Support Consultant

On-going project management support will be provided to the OSHPD Project Management team by Shooting Star Solutions, LLC. Shooting Star Solutions has five solid years of experience providing project management services to California State agencies and departments. The Shooting Star Solutions Project Manager, Aggie Briscoe, PMP, is well-qualified for this role. Her qualifications include Project Manager Professional (PMP) certification from the Project Management Institute and over twelve (12) years experience in project management and oversight of the system development life cycle for small and large-scale information systems. This project management support is envisioned as a part-time function in which the Shooting Star Solutions Project Manager will provide direction and guidance to OSHPD Project Management staff who will handle the day-to-day operations of the project. The Shooting Star Solutions project manager will provide advice and recommendations on improving overall project management, assist with issue and problem resolution, and provide effective communication on all project issues.

## **6.2 PROJECT MANAGEMENT METHODOLOGY**

OSHPD's Project Management Methodology is based on the guidelines in the State Information Management Manual (SIMM) Section 200 and the Project Management Body of Knowledge (PMBOK), maintained by the Project Management Institute. The project management methodology includes the recommended project management and risk management practices of the DOF Information Technology Project Framework. Also included are industry best practices and lessons learned from prior OSHPD projects. At a minimum, the OSHPD project management approach incorporates the principles of these methodologies and includes the following activities:

- Maintaining a detailed project schedule and identifying the critical path of activities for the phases, timeframe, responsible parties, dependencies, milestones, and deliverables.

- Monitoring planned versus actual performance, schedule, and budget.
- Utilizing a predefined issues management and change management process.
- Developing a risk management plan and performing periodic project risk assessments.
- Defining a structured approach for reviewing and approving deliverables.
- Adhering to the DOF reporting requirements.

### **6.3 PROJECT ORGANIZATION**

The FDD Logbook Redesign project will include participants from FDD, ISS, ISO, and the PMO. A communications plan will be included in the Project Management Plan to address how these organizations will interface with each other and other OSHPD units throughout the course of the project. Vendors for project management, IV&V, and systems integration are also key participants. A description of each participant's responsibilities is included in Section 6.5.4 Roles and Responsibilities. Figure 6.1 represents the project organization.

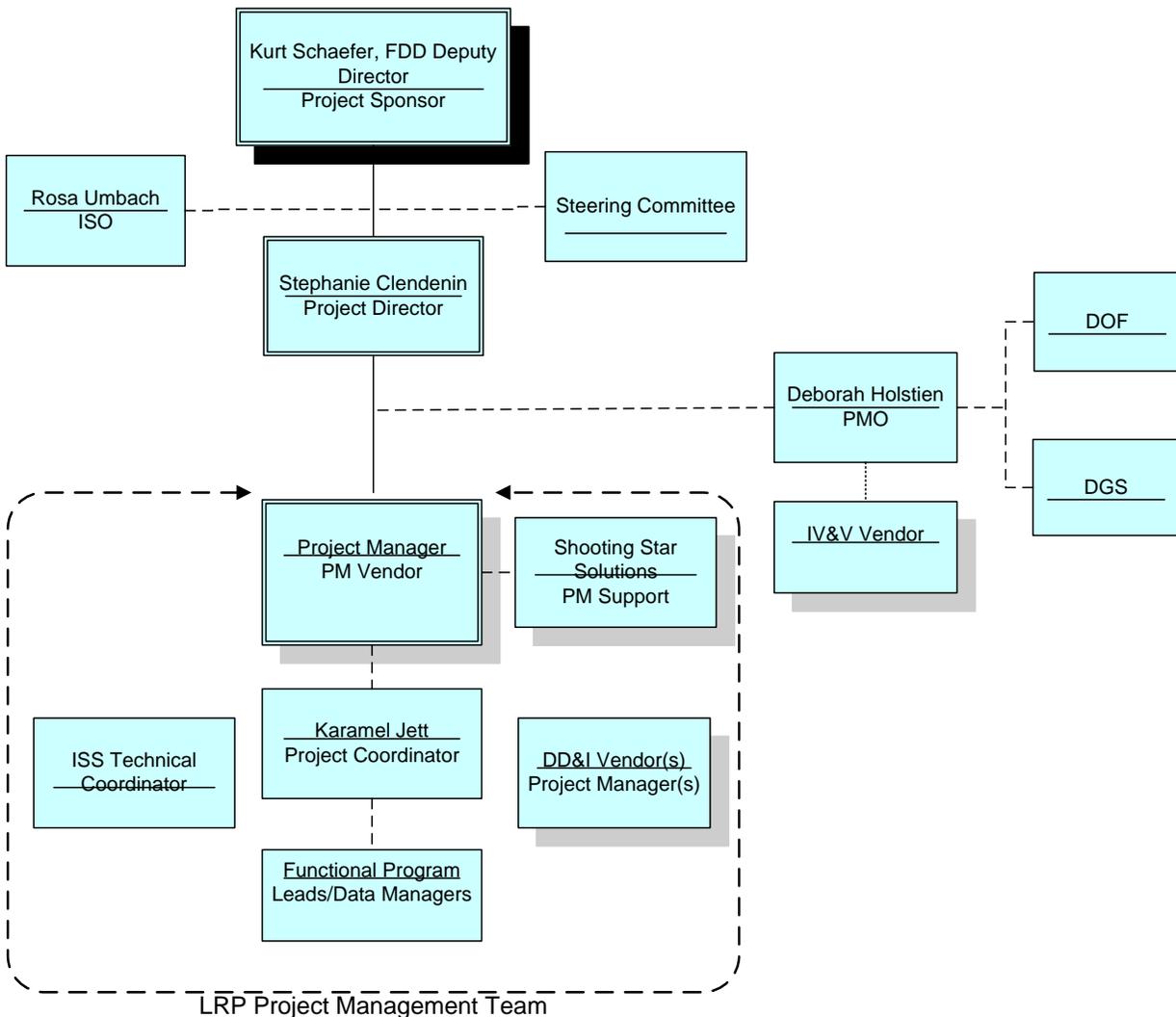


FIGURE 6.1: PROJECT ORGANIZATION CHART

### 6.4 PROJECT PRIORITIES

Implementing the Redesigned Logbook system will require balancing three interrelated factors: resources, schedule, and scope. A change in one factor will result in a change in another factor. The DOF requires that the project stakeholders agree on the importance of each of these factors before the project begins by assigning one of the following to each factor:

- Constrained - factor cannot be changed.
- Accepted - factor is somewhat flexible to the project circumstances.
- Improved - factor can be adjusted.

Table 6-1 presents the trade-off matrix for the project’s schedule, scope, and resources.

**Table 6-1: Summary of Project Priorities**

Schedule	Scope	Resources
Accepted	Constrained	Improved

## 6.5 PROJECT PLAN

Project planning defines the project activities to be performed, products to be delivered, and how the activities will be accomplished. Project planning helps define each major task, estimate the time and resources required, and provide a framework for management review and control. The project planning activities and goals include defining:

- Scope of the effort.
- Project assumptions.
- Project approach (i.e., phasing).
- Project team roles and responsibilities.
- Project schedule.

This section provides an overview of each of these areas.

### 6.5.1 Project Scope

The scope of work is the development, testing, and implementation of an automated solution that will support the business objectives of the FDD to provide monitoring of healthcare facility construction to ensure the life and safety of California's citizens. The Logbook Redesign Project includes the following:

- Develop a Request for Proposals to procure and contract with a vendor(s) to develop and implement the proposed solution,
- Develop the Request for Proposals to procure and contract IV&V services during the DD&I vendor procurement phase and the development and implementation phase,
- Develop and test an integrated solution meeting FDD business objectives and functional requirements,
- Convert the existing data to the new database,
- Acquire hardware and software upgrades/additions needed to implement the technical solution,
- Deploy the solution to internal and external end-users, and
- Provide training to end-users and ISS support staff on the new solution

The scope of the Logbook Redesign Project does NOT include the following:

- System enhancements for the benefit of the Regulations/Legislation Unit other than normally scheduled upgrades to the network and desktop environment. The needs assessment did not identify any unmet information system needs for this unit.)
- Specialized structural engineering desktop applications used for analysis of plans.
- Business process re-engineering.

### **6.5.2 Project Assumptions**

The major project assumptions include:

- The project will be funded from the Hospital Building Fund.
- The BCP submitted in conjunction with this FSR is approved and funding is available.
- OSHPD program and technical staff will contribute towards the requirements definition, design, testing, implementation, and maintenance of the system.
- Appropriate FDD resources are available and will be allocated to this effort.
- The OSHPD PMO will provide periodic project management guidance and support.
- Shooting Star Solutions will provide project management support during the procurement phase and continued guidance and direction during the development and implementation phase.
- Technology to be used will conform to industry standards supported by the State's data centers.
- The proposed solution will leverage existing IT infrastructure and solutions where possible.
- The proposed solution will be robust and flexible enough to support process changes resulting from changing business needs.
- FDD's external customers have the technical capabilities and skills to take advantage of the proposed solutions Mobile Information Access features.
- Problems and issues will be addressed on a timely basis.
- Effective risk management processes will be utilized to mitigate risks and ensure a successful project.
- Vendor contracts and procurements will be accomplished within planned timelines.
- Security provisions will be integrated into the solution.

### **6.5.3 Project Phasing**

The project will consist of three major phases:

- Procurement
- Development & Implementation
- Maintenance

The Procurement phase, from release of the RFP to contract award to a DD&I vendor, is expected to take 12 months.

The Development and Implementation phase includes: System Requirements, Design, Development, Integration, Testing, and Training. Because of the scope of the project, it will be necessary to stage the implementation of various components to minimize the impact to FDD business processes and personnel and to address system integration requirements. Staging of components will be addressed in general terms in the project schedule developed in the ITPP and in detail in the RFP project schedule. A high-level project schedule showing expected phasing is given in Section 6.5.5. The priority of FDD's business needs, the state of the current system, and OSHPD's experience with projects of similar size and scope were considered to determine the following order for staging components. The use of pilots and incremental roll-out of new equipment and functionalities are expected to be further defined during the systems implementation planning between OSHPD and the selected DD&I vendor.

- Phase 1 will include development of the Facilities Development Management Component, the Document Management system, and the Mobile Information Access Component. This phase will meet the objective of bringing stability to the system by replacing the current unstable system, establish the database design for implementing the other system components, and provide missing functionality needed for FDD's business processes. Mobile access to FDD information will be provided to staff and facilities through the establishment of secure on-line access capabilities. Capabilities for submission, collaborative review, archiving, and retrieval of digital images will be implemented through scanning hard-copies or submission through secure on-line access.
- Phase 2 will complete the Logbook Redesign Project's objectives by adding GIS/GPS technology for the Healthcare Structure Identification component. This phase will build on the mobile access functionality established in Phase 1 for entry and retrieval of building and facility location information for use in emergency responses as well as plan and field review functions. Interfaces to the Office of Emergency Services (OES) and internal OSHPD systems will be built for the sharing of location information.

The Maintenance phase will include ongoing support after system deployment throughout the life of the system.

### 6.5.4 Roles and Responsibilities

In order to provide all project participants with a clear understanding of the authority and responsibilities for successful accomplishment of the Logbook Redesign Project, OSHPD has defined the roles and responsibilities of key participants in the project. The table below identifies each key participant and their responsibilities on this project.

**Table 6-2: Project Management Roles and Responsibilities**

<b>Role</b>	<b>Responsibilities</b>	<b>Organization</b>
Project Sponsor	<p>Project Advocate.</p> <p>Oversees project funding.</p> <p>Provides policy direction to the project.</p> <p>Key business decision-maker of the project.</p> <p>Resolves significant issues identified by the project director and/or manager.</p> <p>Approves the final scope of the project and risk management plan.</p> <p>Provides project resources.</p> <p>Reviews and approves escalated project changes.</p>	Facilities Development Division
Steering Committee	<p>Guides project to meet strategic/organizational objectives.</p> <p>Resolves interdepartmental issues.</p> <p>Provides resources to the project.</p> <p>Provides guidance on cross-functional issues to the Project Team.</p> <p>Provides advice and options for project risks and issues.</p> <p>Provides legal guidance, as necessary.</p> <p>Participates in DD&amp;I procurement and vendor selection.</p>	<p>FDD Deputy Director</p> <p>OSHPD CIO</p> <p>OSHPD ISO</p> <p>Administrative Division Deputy Director</p> <p>Legal</p>
Project Director	<p>First line decision authority for escalation of project issues related to changes to program, project scope, cost, resources, and risks</p> <p>Resolves project issues.</p> <p>Communicates project status to internal and external stakeholders.</p> <p>Oversees project schedule, scope, and budget.</p> <p>Reviews and approves project work plan and deliverables.</p> <p>Chairs Steering Committee.</p> <p>Oversees the Post Implementation Evaluation Review (PIER) 8 to 12 months after implementation</p>	Facilities Development Division

Role	Responsibilities	Organization
	of the system.	
Project Manager	<p>Develops the Integrated Project Plan including the schedules of FDD, ISS, ISO, DD&amp;I vendor, IV&amp;V vendor, and others as appropriate.</p> <p>Develops, monitors, and updates the Project Management Plan (PMP) including subsidiary plans for managing Quality, Risk, Communications, Change Control, and Documentation.</p> <p>Tracks, monitors and reports on project status including schedule, scope, budget.</p> <p>Escalates issues on scope, schedule, and budget to Project Director when resolution is outside of Project Managers authority.</p> <p>Enforces Corrective Action Plans, if appropriate.</p> <p>Reports project metrics to the Project Management Office.</p> <p>Manage requirements traceability throughout the system development life-cycle.</p> <p>Reviews project team work plans and deliverables.</p> <p>Coordinates project work efforts of DD&amp;I vendor, IV&amp;V vendor, ISS, ISO and FDD.</p> <p>Facilitates the change management process.</p> <p>Facilitates the risk and issue management process.</p> <p>Supports project management knowledge transfer to FDD Project Coordinator</p>	Project Management Vendor
Project Coordinator	<p>In conjunction with Project Manager, tracks project schedule, scope and budget.</p> <p>Manages contracts for DD&amp;I, IV&amp;V, Security, and Project Management consultants.</p> <p>Reviews project work-plans and deliverables.</p> <p>Participates in change management process.</p> <p>Participates in risk and issue management process.</p> <p>Coordinates tasks of Functional Program Leads</p> <p>Supports Project Manager in execution of Project Management Plans</p>	Facilities Development Division
Project Management Office	<p>Provides guidance on OSHPD's Project Management Methodology.</p> <p>Provides independent project oversight.</p> <p>Serves as liaison between CIO and internal/external stakeholders.</p>	Information Systems Section

