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# Study of State Departmental Engineering Sections That Manage Capital Improvement Projects

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A Report to the  
Governor  
and the  
Legislature of  
the State of  
Hawai'i

Report No. 15-13  
November 2015



**THE AUDITOR**  
STATE OF HAWAII

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## Office of the Auditor

The missions of the Office of the Auditor are assigned by the Hawai'i State Constitution (Article VII, Section 10). The primary mission is to conduct post audits of the transactions, accounts, programs, and performance of public agencies. A supplemental mission is to conduct such other investigations and prepare such additional reports as may be directed by the Legislature.

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State of Hawai'i

**At least 19 state  
engineering entities  
manage their own  
capital improvement  
projects in Hawai'i.**

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*Decentralized CIP engineering functions serve the public interest,  
but departments and agencies should adopt consistent policies for  
project management*

## **Departments and agencies assert it would not serve the public interest to centralize all State engineering functions**

Of 19 departments and agencies surveyed, 14 said capital improvement projects (CIPs) should not be handled centrally by the Department of Accounting and General Services (DAGS). Just one said centralizing CIPs could be beneficial. Supporting the position that centralizing CIP functions would be impracticable, departments and agencies cited issues related to managing federal funds, the specialized nature of many department-managed CIPs, and statutes granting certain departments authority to manage their own CIPs for efficiency. DAGS concurred that centralizing CIPs under its auspices would be impracticable.

## **Departments and agencies manage CIPs to varying standards**

Although departments and agencies generally believe they should maintain control over their own CIPs, there is a lack of consistency in how they manage their projects relative to areas of legislative concern (namely, timelines, contract management, and end-user satisfaction). More than a third of the entities surveyed do not keep timelines as required by best practices; entities do not consistently track deliverables and payments according to State Procurement Office (SPO) advice; and almost half the entities do not measure or monitor stakeholder satisfaction in accordance with best practices.

We recommend that departments and agencies use timelines that include a comprehensive list of all activities required on a project, and not simply rely on contractor timelines, which may not reflect all project phases. We also recommend that departments and agencies follow SPO guidance for tracking payments and deliverables by using a contract administration worksheet that includes milestones or deliverables, which are marked as items are completed. Finally, we recommend departments and agencies identify and involve stakeholders throughout a project's execution and closing, including providing information about project costs, schedules, and performance.

## **Agency response**

We transmitted a draft of this report to the Department of Accounting and General Services on October 29, 2015. The department chose not to submit a response.

Response

Prior Audits

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Hawai'i

Submitted by

**THE AUDITOR**  
STATE OF HAWAI'I

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## Foreword

This is a report on our study of State departmental engineering sections that manage capital improvement projects (CIPs). We conducted the study in response to Act 177, Sessions Laws of Hawai‘i 2015, which asked the Auditor to review the process, efficiencies, and accountability of various departmental engineering sections that manage general fund CIPs.

We wish to express our appreciation for the cooperation and assistance extended to us by staff of the departments of Accounting and General Services; Agriculture; Business, Economic Development and Tourism; Defense; Education; Hawaiian Home Lands; Health; Human Services; and Land and Natural Resources; and by the University of Hawai‘i System, the Hawai‘i Community Development Authority, the Hawai‘i Housing and Finance Development Corporation, the Natural Energy Laboratory of Hawai‘i Authority, the Hawai‘i Health Systems Corporation, the Hawai‘i Public Housing Authority, and the Judiciary.

Jan K. Yamane  
Acting State Auditor

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# Chapter 1

## Introduction

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Act 177, Session Laws of Hawai'i (SLH) 2015, required the Auditor to conduct a study that reviews the processes, efficiencies, and accountability of various departmental engineering sections, that manage general fund capital improvement projects (CIPs). According to the act, the purpose of the study is to determine whether it serves the public interest to continue to operate duplicative engineering operations among various departments.

The act asked the Auditor to determine (1) whether each office adheres to a specific timeline for the purpose of ensuring that the project continues to move forward in a timely manner, (2) whether consultants and contractors used by departmental engineering sections are properly managed in the public interest, and (3) the level of end-user satisfaction with capital improvement projects performed by various departments. This report responds to that request.

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## Background

The State's CIPs include a wide spectrum of projects. Projects range from the construction of schools, hospitals, and highways to asbestos removal and reroofing. CIPs also include infrastructure projects, such as installing utilities systems, and natural resources projects, such as building and maintaining jetties, dams, and irrigation systems. CIPs can also include large-scale information technology (IT) system projects.<sup>1</sup> Exhibit 1.1 shows examples of various types of CIPs.

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<sup>1</sup> Although one department worked on a large-scale IT project during the period under review, we determined such projects to be outside the scope of this study.

**Exhibit 1.1**  
**Photos of Various State Capital Improvement Projects**



The Department of Land and Natural Resources' Waikiki Beach sand replenishment project.

Source: Department of Land and Natural Resources



The Department of Education's Farrington High School renovation.

Source: Department of Education



The Department of Agriculture's Waiāhole Siphon Irrigation improvement project.

Source: Department of Agriculture



The University of Hawai'i—Hilo's Ka Haka 'Ula Ke'elikōlani College of Hawaiian Language building.

Source: University of Hawai'i



The Department of Business, Economic Development and Tourism—Foreign Trade Zone's International Trade Resource Center construction project.

Source: Department of Business, Economic Development and Tourism



The Hawai'i Community Development Authority's Kewalo Beach Basin Riprap Wall (jetty) repair project.

Source: Hawai'i Community Development Authority

## ***Management of statewide capital improvement projects***

Managing capital improvement projects is among the State's most significant and costly functions. Often called *public works projects*, CIPs serve no end purposes in and of themselves; rather, they enable government to perform its mission by benefitting citizens in areas of direct public concern, such as safety, health, education, and general welfare.

### **The Department of Accounting and General Services is the State's primary centralized engineering entity for CIPs**

The Department of Accounting and General Services (DAGS)' Public Works Division is nominally the State's primary centralized engineering entity for managing CIPs, excluding highway projects. DAGS is headed by the State's comptroller. The division directs the planning, design, engineering, and construction of many of the State's public works projects. DAGS manages CIPs for the departments of Health, Public Safety, Taxation, Commerce and Consumer Affairs, and Labor and Industrial Relations, among others. For CIPs for which DAGS is the expending agency, the division plans, organizes, directs, and controls the expenditure of funds. The division awards design and construction contracts and provides architectural and engineering consulting services to agencies, performs technical planning and design work, inspects construction for adherence to contract documents, and follows up on warranty work. The division develops guidelines to be incorporated into DAGS projects, evaluates and recommends new materials and/or products to be used in state facilities, and handles all hazardous material issues during construction.

### **Various departments and agencies manage their own CIPs**

Other departments and agencies also manage their own CIPs for various policy reasons. For example, in 2002–2003 the University of Hawai'i (UH) took over management of its CIPs amid concerns that DAGS was not managing UH projects efficiently and was failing to satisfy end-users of the facilities. Similarly, in 2004 the Legislature removed the Department of Education's CIPs from DAGS as part of a sweeping education reform that included efforts to reduce bureaucracy and give more power to school principals.

Under a variety of other statutes over the years, the Legislature has given other departments and agencies authority to manage their own CIPs. For example, the Department of Land and Natural Resources has authority to operate its own CIP program—with a \$91 million budget in FY2015—dealing with projects related to dam safety, flood control, geothermal resources management, and water and land management. The Legislature also established an engineering unit within the Department of Agriculture to construct and maintain irrigation systems and granted

the Hawai‘i Community Development Authority broad power to acquire, develop, improve, and repair real property and roadways. Altogether, we looked at 19 engineering entities statewide that manage some or all of their own departments’ or agencies’ CIPs.

### **Funding of CIPs**

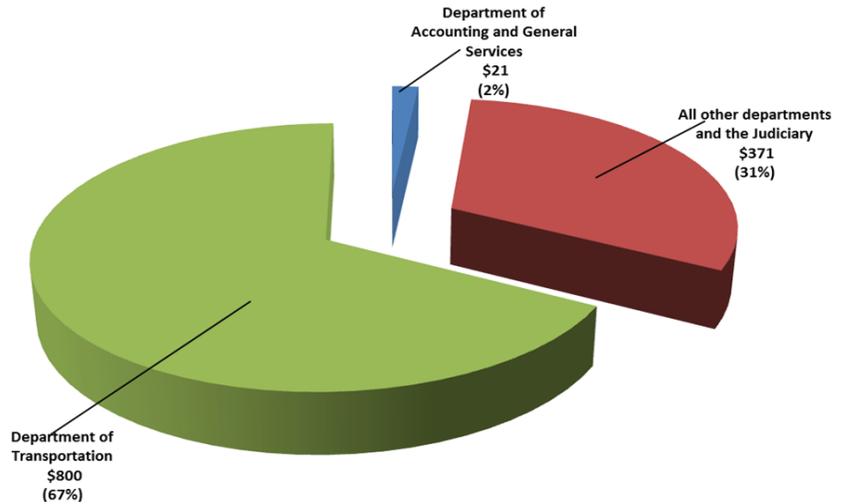
CIPs impose significant costs on the State. In FY2016, the State’s CIP budget, including the Judiciary, is more than \$1.19 billion. CIPs are funded through sales of general obligation and revenue bonds, as well as moneys from special funds, the general fund, and federal funds. *General obligation bonds* are bonds for which the full faith and credit of the State or a political subdivision are pledged to pay the principal and interest. *Revenue bonds* are those payable from revenues, user taxes, or any combination of both, of a public undertaking, improvement, system or loan program and any loan made thereunder and secured as provided by law. *Special purpose revenue bonds* can be used to finance facilities for manufacturing; processing or industrial enterprises; certain not-for-profit private schools; public utilities; public health care, early childhood education, and early childhood care facilities provided by not-for-profit corporations; agricultural enterprises serving important agricultural lands; or low- and moderate-income government housing programs.

CIPs generally have three cost categories: (1) planning, (2) design, and (3) construction. In FY2016, \$341.8 million of the State CIP budget, including the Judiciary, will be funded through general obligation bonds. Exhibit 1.2 depicts the amount and percentages of all CIPs budgeted to state entities in FY2016. Exhibit 1.3 shows the dollar value of general obligation and reimburseable bond-funded CIPs for all state entities in FY2016.<sup>2</sup>

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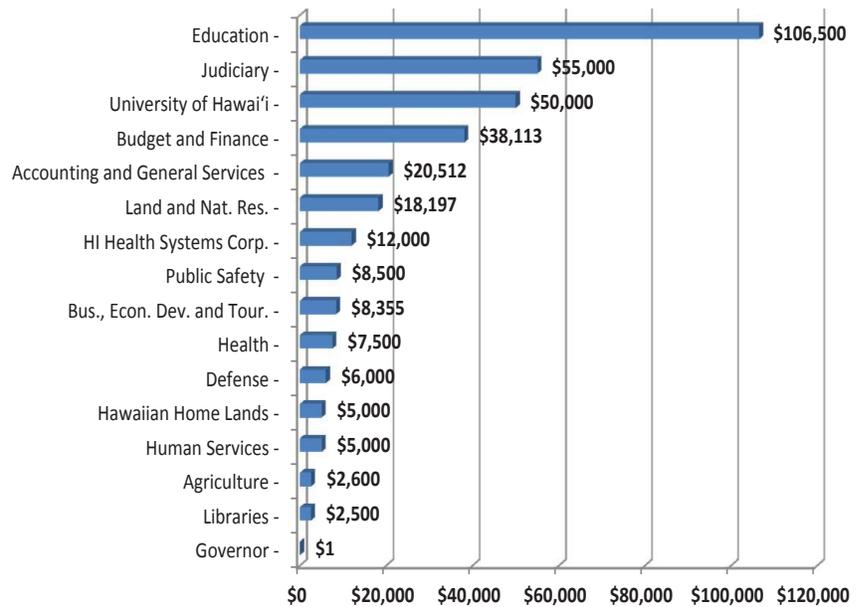
<sup>2</sup> The Department of Transportation’s CIPs are entirely non-general funded.

