

Duke University
Facilities Management



***REPORT OF
THE OFFICE OF PROJECT MANAGEMENT***

December 2009

**Building Tomorrow's
Duke Today**

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INTRODUCTION

Facilities Management prepared the report on the Office of Project Management (OPM) at the request of Tallman Trask III, Executive Vice President and Peter Lange, Provost. The report provides a financial status of the office after two years of the implemented change to the fee structure for services. In addition, it includes updated benchmark data, a summary of initiatives, guidelines for Department managed projects and a look ahead to the current 2010 fiscal year.

THE OFFICE OF PROJECT MANAGEMENT

The OPM is led by Director, Paul Manning who reports to the Associate Vice President for Facilities, John Noonan. The FY09 staffing breakdown reduced from 27 positions to 19 in FY10 through one early retirement, one attrition, removal of two vacant positions and the oversight of the Departments Information Technology (IT) group moving to Business Services to more efficiently coordinate FMD's overall IT needs. The office is organized into three primary functions: Planning, Small Projects and Large Projects. The Planning function includes the responsibilities of applying standard project management methodology, processes, and tools to project managers and ensuring that the information entered into the project database is clear and consistent. This function also includes maintaining FMD's as-built information through Computer Aided Design and Geographic Information Systems (CAD/GIS). The Small Projects and Large Projects functions are managed separately due to differences in scope, cost, timing and deliverables. A total of 12 Project Managers comprise these functions. The Department's Contract Manager also reports to the Director of OPM and there is one Administrative Assistant that supports the OPM. In addition, there are two Project Accountants that currently reside within Business Services; however they work exclusively with the OPM for project support. The project management staff includes three registered architects, two professional engineers, one professional engineer in training, one certified planner and two LEED certified individuals.

FY09 OPM INITIATIVES

The processes, methodologies and overall functions within the OPM are vital to the smooth transition from the initiation of a project through its completion. As such, the OPM continually seeks opportunities to better improve its ability to serve the needs of the University. Below are a few highlights of the initiatives that occurred in FY09:

- Planning function provided multiple early programming studies to minimize the use of outside consultants.
- Project delivery methods were selected to be more appropriate to a project's specific parameters and goals to maximize consultant's expertise and minimize our risk.
- Improved interdepartmental communication and interface to expedite design, review, construction processes and increase overall facilities coordination across all three campuses.
- Ensured best costs received from consultants and contractors by reducing overhead and profit percentages and removed mark up on reimbursables to better match market rates and reduce project costs.
- Project contingencies were better controlled by the project manager improving cost control evidenced by the return of substantial contingency amounts on various projects.

- Third party pre-audits and final audits were performed on three major Tier III projects to verify actual costs in accordance with contract agreements.
- Roles of the Department or Schools Facility Coordinators as well as the Guidelines for internally managed projects to help alleviate any questions or concerns in these areas was followed. Refer to Attachment "A", *Facility Coordinator Roles* and Attachment "B", *Guidelines for Internal Projects*.
- Began updating the Duke Design Guidelines to better match current technology, marketplace considerations and revised Duke Standards.
- Began updating the Project Management Manual to standardize current Policies and procedures for the Office of Project Management.
- Revised Duke's standard agreements to AIA 2007 edition with Duke's special conditions incorporated into the body of the agreements.

FY09 OPM Audits

In addition to these initiatives, the Department requested assistance from the Office of Internal Audits (OIA) to help evaluate the OPM's Processes and Close Out Procedures in efforts to continually improve the organization.

Results of the December '08 audit identified two significant issues in relation to OPM Processes:

1. SAP does not track pending commitments; therefore Project Managers use a separate system to track these independent of SAP. Two solutions were identified which included purchasing a separate software program to interface with SAP to track these pending commitments or secondly, modify SAP to incorporate a new module that would feed pending commitments into SAP. Both of these solutions were put on hold due to financial considerations and the Project Managers will continue to manage this independent from SAP at the current time.
2. Approval limits to scope increases below the EVP's 10% overrun should have better documented approval limits for signatures within OPM. This is being incorporated into the updated Project Managers Manual due in January 2010.

Results of the August '09 audit identified no significant issues in relation to the OPM's Close Out Procedures; however three areas of opportunity were raised and are being incorporated into the revised Project Managers Manual due January in 2010.

BUDGET OVERVIEW

The OPM managed 167 projects valued in excess of \$155 million from July 2008- June 2009 with an operating budget of \$3.6 million. It collected approximately \$3.6 million in project management fees and incurred total expenses of \$3.4 million.

The OPM completed FY09 with a favorable variance of approximately \$250,000. This year's revenue surplus of \$250,000 is a result of the following items:

- Greater than expected project volume for FY09
- Two vacant positions unfilled to better match the actual workload to staffing.