Role	Responsibilities	Organization
	<p>Provides project management standards and templates to the project.</p> <p>Collects project metrics and updates the OSHPD project portfolio.</p> <p>Analyzes project metrics for monitoring purposes.</p> <p>Serves as liaison with Department of Finance and Department of General Services.</p> <p>Participates in DD&amp;I procurement &amp; vendor selection.</p>	
<p>FSR, Procurement, &amp; Project Management Assistance</p>	<p>Prepare the FDD Logbook Redesign Needs Assessment and Feasibility Study Report.</p> <p>Develop the procurement document (RFQ/RFP) for DD&amp;I vendor and participate in vendor selection.</p> <p>Provide project management support to all project management processes throughout the project lifecycle (FSR, procurement, development and implementation):</p> <p>Provide advice and recommendations on improving overall project management.</p> <p>Participate in the risk and issue management process.</p> <p>Review key milestone deliverables.</p> <p>Prepare the Work Breakdown Structure and Detailed Integrated Project Plan in coordination with the DD&amp;I vendor and the OSHPD Project Team.</p> <p>Participate in the change management process.</p> <p>Support project management knowledge transfer to FDD Project Coordinator.</p>	<p>Shooting Star Solutions, LLC</p>
<p>ISS Technical Coordinator</p>	<p>Leads technical review for DD&amp;I procurement and selection activities.</p> <p>Coordinates the work activities of a virtual technology team comprised of in-house technical specialists, Health and Human Services Data Center technical staff, and external Information Technology consultants.</p> <p>Reviews the work of technical team members to ensure quality.</p> <p>Manages and resolves technical problems to bring the project to completion within estimated costs and schedule and consistency with user's business requirements.</p> <p>Serves as a liaison between ISS and internal/external stakeholders.</p>	<p>Information Systems Section</p>

Role	Responsibilities	Organization
	<p>Oversees development of the redesigned Logbook system, in accordance with the stated functional requirements and business needs.</p> <p>Participates in Joint Application Design and working sessions with the project team.</p> <p>Conducts system design and development walkthrough sessions.</p> <p>Oversees system documentation.</p> <p>Reviews and approves technology architecture.</p> <p>Communicates project status to CIO.</p> <p>Provides training assistance to authorized users.</p> <p>Oversees maintenance and updates to system.</p> <p>Participates in testing and system acceptance</p> <p>Reviews system requirements specifications and general and detailed design specifications for consistency with OSHPD's enterprise technology architecture plan.</p> <p>Oversees web administration, data and application security, database administration and design.</p> <p>Participates in the project change management process.</p>	
Information Security Officer	<p>Serves on project Steering Committee.</p> <p>Provides direction and guidance on security issues.</p> <p>Participates in joint application design and working sessions with the project team.</p> <p>Provides gap analysis of security measures.</p> <p>Oversees implementation of security measures to mitigate vulnerabilities.</p> <p>Develops and validates security requirements.</p> <p>Coordinates security issues with the State data center.</p> <p>Participates in testing security components</p> <p>Reviews and validates Business Resumption Plans.</p> <p>Oversees maintenance and updates to the security components of the application and system.</p>	OSHPD

### **6.5.5 Project Schedule**

The project schedule for the Logbook Redesign Project consists of Procurement and Design, Development, and Implementation (DD&I) activities.

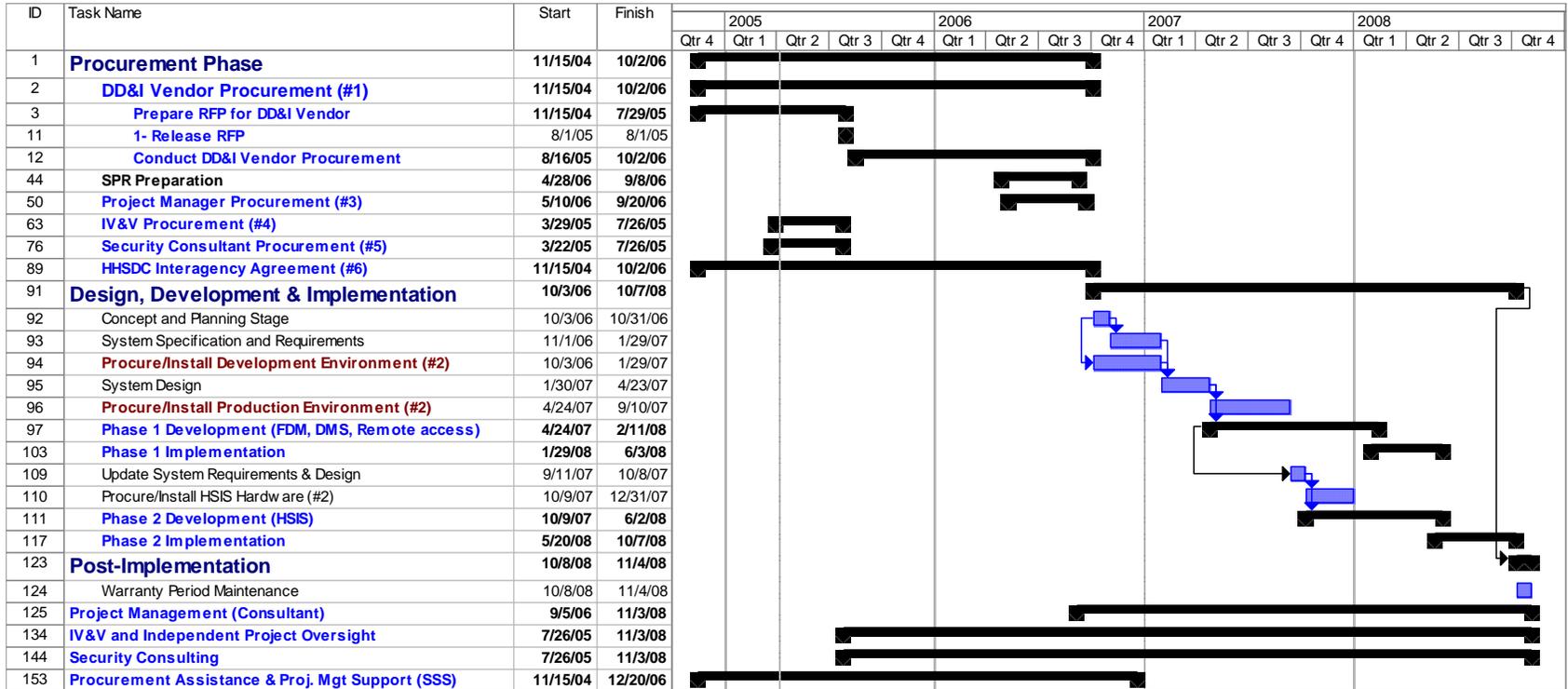
The Procurement activities begin with approval of the ITPP by the Department of General Services. The high-level acquisition schedule given in Section 5.1.8 Procurement Approach will be expanded to include a more detailed work breakdown with resource assignments and milestones, including sponsor and control agency approvals. The procurement effort from release of a Request for Proposals through contract award to the DD&I vendor is expected to take approximately 12 months.

Upon vendor selection, OSHPD will submit a Special Project Report (SPR) to report changes to cost, schedule, or approach specified in this FSR. Contract award will be executed upon DOF approval of the SPR. Following contract award to the successful DD&I vendor, DD&I begins with the development of the detailed integrated project plan encompassing not only DD&I vendor responsibilities but also those of the FDD Project Team, ISS, the ISO, the Data Center, and other entities involved in the project. The dates various system components for each development phase will be deployed will be determined during the planning stage.

This will be followed by the development of system specifications and detailed requirements for the complete system to be approved by OSHPD and the vendor. The complete system design starts once the specifications and requirements are finalized. The DD&I technical team will provide a preliminary and final design review. Upon acceptance of the preliminary design, the equipment required to start the system development will be acquired. Upon acceptance of the final design, DD&I vendor will begin development of Phase 1 and data conversion. Implementation of Phase 1 will include installation of the system and production hardware, completion of user and system documentation, acceptance testing, and training for deployment. Development and deployment of Phase 1 (Facilities Development Management, Document Management, and Mobile Information Access components) is expected to take approximately 18 months. Phase 2 (Healthcare Structure Identification) will begin approximately 12 months after the start of Phase 1 and is expected to take up to 12 months with similar tasks starting with equipment acquisition. The system design will be reviewed at the beginning of Phase 2 and updated if needed. Actual duration of each task will be determined during the planning stage after contract award.

The activities in the procurement, development, and implementation phases and their anticipated duration are shown in Figure 6.2 below.

FIGURE 6.2: PRELIMINARY LOGBOOK REDESIGN PROJECT SCHEDULE



## **6.6 PROJECT MONITORING**

The Logbook Redesign Project is anticipated to be a large procurement and development effort. For this reason, OSHPD will acquire the services of an Independent Validation & Verification (IV&V) consultant during the procurement, design and implementation phases of the project. This vendor will provide independent project management oversight as well as validation and verification services according to the Department of Finance Information Technology Oversight Framework, Project Management Institute PMBOK, and IEEE standards. One vendor with personnel skilled in both IV&V and Independent Project Oversight is envisioned. The cost estimate for these services was based on the different skill levels needed and on the timing of services to coincide with project phases.

The planned IV&V will include verification that the Project has well-defined problem statements with well-defined business and technical requirements. The IV&V vendor will verify the requirements are thoroughly documented and understood by the project team and that changes to requirements are managed throughout the life of the project beginning with the procurement effort. The IV&V vendor's role is to assure OSHPD that all system and software requirements are thoroughly documented and prepared to be incorporated in system functionality and trace to the business objectives of this FSR. The IV&V / Independent Oversight vendor's responsibilities will also include inspection, measurement, tracking, and observation activities to ensure that the project objectives are achieved within the approved project plan. Development deliverables will be reviewed for adherence to accepted standards. To meet the project monitoring objectives discussed above, OSHPD intends to acquire the services of an IV&V consultant to coincide with the system procurement phase. During this phase of the project, the IV&V consultant's role is expected to be part-time with the heaviest involvement at the beginning of the competitive procurement activities and during vendor selection with concentration on the requirements traceability. The IV&V consultant's role would be more constant throughout the design, development, and implementation phases.

In its independent oversight role, the IV&V consultant will monitor the progress of the project and provide information on project issues, risks, and status to the Department of Finance, the Project Manager, Project Director, and other stakeholders as appropriate. Focus will be on early notice of potential risks or impediments to project progress so that appropriate actions can be taken to ensure successful implementation of the project. Regularly scheduled meetings with the project management team and relevant stakeholders will be held to discuss project status, issues and corrective actions.

## **6.7 PROJECT QUALITY**

Quality is defined as the delivery of a work product or deliverable that satisfies the requirements and objectives of the project with minimal errors and defects. In order to ensure that the product delivered by the Logbook Redesign Project meets the specified business and technical objectives and requirements, OSHPD will use the following approach to minimize the risk of receiving a work product or deliverable of poor quality:

- The Project Director and Project Manager will collaborate with the development vendor representatives to ensure that the expectations for each deliverable are well-defined in advance.
- The Project Team will review all major milestone deliverables produced by the DD&I vendor to ensure that OSHPD standards and methodologies are met.
- The IV&V consultant will play a major role in assuring the quality of the redesigned Logbook system. IV&V responsibilities will include:
  - Quality Assurance reviews of the DD&I vendor's plans and deliverables, including: schedules, requirements specifications, systems architecture and design specifications, test plans, test results, training plans, etc.
  - Validation of requirements at various levels, including user, system software, hardware, and security
  - Requirements traceability at various stages of the project
  - Independent design analysis on critical issues
  - Independent testing of software as needed
  - Development of project metrics to monitor project quality

## **6.8 CHANGE MANAGEMENT**

Change is an almost inevitable occurrence on any project and responsible project management plans for change. A change is defined as any alteration to the scope of the project including requirements, hardware, software, application, network, operations or environment which adds to, deletes from, or in any way modifies the scope of work. In order to effectively manage change for the Logbook Redesign Project, OSHPD will use a Change Management Plan to define the process, procedures and outputs for all change-related project activities. The plan will also identify the parties responsible for identifying, resolving, supporting and making project changes. The major goal of this change management strategy is to ensure changes are made using standardized methods and procedures which minimize negative impacts and maximize positive impacts to the requirements, design, development, implementation, and maintenance of the system.

The Change Management process provides the capability to identify, document, manage, and resolve all project related changes. The plan is designed to:

- Minimize project risk
- Provide documentation for all changes
- Minimize disruption to the project due to rework

- Measure project volatility
- Provide open disclosure of changes
- Communicate changes to stakeholders
- Maximize system/application value
- Minimize unanticipated impacts to schedule and/or budget

The implementation of a change management plan ensures that all changes are evaluated for potential scope, cost and schedule impacts. The process allows decision-makers the opportunity to evaluate changes in a systematic manner which becomes a component of the overall project risk management strategy. Without a method for evaluating, prioritizing, and implementing changes, schedule delays, poorly defined requirements and/or cost overruns are potential results for any system development effort. Alternatively, a well-defined and properly utilized Change Management process reduces risk and increases the likelihood of project success.

The Change Control Process to be followed on the Logbook Redesign Project will provide a mechanism for the review and approval of changes or additions to the scope, requirements, and design of the Logbook System. This process will allow the FDD program areas, ISS, ISO, and the DD&I vendor to jointly discuss, review, prioritize and approve changes to requirements and design through all phases of the project from initiation through testing, implementation, and maintenance.

The Change Control Process will track and handle all proposed changes to the system software and hardware. All requested changes will be presented to a Change Control Board (CCB) for approval. This process ensures that changes are documented and applied in a controlled manner with participation from relevant project personnel from initiation through closure.

## **6.9 AUTHORIZATION REQUIRED**

FDD does not require any special or legislative authorization for this project. Reporting criteria from the Statewide Information Management Manual (SIMM) will be adhered to throughout the project.

## 7 RISK MANAGEMENT PLAN

The Logbook Redesign Project's Risk Management Plan (RMP) is primarily based upon the standard risk management approach recommended in *A Guide to the Project Management Body of Knowledge (PMBOK) 2000* by the Project Management Institute. Where appropriate, elements of the Department of Finance (DOF) *Information Technology Project Oversight Framework* are also used. The Logbook Redesign Project RMP, documenting the process and procedures that are used to manage project risks and identify project team roles and responsibilities, is included as Appendix A.