**Exhibit 1.2**  
**Statewide CIP Budget by Department,<sup>3</sup> All Means of Financing, FY2016 (in millions)**



Source: Department of Budget and Finance and Office of the Auditor

**Exhibit 1.3**  
**Statewide CIP Budget by Department,<sup>4</sup> General Obligation (GO) and GO Reimbursable Bonds, FY2016 (in thousands)**



Source: Department of Budget and Finance and Office of the Auditor

<sup>3</sup> Includes the Judiciary.

<sup>4</sup> Includes the Judiciary.

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## Prior Reports

We have issued four reports related to capital improvement projects. The most recent was published more than two decades ago, in 1993. Our 1966 *Procedural Changes for Expediting Implementation of Capital Improvement Projects* (Report No. 66-1) concluded that repetitive reviews appeared to affect the orderly and timely completion of CIPs. We recommended procedural changes to reduce project processing time.

Our 1968 *State Capital Improvements Planning Process* (Report No. 68-7) noted that UH complained that DAGS generally lacks the capabilities to move its CIPs along; that it had no architects on staff and was required to hire architects to prepare schematics and drawings; that DAGS acted merely as a conduit between the architect and user agencies for transmission of information; and that architects were not authorized to consult directly with user agencies. In contrast, UH had two engineers, three architects, and three other staff dedicated to CIPs. We recommended that user agencies be provided with staff capabilities to perform in-depth analysis required by the planning-programming-budgeting system to develop CIPs, and that DAGS generally prepare schematics and preliminary and final drawings for user agencies, except when the agency has the technical capabilities to perform such work.

Our 1969 *An Overview of the Governor's 1969-70 Capital Improvements Budget* (Report No. 69-4) described the contents of a proposed CIP budget but did not make any recommendations.

Our 1993 *Examination of Selected Aspects of Capital Projects Funds* (Report No. 93-20) found that the Legislature could strengthen its control of the State's CIPs and make better use of the financial resources in the capital projects fund if certain practices were changed. We made recommendations concerning budgeting and appropriating CIP funding, defining and monitoring encumbrances, and ensuring surplus appropriations were returned to the general fund.

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## Objectives of the Study

1. Determine whether departmental engineering entities that manage general fund capital improvement projects adhere to specific timelines to ensure capital improvement projects progress timely, manage consultants and contractors properly in the public interest, and monitor stakeholder satisfaction with the CIPs they manage.
2. Identify and describe various departmental engineering entities that manage general funded capital improvement projects.
3. Make recommendations as appropriate.

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## Criteria

Best practices for project management require managers to apply knowledge, skills, tools, and techniques to project activities to meet project requirements. This includes knowledge, skills, tools, and techniques for time, procurement, and stakeholder management.<sup>5</sup>

Best practices also require, among other things, that project managers control, maintain, and update a project's schedule, including defining actions necessary to produce project deliverables and estimating the amount of time it will take to complete individual activities. Managers should also monitor and control a project's activities and manage changes to a project's baseline schedule through documented change orders.

Project management best practices include assigning a contract administrator who has the authority, resources, and time to manage the project.<sup>6</sup> Among other duties, a contract monitor should track contract expenditures and ensure that contractors have produced deliverables.<sup>7</sup> Upon closing a contract, administrators should document contractors' performance and lessons learned.

Best practices for project stakeholder management require project managers to identify stakeholders—the people, groups, and organizations who could be impacted by a project—analyze their expectations, and develop strategies for engaging them in project decisions and execution. Project managers should maintain communication with stakeholders through meetings, newsletters, surveys, and other means, and adjust strategies and plans as appropriate.

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## Scope and Methodology

We identified departments and agencies that received capital improvement moneys during FY2014–2015 by examining state budget acts and focused on those with general obligation bond-funded CIPs. As directed by Act 177, SLH 2015, we excluded the Department of Transportation from our study. We concentrated on state departments and agencies other than the Department of Accounting and General Services, which provides centralized engineering services to other state departments and agencies. We also excluded departments and agencies whose CIPs were strictly information technology projects (rather than physical infrastructure projects). We conducted interviews and surveys to identify which departments and agencies manage their own CIPs

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<sup>5</sup> *A Guide to the Project Management Body of Knowledge*, 5<sup>th</sup> ed., Newtown Square Pa., Project Management Institute, 2013, p. 61.

<sup>6</sup> *Contracting for Services: A National State Auditors Association Best Practices Document*, Lexington Ky., National State Auditors Association, 2003, p. 4.

<sup>7</sup> Hawai'i State Procurement Office, Contract Administration (Workshop SPO 135), training materials, May 2013, p. 21.

rather than using DAGS. We researched departments' and agencies' enabling statutes to determine the authority under which they manage their own CIPs. Through surveys and additional documentation, we examined these engineering entities based on the above criteria and the questions presented in Act 177, namely:

- Whether each office adheres to a specific timeline for the purpose of ensuring that the project continues to move forward in a timely manner,
- Whether consultants and contractors that are used by departmental engineering sections are properly managed in the public interest, and
- The level of end-user satisfaction with capital improvement projects performed by various departments.

Our survey instrument is presented in Appendix A.

Our work was performed from May 2015 through September 2015 and conducted pursuant to the Office of the Auditor's *Manual of Guides*. Those standards require that we plan and perform our work to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objectives. We believe that the evidence we obtained provides a reasonable basis for our findings and conclusions based on our study objectives.

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# Chapter 2

## State Departmental Engineering Sections Vary Significantly in How They Manage CIPs

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According to Act 177, Session Laws of Hawai‘i (SLH) 2015, the Department of Accounting and General Services (DAGS) has developed a standard project timeline that ensures its capital improvement projects (CIPs) move forward in a predictable manner and are managed with professionalism and accountability. Act 177 also noted that “a number of [other] executive departments have undertaken the responsibility for the engineering of numerous general fund construction and renovation projects, thereby decentralizing engineering activities.” According to Act 177, SLH 2015, the purpose of this study was to determine whether it serves the public interest to continue to operate duplicative engineering operations among various departments. We found that it does.

We also found that departments and agencies vary widely in how they manage CIPs. Methods of maintaining project timelines or schedules are not consistent among departments and agencies; neither are procedures for tracking payments to and receipt of deliverables from consultants and contractors. Almost half of departments and agencies do not involve stakeholders throughout project development, as called for by best practices. Although various policy considerations support a largely decentralized system for managing CIPs, the use of basic, uniform procedures for maintaining timelines, tracking expenditures and deliverables, and involving stakeholders in project development could better align department CIP programs with best practices and enhance transparency and accountability.

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### Summary of Findings

1. Decentralized engineering sections continue to serve the public’s interest.
2. Departments and agencies manage their CIPs to varying standards. More than one-third of departments and agencies that manage their own general-funded CIPs do not keep timelines as required by best practices. They do not consistently track contract deliverables and payments as recommended by State Procurement Office (SPO) guidance. Almost half of departments and agencies do not measure or monitor stakeholder satisfaction when managing their CIPs.

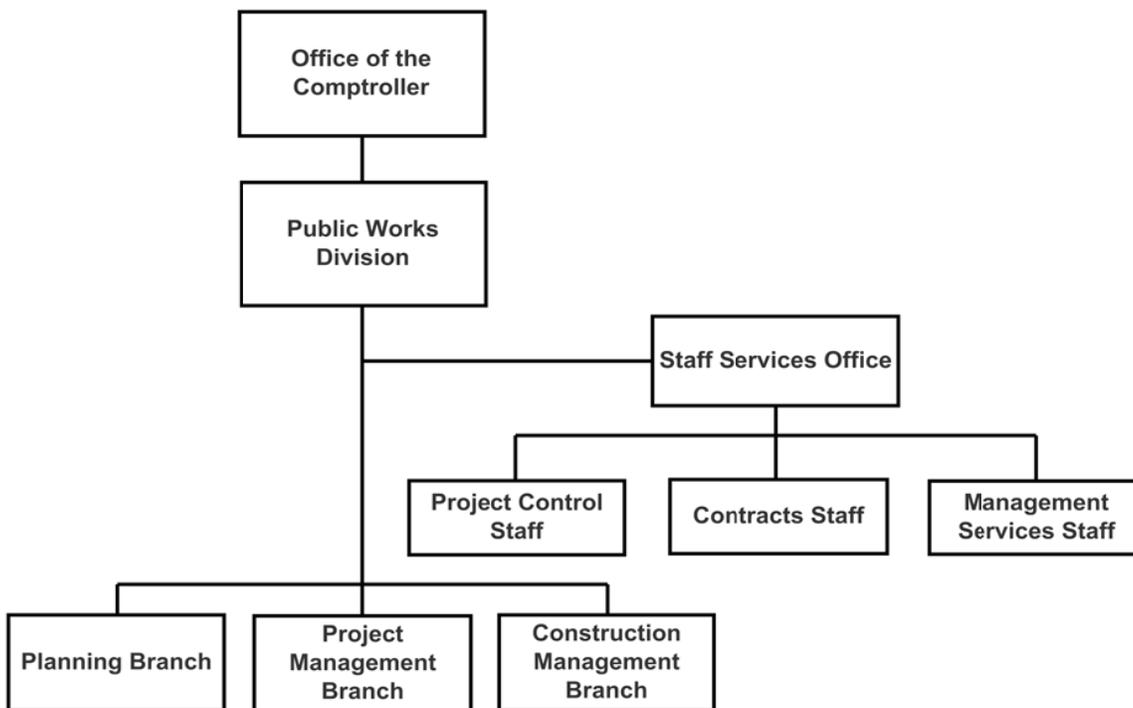
## Decentralized Engineering Sections Continue to Serve the Public Interest

***DAGS is nominally the State’s centralized engineering entity***

Although DAGS is nominally the State’s centralized engineering entity, other departments and agencies manage their own CIPs for a variety of reasons. Accordingly, we conclude that it would not be in the public’s best interest to require that DAGS manage all State-funded CIPs.

We found that DAGS’ Public Works Division has standardized processes to manage CIPs. The division uses an activity list document to create a project schedule within a departmental computer system based on Microsoft Access. The division has a standard “roadmap of steps” for each project, showing various processes and phases in a project’s life cycle—namely, the initiation, planning, design, bid, construction, and post construction phases. To oversee a project’s schedule, the division assigns a coordinator to each CIP when the project enters each new project phase; in addition, a public works administrator manages the overall CIP project management schedule. Exhibit 2.1 shows the organization of DAGS’ Public Works Division.

**Exhibit 2.1  
Organizational Chart of DAGS’ Public Works Division**



Source: Department of Accounting and General Services

The division has a standard method for monitoring CIP consultants and contractors. For each stage of a project, the division assigns a contract coordinator, who monitors the project's contractors using standardized invoices that document milestones, contract amounts, costs, and change orders. The division tracks CIP expenditures using a Microsoft Access database that links to the State's financial accounting and management information system.

