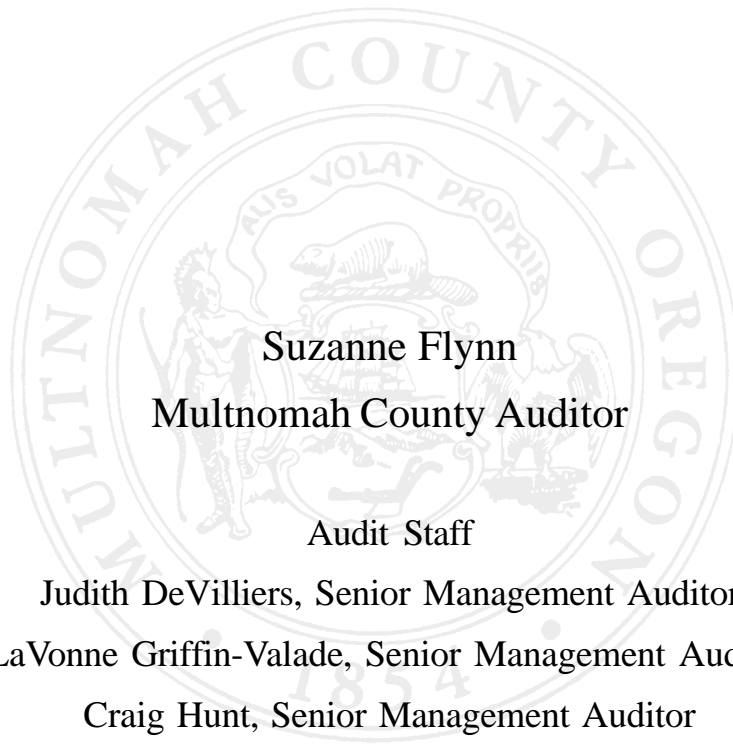


Capital Construction Process

Early Planning will Reduce Costs

September 2002



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MEMORANDUM

Date: September 9, 2002

To: Diane Linn, Multnomah County Chair
Maria Rojo de Steffey, Commissioner, District 1
Serena Cruz, Commissioner, District 2
Lisa Naito, Commissioner, District 3
Lonnie Roberts, Commissioner, District 4

From: Suzanne Flynn, Multnomah County Auditor

Subject: Capital Construction Process Audit

The attached report covers our audit of the County's capital construction process. This audit was included in our FY01-02 Audit Schedule.

Using a case study methodology we analyzed four representative projects in various stages of completion to arrive at our conclusions. We found that if the County had been better prepared to manage large construction projects, the costs of these projects would have been less. We also conclude that similar problems would be found in other projects the County has undertaken.

The County's expenditure on capital construction has been significant. Since 1989 over \$330 million has been spent for all capital projects. It is for this reason that we urge the Board of County Commissioners to take strong action to strengthen this process.

We have discussed our findings and recommendations with the Sheriff's Office and management in the Department of Aging and Disability Services, Health Department, Library, and Department of Business & Community Services. Responses to this audit that were received are included in the report's appendix. A formal follow-up to this audit will be scheduled within 1-2 years.



We appreciate the cooperation and assistance extended to us by the management and staff in the Sheriff's Office, Department of Aging and Disability Services, Department of Community & Business Services, Library, and the Health Department.

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Summary

The County expanded its construction efforts in recent years, taking on a number of large and expensive capital projects. Total spending, excluding department costs, for all capital projects since fiscal year 1989 was over \$330 million. The fiscal year 2002 budget for capital projects was \$144 million. This audit assessed the County's ability to carry out major construction projects. Our objective was to determine if roles and responsibilities were clearly defined and if internal administrative procedures were in place to support good project management.

We performed case studies of four County construction projects: the Multnomah Building, the East County Building, the Wapato Correctional Facility, and the Hillsdale Library. We identified a number of weaknesses that impacted these projects. In particular, we found these areas of concern:

- Upfront planning to define projects, establish responsibilities, identify financing options, and plan project activities did not occur in most of the projects studied. Time and resources were often committed without fully understanding what was needed, what problems might occur, or what alternatives were available. As a result, the County spent more than necessary in all four projects.
- Decision-making authority was not clear, leading to a poor understanding of roles and responsibilities. This meant that projects were often conducted in an environment of confusion and/or disagreement over control.
- The County did not have the skills and tools necessary to manage large capital construction projects. Limited administrative capacity and knowledge of project management practices led to inconsistent tracking and oversight of projects.

These deficiencies were the result of several factors, including the rapid growth in the number and size of capital construction projects. Responsibility for problems did not rest with one individual, department, or official, but weaknesses existed throughout the County. The net effect was financial loss due to major changes in scope, multiple project delays, and competing project goals. Departments and staff also did not always have the support, guidance, or training necessary to manage projects and properly do their jobs.

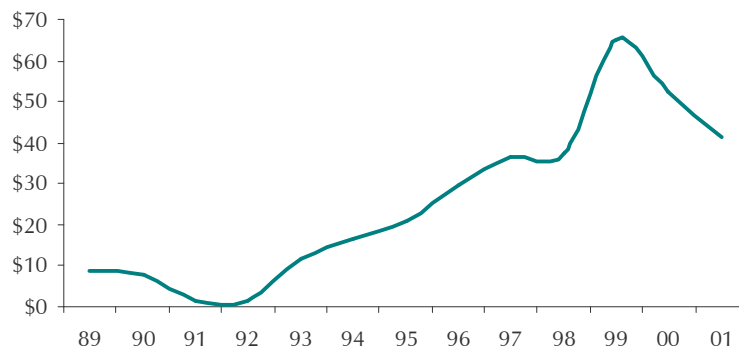
Background

The County's large capital construction projects require a major investment of public resources. In addition to the direct cost of design and construction, major projects take up the time of department staff, County officials, and citizens who may be involved. The total spending, excluding department costs, for all capital projects since fiscal year 1989 was over \$330 million. As noted in Exhibit 1, most of the capital spending occurred in recent years.

Capital Projects,
FY1989-2001

Capital Projects History - Actual
Costs in millions
(not adjusted for inflation)

Exhibit 1



Some of the projects contributing to the increase in construction include the following:

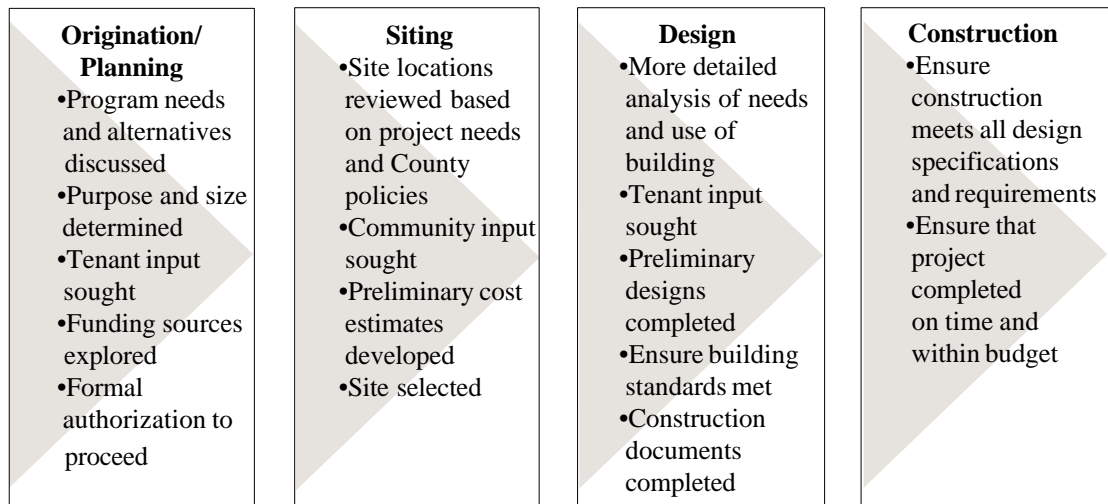
- Juvenile Justice Center completed in 1996 at a cost of \$36 million
- Library construction and remodeling began in 1994 at a cost of \$60 million
- Inverness Jail expansion completed in 1999 at a cost of \$43 million
- Purchase and remodeling of the Multnomah Building between 1998 and 2001 for a total of \$41.5 million
- North Portland Health Clinic completed in 2001 for approximately \$6 million
- Multnomah County East Building completed in 2002 for \$18 million
- Wapato Correctional Facility began in 1996 and to be completed in 2003 for an estimated \$55 million