### 7.1 RISK MANAGEMENT WORKSHEET

In accordance with the RMP, the Logbook Redesign Project Team has performed a risk assessment and identified the risks listed in the following Risk Management Worksheet.

Risk Category/ Event Description	Probability	Affected Project Area/Element	Preventive/ Contingency Measures
<p><i>Customers</i></p> <p>Construction managers for facility projects vary over time and will need support for submitting plans and monitoring project status</p>	.90	Customer Satisfaction	Outreach and Training Customer Service role of PTs
<p><i>Technical Staff</i></p> <p>Changes in technology may require additional skills from ISS staff</p> <p>Additional technical support staff may be needed.</p>	.50	Quality Schedule	Training Redirection to technical positions and/ BCP for staff increases
<p><i>Program Staff</i></p> <p>Staff resistance to new technology may impact system acceptance and use.</p>	.30	User Satisfaction	Training and support Involve FDD staff from functional areas in all project phases through inclusion on Project Team
<p><i>Procurement</i></p> <p>Competition may not be sufficient to meet control agency requirements</p> <p>Estimated costs may be too low</p>	.50	Schedule Scope Budget	Develop RFP meeting guidelines for competitive procurement. Submit SPR to reflect bidder costs if needed.
<p><i>Fiscal</i></p> <p>Spending authority not granted</p> <p>Technical resources not approved</p>	.50	Budget Schedule	Work closely with control agencies.

Risk Category/ Event Description	Probability	Affected Project Area/Element	Preventive/ Contingency Measures
<i>Data Conversion</i> Incompatibilities between existing and new database design may increase difficulty of data conversion.	.70	Quality Schedule	Specify amount and types of data to be converted in RFP.
<i>Security</i> Operational recovery of mission critical application to support emergency responses not timely Unauthorized access to data	.50	Life/Safety of California citizens Customers Data Integrity	Operational Recovery Plan to include application and data backups, restoration procedures Security standards to control access to data
<i>External Environment</i> Changes in law, policy, or regulations	.50	Scope Schedule	Monitor legislative, policy, and regulations changes and incorporate in Change Management process
<i>Technology</i> Data Center and ISS ability to support wireless technology	.20	Scope	Require use of proven technology that fits within Data Center and ISS standards.

## **8 ECONOMIC ANALYSIS WORKSHEETS (EAWS)**

**EXISTING SYSTEM/BASELINE COST WORKSHEET**

Department: Office of Statewide Health Planning and Development

All costs to be shown in whole (unrounded) dollars.

Date Prepared: 02/23/05

Project: Logbook Tracking Database System Redesign Project

(revised 5/14/05)

	FY 2004/05		FY 2005/06		FY 2006/07		FY 2007/08		FY 2008/09		FY 2009/10		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
<b>Continuing Information</b>														
<b>Technology Costs</b>														
Staff (salaries & benefits)	0.6	40,522	7.2	486,260	7.7	486,260	7.7	486,260	7.7	486,260	7.7	486,260	38.6	2,471,822
Hardware Lease/Maintenance		154		1,844		1,844		1,844		1,844		1,844		9,374
Software Maintenance/Licenses		151		1,811		1,811		1,811		1,811		1,811		9,206
Contract Services		16,667		200,000		200,000		200,000		200,000		200,000		1,016,667
Data Center Services		0		0		0		0		0		0		0
Agency Facilities*		6,678		80,141		82,241		84,341		86,441		88,541		428,383
Other		12,335		148,021		157,542		157,542		157,542		157,542		790,524
<b>Total IT Costs</b>	<b>0.6</b>	<b>76,506</b>	<b>7.2</b>	<b>918,077</b>	<b>7.7</b>	<b>929,698</b>	<b>7.7</b>	<b>931,798</b>	<b>7.7</b>	<b>933,898</b>	<b>7.7</b>	<b>935,998</b>	<b>38.6</b>	<b>4,725,975</b>
<b>Continuing Program Costs:</b>														
Staff	15.9	1,524,166	190.3	18,289,988	189.8	18,204,446	189.8	18,204,446	189.8	18,204,446	189.8	18,204,446	965.4	92,631,938
Other		625,199		7,502,387		7,490,766		7,488,666		7,486,566		7,484,466		38,078,050
<b>Total Program Costs</b>	<b>15.9</b>	<b>2,149,365</b>	<b>190.3</b>	<b>25,792,375</b>	<b>189.8</b>	<b>25,695,212</b>	<b>189.8</b>	<b>25,693,112</b>	<b>189.8</b>	<b>25,691,012</b>	<b>189.8</b>	<b>25,688,912</b>	<b>965.4</b>	<b>130,709,988</b>
<b>TOTAL EXISTING SYSTEM COSTS</b>	<b>16.5</b>	<b>2,225,871</b>	<b>197.5</b>	<b>26,710,452</b>	<b>197.5</b>	<b>26,624,910</b>	<b>197.5</b>	<b>26,624,910</b>	<b>197.5</b>	<b>26,624,910</b>	<b>197.5</b>	<b>26,624,910</b>	<b>1004.0</b>	<b>135,435,963</b>

\*Agency Facilities reflects cost of storing paper plans and project documents each year. Storage costs increase each year. Plans and project documents are required to be kept for the life of the building.

**PROPOSED ALTERNATIVE: Logbook Replacement with Custom Development**

Date Prepared: 02/23/05

**(revised 5/14/05)**

Department: Office of Statewide Health Planning and Development All Costs Should be shown in whole (unrounded) dollars.  
Project: Logbook Tracking Database System Redesign Project

	FY 2004/05		FY 2005/06		FY 2006/07		FY 2007/08		FY 2008/09		FY 2009/10		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
<b>One-Time IT Project Costs</b>														
Staff (Salaries & Benefits)	0.4	36,029	4.7	432,353	5.5	497,694	5.5	497,694	1.8	162,742			17.9	1,626,513
Hardware Purchase		0		0		151,500		198,250		0		0		349,750
Software Purchase/License		0		0		256,000		0		0		0		256,000
Telecommunications		0		0		10,000		5,000		0		0		15,000
<b>Contract Services</b>														
Software Customization		0		0		1,458,980		2,521,216		52,000		0		4,032,196
Project Management		14,400		172,800		180,000		216,000		90,000		0		673,200
Project Oversight		0		31,007		54,552		44,639		14,880		0		145,078
IV&V Services		0		72,348		127,290		104,159		34,719		0		338,516
Other Contract Services - Security		0		45,000		50,000		50,000		0		0		145,000
TOTAL Contract Services		14,400		321,155		1,870,822		2,936,014		191,599		0		5,333,990
Data Center Services		0		0		30,000		0		0		0		30,000
Agency Facilities		0		0		0		0		0		0		0
Other		7,928		170,141		102,284		95,284		31,197		0		406,834
<b>Total One-time IT Costs</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>923,649</b>	<b>5.5</b>	<b>2,918,300</b>	<b>5.5</b>	<b>3,732,242</b>	<b>1.8</b>	<b>385,538</b>	<b>0.0</b>	<b>0</b>	<b>17.9</b>	<b>8,018,087</b>
<b>Continuing IT Project Costs</b>														
Staff (Salaries & Benefits)	0.0	0	0.0	0	0.0	0	0.0	0	7.1	496,068	10.7	747,260	17.8	1,243,328
Hardware Lease/Maintenance		0		0		0		0		78,000		78,000		156,000
Software Maintenance/Licenses		0		0		0		0		94,743		94,743		189,486
Telecommunications		0		0		900		19,584		19,584		0		59,652
Contract Services		0		0		0		0		0		0		0
Data Center Services		0		0		342,998		348,630		348,630		348,630		1,388,888
Agency Facilities		0		0		0		0		0		0		0
Other		0		0		0		0		183,700		255,797		439,497
<b>Total Continuing IT Costs</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>343,898</b>	<b>0.0</b>	<b>368,214</b>	<b>7.1</b>	<b>1,220,725</b>	<b>10.7</b>	<b>1,544,014</b>	<b>17.8</b>	<b>3,476,851</b>
<b>Total Project Costs</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>923,649</b>	<b>5.5</b>	<b>3,262,198</b>	<b>5.5</b>	<b>4,100,456</b>	<b>8.9</b>	<b>1,606,263</b>	<b>10.7</b>	<b>1,544,014</b>	<b>35.7</b>	<b>11,494,938</b>
<b>Continuing Existing Costs</b>														
Information Technology Staff	0.6	40,522	7.2	486,260	7.7	486,260	7.7	486,260	2.6	164,192		0	25.8	1,663,494
Other IT Costs		35,985		151,676		161,197		161,197		54,430		0		564,485
<b>Total Continuing Existing IT Costs</b>	<b>0.6</b>	<b>76,507</b>	<b>7.2</b>	<b>637,936</b>	<b>7.7</b>	<b>647,457</b>	<b>7.7</b>	<b>647,457</b>	<b>2.6</b>	<b>218,622</b>	<b>0.0</b>	<b>0</b>	<b>25.8</b>	<b>2,227,979</b>
Program Staff	15.9	1,524,166	185.7	17,857,635	185.3	17,787,752	185.3	17,787,752	181.7	17,505,359	166.3	16,669,780	920.1	89,132,443
Other Program Costs		625,199		7,732,528		7,691,866		7,694,723		7,634,420		7,464,891		38,843,627
<b>Total Continuing Existing Program Costs</b>	<b>15.9</b>	<b>2,149,365</b>	<b>185.7</b>	<b>25,590,163</b>	<b>185.3</b>	<b>25,479,618</b>	<b>185.3</b>	<b>25,482,475</b>	<b>181.7</b>	<b>25,139,779</b>	<b>166.3</b>	<b>24,134,671</b>	<b>920.1</b>	<b>127,976,070</b>
<b>Total Continuing Existing Costs</b>	<b>16.5</b>	<b>2,225,871</b>	<b>192.9</b>	<b>26,228,099</b>	<b>193.0</b>	<b>26,127,075</b>	<b>193.0</b>	<b>26,129,932</b>	<b>184.3</b>	<b>25,358,401</b>	<b>166.3</b>	<b>24,134,671</b>	<b>945.9</b>	<b>130,204,049</b>
<b>TOTAL ALTERNATIVE COSTS</b>	<b>16.9</b>	<b>2,284,229</b>	<b>197.5</b>	<b>27,151,748</b>	<b>198.5</b>	<b>29,389,274</b>	<b>198.5</b>	<b>30,230,388</b>	<b>193.2</b>	<b>26,964,664</b>	<b>177.0</b>	<b>25,678,685</b>	<b>981.6</b>	<b>141,698,987</b>
INCREASED REVENUES**		0		0		0		7,218,500		895,700		671,700		8,785,900

\*\* Estimated Revenues reflect unbilled SB1953 review fees to be billed upon implementation. The revenue paid for SB1953 review services shall be deducted from the fee for a future project involving seismic retrofit or new construction pursuant to the hospital building compliance plan approved by the office.

\*\*\* Total Continuing Existing Program Cost Savings identified in fiscal years 2008/09 and 2009/10 will be redirected to meet objectives defined in Section 3 of the FSR.

**ALTERNATIVE #1: Enhance the Existing Logbook**

Date Prepared: 02/23/05

Department: Office of Statewide Health Planning and Development

All Costs Should be shown in whole (unrounded) dollars.

**(revised 5/14/05)**

Project: Logbook Tracking Database System Redesign Project

	FY 2004/05		FY 2005/06		FY 2006/07		FY 2007/08		FY 2008/09		FY 2009/10		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
<b>One-Time IT Project Costs</b>														
Staff (Salaries & Benefits)	0.4	36,029	4.7	432,353	5.5	497,694	5.5	497,694	1.8	162,742			17.9	1,626,512
Hardware Purchase		0		0		151,500		198,250		0		0		349,750
Software Purchase/License		0		0		256,000		0		0		0		256,000
Telecommunications		0		0		10,000		5,000		0		0		15,000
Contract Services														
Software Customization		0				1,628,360		2,796,940		0		0		4,425,300
Project Management		14,400		172,800		180,000		216,000		90,000		0		673,200
Project Oversight		0		44,368		48,401		48,401		16,133		0		157,303
IV&V/Oversight Services		0		103,525		112,936		112,936		37,644		0		367,041
Other Contract Services		0		45,000		50,000		50,000		0		0		145,000
TOTAL Contract Services		14,400		365,693		2,019,697		3,224,277		143,777		0		5,767,845
Data Center Services		0				30,000		0		0		0		30,000
Agency Facilities		0		0		0		0		0		0		0
Other		7,928		170,141		102,284		95,284		31,197		0		406,834
<b>Total One-time IT Costs</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>968,187</b>	<b>5.5</b>	<b>3,067,176</b>	<b>5.5</b>	<b>4,020,505</b>	<b>1.8</b>	<b>337,716</b>	<b>0.0</b>	<b>0</b>	<b>17.9</b>	<b>8,451,941</b>
<b>Continuing IT Project Costs</b>														
Staff (Salaries & Benefits)	0.0	0	0.0	0	0.0	0	0.0	0	7.1	496,068	10.7	747,260	17.8	1,243,328
Hardware Lease/Maintenance		0		0		0		0		78,000		78,000		156,000
Software Maintenance/Licenses		0		0		0		0		94,743		94,743		189,486
Telecommunications		0		0		900		19,584		19,584		19,584		59,652
Contract Services		0		0		0		0		0		0		0
Data Center Services		0		0		342,998		348,630		348,630		348,630		1,388,888
Agency Facilities		0		0		0		0		0		0		0
Other		0		0		0		0		183,700		255,797		439,497
<b>Total Continuing IT Costs</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>343,898</b>	<b>0.0</b>	<b>368,214</b>	<b>7.1</b>	<b>1,220,725</b>	<b>10.7</b>	<b>1,544,014</b>	<b>17.8</b>	<b>3,476,851</b>
<b>Total Project Costs</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>968,187</b>	<b>5.5</b>	<b>3,411,074</b>	<b>5.5</b>	<b>4,388,719</b>	<b>8.9</b>	<b>1,558,441</b>	<b>10.7</b>	<b>1,544,014</b>	<b>35.7</b>	<b>11,928,792</b>
<b>Continuing Existing Costs</b>														
Information Technology Staff	0.6	40,522	7.2	486,260	7.7	486,260	7.7	486,260	2.6	164,192	0.0	0	25.8	1,663,494
Other IT Costs		35,985		151,676		161,197		161,197		54,430		0		564,485
<b>Total Continuing Existing IT Costs</b>	<b>0.6</b>	<b>76,506</b>	<b>7.2</b>	<b>637,936</b>	<b>7.7</b>	<b>647,457</b>	<b>7.7</b>	<b>647,457</b>	<b>2.6</b>	<b>218,622</b>	<b>0.0</b>	<b>0</b>	<b>25.8</b>	<b>2,227,978</b>
Program Staff	15.9	1,524,166	185.7	17,857,635	185.3	17,787,752	185.3	17,787,752	181.7	17,505,359	166.3	16,669,780	965.4	92,631,938
Other Program Costs		625,199		7,732,528		7,691,866		7,694,723		7,634,420		7,464,891		39,523,100
<b>Total Continuing Existing Program Costs</b>	<b>15.9</b>	<b>2,149,365</b>	<b>185.7</b>	<b>25,590,163</b>	<b>185.3</b>	<b>25,479,618</b>	<b>185.3</b>	<b>25,482,475</b>	<b>181.7</b>	<b>25,139,779</b>	<b>166.3</b>	<b>24,134,671</b>	<b>920.1</b>	<b>127,976,071</b>
<b>Total Continuing Existing Costs</b>	<b>16.5</b>	<b>2,225,871</b>	<b>192.9</b>	<b>26,228,099</b>	<b>193.0</b>	<b>26,127,075</b>	<b>193.0</b>	<b>26,129,932</b>	<b>184.3</b>	<b>25,358,401</b>	<b>166.3</b>	<b>24,134,671</b>	<b>945.9</b>	<b>130,204,049</b>
<b>TOTAL ALTERNATIVE COSTS</b>	<b>16.9</b>	<b>2,284,228</b>	<b>197.5</b>	<b>27,196,286</b>	<b>198.5</b>	<b>29,538,149</b>	<b>198.5</b>	<b>30,518,651</b>	<b>193.2</b>	<b>26,916,842</b>	<b>177.0</b>	<b>25,678,685</b>	<b>981.6</b>	<b>142,132,841</b>
INCREASED REVENUES**		0		0		0		7,218,500		895,700		671,700		8,785,900