Project stakeholders are typically other departments for which DAGS is implementing a CIP. DAGS' Public Works Division involves such stakeholders throughout development of its CIPs. For example, when the division selects a consultant or designs a project, a representative from the stakeholder department sits on the selection committee, and if the stakeholder department has a standing committee for its CIP, division personnel regularly review the project's status with that standing committee. The Public Works administrator told us the division involves user agencies in all phases of a project.

***Departments and agencies believe it would not serve the public interest to centralize all State engineering functions under DAGS***

We asked 19 state entities whether, in their opinion, CIPs should be handled centrally (meaning, by DAGS). Fourteen entities told us that CIPs should remain decentralized for various reasons. The Department of Business, Economic Development and Tourism (DBEDT)'s Foreign Trade Zone Division and the Hawai'i Public Housing Authority, for example, cited federal funds issues that made centralized management impracticable. The Department of Land and Natural Resources and the Department of Agriculture pointed to the specialized nature of their natural resources projects as a reason not to turn over management of their CIPs to DAGS. The Department of Education and Hawai'i Health Systems Corporation (HHSC)'s Maui region both noted they had been granted authority to manage their CIPs for the sake of efficiency. Also citing efficiency, the Judiciary said it would continue to rely on DAGS for major projects but that it plans to continue to develop its own small projects, which it said it can do more efficiently than DAGS. DAGS concurred that statewide CIPs should not be centralized, noting it has neither the capacity nor the specialized skill to handle the variety of projects undertaken statewide.

Only the University of Hawai'i (UH)-Mānoa expressed that centralization could be positive. It told us that centralized CIP projects, if planned effectively and designed for future repair and maintenance by UH-Mānoa personnel, "could become a beneficial approach."

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## Departments and Agencies Manage CIPs to Varying Standards

Act 177, SLH 2015, also asked the Auditor to determine whether each departmental engineering entity adheres to a specific timeline for the purpose of ensuring that the project continues to move forward in a timely manner. In addition, the act asked us to determine whether consultants and contractors that are used by departmental engineering entities are properly managed in the public interest. Finally, the act asked us to determine the level of end-user satisfaction with capital improvement projects performed by various entities.

We found that although departments and agencies generally believe they should maintain control over their own CIPs, there is a lack of consistency in how they manage their projects relative to areas of legislative concern, namely, timelines, contract management, and end-user satisfaction. More than a third of the entities surveyed do not keep timelines as required by best practices; entities do not consistently track deliverables and payments according to SPO advice; and almost half the entities do not measure or monitor stakeholder satisfaction in accordance with best practices.

### ***At least eight of 19 engineering sections do not keep timelines as required by best practices***

According to the Project Management Institute (PMI), project managers should maintain a comprehensive list of *all activities* required on a project, described in sufficient detail to ensure that project team members understand what work must be completed. Accordingly, we asked state entities that manage their own CIPs whether they maintain an updated written schedule from beginning to close of all projects.

We found the entities vary significantly as to whether and how they keep project timelines or schedules. For example, some entities, including UH's Office of Capital Improvements and HHSC–Maui, do not maintain project schedules themselves. Instead, they rely on outside contractors who oversee their CIPs to maintain the schedules. This is a problem because contractors' schedules do not include all project activities, such as planning—which PMI calls for project schedules to include and which are essential phases of a project. Project timelines are also important because lack of a timeline means stakeholders, including interested legislators, cannot easily check a project's status, thereby hindering accountability and transparency.

Altogether, at least eight state entities—DBEDT, HHSC–Maui, HHSC–O'ahu, HHSC–West Hawai'i, HHSC–Kaua'i, UH Office of Capital Improvements, UH Community Colleges, and the Judiciary—indicated they lacked project timelines altogether or timelines that track projects from pre-construction planning through project closing and post-construction. The Judiciary, which said it does not maintain timelines, explained the projects it manages are small and that users of

the improvements are intimately involved in coordinating the projects and driving the schedules.

For departments and agencies that do appear to keep project timelines, methods vary. For example, the Department of Defense's Engineering Office uses table-like schedules listing project milestones from the planning, land acquisition, and design phases through construction, which the department dates as work is completed. In contrast, Hawai'i Community Development Authority engineers use bar charts, known as Gantt charts, to show a project's critical path to completion. The Department of Hawaiian Home Lands said it has begun to use a project tracking software system but that the system is still in development.

It is unclear whether the Department of Agriculture keeps an adequate timeline from beginning to end of projects. According to the department's survey response, all project managers maintain a central Microsoft Outlook calendar with deadlines and milestones, such as notices to proceed, permit deadlines, important construction inspections, and timelines. However, in an earlier interview, the department's chief engineer administrator said the division uses a Microsoft Excel spreadsheet to list projects but there is no project management software that all staff use.

***Engineering sections do not consistently track contract deliverables and payments as recommended by SPO guidance***

Part of the impetus for this study was legislative concern that project managers do not properly manage CIPs to ensure contract deliverables are met and contractors and consultants are properly managed in the public interest. Central to proper contract administration are transparency and public accountability. This includes assigning a contract administrator who ensures the State receives what a contract calls for. To help do this, the SPO calls for the use of a contract administration worksheet including milestones or deliverables that are logged as they are met. Accordingly, we asked departments and agencies how they track expenditures and deliverables.

As with timelines, methods that departments and agencies use to track expenditures and deliverables vary. For example, while the Hawai'i Community Development Authority and Department of Human Services use spreadsheets to track payments and deliverables, the Department of Land and Natural Resources said project managers verify contractors' work against contract provisions, and its Project Control Branch uses a contract monitoring database to track expenditures. The Hawai'i Public Housing Authority, meanwhile, said every contract has a staff person assigned to monitor the contract, relying on itemized draw requests and progress billings, weekly project status reports, and bi-monthly capital planning meetings.

Although most departments and agencies reported having a system to track payments and receipt of deliverables, it was not always clear whether these systems amounted to the type of contract administration worksheet that SPO recommends. For example, the Hawai‘i Housing Finance and Development Corporation reported that its contract administrator tracks expenditures and deliverables using “contracts, budgets, project meetings, project schedules,” and the Department of Hawaiian Home Lands reported merely that “progress billings are verified by the project manager.” Neither mentioned a contract administration worksheet.

Another case in point was the UH Community College system. UH’s vice president for administration reported, “Deliverables are given to us throughout the project as contracted and we keep them in-house.” Asked for documentation showing this system, the community colleges provided examples of an internal ledger for a contractor and consultant, and other documents. This document does not appear consistent with SPO’s guidance calling for a contract administration worksheet tracking milestones or deliverables because the documentation shows only payments without reference to milestones or deliverables being met.

The Judiciary reported that it has no system to track payments and deliverables; it explained that its projects are so small that they are usually paid under a single invoice.

Documenting payments and delivery of deliverables is essential to contract monitoring; when contractors and consultants perform poorly on capital improvement projects, it may increase costs or cause departments and agencies to fail in the eyes of stakeholders. Ultimately, a lack of rigorous procedures to track expenditures and receipt of deliverables can erode accountability and the public’s trust.

***Almost half of 19 entities do not measure or monitor stakeholder satisfaction with the CIPs they manage according to best practices***

Legislative concerns that end users are not satisfied with capital improvement projects were also part of the impetus for this study. According to the PMI, end-users are among the broader group of project stakeholders, which include all people, groups, or organizations that can be affected by a project’s outcome. In order to best manage stakeholders, PMI recommends that project managers identify stakeholders and involve them throughout a project’s execution and closing. This includes providing information about project costs, schedules, and performance. Accordingly, we asked departments and agencies that manage CIPs whether and how they measure or monitor stakeholder satisfaction with the CIPs they manage.

We found that nearly half of departments, agencies, and other entities surveyed—nine of 19—do not manage stakeholders according to PMI best practices. Several entities stated simply that they do not measure or monitor stakeholder satisfaction. The Department of Defense’s Engineering Office and Hawai‘i Army National Guard Division, for example, both reported they do not measure or monitor stakeholder satisfaction, although the Engineering Office said this was in part because various stakeholders may have competing interests and desires for projects. The Department of Agriculture also said it has no formal procedure to measure or monitor stakeholder satisfaction, although it is in frequent contact with tenants and water users, who are its stakeholders. UH–Hilo, UH–Mānoa, and the Judiciary also said they do not measure or monitor stakeholder satisfaction.

In other cases, entities reported that they seek to measure and monitor stakeholder satisfaction with CIPs they manage, but we found they do not follow best practices when doing so. For example, DBEDT’s Foreign-Trade Zone (FTZ) Division told us it merely monitors contract provisions “to ensure that vendors perform to contractual specifications.” Although FTZ does identify stakeholders—namely, the division itself and DBEDT—focusing only on a contractor’s adherence to contract terms and specifications is narrower than the approach called for by PMI best practices. The Department of Education reported it measures and monitors stakeholder satisfaction by issuing surveys when projects are completed, rather than throughout project execution and closing, as best practices advise.

If capital improvement project managers do not engage stakeholders throughout a project’s life cycle, project managers risk producing projects that do not meet stakeholder needs and expectations; in some cases, a project may be unusable. One example of this was part of the impetus for this study, wherein a new backstop was installed at a high school baseball field in such a way that the field no longer meets high school baseball regulation standards and can thus no longer be used for high school baseball games.

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## Conclusion

Despite the varying methods of managing capital improvement projects among state departments and agencies, centralizing the management of all CIPs is not practicable. Policy issues involving the management of federal funds, the specialized nature of some CIPs, and a desire for greater efficiency militate against centralizing all capital improvement projects under one entity, such as DAGS, as contemplated in Act 177, SLH 2015. In addition, a substantial majority of the departments and agencies we surveyed indicated that CIPs should remain decentralized.

However, inconsistent adherence to best practices and SPO guidance regarding such key items as maintaining timelines, tracking deliverables and payments, and involving stakeholders throughout a project's life cycle creates a risk that projects will be mismanaged, ultimately harming accountability and public confidence. Act 177 identifies project timelines, proper management of consultants and contractors, and end-user satisfaction as essential elements of project management.

Accordingly, state departments and agencies that manage their own CIPs should adopt policies and procedures to ensure these basic standards are carried out. Some entities, such as the Judiciary, which manages small projects valued at less than \$1 million annually, may not need a system as robust as that of the Department of Education, which manages projects valued at as much as \$435 million per year. However, adopting standards that adhere to best practices would likely enhance public confidence in the State's management of its multi-million dollar capital improvement projects.

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## Recommendations

Departments and agencies that manage their own capital improvement projects should:

1. Use timelines that include a comprehensive list of *all activities* required on a project, and not simply rely on contractor timelines, which may not reflect all project phases. At a minimum, the list should include all phases in a project's life cycle—namely, the initiation, planning, design, bid, construction, and post construction phases.
2. Follow State Procurement Office guidance for tracking payments and deliverables by using a contract administration worksheet that includes milestones or deliverables, which are marked off as items are completed.
3. To help ensure end-user satisfaction with their capital improvement projects, identify and involve stakeholders throughout a project's execution and closing, including providing information about project costs, schedules, and performance.

