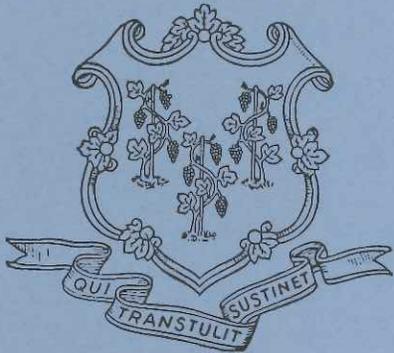


UCONN 2000 CONSTRUCTION MANAGEMENT

Connecticut

General Assembly



LEGISLATIVE
PROGRAM REVIEW
AND
INVESTIGATIONS
COMMITTEE

December 2002

**CONNECTICUT GENERAL ASSEMBLY
LEGISLATIVE PROGRAM REVIEW AND INVESTIGATIONS COMMITTEE**

The Legislative Program Review and Investigations Committee is a joint, bipartisan, statutory committee of the Connecticut General Assembly. It was established in 1972 to evaluate the efficiency, effectiveness, and statutory compliance of selected state agencies and programs, recommending remedies where needed. In 1975, the General Assembly expanded the committee's function to include investigations, and during the 1977 session added responsibility for "sunset" (automatic program termination) performance reviews. The committee was given authority to raise and report bills in 1985.

The program review committee is composed of 12 members. The president pro tempore of the Senate, the Senate minority leader, the speaker of the house, and the House minority leader each appoint three members.

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Project Staff

Jill E. Jensen and Renee LaMark Muir

STATE CAPITOL ROOM 506
Email: pri@po.state.ct.us

HARTFORD, CT 06106

(860) 240-0300

www.cga.state.ct.us/pri

LEGISLATIVE PROGRAM REVIEW
& INVESTIGATIONS COMMITTEE

UConn 2000
Construction Management

DECEMBER 2002

Table of Contents

UCONN 2000 CONSTRUCTION MANAGEMENT

DIGEST OF FINDINGS AND RECOMMENDATIONS

INTRODUCTION	1
I. BACKGROUND AND OVERVIEW	3
UConn 2000 Program	3
Construction Management	4
II. UCONN 2000 CONSTRUCTION MANAGEMENT	9
Role and Responsibilities	9
Key Activities	11
Contractor Prequalification	13
Outcomes	17
III. EMPLOYMENT LAW COMPLIANCE	25
Prevailing Wage	25
Immigration Laws	38
IV. SAFETY COMPLIANCE	41
Federal Requirements	41
State Requirements	42
University Oversight	42
V. LABOR RELATIONS	49

APPENDICES

- A. Agency Response
- B. Major Uconn 2000 Projects: Description and Status

DIGEST

UConn 2000 Construction Management

Background

- *In 1995, the legislature authorized the University of Connecticut to independently finance and carry out a 10-year, \$1 billion capital improvement program known as UConn 2000. Under the direction of the board of trustees, the university's architecture and engineering services office is responsible for all design and construction activities related to UConn building projects.*
- *Effective construction management to control costs, scheduling, and quality is critical to the success of the UConn 2000 program. As project owner, the university also has the obligation to require its contractors to comply with all relevant employment and worker safety laws.*
- *Serious prevailing wage rate violations on a UConn 2000 project in the summer of 2001 prompted legislative concern about the effectiveness of the university's oversight of contractors. In response, the program review committee initiated a study to assess UConn's construction management process, focusing on compliance with contract provisions, wage laws, and worker safety requirements.*

UConn Construction Management Process

- *The university process for managing the UConn 2000 construction program incorporates industry best practices for controlling costs, schedule, and quality. Necessary expertise and resources are provided by a small in-house staff that is augmented with a full-time construction administrator for major projects and a variety of outside professional services obtained as needed.*
- *University management periodically reassesses construction-related policies and procedures to identify and implement changes to improve performance. Outcomes are regularly monitored by the board of trustees and the legislature.*
- *As required by statute, the university prequalifies contractors for the UConn 2000 program to ensure bidders for projects have the required experience, resources, and integrity. The university's process permits it to screen out contractors unsuited for particular projects or with poor performance records. It can also protect against over reliance on any one company to perform work.*
- *General contractors and construction managers have ultimate responsibility for the performance of their subcontractors; the university relies on their selection policies to screen out unqualified companies. In addition, the university has the authority to ask that a subcontractor with a poor record not be hired.*
- *The university has no established mechanism for rating or reporting on subcontractor performance. At present, there is no comprehensive inventory of all firms that have or are working on UConn 2000 or other university construction projects.*

RECOMMENDATION

1. **The university should develop and maintain an automated database of all companies that perform construction work. In addition, a system for evaluating contractor and subcontractor performance at the conclusion of a project that includes a way for companies to officially respond should be established and used to develop a “poor performers” list.**

Construction Project Outcomes

- *Success in the construction industry is generally viewed as finishing a quality project on time and on budget. The university’s structure and process for managing construction of UConn 2000 projects has had good results overall.*
- *The bulk of the UConn 2000 construction work has been completed without significant delays or cost overruns. Serious contractor performance problems have been rare (occurring on only three of 39 major projects to date) and the university has responded with appropriate corrective measures.*
- *Since most UConn 2000 construction work is less than five years old, the long-term quality of the projects is not easily determined. Work quality is monitored during construction on a project by project basis. However, information related to the quality of construction on UConn 2000 projects is not systematically compiled or evaluated by university staff.*
- *Comprehensive data on work quality is needed to fully assess project success, identify problem contractors, and determine the adequacy of design standards and field monitoring procedures.*

RECOMMENDATION

2. **The university should define outcome measures for work quality and establish a system for tracking and regularly evaluating data on the quality of its construction projects.**

Employment Law Compliance

- *Employers on public works projects such as UConn 2000 must comply with prevailing wage rate laws as well as all federal and state employment statutes including immigration requirements for alien workers. The university contractually requires all contractors working on UConn 2000 projects to abide by relevant employment laws.*
- *In response to a complaint, the state labor department cited significant prevailing wage violations at one UConn 2000 project (Hilltop Apartments in 2001). Following this case, contractor compliance with prevailing wage requirements became a priority for the university*
- *Since 2001, UConn has given prevailing wage matters more attention and expanded oversight efforts to ensure compliance. It has taken a more active owner’s role and*

implemented tighter payroll review procedures. Most recently, the university adopted a “zero-tolerance” policy toward noncompliance with employment laws particularly prevailing wage requirements. New statutory mandates (enacted as part of the UConn 21st Century act) require stricter monitoring of and periodic reporting on contractor and subcontractor compliance with prevailing wage requirements by the university.

- *Excluding the Hilltop Apartments case, the amount of Department of Labor enforcement activity and prevailing wage violations on UConn 2000 projects have not been unusual, given the size, scope of work, duration, and budget of the construction program.*
- *The extent of the hiring of undocumented workers is unknown among contractors working on UConn 2000 projects. The university ensures to the extent possible in its role as owner that contractors and their subcontractors comply with all relevant employment laws including federal immigration policies.*
- *The U.S. Immigration and Naturalization Service (INS) is the only entity with authority to investigate alleged violations and enforce immigration laws; the state of Connecticut has no jurisdiction in this area. At this time, issues related to the hiring of illegal aliens are not an enforcement priority of INS.*
- *Allegations subject to potential INS follow-up have been made regarding two UConn 2000 projects, both of which involve out-of-state contractors. The university responded appropriately to the complaints in both cases. To date, no complaints about the hiring illegal aliens have been substantiate.*
- *Given labor practices within the construction industry and the current levels of state and federal enforcement effort, the potential exists for employment law violations to go undetected on UConn 2000 projects.*

Safety Compliance

- *The federal Occupational Safety and Health Administration (OSHA) has primary authority to set and enforce worker safety standards on private sector job sites such as those included in the UConn 2000 program.*
- *Assuring compliance with safety regulations is an on-going process that requires commitment from all parties involved in the construction process. Owners, contractors, employees, and insurers all have a strong financial interest to work safely and prevent injury and lost work time.*
- *Safety is stressed as the university’s highest priority in its contract documents, policy manuals, correspondence and directives. At present, there is a full-time safety manager responsible for monitoring all projects covered by the university’s Owner Controlled Insurance Program (OCIP). The university’s policy of hiring contractors with superior safety records and its procedures for ensuring compliance with safety regulations and standards on its job sites have had good results.*
- *UConn 2000 projects have not prompted any special concerns or increased enforcement activity by federal OSHA staff. Preliminary analysis by the administrator of the university’s OCIP program indicates the UConn 2000 program safety record compares well with statistics from similar capital improvement programs.*

RECOMMENDATION

- 3. If the university does not continue OCIP for the duration of the UConn 2000 or UConn 21st Century programs, it shall maintain a fulltime safety manager to conduct inspections, determine and oversee corrective action, education and train contractors and workers, and identify trends in safety violations.**

Labor Relations

- *The success of a construction project depends in large part on a good working relationship between employers and the labor force. Several union grievances have been filed against contractors and a few labor disputes have occurred to date in relation to UConn 2000 projects. While limited in number and impact, these incidents have contributed to the university's strained relationship with labor unions.*
- *State labor and contracting laws do not mandate a union preference in awarding public works projects. The university's labor relation policy for the UConn 2000 program, in accordance with state law, is neutral in this respect.*
- *Analysis of contractor/subcontractor data by committee staff and by UConn staff both indicate Connecticut companies and workers are performing most of the construction work at the university. Data necessary for detailed analysis of union participation in university construction are not readily available. Committee staff estimated major UConn 2000 projects in terms of dollar value were about equally distributed between union and non union contractors as of November 2002.*
- *Organized labor has urged the university, the governor and the legislature to promote the hiring of in-state companies and union workers through such mechanisms as statutory preferences and project labor agreements. Any statutory changes to give preference to unions for future work at the university is a public policy matter for the General Assembly to determine.*



University of Connecticut

Philip E. Austin
President

February 20, 2003

Mr. Michael L. Nauer
Executive Director
Legislative Program Review and Investigation
Committee
State Capitol, Room 506
Hartford, CT 06106

Dear Mr. Nauer:

I write in response to your letter inviting the University of Connecticut to comment on the Legislative Program Review and Investigation Committee's final report on UCONN 2000 Construction Management.

As I have said before, the University found that the report was thorough and balanced; it reflects the comprehensive investigation and analysis conducted by your staff. The report's findings provide external confirmation of our internal belief that UCONN 2000 has been a well-managed program, and the University takes great pride in that fact.

Useful recommendations regarding the tracking and evaluation of data regarding the quality of our construction projects and the performance of our contractors and subcontractors were made in the report. In response to those recommendations, the University is currently investigating opportunities to develop an integrated software package that will allow us to track warranty issues, and to rate consultant, contractor, and subcontractor performance. As envisioned, this package will also permit us to upgrade all design standards.

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Gulley Hall
352 Mansfield Road Unit 2048
Storrs, Connecticut 06269-2048

Telephone: (860) 486-2337
Facsimile: (860) 486-2627
e-mail: philip.austin@uconn.edu

Introduction

UConn 2000 Construction Management

The University of Connecticut (UConn) was granted statutory authority to carry out a 10-year, one billion dollar infrastructure improvement program known as UConn 2000 in 1995. During the summer of 2001, several incidents related to wage violations and worker safety occurred at UConn 2000 project sites that prompted legislative interest in how the university carries out its construction management responsibilities for the program.

In March 2002, the program review committee initiated a study to examine the university's performance in managing the construction phase of UConn 2000 projects. The study focused on how UConn oversees contractor compliance in three main areas:

- contract provisions concerning schedules, budgets and work quality;
- state employment laws, particularly prevailing wage rate requirements for public construction projects; and
- worker safety and health laws and regulations.

The study scope adopted by the committee did not include the pre-award part of the UConn 2000 capital project process so university financing practices, design activities, and most bidding and contracting procedures were not evaluated. The review did examine the university's bidder prequalification criteria and procedures because of the relationship between successful construction management and effective screening and monitoring of contractor performance.

Methods

A variety of sources and methods were used to gather information for the UConn 2000 construction management study. Relevant statutes, regulations, agency policies and written procedures were reviewed along with university status reports, plans, audits, and consultant studies concerning the UConn 2000 program. Committee staff conducted interviews with key university personnel, members of the UConn board of trustees, representatives of various building trades organizations including unions and contractor associations, officers and employees of contractors and subcontractors working on UConn 2000 projects, staff from the state labor department, the offices of the state building inspector and the state fire marshal, and several construction management industry experts. A public hearing to elicit information about UConn 2000 construction management issues was held by the program review committee in November 2002.

Committee staff examined actual construction management practices by attending job meetings, visiting work sites, and reviewing project documents for 12 of the 25 projects active in the summer and fall of 2002. All minutes from job meetings for a sample of recently completed major UConn 2000 projects were also reviewed. Committee staff observed construction field visits conducted by UConn project managers, wage compliance inspections by state Department of Labor (DOL) staff, and on-site safety inspections by the university insurance administrator's work safety manager.

The university's automated information system for all construction projects was used by committee staff to develop a database of descriptive and performance information on each major UConn 2000 project. Data on budgets, schedules and change orders for completed and in-progress projects were analyzed by project size, type, and contractor. Basic cost, completion time, and contractor information for all minor projects was also examined. To develop information about outcomes of the UConn 2000 contractor prequalification process, files from a sample of the projects prequalified over the past three fiscal years were reviewed in detail.

A listing of contractors and subcontractors that worked on UConn 2000 projects was compiled from several sources including university insurance records and state tax department reports. Committee staff created a database on prevailing wage complaints related to UConn 2000 projects from a state Department of Labor information system and that department's case files. A similar database on federal Occupational Safety and Health Act (OSHA) cases concerning UConn 2000 projects was developed from information supplied to committee staff by OSHA regional offices. Information on UConn 2000 work-site injuries and accidents was also developed from insurance claim data supplied by the administrator of the university's owner controlled insurance program.

Report Organization

The first chapter of the report presents background information on the UConn 2000 program and an overview of general construction management methods and practices. The university's construction management process and overall performance in terms of keeping construction work on schedule, within budget, and in conformance with work quality standards is discussed in Chapter Two. Chapters Three and Four describe, respectively, state employment laws and worker safety and health requirements and the extent of contractor compliance on UConn 2000 projects. Chapters Two through Four also contain program review committee findings about the effectiveness of the university's policies and procedures for managing UConn 2000 capital projects and recommendations aimed at improving university oversight. The final chapter of the report presents committee findings related to labor relations issues and the university's construction program.

It is the policy of the Legislative Program Review and Investigations Committee to provide agencies included in the scope of a review with the opportunity to comment on committee findings and recommendations before the a final report is published. A written response to this report was solicited from the University of Connecticut. The response submitted by the university is presented in Appendix A.

Chapter One

Background and Overview

UConn 2000 is a special \$1 billion capital improvement program for the University of Connecticut created by the legislature in 1995 under Public Act 95-230. The act gives the university the ability to independently finance and manage, over a 10-year period, two phases of projects that include new construction, renovation work, deferred maintenance, and equipment replacement and upgrades at its main and regional campuses.

The university, acting as owner, is responsible for managing, prioritizing, and sequencing all UConn 2000 projects. It is permitted to contract with design professionals, general contractors and one or more prime trade contractors for construction work, and may hire outside professionals to supervise construction projects. The UConn 2000 law requires the university to establish detailed plans, specifications, and construction standards for each project and to comply with all laws regarding state public works projects (e.g., wages and hours, occupational safety and health, contractor disqualification).

The statutes further establish a public bidding process for the UConn 2000 construction contracts that includes a prequalification component. For each contract, the university must:

- identify a list of “potentially responsible qualified bidders;”
- send a notice of the work required and an invitation to prequalify to those on the list;
- evaluate for prequalification potential bidders who post required security bonds based on:
 - objective written criteria;
 - ability and integrity; and
 - past experience with similar projects;
- notify prequalified contractors when the request for bids is made public; and
- award the contract to the responsible qualified bidder submitting the lowest bid in compliance with bid requirements.

UConn is allowed to waive a minor irregularity in a bid, reject all bids and readvertise the project, or interview at least three responsible qualified bidders and negotiate a contract that is fair and reasonable with any one of them. By law, it must require bonds, deposits, and security for awarded contracts, withhold payment until bills and estimates are certified correct, and limit payments to the contract amount.

The UConn 2000 law requires the university to submit semiannual (October and April) status and progress reports to the governor and the education, finance, and appropriations committees of the General Assembly. The reports must include information on:

- costs, timeliness, and implementation status of all projects authorized;
- revenues used, available, and expected;
- private fundraising progress; and
- cooperative activities with other higher education institutions.

