guidelines for planning and project delivery
WELCOME TO THE GUIDELINES FOR PLANNING AND PROJECT DELIVERY for Washington University School of Medicine (WUSM). This guide was developed to communicate the planning, design, construction and closeout phases for new and renovated facilities on and off campus. It defines the roles and responsibilities of the participants involved in School of Medicine projects and describes the steps involved in project delivery from early project planning through the occupancy of the completed space.

The Operations & Facilities Management Department (OFMD) Physical Planning and Capital Projects team manages the WUSM process of planning, design and construction of all campus structures, landscapes and infrastructure. Projects are initiated through Physical Planning, implemented by Capital Projects or OFMD and then transitioned for ongoing support to Facilities Operations — all within the Operations & Facilities Management Department. These guidelines provide an overview of steps that are generally consistent for all projects. It is a process that is expanded for large and complex buildings and simplified for small space modifications. This process includes requirements of Washington University School of Medicine and the city of St. Louis or the authority having jurisdiction. Processes presented are guidelines and variances in the sequence of activities may be required because of unique project circumstances.

It is OFMD’s goal to provide clear communication to improve project quality, customer understanding and satisfaction. The guidelines will be reviewed periodically for quality improvements and the evolving needs of the School of Medicine.

the work we do

The Operations & Facilities Management Department supports Washington University School of Medicine’s need to ensure a quality environment for students, faculty, staff and visitors in support of the university’s mission of clinical care, research and education. Our staff strives to deliver high quality service to the university community while remaining cost effective and competitive.
Project Intake
For initial project requests, the requestor should fill out the Planning and Project Request Form. (http://facilities.med.wustl.edu/planning-construction/)

Facilities Operations
Facilities Operations provides campus services for HVAC, building automation, mechanical, central plant operations, energy services, sustainability, maintenance, pest control, landscape master planning, grounds, solid waste and recycling, moves and event labor services and custodial services. (http://facilities.med.wustl.edu/operations/) — Facilities Integrated Service Center (FISC) 314-362-3100 or wusmfacilities@wusm.wustl.edu

Capital Projects and Physical Planning
Capital Projects oversees campus design, construction and renovation projects, technical support services, building design standards and repair and renewal projects. (http://facilities.med.wustl.edu/planning-construction/project-delivery/) Physical Planning proactively supports and plans for the School of Medicine's physical needs to ensure proper stewardship, care and expansion planning in its mission of patient care, research and education. (http://facilities.med.wustl.edu/planning-construction/physical-planning/)

Facilities Administration & Communication
Facilities Administration manages program support units which include employee programs, lactation room program, operational and administrative services, marketing and communication. (http://facilities.med.wustl.edu/about/)

Business Operations
Business Operations supports the financial, purchasing and contracting needs for the Operations & Facilities Management Department. It also provides contract services to auxiliary areas on campus. (http://facilities.med.wustl.edu/operations/business-operations/)

Protective Services, Emergency Planning and Transportation & Parking
Protective Services, Emergency Planning and Transportation & Parking provide security to the Washington University School of Medicine and certain off-campus properties owned by Washington University, plans and prepares for campus emergencies and manages transportation and parking. (http://facilities.med.wustl.edu/security/) — Protective Services 314-362-4357
Planning and Project Delivery Process

The intent of the Planning and Project Delivery Process is to provide a comprehensive road map that will enable successful cost, schedule and quality performance on all university projects. The process provides a balanced, systematic approach to planning and delivery of facilities improvement projects and incorporates project management best practices. The Primary Communication Diagram describes the Project Team, which includes all Project Stakeholders.

Primary Communication Diagram

The diagram is an overview of the primary communication responsibilities within the Project Team. It is not an organizational chart. Each group provides input, guidance and professional expertise throughout the design, construction and closeout phases of a project. The Project Team includes representatives from four distinct groups formed according to function and expertise: Consultant Group, Technical Group, the Operations & Facilities Management Department and the University Community Group. The Project Team is responsible for communicating relevant issues about scope, budget and schedule to project groups and team members. The planner/project manager leads the Project Team.