\*\* Estimated Revenues reflect unbilled SB1953 review fees to be billed upon implementation. The revenue paid for SB1953 review services shall be deducted from the fee for a future involving seismic retrofit or new construction pursuant to the hospital building compliance plan approved by the office.

\*\*\* Total Continuing Existing Program Cost Savings identified in fiscal years 2008/09 and 2009/10 will be redirected to meet objectives defined in Section 3 of the FSR.

**ALTERNATIVE #2: Replace Existing Logbook with COTS Solution**

Date Prepared: 02/23/05

Department: Office of Statewide Health Planning and Development

All Costs Should be shown in whole (unrounded) dollars.

**(revised 5/14/05)**

Project: Logbook Tracking Database System Redesign Project

	FY 2004/05		FY 2005/06		FY 2006/07		FY 2007/08		FY 2008/09		FY 2009/10		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
<b>One-Time IT Project Costs</b>														
Staff (Salaries & Benefits)	0.4	36,029	4.7	432,353	5.5	497,694	5.5	497,694	1.8	162,742	0.0		17.9	1,626,512
Hardware Purchase		0		0		151,500		198,250		0		0		349,750
Software Purchase/License		0		0		406,000		0		0		0		406,000
Telecommunications		0		0		10,000		5,000		0		0		15,000
<b>Contract Services</b>														
Software Customization		0		0		1,420,240		2,530,410		52,000		0		4,002,650
Project Management		14,400		172,800		180,000		216,000		90,000		0		673,200
Project Oversight		0		40,792		44,500		44,500		14,833		0		144,624
IV&V Services/Oversight		0		95,180		103,833		103,833		34,610		0		337,456
Other Contract Services		0		45,000		50,000		50,000		0		0		145,000
TOTAL Contract Services		14,400		353,772		1,798,573		2,944,743		191,443		0		5,302,930
Data Center Services		0		0		30,000		0		0		0		30,000
Agency Facilities		0		0		0		0		0		0		0
Other		7,928		170,141		102,284		95,284		31,197		0		406,834
<b>Total One-time IT Costs</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>956,266</b>	<b>5.5</b>	<b>2,996,051</b>	<b>5.5</b>	<b>3,740,971</b>	<b>1.8</b>	<b>385,382</b>	<b>0.0</b>	<b>0</b>	<b>17.9</b>	<b>8,137,026</b>
<b>Continuing IT Project Costs</b>														
Staff (Salaries & Benefits)	0.0	0	0.0	0	0.0	0	0.0	0	7.1	496,068	10.7	747,260	17.8	1,243,328
Hardware Lease/Maintenance		0		0		0		0		78,000		78,000		156,000
Software Maintenance/Licenses		0		0		0		0		94,743		94,743		189,486
Telecommunications		0		0		900		19,584		19,584		19,584		59,652
Contract Services		0		0		0		0		0		0		0
Data Center Services		0		0		342,998		348,630		348,630		348,630		1,388,888
Agency Facilities		0		0		0		0		0		0		0
Other		0		0		0		0		183,700		255,797		439,497
<b>Total Continuing IT Costs</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>343,898</b>	<b>0.0</b>	<b>368,214</b>	<b>7.1</b>	<b>1,220,725</b>	<b>10.7</b>	<b>1,544,014</b>	<b>17.8</b>	<b>3,476,851</b>
<b>Total Project Costs</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>956,266</b>	<b>5.5</b>	<b>3,339,949</b>	<b>5.5</b>	<b>4,109,185</b>	<b>8.9</b>	<b>1,606,107</b>	<b>10.7</b>	<b>1,544,014</b>	<b>35.7</b>	<b>11,613,877</b>
<b>Continuing Existing Costs</b>														
Information Technology Staff	0.6	40,522	7.2	486,260	7.7	486,260	7.7	486,260	2.6	164,192	0.0	0	25.8	1,663,494
Other IT Costs		35,985		151,676		161,197		161,197		54,430		0		564,485
<b>Total Continuing Existing IT Costs</b>	<b>0.6</b>	<b>76,506</b>	<b>7.2</b>	<b>637,936</b>	<b>7.7</b>	<b>647,457</b>	<b>7.7</b>	<b>647,457</b>	<b>2.6</b>	<b>218,622</b>	<b>0.0</b>	<b>0</b>	<b>25.8</b>	<b>2,227,978</b>
Program Staff	15.9	1,524,166	185.7	17,857,635	185.3	17,787,752	185.3	17,787,752	181.7	17,505,359	166.3	16,669,780	965.4	92,631,938
Other Program Costs		625,199		7,732,528		7,691,866		7,694,723		7,634,420		7,464,891		39,523,100
<b>Total Continuing Existing Program Costs</b>	<b>15.9</b>	<b>2,149,365</b>	<b>185.7</b>	<b>25,590,163</b>	<b>185.3</b>	<b>25,479,618</b>	<b>185.3</b>	<b>25,482,475</b>	<b>181.7</b>	<b>25,139,779</b>	<b>166.3</b>	<b>24,134,671</b>	<b>920.1</b>	<b>127,976,071</b>
<b>Total Continuing Existing Costs</b>	<b>16.5</b>	<b>2,225,871</b>	<b>192.9</b>	<b>26,228,099</b>	<b>193.0</b>	<b>26,127,075</b>	<b>193.0</b>	<b>26,129,932</b>	<b>184.3</b>	<b>25,358,401</b>	<b>166.3</b>	<b>24,134,671</b>	<b>945.9</b>	<b>130,204,049</b>
<b>TOTAL ALTERNATIVE COSTS</b>	<b>16.9</b>	<b>2,284,228</b>	<b>197.5</b>	<b>27,184,365</b>	<b>198.5</b>	<b>29,467,024</b>	<b>198.5</b>	<b>30,239,117</b>	<b>193.2</b>	<b>26,964,508</b>	<b>177.0</b>	<b>25,678,685</b>	<b>981.6</b>	<b>141,817,927</b>
INCREASED REVENUES**		0		0		0		7,218,500		895,700		671,700		8,785,900

\*\* Estimated Revenues reflect unbilled SB1953 review fees to be billed upon implementation. The revenue paid for SB1953 review services shall be deducted from the fee for a future involving seismic retrofit or new construction pursuant to the hospital building compliance plan approved by the office.

\*\*\* Total Continuing Existing Program Cost Savings identified in fiscal years 2008/09 and 2009/10 will be redirected to meet objectives defined in Section 3 of the FSR.

**ECONOMIC ANALYSIS SUMMARY**

Date Prepared: 02/23/05  
(revised 5/14/05)

Department: Office of Statewide Health Planning and Development All costs to be shown in whole (unrounded) dollars.  
Project: Logbook Tracking Database System Redesign Project

	FY 2004/05		FY 2005/06		FY 2006/07		FY 2007/08		FY 2008/09		FY 2009/10		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
<b>EXISTING SYSTEM</b>														
Total IT Costs	0.6	76,506	7.2	918,077	7.7	929,698	7.7	931,798	7.7	933,898	7.7	935,998	38.6	4,725,975
Total Program Costs	15.9	2,149,365	190.3	25,792,375	189.8	25,695,212	189.8	25,693,112	189.8	25,691,012	189.8	25,688,912	965.4	130,709,988
Total Existing System Costs	16.5	2,225,871	197.5	26,710,452	197.5	26,624,910	197.5	26,624,910	197.5	26,624,910	197.5	26,624,910	1004.0	135,435,963

<b>PROPOSED ALTERNATIVE</b>	<b>Logbook Replacement with Custom Development</b>													
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
Total Project Costs	0.4	58,357	4.7	923,649	5.5	3,262,198	5.5	4,100,456	8.9	1,606,263	10.7	1,544,014	35.7	11,494,937
Total Cont. Exist. Costs	16.5	2,225,871	192.9	26,228,099	193.0	26,127,075	193.0	26,129,932	184.3	25,358,401	166.3	24,134,671	945.9	130,204,049
Total Alternative Costs	16.9	2,284,228	197.5	27,151,748	198.5	29,389,274	198.5	30,230,388	193.2	26,964,664	177.0	25,678,685	981.6	141,698,986
COST SAVINGS/AVOIDANCES	(0.4)	(58,357)	0.0	(441,296)	(1.0)	(2,764,364)	(1.0)	(3,605,478)	4.3	(339,754)	20.5	946,225	22.4	(6,263,023)
Increased Revenues		0		0		0		7,218,500		895,700		671,700		8,785,900
Net (Cost) or Benefit	(0.4)	(58,357)	0.0	(441,296)	(1.0)	(2,764,364)	(1.0)	3,613,022	4.3	555,946	20.5	1,617,925	22.4	2,522,877
Cum. Net (Cost) or Benefit	(0.4)	(58,357)	(0.4)	(499,653)	(1.4)	(3,264,017)	(2.4)	349,005	1.9	904,951	22.4	2,522,877		

<b>ALTERNATIVE #1</b>	<b>Enhance the Existing Logbook</b>													
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
Total Project Costs	0.4	58,357	4.7	968,187	5.5	3,411,074	5.5	4,388,719	8.9	1,558,441	10.7	1,544,014	35.7	11,928,792
Total Cont. Exist. Costs	16.5	2,225,871	192.9	26,228,099	193.0	26,127,075	193.0	26,129,932	184.3	25,358,401	166.3	24,134,671	945.9	130,204,049
Total Alternative Costs	16.9	2,284,228	197.5	27,196,286	198.5	29,538,149	198.5	30,518,651	193.2	26,916,842	177.0	25,678,685	981.6	142,132,841
COST SAVINGS/AVOIDANCES	(0.4)	(58,357)	0.0	(485,834)	(1.0)	(2,913,239)	(1.0)	(3,893,741)	4.3	(291,932)	20.5	946,225	22.4	(6,696,878)
Increased Revenues		0		0		0		7,218,500		895,700		671,700		8,785,900
Net (Cost) or Benefit	(0.4)	(58,357)	0.0	(485,834)	(1.0)	(2,913,239)	(1.0)	3,324,759	4.3	603,768	20.5	1,617,925	22.4	2,089,022
Cum. Net (Cost) or Benefit	(0.4)	(58,357)	(0.4)	(544,191)	(1.4)	(3,457,429)	(2.4)	(132,670)	1.9	471,097	22.4	2,089,022		

<b>ALTERNATIVE #2</b>	<b>Replace Existing Logbook with COTS Solution</b>													
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
Total Project Costs	0.4	58,357	4.7	956,266	5.5	3,339,949	5.5	4,109,185	8.9	1,606,107	10.7	1,544,014	35.7	11,613,877
Total Cont. Exist. Costs	16.5	2,225,871	192.9	26,228,099	193.0	26,127,075	193.0	26,129,932	184.3	25,358,401	166.3	24,134,671	945.9	130,204,049
Total Alternative Costs	16.9	2,284,228	197.5	27,184,365	198.5	29,467,024	198.5	30,239,117	193.2	26,964,508	177.0	25,678,685	981.6	141,817,927
COST SAVINGS/AVOIDANCES	(0.4)	(58,357)	0.0	(473,913)	(1.0)	(2,842,114)	(1.0)	(3,614,207)	4.3	(339,598)	20.5	946,225	22.4	(6,381,964)
Increased Revenues		0		0		0		7,218,500		895,700		671,700		8,785,900
Net (Cost) or Benefit	(0.4)	(58,357)	0.0	(473,913)	(1.0)	(2,842,114)	(1.0)	3,604,293	4.3	556,102	20.5	1,617,925	22.4	2,403,936
Cum. Net (Cost) or Benefit	(0.4)	(58,357)	(0.4)	(532,270)	(1.4)	(3,374,384)	(2.4)	229,909	1.9	786,011	22.4	2,403,936		

**PROJECT FUNDING PLAN**Department: Office of Statewide Health Planning and Development  
Project: Logbook Tracking Database System Redesign Project

All Costs to be in whole (unrounded) dollars

Date Prepared: 02/23/05  
(revised 5/14/05)

	FY 2004/05		FY 2005/06		FY 2006/07		FY 2007/08		FY 2008/09		FY 2009/10		TOTALS	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
<b>TOTAL PROJECT COSTS</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>923,649</b>	<b>5.5</b>	<b>3,262,198</b>	<b>5.5</b>	<b>4,100,456</b>	<b>8.9</b>	<b>1,606,263</b>	<b>10.7</b>	<b>1,544,014</b>	<b>35.7</b>	<b>11,494,937</b>
RESOURCES TO BE REDIRECTED														
Staff	0.4	36,029	4.7	432,353	4.5	416,694	4.5	416,694	7.9	502,068	9.7	666,260	31.7	2,470,098
Funds:														
Existing System		0		0		0		0		106,767		161,197		267,964
Other Fund Sources		22,328		267,941		78,284		78,284		156,805		36,000		639,642
<b>TOTAL REDIRECTED RESOURCES</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>700,294</b>	<b>4.5</b>	<b>494,978</b>	<b>4.5</b>	<b>494,978</b>	<b>7.9</b>	<b>765,640</b>	<b>9.7</b>	<b>863,457</b>	<b>31.7</b>	<b>3,377,704</b>
ADDITIONAL PROJECT FUNDING NEEDED														
One-Time Project Costs	0.0	0	0.0	223,355	1.0	2,423,322	1.0	3,237,264		222,201	0.0	0	2.0	6,106,142
Continuing Project Costs	0.0	0	0.0	0	0.0	343,898	0.0	368,214	1.0	618,422	1.0	680,557	2.0	2,011,091
<b>TOTAL ADDITIONAL PROJECT FUNDS NEEDED BY FISCAL YEAR</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>223,355</b>	<b>1.0</b>	<b>2,767,220</b>	<b>1.0</b>	<b>3,605,478</b>	<b>1.0</b>	<b>840,623</b>	<b>1.0</b>	<b>680,557</b>	<b>4.0</b>	<b>8,117,233</b>
<b>TOTAL PROJECT FUNDING *</b>	<b>0.4</b>	<b>58,357</b>	<b>4.7</b>	<b>923,649</b>	<b>5.5</b>	<b>3,262,198</b>	<b>5.5</b>	<b>4,100,456</b>	<b>8.9</b>	<b>1,606,263</b>	<b>10.7</b>	<b>1,544,014</b>	<b>35.7</b>	<b>11,494,937</b>
Difference: Funding - Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
<b>Total Estimated Cost Savings **</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>5.3</b>	<b>544,901</b>	<b>16.2</b>	<b>1,651,783</b>	<b>21.5</b>	<b>2,196,684</b>

\*OSHPD will request funding of this project through the Spring Finance Process for the 05/06. Additional funds will be requested via the annual BCP process for the respective year.