After discussion with Financial Services this surplus was placed in reserves to provide rate stabilization in FY10 and FY11 when project volume is expected to decline.

The table below depicts the OPM FY09 Budget/Actual/Variance and the FY10 Budget:

	FY09 Budget	FY09 Actual	FY09 Variance	FY10 Budget
Salaries	\$2,187,910	\$1,818,714	\$369,196	\$1,795,763
Training & Travel	\$36,000	\$14,214	\$21,786	\$2,000
Professional Services	\$100,000	\$53,649	\$46,351	\$20,000
Space Rental	\$35,181	\$0	\$35,181	\$42,620
University G&A	\$731,523	\$775,544	-\$44,021	\$409,324
Internal G&A	\$429,251	\$528,037	-\$98,786	\$344,843
Office Expenses	\$114,960	\$181,845	-\$66,885	-\$71,390
Total Expenses:	\$3,634,825	\$3,372,003	\$262,822	\$2,543,160
Revenue	\$3,634,825	\$3,629,583	\$5,242	\$2,540,836
Gain/(Loss)	\$0	\$257,580	\$257,580	

The FY09-10 budget has been reduced by \$1.0 million or 30% from FY08-FY09 to better reflect the anticipated forecast.

BENCHMARKING OPM

The fee structure implemented in July 07 was structured as noted below:

- 4.0% for projects less than \$2.5 million
- 2.5% for projects greater than \$2.5 million and less than \$50 million
- Calculated for individual projects greater than \$50 million
- Percentage fees are modified at project completion to match actual project costs

Ivy Plus

OPM stays current with fee percentages for project management services at peer Institutions which are not centrally funded and that have similar size building programs. These fees, range from flat fees of 3.75% at John Hopkins to 6.5% at Columbia. Chicago uses a flat fee of 3.0%. Duke's incremental fee structure continues to be at the low end of the range providing best management at an effective cost.

Private Sector

The OPM fees of 2.5% and 4.0% are all inclusive of personnel, reimbursables, CADD and GIS support, and overhead costs. Comparable fees with the same costs included when using outside project management consultants for similar size projects from both local to international consultant firms range between 3.0% for large projects and 6% for small projects as profit is included in these fees. Profit targets are normally a multiplier of two times the projected direct personnel expense or 1.5% net pretax of the cost of the managed work.



Construction at PG9

Another benchmark data point is on an hourly rate basis. In other words, what is the cost to purchase project management services from the private sector? The equivalent hourly rate for Duke's OPM is \$125/hour for 2010 for any projects that are advisory rather than managed. In checking with internationally recognized firms specializing in full-service architecture, interior design, engineering, construction management and program management, the average hourly rate for project management services is \$130-\$150/hour for private sector work. These firms provide services for both private and public clients as well as here at Duke.

Consequently, the structure provided here at Duke is well within the peer institutions and the private sector.

CONSTRUCTION MARKET ECONOMICS:

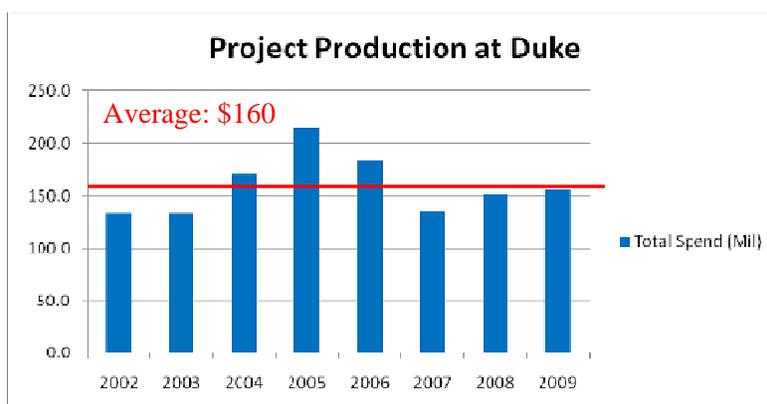
The economics of the construction market during FY09 were significant. Several indices that track construction costs in materials, labor and geographically all indicated an escalating market. Escalation was almost entirely a result of fluctuating commodity prices. However due to the current economic condition and dramatic drop in construction projects nationally, these increases were more than offset due to increased competition and smaller profit margins. The *Engineering News-Record* (ENR) provides news, analysis and data for the construction industry and features information regarding infrastructure, buildings, business management, policy, products, technology, education and economics. Facilities Management uses the information to stay abreast of the changes in the construction industry to help manage the projects at Duke in the best possible manner. The following information compares the construction economics cost indices from FY08 to FY09:

ENR's Market Indices	FY08	FY09
Construction Cost Index	+ 6.3%	-0.3%
Building Cost Index	+6.5%	-2.2%
Materials Cost Index	+11.4%	-9.4%

The Tier 3 projects this past fiscal year averaged an approximate 6% total underun of the actual final costs, versus the approved final budget. Thus, this allowed the unused contingencies to be returned to the client.