Each report must provide detailed financial information (e.g., investment earnings, principal and interest payments) for the preceding six-month period and note any actions involving project revisions, additions, deletions, and cost revisions or reallocations. Since 2000, the semiannual reports also must include information on the use of Connecticut-owned businesses including businesses owned by women and minorities.

The program's enabling legislation required the university to submit a four-year performance review to the legislature's education and finance committees in January 1999 that:

- detailed progress made to date on each UConn 2000 project undertaken; and
- compared actual expenditures to original estimated costs.

The law mandated that the committees, after considering the report, determine whether there had been insufficient progress or significant cost increases, and if so, make recommendations for appropriate action to the full General Assembly. The four-year report was submitted by UConn as required and no significant changes to the program were found necessary by the legislature.

In August 2002, the General Assembly enacted legislation establishing the UConn 21st Century program (P.A. 02-3, May 9 SS). The act added another \$1 billion for a third phase of capital improvements over 10 years on the main and regional campuses and increases the funding level for the earlier phases of UConn 2000. It also changed some project bidding and approval procedures and revised revises certain reporting requirements. For example, effective July 1, 2002, UConn is required to:

- consider labor law compliance by contractors and their subcontractors during its bidder prequalification process; and
- report twice a year to the legislature's Finance, Revenue, and Bonding Committee on contractor compliance with state wage laws and university efforts to cooperate with the state labor department to enforce such laws.

Construction Management

New construction and renovation projects like those included in the UConn 2000 program can be large in scope and size, expensive, complex, and dynamic. The satisfactory completion of such projects requires effective construction management. Construction management refers to the many activities undertaken throughout the building process to control project schedules, budgets, and work quality. The factors an owner should consider to ensure the success of a major construction project are highlighted below.

Key Considerations

- | | |
|-----------------------------------|---|
| Budget | <ul style="list-style-type: none">▪ Determine a realistic budget to evaluate project feasibility and select design and site location.▪ Identify the source of financing.▪ Avoid excessive cost overruns. |
| Design | <ul style="list-style-type: none">▪ Ensure the facility functions as envisioned and meets needs of owner and users.▪ Provide documents and plans that are constructible, complete, and coordinated.▪ Ensure design incorporates subsurface conditions, interfaces with adjoining properties, access, and other characteristics. |
| Risk Assessment | <ul style="list-style-type: none">▪ Issue of risk closely tied to schedule, budget, and design.▪ Carefully allocate risk among participants with direct control over certain areas. |
| Owner's Level of Expertise | <ul style="list-style-type: none">▪ Familiarity with building process and level of in-house management capabilities will influence amount of outside assistance required.▪ Owner's expertise and experience may determine the project delivery system. |

Outside construction management services. Few owners, especially governmental agencies, have the proficiency or staff resources necessary to carry out all construction management responsibilities for complex capital projects. Professional construction management firms can be hired to act as an owner's representative during a building project, performing a range of services to control time, cost, and quality. A firm acting in this capacity is referred to as an agency construction manager (ACM) or contract administrator (CA).

One of the main advantages to agency construction management is the objectivity of the professional advice provided; the ACM or CA has no vested interest in the project's design or construction. Services typically offered include:

- | | | | |
|---------------|--|---------------------|--|
| Design | <ul style="list-style-type: none">▪ Selection of design team▪ Budget and cost estimating▪ Constructability review of design▪ Value engineering▪ Contract bidding | Construction | <ul style="list-style-type: none">▪ Inspection and surveillance▪ Project controls▪ Change order review▪ Project close-out |
|---------------|--|---------------------|--|

The most frequently cited criticism is an ACM or CA adds a level of bureaucracy to a project, resulting in increased cost. However, it can be argued the services provided may actually reduce overall expenditures by promptly identifying problems and implementing corrective actions.

Project delivery methods. Construction projects can be delivered (designed and constructed) through a variety of methods. Owners must consider their own construction experience, the capabilities of in-house staff, and type of facility when selecting a project delivery method. Three common methods, all of which have been used for UConn 2000 projects, are described briefly below. A summary of the pros and cons of each of the three project delivery methods follows the descriptions.

Design-Bid-Build. For many years, most construction projects were delivered through the traditional design-bid-build process. An owner hires a design professional (e.g., architect, engineer) to develop complete plans and specifications, which are used to solicit fixed-price bids (hard bids) from general contractors (GCs) for actual construction of the project. In many cases, the general contractor submitting the lowest responsive bid is selected to perform construction. Under this method:

- the GC executes contracts with subcontractors for various phases of work and specialty items;
- the design professionals have limited oversight of the project during construction; and
- the owner administers the contract including determining project progress and processing interim payments to the GC.

Design-Build. Design-build (D-B) is an alternative project delivery method developed to address certain weaknesses of the design-bid-build process. Under this method, an owner contracts with a design-build team, usually a joint venture of a general contractor and design professional, to completely design and construct a facility. At a point early in the design process, the owner and the design-builder negotiate a fixed price for the total project and all services.

Construction Manager At-Risk. This system is a hybrid of a construction manager and traditional design-bid-build method. The owner hires a CM to provide advice and assistance on the schedule, budget, constructability and related issues during the project planning phase and to act as the general contractor during construction phase. Under this method, the CM assumes the risk of subletting work to trade subcontractors and guaranteeing completion of the project for a fixed, negotiated price following completion of the design. Work also can be “fast tracked.” Construction may begin prior to completion of the design and work can be bid and subcontracted in phases throughout process. A unique aspect of this method is the owner and CM at-risk negotiate a guaranteed maximum price for project.

	<u><i>Pros</i></u>	<u><i>Cons</i></u>
<i>Design-Bid-Build</i>	<ul style="list-style-type: none"> ▪ Widely applicable & well understood ▪ Clearly defined roles for all parties ▪ Significant owner control ▪ Design completed prior to selection of GC permitting hard bid 	<ul style="list-style-type: none"> ▪ Design process time consuming ▪ Limited ability to assess scheduling & cost can lead to increased costs ▪ Possible adversarial relationship between owner, GC, & designer ▪ Increased potential for construction claims ▪ GC interest in protecting profit requires thorough monitoring by owner ▪ Lack of GC input in design can result in constructability issues

Pros

Cons

Design-Build

- One party (D-B team) responsible for design & construction of project
 - D-B firm internal issues do not concern owner
 - Construction can start before design complete; ability to “fast track” phases
 - Saves time & can save money
- Loss of owner control & involvement
 - Initial scope & preliminary design (which forms basis for contract) must be complete & accurate
 - Owner may require additional consultants for oversight
 - Best suited to conventional buildings (e.g., student housing, parking garage) not specialized facilities (e.g., high tech classrooms, science labs)
 - Good D-B team needs balance of design expertise, financial capability, construction experience, & design-build experience

CM At-Risk

- Owner controls design with input from CM; partnership approach
 - Construction can start before design complete; ability to “fast track” phases
 - GC perspective & input in planning & design; value engineering during construction to control costs
 - Guaranteed maximum price
- Loss of owner control & involvement
 - CM/GC converts from advisory role of CM to contractual role of GC; may lead to more adversarial relationship with owner (over quality, schedule, budget)
 - Possible tension between designers and CM (over constructibility, cost estimates)
 - Disputes possible over anticipated design features at time price negotiated

Contractors. The construction management process requires coordination of all parties involved in large building projects, including each level of contractors, from the general (or construction manager) to the primes, subcontractors, and in some cases, independent contractors. As outlined below, each tier of contractors has a different scope of responsibility for a construction project, but they all have a strong interest in providing owners with quality work on time and on budget.

Responsibilities

**General Contractor/
Construction Manager**

- Direct control of job site and construction; meeting scheduling requirements; purchasing materials and equipment; contracting for trade subcontractors; and ensuring quality of work performed and conformance with all contract provisions. Typically GCs/CMs perform little or no trade work on the job site.

Prime Subcontractor

- Employed by CM/GC to perform major trade work phases of construction process such as site preparation, demolition, framing, electrical, plumbing, roofing, mechanical, and painting.

Subcontractor

- Employed by a prime subcontractor to perform specific task or aspect of trade work such as insulation, sheetrock and taping, and landscaping.

Independent Contractor

- May be hired by subcontractor to perform specific task (e.g., installation of carpet or furniture) in lieu of or in addition to the subcontractor’s employees.

Chapter Two

UConn 2000 Construction Management

Under the 1995 UConn 2000 law, the university has broad authority to independently finance and carry out capital improvement projects at its main and regional campuses. The only statutory requirements for the construction process are that UConn prequalify contractors and award contracts to the responsible qualified bidder submitting the lowest bid in conformance with the university's standards for the project.

The structure and process established by the university to implement its construction management authority is described in this section. Information on current roles and responsibilities, key construction management activities and the scope and status of the UConn 2000 program is presented along with program review committee findings concerning project time, cost, and quality outcomes and recommendations to improve performance in these areas.

Roles and Responsibilities

Ultimate authority for decisions related to all capital projects including the UConn 2000 program rests with the university's Board of Trustees. The board must approve individual projects and any material revisions to them, the annual capital budget for the university, and any project cost revisions or reallocations.

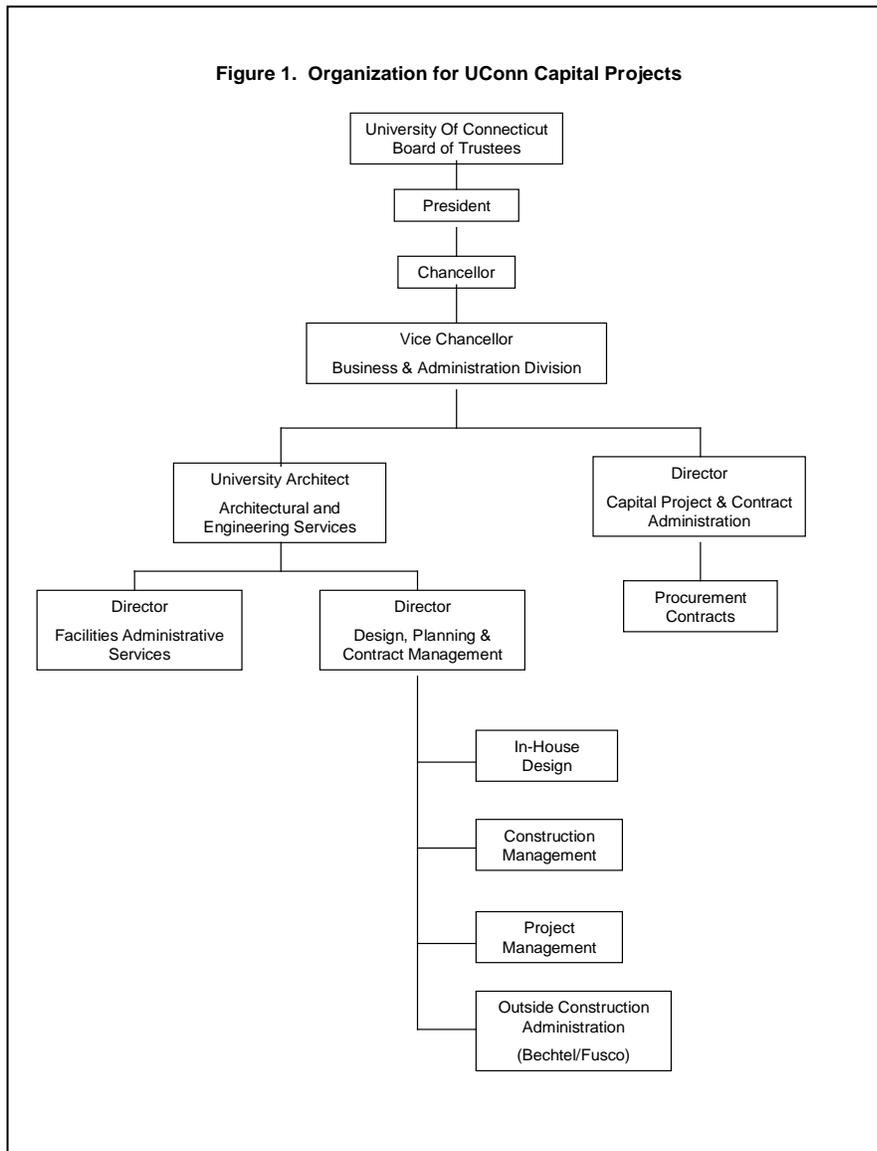
The Division of Business and Administration has primary management responsibility for all capital projects including the UConn 2000 program at the university's main and regional campuses, extension service sites, and the law school campus in Hartford. As Figure 1 shows, the division is headed by a vice chancellor who reports to the chancellor, the university's chief operating officer, and to the president, the university's chief executive officer

The Office of Architectural and Engineering (A/E) Services within the business and administration division carries out all day-to-day design and construction activities related to UConn 2000 and other university capital projects. The professional staff of the A/E Services office includes 11 architects and engineers, who perform design, review, and project management functions and five construction engineers, individuals with industry experience personnel (e.g., former field inspectors or job superintendents), who generally oversee the construction phase of smaller, shorter term projects

To supplement its in-house resources for managing major UConn 2000 projects, the university hired an outside firm, Bechtel/Fusco (B/F), as a construction administrator in December 1996. As Figure 1 indicates, Bechtel personnel are considered part of the A/E Services operational staff and report to the office's director of design, planning, and construction management. At present, there are five B/F construction project managers/construction administrators and one support staff person working full-time for the university.

Other outside professional services are engaged by A/E Services as needed to perform a variety of construction-related functions (e.g., design, plan review, legal review, inspection and

testing) depending on the size, scope, and complexity of projects. In combination, the in-house and hired resources provide the wide range of expertise needed for effective construction management



All payment and budget functions related to the university's capital projects and to facility operations are taken care of by the offices' facilities administrative services staff. They also handle any associated information technology functions such as operation of the UConn 2000 project tracking system, Capstat, and several other automated databases. The Capstat system, which was developed by the facilities administrative services director, is primarily a financial tracking system but can produce a variety of

monitoring reports (e.g., project status, payments in total and by major category, change order summaries).

Another office of the business and administration division, capital project and contract administration, provides support for procurement functions related to UConn 2000 and other capital projects. When outside designers, contractors, or other types of professional services are required for a construction project, the procurement staff carry out the contracting process from advertising to finalizing legal documents. They also are responsible for UConn 2000 contractor prequalification process, described in greater detail later in the report.

Key Activities

The university's construction management process for UConn 2000 and other capital projects incorporates standard industry practices for controlling schedules, budgets, and quality. Key activities carried out by the A/E Services in-house staff and outside professionals are highlighted below. The role of the state building inspector and state fire marshal in monitoring compliance with code requirements on "threshold" projects is also noted.¹

General Oversight

- For small, shorter term projects (e.g., simple renovations or additions and routine repairs), the five in-house professional designers from the A/E Services Office perform architectural and engineering tasks and the office's five in-house construction engineers monitor the construction phase.
- For large or very complex projects -- generally those with estimated budgets over \$10 million -- outside designers are hired to complete plans and specifications while the four in-house project managers (PMs) coordinate design development and oversee the entire construction phase with assistance of Bechtel/Fusco staff.

Daily Monitoring

- Day-to-day responsibility for keeping projects on time, on budget, and in compliance with contract provisions rests with the A/E Services in-house construction engineers and B/F construction administrators who are responsible for:
 - on-site monitoring (e.g., daily visits, weekly progress meeting, periodic inspections);
 - initial processing of contractor payments;
 - reviewing and making recommendations on contract changes (e.g., change orders, schedule revisions); and
 - maintaining project documentation (e.g., correspondence files, payment records, testing and other reports, photographs or videos of key activities).

Code Compliance

- One A/E Services staff person acts as the university's code compliance officer and checks aspects of work quality of all projects prior to authorizing occupancy. By statute, threshold projects are additionally subject to inspection and approval by the state building inspector and the state fire marshal. To date, 12 UConn 2000 projects have come under the state threshold process.

Contracting/ Prequalification

- Procurement staff from the division's capital project and contract administration office carry out the contract process for all university construction projects from advertising through finalizing legal documents. Their duties include prequalifying bidders for UConn 2000 projects.

¹ Under state law, threshold projects include structures or additions at or above the following limits: (1) four stories; (2) 60 feet in height; (3) a clear span of 150 feet in width; (4) containing 150,000 square feet total gross floor area; or (5) an occupancy of 1,000 persons as well as parking garages with spaces for 1,000 or more cars and residential facilities with 200 or more units (C.G.S. Section 29-276b).

Overall, the policies and procedures employed by the university compare well with construction management models outlined in the literature and by experts interviewed by program review committee staff. As discussed earlier, the university also uses a variety of project delivery methods depending on the size, type, and scope of the construction work.