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# Chapter 3

## Overview of State Departmental Engineering Sections That Manage CIPs

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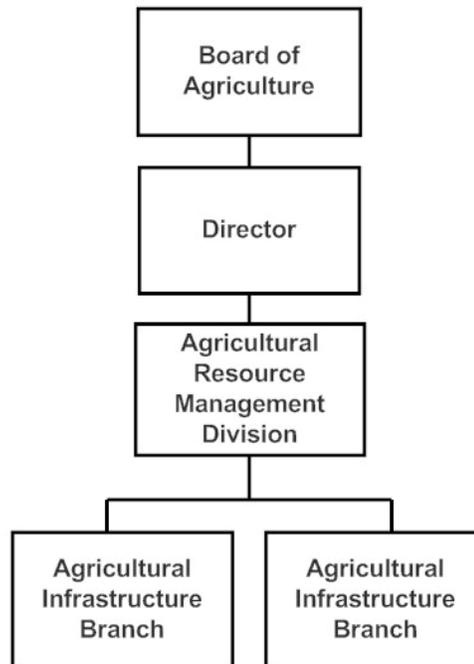
This chapter presents an overview of 19 departments, agencies, and other entities, other than the Department of Accounting and General Services, that manage their own general-funded capital improvement projects (CIPs). For each department, agency, or entity, we provide an organizational chart showing the location of employees who are involved in managing CIPs, a table showing the number of CIPs managed in fiscal years 2013–2015, and the dollar value of CIPs managed in those fiscal years.<sup>1</sup> Numbers are based on management’s determinations and survey responses, and were not audited. Additionally, for each department, agency, or entity, we describe its procedures for ensuring that projects progress timely, tracking contract deliverables, and measuring or monitoring stakeholder satisfaction, as reported by the department, agency, or entity. We do not conclude whether departments, agencies, and entities consistently follow their stated procedures, only whether they have created procedures that meet best practices for project management and the State Procurement Office’s guidance on contract administration.

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<sup>1</sup> In their survey responses, the Hawai‘i Health Services Corporation–O‘ahu, Department of Land and Natural Resources, University of Hawai‘i System, and the Judiciary provided data for FY2014–FY2016, and the Hawai‘i Public Housing Authority provided data for FY2012–FY2014; accordingly, charts for those entities cover those years, as indicated.

**Department of  
Agriculture**

The Department of Agriculture has an engineering entity that manages CIPs. Engineering positions are located in the Agricultural Resource Management Division’s Agricultural Infrastructure and Agricultural Land branches and include approximately 25 people who work on CIPs as part of their jobs. Chapter 167, Hawai’i Revised Statutes (HRS), gives the department authority to create, manage, operate, and maintain water irrigation systems and to hire an engineer to manage the irrigation program.



The Department of Agriculture’s procedure for project time management is not clear. The department reported that all project managers maintain a central Microsoft Outlook calendar with deadlines and milestones, such as notices to proceed, permit deadlines, important construction inspections, and timelines. However, the division’s chief engineer administrator told us earlier that the division has a Microsoft Excel spreadsheet it uses to list projects, and he said there is no project management software system used uniformly to create timelines; instead, individual project managers are allowed to create their own project schedules or timelines. Under this system, if the engineer in charge of a project leaves unexpectedly, it is difficult to pass the project seamlessly to another engineer.

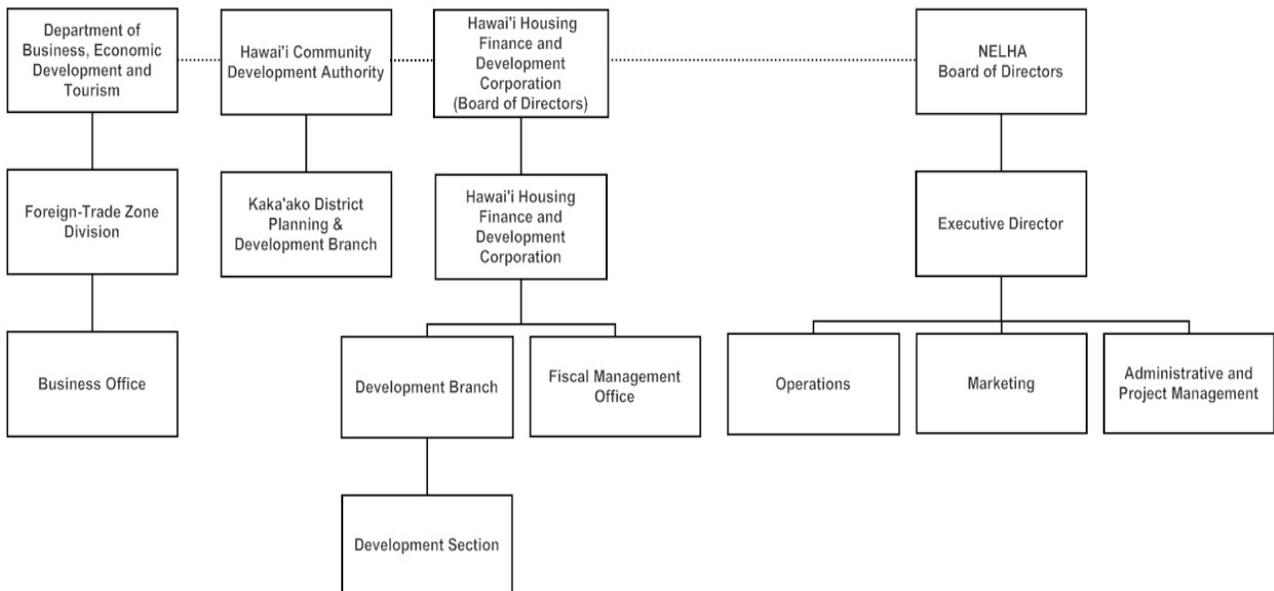
Fiscal Year	No. of CIPs Managed	Value
2012-2013	60	\$47,000,000
2013-2014	62	\$51,000,000
2014-2015	72	\$61,000,000

The department reported it tracks expenditures by invoice, which includes overall project cost, billings to date, and project completion percentages. Individual project managers track deliverables.

The department said it does not formally measure or monitor stakeholder satisfaction with the CIPs it manages. However, it reported that department staff and field workers are in frequent contact with farmers, continuously soliciting their input. In addition, the department holds public meetings to discuss project scope and schedules.

**Department of Business, Economic Development and Tourism**

The Department of Business, Economic Development and Tourism (DBEDT) has one division and three attached agencies that manage their own CIPs: the Foreign-Trade Zone Division, the Hawai‘i Community Development Authority, the Hawai‘i Housing Finance and Development Corporation, and the Natural Energy Laboratory of Hawai‘i Authority (NELHA).



### Foreign Trade Zone Division

DBEDT’s Foreign Trade Zone Division (FTZ) has been overseeing a single \$10.5 million CIP from FY2011 to FY2015, but relies on third-party vendors to manage the project. The division derives its authority to manage the CIP from Section 212-4, HRS, which gives the governor authority to do “all things necessary and proper to carry into effect the establishing, maintaining, and operating of foreign-trade zones....”

Fiscal Year	No. of CIPs Managed	Value
2012-2013	1	\$10,500,000
2013-2014	1	\$10,500,000
2014-2015	1	\$10,500,000

FTZ does not maintain a written schedule from the beginning to close of a project and does not have a written process to handle project change order requests. Rather, it relies on vendors to maintain a schedule and change order requests. Division management staff oversee tracking expenditures and receipt of deliverables.

FTZ does not follow best practices for managing stakeholder satisfaction. The Project Management Institute (PMI) recommends project managers identify and involve stakeholders throughout a project’s execution and closing. This includes providing information about project costs, schedules, and performance. FTZ told us it merely monitors contract provisions “to ensure that vendors perform to contractual specifications.” Although FTZ does identify stakeholders—as itself and DBEDT—focusing only on a contractor’s adherence to contract terms and specifications is narrower than the approach called for by PMI best practices.

### Hawai‘i Community Development Authority

The Hawai‘i Community Development Authority (HCDA), which is administratively attached to DBEDT, has an engineering branch with eight staff members who currently manage six CIPs. Projects are managed by an assigned project manager in the Kaka‘ako District Planning and Development Branch. Sections 206E-3 and 206E-4, HRS, authorize HCDA to manage CIPs. HCDA has managed CIPs since the agency was formed in 1976. Recent CIPs include repairing the Kewalo Basin jetty, and building underground utilities and a pole power line at Kalaeloa.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	3	\$2,840,000
2013-2014	3	\$2,840,000
2014-2015	6	\$7,250,000

HCDA appears to maintain a written schedule or timeline that shows activities from the beginning to the close of a project, with milestones, duration of time, resources, and costs associated with the work and a written process to handle project change order requests. HCDA tracks expenditures and deliverables on a spreadsheet. HCDA does not appear to follow best practices for managing stakeholder satisfaction. PMI recommends project managers identify stakeholders and involve them throughout a project’s execution and closing. This includes providing information about project costs, schedules, and performance. The authority did not respond to our survey question regarding whether it identifies its stakeholders and measures or monitors stakeholder satisfaction with CIPs that it manages. Although in an interview, the authority’s executive director said HCDA responds to stakeholder complaints, it is not clear that HCDA involves stakeholders throughout project execution and closing as required by best practices.

### Hawai‘i Housing Finance and Development Corporation

The Hawai‘i Housing Finance and Development Corporation (HHFDC), which is administratively attached to DBEDT, currently manages one CIP. The project is overseen by three managers in the corporation’s Development Branch. Section 201H-12, HRS, gives the corporation authority to clear, improve, and rehabilitate property; and to plan, develop, construct, and finance housing projects. Under its general statutory powers, the corporation may do all things necessary to carry out these express powers.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	0	\$0
2013-2014	1	\$159,000
2014-2015	1	\$335,000

The corporation maintains a written schedule from the beginning to close of projects, has written processes to handle project change order requests, and has a designated person responsible for managing project schedules. The corporation reported its system to track expenditures and delivery of deliverables consists of “contracts, budgets, project meetings, [and] project schedules.” The corporation does not appear to follow best practices for managing stakeholder satisfaction. PMI best

practices recommend project managers identify and involve stakeholders throughout a project’s execution and closing. This includes providing information about project costs, schedules, and performance. The corporation reported it identifies water users as the stakeholders of the water system it manages; however, the corporation said it measures and monitors stakeholder satisfaction merely by monitoring the operations of the water system. This method does not appear consistent with best practices, which call for involving stakeholders throughout the development of a project.