Construction projects are funded in different ways. Voters passed a serial tax levy to finance the construction of the Inverness Jail in FY89. The County issued debt in the form of certificates of participation for construction of the Juvenile Justice Center in FY93. The County's first general obligation (GO) bonds, also passed by voters, were issued for \$22 million in 1994 and \$9 million in 1995 for library renovations. Another GO bond was issued in 1996 for \$29 million to complete additional library construction and \$79.7 million for public safety projects. The County used full faith and credit bonds to purchase the Multnomah Building in April 1999 and again in April 2000 for a new accounting system, hardware, and other construction projects. The FY02 budget for capital projects was \$144 million.

Large construction projects generally go through four major phases, although the lines between these phases are not always distinct. These phases are origination and planning, siting, design, and construction.

Exhibit 2

Project Phases

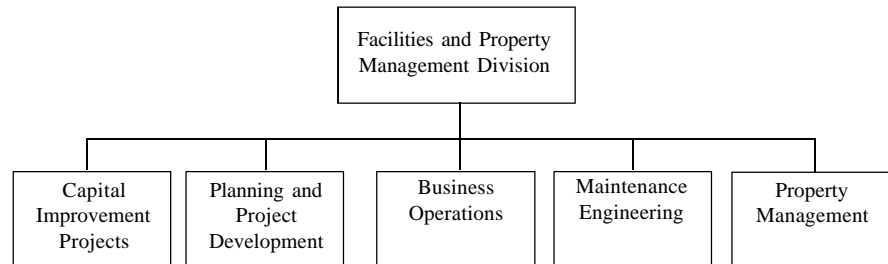


The time it takes to move from origination through construction varies. In many cases, the County discusses and explores projects for several years before entering a formal planning phase. Some projects may be on the County's long-range strategic space plan, while others occur because new opportunities become available. At some point during the origination phase, perhaps when the need becomes urgent or a funding source seems probable, the project will go into planning. The siting, design, and construction phases can also vary, depending on the complexity of the particular project.

Historically, the Facilities and Property Management Division (Facilities Management) was assigned some responsibility for most capital construction projects, although that responsibility varied considerably. Facilities Management was previously located in the Department of Sustainable Community Development, which has now merged into the Department of Business and Community Services. At the time of our audit, Facilities Management had five program sections: Maintenance Engineering; Business Operations; Property Management; Planning and Project Development; and Capital Improvement Projects. In FY01, Facilities Management spent \$69 million. Since FY97, expenditures have increased by 22%. Budgeted full time equivalent personnel for FY01 was 114, an increase of 27% since FY97.

Exhibit 3

Organizational Chart
(Prior to 2002)



The role of Facilities Management was not consistent throughout the projects we studied. Personnel from the Capital Improvement Projects section and the Planning and Project Development section participated in projects. Also, some Facilities Management staff members provided technical assistance and review to help ensure that regulations and standards were met.

Facilities Management was not generally involved when a project concept was first discussed. But at some point in the planning phase, a Facilities Management project manager was usually assigned to follow a project through some or all of the phases. The role of project managers varied, but all acted as the Facilities Management representative at project team meetings. Some project managers also maintained files and accounting records.

More recently, Facilities Management began contracting with outside project managers at the design or construction phase for most major construction projects. However, Facilities Management has continued to be involved at some level with these projects. The Sheriff's Office and the Library Department were put in charge of some of their large construction projects, using their own staff to manage or to provide oversight of outsourced project managers.

The County's Central Procurement and Contract Administration Section handles all construction related contracts, and these contracts are subject to local, state, and federal contracting laws. Although the major projects assigned to Facilities Management now have contracted project managers, Facilities Management has retained the control and authorization for contract change orders during design and construction.

In addition to the growth in the number and complexity of capital construction projects in the past five years, Facilities Management has also undergone tremendous organizational change. The Department director that oversees Facilities Management changed two times, and the Department was consolidated with another large department; this brought another change of directors. In December 1999, a new Facilities Management manager was hired to re-organize and implement new processes, and now that manager has been replaced. Turn-over of long-term employees, either transferring into new positions or leaving the organization, also occurred at a high rate.

The County has made some progress towards strengthening capital construction processes. In the spring of 2000, the County established a process to prioritize projects and develop a plan to finance the requirements of the annual Capital Improvement Project Plan. Facilities Management has also begun to develop documents, such as a planning proposal and project charter, to better control capital project initiation and planning.

Scope and Methodology

We performed this audit of the County's capital construction processes with the following objectives:

- determine if the roles and responsibilities relating to capital construction were clearly defined
- determine if the internal administrative procedures that support good project management were in place

Project case studies formed the basis of our audit. We began by reviewing the inventory of County capital construction projects that were over \$1 million. We focused on projects that were at various phases in the construction process and involved a diverse group of departments. Using the case study evaluation methods outlined by the U.S. General Accounting Office, we developed criteria for selecting projects for case study. Our primary goal was to find a sample of projects that was representative of the County's capital construction processes, and based on that, we selected the following capital projects for in-depth review:

1. *Multnomah Building* – central eastside location for the County's support and administrative functions – project was completed
2. *East County Building* – combined location for Health Department and Aging and Disability Services programs and community providers – project was in construction phase
3. *Wapato Correctional Facility* – 225-bed jail and 300-bed secure residential alcohol and drug treatment center – project was at the end of the design phase, beginning of the construction phase
4. *Hillsdale Library* – replacement of an older facility to better meet community needs – project was in design phase

To collect case study information, we reviewed project documents such as contracts, memos, reports, and design and construction plans. When available, we examined expenditure tracking spreadsheets and records. Additional audit work consisted of a study of industry standards for project management and construction processes. We also surveyed other jurisdictions and reviewed County policies, procedures, budgets, and funding documents.

We interviewed Facilities Management staff involved in all aspects of planning and management of major capital projects. We met with staff from the departments of Aging and Disability Services, Health, Library, Community Justice, Business and Community Services, the Sheriff's Office, the Public Affairs Office, and the Finance Office. We spoke with Chair's Office staff and some County Commissioners. We also interviewed contracted project managers and architects, and we toured some project construction sites.

The audit was conducted in accordance with generally accepted government auditing standards.

During the course of our review, we identified other areas that may warrant detailed study. We recommend additional review of these areas:

- File management and records retention
- Accounting records, reconciliations, and reporting
- Management of consultants and oversight of contracting relationships
- Organizational structure and employee morale
- Management of community space and agreements with building tenants

What did the case studies tell us?