Project Team Diagram

Along with the Project Team, five additional teams are formed during the Chartering process, serving different functions throughout the project.
Project Team During Chartering Process

Executive Team
Final contractual or project cost approvals

Stakeholders
Representatives who have direct influence on the project

Friends and Neighbors
Representatives who are affected by the project

Programmatic and Technical Committees
Provide expertise as needed

Design and Planning Team
Architect and planning provide expertise as needed

Campus Community Group
- Staff
- Students
- Project Representatives
- Faculty
- Dean/Department Chair
- Washington University Medical Campus (WUMC) Partners

Consultant Group
- Architect
- Engineer
- Interior Design
- Landscape Architect
- Contractors
- Construction Managers
- Commissioning Agent

Technical Group
- Parking & Transportation
- Protective Services
- WashU IT
- Planner/Project Manager
- Project Representatives
- Architect/Engineer
- Construction Manager
- Project Accounting & Contracts Staff
- Environmental Health & Safety

Operations & Facilities Management
- Planning and Capital Projects
- Business Operations
- Facilities Operations

Project Team
A PROJECT IS DEFINED AS: A temporary endeavor undertaken to create a unique product, service or outcome that has a beginning, requires substantial coordination and effort to accomplish, and has an end. We have identified seven major project steps. Each step in the process is described in the following pages.

Building Customer Relationships
The foundation of a successful project is the development of a strong, service-focused relationship. It is important to remember that the university is also a customer and that planners/project managers must balance the needs of the university with the needs of the project user. The benefits of a well-developed Planning and Project Delivery Process are satisfied customers who receive high-quality projects that routinely meet expectations, cost and schedule goals and a consistent customer focus that is adaptable to ever-changing demands and challenges. All projects are assigned a planner or project manager to lead the Project Team and customers, stakeholders, design consultants and construction contractors through the design and construction process.
ALL OPERATIONS & FACILITIES MANAGEMENT PROJECTS can begin in one of the following ways:

- Planning and Project Request Form
- Capital Renewal Request
- Emergencies
- Online Work Request
- Customer requests via phone or email (Facilities Integrated Service Center):
  314-362-3100 or wusmfacilities@wusm.wustl.edu
- Capital Planning Process

Planning and Project Request Form
The Planning and Project Request Form is an online intake form available to customers. This form should be filled out and authorized by the business manager of the department prior to the assignment of a planner or planner/project manager. An automated response acknowledging receipt is delivered and a planner/PM will contact the requestor to validate the request and discuss the next steps. These intake forms are reviewed weekly for assignment.

Capital Renewal Request
There is a ten-year rolling Capital Renewal Plan. This plan is managed by the director of protective services and senior director of facilities operations, which is reviewed annually. All requests received within the calendar year will be reviewed and prioritized, based on life safety, business impact/continuity and energy management. The director of protective services and the senior director of facilities operations will contact the requestor to validate the request and discuss the next steps. Please note, Capital Renewal funds are limited and projects not approved will be carried over for future consideration and reviewed annually for prioritization. Projects can be initiated through the Planning and Project Request Form.

Emergencies
Requests identified as emergencies will be escalated and approved by the senior director of facilities operations or assistant vice chancellor/assistant dean of operations & facilities management and managed according to importance of impact. Wherever possible, the planner/PM will follow the applicable project delivery process, including university policies. The university has an emergency response and restoration vendor. Planners/project managers are required to utilize and follow all policies and practices applicable to this contract and emergency management protocol outlined.