Like many public and private owners, UConn has moved from the traditional general contractor approach to the construction manager at-risk method for large, complex building projects. The construction manager approach is generally believed to offer more owner control over costs and time and result in a more collaborative work relationship that can reduce change orders and claims.

Project status and outcome measures from the Capstat system and other sources are continuously monitored by A/E Services staff and university managers to check policies and procedures for controlling time, budget and quality are working as intended. Staff periodically meet to discuss completed projects and identify what went well and where problems occurred so corrective measures can be developed for future work.

The board of trustees receives status reports on UConn 2000 projects at every meeting. These reports and other project information are reviewed in detail by the board's financial affairs subcommittee. During the initial phase of the program, the board engaged a consultant to perform a program and financial audit both to determine compliance and assess university management. The final audit report issued in 1999 basically found the UConn 2000 program to be successful and in compliance with legislative requirements and board policies. It also recommended changes to improve a number of construction management and administrative procedures, many of which have been implemented. In interviews with committee staff, board members reported they continue to be satisfied current practices are accomplishing the program's intent and it is being administered in a professional and responsible manner.

As required by statute, the university provides the governor and legislature with reports on the UConn 2000 program's status and progress every six months and submitted a four-year performance review of the program in January 1999. No major program modifications have been made by the General Assembly in response to these reports, indicating general satisfaction with the university's performance. In fact, legislation was recently enacted (the 2002 UConn 21st Century law) to add funding and extend the university authority for capital improvements for another 10 years.

Based on its examination of the university's process for managing the construction phase of its UConn 2000 projects and a review of model construction management practices, the committee made the following findings.

The university process incorporates industry best practices for controlling costs, schedule, and quality. Necessary expertise and resources are provided by a small in-house staff that is augmented with a variety of outside professional services as needed including a full-time construction administrator for major UConn 2000 projects. The university management periodically reassesses construction-related policies and procedures to identify and implement changes to improve performance and outcomes are regularly monitored by the board of trustees and the legislature.

Contractor Prequalification

Although part of the pre-award phase, contractor prequalification can contribute to effective management of construction projects by ensuring the companies bidding on a job are responsible and have the resources and experience necessary for that particular project. A good prequalification process with clearly defined, relevant criteria that are consistently applied also promotes self selection by contractors, who recognize they will only be seriously considered for projects when their qualifications meet stated requirements.

The university is required by law to use a bidder prequalification process in awarding contracts for UConn 2000 projects. The statutes further require contracts be awarded to the responsible qualified bidder submitting the lowest bid in conformance with the university's standards for the project.

Only contractors deemed qualified based on the following statutory criteria are invited to bid on UConn 2000 projects:

- previous experience with similar projects;
- financial ability to complete the project;
- ability to post surety bonds;
- managerial ability;
- technical ability;
- integrity; and
- absence of any conflict of interest in connection with the project.

Effective July 1, 2002, under the UConn 21st Century legislation, the university must also specifically consider labor law compliance by contractors and their subcontractors during the prequalification process. The university has revised its contracts and other documents and modified its prequalification procedures to incorporate this provision.

The university requires contractors to submit applications for prequalification that include:

- a completed American Institute of Architects (AIA) Contractor's Qualifications Statement, a standard form used widely in the industry;
- supplementary information on a contractor's legal structure, proposed workforce, finances, and experience, including any details regarding any violations of relevant labor laws; and
- audited financial statements.

An evaluation committee consisting of A/E Services staff (i.e., the project manager assigned to the project, the director of design, planning, and construction management or the university architect) and procurement personnel (i.e., the procurement contracts manager and the associate purchasing director) review all application materials to develop the list of prequalified bidders. The vice chancellor for business and administration also sits on the committee when the

estimated project value is over \$10 million. In addition, the chief accountant from the business division, as a nonvoting member, reviews the financial part of all applications and provides a comparative analysis of each firm's fiscal capacity. The university's outside counsel for the UConn 2000 program also serves as an ex officio member, advising the committee on legal matters related to prequalification.

Rejected contractors can and have requested reconsideration of their applications for prequalification. In general, it is university policy to qualify an applicant as long as there is no clear reason for rejection in order to have the largest pool of responsible bidders possible.

A variation of the prequalification process was used for the two large student apartment projects (Hilltop and North Campus), which were originally intended to be financed, built, and operated by development companies under a land-lease arrangement with the university. For the apartment projects, university staff identified firms recognized as leading developers of university student housing and sent them requests for proposals. All applicants were still required to submit a questionnaire about their qualifications, financial information, and references, which were screened by an evaluation committee of university personnel. The evaluation committee also interviewed the short-listed applicants and made the final selection of companies to serve as design builders for the two projects (Capstone and JPI, respectively) based on their preliminary designs, experience and financial capability.²

To examine the impact of prequalification on the UConn 2000 program, statistics from the 25 prequalification processes conducted during the past three years were reviewed by program review committee staff. The university received on average nearly a dozen prequalification applications for each project although the number of contractors applying ranged from 2 to 17. In all but one case (the project to complete the new bio-physics building that received only two applications), at least one applicant was disqualified and in most cases (20) at least one-quarter of the contractors were rejected for a particular project. In five prequalification processes, half or more of the applicants were not approved. In a small number of cases, rejected contractors have asked to be reconsidered and a few decisions have been reversed. To date, no disqualified applicant has pursued a legal challenge of the process.

Files from 13 recent prequalifications were examined to determine the reasons contractors were disqualified from bidding on UConn 2000 projects. Based on this sample, the most common reasons for rejection were lack of relevant experience and/or insufficient financial resources. Contractors were also rejected because of performance problems on prior UConn jobs (e.g., delays, cost overruns, noncompliance with wage and safety requirements).

For example, the Suffolk Construction Company has not been prequalified for additional projects at UConn in part because of a poor working relationship with the university during the South Campus project. Another contractor, Capstone Building Corporation, was initially rejected for a second project (the Greek Housing complex) primarily because of university

² The Auditors of Public Accounts are concerned the bidding process for one apartment project did not comply with UConn 2000 statutory provisions and additionally have questioned the university's authority in the design-build area. The auditors agree with the university's position that current legal requirements are subject to interpretation but are still reviewing the matter to determine whether corrective actions may be needed.

concerns about its subcontractors' extensive prevailing wage violations on its previous UConn 2000 project, Hilltop Apartments.

Capstone requested reconsideration and was subsequently prequalified after addressing the labor compliance matter to the university's satisfaction. As low bidder, Capstone was later awarded the job contingent upon agreeing by contract to dedicate a staff person to prevailing wage compliance and require all subcontractors to participate in labor law training and to obtain labor and material payment bonds. Those provisions are being met according to the university staff monitoring the project.

The committee also examined the distribution of UConn 2000 work among contractors as another indicator of impact of the prequalification process. As Table 1 shows, most (16) of the 20 different companies hired for the 39 major UConn 2000 projects completed or in progress as of November 2002 have been awarded one or two projects each. Only one company, Whiting-Turner, has been awarded more than three projects. Whiting-Turner was selected to carry out all dormitory sprinkler and other renovation work at the main campus, which to date has included six separate projects.

In terms of project dollar value, work is also fairly well dispersed among contractors. Only two firms have responsibility for projects accounting for more than 10 percent of the combined budgets for all 39 projects. One, Whiting-Turner, is also the contractor with the most projects. The second, Walsh, was awarded two of the UConn 2000 program's largest projects, the Stamford Campus Relocation in 1998 and the New Chemistry Building in 2000.

From this analysis, it appears the prequalification process permits the university to screen out contractors unsuited for particular projects or with poor performance records. It also can protect against over reliance on any one company to perform work.

Subcontractor prequalification. The university does not have its own prequalification process for subcontractors at present. Instead it relies on the selection policies of its general contractors and construction managers to ensure subcontractors hired for UConn projects are responsible and qualified. Most GCs/CMs use the ability of a subcontractor to be bonded as their major screening factor. Some contractors have additional requirements, such as a minimum safety rating based on worker's compensation experience and a formal process for prequalifying their subcontractors.

On nearly all projects, it is subcontractors who have the most direct impact on time, cost, quality, safety, and employment issues since they are the ones actually performing the work. The contractor ultimately is responsible for the performance of its subcontractors and can be required to take corrective action as problems develop. The committee believes hiring responsible and qualified GCs and CMs is one of the best ways to insure good quality subcontractors. In order to prevent performance problems, it is also in the university's interest to make sure subcontractors with poor records are not hired.

**Table 1. Distribution of UConn 2000 Major Projects
(Completed and In Progress): November 2002**

<i>GC/CM</i>	<i>Number of Projects</i>	<i>Project Dollar Value</i>	<i>Percent Total Number</i>	<i>Percent Total Dollar Value</i>
Hayes	1	\$ 1,820,843	2.6%	0.2%
Conn-Strux	1	\$ 2,399,032	2.6%	0.3%
Carlin	1	\$ 2,682,743	2.6%	0.3%
MCC	2	\$ 6,128,613	5.1%	0.8%
Haynes	1	\$ 14,388,690	2.6%	1.8%
Aspinet	1	\$ 17,249,347	2.6%	2.2%
HRH/Atlas	2	\$ 19,579,349	5.1%	2.5%
Gilbane	3	\$ 22,600,000	7.7%	2.9%
Manafort	1	\$ 24,000,000	2.6%	3.0%
Precision Power	2	\$ 33,523,355	5.1%	4.3%
FIP	2	\$ 34,345,744	5.1%	4.4%
CR Klewin	1	\$ 41,518,638	2.6%	5.3%
JPI	1	\$ 45,000,000	2.6%	5.7%
Suffolk	1	\$ 46,310,651	2.6%	5.9%
Turner	2	\$ 53,702,682	5.1%	6.8%
Capstone	2	\$ 53,930,496	5.1%	6.9%
O&G	3	\$ 61,532,157	7.7%	7.8%
Konover	3	\$ 74,072,518	7.7%	9.4%
Whiting-Turner	7	\$ 103,371,325	17.9%	13.1%
Walsh	2	\$ 129,134,651	5.1%	16.4%
Total	39	\$ 787,290,834		

Source: LPR&IC staff analysis of Capstat data.

The university can and has asked its contractors not to use proposed subcontractors because of performance problems experienced on prior UConn jobs. For example, JPI, the design builder for the current North Campus student apartment project, was directed to exclude from bidding the masonry subcontractor cited for prevailing wage violations on the Hilltop Apartments project (B&R Brick).

The ability to reject unsatisfactory subcontractors can be a powerful way to control project costs, time, and quality especially if objective evaluations of proposed companies are readily available to those involved in the hiring process.

The university does not have an established mechanism for rating or reporting on subcontractor performance. In addition, there is no comprehensive inventory of all firms that have or are working on UConn 2000 or other university construction projects.

Current assessments of subcontractor performance are informal and subjective. University staff with knowledge of problem companies may be unaware they are under

consideration for additional work. It is difficult at present to even determine how many and which jobs subcontractors have worked on at the university.

The committee recommends the university develop and maintain an automated database of all companies that perform construction work. In addition, a system for evaluating contractors and subcontractor performance at the conclusion of a project that includes a way for companies to officially respond should be established and used to develop a “poor performers” list.

With this information, UConn can take steps to keep subcontractors that don't meet established performance criteria from being hired or at a minimum require additional monitoring by a GC/CM during the construction process. Like the prequalification criteria, the subcontractor rating factors should reflect university priorities (e.g., safety, timeliness, on budget, highest quality, in compliance with labor laws) and be consistently applied.

The committee believes a “poor performers” list is preferable to a subcontractor prequalification process for several reasons. Implementing such a process would take considerable staff resources and time given the number and diversity of subcontractors that perform UConn 2000 work. In addition, having the owner involved in the selection process could interfere with the contractual relationships between a GC/CM and the subcontractors they hire.

Recent legislative changes already require the university to take steps in the direction of this recommendation. Under the UConn 21st Century law, the university now must consider subcontractor compliance with labor laws as part of its contractor prequalification process. It must also report the names and addresses of all contractors and subcontractors who performed construction work on UConn campuses during the preceding six months to the legislature's finance committee by December 31 and June 30 each year.

To further promote its safety goals, the university is considering establishing a minimum standard of safe performance for its contractors and subcontractors. The relationship between a company's workers' compensation insurance rating and its safety record while performing construction work for UConn is being researched by A/E Services staff and personnel from the university's owner controlled insurance program. Information on safety prequalification standards used by public owners in other states is also being developed. The committee supports the university's efforts to identify and develop minimum standards for its construction contractors and subcontractors.

UConn 2000 Program Outcomes

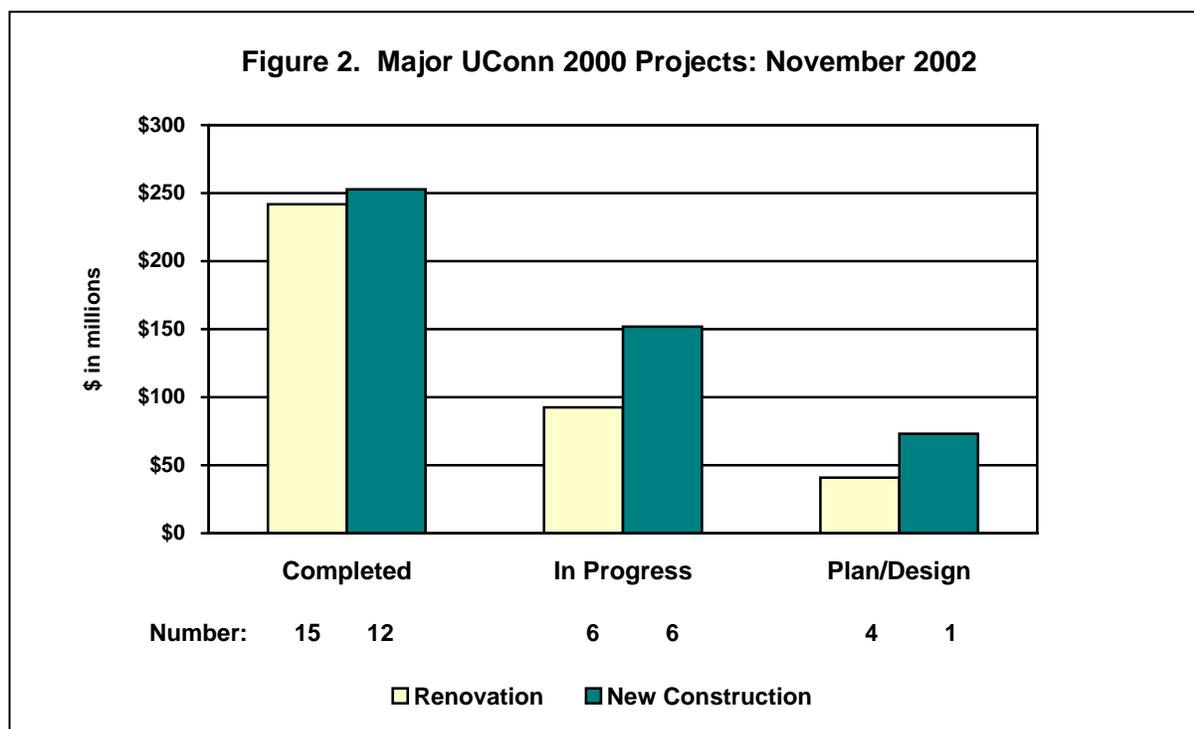
Success in the construction industry is generally viewed as finishing a quality project on time and on budget. As discussed below, the majority of UConn 2000 projects have been completed without significant delays or cost overruns while more information is needed to fully assess work quality. Another important goal of UConn construction management is assuring compliance with safety requirements and employment laws. Safety is stressed as the university's highest priority in its contract documents, policy manuals, correspondence and directives. Labor law compliance has been given increased attention by UConn in response to serious prevailing

wage rate violations that occurred on one project last summer. Compliance outcomes related to worker safety and labor laws are presented in detail in later sections.

Current status. In assessing the effectiveness of the university’s construction management process, it is important to keep in mind the size of the UConn 2000 program. The number and scope of projects it includes make the university campuses among the largest concentrated sites of continuous construction activity in the state.

The UConn 2000 program is in its seventh year and the majority of the projects specified in its enabling legislation have been completed or are in progress. Since work began in 1996, a few projects have been added or deleted, others have been combined, and some have been postponed (e.g., moved to the UConn 21st Century program) as needs, priorities, and funding sources have changed.³ As of November 2002, the program included 44 major capital improvement projects.