Synopses of
significant events
and decisions

Wapato Correctional Facility

What: A 225-bed jail and 300-bed secure residential alcohol and drug treatment center

How Much: \$55 million (initial cost estimates)

Project participants: Sheriff, Department of Community Justice, Facilities Management

1996 - Voters approved public safety projects, County decided to co-locate treatment facility with jail

1997 - Citizen advisory group recommended Radio Towers site

1998 - Disagreements between the Chair's Office and Sheriff's Office; the County decided not to co-locate facilities. Radio Towers site abandoned due to concern about the high costs for environmental protection

1999 - County pursued Rivergate property and renewed plans to co-locate facilities

2001 - Complex conditional use permit processes, three citizen land-use appeals, and other legal requirements delayed preparatory work. Final purchase agreement approved, groundbreaking in December

Multnomah Building

What: Central eastside location for the County's support and administrative services

How Much: \$41.5 million

Project participants: Elected officials, multiple department administrators, Facilities Management

1998 - County offered \$19.5 million for former bank building and estimated the remainder of project costs to be \$5.6 million

1999 - Final purchase price increased to \$25 million when another potential buyer expressed interest after County's offer made public. Total project costs estimated at \$30 million in certificates of participation but increased to \$36 million

2001 - Major scope changes and delay caused by problems with construction and tenant relocation, continual personnel turn-over, design modifications, and the City's decision to designate the facility as a high-rise building brought costs to \$41.5 million

What did the case studies tell us?

Hillsdale Library

What: Replacement of older facility to better meet community needs

How Much: \$5.1 million (estimated at construction)

Project participants: Library Department, Facilities Management

- 1996** - Voters approved \$29 million in general obligation bonds to improve branches and upgrade technology. Hillsdale named as one of the branches
- 1997** - Siting processes began and continued for 3 years with extensive citizen involvement. Promotion of mixed-use construction became formal policy and added to siting complexity
- 2000** - County Commissioners approved construction of new facility at existing site. Determined mixed-use construction not feasible
- 2001** - Construction bid cost estimates \$825,000 higher than initial estimates. The incorporation of Leadership in Energy and Environmental Design (LEED) standards added \$205,000 to project costs (\$63,000 to be offset by grants and tax credits)

East County Building

What: Combined location for County health, aging, and disability services and non-profit providers

How Much: \$18 million

Project participants: Health Department, Aging and Disability Services Division, Facilities Management

- 1997** - Early planning began as a joint project for public safety and human service programs. The \$25 million available was not adequate for both projects so public safety project put on hold. Built as a replacement for 29,000 square feet for programs in older facilities and leased space
- 1999** - Design began at 66,500 square feet and increased to 88,000 square feet with a budget of \$17.9 million
- 2000** - Groundbreaking occurred after design process of over one year. Site contamination discovered after groundbreaking added \$907,000 in clean-up costs
- 2002** - County offices began to open

Audit Results

The County lost opportunities for savings

We found the County spent more than necessary in all four projects we studied. Deficiencies in the County's capital construction processes resulted in lost opportunities for savings. An underlying weakness was the lack of upfront planning to assess need and feasibility, establish responsibilities, and determine project activities. Although such planning did take place in one project, ultimately those plans were not followed.

Project definition – where the purpose and size (scope) is confirmed and the schedule and budget are identified – was not adequate or it changed significantly. Time and resources were often committed without fully understanding what was needed, what problems might occur, or what alternatives were available. The County may have decided not to go forward with some projects or to build less if thorough, early planning had taken place and included discussion of potential problems.

Multnomah Building: The County acted quickly on a tip from a real estate broker that property was available. Other alternatives were not fully considered. Renovation activities were also not agreed upon and well-defined upfront. Ultimately, total costs went from an estimate of \$30 million at the time of purchase to \$41.5 million.

Wapato Correctional Facility (Wapato): Officials moved to co-locate the jail and the residential treatment center without working out the details of a joint project. We found no record of planning for the best way to bring these two different kinds of correctional programs together in one location. When disagreements about facility security could not be resolved, the treatment center portion was removed from the project; about a year later, it was added back. These changes increased costs and further complicated the project. If future facility operations had been determined before going ahead with siting and design, the County may have avoided years of delay and the expenditure of millions during those phases.

Hillsdale Library: Two new policy decisions – environmental sustainability and promotion of mixed-use space in County buildings – ultimately impacted the project's definition and cost. While these policies can benefit the County in the long-term, they were not adequately dealt with during planning. Discussion of mixed-use in the

building complicated the siting process, contributing to project delay. Addition of Leadership in Energy and Environmental Design (LEED) standards required design modifications that added over \$200,000 to total project costs. Facilities Management believes that these costs will be balanced over time by energy savings.

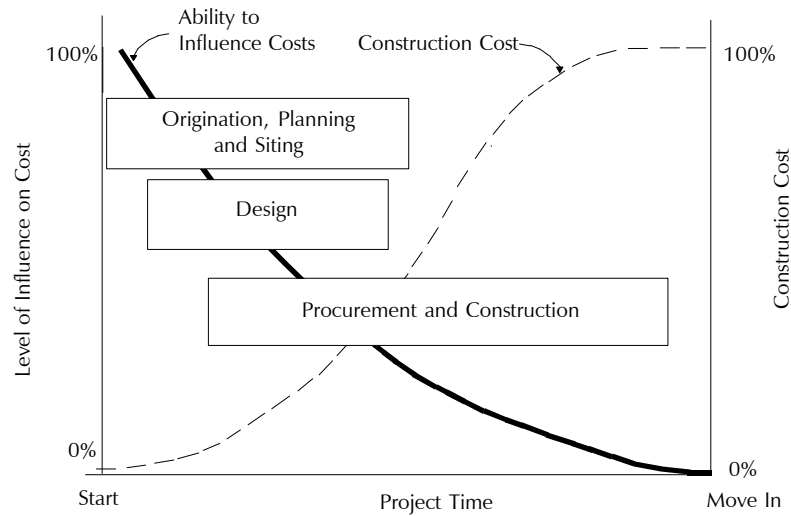
East County Building: Even with good planning, the County did not take steps to prevent major changes. Funding was allocated for planning, and participants were brought together to discuss needs and alternatives, as well as define the project. In spite of these efforts, the building size increased by 32% over the course of the project. The major factors leading to this scope increase were a confusion of roles and inadequate feasibility studies in determining space needs for the Health Department and Aging and Disability Services (ADS) programs. According to ADS management, design of the building and a misunderstanding on how to measure space were also contributing factors.

The net effect, if opportunities for savings had been realized, was approximately \$28.9 million as outlined below:

- *Multnomah Building* – total project costs increased by \$11.5 million over the course of the project
- *East County Building* – size increased from 66,500 square feet to 88,000 square feet at a cost of \$5.6 million
- *Wapato* – the County spent \$11 million and underwent more than five years delay before construction of the building was started
- *Hillsdale Library* – underwent three years delay before the facility was sited, and costs increased by \$825,000

Limited upfront planning led to costly delays and changes

Good upfront planning requires time and financial support. Exhibit 4 below shows that the ability to influence total project costs occurs at the early planning stages. The model also suggests that the ability to control costs is reduced as a project progresses.

Ability to Influence
Costs Over Time

(adapted from Hendrickson and Au, 2000)

Limited upfront planning led to costly delays, design changes, and modifications during construction. Also, projects were usually funded prior to being adequately planned and defined. Often, preliminary cost estimates and subsequent financing plans were based on incomplete or inaccurate information.

Multnomah Building: The original scope and budget were not thought through or realistic. The County initially offered \$19.5 million to purchase the property, but the final sales price was \$24.8 million. The County also had planned to move into the building with few changes, but it became clear that renovations would be more complex and expensive than expected. Officials may have been able to make a more informed decision about this project had the actual intentions and nature of the project been better communicated.

The location of program offices in the building was not in alignment with the needs of citizens accessing services. When the County decided to locate some offices to better serve the public, design plans had to be redrawn; this delayed the design phase and added to expense. In addition, expensive modifications made during construction were the result of multiple changes made over the course of the project. These costs likely would have been avoided had the building design been finalized and agreed upon before initiating construction.