**Natural Energy Laboratory of Hawai‘i Authority**

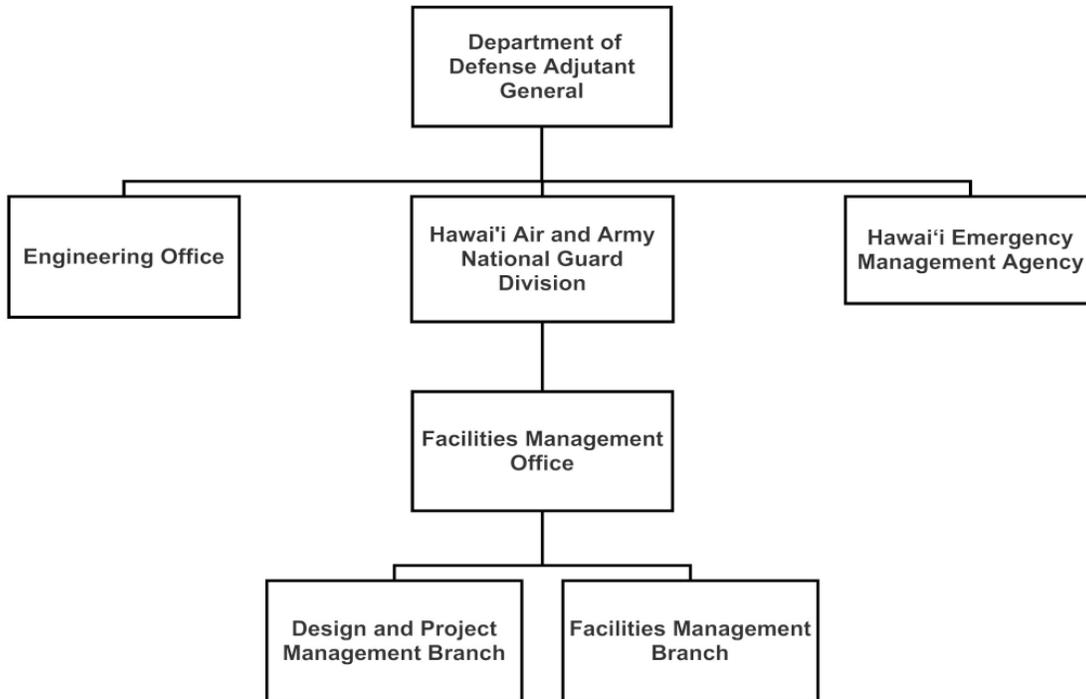
Administratively attached to DBEDT, NELHA has managed its own CIPs since approximately 1990. Projects are handled by personnel in the operations, marketing, and administrative and projects management areas as well as by the executive director; in total, five people manage CIPs as part of their jobs. Section 227D-3, HRS, gives NELHA authority to construct, reconstruct, rehabilitate, improve, alter, or repair any project related to NELHA’s purpose, which is to facilitate research, development, and commercialization of natural energy resources. Recent projects include roads, a water well, an upgrade to repair a 40-inch deep seawater offshore pipeline, and a renovation of NELHA’s alternative energy and biotechnology incubator.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	5	\$1,727,000
2013-2014	5	\$3,741,000
2014-2015	5	\$1,188,000

NELHA appears to follow best practices for time management of CIPs. The authority maintains a written schedule from the beginning to close of projects, has written processes to handle project change order requests, and has a designated person responsible for managing project schedules. NELHA does not, however, appear to follow best practices for managing consultants and contractors. Although NELHA reported it assigns a contract administrator to monitor consultants and contractors, the authority’s system for tracking expenditures and deliverables appears to be less than what best practices require. Among other requirements, the SPO calls for contract administrators to keep a contract administration worksheet to track milestones or deliverables and when they are due, and to enter the date as milestones or deliverable are met. Asked how it tracks expenditures and deliverables, NELHA reported simply, “[Expenditures and deliverables] are normally listed in the contract.” The authority did not mention a tracking system or worksheet as called for by SPO. Regarding identifying stakeholders and measuring and monitoring stakeholder satisfaction with CIPs it manages, NELHA did not identify a system for doing that, but said simply it is normally its own stakeholder.

**Department of Defense**

The Department of Defense (DOD) has three engineering entities—the Engineering Office, the Hawai‘i Air and Army National Guard Division, and the Hawai‘i Emergency Management Agency (HIEMA)—that manage CIPs. However, HIEMA uses the Department of Accounting and General Services (DAGS) to manage its projects, with technical support from DOD’s Engineering Office, and is therefore not discussed. By contrast, the Engineering Office and the Hawai‘i Air and Army National Guard Division manage their CIPs independently. Their authority to do so derives from Sections 121-7 and 121-10, HRS, which establish the adjutant general as the executive head of the Department of Defense, with authority over state military reservations, armories, and all other property of the State kept or used for military purposes.



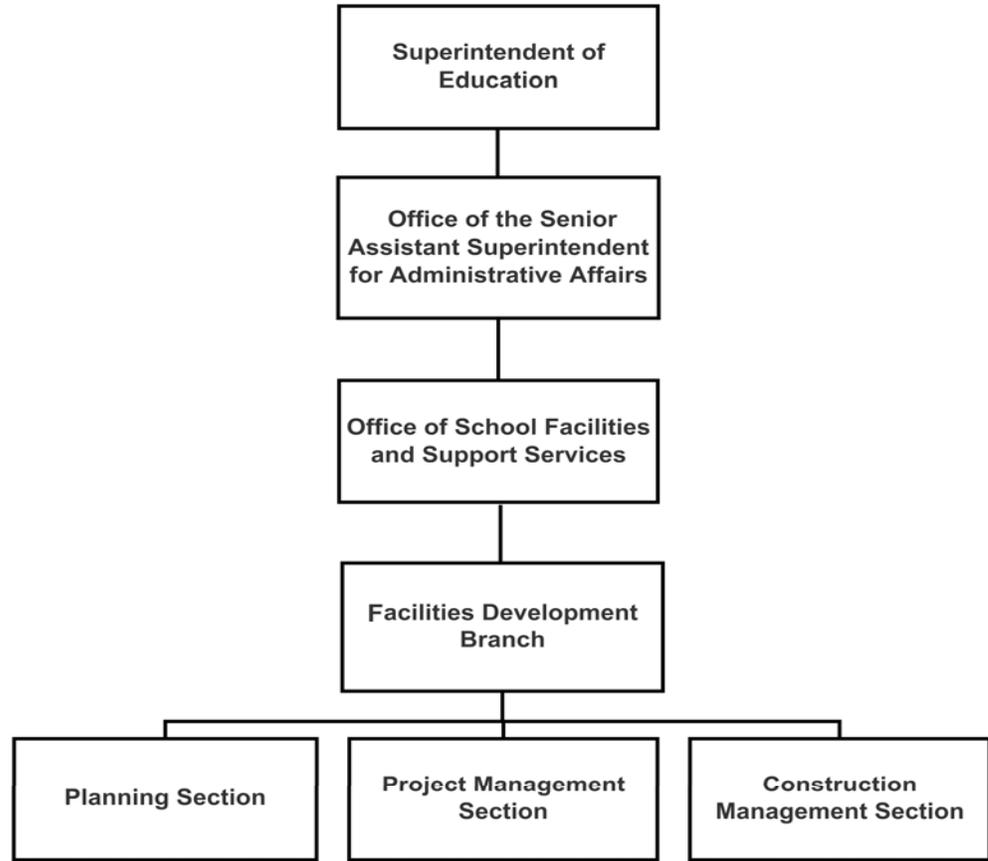
The Engineering Office has three CIP managers who manage CIPs. Their major responsibilities include planning, administering, and supervising CIP projects. Typical DOD projects include the repair and maintenance of Diamond Head Crater tunnel, construction of trans-Pacific cable landing stations, and statewide deployment of broadband infrastructure. For project time management, the Engineering Office uses a detailed written spreadsheet schedule from the beginning to close of the project and plans to implement DAGS’ tracking program schedule in the future. The Engineering Office uses a payment “recapitulation sheet” to track payments, and a project schedule with milestones that are checked off and dated as deliverables are met. The Engineering Office reported it does not measure and monitor stakeholder satisfaction.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	9	\$7,315,000
2013-2014	2	\$2,050,000
2014-2015	5	\$4,976,000

The Hawai‘i Air and Army National Guard Division manages CIPs within its Facilities Management Office. Depending on the scope of a project, the division’s CIPs involve its Design and Project Management Branch and, in some cases, its Facilities Management Branch; combined, the two branches have approximately 12 to 16 people who work on CIPs. The branches employ a combination of state and federal workers. Recent CIPs have included historic restoration and repairs, building demolition and site restoration, and infrastructure improvements to comply with the federal *Americans with Disabilities Act*. The division maintains an updated written schedule from the beginning to the close of projects, which is managed by the Design and Project Management Branch manager. In addition, the division tracks expenditures and receipt of deliverables in detail, with the Design and Project Management Branch manager reporting expenditures and deliverables monthly for each project, according to its survey response. The Design and Project Management Branch does not manage or monitor stakeholder satisfaction with CIPs it manages.

**Department of Education**

The Department of Education (DOE) has an engineering entity that manages CIPs. The department’s authority to manage its CIPs derives from Act 51, Session Laws of Hawai‘i (SLH) 2004. Engineering positions are located in the department’s Planning, Project Management, and Construction Management sections under the Office of School Facilities and Support Services’ Facilities Development Branch and include 63 people who work on CIPs as part of their jobs. Act 51 transferred the authority to manage DOE’s capital improvement projects from DAGS to DOE along with a substantial number of positions, and DOE began managing its CIPs in 2005.



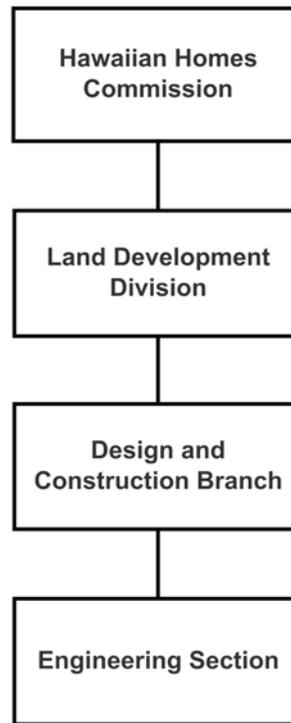
The department maintains a written schedule from the beginning to close of a project using a project management program called FACTRAK to monitor project status. The system includes a public version posted on the web that DOE allows the general public to see. The department reported it tracks expenditures and deliverables through FACTRAK, DOE’s accounting system, and invoices.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	224	\$296,472,000
2013-2014	284	\$238,672,000
2014-2015	386	\$435,494,000

It is unclear whether the department adequately measures and monitors stakeholder satisfaction. PMI best practices recommend project managers identify and involve stakeholders throughout a project’s execution and closing. This includes providing information about project costs, schedules, and performance. Although DOE said it identifies stakeholders as the department and school where a CIP is being done and issues surveys at project completion, it is not clear whether DOE involves stakeholders throughout the CIP process.

**Department of  
Hawaiian Home Lands**

The Department of Hawaiian Home Lands (DHHL) has an engineering entity that manages CIPs. Engineering positions are located in the department’s Design and Construction Branch and include five to ten people who work on CIPs as part of their jobs, including engineers and homestead land development specialists. Section 204.5 of the *Hawaiian Homes Commission Act* authorizes DHHL to develop Hawaiian home lands by, among other things, constructing, altering, and repairing public works such as streets, storm drainage systems, sewerage facilities, street lighting, and pedestrian ways. Recent CIPs include dams and a sewerage project.



DHHL’s system for creating project timelines is a work in progress. PMI best practices recommend project managers maintain a written schedule or timeline that shows activities from beginning to close of a project, with milestones, duration of time, resources, and costs associated with the work. Although DHHL reported that it maintains such a timeline from the beginning to end of projects, the Land Development Division’s acting administrator said the division has only within the last year begun to use a project tracking software system. “You could say it’s in progress,” the acting administrator told us.