As Figure 2 indicates, 27 major new construction and renovation projects involving total expenditures of over \$543 million were essentially complete and another 12 with combined estimated budgets of about \$244 million were underway in November 2002. Five projects expected to cost around \$114 million were in the planning or design phase. Detailed information on each major project is provided in Appendix B.



³ Authorized projects, their estimated costs, and their placement in either Phase I or II of the UConn 2000 program, are specified in statute. The board of trustees is permitted to make material revisions to projects and project additions or deletions can occur with the approval of the board and the General Assembly

The program also includes approximately 260 deferred maintenance and smaller repair and renovation jobs worth about \$145 million that were finished or in progress as of November 2002. About \$20 million more is anticipated to be expended on such projects during the final two years of the UConn 2000 program.

Individual UConn 2000 projects have ranged from the construction of a new, high-tech \$57 million chemistry building to the \$800,000 conversion of a horticulture barn to a natural history museum and include:

- the \$72 million relocation of the Stamford Campus as well as the current rebuilding of the Avery Point Campus;
- construction of two multi-story parking garages on the main UConn campus;
- the multi-million overhaul and expansion of central utilities on the main campus; and
- numerous new and renovated student residential facilities and classroom buildings.

The workforce involved in carrying out the UConn 2000 program is substantial. In total, about 40 different contractors and at least 1,000 subcontractors have worked on UConn 2000 projects to date. Major projects have been awarded to 20 different general contractor and construction management firms, about half of which are headquartered in Connecticut, as Table 2 shows. During peak periods in the construction season, the university estimates hundreds of workers are on the many active job sites at the Storrs campus alone.

Construction management performance. Overall, the committee found serious contractor performance issues have been rare in the UConn 2000 program. To date, three major projects have experienced significant problems. They are:

- On the South Campus Dormitories and Dining Facility project, a \$1.2 million dollar construction claim was settled with the general contractor, Suffolk Construction Company.⁴
- Significant delays and cost overruns resulted on the New Bio-Physics Building project from the firing of the original general contractor, HRH/Atlas Construction Company, due to its poor financial condition and related project management deficiencies.
- Extensive prevailing wage violations occurred on Hilltop Apartments project, where Capstone Building Corporation was the design-builder.

⁴ Construction claims are official actions filed by a contractor or an owner when disputes arise over the scope of work or other contract provisions. To date, only two claims have been filed regarding UConn 2000 projects, the one by Suffolk and one by HRH/Atlas related to its dismissal from the New Bio-Physics Building project. The university has filed a counterclaim for the latter project.

Table 2. Major UConn 2000 Project Contractors: Fall 2002

<i>GC/CM</i>	<i>HQ State</i>	<i>Major Projects Awarded</i>
Aspinet	CT	Wilbur Cross Building Renovation
Capstone	AL	Hilltop Apartment Complex Greek Housing Complex
Carlin	CT	White Building (Dairy Bar) Renovation
Conn-Strux	CT	Mansfield Apartments Renovation
FIP	CT	New School of Business New Towers Dining Facility
Gilbane	RI	Gentry Building Renovation Old School of Business Renovation (CUE) Benton Museum Addition New School of Pharmacy/Biology
HRH/Atlas	NY	Ice Rink Enclosure Ag/Bio Tech Phase I New Bio-Physics (Tech Quad 1A)*
Hayes	CT	Litchfield Agricultural Center
Haynes	CT	Waring Building Renovation
JPI	TX	North Campus Apt & Suites
CR Klewin	CT	Avery Pt Marine Science Center
Konover	CT	New Central Warehouse New Hilltop Dormitory Student Union Addition
Manafort	CT	Parking Garage South and Co-Op
MCC	CO	Natural History Museum Conversion Avery Point Renovations
O&G	CT	Music & Drama Addition Parking Garage North New Info Tech Eng. (ITE) Building (Tech Quad 2)
Precision Power	CT	Fairfield Rd. Pedestrian Mall Heating Plant Upgrade
Suffolk	MA	South Campus Dorm. & Dining Facility
Turner	NY	Ag/Bio Tech Phase II Completion New Bio-Physics (Tech Quad 1A)*
Walsh	NY	New Chemistry Building. Stamford Campus Relocation
Whiting-Turner	MD	Gant Plaza Deck Repairs Dormitory Code Renovations/Sprinkler Projects (Alumni Quad, East Campus, Hilltop Dorms, North Campus, Northwest Quad, Shippee/Buckley)

* HRH/Atlas, the original GC for the New Bio-Physics Building project was terminated by the university in February 2000 and replaced by Turner Construction.

Source: LPR&IC staff analysis of Capstat data and A/E Services files.

These cases and several less severe schedule and budget problems on early UConn 2000 projects may be related to the university's learning curve as the owner of a \$1 billion capital improvement program. In terms of keeping projects on time and on budget, performance appears to have improved as UConn staff gained construction management experience. Another factor may be the university's shift to the construction manager at-risk project delivery method.

A primary reason the university decided to try alternative project delivery methods was to avoid the issues of excessive change orders and claims that developed with the GCs who worked on the South Campus and New Bio-Physics jobs. Throughout the study, the committee staff noted the university typically takes a proactive approach to correcting construction management problems. For example, to respond to deficient design documents, an increasingly common problem in the construction industry, A/E Services hired an outside firm to review and coordinate all planning materials for its larger, more complex projects. Currently university staff are analyzing the cost effectiveness of the self-insurance program for large UConn 2000 construction projects. University personnel are also working with the Commission on Human Rights and Opportunities to try to improve minority business participation in the UConn 2000 program.

As part of its assessment of the effectiveness of the UConn 2000 construction management process, the committee reviewed time and cost outcomes for the 27 major projects completed as of November 2002. For the purposes of the committee study, the following definitions were used:

- ***On time*** was defined as meeting the university's deadline for use or occupancy; it does not necessarily mean all work required under the contract was finished. In fact, it is not uncommon for owners to open buildings while minor finish work (e.g., "punch list" items) continues.
- ***On budget*** was measured by comparing the project's construction budget, which represents the dollar amount expended to date, to the original budget estimate made during the project's design phase.

Using these definitions, the following analysis shows most UConn 2000 projects have been completed on time and on budget, reflecting the university's emphasis on schedule and cost, with safety as its highest priority.

Timeliness. Completing construction projects on time is a top priority for the university. Given the constraints of the academic calendar, it is critical for new or renovated classrooms and dormitories to open as planned. In cases where work can only be carried out only during summer months when few students are on campus, keeping a project on schedule becomes imperative. Delays additionally can have significant budget implications, not only in terms of higher construction costs but also from lost revenues (e.g., room and board fees).

As a result, schedules are closely monitored by the UConn field staff and regularly reviewed by the A/E Services top management. A standard agenda item discussed at all weekly owner/contractor job meetings is construction schedule and progress. Contractors are required to

continuously revise and submit progress reports and, if necessary, prepare “recovery schedules,” which are formal plans for making up lost time. In addition, university construction contracts usually include provisions for “liquidated damages,” a standard industry practice that requires contractors to pay owners a per day monetary penalty (e.g., \$1,000) when projects are not completed on time. As of November 2002, no liquidated damages had been imposed regarding UConn 2000 projects.

The committee staff analysis of the 27 major UConn 2000 projects completed as of November 2002 showed 85 percent were finished on time. Specifically:

- 23 project, including all eight new and renovated student residential facilities, were finished on time; and
- four projects had significant delays. These included:
 - The Stamford Campus Relocation, which was delayed for one semester; and
 - two projects (Litchfield Agricultural Center and Avery Point Marine Science Center) and one phase of another job (the UConn Co-Op portion of the South Garage project), which ended up a year behind schedule.

Further, 9 of the 12 major projects now in progress are expected to meet their original deadlines for completion. One current renovation project (Old School of Business) will be finished about two months late due to unforeseen site conditions and the schedule for another (Benton Museum addition) was recently extended six months. The New Bio-Physics Building, which was halted due to the original contractor’s performance problems and subsequent firing by the university, is now two years behind its projected completion date. However, its revised deadline for occupancy -- late December 2002 – was met by the construction manager that took over the project.

On budget. Controlling construction cost overruns is as important to the university as keeping projects on schedule. The primary ways to keep capital projects within budget is to minimize changes that add costs or time to a project and to identify cost effective alternatives when changes are required (e.g., through value engineering). University field staff are responsible for monitoring and initially assessing proposed change orders for their assigned projects. All change orders are subject to final approval by the architecture and engineering services executive director, the University Architect. Project budgets, like schedules, are analyzed in detail at weekly job meetings and are closely tracked by A/E Services top management.

Analysis by program review committee staff indicated most UConn 2000 projects have been completed close to their preconstruction cost estimates although budgets have not been finalized for the majority of projects. Typically, final costs for a project are not calculated until all payment items (e.g., change orders, cost adjustments, subcontractor payments, retainage) are processed, which may take a number of months after the construction work is done.

Analysis of budget data available as of November 2002 for the major UConn 2000 projects shows most have been completed close to their preconstruction cost estimates. Specifically, of the 27 completed projects:

- 10 were at or below their original estimate cost;
- 18 (67%) were within 10 percent of their original budget estimate; and
- nine had significantly exceeded their original cost estimates.
 - Five, however, had undergone major scope revisions (e.g., optional work was added, projects were combined); thus, the budget increases were due primarily to added work rather than cost overruns.
 - In at least two cases, large cost overruns were due to inadequate original cost estimates.

In addition, all but one of the 12 major projects currently in progress is projected to be finished very close to the original estimate. The construction manager that took over the remaining active project, the Bio-Physics building, is more than 95 percent done and expected to be on budget for its phase of the work. The university also anticipates if it wins its counterclaim for damages against the original contractor, the final project cost will end up close to the original estimate.

Work quality. As discussed earlier, the university uses the industry's generally accepted quality control and code compliance procedures to ensure work and materials meet contract requirements and all standards. Field staff conduct daily on-site inspections of work quality, check materials, equipment, and workmanship for compliance with plans and specifications, and arrange for independent inspection or testing of key project components and materials. Nonconformance issues such as work or materials that do not meet contract specifications, are addressed at weekly job meetings and, if necessary, referred to A/E Services top managers for resolution (e.g., withhold payment, legal action).

The long-term impact of the university's quality control efforts is difficult to assess since almost all of the work completed under the UConn 2000 program is less than five years old. More than half (15) of the 27 major completed projects were finished in the last 12 months. As a result, the majority of UConn 2000 work has not reached the warranty phase of the construction process where problems with equipment, materials, and workmanship tend to be identified and addressed.

While the university reports no significant issues have arisen to date, information related to construction project quality such as subsequent corrective work, repeated repairs, equipment failures, and warranty claims is not systematically compiled and evaluated.

A/E Services staff do monitor quality problems and maintain records on nonconformance issues on project-by-project basis. There is not a standard system for documenting quality issues at present and data related to project quality are not centrally collected and reviewed. Without such a system, the success of a project cannot be fully evaluated. Further, it is difficult to

identify problems with design standards or specifications, patterns of poor contractor performance, or inadequate quality control procedures.

The program review committee recommends the university define outcome measures for work quality and establish a system for tracking and regularly evaluating data on the quality of its construction projects.

There is no formal mechanism for summing up work quality issues at the end of a project at present. Final project documentation and central record keeping of work quality indicators have not been a priority as staff effort has been focused on getting projects designed and built. Now that the majority of the UConn 2000 projects are reaching the close-out phase of the construction process, these tasks are receiving more attention. The university is just developing a formal construction quality assurance program that could incorporate the committee's recommendation.

According to university plans, the new quality assurance program will include review and updating of design standards, new procedures for enforcing warranties, and more attention to preventative maintenance programs. UConn is considering expanding its independent field inspection and testing program and possibly adding an electrical and a mechanical field inspectors to its internal code compliance unit. The university plans to set up a process for cataloging and maintaining a database for warranty and guarantee information. An upgraded computerized maintenance management system that provides warranty control, equipment inventory, and preventative maintenance programs is also being studied. The committee believes the proposed program can considerably strengthen the quality control aspect of the university's construction management process and should be actively pursued.

Chapter Three

Employment Law Compliance

Federal and state laws on employment (e.g., minimum wage, fringe benefits, overtime, work hours) and worker status (e.g., child labor, immigration) apply to all employers on UConn 2000 projects. In addition, because they are public works projects, employers are required to comply with the state's prevailing wage law. The following analysis and findings focus on the university's oversight process to ensure contractor compliance in two key areas: the state prevailing wage law and federal immigration laws regarding the hiring of undocumented workers.

Prevailing Wage

The state's prevailing wage law (G.C.S. § 31-53) is an important mandate for public works employees. The law is aimed at preventing the government low bid requirements from reducing the market price for labor to a level that may disrupt the local economy. Specifically, the prevailing wage law is intended to ensure wages commonly paid to construction workers in a particular region of the state will be the minimum wage paid to the same types of workers on public construction projects.⁵

The prevailing wage law applies to public works contracts for:

- new construction with a total cost of \$400,000 or more; and
- renovation (e.g., remodeling, refinishing, refurbishing, rehabilitation, alteration, or repair) with a total cost of \$100,000 or more.

No single prevailing wage exists in Connecticut. Prevailing wage rates can remain in effect for a short, specified period of time or indefinitely and they differ across:

- classifications of workers (e.g., carpenter, electrician, laborer, heavy equipment operator, sheet metal and ironworker, painter, and roofer);
- geographic regions of the state; and
- types of construction.

The prevailing wage is calculated based on two components: 1) total cost of the hourly base rate paid directly to the employee; and 2) fringe benefits (e.g., pension, health care, insurance, and holiday or vacation) which may be paid as contributions to an employee welfare and benefit fund administered by a union or employer or in cash directly to the employee.

Minimum hourly rates of pay are set by the state labor commission for each classification of construction worker under the federal prevailing wage law (Davis-Bacon Act) and are issued

⁵ For a detailed description of the state prevailing wage law, its enforcement, and its impact on wages, refer to the Legislative Program Review and Investigations Committee report *Prevailing Wage Laws in Connecticut* (1996).

by the state Department of Labor for each public works project. For UConn 2000 projects, the university must include the DOL rate schedule in the bid packages and eventually in the project contract.

For public works contracts awarded prior to October 1, 2002, the prevailing wage and benefit contribution rates remain in effect for the duration of the project's contract. A new law (Public Act 02-69), however, requires an annual adjustment of the prevailing wage and benefit contributions each July 1 for the duration of public works contracts awarded after October 1, 2002. Contractors are required to contact the state labor commissioner for the up-dated prevailing wage rates.

A review of the prevailing wage rate schedules for completed and on-going UConn 2000 projects -- all awarded prior to October 1, 2002 and therefore not subject to annual adjustment -- showed the hourly rate of pay ranges from a low of \$16.75 for a laborer to a high of \$29.85 for a sprinkler fitter. Table 3 shows the prevailing wage rates for certain worker classifications on a sample of UConn 2000 projects.

Table 3. UConn 2000 Project Prevailing Wage Rates for Selected Job Classifications										
	Bio/Physics Building		South Parking Garage		Hilltop Apartments		Northwest Quad Renovation		North Campus Apartments	
Classification	Rate	Fringe	Rate	Fringe	Rate	Fringe	Rate	Fringe	Rate	Fringe
Asbestos	24.25	10.76	24.25	10.76	24.25	10.76	22.95	10.76	26.25	11.36
Bricklayer	25.75	9.45	24.10	9.15	23.40	9.35	22.35	8.70	25.75	4.24
Laborer Grp 1	19.75	6.90	18.75	6.90	17.75	7.00	16.75	6.90	19.75	7.00
Carpenter	22.70	8.48	22.00	8.08	21.35	7.68	19.60	7.20	22.70	8.48
Electrician	25.60	10.98	24.60	10.44	24.60	10.44	23.80	10.13	27.60	11.54
Ironworker	25.95	13.63	24.85	13.73	24.85	13.63	24.05	13.33	27.30	14.38
Operator Grp 3	27.12	9.20	26.77	9.05	25.12	8.95	24.12	8.95	27.12	9.20
Painter brush	22.27	7.75	21.05	7.30	21.05	7.30	21.05	7.30	22.27	7.75
Plumber	26.62	9.60	25.32	9.60	25.32	9.60	24.02	9.60	27.92	9.60
Roofer	19.94	8.51	19.64	8.36	19.64	8.36	19.04	8.06	19.94	8.51
Sprinkler Fitter	28.05	8.95	27.10	8.90	27.10	8.90	26.15	8.85	29.85	9.05

Sources of Data: UConn A/E Services and Connecticut DOL Wage & Workplace Standards Division

Apprentices are not paid the full prevailing wage rate for the trade classification for which they are training. They are paid a specified percentage of the wage rate, which increases in steps as the apprentice completes the training program. (Apprentice programs are required to be licensed by the Department of Consumer Protection.) In addition, supervisory personnel and independent contractors are excluded from prevailing wage coverage. Certain other workers such as truck drivers for material delivery companies are only covered by the prevailing wage law if they spend a specified portion of their work day on the job site.