Online Work Request Form or Customer Call In
The online work request form is used to request several different services provided by OFMD including minor renovations and serviceable and billable work. The online form is completed by the requestor and it workflows via e-mail for appropriate department approvals. Once all department approvals have been received, OFMD is notified that the request is ready for processing. After an initial review and analysis by OFMD, the request is forwarded to the applicable service area for assignment and project completion. Work
requests can also be called into the Facilities Integrated Service Center where the customer may be assisted with filling out the form by a customer service representative. An automated response acknowledging receipt is delivered immediately via e-mail and once a technician/employee is assigned to complete the work, a second message is delivered via e-mail. For planning/project related work requests, the planner/PM is always responsible for following up to ensure work completion.

Capital Planning Process
There is a monthly Pre-Agenda Meeting that the planner/PM utilizes to submit projects requests for review and vetting. These requests should be submitted to the director of capital projects or the senior director of facilities operations for review and authorization to proceed and to determine funding options, scope validation and schedule. At the monthly Executive Capital Meeting, all requests over $15,000 are reviewed and sent on for additional approvals, if needed, based on the funding amount. This committee is made up of the assistant vice chancellor/assistant dean of finance, the associate vice chancellor/associate dean of administration and finance, the assistant vice chancellor/assistant dean of operations & facilities management, the senior director of facilities operations, the director of capital projects, the team lead senior project manager and the associate director of capital accounting. This group will review any request over $15,000. Additional approvals may be required based on the funding amount.

Project Intake Steps
- Project Request submitted and approved
- Planner/PM is assigned
- Planner/PM validates scope of project with customer
- Planner/PM completes estimate and obtains approval from customer
- OFMD staff works with the customer to identify or validate funding sources
- OFMD staff works with the customer to transfer funding to project amount

Goal
- Define the project and validate pre-planning
- Develop the estimate

Deliverables
- Completed Work Request

Key Definitions: Types of Capital Projects
Capital Plan Projects: Projects approved in the School of Medicine Capital Plan, or by executive management.

Cost Estimates: An estimate of the cost of any construction work or renovation related to new or existing space. The completion of a cost estimate does not guarantee or imply project approval.

Real Estate Services: Consultation services or initiating actions needed to purchase real estate, lease space to others or for assistance with site selection, real estate valuation, property management or other real estate activities. This process is supported by the Quadrangle Real Estate team and the university Office of General Counsel.

Minor Repair And Renovations: Includes work such as painting, carpeting, adding, removing or moving walls and adding or removing utilities in space that is already assigned to the unit. A cost estimate will be prepared as part of processing this type of request.

Signage Request: Interior, exterior, commemorative plaques, building directories and studies.

Space Request: For new, additional or replacement space or to relinquish current assigned space based on net assignable square feet (NASF). This could include on- and off-campus space, space owned by WUSM, and/or space owned by non-WUSM entities. Some of the options to satisfy your request for space could involve additional costs or fees.

Study Request: For any type of study, such as a feasibility study for a building renovation or new facility, an engineering/technical study; a physical planning study, such as a master plan, land use or study of a specific geographic area or physical campus issue.

For further information, visit: http://facilities.med.wustl.edu/planning-construction/
PROJECT PLANNING IS THE PROCESS of aligning expectations and identifying the scope of work, estimate and timeline for the project. It includes establishing the project charter and further definition.

Chartering is a structured process used to define the Project Team—membership, goals, purpose, critical success factors, roles and responsibilities of team members, operational guidelines, dispute resolution processes and other elements that give the team the clarity of purpose essential for high-quality performance.

The chartering team may include members of the Project Team, the Executive Team and other support resources.

Project Planning Steps
• Align project expectations: identify scope of work, estimate, timeline
• Establish and sign a formal program of requirements or service scope
• Develop charter and work plan

Goal
• To understand client(s) needs and expectations and establish the project delivery system

Deliverables
Project charter endorsed by participants includes:
• Project vision
• Team structure
• Communication plan
• Roles and responsibilities
• Budget
• Schedule

Additional deliverables for large-scale projects may include:
• Procurement plan design phase
• Procurement plan construction phase
• Communication plan
• Change/risk management plan
selection of design team