Wapato: Planning for public involvement in siting activities was not adequate. The County's initial estimate of funds needed for a new jail did not include the cost of land or siting. This may have occurred in part because officials assumed the new jail would likely be built on or

near property with an existing jail. However, it was a significant omission given that it took over two years to reach final agreement on the location of the new facility. In addition, efforts by community members to stop its construction continued long afterward, further affecting project progress.

The need to plan for public involvement in siting activities should have been apparent at an early point. The County had experienced difficult community siting processes prior to this project, and the Board had established a policy to include citizens in decisions. By the time the public safety levy passed and the County decided to co-locate the jail and treatment center, many in the community had become concerned about where the facility would be located. It should have been clear that the public siting process required more resources. Had adequate planning taken place, the County may have been better prepared to respond to concerned citizens.

Hillsdale Library: This building was the first County facility under the new sustainability initiative requiring the LEED standards. Facilities Management proceeded with the project before understanding how the new standards would affect design or cost. The initial budget did not include the cost of LEED or other design enhancements, such as the addition of 300 square feet of usable space. Based on the final construction bid, the project will ultimately cost at least \$825,000 more than the estimates presented to the Board in the charter.

Decision-making authority was not clarified

Decision-making authority at all levels was not clear, leading to a poor understanding of roles and responsibilities. We found it difficult to determine who was in charge of making key decisions and who had been assigned to carry out those decisions. The resulting confusion and disagreement over control undermined project management and the goals of the County. Causes for these problems included:

- Conflicting, unclear, and shifting roles and responsibilities for leaders, departments, and involved citizens
- Lack of good information for decision-making
- Lack of decision-making processes to balance need and cost

Any major investment in capital projects requires clear levels of accountability. In other words, roles and responsibilities must be defined before managers and staff can be expected to carry out their assignments. The department or official with ultimate control of a project must understand the project goals, provide direction and oversight, and take responsibility for project decisions.

Differing commitments led to disagreements about project control

Two projects – the Hillsdale Library and the Wapato Correctional Facility – were particularly affected by commitments made to citizens. The need to be directly accountable to the public put the Sheriff and the Library Director in a more visible decision-making role than other department directors involved in projects. This high level of public accountability also drove a number of project decisions, which sometimes caused disagreement over project control. Those disagreements often made it difficult to move projects forward, and when conflicts became public, they were particularly harmful to the County's credibility with the community.

Hillsdale Library: The Library Department and interested citizens sought high standards of quality in the design of all library buildings, but these standards were not in line with Facilities Management's cost estimate for the project. This added to the lack of clarity about who ultimately controlled design decisions, making it hard for the two departments to work together successfully.

Wapato: The Sheriff's Office had made commitments to citizens regarding security at the facility and protection of the community. But the Chair's Office had also committed to establishing supervised treatment beds and implementing a program that would transition residents back into the community. This prompted disagreement about security measures, facility operations, and control of the project. These philosophical differences were not resolved before becoming a public controversy that caused delay, prompted major scope changes, and affected the County's credibility.

Decision-making authority was not carried out

Authority to carry out the responsibilities of project management is essential no matter which department is in charge of a project. We found that decision-making authority often was not clear, supported, or used when necessary. This left the County vulnerable to serious cost overruns and delays.

Hillsdale Library: Facilities Management did not fully assert their authority during the design phase of the project. In 1997, the Library had contracted for design services for all of the planned library projects. Despite an opportunity to reconsider this contract, the Library decided to contract with the architecture firm they had worked with in the past, even though their fee was higher than the market rate. It is unclear if Facilities Management's attempt to disallow the architect's fee was ignored or overruled, or if they simply did not continue to press the matter. The decision to go with the Library Department's preferred architect may have added an estimated \$100,000 to the cost.

Multnomah Building: Within the limitations of approved funds, Facilities Management operated under the constraint of moving into the building

essentially “as is,” leaving little room to negotiate with tenants. Facilities Management was not supported by the Chair’s Office in their efforts to maintain original scope, and the cost, size, and complexity of the project grew substantially. Departments and officials were able to get design changes that led to costly modifications. The contract for design fees alone went from \$574,000 to \$1 million.

Factors beyond the County’s control, such as the City of Portland’s decision to designate the building as a high-rise, also contributed to the significant scope change and added cost. Ultimately, Facilities Management was unable to assert control over the project, and it would have been nearly impossible for them to do so successfully given their lack of decision-making authority.

East County Building: We could not identify clear decision-making authority and assignment of roles and responsibilities. Historically, Facilities Management had acted primarily as advisors to departments during projects, and that is what they understood their role to be throughout much of this project. Participating departments viewed themselves as project management partners with Facilities Management. This undefined responsibility resulted in deficiencies in project administration. For example, we could find no evidence of who was responsible for key decisions. These problems were significant given the \$5.6 million in scope changes for which we could not determine rationale and authorization.

Shifting roles and responsibilities led to confusion

Shifting roles and responsibilities led to confusion and an erosion of Facilities Management’s credibility. This loss of confidence precipitated intervention by County officials and departments. The chaos that occurred during some projects decreased the County’s ability to successfully manage major construction.

Multnomah Building: Multiple changes in County personnel and contractor’s staff created confusion around project management responsibilities. There were four project managers and three construction managers as well as turnover of support personnel. The shifting of work assignments impacted efforts to communicate and led to confusion for project participants. For example, the architect/engineer hired for the project reported receiving several differing requests from multiple people. In addition, a new Facilities Management director was hired mid-project to implement an intentional change in management philosophy. This was followed by more changes in personnel.

Hillsdale Library: The use of multiple project management companies and the change of personnel within one of those companies created confusion. This confusion was compounded by unclear decision-making authority between Facilities Management and the Library.

Wapato: Motivated in part by the need to maintain the trust of citizens, the Sheriff's Office took charge of the project long before officially receiving control from the Chair's Office. Members of the public and some County staff were unclear about who had decision-making authority. This contributed to uncertainty about project goals, particularly where operation of the residential treatment program by Department of Community Justice was concerned.

The County did not balance need and cost

As a result of unclear authority and shifting roles and responsibilities, the County was unable to balance the competing needs and demands of departments with the overall interest of controlling costs. Basic project decision-making processes establish responsibility for balancing need and cost. When those processes are not in place, the County runs the risk of driving up costs or not meeting needs.

Multnomah Building: During renovations, negotiations with tenants prompted delays and costly revisions. The programming stage – where tenant space and design needs are clarified – was prolonged and design plans changed. In one case, the programming phase took 16 weeks instead of the eight weeks planned. Facilities Management had a difficult time finalizing plans because tenants kept changing those plans. No entity took responsibility for determining the appropriate balance between project cost and the requests of departments moving into the building. Resulting delays and changes increased the cost, time, scope, and project complexity.

Wapato: Philosophical disagreements between the Chair and the Sheriff complicated efforts to reach agreement about facility design and future operations. Tensions were occasionally high and the conflict between officials undermined the goals of the project. These differences contributed to problems that occurred over the course of the project, including multiple changes in the residential treatment portion of the project and struggles over project control.

East County Building: We could find no evidence to show the County had considered the annual program cost increase in constructing the building. The annual facilities cost for participating programs increased from \$248,000 to \$2,300,000 per year for the next 30 years. Most of the increase was for additional space. Only \$500,000 of the increase was for actual replacement of the Gresham Neighborhood Center.

Further, we did not find justification for the space increases for programs moving into the facility. Health Department programs went from 11,178 square feet to 43,597 square feet (a 290% increase), and ADS programs went from 19,168 square feet to 37,212 square feet (a 94% increase). We also could find no plan as to how these departments were going to fund the additional \$2 million per year in operating costs that resulted from the increases in building space. Health Department management

states it is now in the process of reviewing how the space can be used more effectively.