University oversight process. Implementation of the state prevailing wage law involves the parties required to comply with it, the beneficiaries of its provisions, and the entities responsible for administering it. All of these groups from the workers to the contractors to the owner to government agencies have specific functions to perform. The responsibilities of each entity are outlined below.

Responsibilities

<i>Employee</i>	<ul style="list-style-type: none">▪ Notify appropriate enforcement entities on a timely basis if not receiving the wages they are entitled to▪ Preserve supporting documentation (e.g., pay stubs)
<i>Contractor & Subcontractor</i>	<ul style="list-style-type: none">▪ Submit certified oath to DOL regarding wages paid on job site▪ Post prevailing wage rate schedule at job site▪ Pay correct rate to workers▪ Maintain detailed records (e.g., weekly certified payroll) regarding hours, duties, wages, and fringe benefits of employees▪ Comply with any audit or investigation conducted by enforcement agency
<i>Owner</i>	<ul style="list-style-type: none">▪ Determine applicability of prevailing wage law to project▪ Obtain appropriate wage schedule prior to project being put out to bid▪ Include prevailing wage provision in the project contract
<i>State Labor Department</i>	<ul style="list-style-type: none">▪ Primary enforcement of state prevailing wage law through routine audits and investigations of complaints▪ Calculate, collect, and distribute back wages owed to workers▪ Assess and collect civil penalties▪ Refer violators for debarment and/or criminal charges▪ Provide technical assistance and training to employers and owners

Acting as owner of the UConn 2000 construction project, the university has the obligation to require contractors doing work for it to comply with all applicable laws. As a state agency with control of a \$1 billion public works program, there is an added expectation that the university be even more proactive in ensuring compliance.

University contract provisions have always required contractors and subcontractors to abide by the relevant employment laws including prevailing wage. However, prior to the summer of 2001 when the Hilltop Apartments case, discussed in detail below, resulted in significant prevailing wage violations cited by the state labor department, the university did not emphasize compliance with the prevailing wage law.

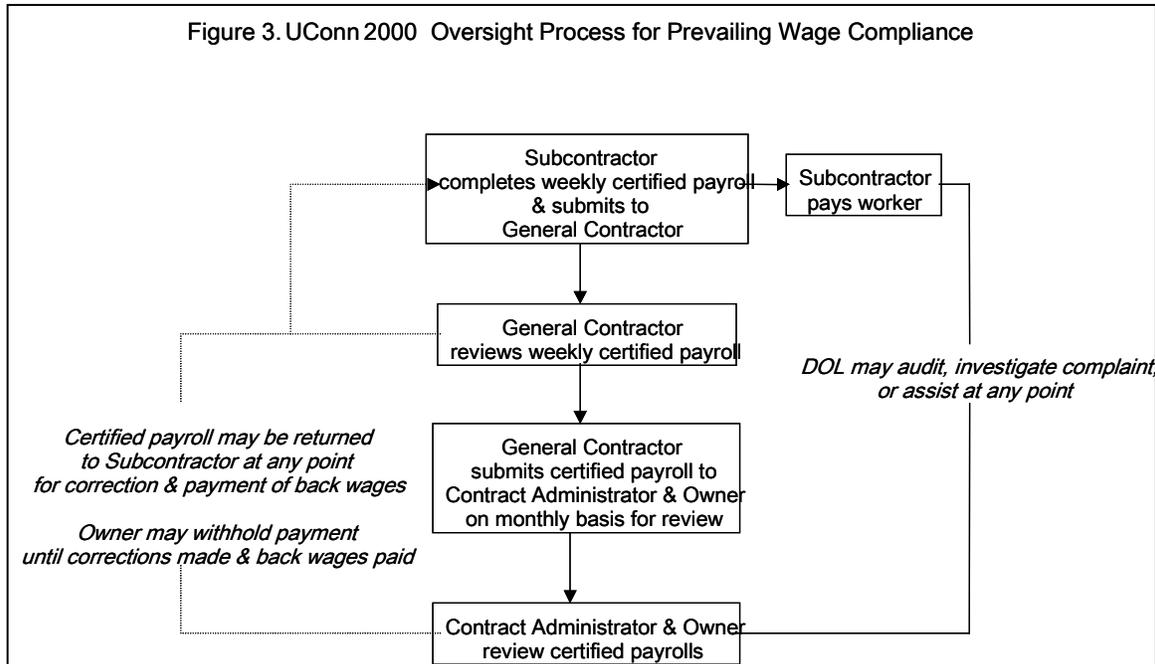
Since that time, the university has explicitly directed contractors through contract provisions, in correspondence, and during preconstruction meetings to meet the prevailing wage requirements. It also expanded its efforts to ensure compliance by implementing a tighter field and paperwork review process. Figure 3 outlines the current university process for overseeing prevailing wage compliance on all UConn 2000 projects.

In addition to the statutory mandates specific to the prevailing wage law, the university process now provides for :

- weekly field audits of worker pay rates and hours by its construction administrator (Bechtel/Fusco) and the in-house project management staff;
- discussion of GC/CM and subcontractor compliance during regularly scheduled job meetings; and

- review of contractor and subcontractor prevailing wage compliance records during the prequalification process (in compliance with the new UConn 21st Century law).

On some projects, the university has required a CG/CM to be contractually obligated to dedicate staff to prevailing wage oversight of subcontractors and has also encouraged participation in state labor department prevailing wage training sessions by contractors and subcontractors.



Most recently, the university adopted a “zero-tolerance” policy toward noncompliance with the prevailing wage law. The university required a subcontractor (Johnson Roofing Company) cited for prevailing wage violations on the North Campus Housing project in November 2002, for which JPI Inc. is the design-builder, to be terminated (see following case study discussion). In addition, it sent a letter to all contractors and subcontractors currently working on campus reinforcing the university’s concerns over compliance with state employment laws and informing them of its “zero-tolerance” policy.

With the implementation of its new policies and procedures, the university is taking a more active owner’s role in prevailing wage compliance than the Department of Public Works (DPW) typically does. According to DPW, their construction staff review certified payroll information submitted by contractors and subcontractors for completeness on a monthly basis. Any questions related to appropriate rates or classifications are referred to the labor department for follow-up. Public works personnel do not at present conduct field audits nor has DPW requested any training from the labor department for its contractors or subcontractors.

Prevailing wage enforcement process. The Department of Labor is the only state entity with authority to enforce the state’s prevailing wage and other employment laws. It is

responsible for taking appropriate action when it receives complaints or referrals from workers, owners, and other interested parties (e.g., unions). Furthermore, only the labor department can impose penalties including debarment against violators.

The department's Wage and Workplace Standards Division:

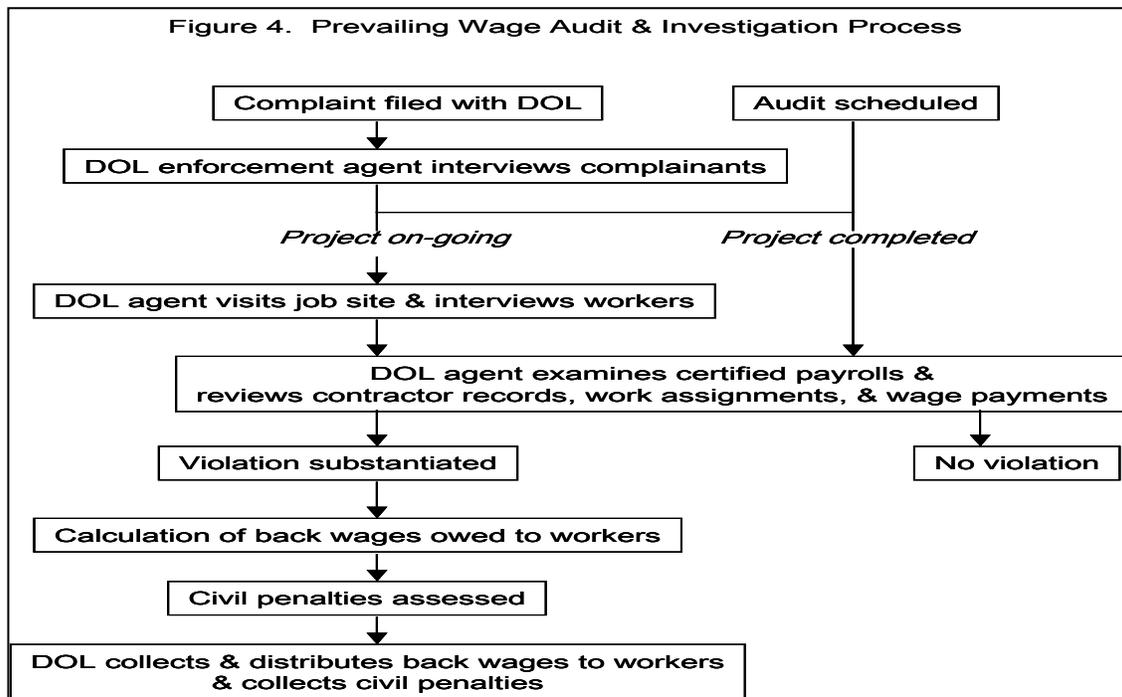
- responds to inquiries regarding the prevailing wage law;
- investigates complaints;
- conducts routine field audits as resources permit;
- calculates, collects from employers, and distributes to workers all back wages owed;
- imposes civil penalties or takes other punitive actions against employers found in violation of the law; and
- provides educational activities to improve public understanding of and to assist employers to comply with the law.

Department of Labor enforcement efforts are constrained by staff resources. At present, the Wage and Workplace Standards Division is staffed by one supervisor and six field enforcement agents. The current deployment of resources for UConn 2000 projects is one field enforcement agent assigned one day (8 hours) per week. At its peak during the investigation of the Hilltop Apartments case, one agent was devoted fulltime (40 hours per week) between February and August 2001. Later between September 2001 and September 2002, the agent worked two days per week. Because of limited staff, the division tends to respond to problems and complaints rather than making assignments based on the level of construction activity on campus.

The labor department reports enforcement activity is focused on specific projects, especially those large in scope and size, and expands to include routine checks of the various phases of construction (e.g., excavation, foundation, framing, roofing, electrical, plumbing, brickwork, etc) and training and assistance when requested by the owner or contractors. While in earlier phases of the study, the labor department estimated it had a three-month caseload backlog. In December 2002 at the conclusion of the study, it estimated a nine-month caseload backlog due to an increased number of complaints. The department explained prevailing wage complaints typically increase as the economy worsens and construction work slows.

As outlined in Figure 4, the processes for handling field audits and investigations are basically the same. An investigation is initiated in response to a complaint, usually by an employee. A field audit may be routinely scheduled based on a need identified by another case or given available resources of the division.

Civil penalties may also be imposed against an employer found to be in violation of the prevailing wage law. Civil penalties collected are used to offset the administrative costs of the division. As part of its practice to encourage compliance rather than punish violators, civil penalty amounts are routinely negotiated and often reduced based on the willingness of the employer to make restitution of back wages.



Failure to make restitution can result in:

- GC/CM and/or the owner withholding any payments due to the employer until the back wages have been paid or pay the workers out of those funds;
- debarment by the labor commissioner (i.e., restriction against bidding on and being awarded public works project in the state for a period of up to three years);
- referral to the collections unit in the Office of the Attorney General;
- imposition of civil and/or criminal penalties; and/or
- referral, if appropriate to other enforcement entities (e.g., state Department of Revenue, federal DOL, Internal Revenue Service).

Enforcement outcomes. Data on prevailing wage violations cited on all UConn 2000 projects at the university’s main and regional campuses were compiled by program review committee staff from labor department information available as of mid-December 2002. Since 1995, there have been a total of 157 prevailing wage cases with 91 substantiated, 21 unsubstantiated, and 45 pending. The most commonly cited violations on UConn 2000 projects included the underpayment of wages, fringe benefits, and overtime, the misclassification of workers, and record keeping errors on certified payrolls.

Analysis of the enforcement data additionally showed:

- 111 contractors or subcontractors working on UConn 2000 projects, 33 of which were out-of-state companies, were audited or investigated by the department for prevailing wage violations.

- Of the more than 1,000 subcontractors that have worked on UConn 2000 projects through December 2002, only 90 were cited for either wage or record keeping violations;
- Record keeping violations were alleged against five of the 40 GC/CMs that have worked on UConn 2000 project, but none were substantiated.
- Overall, 22 of 39 major completed or in progress UConn 2000 projects as well as various smaller projects had substantiated prevailing wage violations.
- The labor department collected approximately \$1.3 million in back wages related to the violations, which represents less than 0.5 percent of total UConn 2000 construction costs to date.
- The amount of back wages paid to individual workers ranged from \$8 to \$9,589.
- A total of \$414,000 in civil penalties was assessed against employers violating the prevailing wage law, but due to negotiation resulting in reduced penalty amounts only \$239,050 (58 percent) was collected by the labor department.
- None of the violating employers were debarred by the labor commissioner and only a few referrals were made other state (e.g., Department of Consumer Protections licensing unit) or federal enforcement entities.

To compare the extent of prevailing wage violations at UConn 2000 projects with other large-scale public works construction projects, the program review committee examined state labor department enforcement statistics for the Connecticut State University (CSU) system's infrastructure building program.

CSU was selected as the program most similar to UConn 2000 because it involves a multi-million dollar public works program of higher education new construction and renovation projects. Since July 1996, the CSU program has included 101 major capital projects costing almost \$488 million and another \$19 million in minor deferred maintenance work.

Between 1996 and November 2002, there were 62 prevailing wage violation cases related to projects on the Central, Eastern, Southern, and Western Connecticut State University campuses. Of these, 58 were substantiated and four were unsubstantiated. Like the UConn 2000 program, the most commonly cited prevailing wage violations were: underpayment of wages, fringe benefits, and overtime; misclassification of workers; and record keeping errors on certified payrolls.

The labor department collected \$640,033 in back wages (representing less than 0.5 percent of CSU construction costs to date related to the substantiated violations. A total of \$105,450 in civil penalties was assessed against employers violating the law, but only \$15,200 (14 percent) was collected after negotiated reductions.

Given that the CSU project is about half the size of the UConn 2000 program, the scope and severity of the prevailing wage noncompliance appears comparable. In total, CSU projects had about half the number of violations and amount of back wages owed to workers as the UConn 2000 program projects during the same time period. One area where CSU differed from

UConn 2000 was in civil penalties. Employers cited for prevailing wage violations on UConn 2000 projects were assessed and paid higher civil penalties than those on CSU projects.

Prevailing wage compliance case studies. As noted earlier, the committee study was initiated largely in response to the serious prevailing wage violations that were cited on Hilltop Apartments project during the summer of 2001. A summary of the Hilltop Apartments case is provided below. During the course of the committee's review, prevailing wage issues arose related to an on-call environmental contractor and to subcontractors for an active project, North Campus Apartments. Summaries of these cases are also presented to illustrate the complexity of the prevailing wage law, the difficulties in assuring compliance, and the sometimes arbitrary nature of enforcement.

Hilltop Apartments (Capstone Building Corp., design-builder): The state labor department cited significant prevailing wage violations at Hilltop Student Apartments project, for which Capstone Building Corporation was the design-builder. In the summer of 2001, near the completion of the Hilltop Apartments project, DOL received a complaint alleging some employees had not been paid for several weeks and were left stranded in Connecticut by their out-of-state employer, Eastern Mechanical from Texas. Based upon its investigation, DOL found 20 workers had been paid between \$6 and \$10 per hour and not the appropriate prevailing wage rate. In addition, Eastern Mechanical, a subcontractor to Capstone, had falsified the certified payroll records that had been submitted to the project contractor and the university.

DOL subsequently conducted audits of all the subcontractors on the project and substantiated numerous prevailing wage violations including nonpayment of prevailing rate, overtime, or benefits and misclassification of workers. Overall, the labor department investigation resulted in over \$500,000 in back wages paid to 228 workers and \$180,000 in civil penalties collected from 13 in- and out-of-state subcontractors.

Capstone was not cited for any violations. However, as the general contractor, it was financially responsible if its subcontractors failed to pay back wages to their workers. Capstone cooperated with the labor department and the university by withholding final payments to subcontractors until they paid the back wages and civil penalties.