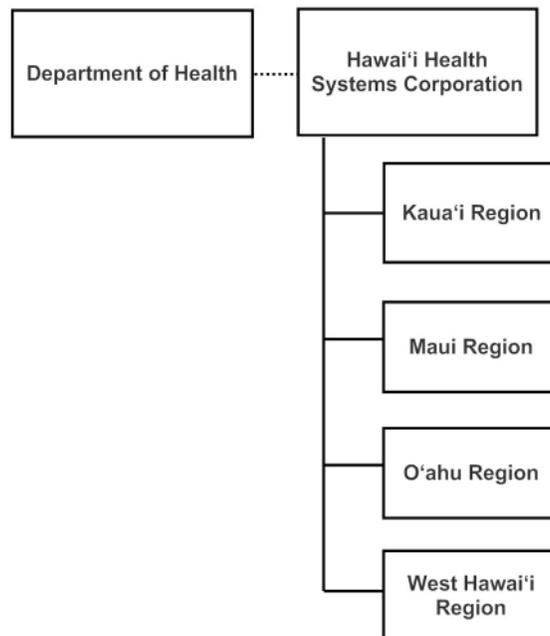
Fiscal Year	No. of CIPs Managed	Value
2012-2013	1	\$1,000,000
2013-2014	1	\$3,000,000
2014-2015	1	\$4,000,000

It is not clear whether DHHL follows best practices for managing consultants and contractors. Among other requirements, the SPO calls for contract administrators to keep a contract administration worksheet to track milestones or deliverables and when they are due, and to enter the date as milestones or deliverable are met. Asked how it tracks expenditures and deliverables, DHHL responded in its survey, “Progress billings are verified by the project manager.”

DHHL appears to follow best practices for managing stakeholder satisfaction. PMI recommends project managers identify stakeholders and involve them throughout project execution and closing. This includes providing information about project costs, schedules, and performance. DHHL holds regular community meetings and consultations with Native Hawaiian beneficiaries of the Hawaiian Home Land Trust.

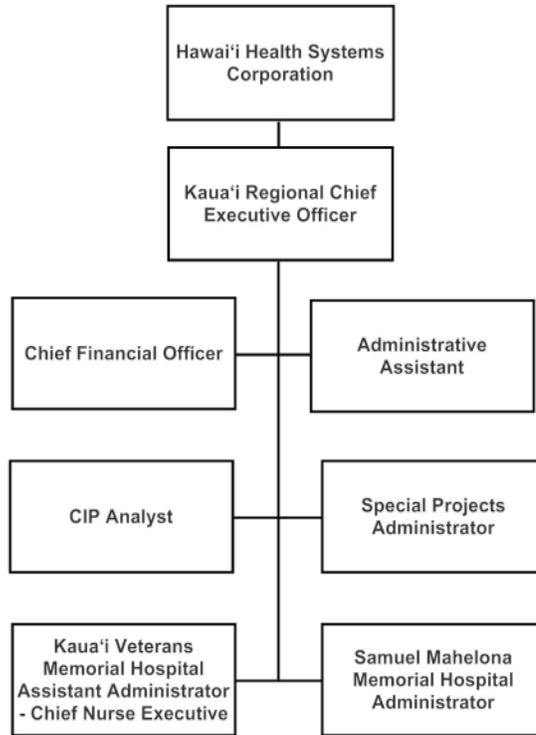
**Department of Health**

The Department of Health’s administratively attached agency, the Hawai’i Health Systems Corporation (HHSC), manages its own CIPs. Within HHSC, each of its five regions—Kaua’i, Maui, O’ahu, East Hawai’i, and West Hawai’i—manage their own CIPs. However, the East Hawai’i region did not respond to our survey and is therefore not included in this report. Section 323F-7, HRS, gives the Hawai’i Health Systems Corporation authority to plan and manage capital improvement projects.



### Hawai'i Health Systems Corporation–Kaua'i

HHSC–Kaua'i uses approximately seven staff from its various sections (maintenance, finance, and administration) to manage two CIPs. Projects are managed by a project coordinator, maintenance supervisor, and the chief executive officer. HHSC–Kaua'i has managed its own CIPs since approximately 2005.



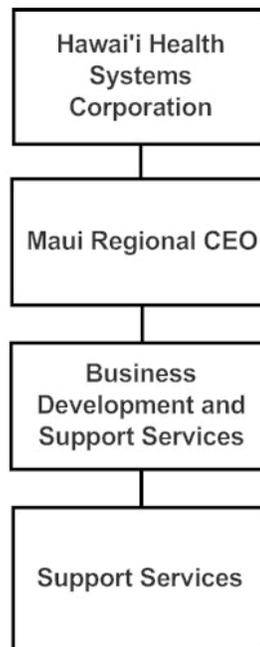
HHSC–Kaua'i does not appear to maintain a written comprehensive schedule from the beginning to close of projects. Although HHSC–Kaua'i reported it maintains such a schedule, a sample timeline it submitted to support this assertion included details of the procurement and contracting phases of a project but no mention of post-construction activities and no details of the design and construction phases, which were combined into one line item. Likewise, HHSC–Kaua'i's method of tracking expenditures and delivery of deliverables appears insufficient. In its survey response, HHSC–Kaua'i said that it uses a project status report to track expenditures and receipt of deliverables. However, a sample project status report contained no record of payments or construction milestones being met, making the document insufficient to track payments and receipt of deliverables.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	0	\$0
2013-2014	7	\$5,800,000
2014-2015	2	\$2,175,000

HHSC–Kaua‘i measures and monitors stakeholder satisfaction by involving administration, nursing, and maintenance staff in the implementation of projects.

### Hawai‘i Health Systems Corporation–Maui

HHSC–Maui manages 32 CIPs using three staff members from its Business Development and Support Services unit. CIPs are managed by two project managers and one administrative support staff. HHSC–Maui has managed its own CIPs since approximately 1999. Recent HHSC–Maui CIPs include replacing elevators at Lāna‘i Community Hospital and expanding the emergency room at Lāna‘i Community Hospital.

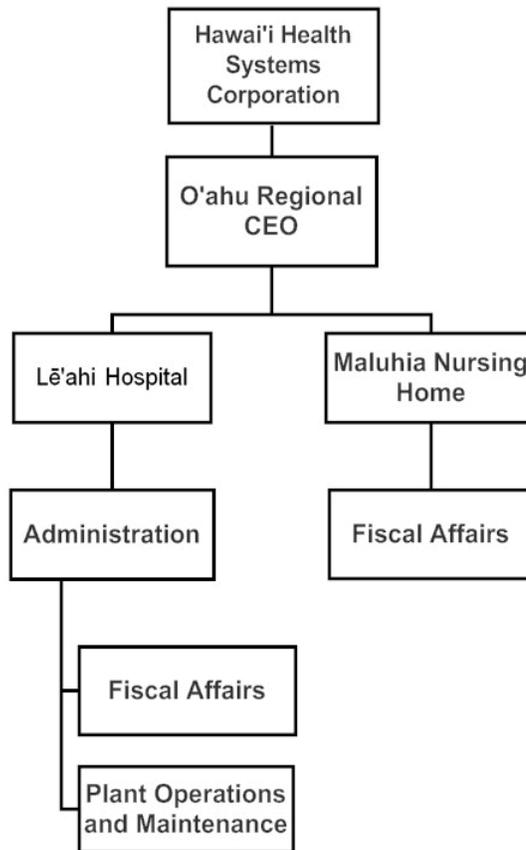


HHSC–Maui does not maintain a written comprehensive schedule from the beginning to close a project; instead, it relies on the vendor’s schedule. The hospital management officer, architect, and project manager track expenditures and deliverables. HHSC–Maui identifies stakeholders and involves them throughout project execution and closing.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	25	\$59,340,000
2013-2014	31	\$78,310,000
2014-2015	32	\$68,230,000

### Hawai'i Health Systems Corporation–O'ahu

HHSC–O'ahu manages 19 CIPs using four staff members. Project staff are located within the Lē'ahi Hospital Fiscal Affairs, Lē'ahi Hospital Plant Operation and Maintenance, and Maluhia Nursing Home's Fiscal Affairs areas. HHSC–O'ahu has managed its own CIPs since 1995. Recent HHSC–O'ahu CIPs include upgrading Lē'ahi Hospital's fire alarm, reroofing Lē'ahi Hospital's Young Building, and modernizing Maluhia Nursing Home's elevators and upgrading its air conditioning systems.



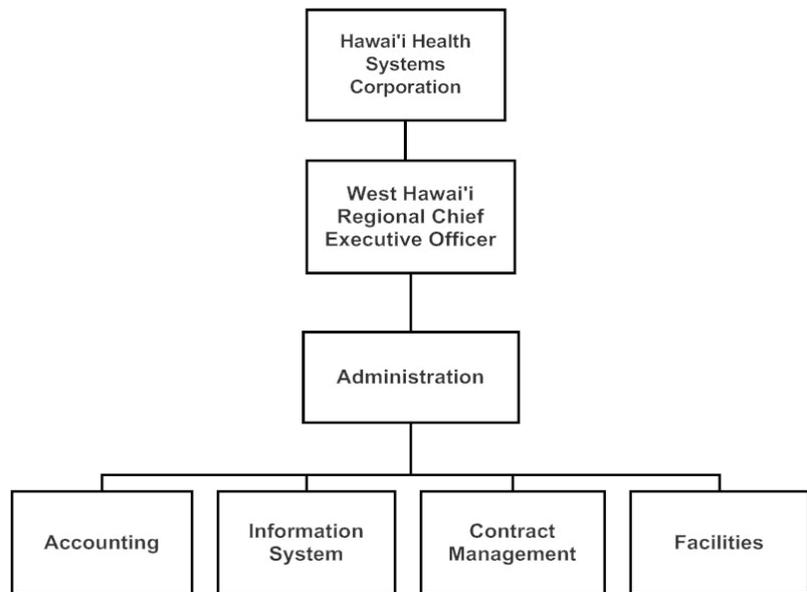
HHSC–O'ahu does not maintain a written comprehensive schedule from the beginning to close of all projects; it merely creates a timeline when project funding status is known. Asked how it tracks expenditures and deliverables, HHSC–O'ahu responded that each region has an accountant who tracks expenditures and deliverables and that HHSC–O'ahu only monitors “to verify that funds are utilized before the funding lapses.”

Fiscal Year	No. of CIPs Managed	Value
2013-2014	35	\$40,000,000
2014-2015	30	\$40,000,000
2015-2016	19	\$20,000,000

HHSC–O‘ahu does not appear to follow best practices for monitoring and managing stakeholder satisfaction. PMI best practices recommend project managers identify and involve stakeholders throughout a project’s execution and closing. This includes providing information about project costs, schedules, and performance. HHSC–O‘ahu identifies stakeholders; however, it does not monitor or involve them throughout a project. In addition, HHSC–O‘ahu evaluates contractor performance only if it is poor and does not regularly document lessons learned after contracts are completed.

### Hawai‘i Health Systems Corporation–West Hawai‘i

Four staff (the director of facilities, a contracts manager, the director of information services, and an accountant) of HHSC–West Hawai‘i manage 12 CIPs. HHSC–West Hawai‘i has managed its own CIPs since 2002. Recent HHSC–West Hawai‘i CIPs include renovating Kona Community Hospital’s emergency room and admissions area.