Role of County Commissioners was not clear

The appropriate role for Commissioners in capital construction activities was not clear. Their involvement varied during projects and did not appear to follow an identified process. In the projects we reviewed, there were examples of Commissioners using their influence to press for certain project decisions or changes. Sometimes discussions took place informally outside the public process. These activities may have set precedence for involvement that is not supported by policy. Although such actions by Commissioners may be legitimate, measures should be taken to weigh the effects of those efforts.

Hillsdale Library: We found a high level of Commissioner involvement in discussions that affected siting decisions. This was the case with the Board's move toward increasing mixed-use space availability in County facilities. After site selection began, the Board introduced the addition of mixed-use space, adding to the complexity of the project and increasing the difficulty in finding a suitable site. Criteria for selecting a site changed twice during the process. The community repeatedly asserted that mixed-use should not impact the successful siting of the library. Consideration of mixed-use space affected decisions throughout the siting process.

Wapato: We saw examples of Commissioners mediating disputes and facilitating agreements between the Sheriff's Office and the Chair's Office. While those efforts helped keep the co-located project on track, we question whether Commissioners should have been put in that position.

At other times, the Board considered changes that could have had significant impact on the project. For instance, when major conflicts had finally been resolved and formal operational guidelines agreed to, the Board then decided to study the possibility of reducing the number of treatment beds to be located at the facility. Although no changes resulted, this set up the possibility of further costly design modifications and delay.

Information to support decision-making was not communicated

Information for making decisions often was not made available, was not timely, or was not accurate. Also, communication with the Chair's Office, Commissioners, departments, and other stakeholders regarding project status or changes did not consistently occur.

Multnomah Building: The original project scope was not made clear to departments and officials involved in the renovation and move. Reliable cost information was not always available to participants, and project management staff changed frequently. Under these conditions, effective communication suffered.

East County Building: We did not see evidence of formal communication with the Board, although we were told that Board members had been individually briefed and their ideas incorporated into the building plans. The Board was provided a cost estimate of \$12.3 million for 66,500 square feet of space with the siting committee recommendation, but we found nothing to indicate they had approved the increase to 88,000 square feet and \$17.8 million.

Hillsdale Library: Facilities Management had difficulty providing the Library Department with basic cost information. The public was also frustrated with obtaining reliable cost figures when siting decisions were made. Even though Facilities Management was responsible for preparing accurate cost information, it was the Library Department's credibility with the public that suffered from its absence.

Further, Facilities Management was responsible for communicating information to all stakeholders during the project, but that did not occur. Facilities Management had been aware for some time that the budget estimate presented in the project charter was significantly below anticipated costs. At the completion of the design phase, estimated total costs increased by over \$1 million more than the original estimate. At that point, County leadership lost confidence in Facilities Management, and control of the project was handed over to the Library Department who informed stakeholders of the change in project costs.

Public participation in decision-making was not understood

Public involvement has long been an important element in County decisions. Including citizens in decision-making adds value, and we saw cases where the County had varying degrees of success. As examples, siting of the East County Building was a positive public process, and the citizen advisory group working with the Sheriff's Office on the design and operation of Wapato appears to be an effective model of community participation. However, we found that the associated costs and risks were not well understood. Because the County is ultimately accountable for the impact of public participation, project circumstances should be weighed carefully.

Key facts and clarifying information were not always available to citizens participating in decisions. Active engagement of community members should create more buy-in from the public and greater accountability for decisions from government officials. But, effective citizen involvement requires time, planning, and complete information. The public would not expect leaders to make good decisions without those elements being in place, and government should not expect the public to do so either.

Wapato: The citizen advisory committee involved in siting the facility was under a tight timeline and selected the Radio Towers property in

North Portland as their first choice without having complete information about problems with that site. The project then moved forward before a thorough analysis of the risks associated with the property was conducted. Ultimately, the County abandoned the Radio Towers site because of concerns about the expense of environmental protection measures.

We identified at least \$832,000 paid by the County as a result of pursuing the Radio Towers property; these expenses were in addition to the cost of staff planning time and other design-related activities. The project was also delayed by over a year. Although the Sheriff's Office had committed to following the recommendations of the siting advisory committee, it would have been more prudent for the County to fully investigate potential problems with the property before going ahead with the project.

Hillsdale Library: Public involvement in siting had significant impact. The process took approximately three years to complete, in part because of delays brought on by community participation in the siting decision. In the end, the Board determined that the location preferred by citizens was not the best site for the facility. This came after much public deliberation and repeated efforts to build community consensus.

A formal assessment of the first site selected would likely have revealed high risk because it involved relocation of a road, multiple property owners, property condemnation, environmental contamination, access concerns, and questions about the suitability for mixed use. Although some community members had advocated for having the library constructed at this particular site, better assessment of the site may have prevented further pursuit of that property earlier in the siting process.

The County lacked expertise for major construction

The County did not have the skills and tools necessary to effectively manage large capital construction projects. Within the past five years and without much previous experience with major construction, the County's capital improvement efforts expanded to include a number of complex projects. Limited administrative infrastructure and knowledge of project management practices led to inconsistent tracking of activities and oversight of projects.

Historically, Facilities Management had managed projects by maintaining informal relationships with departments. In smaller and less complex projects, this type of management may be successful, but we found this method to be insufficient for projects with major expenditures. Capital construction projects over \$1 million require more formalized project management processes. Overall, we found a number of deficiencies in the seven areas outlined below.

Capital Project
Report Card

	East County	Hillsdale	Multnomah	Wapato
Documentation and activity tracking	Inadequate	Inadequate	Adequate	Adequate
Agreement on decision making authority	None	Inadequate	Inadequate	Inadequate
Early planning	Adequate	Inadequate	Inadequate	Inadequate
Formal project plan	None	None	None	None
Tasks, duties, and assignments clarified	Inadequate	Inadequate	Inadequate	Adequate
Assessment of potential risk	Inadequate	Inadequate	Inadequate	Inadequate
Effective communication processes	Inadequate	Inadequate	Inadequate	Adequate

Stronger administrative and project management skills were needed

Projects we studied lacked standard administrative procedures to record and use complex information. Documentation and tracking of activities varied, and in some cases, we had difficulty finding record of key decisions or retrieving financial information. Had capital construction processes been established and institutionalized, a number of lapses in administrative and project management functions may have been prevented.

Project management differs from the management of on-going operations. It requires specific skills, tools, and techniques to guide projects throughout planning, design, and construction. We reviewed project management at the line level and at the policy level, and we found that a general lack of expertise led to inefficiency, lost opportunities, and over-spending. These problems might not have occurred if effective practices had been established.

Agreement on where decision-making authority lies should be one of the first actions in project planning and should include determination of project control and assignment of roles and responsibilities. All the projects we studied experienced a lack of clear decision-making

authority. This affected important administrative functions and limited managers and staff in their ability to perform their jobs effectively. Had authority been clarified at an early point, project management activities would likely have been more successful.

East County Building: We did not find evidence that project costs were monitored. There were no cost reports from the beginning of the project in 1997 until October 2000 when project management was outsourced to a professional firm. Project information was incomplete and scattered among a number of files. We could not find how the \$350,000 allocated by the Board for planning was spent. Also, information in the files indicated a Community Block Grant had been applied for, but the records did not show how these grant funds were spent.

Multnomah Building: Given its complexity and the political pressures, it is unlikely this project could have been effectively managed without well established project management practices and strong expertise. Project management fundamentals (scope, time, cost, risk, procurement, communication, and human resources management) were not executed well throughout much of the project.