During the Hilltop Apartments investigation, allegations were also made regarding hiring of illegal aliens because many workers were Spanish-speaking and not from Connecticut. The labor department, which does not have jurisdiction over immigration issues, made a referral to the U.S. Immigration and Naturalization Service (INS), but to date no charges have been substantiated.

On-call environmental contractor, various projects (Clean Harbors): On some work sites at the university, hazardous waste or debris has been discovered during the construction process and has had to be remediated and/or removed. Clean-up,

especially of hazardous waste or garbage, is a specialized process done by licensed contractors.

In June 2002, during the excavation on the North Campus Apartments work site, a trash dump was uncovered. JPI, the project design-builder stopped work in the area surrounding the site and the university took the appropriate steps, through the Department of Environmental Protection (DEP), to test and remediate the dump, which was found to contain small levels of lead -- a hazardous waste.

Because JPI was not contractually responsible for site remediation work, the university hired Clean Harbors, Inc. through an existing state contract for such services. The long-term, statewide contract for hazardous waste response, recovery, removal, and disposal services was originally let by the Department of Administrative Services (DAS) and is overseen by DEP.

In August 2002, the committee staff received information the Clean Harbors operating engineers working on the North Campus Housing site had not been paid the prevailing wage. Initially, the university responded the workers were not covered by the prevailing wage because the remediation work was not part of the project construction process. The university requested a determination by the state labor department on the issue. The labor department found the workers were entitled to the prevailing wage rate as site remediation, like asbestos removal, is part of the construction process of a project.

During the UConn 2000 program, Clean Harbors removed impacted soil on a total of three projects: Tech Quad A Bio-Physics; New Manufacturing Enterprise at the Mansfield Training Center; and North Campus Housing. Clean Harbors also remediated an underground oil tank in the summer of 2002 on the site of the Greek Housing project.

As a result, the university was required to pay a total of \$37,271 in back wages (for regular and overtime hours) and fringe benefits to 16 nonunion operating engineers. Because the labor department did not initiate the audit, it did not take any enforcement action against the university or Clean Harbors in these cases. The university also notified DAS of the prevailing wage requirement for site remediation done as part of the construction process on a public works project.

North Campus Apartments and Suites (JPI Inc., design-builder): The 900-bed North Campus Apartments and Suites project is being done as a design-build project by JPI, Inc. Since this is the first time JPI has worked at UConn and due to the size and scope of the project, it has been given increased attention by the labor department. During the course of the study, several different labor issues were addressed on the project.

Acu-Crete, a nonunion foundation subcontractor from Nashville, Tennessee, was investigated after allegations were made its employees were illegal aliens and it was suspected they were not being paid the prevailing wage. A July 2002 investigation, during which a labor department interpreter interviewed each worker, resulted in no violations. The workers reported they were paid the prevailing wage on a weekly basis and had not “kicked-back” any money to the company. They further stated they paid their own living expenses while working in Connecticut.

Acu-Crete produced for review by the committee staff the federal I-9 forms required by INS for every worker, which document eligibility for employment in the United States. (Committee staff also examined the federal I-9 forms for most subcontractors on site. All-American Builders and Johnson Roofing refused to submit the forms for review at the job site, but stated they would make the forms available at their headquarters in Texas and Tennessee.) The forms appeared to be complete. However, as discussed in the following section, only the INS can verify this information and investigate workers suspected of illegally working in the United States. The state labor department referred the matter to INS (in January 2003) and to date nothing about the status of the workers has been substantiated.

On July 8, 2002, Ariel Electric and Lighting, a nonunion Connecticut-based company, started work on the North Campus Housing project. As part of its monthly review of certified payroll records, the university’s contract administrator (Bechtel/Fusco) notified the subcontractor, JPI, and the labor department of a worker misclassification violation. Ariel listed laborers working on site in violation of Department of Consumer Protection (DCP) licensing and worker classification policies that prohibits laborers from working with licensed journeymen such as electricians. Typically, the licensed trades use apprentices rather than laborers.

After an audit of the certified payroll records, the labor department reached an agreement with Ariel in which the company would pay the six laborers the back wages for the full electrician prevailing wage rate for the six days they worked on site. Ariel was given verbal approval from the labor department’s field enforcement agent to list the workers as laborers on the payroll records for the six days under review. Since this incident, no laborers have been employed by Ariel to work on the North Campus Housing project. Ariel is also in the process of implementing an electrician apprentice program.

In November 2002, the labor department also conducted a follow-up audit of Ariel’s certified payrolls from an earlier job, the Hilltop Apartments project. The electrical subcontractor was cited for similar misclassification violations regarding the use of laborers, which was not cited during the previous 2001 investigation of all subcontractors on the project. The labor department calculated

\$35,794 in back wages owed to the laborers based on the difference between the prevailing wage rates for a laborer and licensed electrician. After an informal hearing with the DOL field agent, the amount of back wages owed was recalculated to \$13,042. In addition, a \$3,300 civil penalty was imposed but subsequently reduced to \$1,500 after negotiation between the company and the labor department.

All-American Builders, the nonunion framing subcontractor from Fort Worth, Texas, and the carpenters' union signed a collective bargaining agreement in June 2001 that required the builder to abide by all terms and conditions of the local union contracts such as: requiring all workers to join the union within eight days of employment and/or hiring union carpenters; allowing a union representative on the job site; and paying the fringe benefit portion of the prevailing wage to the union fund. In September 2002, the union alleged All-American was in violation of the agreement, was not paying the prevailing wage, and had hired illegal aliens.

All-American and the union were in disagreement over the validity and conditions of the collective bargaining agreement. The university and JPI directed All-American to settle the issue and had requested written notification of the resolution with the union. The union subsequently filed grievances with the National Labor Relations Board (NLRB) to enforce the collective bargaining agreement with All-American Builders and for unfair labor practices against JPI. On September 30, 2002, the union conducted a one-day strike of the North Campus Housing site, but work was not delayed or stopped.

The labor department audited the All-American certified payrolls. No prevailing wage violations were found. However, the labor department determined that under the conditions of the collective bargaining agreement the fringe benefit portion of the prevailing wage was to be paid to the union benefit fund and not directly to the workers, as All-American had been doing. The labor department did not issue a violation pending the resolution of the NLRB grievance. (The fringe benefit portion for a carpenter set by the prevailing wage rate schedule for the project was \$8.48 per hour -- totaling \$339.20 per week for each worker.)

In October 2002, All-American agreed to abide by the collective bargaining agreement and the union withdrew its NLRB grievances against the subcontractor and JPI. All-American paid the back fringe benefits owed to the union, required its nonunion employees join the carpenters' union, and hired additional in-state union carpenters. The labor department took no enforcement action against All-American or JPI.

In December 2002, allegations were made some All-American siding crew workers were being forced to "kick back" wages to their foreman. JPI and Bechtel/Fusco staff questioned the workers on the job site. The workers stated

their foreman had asked for money but they refused to pay him. The foreman had only work on the job for one week and was no longer working for All-American.

The university subsequently referred the allegations to the UConn Police Department for investigation. The UConn Police Department reported the case is still open pending further information, but has been unable to further substantiate the allegations.

On November 26, 2002, Johnson Roofing Company, the nonunion subcontractor from Goodlettsville, Tennessee, was cited for prevailing wage violations by the labor department. The company was ordered to pay \$13,328 in back wages to five laborers who had not been paid for three weeks and a \$6,000 civil penalty. Connecticut employment law requires workers to be paid weekly. The labor department required the workers be paid in cash after being informed the workers would be unable to cash their out-of-state paychecks.

Allegations were made the Johnson Roofing laborers were illegal aliens. The case was recently referred to INS by the state labor department and remains pending.

In response to this incident, the university directed JPI to fire Johnson Roofing Company and to remove one of the two project superintendents from the job. After negotiations, the university and JPI corporate officers agreed to continue current personnel assignments to preserve the project schedule. However, a number of performance conditions for JPI managers were established and monitored. The JPI project superintendent was subsequently removed from the job as a result of further incidents, which were not related to prevailing wage violations.

The university also ordered its contractor administrator and JPI to conduct weekly field audits to ensure workers are paid in accordance with all state employment laws. The field audits revealed several issues concerning workers' timecards, the use of independent contractors, lack of information regarding hours and pay rates on workers' paychecks, and confusion among some workers as to their status as union members. The contractor administrator referred these issues to JPI for resolution.

Additionally, JPI initiated a self-audit process of the certified payroll records of all subcontractors and requested technical assistance from the DOL in implementing the self-audit. It also held a prevailing wage training session by the labor department for all its management staff and subcontractors. As of December 2002, this is the only case on the North Campus Housing project in which the labor department cited a prevailing wage violation and imposed a civil penalty.

Prevailing wage compliance findings. *Excluding the Hilltop Apartments case, the amount of Department of Labor enforcement activity and prevailing wage violations cited have not been unusual, given the size, scope of work, duration, and budget of the UConn 2000 program. However, the potential exists for undetected violations to occur especially given the current level of enforcement efforts and practices within the construction industry.*

Contractor compliance with prevailing wage requirements became a priority for the university following the Hilltop Apartments case. In response, the university has given more attention and expanded its oversight efforts to ensure compliance.

The program review committee found no evidence of widespread noncompliance with the prevailing wage law. The type of violations cited by the labor department and the amount of back wages paid to workers does not appear to be dissimilar from those found on other large public works projects throughout the state. For the most part, there are few complaints from workers and apparent compliance by employers on campus.

The prevailing wage violations cited at UConn 2000 projects, especially the Hilltop Apartments and North Campus Housing projects that were awarded to out-of-state contractors, have created a public relations problem for university. Furthermore, these incidents contribute to the already strained relationship between the university and labor unions.

Prevailing wage violations have almost no impact on the schedule, budget, or quality of a building project, which are the primary objectives of an owner. The prevailing wage law is complex and requires the completion and review of minutely detailed records (e.g., certified payroll). The process is time-consuming and labor intensive for contractors and subcontractors and in terms of owner oversight, and state enforcement activity. Achieving compliance with the prevailing wage law, therefore, takes significant resources, commitment from all parties involved, resource management, accountability, and follow-up.

Prior to the Hilltop Apartments case, the university gave prevailing wage compliance on UConn 2000 projects perfunctory attention. In response, the university strengthened its position on compliance by contractors, increased its oversight, and recently adopted a “zero-tolerance” response to contractors who violate the law. Acting as the owner of a large-scale public works project, the university responded in a timely and appropriate manner. It has taken reasonable steps in its role as project owner to ensure its contractors understand and comply with the prevailing wage law.

State labor department enforcement efforts at the university before the Hilltop Apartments case were routine. Following resolution of the case, DOL returned to a standard presence on UConn 2000 projects. It continues to prioritize its enforcement efforts based on available resources and the severity of the complaint. In addition, the department has responded to the university’s request to provide assistance and training to contractors to improve compliance with the prevailing wage law.

The program review committee, therefore, made no recommendations regarding the university’s oversight of prevailing wage compliance. As discussed above, the university has taken appropriate corrective actions as project owner to address contractor compliance issues.

Statutory changes enacted under the new UConn 21st Century program will also improve oversight process and the program review committee supports provisions that require the university to:

- consider labor law (e.g., prevailing wage) compliance by contractors during the bidder prequalification process;
- regularly report on the number and type of prevailing wage violations cited on its projects; and
- continue its collaborative effort with the labor department to provide training and assistance on prevailing wage compliance to all contractors working on campus.

As previously stated, enforcement of state prevailing wage requirements is the purview of the state labor department. While program review committee noted weaknesses, the effectiveness of state policies and department procedures governing the prevailing wage law were outside the scope of this study. In addition, the remedies to address prevailing wage enforcement issues would require the legislature to make resource allocation as well as policy decisions.

Immigration Laws

Federal law defines employment as any service or labor performed for any type of remuneration within the United States. Furthermore, the law:

- prohibits an employer from *knowingly* hiring an unauthorized alien worker or transporting, sheltering, or assisting the worker to obtain employment;
- prohibits employers from encouraging an alien to remain in the U.S. by referring to an employer, acting as employer, or serving as an agent for an employer;
- requires employers verify an employee's work authorization status and allows the employer to ask if the person is legally authorized to work in the United States on a full-time basis; and
- prohibits discrimination against a person based either on their national origin or lack of U.S. citizenship.

To legally work in the United States, an employee must be a U.S. citizen, a lawful permanent resident, or an authorized temporary worker. All workers must:

- comply with employment eligibility verification requirements and examination of identity documents; and
- complete the federal I-9 form for income tax and social security purposes.

The U.S. Immigration and Naturalization Service is the agency responsible for locating and removing illegal aliens and conducting worksite enforcement operations. The state labor

department has no authority or jurisdiction in this area, but can refer employers and employees suspected of violating the law to the INS.

The INS has reported and an independent evaluation from the U.S. Commission on Immigration Reform have concluded the agency has relegated its responsibility for identifying illegal alien workers to a very low priority. At this time, the INS focuses its limited resources on worksite enforcement only where there is believed to be a large concentration of illegal alien workers and deporting criminal aliens. As with prevailing wage complaints, the INS reports complaints regarding undocumented workers tend to increase during times of economic downturn; increased enforcement activity may result if the job market continues to tighten or federal policy is changed.

As previously discussed, several recent UConn 2000 prevailing wage cases have included allegations related to the hiring of undocumented workers. Labor unions have often been the source of the complaints and out-of-state companies are the most common subjects. To date, three cases have been referred to INS but no allegations have been substantiated.

As part of the case studies of prevailing wage enforcement, the program review committee staff verified the required employee documentation (i.e., I-9 forms) for those subcontractors who were targets of complaints were on file with the GC/CMs for the projects. Employment documents were also reviewed for compliance by the staff of the university's contract administrator (Bechtel/Fusco). *Without INS assistance, however, the documents could not be authenticated.*

Potential exploitation of undocumented workers is an issue that generates strong political and public reactions. It is, however, a problem that is difficult to resolve under current federal law and enforcement policies. Allegations are difficult to substantiate because there is little federal enforcement and the state has no jurisdiction. Illegal workers are reluctant to cooperate with an investigation for fear of losing their jobs or being deported. They typically leave the state as soon as their work is completed and are then difficult to locate for investigative purposes. Finally, there are economic incentives on the part of employers as well as undocumented workers for weak enforcement.

Acting as the owner, the university has insisted on contractor compliance through its contract provisions. The university has reacted appropriately when allegations arise by ensuring the complaints are addressed and all follow-up actions such as an INS referral are taken. It cannot, however, factually refute the charges. Because allegations generally are not substantiated, suspicions linger.

The extent of the hiring of undocumented workers is unknown among contractors working on UConn 2000 projects. The only allegations made and subject to possible INS follow-up to date have involved two projects being carried out by two out-of-state companies. The University of Connecticut has ensured to the extent possible all its contractors comply with all employment laws, including the federal immigration laws, and has responded appropriately to complaints regarding the hiring of illegal aliens.

The enforcement of federal immigration laws regarding Immigration and Naturalization Service oversight of the hiring of illegal aliens is not a priority at this time. The state of Connecticut has no jurisdiction and, therefore, cannot dictate federal policy or resources.

The problem of undocumented people working in the United States reflects a historical construction industry practice influenced by labor resources. Ultimately, this problem won't be addressed until the economic forces, industry practices, and/or federal immigration laws and enforcement policies change.

Chapter Four

Safety Compliance

There are inherent hazards and potentially unsafe work conditions on construction job sites. In response, federal and state laws and regulations as well as safety standards within the industry have been adopted to:

- prevent worker injury and illness;
- reduce operating costs and property loss;
- prevent interruptions of work and lost worker time;
- improve labor relations and productivity; and
- avoid enforcement penalties.

Federal Requirements

Federal law requires construction employers to provide a workplace that is free from recognized hazards. The Occupational Health and Safety Administration within the U.S. Department of Labor has primary authority to set and enforce safety standards to ensure compliance with the law. The standards are based, in large part, on the construction industry's best practices and policies. OSHA standards are extensive and cover most aspects of construction trade activities, equipment, materials, and processes including:

- occupational health and environmental controls such as ventilation, illumination, noise exposure, radiation, gases, vapors, fumes, dusts and mists;
- personal protective and life saving equipment such as head, eye, and face protection, respiratory protection, safety belts, lifelines, and safety nets;
- fire protection and prevention;
- signs, signals, and barricades;
- material and toxic or hazardous substances handling, storage, use, and disposal;
- hand and power tool operations;
- excavations and demolition;
- blasting and the use of explosives;
- operation of motor vehicles, mechanized equipment, cranes, derricks, hoists, elevators, and conveyors; and
- general safety and health provisions.