PROJECT PRODUCTION

Duke's capital project work continues to be among the busiest of our peer institutions. Last year, Duke's volume of projects and costs were on par with the last several years. During FY09, the project volume included 167 projects with a total spend of \$155 million. The table below shows that this is close to the average for the last 7 years.



In addition, the chart below depicts the 167 total projects broken down by Tier and total cost:

Tier #	# Projects	Total Amount (\$ Millions)
Tier 3	18	\$86
Tier 2	67	\$63
Tier 1	30	\$4
Tier 0	52	\$2
	167	\$155

The vast majority of projects completed on campus last year were on time and under budget, with final project costs averaging 6% under the approved Project Budget. In addition, many of the projects were complex in nature. The portfolio of projects includes a range from renovations to roof replacements, offices, data centers, classrooms and athletic facilities.



Front View



End View

Lemur Center Prospective Renderings

HIGHLIGHTS OF MAJOR PROJECTS:

The table below highlights the major projects for the year:

Project Title	Comments
Few Quad Renovation	A \$25m project completed on time in 7 months
Wallace Wade Concessions and Rest Rooms	First phase of the upgrade of the stadium completed in time for the football season
Halftime House and football practice field extension	Completed in time for the practice and football season
Smith Warehouse Multiple Tenants	Various University departments relocated to the recently renovated Smith Warehouse
East Data Center Phase 2	Tier 3 data center on campus completed June 2009 under budget
Central Generator Plant	Completed 10% under budget and on time to allow the East Data Center Phase 2 project to open on time



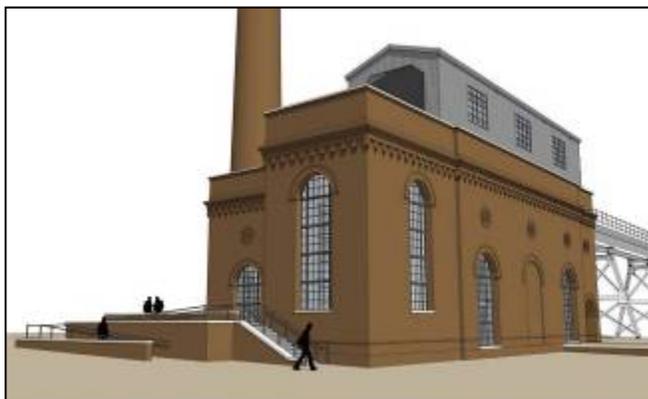
Halftime House and Football Practice Field Extension



Smith Warehouse

In addition, the following is a list of major projects that were started during FY08/09 and will be completed during FY 2010:

- Smith Warehouse multiple tenants and sitework
- PG 9 (1900 car Parking Garage at Research and Erwin)
- Lemur Center
- Few Quad Historic Reroof
- East Campus Steam Plant



*East Campus Steam Plant
Perspective Rendering*



*East Campus Steam Plant
Under Construction*

SUSTAINABILITY & LEED Projects

Duke University is committed to designing, planning and constructing sustainable buildings that protect and enhance our environment. Facilities Management supports the *Duke University Greening Initiative* with its commitment to green building and the Leadership in Energy and Environmental Design (LEED) rating system. Buildings can qualify for four levels of certification based on a point rating system in various categories such as sustainable sites, water efficiency, energy and atmosphere, and materials and resources. The four levels of certification include: Certified, Silver, Gold and Platinum. At a minimum, it is Duke's goal to have all new construction and renovation LEED Certified.

Currently, Duke has a total of 26 buildings either Certified or Registered for LEED certification as described below:

LEED Buildings Certified Projects (15 total)

<u>Project</u>	<u>Certification Level</u>
Bell Tower	Certified
DCIM	Certified
FCIEMAS	Silver
FFSC	Silver
Home Depot Smart Home	Platinum
Kilgo Dorm Phase II	Certified
Kilgo Dorm Phase III	Certified
Law School Addition	Certified
Law School Commons	Certified
MSRB II	Silver
Nursing	Silver
Ocean Science Teaching Ctr	Gold
Perkins Ph 1 - Bostock Library	Certified
Rubenstein Hall	Certified
Smith Warehouse	Certified (LEED EB)

LEED Buildings Registered Projects (11 total)