Processes for early planning were limited

The County had limited early planning processes to define projects. A capital project begins as an idea or concept, and as each new piece of information becomes available, the project becomes more defined. Best practices indicate that the most successful construction projects begin with early, thoughtful, and complete planning. Such preparation helps move a project from an ambiguous concept to a defined set of tasks and phases. Research also indicates that poorly defined projects cost 17 percent more than the average, and that well defined projects cost 20 percent less than the average.

The early planning period is very important because it allows broad consideration of options, and it sets the stage for effective management of the project. Historically, such upfront planning has been primarily paid for out of department and Facilities Management operating budgets. In order to preserve money and staff hours for actual design and construction, sufficient resources may not have been dedicated towards defining projects. If procedures had been in place to adequately define and plan the projects before they began, the County may have been less vulnerable to risk.

Multnomah Building: The desire to move quickly to take advantage of a purchase opportunity meant that the County did not systematically review the risks, costs, and benefits before initiating this project.

Wapato: The County did not take time to weigh the plusses and minuses of co-locating jail space with a residential treatment center for parole and probation clients. Disagreements had to be worked out over the

course of the project, often publicly and often to the detriment of the work being done on the facility. Differences in how to operate one facility with two programs resulted in the removal of the treatment center from the project at one point. Eventually, the secure residential portion was added back in, but the multiple shifts in design plans contributed to higher costs and delays.

Project plans were not developed

Planning is both a process and a product. Preliminary planning processes should result in a formal, overall project plan and the determination of:

- What the project is (scope)
- Who has responsibility for what tasks during the project
- How much the project will cost
- How long the project will take
- What to do when unexpected events happen
- What should be communicated to whom and when
- What will be done by the organization and what will be contracted out

Project management cannot occur effectively or efficiently without early answers to these questions. They serve as a baseline for keeping the project on course. Best practices also indicate that while planning is iterative, each wave of new information should be accompanied by analysis and a formal decision process.

We found no evidence that overall project plans had been developed and little evidence that the County provided the resources or had the skills to adequately execute, control, or analyze the course of projects. If projects had been initiated using the framework of a project plan with tasks, duties, and assignments clarified, many of the problems encountered would not have occurred.

During our audit, Facilities Management identified the project charter as the overall project plan. The project charter, recently instituted in the County, is a formal document showing Board approval for any given project. The charter generally sketches out a project, and it may be a good start towards development of an overall project plan. However, the charter documents we reviewed did not provide a comprehensive outline of project activities or accurate final cost estimates, items that we would expect to find in a project plan.

Different approaches to project control had varying success

Different approaches to project control were used by the County with varying degrees of success. Project decisions were centralized and controlled by the executive branch through Facilities Management, or they were decentralized and controlled by departments or an official.

We did not conclude that either of these models should be implemented County-wide; instead, we found strengths and weaknesses with each. The nature of any given project should dictate the approach used, particularly when a high profile department head or an elected official is directing a project.

Citizens participated in project decisions or approved funding measures. To gain community support, department directors or elected officials made commitments that resulted in heightened public accountability. The positive side of this model is that the incentive for accountability and effective management is built in. The risk is that the need for public approval may overshadow management's role in balancing competing demands.

Public accountability was particularly a factor in the Wapato and Hillsdale Library projects. The Sheriff, an independently elected official, was accountable to citizens for jail construction. He and the Library Director were integrally involved in passing construction levies and made commitments to voters. This additional public expectation may affect decisions to a higher degree in some cases, but processes should accommodate this and be supported by leadership.

Comprehensive analyses of project risks were not conducted

Unexpected and costly problems occurred in each of the projects we studied, but we found no evidence that the County had formally assessed the potential risk of negative events occurring in any of the projects. In our opinion, this indicates a weakness in the County's capital construction processes. While we recognize that planning cannot foresee every circumstance, determining possible problems and studying their likely impact on timing, cost, quality, or scope can mitigate the effect those problems have on projects.

Hillsdale Library: If a better assessment had been done to determine how the risks of the site initially considered could delay the project, the County might have saved a year or more of the time spent on siting. In addition, those involved in the siting decision would have better understood the limitations of that particular property. In contrast, a good risk analysis was performed by Facilities Management on the second site selected that likely saved the project from being delayed further.

Wapato: A comprehensive risk assessment of potential sites should have been conducted prior to final selection of a site or before moving ahead with the project at the Radio Towers property. This may have provided the siting advisory committee with more complete information on which to base their decision and possibly prevented the County from spending over \$800,000 preparing to build at the Radio Towers site.

Multnomah Building: The Multnomah Building was a complex project approached without a full recognition of the risks involved. There were a high number of tenants and moves to manage as well as construction while the tenants were in the building. Steps were not taken to mitigate the risks and resulted in a longer, more expensive project than expected.

East County: Following purchase of the property where the facility was to be built, the County discovered site contamination that cost \$1 million to clean up. A level one environmental assessment (the least comprehensive assessment type) prepared for the seller had reported that no environmental contaminants were present at the site. While it may have been reasonable in this situation for the County to accept the seller's report, the fact that each project we reviewed had similar problems indicates the need to strengthen the process and prepare for this contingency.

Good communication processes were not in place

The County also lacked effective communication processes. Communication provides the critical link among people, ideas, and information necessary for a project's success, and it should range from simple project status reports to presenting vital information for decision-making. We found limited reporting and information-sharing in most of the projects we studied.

The style of communication is critical. Everyone involved must be prepared to send and receive information and must understand how the communications they are involved in affect the project as a whole. The clarity of communication is also important. For example, we found that there was confusion about the difference between budget figures and cost estimates, and also about how firm estimates were.

While those participating in the projects usually had ongoing meetings and discussions, communication was limited outside those meetings. Information was not distributed routinely and uniformly. Standard performance reporting processes were not established.

Communication problems further complicated projects and created an atmosphere of mistrust among those involved or interested in projects. Plans that convey when and to whom information should be regularly communicated would have alleviated much of the confusion that occurred.