OSHA jurisdiction extends to private sector job sites, which is defined based on the employer-employee relationship and not on the project funding source. UConn 2000 projects, therefore, are private sector job sites under federal jurisdiction because the construction workers are employed by private sector entities (contractors and subcontractors) and not the university.

State Requirements

Federal law requires state safety standards be “as effective as” OSHA standards. The state labor department’s Division of Occupational Safety and Health (CONN-OSHA) has adopted all OSHA standards and enforcement requirements.

CONN-OSHA administers Connecticut’s Public Employer Only State Plan, which enforces occupational safety and health standards applicable to all state and municipal workers. CONN-OSHA has jurisdiction on UConn 2000 projects only if a university employee or student is exposed to a hazard or imminent danger exists due to a violation of a safety or health standard. In terms of the scope of this study, CONN-OSHA’s role is very limited.

University Safety Oversight Process

Safety is first and foremost within the construction industry. It is also the university’s top priority according to its manuals and construction documents provided to all contractors on UConn 2000 and other construction projects.

There is a strong financial interest to all parties to work safely and prevent injury and lost worker time. Each of the parties involved in a construction project, from workers, to onractors, owners, government agencies, and insurers, have roles and responsibilities related to occupational safety and health standards, as described below.

<u>Party</u>	<u>Safety Responsibilities</u>
Employees	<ul style="list-style-type: none">▪ Ultimate responsibility to follow safety standards on job site, operating equipment, using tools, and handling materials▪ Participate in trade, union, and/or employer training and regular “toolbox” safety meetings conducted by employer▪ Notify appropriate supervisory personnel or enforcement entities of hazards or safety violations
Subcontractor	<ul style="list-style-type: none">▪ Comply with all safety standards regarding precautionary measures, maintenance of equipment, storage and disposal of materials, signs and signals to provide safe work site, and emergency and medical evacuation procedures▪ Provide necessary safety equipment to workers (e.g., hard hats, safety glasses, respirators, safety belts)▪ Maintain liability insurance▪ Conduct regularly scheduled “toolbox” safety meetings▪ Provide necessary training based on type of work performed and materials and equipment used▪ Develop and implement a safety plan▪ Comply with contractor’s and owner’s safety plans
Contractor	<ul style="list-style-type: none">▪ In general, same responsibilities as subcontractors▪ Review subcontractors’ safety plans

- | | |
|----------------|---|
| Owner | <ul style="list-style-type: none"> ▪ Adopt generally accepted industry safety practices and OSHA standards into safety plan ▪ Provide safe work site ▪ Maintain liability insurance ▪ Review contractor's and subcontractors' safety plans ▪ Conduct routine safety inspections, document violations, and require corrective action |
| OSHA | <ul style="list-style-type: none"> ▪ Primary enforcement of worksite safety standards through routine inspections and investigations of complaints, injuries, and incidents ▪ Assess and collect civil penalties and track corrective action taken in response to cited violations ▪ Provide technical assistance to improve compliance with standards and worksite safety |
| Insurer | <ul style="list-style-type: none"> ▪ Establish rating and premiums based on safety records ▪ Pay claims |

In addition to the safety activities common to most construction work, the university has instituted a number of its own requirements for UConn 2000 and other building projects. These include requiring:

- full-time, on-site safety managers for each project;
- contractors and subcontractors, through contract provisions, to have safety plans, provide safety training to workers, and conduct “toolbox” meetings on safety for workers;
- implementation by contractors and subcontractors of policies such as a “3 strikes rule” for repeated safety violations by workers;
- CG/CM's to provide proof of mandated workers' compensation and liability insurance; and
- review of contractor and subcontractor safety records and insurance ratings during the prequalification process.

Owner controlled insurance program. The university uses an owner controlled insurance program for most of its large UConn 2000 projects. Under this approach, which is common in the public and private sectors for major capital construction programs -- usually over \$100 million -- the owner rather than a project's contractor and subcontractors buys the necessary workers compensation and general and excess liability insurance. Depending on a project's size and scope, OCIPs can reduce overhead costs since an owner can usually get broader insurance coverage at lower rates than individual contractors. An owner controlled program is also a way to make sure everyone on site is properly insured throughout a project. In addition, self-insured owners can have more control over risk management practices for a construction project including on-site safety programs.

UConn contracts with an outside firm, currently Acordia, to administer its owner controlled insurance program. The OCIP administrator advises on the purchase the necessary insurance policies (the present carrier is Kemper), oversees the enrollment of all covered employees for all participating projects, processes claims, and prepares the final close out of

insurance costs when project completed. The administrator is also responsible for implementing a risk management program to control insurance losses at projects covered by OCIP.

As the OCIP administrator, Acordia has a direct and active role in safety matters for many UConn 2000 projects. Acordia staff attend the pre-bid conferences and preconstruction meetings for all OCIP projects to discuss the university's safety requirements for construction projects with contractors. For example, contractors selected for UConn 2000 projects must agree to follow the university's construction safety program as outlined in its written guidelines. The staff also review each contractor's site specific health and safety plan to determine if it is complete and in compliance with OSHA requirements and university guidelines.

The OCIP administrator monitors construction project health and safety in several ways. Acordia employs a full-time person who is responsible for auditing safety compliance at all OCIP projects at UConn. The Acordia safety consultant tries to visit each site one to two times per week to observe safety conditions and practices. More frequent visits are made to projects involving more dangerous activities (e.g., steel erection, significant trenching). The consultant may hold a special pre-meeting to go over safety concerns before work is initiated for higher risk projects and on a random basis attends various project meetings related to safety (e.g., safety training sessions, weekly "toolbox" meetings). Spots checks of safety training documentation, required licenses, inspection certificates, and similar required forms and records are also made during visits to the project site.

The consultant's safety observations are compiled in writing and discussed at each project's weekly work progress meetings. If deficiencies are noted during a on-site visit, a form is left with the contractor and the status of corrective action is tracked by the safety consultant. The consultant is authorized to stop work at a site when it appears there is the risk of serious injury or death and has done so on several occasions.

Kemper, the current OCIP insurance carrier, also has a safety person who makes site visits of UConn projects on a periodic basis. That inspector, who usually goes on-site with the Acordia safety consultant, conducts a safety review and prepares a report that is shared with the project's general contractor and UConn staff. Patterns of poor safety performance noted by the insurer are monitored and may be addressed in several ways. Meetings may be held with contractors to discuss or jointly develop corrective action plans. If satisfactory progress is not made, the insurer may recommend to the university that the contractor be terminated or disqualified from future projects.

The Acordia safety consultant presents a summary report at the regularly scheduled meetings attended by key OCIP administrator personnel, a representative from the insurer carrier and UConn 2000 project management staff. The monthly OCIP meetings are used to review trends in injury and lost time claims, highlight field observations at active projects, and address any special safety problems or general issues.

Occupational safety enforcement. As noted above, federal OSHA has primary responsibility for enforcement of occupational safety and health standards on UConn 2000 projects. OSHA compliance officers conduct announced and unannounced inspections triggered by:

- complaint by an employee, employee representative, or other source;
- fatality or catastrophe on a job site;
- high hazard industry; or
- national or local scheduling program.

OSHA prioritizes its inspection workload based on the severity or proximity of the hazard to the employee. The types of inspections conducted are listed in order from high to low priority:

- imminent danger situation that is reasonably expected to result in death or serious injury to an employee;
- fatality or accident resulting in hospitalization of three or more employees
- complaint by an employee;
- program or planned inspection in a high hazard industry; and
- monitoring and follow-up inspections to ensure corrective action taken in response to cited violation.

Based on its inspection policy, OSHA enforcement activity on UConn 2000 projects has primarily been planned inspections of a high hazard industry (i.e., construction). The OSHA regional office in Hartford, which has jurisdiction over the university's main campus, reported it continually updates its cycle of planned inspections that cover the UConn 2000 program based on the on-going construction projects.

Figure 5 shows the OSHA inspection process. It is important to note OSHA does not have authority to shut down a job site due to a safety hazard. Only a contractor or owner can stop work, although workers can refuse to expose themselves to a hazard or unsafe work condition. The same inspection process is followed by CONN-OSHA.

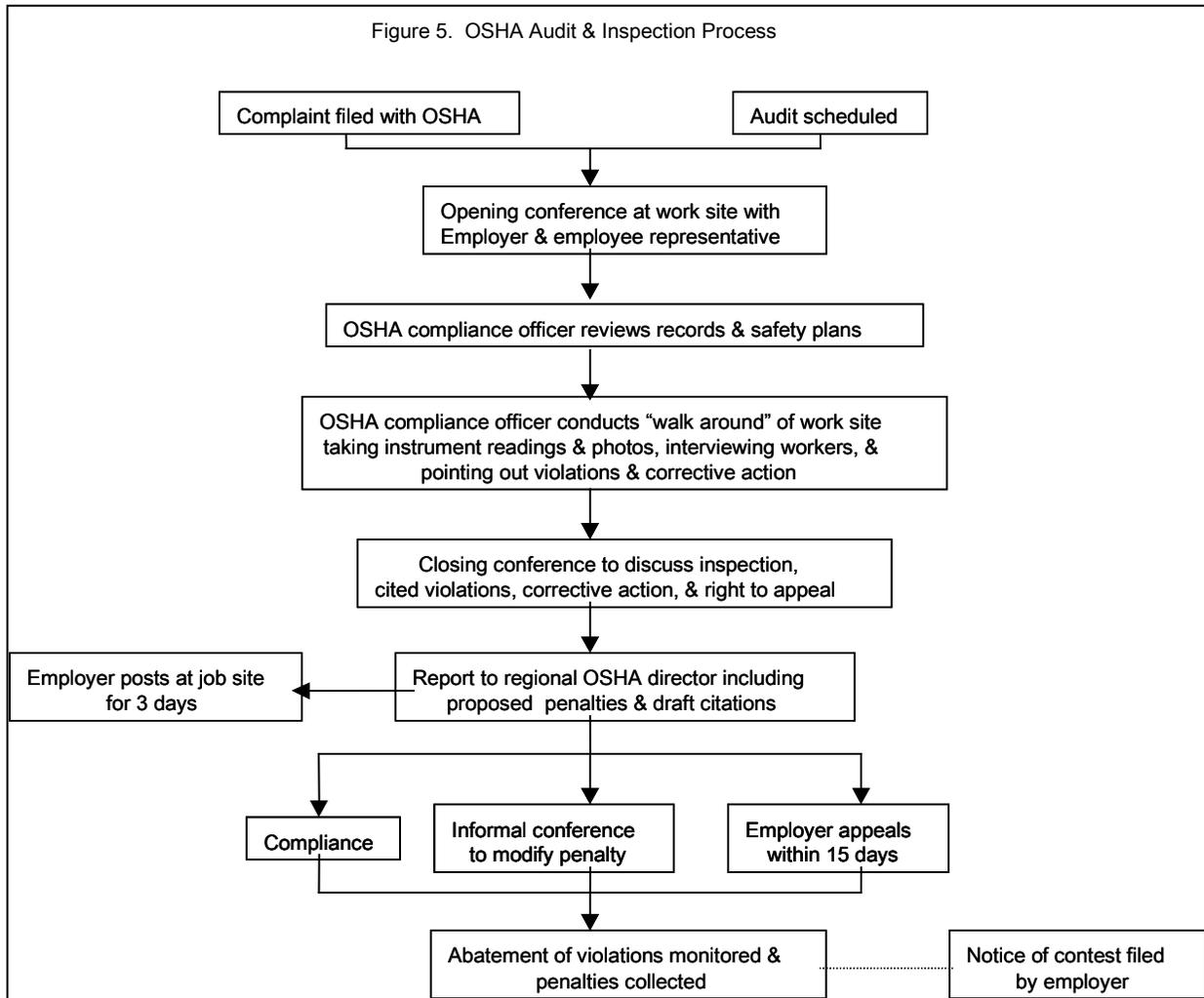
The four types of OSHA violations are as follows.

- *Serious*: substantial probability of death or physical harm and employer should have known or knew hazard situation existed;
- *Willful*: employer intentionally and knowingly knew hazardous situation existed;
- *Repeat*: similar violation found on subsequent inspection; and
- *Other than serious*: situation affects job safety and health of employees but may not result in serious harm or employer failed to abate prior violation.

After an informal conference or appeal by an employer, OSHA can reduce a penalty based on:

- employer's demonstrated good faith effort to abate hazard;
- employer's previous safety record;

- size of the business; or
- gravity of the violation.



Occupational safety outcomes. The program review committee examined OSHA case data related to all UConn 2000 projects from January 1996 to December 2002. Overall, the OSHA data show:

- 128 cases were opened -- violations were substantiated in 80 cases and no violations were found in 48 cases;
- 80 routine audits of randomly selected job sites were conducted and 48 complaints investigated;
- all audits and investigations involved safety related issues rather worker health issues;

- 66 cases involved union companies and 62 nonunion companies -- there was no trend in the rate or type of violations cited among union and nonunion companies;
- 171 safety violations were cited mostly involving fall protection, electrical methods and materials, and general health and safety regulations; and
- \$108,450 in penalties were assessed against companies cited for violations but as a result of negotiations with OSHA \$62,295 (57 percent) in reduced penalties was paid.

Information on worker compensation claims (e.g., lost time and medical) compiled by the university's OCIP administrator was also reviewed by committee staff. The analysis showed there have been 723 claims related to worker injuries on projects insured under OCIP since 1997. In regard to these cases:

- payment for medical and lost time on all claims cost over \$4 million (representing about 0.5 percent of total UConn 2000 construction costs to date);
- the most frequent type of OCIP claim were foreign object in eye, strain or injury due to lifting, and cut, puncture, or scrape caused by lifting, power tool, or hand tool; and
- the most costly type of claims were injuries caused by falls or slips from different levels or ladders and injuries due to lifting or falls.

At the request of the university, its OCIP administrator is examining the UConn 2000 program safety record compared to other large higher education construction programs. Complete information was not available for review within the timeframe of the committee's study. Preliminary analysis, however, indicated the extent of lost worker time and injury claims for the UConn 2000 projects is within the normal range, taking into account Connecticut's worker compensation benefit rates are at the high end relative to other states.

Construction is a dynamic process and there are inherent hazards and potentially unsafe work conditions on job sites. Safety is first and foremost within construction industry. As previously stated, the university stresses safety as its highest priority to contractors on UConn 2000 projects. It is clear the university also realizes the importance in term of public relations of maintaining safe campus not only for the construction workers but students and visitors. However, the potential for a hazardous condition or serious accident to occur on a work site will always exist.

Federal OSHA indicated to committee staff its experience on UConn 2000 projects has not prompted any special concerns or increased enforcement activity. The university's safety program has had good results (i.e., no fatalities and few serious accidents to date) in the opinion of OSHA compliance field staff and the OCIP safety manager.

Assuring compliance with safety regulations is an on-going process that also requires commitment from all parties involved in the construction process. Employees, contractors,

owners, and insurers all have a strong financial interest in making safety a priority on construction projects.

As previously stated, the university self-insures its contractors and projects through a contracted Owner Controlled Insurance Program. The program administrator (Acordia) maintains a fulltime safety manager responsible for conducting routine safety inspections of UConn 2000 job sites and tracking corrective action taken by contractors. The university is planning to review the cost effectiveness of OCIP as it prepares to implement the UConn 21st Century program and may not continue the program.

If the university does not continue OCIP for the duration of the UConn 2000 or UConn 21st Century programs, the program review committee recommends the University of Connecticut maintain a fulltime safety manager to conduct inspections, determine and oversee corrective action, educate and train contractors and workers, and identify trends in safety violations.

Chapter Five

Labor Relations

The success of a construction project depends in large part on a good working relationship between an employer and the labor force. There is a natural tension between the interests of workers who want competitive wages and benefits and owners and contractors who want to keep the costs of a construction project down.

There have been labor disputes and several cases of grievances related to projects carried out under the UConn 2000 program. Although limited in number, these incidences have contributed to the strain in the relationship between the University of Connecticut, serving as project owner, and organized labor.

Many members of of the building trades, such as electricians and plumbers, are subject to licensing requirements and unions represent most types of workers including carpenters, masons, laborers, sprinkler fitters, and operating engineers.. The building trade unions have a strong interest, particularly in times of a slow economy, in promoting employment of their members, higher wages, safe work sites, and compliance with labor laws. One of the ways unions ensure jobs for their members is through negotiation of project labor agreements (PLA) for public construction projects. Unions maintain their members typically provide a higher quality work product within budget and on schedule as a result of their training and specialized skills. Hiring union members, however, can mean less flexibility for an owner and contractor because of the unions' regulations governing the type of work performed and work site rules.