\*\* Estimated Savings reflects savings in postage after implementation of digital images (FY08/09=\$12,500;FY09/10=\$25,000). Additional savings in 2008/09 (5.3PY, \$532,401) and 2009/10 (16.2PY, \$1,626,782.77) represent savings in staff effort to perform same level of service prior to implementation. All staff savings will be redirected to meet objectives identified in Section 3 of the FSR.

**ADJUSTMENTS, SAVINGS AND REVENUES WORKSHEET  
(DOF Use Only)**

Department: Office of Statewide Health Plan  
Project: Logbook Tracking Database System Redesign Project

Date Prepared: 02/23/05  
(revised 5/14/05)

Annual Project Adjustments	FY 2004/05		FY 2005/06		FY 2006/07		FY 2007/08		FY 2008/09		FY 2009/10		Net Adjustments	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
<b>One-time Costs</b>														
Previous Year's Baseline	0.0	0	0.0	0	0.0	223,355	1.0	2,423,322	1.0	3,237,264	0.0	222,201		
<b>(A) Annual Augmentation /(Reduction)</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>223,355</b>	<b>1.0</b>	<b>2,199,968</b>	<b>0.0</b>	<b>813,942</b>	<b>(1.0)</b>	<b>(3,015,063)</b>	<b>0.0</b>	<b>(222,201)</b>		
<b>(B) Total One-Time Budget Actions</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>223,355</b>	<b>1.0</b>	<b>2,423,322</b>	<b>1.0</b>	<b>3,237,264</b>	<b>0.0</b>	<b>222,201</b>	<b>0.0</b>	<b>0</b>	<b>2.0</b>	<b>6,106,142</b>
<b>Continuing Costs</b>														
Previous Year's Baseline	0.0	0	0.0	0	0.0	0	0.0	343,898	0.0	368,214	1.0	618,422		
<b>(C) Annual Augmentation /(Reduction)</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>343,898</b>	<b>0.0</b>	<b>24,316</b>	<b>1.0</b>	<b>250,208</b>	<b>0.0</b>	<b>62,135</b>		
<b>(D) Total Continuing Budget Actions</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>343,898</b>	<b>0.0</b>	<b>368,214</b>	<b>1.0</b>	<b>618,422</b>	<b>1.0</b>	<b>680,557</b>	<b>2.0</b>	<b>2,011,091</b>
<b>Total Annual Project Budget Augmentation /(Reduction) [A + C]</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>223,355</b>	<b>1.0</b>	<b>2,543,866</b>	<b>0.0</b>	<b>838,258</b>	<b>0.0</b>	<b>(2,764,855)</b>	<b>0.0</b>	<b>(160,066)</b>		

[A, C] Excludes Redirected Resources

**Total Additional Project Funds Needed [B + D]**

<b>4.0</b>	<b>8,117,233</b>
------------	------------------

**Annual Savings/Revenue Adjustments**

Cost Savings	0.0	0	0.0	0	0.0	0	0.0	0	5.3	544,901	10.9	1,106,882		
Increased Program Revenues		0		0		0		7,218,500		895,700		671,700		

## 9 ACRONYMS AND DEFINITIONS

Acronym/Term	Definition
ACO	Area Compliance Officer; OSHPD field representative responsible for enforcing construction standards as contained in Title 24 of the Health and Safety Code.
AIMS	Agency Information Management Strategy
ALIRTS	Automated Licensing Information and Report Tracking System (includes current and historical information for California healthcare facilities)
CAD	Computer Aided Design
CAFD	California Fire Departments; a table in Logbook
CNN	Cable News Network
COTS	Commercial Off-the-Shelf - software or hardware products that are ready-made and available for sale to the general public.
DBMS	Database Management System
DD&I	Design, Development and Integration
DHS	Department of Health Services
DMS	Document Management System; component 2 of the proposed solution.
DMZ	Demilitarized zone, a computer or small subnetwork that sits between a trusted internal network, such as a corporate private LAN, and an untrusted external network, such as the public Internet.
DSE	District Structural Engineers; OSHPD field representative responsible for enforcing structural aspects of construction standards as contained in Title 24 of the Health and Safety Code.
EAW	Economic Analysis Worksheet
EGIS	OSHPD's Enterprise Geographic Information System
EOC	FDD Emergency Operations Center
ETA	Enterprise Technology Architecture
FDD	Facilities Development Division
FDM	Facilities Development Management – name for Logbook replacement system
FLSO	Fire and Life Safety Officers; OSHPD field representative responsible for enforcing fire and life safety standards as contained in Title 24 of the Health and Safety Code.
FPS	Facilities Project Sub-System

<b>Acronym/Term</b>	<b>Definition</b>
FREER	Field reviews, exempt reviews, and expedite reviews
GIS	Geographic Information System; technology proposed in Section 5
GPS	Global Positioning System; satellite-based positioning system; technology proposed in Section 5
HHSA	Health and Human Services Agency
HHSDC	Health and Human Services Agency Data Center
HIPAA	Health Information Portability and Accountability Act
HSIS	Healthcare Structure Information System; third component of the proposed solution
IOR	Inspector of Record; an independent contractor licensed by OSHPD who is hired by the facility to perform building inspections during construction.
ISO	Information Security Officer
ISS	OSHPD's Information Systems Section
IT	Information Technology
ITPP	Information Technology Procurement Plan
IV&V	Independent Validation and Verification
KDE	Keyed data entry
MSA	Master Services Agreement
NPC	Non-Structural Performance Category; OSHPD non-structural rating assigned to facility buildings pursuant to SB 1953
O&M	Operations and Maintenance
ODBC	Open Data Base Connectivity; a standardized database access method
OES	Office of Emergency Services – The State of California agency responsible for emergency planning and response coordination
OSHPD	Office of Statewide Health Planning and Development
PAD	Post Approval Document; documents submitted by facilities reflecting changes to approved construction project plans
PDA	Personal Digital Assistant
PMBOK	Project Management Body of Knowledge maintained by the Project Management Institute
PMO	Project Management Office

Acronym/Term	Definition
PT	Program Technician; responsible for the office management of project files, records, and statuses.
PY	Person Year
RAS	Remote Access System
RCO	Regional Compliance Officer; directs and supervises the activities of field staff assigned to a region.
RFP	Request for Proposal
RIMS	OES Response Information Management System
RMP	Risk Management Plan
SB 1953	Senate Bill that established Seismic Retrofit Program requirements
SNF	Skilled Nursing Facility
SPC	Structural Performance Category; OSHPD structural rating assigned to facility buildings pursuant to SB 1953.
SRC	State Records Center
SRP	Seismic Retrofit Program; the FDD organizational unit responsible for monitoring SB 1953 hospital compliance efforts.
TIO	Testing, Inspection, and Observation

## 10 DETAILED DESCRIPTION OF CURRENT BUSINESS PROCESSES

### 10.1 OVERSEE SEISMIC RETROFIT PROJECT

SB 1953 requires California acute care health facilities to be compliant with seismic safety regulations, Structural Performance Category (SPC) and Non-Structural Performance Category (NPC), by 2030. To assist facilities in reducing the immediate financial burden of complying with SB 1953, the SPC/NPC ratings are phased in by year through 2030. The regulations specify a time table for compliance with succeeding SPC and NPC ratings and the processes for requesting extensions. The first compliance target date was January 1, 2002 for NPC 2 ratings. The next target date is SPC 2 and NPC 3 ratings by January 1, 2008. By January 1, 2030, any general acute care hospital building which continues acute care operation must, at a minimum, meet the structural requirements of SPC 3, 4, or 5 and the nonstructural requirements of NPC 5 or shall no longer provide acute care services.

The FDD Seismic Retrofit Program (SRP) developed the regulations and codes per SB 1953 mandate and is responsible for monitoring facilities' compliance efforts. The SRP staff assign facility SPC/NPC categories based on documentation received from the facilities.

Facilities submit (per building) hardcopy requests for deadline extensions, evaluation reports, compliance plans, test plans, geotechnical and engineering geologic reports, and requests for SPC/NPC rating upgrades to SRP staff. SRP staff key enter the received documentation into the Logbook SB 1953 module. Based on SRP staff review and determination, SRP staff generate and mail comment or approval letters to the facilities. As information is entered into Logbook SB 1953 module, system generated flags update the Logbook FPS system with invoicing information.

There are approximately 2,692 facility buildings that must comply with SB 1953. By January 1, 2001, each facility was responsible for evaluating their current SPC/NPC rating, developing a compliance plan for implementation of the SB 1953 regulations and milestones, and submitting their evaluations and plans for SRP review and approval. For example, if a facility evaluated at an SPC 2 rating, then SRP reviewed the submitted seismic evaluation reports and either approved the reports (and associated facility NPC and SPC ratings) or provided review comments to the facility.

The buildings are at differing phases of compliance, have differing compliance approaches, and submit large volumes of paperwork and documentation. All of which SRP staff attempt to monitor and track in the Logbook SB 1953 module.

Table 10-1 lists the number buildings pending SPC/NPC rating approvals. The Total Buildings column states the number of buildings out of the 2,692 total that are requesting approval for each rating category.

**Table 10-1: NPC/SPC Ratings per Building**

NPC			SPC		
Rating	To Be Approved	Total Buildings	Rating	To Be Approved	Total Buildings
1	865	2,002	1	481	1,025
2	219	402	2	178	189
3	38	48	3	179	347
4	119	148	4	311	736
5	4	4	5	165	328
0 <sup>21</sup>	88	88	0	67	67
<b>Total:</b>	<b>1333</b>	<b>2,692</b>		<b>1382</b>	<b>2,692</b>

## 10.2 APPROVE CONSTRUCTION PROJECTS

The Approve Construction Projects process is performed by the FDD Plan Review staff. This process initiates upon receipt of an Application for Plan Review. Plan Review staff consist of a Regional Supervisor (RS), who manages Structural Engineers, Mechanical Engineers, Architects, Electrical Engineers, Fire and Life Safety Officers, and Program Technician (PT).

### 10.2.1 Create New Projects

Regional Plan Review staff review, approve, and/or deny health facility construction plans. Regional PT's receive new and updated applications for plan review, sort and route the application items to the appropriate staff, or return incomplete applications to the sender. The PT performs a series of manual inspections of the application information and manually enters the applications into the Logbook, which assigns a system generated project number. This project number is a flag for the accounting staff that a new project has been created and to begin invoicing. A letter (325/TR Triage) is generated out of the Logbook system itemizing the items logged into Logbook and mailed to the point of contact for the facility.

When a new project is entered, the Logbook system also assigns estimated review hours based on information entered for the project and on historical data of similar projects. The system generates an estimated target date for review completion based on OSHPD 60/30/30 or 80/40/30 targets. The objective of these policies for the Plan

---

<sup>21</sup> Rating 0 reflects those buildings that have not been rated.

Review process is to review and return projects to clients within timeline targets based on project type and type of plan review. The project types are as described in Table 3-2: Review Documents by Project Type in Section 3.1.3. FDD's targets for each project type are summarized in the table below:

**Table 10-2: Plan Review Targets by Project Type**

Type of Project	TYPE OF PLAN REVIEW		
	New Construction	Backcheck	Post Approval
G	60	30	30
S	60	30	30
H	80	40	30
I	80	40	30

### **10.2.2 Perform Triage**

When a project is entered in the system, the plans and accepted application are forwarded to the regional plan review staff with an attached Triage Form. Triage is the process in which applications are reviewed to determine if the applicant's information is the same information on all the plans, to determine if the plans are complete so that a detailed review can be performed, to determine if all the plans are included, and to estimate the review effort required. If any of the plan review disciplines believe the initial review criteria are not met, the plans and/or applications are returned to the applicant.

If the triage process determines the submittal package is complete, one of three activities may occur:

- Issue a Defected Letter. This usually occurs when the plans are lacking in code compliance. Defected review statuses are sent to facilities.
- Issue a Project Approval Letter. This usually occurs with small projects with few plans to review.
- Conduct a formal plan review process. This activity is the norm in FDD and usually consists of the medium to large projects. For formal review, the architects and engineers review the estimated review hours in the Logbook and adjust the estimates according to their professional opinions regarding review time.

### **10.2.3 Prioritize Workload and Flow**

The Regional Supervisors of each region may also adjust each project's Logbook system estimated review hours and target completion date based on staff workload and availability. As projects are received and/or changed, the Regional Supervisors review and prioritize the plan reviewers' workloads. Regional Supervisors typically use the functionality built into Logbook in this process; however larger regions may use Microsoft Project.