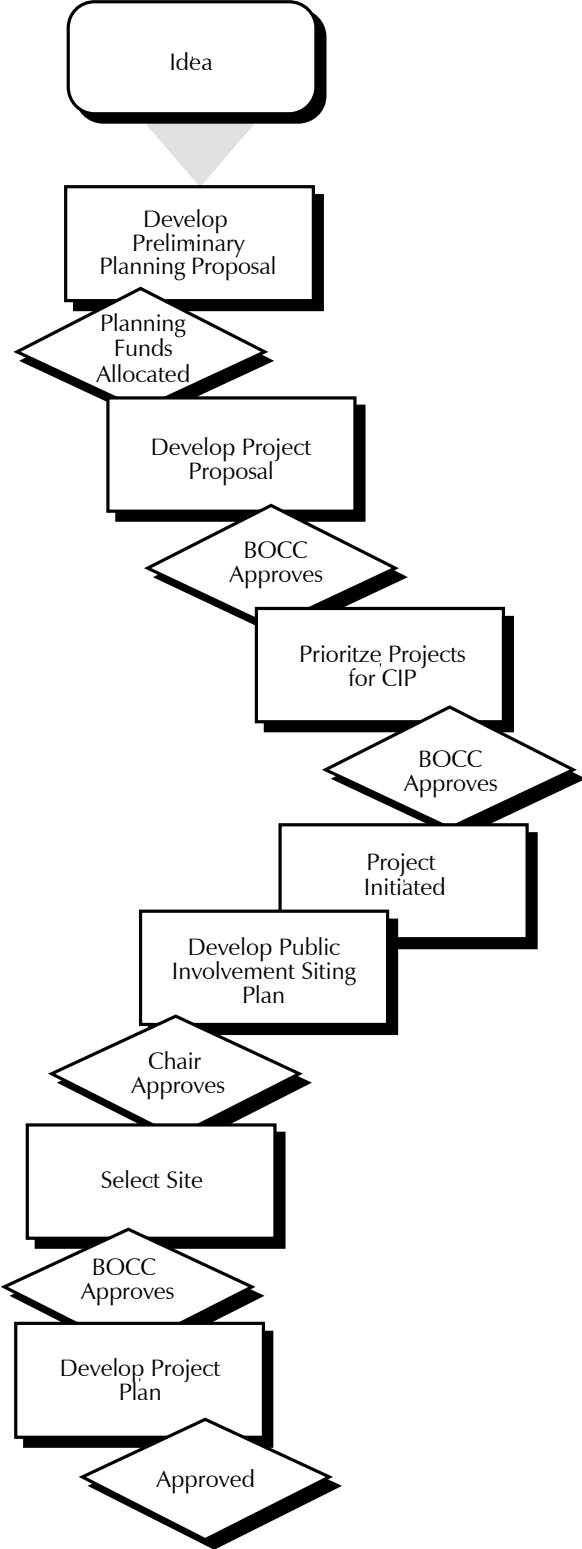
Recommendations

Approve a policy for the early planning process of projects over \$1 million

- I. The Board of County Commissioners (BOCC) should approve a new policy that formalizes an early planning process for projects over \$1 million. According to best practices, the most effective time to control costs is in the early planning stages. We suggest a phased process that incorporates increasingly accurate information as it proceeds and provides several opportunities for discussion, review, and approval. The process that we suggest as an outline follows this recommendation (Exhibit 6). This process should include:
 - A. As a first phase, a formal process to investigate a potential project idea proposed by an official, department, program, strategic plan, or any other sponsoring event or body and to make a determination about viability. This process should result in a Preliminary Planning Proposal. Refer to *Recommendation IV.C.1.a.* for a definition of this document.
 - B. As a second phase, a formal process to develop a project proposal more comprehensive than the Preliminary Planning Proposal and to be presented to the BOCC for approval. This process should result in a Project Proposal document. For a definition of this document, refer to *Recommendation IV.C.1.b.*
 - C. As a third phase, a formal process to determine a project site to be recommended to the BOCC for approval. We recommend improvements in the siting process which are included in *Recommendation IV.E.*
 - D. As a fourth phase, a formal process to complete the Project Plan and proceed to implementation. The Project Plan is defined in *Recommendation IV.F.*
- II. Funding should be allocated annually to support this expanded preliminary planning process.

Proposed early
planning process

Exhibit 6



Adopt Capital Project
Administrative
Procedures

III. As part of this policy, the BOCC should assign responsibility for the activities listed below to a group that has County-wide representation and the ability to make operational policy decisions from that perspective. Currently such a group would be the County Operations Officer's Cabinet.

- A. Decide on which preliminary planning proposals are funded for additional planning
- B. Prioritize projects for the Capital Improvement Plan and present recommendations to the BOCC for approval
- C. Approve the Project Plan

IV. To effectively manage projects over \$1 million, Capital Project Administrative Procedures should be formally adopted County-wide.

A. To establish best practices that effectively and efficiently manages capital projects, the County should incorporate the Project Management Institute's Project Management Body of Knowledge (PMBOK) principles into the Capital Project Administrative Procedures. Project management consists of many areas of project knowledge and practice which need to be applied from the very beginning of capital projects over \$1 million. PMBOK provides guidelines for project management areas, some of which are:

- 1. Overall project management
- 2. Project scope management
- 3. Time and cost management
- 4. Quality and standards
- 5. Staffing and roles and responsibilities
- 6. Communications and documentation
- 7. Risk assessment and control
- 8. Contracting and contract monitoring

B. We recommend that all project managers and others held responsible for a project's success familiarize themselves with the principles of project management and apply them to all projects.

Preliminary Planning Proposal	<p>C. To ensure due process for and controls over initiating capital projects:</p> <ol style="list-style-type: none">1. The Capital Project Administrative Procedures should describe the process and standards for the Preliminary Planning and Project Proposals.<ol style="list-style-type: none">a. The Preliminary Planning Proposal should include information about the project's relationship to master and strategic plans, scope, need, funding source, preliminary cost estimates, anticipated schedule, project stakeholders, roles and responsibilities during planning, risks, and a planning cost estimate.b. When a project is approved for further planning, the Project Proposal should build on the Preliminary Planning Proposal and include new or more detailed information about the relationship to master and strategic plans, scope, roles and responsibilities during the project, feasibility, justification for the project, other alternatives considered, funding source, preliminary cost estimates, early programming, project stakeholders, risk identification and assessment, anticipated schedule and milestone dates, and operating costs.2. Prioritization criteria for choosing among Project Proposals competing for inclusion in the Capital Improvement Plan should be reevaluated and formalized in the Capital Project Administrative Procedures.
Project Proposal	<p>D. To balance project management authority with responsibilities:</p> <ol style="list-style-type: none">1. Capital Project Administrative Procedures should define the levels of authority and commensurate responsibility to be established at the earliest planning stage of each project. Appropriate levels of involvement and oversight are critical factors in effectively managing capital projects. The procedures should be flexible enough to allow variability in the administrative model. In some cases the authority may reside with an elected official or department director outside of the Facilities and Property Management Division.2. Procedures should be included to assess how much any newly proposed policy initiative will cost and the potential risk in delaying projects.
Roles and responsibilities	

Site Selection

E. To further guide the site selection process, the current public involvement process should be incorporated into the Capital Project Administrative Procedures. Additional site selection procedures should be developed to address risk assessment and change control.

Project Plan

F. To implement best practices to which project management personnel are held accountable, the procedures should require that Project Plans be developed for each project over \$1 million. The Project Plan is a formal, approved document used to manage and control project execution. The Project Plan may change over time as more information becomes available about the project, however major changes should require approval by the BOCC.

1. The Project Plan should be used to:

- a. Guide project execution
- b. Document project planning decisions regarding alternative chosen
- c. Facilitate communication among stakeholders
- d. Define key management reviews as to content, extent, and timing
- e. Provide a baseline for progress measurement and project control

2. The Project Plan should include the following:

- a. Project charter
- b. Description of the project management approach or strategy which is a summary of the individual management plans for scope, time, cost, quality, human resources, contract management, and risk management.
- c. Scope statement which includes the project deliverables and the project objectives
- d. A breakdown of the work to be performed (Work Breakdown Structure) to the level where control will be exercised
- e. Cost estimates, schedule start dates, and responsibility assignments to the level of the Work Breakdown Structure at which control will be exercised
- f. Performance measurement baselines for schedule and cost

Accounting Procedures

- g. Major milestones and target dates for each
 - h. Key or required staff
 - i. Key risks, including constraints and assumptions, and planned responses for each
 - j. Subsidiary management plans, including scope management plan, schedule management plan, etc.
 - k. Open issues and pending decisions
- 3. Project Plans should address each of these project components in sufficient detail given the size and complexity of the project.
 - 4. Existing standards and processes should be reevaluated and incorporated in to the Capital Project Administrative Procedures.
- G. To ensure that adequate documentation standards are in place so that public funds are expended prudently and are properly accounted for, Capital Project Administrative Procedures should describe:
- 1. How all project funds and documentation are tracked
 - 2. Where the information is located throughout the project and after the project is completed

Responses to the Audit



Dan Noelle
Sheriff

MULTNOMAH COUNTY

Sheriff's Office

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Multnomah County Auditor's Office

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Portland, OR 97214
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www.sheriff-mcso.org

August 8, 2002

Suzanne Flynn
Multnomah County Auditor

Re: Auditor's report of County Capital Construction Process

Dear Suzanne:

I appreciate the Auditor's Report regarding the County process for managing capital projects and generally support the findings. My Wapato Project staff have done a tremendous job working through the difficult siting process and I appreciate the recognition of that achievement in the report.