SOME PROJECTS MAY NOT REQUIRE a design or engineering consultant, but many do. The selection of design consultants is a qualifications-based process with the goal to select the most qualified team of consultants for the project. The consultant team includes professionals who are selected to implement the design and construction of the project with input from the Project Team. The consultant team is most often led by an architectural firm, or in the case of engineering-dominant projects, an engineering firm. In this manual, the lead firm is referred to as the A/E. The A/E may contract with other firms (sub-consultants) for other required design services such as specialized engineers, landscape architects, interior design firms, etc. It is required that any project that affects life safety, code compliance, or change of use to utilize a licensed professional to produce stamped drawings for permitting and procuring construction services. Depending on the total project budget and the proposed professional services fees, two methods for procuring consultants are available. These include a Request for Proposal (RFP) Process or selecting a firm in good standing using the Washington University A/E Design Fee Schedule.

The following are ways in which the Project Team can select a design team:
• Direct Selection Architect/Engineer – Informal Process
• Selection Process – Other Consultants
• Selection Process – Emergency Projects
• Request for Proposal

Goal
• To select the most qualified team of professional services consultants for the project

Deliverables
Project charter endorsed by participants includes:
• Qualification submittals
• Executed contract(s) with selected consultants
THE MANAGE DESIGN PHASE includes four distinct phases, each with deliverables:
- Program development or program verification (POR)
- Schematic design (SD)
- Design development (DD)
- Construction documents (CD)

The program is a written description of the requirements for the project, developed by the university or by the architect/engineer. It includes objectives of the project and detailed information of all spaces, including size, relationships and technical aspects.

The schematic design phase determines the general scope and design features, including plans, massing, materials, character of the project, siting and relationship to its surroundings.

In design development, the project is defined to a greater level of detail to define a clear, coordinated description of all the aspects of the project, including systems and materials.

Creating construction documents is the last design phase and finalizes drawings and specifications for all components of the project. The primary objective of the construction document phase is to produce bid documents, including drawings and written specifications for contractors to bid on construction, and to obtain all necessary permits.

The Project Team participates and reviews deliverables during each of the five design phases. Each phase includes an approval by the Project Team. Cost estimates are provided and schedules are updated. Approvals are required to progress to the next design phase, and subsequent phases are based on the decisions and approvals of the previous phase.
Design Steps
- Program development and approval or program verification approval
- Schematic design document development and approval
- Design document development and approval
- Contract document development and approval
- Obtain building permit and other required permits

Goal
- To develop a project design that meets the needs of the project, including the critical success factors documented in the project charter (program, quality, budget and schedule goals)

Deliverables
- Complete contract documents (bid set)
- Final estimate and schedule

Key Definitions: Managing The Project

Manage Deliverables: Effectively managing the design deliverables of a project is a critical role of the planner/project manager. This entails continuously monitoring the scope of work being designed and comparing it to the scope of work that is planned and budgeted. The planner/PM proactively ensures that the project meets expectations within the defined constraints, including delivering a project on time and on budget and accomplishing the program and quality.

Manage Project Changes: Change management should occur during all design phases of the project. This involves carefully managing the project to keep it moving forward smoothly. Planners/project managers gather information so measurements and adjustments can be made to project progress and to ensure that the project’s goals can be accomplished.

Perform Project Controls: Project controls include the budget, schedule, the program or requirements and previously approved documents. These controls enable planners/project managers to communicate progress to the Project Team, management, customers and stakeholders and give planners/project managers the justification for making any adjustments to the work plan. Changes that develop in the project should be recognized and acted upon in a proactive manner.
selection of contractor

THE SELECTION OF CONTRACTOR IS OFTEN CALLED THE BID AND AWARD PHASE because the project is advertised for bidding and the lowest responsive (best value) and responsible bidders are selected and contracted. Responsive means they followed the bidding requirements set in the contract specifications. Responsible means they can pass a responsibility analysis that takes into consideration past performance, financial stability and capability to perform work.

There are typically six methods for construction and repair of permanent improvements to higher education facilities.