#### **10.2.4 Review Plans**

Following triage and responding to Regional Supervisor prioritizations, the plan reviewers begin reviewing plans. As plans are reviewed, plan review staff may use one of the comments databases, which list common comments and corresponding building codes or regulations. Plan review comments are either attached to or written directly on the plans and returned to the facilities for adjustments and modifications. Facilities mail in their modified plans and comments for back check reviews.

Each day, plan reviewers log their daily activities into the Logbook including time spent on plan review or other administrative duties. Plan review hours are used primarily to project estimated review times for future projects.

Once all project plans are approved, the Plan Review staff stamp each plan, initial their approval, mail the approved plans to the facility, and route a notice to the Regional Compliance Officer. Project Approval is a major milestone for clients and for FDD, because it is the trigger for issuing a building permit which is needed before construction can begin.

#### **10.2.5 Issue Building Permit**

Upon receipt of the plan approval notification from the Plan Review staff, the Regional Compliance Officer (RCO) reviews and signs the Building Permit form. The RCO also evaluates the suitability of an Inspector of Record (IOR) for a project and either accepts or returns the IOR Application. All other necessary paperwork is also evaluated. The RCO routes the documents to be copied, filed in FDD, and mailed to the project contacts.

#### **10.2.6 Approve Alternate Methods of Compliance**

FDD receives requests for approval of alternate methods of compliance from private design firms. The alternate methods of compliance are alternate ways in which design firms propose complying with a specific section or sections of the building code. These are reviewed by FDD management and results are recorded in the Logbook system. The approval information is used by the Regulations unit staff in formulating regulations and by Plan Review staff.

### **10.3 MONITOR CONSTRUCTION PROJECTS**

The Monitor Construction Project process is performed by the FDD Field Staff. This process initiates upon plan approval or construction start notification. Field Staff consist of a Regional Compliance Officer (RCO), who oversees Area Compliance Officers (ACO), District Structural Engineers (DSE), Fire and Life Safety Officers (FLSO), Architects, and Program Technicians (PT).

During the inspection process, the Field Staff monitor the progress of a health facility construction project and ensure conformance with FDD approved design plans and compliance with California Building Codes. Field Staff submit reports throughout the construction project and are responsible for issuing a 100% Final Verified Compliance Report.

#### ***10.3.1 Perform FREER***

Field staff perform FREERs, which are defined as field reviews, exempt reviews, and expedite reviews. Professional judgment, background, and training are used to determine if a project meets the qualifications of a FREER as outlined in the FREER manual. Field staff verify all required information is provided on the Application for Plan Review. Field staff assign a project number provided by the Office and review the plans for compliance with applicable building codes. Approved project plans are stamped with a field approval stamp and signed. The field staff prepare a FREER Approval letter in the form of a field report. The original Application for Plan Review, FREER Approval Letter, Approved Plans, other supporting documents, and fee (if any) are forwarded to the RCO. The submitted project information is manually entered into the Logbook by the regional PT.

#### ***10.3.2 Oversee Construction Inspections***

To enforce applicable codes and regulations for health facility construction, field staff visit project sites to verify that construction is in conformance with the approved plans and to evaluate the performance of the Inspector of Record (IOR). Field Staff are notified of project commencement from various sources, including the facility, project representative, or the FDD office.

Field Staff ensure IORs are performing their functions in accordance with the requirements of the California Building Standards Code (CBC) Title 24, C.C.R and information provided on the Testing, Inspection, and Observation (TIO) Form. As evaluations are completed, Field staff manually or electronically generate Field Reports. The Field Reports are mailed, faxed, or emailed to the OSHPD Sacramento Office and to the IOR or other facility representative. As reports are received at the Sacramento Office, the regional PTs manually enter the information provided on the reports into the Logbook system. The report is forwarded to the RCO for review.

Field Staff also generate weekly timesheets, identifying their work hours by project number, hours, activity code, and mileage. The timesheets are completed manually and faxed to the Sacramento or Los Angeles Office for entry into the Logbook. Or they are submitted by remote dial-up access using the I-Logbook timesheet.

### **10.3.2.1 Unauthorized Construction**

When staff discover unauthorized construction or alteration, a Field Report is generated stating the scope of the unauthorized construction. The Field Report cites the specific code sections that the effected work is violating. Staff arrange to meet with the owner/owner's representative to discuss the unauthorized construction and to agree on a reasonable time for submittal of plans and building permit application for the effected work. The Field Report indicates the time frame agreed to and the owner/owner's representative shows acceptance by signing the Field Report. If no progress is apparent the RCO is notified through a Field Report. All non-conforming work must be brought into compliance with the approved construction documents.

### **10.3.2.2 Issue Stop Work Order**

Field staff are informed of unauthorized, non-conforming, or hazardous construction in progress via the Inspector of Record, Licensing/Certification, personal observation, or other individual. A voluntary stop of the unauthorized, non-conforming, or hazardous construction is first attempted. If the owner/owner's representative agrees to voluntarily stop the effected work, staff write a Field Report identifying the effected work. The voluntary stop is rescinded by issuance of an approved Change Order, Building Permit, or Field Report authorizing continuance of construction.

If staff are unable to obtain voluntary stop of unauthorized, non-conforming, or hazardous construction, staff write a report describing the effected work citing the specific code requirements being violated. The report also includes a request for issuance of a stop work order by the office. The Stop Work Order is issued by the Deputy Director and forwarded to the project site/facility. The Stop Work Order remains in effect until a formal letter rescinds the Stop Work order.

### **10.3.2.3 Review Post Approval Documents**

During the project construction, Field Staff may be presented with Post Approval Document (PAD) forms to be reviewed and approved. A PAD may be a Change Order, Instruction Bulletin, or Addendum. Field staff may:

- Review the PADs in the field and provide approved, defected, or noted as review not required by specific disciplines;
- Split the review between field staff and office staff; and/or
- Send the PAD to the office staff for review and approval.

The field staff verify the accuracy and completeness of submitted PADs. A multi-discipline triage stamp is used to track the progressing triage/review. Approved change orders, deferred approvals, and addenda with all supporting documentation are delivered to the office for inclusion in the project file.

The results of each field triage/review are recorded on a field review report form (FR) and submitted to the RCO. The report identifies the PAD, all disciplines required to triage/review the document, and the status of the triage/review. The dates of the field visit are manually entered into Logbook.

#### **10.3.2.4 Track Project Inspections**

The regional PT generates a report from Logbook listing all the projects occurring in a region. The Quarterly Report lists each project and pertinent project information (e.g., the project number, the facility location, amount of project, date project created in FDD, date project approved by FDD, date of permit issuance). The report is used by the RCO, ACOs, and other field staff to monitor the progress of projects and to identify new projects.

#### **10.3.2.5 Issue Final Reports**

The Issue Final Reports process varies by region. In general, the ACOs verify each project has complied with the following conditions:

- Statement of substantial completion from the responsible Architect or Engineer.
- Final construction inspection/approval by all applicable OSHPD field representatives.
- All work has been completed in accordance with the approved construction documents.

The method in which the ACOs determine compliance and submit the final reports varies regionally. When the ACO receives a Statement of Substantial Completion from the project's Architect or Engineer, the ACO inspects the project and issues a Construction Final report that may be 95-100 percent complete. Each percent within the percentage range represents a different level of completion. Depending on the region, the ACO may call the Sacramento or Los Angeles office to confirm that all PADs and verified reports are complete before issuing a Final Report. Some regions issue the Final Report without confirming all PADs have been approved.

### **10.4 SUPPORT FDD OPERATIONS**

#### ***10.4.1 Certify Inspectors of Record***

According to the Building Standards Administrative Code (Part 1, Title 24, C.C.R), Inspectors of Record (IOR) must be certified by OSHPD. OSHPD is the governing authority for the IOR certifications and examinations. This responsibility includes managing the examination process and issuing certifications.

Examinations are developed by FDD staff and comply with State Personnel Board guidelines. Examinations are conducted twice a year in both Sacramento and Los Angeles, for a total of four examinations per year. Re-tests for specific sections of the examination may be scheduled for applicants passing three out of four sections with a minimum score of 50% on the fourth section. The FDD IOR staff is responsible for reviewing applications and renewal registrations, processing fees, notifying applicants, and entering qualified applicants into the MS Access Exam Database. The FDD IOR staff proctor and score the exams. Applicants who pass the exam are manually entered into the Logbook IOR module and notified by letter of their qualifying exam scores. The online IOR list is updated twice a year following each exam.

Over the last two years (2003 – 2004) the IOR program experienced the following averages:

- 17 applicants per test in Sacramento and 40 per test in Los Angeles
- 106 new certifications per year
- 185 re-certifications per year

As of December 2004, there were 687 certified IORs in the Logbook IOR database. 588 of these were Class A certifications.

#### **10.4.2 Recover Cost of Monitoring Construction**

OSHPD is responsible for recovering the cost of FDD services. The Accounting Office of the Administration Division performs the cost recovery function for FDD per information provided in the Logbook Facilities Project Sub-System (FPS) module. New projects entered into Logbook automatically populate the FPS for invoicing, which continues through the project lifecycle as construction cost changes are recorded in Logbook. The Accounting Section staff (FPS staff) run a nightly process which provides a list of new or updated projects and all their corresponding billing codes. From this list, the FPS staff generate invoices from the FPS system, which reflects the codes and their corresponding costs based on information entered by the PT's. The FPS staff validate invoice accuracy and void duplicate invoices. After invoices are validated, they are mailed to the facilities.

The Accounting Section performs all required standard accounting processes, including processing receivables, reconciliation, and collections.

#### **10.4.3 Assign Project Closure Status**

Upon receipt of the 100% ACO Final Report, the PT's initiate Project Closure. The PT enters the Final report into the Logbook. This entry records the project status as eligible for project closure. The PT informs facilities of documentation required for FDD to close the project with compliance. If facilities do not respond with the necessary documents, the PT's close the project without compliance.

Before a PT can assign a closure status, a final cost must be generated for accounting purposes. A final cost may be supplied by the project or may be calculated by the PT. When the facility supplies the final cost, the PT compares the final cost with the estimated cost. If the final cost has a difference greater than 5%, the PT issues a Discrepancy Letter requesting explanation for cost difference. If the facility does not provide a final cost, the PT calculates and obtains RCO approval for final project costs.

If all the project documents are provided and a final cost is provided by the facility, the PT assigns a Closed with Compliance status to the project. Once a closed status is assigned to the projects, the PT pulls and archives the project files.

**10.4.4 Archive Project Documents**

The FDD Archives staff receives project documentation to be archived at the State Records Center (SRC). Two databases are used to track archived files on a daily basis:

- Logbook Archive Module which tracks approximately three hundred thousand (300,000) projects.
- Access database for projects from 1954 to 1982 consisting of approximately six thousand (6,000) archived projects.

The Logbook Archives Module contains information on projects from both the Los Angeles and Sacramento Offices. In 2004, the Los Angeles office began using the Logbook archives module for tracking archived projects. Information previously recorded on printed sheets has been back-entered into the Logbook Archives module.

Project records include rolls of construction plans and other paper files. Construction plans are stored in 12 cubic foot wardrobe boxes and other files are stored in 1 cubic foot boxes. Depending on the size of the project, one box may contain multiple projects. Upon receipt of the project files, the archives staff enter the project information into the Logbook Archives module.

Archived project files are first stored at OSHPD facilities in Los Angeles or Sacramento. Twice a year, records for one to three thousand (1,000 – 3,000) projects consisting of approximately 100 file boxes and 50 wardrobe boxes are transferred from these locations to the State Records Center (SRC). The Logbook Archives Module is updated to record transfer to the SRC.

The current estimated storage usage and costs are shown in Table 10-3 below.

**Table 10-3: 2004/05 Archives Storage Usage/Costs**

Facility	Storage	Cost	Total Annual Cost
State Records Center (Los Angeles)	492 Cu. Ft.	\$1.03/cu.ft/quarter	\$2,207
State Records Center (Sacramento)	657 Cu. Ft.	\$1.03/cu.ft./quarter	\$2,707
OSHPD K Street (Sacramento)	1340 Sq. Ft.	\$1.60/ sq. ft/month	\$25,728
OSHPD Los Angeles	1000 Sq. Ft.	\$2.08/sq. ft/month	\$24,960
OSHPD R Street Storage (Sacramento)	4000 Sq. Ft.	\$0.40/sq. ft/month	\$19,200
<b>Total Annual 04/05 Storage Cost</b>			<b>\$74,622</b>

The Archives staff are also responsible for retrieving project files per request from staff or facilities. FDD's Sacramento Archives staff process an average of 200 project

retrieval requests per month. A monthly average of 50 retrieval requests are processed in Los Angeles. Archives staff query Logbook for file location and retrieve files as appropriate. The name of the individual in possession of the project files is entered into the Logbook Archives module.

When the project files are returned, the Archives staff enter receipt of the files in the Logbook Archives module and return the files to storage.

### **10.5 INSPECT STRUCTURAL SOUNDNESS OF FACILITIES AFTER DISASTERS**

The Emergency Operations Center (EOC) activates immediately following notification of a disastrous event, usually an earthquake. Notification of an event may occur from many sources: the Office of Emergency Services (OES), Emergency Medical Services Agency (EMSA), CNN, other news channels, the OSHPD Director, or team members of the EOC. Per FDD Deputy Director determination of an event, the EOC activates. The EOC staff log the new event into the Logbook EOC Module. The EOC staff use information from news agencies, California Geological Survey, State Office of Emergency Services (OES) Response Information Management System (RIMS), and other sources as input to the Logbook EOC Module.

After the event is logged into the Log Event screen, EOC staff identify the facilities in the event area. EOC staff receive a map from the GIS, which identifies the geographic range of the event. From this map, the EOC staff query the Logbook for facilities located in the event area. The EOC also requests information from the OSHPD's Health Information Division (HID) for additional facilities located in the event area.

The EOC Planning staff also field phone calls and gather information from external sources (i.e., television and radio newscasts, and facilities) to determine the target areas and impacted facilities. The amount of time it takes to identify the target area and impacted facilities is usually less than 2 hours. Once the facilities are identified, the EOC staff research the structural performance categories of the buildings and begin prioritizing the facilities. The EOC Planning staff calculate the response needs based on the target area and prioritized facilities.

Once the response needs are identified, the EOC staff develop an informal Immediate Action Plan, which identifies pertinent event facts. The Plan is presented to the EOC Incident Commander for approval and authorization to execute. Once approval has been obtained from the Incident Commander, the EOC staff contact the appropriate field and office staff and organize response teams.