In reviewing the final draft of this report, I found one point where I felt clarification was needed: On page 2, of the Audit Results section, the report states, "Wapato Corrections Facility – the County spent \$11 million and underwent more than five years delay before starting construction." This may lead the reader to conclude none of the \$11 million went toward the existing site or building. Nearly all of the money has been devoted the purchase of the site (\$5 million), off-site work directly related to the building (about \$2 million), and most of the balance towards design, engineering, permitting and construction of the building (about \$3 million).

We expended a tremendous amount of time getting this project to the point of actual construction. Through building strong relationships in the community and various public agencies, we are now able to construct a facility which will serve multiple community safety needs in the future. I believe it is important our reporting mechanism to the public concisely portray how funds have been expended on this project.

DAN NOELLE
Sheriff

Exemplary service for a safe, livable community.



Health Department
MULTNOMAH COUNTY OREGON

1120 SW Fifth Avenue, 14th Floor
Portland OR 97204-1985
(503) 988-3674 phone
(503) 988-4117 fax

MEMORANDUM

TO: Suzanne Flynn, Multnomah County Auditor

FROM: Lillian Shirley, Director *Lillian Shirley*

DATE: August 15, 2002

Re: Audit of Capital Construction Process

The Health Department supports the recommendations of your office's audit of the County's Capital Construction Process. This report reinforces our continuing efforts to maximize use of our facilities to increase health care access and support community health activities.

We believe that our facilities planning and development efforts will be especially helped by:

- Clearly defined roles and responsibilities that delineate decision points and clarify decision authority between departments and Facilities Management,
- Establishing County-wide criteria for selecting between project proposals,
- Incorporating the current public involvement process into the site selection process, and
- Requiring the development of a project plan for capitol projects.

The Health Department is committed to working with Community and Business Services Department and other County Departments in support of the audit's directions and recommendations. We appreciate the Auditor's Office thoughtful efforts in conducting this review of the County's Capital Construction Process.

MULTNOMAH COUNTY OREGON

DEPARTMENT OF BUSINESS & COMMUNITY SERVICES
FACILITIES AND PROPERTY MANAGEMENT DIVISION
401 N DIXON ST
PORTLAND, OREGON 97227
503 988-3322

BOARD OF COUNTY COMMISSIONERS
DIANE LINN•CHAIR OF THE BOARD
MARIA ROJO DE STEFFEY•DISTRICT 1 COMMISSIONER
SERENA CRUZ•DISTRICT 2 COMMISSIONER
LISA NAITO•DISTRICT 3 COMMISSIONER
LONNIE ROBERTS•DISTRICT 4 COMMISSIONER

August 13, 2002

Suzanne Flynn, Auditor
Multnomah County
501 SE Hawthorne, Room 601
Portland, OR 97214

Dear Ms Flynn:

Thank you for the opportunity to comment on the Audit of Multnomah County's capital construction process. The lessons learned from this study of four previous projects will be very helpful in insuring better planning and management of future projects. There are several key points we would like to emphasize:

- **The Facilities and Property Management Division will provide the leadership to implement the recommendations of the Audit.** While the Audit clearly identifies problems that are broader than any one organization within the County, Facilities is presuming that it is in the best position to address these issues and has established this improvement process as one of its primary work plan goals for the coming year.
- **At the direction of the Chair and with the support of the Board and the Cabinet, a significant improvement effort was initiated six months ago to begin addressing many of the issues identified in the Audit.** Although these more recent efforts were outside the scope of work for this Audit, we believe it is important to note the improvements that the Chair, the Board, Facilities and other Departments have already initiated. In Facilities for example, we have:
 - ★ reorganized to place greater emphasis on planning;
 - ★ replaced key staff with individuals with the required training/experience;
 - ★ implemented new accounting and project tracking systems;
 - ★ begun work with the Chief Operating Officer's Cabinet to set priorities and develop a comprehensive County Capital Strategy; and
 - ★ established partnerships with our County clients to achieve capital goals.
- **The Audit conclusion that better planning and management could have produced substantial savings seems sound.** The Facilities and Property Management Division will work with your office to identify methods to capture potential savings on future projects.

- **The audit suggestion that project management responsibilities may in some cases be best assigned on the basis of public visibility and program responsibility underestimates what is required to achieve the County's professional construction management objectives.** A department manager or elected official is an expert at their program needs but it is very unlikely that they have significant capital construction project management experience.
- **The County has tried to do project management inexpensively with existing resources and is paying the price for that decision.** During the time of this audit, the County space increased by over twice as much as our staff capacity. Facilities experienced a lower rate of increase in staff than the average for the County as a whole and this has resulted in significantly less staff than many comparable public agencies doing similar work.

An attachment to this letter provides more specific details of some of the many changes and improvements within the Facilities and Property Management Division which are aimed at addressing the deficiencies noted in the audit.

Sincerely,



Doug Butler
Director

Cc: Diane Linn
Kathy Turner
John Ball
Gina Matioda
Cecilia Johnson
Tom Guiney

Capital Audit Deficiencies Currently Being Addressed

The audit identifies 17 deficiencies in the planning and management of major capital County capital projects. The identified deficiencies can be summarized as different aspects of five major problems which are currently being addressed:

1. Project Roles, Responsibilities and Authority were not clearly established.

- The County has formed the Chief Operating Officer's Cabinet, which not only includes Elected Officials and Department heads, but specifically includes the Director of Facilities and Property Management. This provides an explicit opportunity to address County interests in all capital construction projects, not just the needs of a single department. Prior to the formation of the cabinet, there was no similar opportunity to address issues relating to capital projects.
- Regular meetings between the Facilities Director, Department Directors, and Commissioners are addressing needs early and structuring plans/strategies jointly.
- With the adoption of the FY 03 budget, the board enacted several new capital policies. These policies define acquisition, use, maintenance and disposition of facilities and specifically provide for Cabinet review and participation in the definition and prioritization of capital projects.

2. Planning was not emphasized, valued and practiced professionally.

- A restructure of the Facilities organization has occurred in February, 2002 to better emphasize the planning function and its importance in the project development process.
- A separate long-range planning function has been created
- Additional staffing for shorter range planning has been added to provide for detailed construction and space changes project planning.
- A technical support section has been created that addresses standards, integrating project with building information and capital processes.

3. Expertise was missing in the Facilities organization for large capital projects.

- Subsequent to the timeframe studied by the audit, the following staff were hired in facilities with the specific intent of addressing this deficiency:
 - A new Facilities Director with professional capital planning, development, and construction experience
 - A new position of Planning and Development Manager was created within Facilities and an individual with extensive planning, design, development, and construction experience was recruited to fill that position
 - A new Capital Construction Manager with significant construction and project management experience was recruited
- Several members of the Facilities staff are completing their State of Oregon certification in project management and will be taking the test this October.
- The Maintenance Engineering group now reviews capital projects to assess long- term maintenance impacts.
- Facilities is in the process of contracting for in-house training in cost estimating.

4. Communication throughout the entire capital process was conducted poorly

- Detailed project charter documents are now utilized for all capital projects.
- Participation in the Cabinet is helping to identify issues, establish priorities, and develop policy that will greatly facilitate both communication and planning.
- A reorganization of our customer service function to support programs (Depts.) rather than buildings is significantly improving planning, coordination and accountability.

5. A fifth deficiency alluded to but not clearly identified in the findings relates to poor documentation, tracking and reporting.

- Implementation of SAP now permits more comprehensive and detailed cost tracking which greatly facilitates project control.
- A capital program project tracking system has been designed and implemented
- New internal capital project processes and procedures have been designed and implemented. These include financial controls; estimation procedures and forms which include assumptions and project risks to be listed; monthly reporting; central filing; and design standards/specifications.