A PLA is a contract negotiated between organized labor and a public project owner that generally provides unions will not strike or protest if all contractors and subcontractors agree to:

- recognize trade unions as representatives of all employees on the job;
- use union hall to obtain all or most of the workers;
- require all workers on the job to pay union dues, fees, and assessments;
- pay union wages and fringe benefits (typically the prevailing wage rate which is already required for public works projects);
- pay into union benefit trusts (even if the contractor administers its own plan and the nonunion worker will not receive payments from the union trusts); and
- obey union work rules, job classifications, and arbitration procedures.

To date, only one UConn 2000 project was constructed under a project labor agreement -- the Information Technology Engineering (ITE) Building.⁶ The only trade that did not sign the PLA was the carpenter union, which has a long-standing policy of not signing such agreements. In June 2002, a strike by the carpenter union on an issue unrelated to the PLA or the UConn

⁶ A PLA is also in effect for the univeristy's Waterbury Campus project, which is not part of the UConn 2000 program.

2000 program delayed work for about two weeks on most UConn 2000 projects including the ITE Building.

In the absence of a PLA, nonunion contractors and subcontractors may be awarded a public works project and employ nonunion workers as long as they comply with the state's employment laws including prevailing wage, which was discussed earlier in this report, and any trade licensing requirements. State labor and contracting laws do not mandate a union/nonunion preference in awarding public works projects.

Trade unions, however, are concerned nonunion (especially out-of-state) contractors and subcontractors may have an unfair advantage in securing UConn 2000 contracts. The unions claim that by not complying with the state's prevailing wage law nonunion contractors and subcontractors can submit lower bids. Additionally, the unions have alleged nonunion companies engage in other illegal employment practices such as forcing workers to "kick back" wages, reporting workers as independent contractors rather than employees, and hiring illegal aliens to cut costs.

The nonunion contractors and subcontractors maintain low bids can result from a number of legal cost cutting practices including:

- nonspecialization of workers (e.g., nonunion workers perform a variety of tasks across job classifications whereas union workers are restricted to the type of work that can be performed within their classification);
- fabrication of materials and products (e.g., framing floor joists, wall panels, roof trusses) off-site, work which is not covered by the prevailing wage law;
- reduced supervisory and management staff;
- no requirement to pay workers for holidays, vacations, or lost work days due to weather conditions or other reasons; and
- long term working relationship with CM/GC, which allows for negotiation of bid price.

Limiting public work to union companies could mean the majority of building trades workers would be excluded from state projects since it is estimated only 20 to 25 percent of such employees in Connecticut are members of unions at present.⁷ Further, the program committee found no clear indication the performance by union companies was superior to nonunion companies on UConn 2000 job sites in terms of available data on time, cost, quality, and safety. In addition, the committee did not find any comprehensive qualitative analysis to support the unions' position about project quality.

⁷ Firm numbers on union membership in the building trades are not readily available. Estimates of union participation used in this study were provided Department of Labor staff, and two local contractors groups, the Connecticut Construction Industries Association and the Connecticut Associated Builders and Contractors, Inc. In contrast, by contractor associations about 90 percent of the heavy highway construction (e.g., roads, highways, and bridges) workers in Connecticut belong to unions at present.

State labor and contracting laws do not mandate a union/nonunion preference in awarding public works projects. The university's labor relation policy for the UConn 2000 program, in accordance with state law, is neutral in this respect in awarding work to contractors and subcontractors. A change in the law to give preference to unions in future work at the university is a matter of public policy for the General Assembly to determine.

The program review committee attempted to determine the extent union companies and workers have been involved in UConn 2000 projects. The data necessary for detailed analysis of union participation in university construction is not routinely compiled by the trade unions, the state labor department, or other worker or contractor organizations and could not be developed within the timeframe of the study. However, it was possible to come up with several estimates.

Analysis of the 39 major UConn 2000 projects completed or in progress indicates about half were awarded to union and half to nonunion general contractors and construction managers. As Table 4 shows, construction work in terms of dollar value was equally distributed between union and nonunion contractors. In addition, of the five major projects that are planned or in design, only two have been awarded -- one to a union CM and one to a nonunion CM.

Table 4. Major UConn 2000 Projects by GC/CM Union Status			
	<i>No. Projects</i>	<i>Dollar Value</i>	<i>Percent of Total Dollars</i>
Completed Projects			
Union	13	\$259,574,760	50.0%
Non Union	13	\$259,284,927	50.0%
Total	26	\$518,859,687	
Projects In Progress			
Union	5	\$134,427,682	50.1%
Non	8	\$134,003,000	49.9%
Total	13	\$268,430,682	
All Projects			
Union	18	\$394,002,442	50.0%
Non	21	\$393,287,927	50.0%
Total	39	\$787,290,369	
Source: LPR&IC staff analysis			

Analysis of a listing of all contractors and subcontractors that have worked on UConn 2000 projects as of September 2002 indicates at least 18 percent of the more than 1,000 different companies included in the database are union firms. The committee staff compiled the list from OCIP enrollment data and the university's prime contractor reports prepared for the Department of Revenue Services. Information on union affiliation was supplied by the Connecticut

Construction Industries Association (CCIA) and supplemented with data supplied by several trade union organizations. The actual percentage of union participation is likely to be higher since information was not available for all trade groups -- it may then be closer to the 20 to 25 percent estimate.

Whether the level of union participation in the UConn 2000 program indicated by this analysis is adequate is a matter for policymakers to judge. As noted above, the Department of Labor and the two contractor associations have estimated about 25 percent or less of the building trades workers in the state are unionized.

At the committee's public hearing, representatives from several union organizations raised questions about the amount of university construction work being done by out-of-state companies. According to their testimony, state public works projects should be carried out whenever possible by workers and business owners who are state residents and taxpayers. Analysis of the contractor/subcontractor listing described above showed of the 2,120 subcontractor jobs involved in the 214 projects included in the database, 1,787 jobs (84 percent) were done by Connecticut companies. Overall, 95 percent of the projects were done by subcontractors from the New England region and the remainder were carried out by companies from other states and Canada.

This information is similar to the university's own estimate that about 83 percent of construction-related UConn 2000 funding as of June 2002 has been contracted to Connecticut businesses. It appears from these data that Connecticut businesses and workers are performing most of the construction work at the university.

APPENDIX A
Agency Response



University of Connecticut

Philip E. Austin
President

February 20, 2003

Mr. Michael L. Nauer
Executive Director
Legislative Program Review and Investigation
Committee
State Capitol, Room 506
Hartford, CT 06106

Dear Mr. Nauer:

I write in response to your letter inviting the University of Connecticut to comment on the Legislative Program Review and Investigation Committee's final report on UCONN 2000 Construction Management.

As I have said before, the University found that the report was thorough and balanced; it reflects the comprehensive investigation and analysis conducted by your staff. The report's findings provide external confirmation of our internal belief that UCONN 2000 has been a well-managed program, and the University takes great pride in that fact.

Useful recommendations regarding the tracking and evaluation of data regarding the quality of our construction projects and the performance of our contractors and subcontractors were made in the report. In response to those recommendations, the University is currently investigating opportunities to develop an integrated software package that will allow us to track warranty issues, and to rate consultant, contractor, and subcontractor performance. As envisioned, this package will also permit us to upgrade all design standards.

An Equal Opportunity Employer

Gulley Hall
352 Mansfield Road Unit 2048
Storrs, Connecticut 06269-2048

Telephone: (860) 486-2337
Facsimile: (860) 486-2627
e-mail: philip.austin@uconn.edu

Regarding the recommendation on utilizing the services of a full-time safety manager if we discontinue use of the OCIP program, which is not anticipated at this time, the University would give this recommendation most serious consideration. At present, we intend to continue the program and the insurer's safety manager will remain on-site.

Thank you for the opportunity to submit these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin Austin". The signature is written in a cursive style with a large initial "K" and a long, sweeping underline.

APPENDIX B

Major UConn 2000 Projects: Description and Status

Project Name	Type	Status (Fall 02)	Original Est.	Construction Budget (11/02)	Amount under/over	Pct. Under/over	Orig Comp Date	Actual Comp Date	Design (A/E)	GC/CM
AGRICULTURAL BIOTECHNOLOGY FACILITY PHASE 1	New	done	\$ 20,000,000	\$ 15,288,698	\$ (4,711,302)	-23.6%	Winter 00	Winter 00	Svigals Associates	H R H / Atlas
AGRICULTURAL BIOTECHNOLOGY PHASE 2	New	in progress	\$ 10,770,682	\$ 11,087,143	\$ 316,461	2.9%	Summer 02	Summer 02	Svigals Associates	Turner
ALUMNI QUAD RENOV (SPRINKLERS)	Reno	done	\$ 18,500,000	\$ 18,492,511	\$ (7,489)	0.0%	Fall 02	Fall 02	W A S A	Whiting Turner
AVERY POINT RENOVATIONS	Reno	in progress	\$ 5,323,000							MCC
AVERY PT MARINE SCIENCE & TECHNOLOGY CTR	New	done (punchlist)	\$ 39,318,000	\$ 41,518,638	\$ 2,200,638	5.6%	Spring 00	Summer 01	S L A M	C. R. Klewin
BENTON ART MUSEUM ADDITIION	Reno - Ad/Alt	in progress	\$ 3,200,000						Greg And Weiss	Gilbane
CENTRAL WAREHOUSE (NEW)	New	done (accepted)	\$ 10,000,000	\$ 11,029,541	\$ 1,029,541	10.3%	Fall 00	Fall 00	Jeter Cook & Jepson	Konover
CHEMISTRY BUILDING (NEW)	New	done	\$ 57,754,200	\$ 56,863,540	\$ (890,660)	-1.5%	Fall 98	Fall 98	Centerbrook	Walsh
EAST CAMPUS (SPRINKLERS)	Reno	done	\$ 3,000,000	\$ 2,962,901	\$ (37,099)	-1.2%	Fall 02	Fall 02	Wasa / P. Puhlick	Whiting Turner
FAIRFIELD RD PEDESTRIAN MALL	Util	done	\$ 1,880,000	\$ 7,069,967	\$ 5,189,967	276.1%	Fall 98	Fall 98	Earthtech	Precision Power
GANT PLAZA DECK WATER LEAKAGE	Repair	done	\$ 5,458,000	\$ 8,499,586	\$ 3,041,586	55.7%	Fall 01	Fall 01	Allan Dehar Associates	Whiting Turner
GENTRY BUILDING RENOVATIONS	Reno	in progress	\$ 10,000,000						Svigals Associates	Gilbane
GRAD DORM RENOV (SPRINKLERS)	Reno	plan	\$ 7,548,000							
GREEK HOUSING COMPLEX (NEW)	New	in progress	\$ 12,000,000	\$ 11,598,309	\$ (401,691)	-3.3%	Summer 03		H E N V	Capstone
HEATING PLANT UPGRADE/NORTH QUAD UTILS	Util	done	\$ 20,837,000	\$ 26,453,388	\$ 5,616,388	27.0%	Spring 99	Spring 99	Stone & Webster	Precision Power
HILLTOP APARTMENT COMPLEX DEVELOPMENT	New	done	\$ 42,000,000	\$ 41,930,496	\$ (69,504)	-0.2%	Fall 01	Fall 01	(design/build)	Capstone
HILLTOP DORM RENO (SPRINKLERS)	Reno	done	\$ 8,700,000	\$ 8,779,762	\$ 79,762	0.9%	Fall 01	Fall 01	W A S A	Whiting Turner
HILLTOP DORMITORY (NEW)	New	done	\$ 21,000,000	\$ 20,962,977	\$ (37,023)	-0.2%	Fall 01	Fall 01	Konover	Konover
ICE RINK ENCLOSURE	New	done	\$ 2,790,000	\$ 4,290,651	\$ 1,500,651	53.8%	Fall 98	Fall 98	Design Forum	H R H/ Atlas
LITCHFIELD AGRICULTURAL CENTER	New	done	\$ 1,417,000	\$ 1,820,843	\$ 403,843	28.5%	Fall 00	Winter 01	T L B Architecture	Hayes
MANSFIELD APARTMENTS RENOVATIONS	Reno	done	\$ 2,777,000	\$ 2,399,032	\$ (377,968)	-13.6%	Fall 97	Fall 97	John Ruffalo	Conn-Strux
MUSIC & DRAMA/MUSIC ADDITIONS	Reno - Ad/Alt	done	\$ 12,751,200	\$ 17,774,194	\$ 5,022,994	39.4%	Fall 99	Fall 99	Kagan Arch. & Planners	O & G
NATURAL HISTORY MUSEUM CONV..	Reno	done	\$ 800,000	\$ 805,613	\$ 5,613	0.7%	Winter 01	Winter 01	Arbonies King Vlock	MCC Const.
NORTH CAMPUS APTS. AND	New	in progress	\$ 45,000,000	\$ 44,652,037			Summer 03		(design/build)	J P I

Project Name	Type	Status (Fall 02)	Original Est.	Construction Budget (11/02)	Amount under/over	Pct. Under/over	Orig Comp Date	Actual Comp Date	Design (A/E)	GC/CM
SUITES										
NORTH CAMPUS RENOVATIONS	Reno	in progress	\$ 22,605,000						(in-house)	Whiting Turner
NORTHWEST QUAD RENOVATIONS	Reno+New	done (punchlist)	\$ 32,001,000	\$ 32,546,149	\$ 545,149	1.7%	Fall 00	Fall 00	Herbert Newman	Whiting Turner
PARKING GARAGE NORTH	New	done	\$ 9,658,000	\$ 9,637,963	\$ (20,037)	-0.2%	Winter 98	Winter 98	Macchi Engineers	O & G
PARKING GARAGE SOUTH & CO-OP	New	in progress	\$ 24,000,000	\$ 23,999,767	\$ (233)	0.0%	G = Spring 01 C= Fall 01	G= Fall 01 C= Fall 02	Macchi Engineers	Manafort
SCHOOL OF BUSINESS - RENOVATE EXISTING BLDG/CUE	Reno - Ad/Alt	in progress	\$ 9,400,000						Svigals Associates	Gilbane
SCHOOL OF BUSINESS (NEW)	New	done (punchlist)	\$ 25,559,000	\$ 27,345,744	\$ 1,786,744	7.0%	Fall 01	Fall 01	Centerbrook	F I P
SCHOOL OF PHARMACY/ BIOLOGY (NEW)	New	design	\$ 73,260,360						Davis Brody Bond	Gilbane
SHIPPEE/BUCKLEY (SPRINKLERS)	Reno	done	\$ 12,000,000	\$ 9,485,416	\$ (2,514,584)	-21.0%	Fall 02	Fall 02	W A S A	Whiting Turner
SOUTH CAMPUS DORMS & NEW DINING HALL	New	done	\$ 40,981,000	\$ 46,310,651	\$ 5,329,651	13.0%	Fall 98	Fall 98	S L A M	Suffolk
STAMFORD CAMPUS RELOCATION	Reno	done	\$ 66,285,100	\$ 72,270,646	\$ 5,985,546	9.0%	Fall 98	Spring 99	Perkins Eastman	Walsh
STUDENT UNION ADDITION & RENO	Reno - Ad/Alt	in progress	\$ 42,080,000						Cannon	Konover
TECH QUAD I-A NEW BIOLOGY & PHYSICS BLDG	New	in progress	\$ 42,932,000	\$ 69,558,195	\$ 26,626,195	62.0%	Winter 00	(fall 02)	Allan Dehar Assoc.	Turner
TECH QUAD PHASE 2 (ITE BILDG)	New	in progress	\$ 34,120,000	\$ 33,484,926	\$ (635,074)	-1.9%			B H K R	O & G
TORREY LIFE SCIENCE RENOVATION	Reno	plan	\$ 16,181,000							
TOWERS DINING COMPLEX	New	in progress	\$ 7,000,000	\$ 7,671,559	\$ 671,559	9.6%				FIP
TOWERS DORMITORY RENOVATIONS	Reno	design	\$ 2,180,000						W A S A	Whiting Turner
WARING BLDG RENOVATIONS	Reno	done	\$ 11,452,000	\$ 14,388,690	\$ 2,936,690	25.6%	Fall 01	Fall 01	Herbert Newman	Haynes
WEST CAMPUS RENOVATIONS	Reno	plan	\$ 14,897,000							
WHITE BLDG RENOVATIONS	Reno	done	\$ 2,643,739	\$ 2,682,743	\$ 39,004	1.5%	Spring 99	Spring 99	Bianco Gioletto	Carlin
WILBUR CROSS BUILDING RENOVATIONS	Reno	done	\$ 14,409,000	\$ 17,249,347	\$ 2,840,347	19.7%	I - Summer 01 II - Summer 02	I - Summer 01 II - Summer 02	Arbonies King & Vlock	Aspinet