Response teams receive a list of facilities to be inspected. As response teams inspect hospitals, they may request hospital building plans. The response teams generate inspection reports and post hospitals with green, yellow, or red placards. Green placards indicate little damage was experienced during the event. Red placards indicate buildings are unsafe to occupy, no entry. Yellow placards indicate damage was experienced and operations may be limited to certain areas of the facility.

The EOC staff receive response team reports via fax or courier delivery. The reports state the result of the inspections. As reports are received, the EOC staff enter the reported information into the Logbook EOC module. As reports are entered into the

Logbook, the Incident Commander and command staff monitor the facilities inspected versus facilities not inspected and reports the status of the response. The Incident Commander will provide response information to the OSHPD Director, the State Office of Emergency Services, the Governor's Office, and the Public Information Officer for distribution to the media.

## 11 BUSINESS PROBLEM BACKGROUND

Specific problems and contributing factors that put FDD's mission at risk are listed in the table below. The specific issues are discussed in this and other sections of the FSR as identified by the Section number in the table. This table also includes general descriptions of the Business Objectives identified in Section 3.3 which are to be met by the proposed solution. In some cases, a particular problem is traced to more than one objective. A solution that addresses problems related to technical obsolescence, management, and customer satisfaction will impact all of the business objectives.

**Table 11-1: Business Problems Traced to Business Objectives**

Section	PROBLEM/OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for EOC Operations	Generate More Revenue
11.1	<b>Plan Review Productivity</b>				
11.1	Large volume of paper documents must be manually identified, tracked and stored.	x	x	x	
11.1	Increased plan review and approval timelines due to hand delivery of hardcopy project files for review and routing.	x		x	
11.1	Collaborative reviews and sharing of information (internally and externally) not possible.	x		x	
11.1	Reviewer comments often logged on plans rather than in Logbook, resulting in comments being lost once plans mailed back to facility.	x			
11.1	Retrieval of documentation from archives subject to delays if must be retrieved from SRC.	x	x	x	
11.1	No ability to record plan review comments throughout the entire plan review process (back-check reviews; original plan with revised drawings make project documentation cumbersome and confusing for large, complicated projects.	x			
11.1	FDD staff must personally retrieve or deliver paper documents throughout the workflow.	x		x	
11.1	Multiple staff cannot review documents simultaneously causing review cycle to be prolonged.	x		x	
11.1	Documents may become misplaced or lost during manual workflow processing - causing delays in review cycle.	x		x	

Section	PROBLEM/OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for EOC Operations	Generate More Revenue
11.1	Staff document comments directly on plans and/or attach copies of their comments to the plans. This limits ability to retain copies of comments for further reviews of clients' plans and slows review process.	x			
<b>11.2</b>	<b>Construction Oversight Productivity</b>				
11.2	Field Staff require external access and standardization of inputs to Logbook.		x		
11.2	Limitations of current remote access cause Field Staff to have fewer available hours to monitor construction projects, respond to facility needs, and ensure compliance with approved plans and building codes.		x		
11.2	Non-standardized data inputs make queries for themes, trends, anomalies within and across projects difficult	x	x		
11.2	Because of slow or unreliable remote access, handwritten reports submitted by field staff for entry into Logbook leading to dual entry of information and errors.		x		
11.2	Limitations of handheld wireless devices for viewing I-Logbook web pages or receiving attachments due to small size of devices.		x		
11.2	Wide range of acceptance of technology by staff		x		
11.2	Project documents can not be accessed remotely forcing field staff to rely on the completeness and accuracy of facility provided information.		x	x	
<b>11.3</b>	<b>Manual Processes for Information Access &amp; Communications Impact EOC Operations</b>				
11.3	Emergency response planners do not have immediate access to building plans that are in archives for use in determining which buildings need inspections and priorities.			x	
11.3	During emergency, field staff inspecting facility for structural soundness don't have immediate access to plans (retrieve from archive) - Risk to life increased.			x	
11.3	Information needed from ALIRTS system during emergency responses is not available in Logbook. Information is looked up manually -- redundancy, inaccuracies, slows decision making process.			x	
11.3	Access to SPC/NPC ratings requires manual lookup in other Logbook module.			x	

Section	PROBLEM/OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for EOC Operations	Generate More Revenue
11.3	Information on facility physical location and geographic details requires manual lookup in GIS.			x	
11.3	Manual sharing of information with OES			x	
11.3	Longer inspection times due to staff unfamiliarity with facility location and layout			x	
11.3	Inspectors do not have remote access to Logbook system to retrieve information needed for inspections.			x	
<b>11.4</b>	<b>Revenue Generation</b>				
11.4	Audit trails and controls are lacking in accounting module.				x
11.4	Inconsistent project definitions between SB 1953 and "normal" projects - building identifiers vs. facility.				x
11.4	SB 1953 Review time not billed.				x
11.4	FREER, a special type of review, is not easily entered into Logbook and results in delay in plan approval and entry into system for invoicing.	x			x
11.4	Pre-approvals and special exams are billed manually.				x
11.4	Time-consuming searches through hardcopy files often needed for project closure processes (size of project files).				x
<b>11.5</b>	<b>Lack of Project File Access</b>				
11.5	Space limitations at the State Records Center and in FDD offices for archiving.	x	x	x	
<b>4.1.7</b>	<b>Difficult Management of Statewide Efforts</b>				
4.1.7	Lack of reliable information in Logbook impact effective management of departmental and personal workload and project activities.	x	x		
4.1.7	FDD staff view reporting from Logbook as difficult and cumbersome resulting in reports not being used or require electronic or manual exports for data manipulation and restructuring of reports.				
4.1.7	Lack of confidence in accuracy of reports due to poor controls on data entry, improperly constructed queries because of lack of understanding of database structure or inability to define requirements.	x	x	x	
4.1.7	FDD staff unable to quickly and accurately estimate existing and projected workload.	x	x		

Section	PROBLEM/OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for EOC Operations	Generate More Revenue
4.1.7	Assistance of business analysts needed to generate reports due to complicated table structure and inadequate query capabilities.	x	x	x	
4.1.7	Primarily manual processes for defining project backlogs and staffing needs because of shortcomings of what is currently tracked in Logbook and how data is entered.	x	x		
4.1.7	Inaccuracies in time-reporting due to manually prepared timesheets, lack of integration of iTimesheet with logbook, and lack of time code or project code verification.		x		
4.1.7	Construction review process for Testing, Inspection, and Observation forms not fully supported.	x	x		
4.1.7	Multiple or specialized IORs can not be assigned to a project.	x			
4.1.7	Projects requiring additional reviews (e.g. multiple years) cannot be flagged.	x			
4.1.7	Managers do not receive information needed to make decisions in a timely manner because of difficulties with generating adhoc reports and lack of confidence in data.	x	x	x	
4.1.7	<b>Low Customer Satisfaction</b>				
4.1.7	Facilities using automated tools print plans for submission to FDD.			x	
4.1.7	Large volume of paper documents are returned to facilities during review process.	x		x	
4.1.7	Because there is usually only 1 copy of hardcopy documents, lost documents must be requested from sender (added cost to clients and lost review time).	x		x	
4.1.7	Online information provided to clients via i-Logbook is difficult to understand because it uses codes and terminology not familiar to clients.	x	x		
4.1.7	I-Logbook functionality not easy for clients to understand or navigate.	x	x		
4.1.7	Insufficient information provided to facilities regarding SB 1953 compliance status and ratings.				

Section	PROBLEM/OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for EOC Operations	Generate More Revenue
4.1.7	<b>Technical Obsolescence</b>				
4.1.7	Logbook design makes keeping current with operating system upgrades difficult, require additional maintenance activities to correct problems.	x	x	x	x
4.1.7	Outdated and unsupported third party software and utilities used throughout the system put the system at risk of failure.	x	x	x	x
4.1.7	Outdated design makes it difficult to run and maintain existing OSHPD security infrastructure, requiring additional maintenance activities to provide user access to system.	x	x	x	x
4.1.7	The absence of a back to front audit trail and logging process leaves the system vulnerable to security threats.	x	x	x	x
4.1.7	Required security patches are often incompatible with outdated components of the system resulting in system downtime and increased maintenance efforts.	x	x	x	x
4.1.7	Table structure reduces staff ability to quickly query and report from the database and requires ISS to program new reports.	x	x	x	x
4.1.7	Reports generally reflect inaccurate or incomplete data, leading to lack of confidence in data in the system, growth of separate databases used by managers and staff to track project status, workarounds, etc.	x	x	x	x
4.1.7	Modifications to accommodate new building codes, standard practices, and regulations are time consuming, cumbersome, and regularly require programming changes.	x	x	x	x
4.1.7	No automatic notification of project closure status	x	x	x	x
4.1.7	No automatic notification of building construction start dates	x	x	x	x
4.1.7	Lack of access to SB 1953 compliance status and reports for Plan Review and Field Staff	x	x	x	x
4.1.7	Inconsistent identification schemes for buildings and facilities.	x	x	x	x

## 11.1 PLAN REVIEW PRODUCTIVITY

The Plan Review process has several processing guidelines for review and approval of hospital construction plans that are described in 10.2.1 Create New Projects. The rates at which FDD met these targets were given in Section 3.2 Business Problem. Not meeting plan review targets affects the facility construction schedule, and potentially adds to project costs, and increases risks to meeting public health care needs. Several factors contribute to not being able to consistently meet the plan review targets.

### **Lack of Document Management Capabilities**

The current Logbook system is incapable of electronically receiving, accepting, routing, archiving, or linking to other electronic files containing building specifications and plans, which creates the following problems for FDD:

- The large volume of paper documents must be manually identified, tracked, and stored.
- Archiving of project documents is subject to space available at the State Records Center, which until recently was not receiving files because of lack of space. This created a backlog of files and a diminishment of office work space in the Sacramento FDD offices and the Los Angeles office.
- Plan review and approval timelines are increased, because hardcopy files must be hand delivered and manually routed and reviewed.
- If hardcopy documents become lost, FDD work cannot be performed. FDD staff are dependent on the hardcopy documents, because there is usually only one copy of the documents in the FDD office. Lost documents must be requested from the sender, which potentially delays FDD response times.
- Because documents are hardcopy, collaborative reviews and sharing of information is limited, if not impossible.
- Recording review comments in Logbook is not a standard process, resulting in comments being lost once they are mailed to the facility.
- Project closure processes often involve time-consuming searches through hardcopy files. Some projects may consume a 4 foot long shelf of hardcopy documents, not including the plans.
- Retrieval of documentation from archives is subject to delays if the material must be requested from the SRC.
- There is no ability to record plan review comments throughout the entire plan review process, which may include several back-check reviews. Currently, the original plan review sets are submitted along with revised drawings, which become cumbersome and confusing for large, complicated projects.

### **Workflow Management Shortcomings**

The Logbook system tracks a project as it progresses from Plan Review to Project Closure. However, the Logbook system does not provide automated workflow for FDD

management and staff, which forces FDD staff to personally retrieve or deliver paper documents. This reduces the ability for multiple staff to review a document simultaneously and prolongs the review cycle. It also increases the possibility of documents being misplaced or lost during the manual workflow process.

### **Manual Collaboration during Plan Review**

Collaboration with clients during the review process is a largely manual process in which FDD staff document their comments directly on plans and/or attach copies of their comments to the plans. These hardcopy comments are then returned to the client. There may be several iterations of this process during the plan review process. This limits Plan Reviewers ability to retain copies of their comments for further reviews of the clients' plans. On-line collaboration would allow FDD staff to retain copies of their comments, assist clients earlier in their plan development, and provide a quicker turn-around time for plan review comments.

## **11.2 CONSTRUCTION OVERSIGHT PRODUCTIVITY**

The business needs of FDD Field Staff who perform construction oversight are not well supported by the Logbook. Field staff require external access and standardization of data inputs to Logbook. The external access capability currently available to Field Staff includes:

- Dial-up RAS connections to the Logbook application and the OSHPD Officenet, including Logbook I-Timesheet<sup>22</sup> and email. The dial-up connection allows Field Staff to access their desktop applications.
- Handheld wireless devices (TREO<sup>®</sup>) for internet access to email and the I-Logbook<sup>23</sup>.

### **Redundant Data Entry**

The dial-up connection is significantly slower than access in the FDD offices and sometimes unreliable. As a result, very few Field Staff make use of the dial-up connection to perform their work. Instead, they manually process their paperwork. This manual processing of work is redundant, because after the Field Staff handwrite their paperwork, the regional PT's must key enter the information into Logbook.

### **Limitations of Web Page Access**

While the use of TREO's for email has generally been accepted, problems are inherent with the small size of the devices that limit their usefulness, such as downloading and viewing of web pages (e.g., I-Logbook).

Project construction plans and other documents cannot be accessed remotely forcing field staff to rely on the completeness and accuracy of facility provided information in the field.

---

<sup>22</sup> I-Timesheet permits field staff to enter hours spent on projects electronically.

<sup>23</sup> The I-Logbook is the public view of the FDD website which provides information and forms for facilities.

### **Limited Opportunities for Field Visits**

The limitations of the current remote access capability cause Field Staff to have fewer available hours to monitor construction projects, respond to facility needs, and ensure compliance with approved plans and building codes. Instead, Field Staff spend valuable personal and/or State time traveling between facility sites and their base of operations (usually home offices) to file their daily reports and timesheets. A typical field review reporting process might include noting information on the TREO, driving to a base of operations, synchronizing the TREO to the desktop computer, formulating information into the Microsoft Word/Excel report form, and emailing a report to the regional PT who then key enters the information into Logbook. In the last quarter of 2004, Field Staff visited 1,607 of 3,049 active construction projects for an average rate of projects visited across all regions of 53%. The percentage of projects visited in each region ranged from a low of 39% to a high of 59%. The inability to visit 100% of the open projects results in construction delays, which may increase construction costs and can delay implementation of needed hospital services.

### **Non-standardized Data Input**

Depending on the connection to the Logbook, field staff may be forced to hand write their reports and timesheets, which are then subject to the interpretation of the PT's entering the information into Logbook.

Additionally, the Microsoft Excel or Microsoft Word reports are fill-in the blank forms. This creates non-standardized data input, because each comment, code violation, or deficiency may be written differently per person. Non-standardized data inputs complicate a user's ability to query a system for themes, trends, or anomalies within a project and across projects.