<u>Project</u>	<u>Target Certification Level</u>
Baldwin Auditorium	Silver
East Campus Art Museum	Silver
East Campus Steam Plant	Silver
Few Quad Renovation	Silver
Fuqua School of Business	Certified
Indoor Practice Facility	Certified
Lemur Center	Silver
LSRC Annex	Platinum
Sands Parking Garage (PG 9)	Certified
Smith Warehouse Reno.	Silver
West Union Dining Pavilion	Silver

LOOKING AHEAD FOR FY10

Budget

As indicated earlier, the OPM budget has been reduced by 30% while the fee structure has been held flat for this year. The basis of the structure is historical and includes large and small projects. Fiscal year 09/10 will have less capital projects due to the economic conditions and most major projects will be delayed such as Baldwin Auditorium, West Campus Dining Pavilion, Page Auditorium, LSRC Annex and Perkins Phase 2.3a. This may result in a reduction of revenue below the budgeted expenditures. The following list depicts the FY10 Projects at this time:

FY10 List of Projects

K-4 (Keohane Quad)
Chilled Water Plant #2 Expansion
Central Campus Enhancement Project
Mill Village and Central Campus Café

FY10 Initiatives

Over the past year, Facilities Management has been working diligently on the action items noted in its Strategic Initiatives. One of the ten strategies identified is **Processes**, which is described as developing a project execution plan that clearly defines the roles and responsibilities during all phases of a project to include updating the design and construction standards for all University projects. Listed below are some highlights of the actions that will be completed in the **Processes** Initiative:

- Issue the updated and streamlined Project Delivery Processes from concept to commissioning to simplify and expedite the process and make it transparent to the client groups.
- Revise and update the Design Guidelines to current best practices
- Update the Project Management Manual and standardize all documents and processes.
- Summary level Project Status Reporting to internal clients and stakeholders for regular and accessible cost reporting.
- Continue to provide internal Programming and Space Planning Group to assist clients with early programming options.
- Continue to improve interdepartmental communication and interface for improved project coordination

ATTACHMENT “A” - FACILITY COORDINATOR ROLES

Facility Coordinators within Schools or Departments are responsible for the following tasks:

1. Internal space allocation and day to day management
2. Faculty and staff interface
3. Long term space planning
4. Move coordination
5. Day to day keying, security, Data/Voice and AV modifications
6. Paint/Carpet/FF&E replacement within University design guidelines
7. Call-in for maintenance items to the Facilities Management Department
8. Equipment and furniture purchases within University guidelines
9. Draft initial Program Statement for Capital Projects
10. Develop School/Department finishes and furniture standards within University design guidelines
11. Define requirements for Voice/Data/AV/Security/Keying for Capital Projects
12. Inventory existing FF&E prior to relocation for a Capital Project
13. Review design documents for a Capital Project and provide comments to the Facilities Management Department's Office of Project Management
14. Coordinate any needed equipment or utility shut downs with occupants
15. Contact the Facilities Management Department once a Capital Project has been identified for assignment of a Project Manager

Facility Coordinators within Schools or Departments are not responsible for the following tasks:

1. Bidding or contracting with architects, engineers and contractors
2. Directing architects, engineers and contractors during a Capital Project
3. Modifying Scope during a Capital Project
4. Determining contingency usage during a Capital Project
5. Financial reporting to the Capital Budget Office

ATTACHMENT “B” - GUIDELINES FOR INTERNAL PROJECTS

The work conducted within the parameters of internally managed projects within a School or Department must follow the guidelines set forth below. The work must:

1. Not include any modification or replacement of components for mechanical, electrical, fire alarm or plumbing/fire protection systems.
2. Not require permits of any kind including Building, HVAC, Plumbing or Electrical Permits.
3. Not include any modification or addition of permanent partitions.
4. Not include work on the building exterior or major interior public spaces.
5. Not include any modification to the means of egress.
6. Be a Non-Capital Project (less than \$100,000).

Internally managed projects must also be communicated to the Director of Project Management via the Capital Project Request Form (CPRF) before initiation. Furthermore, the following Duke Departments must also be notified when dealing with the specified functions as noted below:

Duke Department

Office of Information Technology
 Facilities Management Key & Lock Shop
 FMD Mechanical and Electrical Shops
 Duke Card
 Public Safety
 Facilities Management Grounds & Sanitation
 OESO
 ADA

Specified Function

Data & Voice
 Keys & Locks
 MEP Systems
 Card Access
 Security
 Grounds/Landscaping
 Safety/Hazardous Materials
 Disability Management

Projects that meet these guidelines may include items such as repainting, carpeting, finishes and furniture project or minor interior renovations with the agreement of the Director of Project Management via the Capital Project Request Form (CPRF).