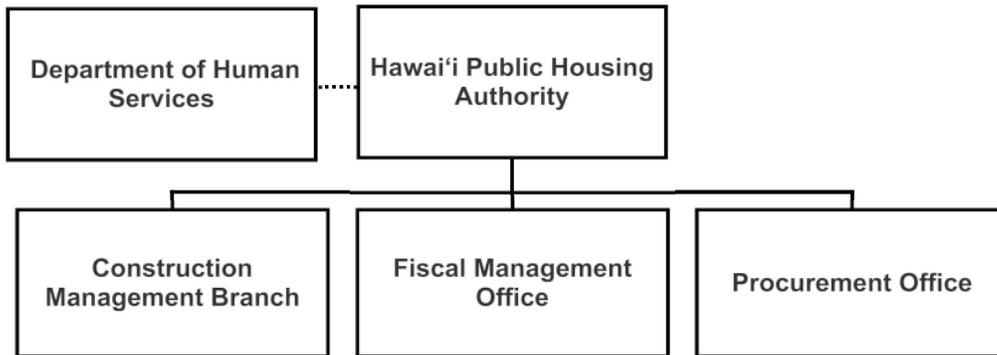
HHSC–West Hawai‘i does not maintain a written comprehensive schedule from the beginning to close of projects. Rather, it relies on the vendor’s schedule. To track expenditures and receipt of deliverables, the director of facilities and the contract manager review invoices and visit the jobsite to inspect deliverables.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	8	\$0
2013-2014	15	\$5,200,000
2014-2015	12	\$6,500,000

HHSC–West Hawai‘i identifies stakeholders and involves them throughout project execution and closing via weekly internal construction meetings and updates with other stakeholders.

**Department of Human Services**

The Department of Human Services’ administratively attached agency, the Hawai‘i Public Housing Authority (HPHA), manages its own CIPs.



**Hawai‘i Public Housing Authority**

The Hawai‘i Public Housing Authority (HPHA) managed 22 CIPs in FY2014. Sixteen staff from HPHA’s Construction Management Branch, with additional assistance from its Fiscal Management and Procurement offices, work on CIP projects. Section 356D-11, HRS, gives HPHA authority to clear, improve, and rehabilitate property; plan, develop, and construct public housing projects; and develop public land in the agricultural districts. HPHA manages both federal and state construction funds; 95 percent of its CIPs are renovation projects.

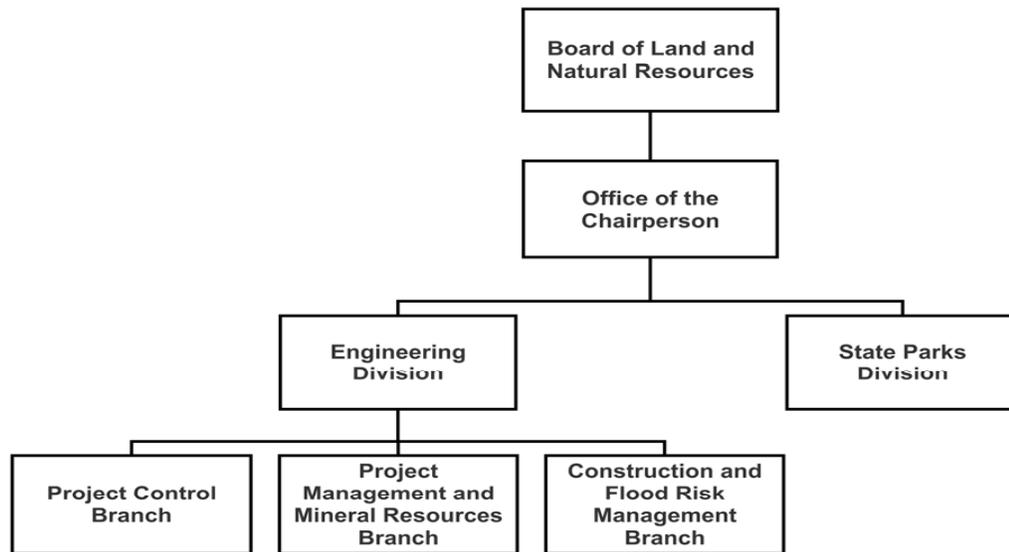
Fiscal Year	No. of CIPs Managed	Value
2011-2012	109	\$60,200,000
2012-2013	50	\$44,400,000
2013-2014	22	\$26,000,000

HPHA maintains a written overall schedule, which is managed by architects and engineers. The authority tracks expenditures and deliverables through alignment of itemized CIP funds requests, vendor billings, weekly project status reports, and bi-monthly capital planning meetings. The authority also identifies internal and external stakeholders

and involves them systematically throughout a project’s execution and closing via feedback from property managers and tenants.

**Department of Land and Natural Resources**

The Department of Land and Natural Resources (DLNR) has an engineering entity that manages CIPs. Engineering positions are located in the Engineering and the State Parks divisions. Twenty-two staff from the Engineering Division and six staff from the State Parks Division work on CIPs as part of their jobs.



Section 174-17, HRS, authorizes the Board of Land and Natural Resources to organize CIPs on its own initiative. Typical CIPs include rock fall and flood mitigation; dam safety projects; flood control projects; geothermal and other mineral resources management/regulation projects; water and land resources development projects; and soil and water conservation projects.

DLNR maintains a schedule from the beginning to close of projects, has written processes to handle project change orders requests, and has a designated project manager responsible for managing project schedules.

Fiscal Year	No. of CIPs Managed	Value
2013-2014	26	\$77,099,000
2014-2015	45	\$90,755,000
2015-2016	28	\$41,688,000

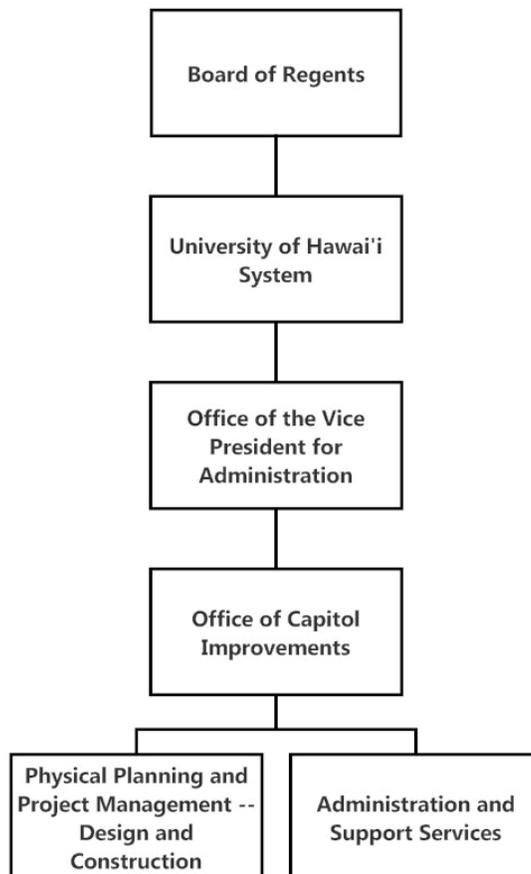
A project engineer/manager monitors and reviews consultants and contractors' work to enforce contract provisions and verify satisfactory performance and completeness of work. The Project Control Branch tracks expenditures through its DATAMART system. The department uses a standard form to evaluate contractors' performance and lessons learned after contracts are completed. The department also identifies and involves stakeholders systematically throughout project execution and closing.

### **University of Hawai'i System**

The University of Hawai'i (UH) System manages its own CIPs but has a quasi-decentralized structure for managing them across ten campuses and three educational centers. Four UH entities—the Office of Capital Improvements, UH–Mānoa, UH–Hilo, and the UH Community Colleges—all handle CIPs.

#### **Office of Capital Improvements**

The Office of Capital Improvements (OCI) is a UH system-wide office that primarily supports new and major construction projects on all campuses. Three professional architect/engineers and two fiscal staff work on 27 CIPs.



Past CIPs include constructing UH–Hilo’s Hawaiian Language Building; building UH–Mānoa’s sand volleyball practice courts, replacing and repairing the UH–Mānoa football locker room; and renovating the Hawai‘i Community College’s Hale Aloha building.

Fiscal Year	No. of CIPs Managed	Value
2013-2014	44	\$694,315,000
2014-2015	41	\$616,588,000
2015-2016	27	\$322,644,000

Although OCI has a project manager responsible for managing project schedules, and a written change order process exists, the office does not maintain a written comprehensive schedule from the beginning to close of projects. Rather, it relies on contractors’ schedules. To track expenditures and receipt of deliverables, the office reviews dashboard reports on project status and completion dates, payment ledgers, and CIP status reports from contractors. The office identifies and involves stakeholders throughout project execution and closing.

### University of Hawai‘i–Hilo

UH–Hilo’s Office of Facilities Planning and Construction (OFPC) is responsible for facilities associated with the Hilo campus on the island of Hawai‘i. Three OFPC staff, including a facilities planner, work on 36 CIPs. Past UH–Hilo CIPs include renovating and repairing UH–Hilo’s old gymnasium and various buildings, installing toilet partitions in the library, replacing the Hale Kehau roof, and improving air conditioning at the theater and administration building.



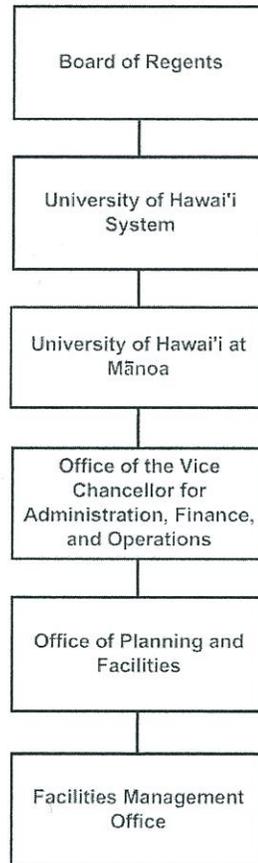
OFPC maintains a written schedule from the beginning to close of projects, has written processes to handle project change order requests, and has a designated project manager responsible for managing project schedules. The office also tracks expenditures and delivery of deliverables in detail, through design reviews and payment reviews. Although the office identifies stakeholders, it does not formally manage and monitor stakeholder satisfaction with the CIPs it manages.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	30	\$67,050,000
2013-2014	34	\$80,450,000
2014-2015	36	\$66,050,000

### University of Hawai‘i–Mānoa

UH–Mānoa’s Office of Planning and Facilities is responsible for projects associated with UH–Mānoa facilities, including the John A. Burns School of Medicine and UH Cancer Center on O‘ahu as well as observatories on Maui’s Haleakalā and Hawai‘i Island’s Mauna Kea, and other facilities across five islands. Eight design managers, five

construction managers, three mechanical engineers, and three engineers work on 86 CIPs. Past CIPs include renovating Snyder Hall, repairing Edmondson Hall, and designing the Lower Campus Road guardrail at UH-Mānoa.