### **Staff Resistance to Technology**

While most FDD staff have embraced the capabilities of the available technology such as dial-up access and the use of hand-held mobile devices for communicating with the Logbook system and other staff, there are a few personnel who have not readily adapted to the use of technology. In these instances, manual reports are submitted for key entry by PTs which leads to data inaccuracies and delays in entering information into the system.

## **11.3 MANUAL PROCESSES IMPACT DISASTER INSPECTION PLANNING AND EXECUTION**

There are several manual processes which impact the decision making process and inspections of facilities to determine their structural safety after disasters such as earthquakes. These include gathering of building plans and other information needed in the decision making and inspection processes. Manual communication processes also impact the effectiveness of inspections.

### **Manual Access to Information Needed for Response Planning**

When a seismic event occurs that requires facility inspections, the FDD EOC is activated. During the first few hours after activation, the EOC staff require ready access to building plans and other information such as SPC/NPC seismic ratings, accurate

information on the location of the facility and its buildings, the type of healthcare services provided in each building, and the size of the facility (e.g. number of beds) to make decisions on which facilities need to be inspected and where priorities should be. This additional information is retrieved manually from other Logbook modules, the ALIRTS (licensing type data), EGIS (physical location, shake maps, etc.), or OES's RIMS system. The lack of an automated interface that would refresh required data elements in the EOC Module of Logbook means that time consuming manual look-ups subject to errors are performed.

Building plans are in hardcopy files that are manually retrieved from FDD offices or archives. The time for retrieving building plans varies depending on where the plans are located. Retrieving necessary plans during an event can take from 1 hour for plans that are located in an FDD office up to several days for plans that must be retrieved from the FDD Archive or the SRC.

### **Delays in Access to Building Construction Plans for Inspectors**

Once decisions are made on where inspections are needed, FDD personnel from outside the impacted area are dispatched to perform the inspections. This is done under the assumption that personnel in the impact area have limited ability to respond. Often these staff members are not as familiar with the facility location and layout as those personnel who may have been involved in regular construction oversight of a particular facility. For this reason, the inspectors may request building construction plans for use during their assessment of building safety. Delays in providing plans to inspectors may result in longer times to perform inspections and report on the safety of buildings to OES and other state emergency agencies.

### **Manual Communications Processes**

Current capabilities for communication with the State Office of Emergency Services during disaster planning and response are primarily manual. In addition, FDD staff who are responding to disasters have no capability to access information in the Logbook system from remote locations. These deficiencies slow communication during emergency responses. In a trial run of emergency procedures, an inspection team was sent to the same facility four times because of poor communication capabilities for sharing information.

## **11.4 FAILURE TO BILL FOR SERVICES**

The FDD business operations are entirely self-funded. FDD funds its operations from legislatively mandated fees charged to facilities for FDD services. These fees are used to recover the costs of FDD services and to provide FDD with tools to perform its services.

As stated previously, the SB 1953 has and will continue to have a significant impact on FDD workload in all functional units. This increase in workload directly relates to an increase in revenue. It is imperative that the cost recovery system used is accurate and

timely in its invoicing activities. The current invoicing system has limited accounting controls and is antiquated. The accounting system was not designed to process the volume of invoices it is currently processing and is expected to process in future years.

The current cost recovery system is not designed with audit trails, controls, or with the ability to match revenues to cost. The system does not provide audit trails to show who made changes, when they were made, or why they were made. Users often try to document these events in memo fields, but this usage is not universal. As shown in Figure 3.2, Section 3.1.2, nearly every function generates revenue. PT's spend considerable time ensuring project description codes, activity codes, and statuses are entered correctly in the Logbook system for cost recovery purposes.

The major short-coming for cost recovery is the failure of the current system to invoice for SB 1953 reviews. This has resulted in FDD not being able to collect fees for these services. It is estimated that through FY2007/2008, the amount of services not being billed will be approximately \$7.2 million dollars.

While the financial impact is not as great as not being able to bill for SB 1953 reviews, there are several other problems impacting cost recovery, including:

- FREER, a special type of review, is not easily entered into Logbook and results in the delay in plan approval and entry into system.
- Manual billing of pre-approvals and special exams are required because the system is not designed to address these needs. These manual invoices subsequently have manual collection processes that are not consistently applied on a regular basis.
- Time-consuming searches through hardcopy project files are required to extract information needed to close a project and generate an accurate invoice.

## 12 FUNCTIONAL REQUIREMENTS TRACED TO BUSINESS OBJECTIVES

The table below traces the business functional requirements identified in Section 3.4 to the Business Objectives discussed in Section 3.3. The requirements are organized by FDD business functional areas.

**Table 12-1: Functional Requirements Traced to Business Objectives**

<b>FUNCTIONAL REQUIREMENTS/ OBJECTIVES</b>	<b>Improve Plan Review Productivity</b>	<b>Improve Construction Oversight Productivity</b>	<b>Improve Access to Information for Facility Structural Inspections after Disasters</b>	<b>Generate More Revenue</b>
<b>Seismic Compliance Requirements</b>				
1. Track reviews by the SB 1953 unit for SPC and NPC compliance of new projects.	x	x	x	
2. Receive electronic notice of project closure status.		x		
3. Track SPC/NPC ratings and upgrade effective dates.			x	
4. Receive electronic notice of building construction actual start dates.		x		
5. Track Geotechnical and Engineering Geologic Report reviews.		x		
6. Track design criteria reviews.	x			
7. Support reporting of hospital compliance status.			x	
8. Allow plan reviewers and field reviewers' access to hospital SB 1953 compliance status and review reports.	x	x		
9. Develop secure web reporting capability to facilities regarding compliance status and ratings.		x		
10. Develop standard facility, building, and project identification scheme that provides linkage to other OSHPD databases, such as ALIRTS and EGIS.	x	x	x	
<b>Construction Approval Requirements</b>				
1. Support the electronic submittal of applications for Building Permits and supporting documents.	x			
2. Support scanning capability of hardcopy documents for electronic storage and file retrieval.	x		x	

<b>FUNCTIONAL REQUIREMENTS/ OBJECTIVES</b>	<b>Improve Plan Review Productivity</b>	<b>Improve Construction Oversight Productivity</b>	<b>Improve Access to Information for Facility Structural Inspections after Disasters</b>	<b>Generate More Revenue</b>
3. Electronically receive, store, and assign plans to the appropriate projects.	x			
4. Electronically document and record plan review comments and discrepancies.	x			
5. Create system-generated notifications for project changes that impact accounting codes.	x	x		x
6. Develop system controls for billing and activity codes.				x
7. Provide capability to generate ad hoc and analytic reports.	x			
8. Provide management and executive level revenue reports.				x
9. Automate and track plan review workflow and routing.	x			
10. Automate system sharing of project data with SRP and Field Staff.	x	x		
11. Be able to uniquely identify each building within a facility.	x	x	x	
12. Develop consistent and standard facility, building, and project identifiers.	x	x	x	
13. Provide capability to forecast staff workload per project parameters.	x			
14. Provide the capability to forecast Office workload with a forecast projects function.	x			
15. Interface with the ALIRTS (licensing) system.	x		x	
16. Automate the maintenance of California Fire Departments table.	x			
17. Notify SRP of new building construction and closure of new building construction.	x	x		
18. Notify SRP staff when buildings are decommissioned.	x	x		
19. Track alternate method of compliance/program in Logbook.	x			
20. Track Geotechnical and Engineering Geologic Report outsourced reviews, including specific reports reviewed and approved. Also, track report amendments	x			
21. Monitor the progress of projects and issue system-generated notifications for missed documents or dates.	x	x		x

FUNCTIONAL REQUIREMENTS/ OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for Facility Structural Inspections after Disasters	Generate More Revenue
22. Provide secure web reporting to facilities.	x	x		
23. Track design criteria in Logbook.	x	x		
24. Integrate stand-alone 'Comments' databases with Logbook for use in reviews.	x			
25. Provide standard time reporting capability.	x			
26. Track expiration of plan approvals and extensions of plan approvals.	x			
27. Track approval of Fixed Hospital Equipment Anchorages (Pre-Approvals).	x			
<b>Construction Oversight Requirements</b>				
1. Standardize field staff time reporting.		x		x
2. Provide web-enabled time reporting tool with system controlled activity and billing codes.		x		x
3. Provide remote access to TIO forms to support monitoring of construction projects.		x		
4. Generate field review reports.		x		
5. Provide remote access to project files and documents.		x		
6. Provide electronic building codes and regulations for electronic searches.		x		
7. Provide remote access to Mileage log reporting.		x		
8. Provide capability to electronically record field review comments while in the field.		x		
9. Provide capability to electronically record deficiencies remotely and in the field.		x		
10. Provide capability for structural engineers to electronically annotate plans and reports/forms with drawings and/or written notes.		x		
11. Standardize field review reports with drop down menus, check boxes, and code/comment look-up capabilities.		x		x
12. Provide capability to create more than 1 page of a field review.		x		
13. Provide capability to print and email forms and reports while in		x		

FUNCTIONAL REQUIREMENTS/ OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for Facility Structural Inspections after Disasters	Generate More Revenue
the field to all or subset of project contacts.				
14. Include Field Staff in list of project contacts to be courtesy copied on all project communications starting with plan approval and throughout the construction phase.	x	x		
15. Provide field staff capability to receive electronic files from project staff while in the field.		x		
16. Provide field staff capability to upload received files to Logbook while in the field.		x		
17. Provide capability to store electronic forms.		x	x	
18. Provide a consistent and accurate means for collecting, receiving, and storing inspection logs from IORs.		x		
19. Provide capability to research projects for final inspections.		x		x
20. Automate the maintenance of CAFD table.		x		
21. Store partial and incomplete reports with system reminders to complete report at next login.		x		
22. Electronically notify SRP staff and Field Staff of construction start dates.	x	x		
23. Track expiration of building permits and extensions of building permits.		x		
<b>EOC Operations Requirements</b>				
1. Standardize facility and building identification.	x	x	x	
2. Store digital photographs of facilities and buildings.			x	
3. Provide response teams with capability to report inspection status via web-enabled report form.			x	
4. Develop capability to electronically receive status reports and electronically populate Logbook.			x	
5. Maintain capability to manually enter status reports in the event electricity and internet connectivity is not available.			x	
6. Standardize the inspection reports with drop-down menus, check-boxes, and code/comment look-up capabilities.			x	
7. Track facilities visited by EOC inspectors.			x	
8. Track facility inspection status.			x	

FUNCTIONAL REQUIREMENTS/ OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for Facility Structural Inspections after Disasters	Generate More Revenue
9. Integrate GIS to overlay epicenter map with map of hospitals in earthquake zone.			x	
10. Graphically identify hospital risk ratings on the GIS map.			x	
11. Provide refresh capability of GIS map as statuses are reported and recorded in Logbook.			x	
12. Generate standard and ad hoc reports on demand.			x	
13. Generate a prioritized list of needed inspections.			x	
14. Support assignment of inspectors to hospitals.			x	
15. Track building modifications to facilities during the "no-permit" period following an earthquake.	x		x	
16. Interface with the licensing system to provide information on all facilities including those that have not had construction since the establishment of Logbook.			x	
17. Map other facility identifiers to the OSHPD facility ID.			x	
18. Interact with RIMS and GIS to produce interactive reports.			x	
19. Support trial runs and post-mortem reports for analysis.			x	
20. Provide integration between FDD locations.			x	
21. Support coordination of the EOC with the State Office of Emergency Services (OES) during disaster planning and response, including the capability of EOC staff to access FDD information from remote locations.			x	
22. Provide the capability to transmit data to and receive data from OES.			x	
<b>Project Closure Requirements</b>				
1. Receive system-generated notification following field review reporting of final reports.		x		x
2. Automatically generate a reminder for projects to send in final docs/approvals for Project Closure.				x
3. Provide system controls and audit trails for project changes that impact billing.	x	x		x
4. Monitor the progress of projects and issue flags for missed documents or dates.	x	x		x

FUNCTIONAL REQUIREMENTS/ OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for Facility Structural Inspections after Disasters	Generate More Revenue
5. Maintain capability to designate project closure status.				x
6. Electronically inform SRP staff of project closure status.				
<b>Inspector of Record Certification Requirements</b>				
7. Support user customizable IOR letters and notices.		x		
8. Allow IOR search capabilities by region and county.		x		
9. Support C-Level examinations and certifications.		x		
10. Track 12 specialty areas for IOR certification.		x		
11. All IOR processes and databases shall be integrated into the Logbook system.		x		
12. Provide IOR workload analysis.		x		
13. Provide web interface to list of active IORs.		x		
<b>Archives Requirements</b>				
14. Provide a database of all archived files with sufficient detail for tracking and retrieval.	x	x	x	
15. Provide archived file locator information to support retrieval of archived files within 1 to 2 days during normal operations and within 2 hours during emergency operation.	x	x	x	
16. Provide FDD staff in both Sacramento and Los Angeles with read and request access to the archive database.			x	
17. Reduce manual data entry of locator information into the database.			x	
18. Accommodate expanded quantity of identifying codes.			x	
19. Support paper, digital, and/or microfilm archives according to FDD policy.			x	
<b>Accounting Requirements</b>				
20. Align revenues with costs by billing for SB 1953 reviews				x
21. Generate notices for accounting actions based on project status.	x	x		x
22. Use uniform billing activity codes.				x
23. Use business rules in the validation of PT entered data to avoid				x

FUNCTIONAL REQUIREMENTS/ OBJECTIVES	Improve Plan Review Productivity	Improve Construction Oversight Productivity	Improve Access to Information for Facility Structural Inspections after Disasters	Generate More Revenue
accounting errors.				
24. Generate notices of project changes for accounting actions.	x	x		x
25. Provide audit trails.				x
26. Provide clear and understandable invoice statements.				x
27. Identify outstanding invoices by facility.				x
28. Track Exam Fees for IOR examinations.				x
29. Provide capability to change and adjust accounting entries following Generally Accepted Accounting Practices and State Administrative Manual.				x
30. Perform refunds according to approved regulations.				x
31. Track pre-design meeting fees.				x
32. Track special examination fees.				x
33. Track clinics fees.				x
34. Track Pre-Approval fees.				x
<b>Training Requirements</b>				
35. Training must be provided to users.	x	x	x	x
36. Training must be flexible to accommodate diverse technology levels, skill sets, and organizational levels.	x	x	x	x
37. Training should include system built help and how-to functions.	x	x	x	x
38. On-line training manuals must be available for web-users.	x	x	x	x
39. On-line training manuals must be available for remote users.	x	x	x	x

## **APPENDIX A: RISK MANAGEMENT PLAN**