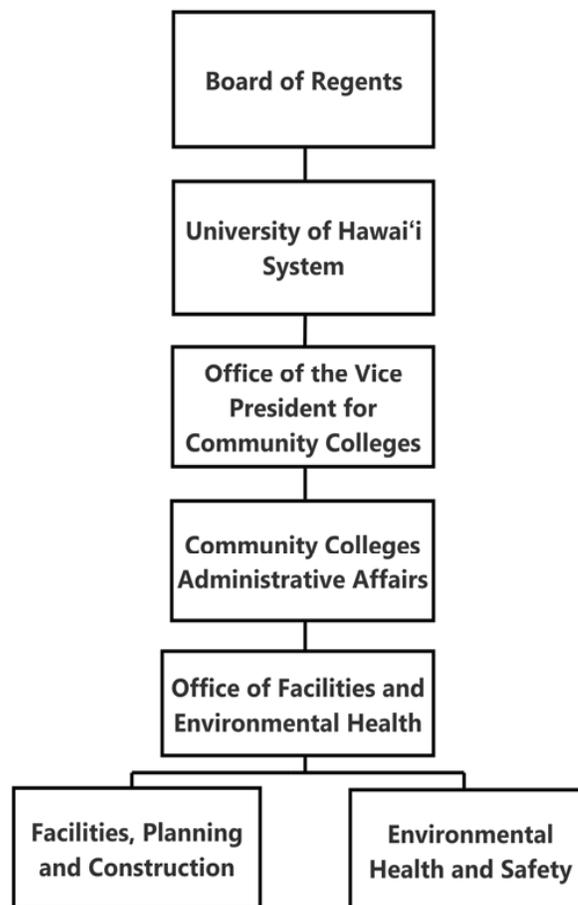


The office’s design manager or construction manager maintains a comprehensive schedule from the beginning to close of projects and maintains a written process to handle project change order requests. The office tracks expenditures and receipt of deliverables by reviewing Microsoft Excel worksheets, monthly invoice logs, and submitted invoices. The office does not measure or monitor stakeholder satisfaction.

Fiscal Year	No. of CIPs Managed	Value
2012-2013	94	\$59,170,000
2013-2014	74	\$54,780,000
2014-2015	86	\$55,163,000

### UH Community Colleges

The UH Community Colleges’ Office of Facilities and Environmental Health (OFEH) is responsible for facilities associated with the university system’s seven community college campuses (Hawai‘i Community College, Honolulu Community College, Kapi‘olani Community College, Kaua‘i Community College, Leeward Community College, UH Maui Community College, and Windward Community College) and three education centers (West Hawai‘i Education Center–Palamanui, Wai‘anae Education Center, and Moloka‘i Education Center). Five OFEH staff—including architects, engineers, a project manager and an environmental health specialist—work on 21 CIPs. Sealing building joints at Leeward Community College is an example of an OFEH-managed CIP.



UH’s community colleges do not appear to follow best practices for time management of CIPs. PMI best practices recommend project managers maintain a written schedule or timeline that shows activities from the beginning to close of a project, with milestones and duration of time and resources and costs associated with the work noted. The community

colleges reported they maintain an updated written schedule from the beginning to the close of all projects. However, the community colleges provided only a contractor’s time schedule, not its own schedule, to support this assertion.

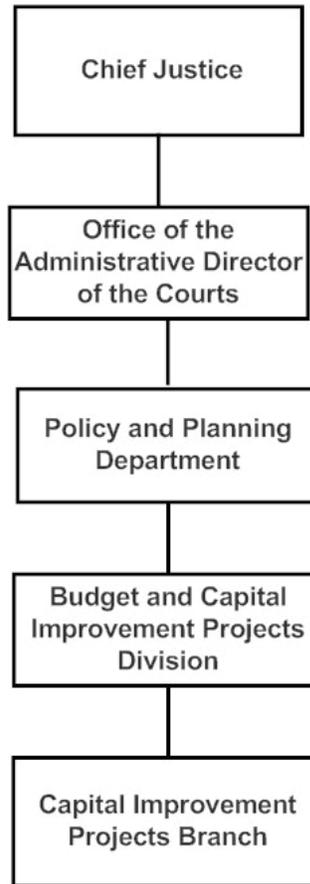
Fiscal Year	No. of CIPs Managed	Value
2012-2013	39	\$18,437,000
2013-2014	35	\$33,679,000
2014-2015	21	\$28,725,000

The community colleges’ system for tracking expenditures and receipt of deliverables also does not appear to follow best practices. Among other requirements, the SPO calls for contract administrators to keep a contract administration worksheet to track milestones or deliverables and when they are due, and to enter the date as these are met. The community colleges reported their system to track expenditures and receipt of deliverables consists of an internal accounting system, ledgers for project design, and construction contracts. “Deliverables are given to us throughout the project as contracted and we keep them in-house,” UH’s vice president for administration reported. The community colleges provided examples of an internal ledger for a contractor and consultant; however, this document does not appear consistent with SPO’s guidance calling for a contract administration worksheet tracking milestones or deliverables because it shows only payments without reference to milestones or deliverables being met.

To measure and monitor stakeholder satisfaction with projects, the community colleges reported they identify the UH system and each campus’ faculty, staff, and students as their stakeholders. The community colleges reported they work closely with their seven campuses throughout the year and discuss and document project outcomes.

***The Judiciary***

The Judiciary, which is its own branch of government, has an entity that manages CIPs. Its Capital Improvement Projects Branch is located under its Policy and Planning Department’s Budget and Capital Improvement Projects Division. The CIP branch includes two people who work on CIPs as part of their jobs, including an architect and a CIP coordinator, as well as specific project support from each user group served. The Judiciary delegates authority to the executive branch’s DAGS to manage larger, more complex CIPs; however, the Judiciary started managing its own small, narrow-scoped projects in FY2014.



Typical projects include small-scale courthouse renovation, repair, and maintenance projects, such as installing an air conditioner chiller-starter control, changing a fire pump, and installing a water pressure regulator.

Fiscal Year	No. of CIPs Managed	Value
FY2013-2014	0	\$0
FY2014-2015	20	\$564,000
FY2015-2016	11	\$262,000

The Judiciary reported it does not maintain a written schedule from the beginning to close of a project because its “user groups are intimately involved with the coordination of these projects and are typically the drivers of the schedules.” Likewise, the Judiciary said it does not have a system to track expenditures and delivery of deliverables. “The Judiciary’s projects are so small that they are largely paid against a single invoice,” the architect in charge of capital improvement for the Judiciary reported. The Judiciary also reported it does not have a system to measure or monitor stakeholder satisfaction with the CIPs it manages.

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## Appendix A – Survey Instrument

### STUDY OF DEPARTMENTAL ENGINEERING SECTIONS THAT MANAGE CIPs SURVEY

The Office of the Auditor is conducting a study pursuant to Section 1 of HB 697, HD1, SD2, CD1, of the 2015 legislative session, which requires us to review various departmental engineering sections that manage general fund capital improvement projects to determine if it serves the public interest to continue to operate duplicative engineering operations among various departments.

**The following questions apply only to CIPs financed through general funds or general obligation (GO) bonds.**

1. Does your department and/or any of its attached agency(ies) manage CIPs? \_\_\_\_\_

**If no, please stop here. Thank you for your time.**

2. We are interested in how many CIPs your department and/or attached agency(ies) manage:
  - a. Approximately how many CIPs are handled at any given time? Please provide the number of projects per year for each of the last three years. (Please specify fiscal year or calendar year.)
  - b. What is the dollar value of CIPs your department and/or agency(ies) manage? Please provide the dollar value of projects per year for each of the last three years. (Please specify fiscal year or calendar year.) \_\_\_\_\_
  - c. Approximately what percentage of these CIPs are new constructions versus renovation, repair, and maintenance? \_\_\_\_\_
3. Was there a specific impetus for your department or agency managing its CIPs? If yes, please explain (to the best of your knowledge): \_\_\_\_\_
  - a. Under what authority does your department and/or attached agency(ies) manage its own CIPs? Please identify statute(s) and/or Hawai'i Administrative Rules (HAR) as applicable.
  - b. Approximately what year did your department or agency begin managing its own CIPs?
4. How many people are involved in managing CIPs within your department and/or attached agency(ies)? \_\_\_\_\_
  - a. Where are those people located, organizationally—i.e., is there a dedicated engineering section or similar entity, or are people who manage CIPs interspersed throughout your department and/or attached agency(ies)? \_\_\_\_\_
  - b. Please provide an organizational chart illustrating where entities that manage CIPs, such as your department and/or attached agency(ies)' engineering section(s), sit within your department and/or attached agency(ies).

**For each of the following, please identify any laws, rules, and policies & procedures, or guidance that your department and/or attached agency(ies) relies on.**

5. For CIPs that your department and/or attached agency(ies) manage:
  - a. We are interested in whether your department and/or attached agency(ies) has a timeline or schedule for ensuring projects progress timely.
    - i. Does your department and/or attached agency(ies) maintain an updated written schedule from the beginning to the close of all projects? \_\_\_\_\_
    - ii. Does your department and/or attached agency(ies) have a written process to handle project change order requests? \_\_\_\_\_
    - iii. Who is responsible for managing the schedule? \_\_\_\_\_
    - iv. How does your department and/or attached agency(ies) communicate this to its clients, end users, and the public? \_\_\_\_\_
  - b. How does your department and/or attached agency(ies) procure consultants and contractors (i.e., do you use requests for proposals, requests for qualifications, invitations for bids, or another method? Please specify) \_\_\_\_\_
  - c. We are interested in how your department and/or attached agency(ies) manages (monitors) consultants and contractors.
    - i. Do you assign a contract administrator? \_\_\_\_\_
    - ii. How do you track expenditures and deliverables? \_\_\_\_\_
    - iii. Do you evaluate contractors' performance and lessons learned after contracts are completed? \_\_\_\_\_
  - d. Does your department and/or attached agency(ies) measure/monitor stakeholder satisfaction with the CIPs you manage? If so, how? \_\_\_\_\_
    - i. Whom does your department and/or attached agency(ies) consider to be stakeholders? \_\_\_\_\_
6. In your opinion, should CIPs for the State be handled centrally (i.e., by DAGS)? Why or why not?
7. Is there anything else you would like us to know as we conduct this study? \_\_\_\_\_
8. Contact details of responder:

- a. Name: \_\_\_\_\_
- b. Position title: \_\_\_\_\_
- c. Agency: \_\_\_\_\_
- d. Telephone: \_\_\_\_\_
- e. Email: \_\_\_\_\_

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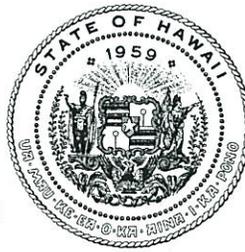
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## Response of the Affected Agency

### Comments on Agency Response

We transmitted a draft of this report to the Department of Accounting and General Services on October 29, 2015. A copy of the transmittal letter to the comptroller is included as Attachment 1. The department chose not to submit a response to our draft report.

STATE OF HAWAII  
OFFICE OF THE AUDITOR  
465 S. King Street, Room 500  
Honolulu, Hawaii 96813-2917



JAN K. YAMANE  
Acting State Auditor

(808) 587-0800  
FAX: (808) 587-0830

October 29, 2015

**COPY**

Via EMAIL: [douglas.murdock@hawaii.gov](mailto:douglas.murdock@hawaii.gov)

The Honorable Douglas Murdock, Comptroller  
Department of Accounting and General Services  
Kalanimoku Building  
1151 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Mr. Murdock:

Attached for your information is a .pdf copy of our confidential draft report no. 4, *Study of Departmental Engineering Sections That Manage Capital Improvement Projects*. We ask that you telephone us by Monday, November 2, 2015, on whether or not you intend to comment on our recommendations. If you wish your comments to be included in the report, please submit your hard copy response to our office no later than 12 p.m. on Monday, November 9, 2015

The Governor and presiding officers of the two houses of the Legislature have also been provided .pdf copies of this confidential draft report.

Since this report is not in final form and changes may be made to it, access to the report should be restricted to those assisting you in preparing your response. Public release of the report will be made solely by our office and only after the report is published in its final form.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jan K. Yamane".

Jan K. Yamane  
Acting State Auditor

Attachment