- Design, Bid, Build
- Lump Sum with Fixed Fee
- Construction Manager with a Guaranteed Maximum Price
- In-House Renovations
- Continuing Services

The project is usually coordinated by the lead contractor, which is most often the general trades contractor. However, contractors can be separately contracted by the university. For larger and/or more complex projects, the team of contractors may be managed by a construction manager hired by the university in the Selection of Contractor phase.

Selection of Contractor Steps

- Send an invitation to bid on the project (total project cost greater than $25,000)
- Conduct pre-bid meeting with pre-qualified bidding contractors
- Receive and analyze bids for lowest responsive bidders
- Perform responsibility analysis, if necessary
- Select bidders and award contracts

Goal

- To select the construction contractors

Deliverables

- Completed construction contracts and coordinated set of contract documents
- Resolution for construction bidding approval will follow the resolution submittal review process.
CONSTRUCTION begins with a pre-construction meeting—a time for the Project Team and construction contractors to review the scope and charter and define roles and responsibilities.

The prime contractors are responsible for the purchase of all components included in the bid documents, delivery coordination, installation of materials and facilitating inspections to achieve building occupancy.

Project and Executive Team meetings continue during construction to review project progress and make decisions. The architect/engineer will review submittals from contractors and will be on site to respond to questions and review work.

Throughout the course of construction, the architect/engineer, planner/PM, project representative, construction manager and prime contractors will meet regularly to report on construction activities and track submittal status, budget and schedule. This is a time to resolve conflicts and other project issues. The lead contractor or architect/engineer leads and documents these meetings.

Whether generated by unknown conditions, coordination issues or errors and omissions in documents, changes will occur during construction. Managing and executing change documents are fundamental activities during construction. A construction contingency is included in the budget to pay for changes during construction. Customers also may request changes in the work and carry a contingency to pay for these requests. Several of the most common project changes are detailed on the next page.

Sometimes there are disputes among the university and contractors that need to be resolved by the Project Team. The construction contracts and the specifications for the project describe the process for the resolution of disputes, changes in schedule and scope of work, contractor payments and other matters of process.
Construction Steps
• Pre-construction meeting
• Regular project meetings
• Review and approval of submittals
• Review and approval of completed work
• Manage changes and disputes
• Make adjustments as needed to the schedule and budget
• Approve contractor payments

Deliverables
• Completed project ready for use

Goals
• To complete project construction per contract documents

Key Definitions:
Managing Change — Change Orders

Field Condition: This refers to a condition that could not have been anticipated within the “standard of care” for the profession. This is more often in a renovation where existing conditions could not be predicted.

Error/Omission: A change caused by an error on the contract documents or missing scope or omission that was intended to be included in the contract documents or should have been included within the “standard of care” for the profession.

Owner Request Other: An increase in the scope of the program beyond what was anticipated for inclusion in the contract documents that is requested by and only benefits the user of the facility. Examples include additional cabinets, moving a wall and requesting better finish materials.

Value Engineering: Reducing scope to reduce the cost of the project, finding the “second right answer” to bring the project back in budget.

Owner Request User: An increase in the scope of the program beyond what was anticipated for inclusion in the contract documents that is requested by and only benefits the facility. Examples include additional cabinets, moving a wall and requesting better finish materials.

Key Definitions: Managing Change — Contingencies

Construction Contingency: Money held as “soft cost” funds to assist in any monetary issues that may arise after the project is bid. The amount held varies, primarily because of complexity and phasing of the project. The planner/PM will only use construction contingency for field conditions or a critical error or omission.
Once a certificate of occupancy or temporary certificate of occupancy has been received, the building or space can be occupied. Once the building or space is occupied, the ownership of the project is turned over to the customer and Facilities Operations. Before project completion, a transition meeting will occur with the customer, planner/PM and OFMD staff. Services that Facilities Operations will provide and contact information will be discussed and shared with the customer during this meeting. Customers should contact the FISC (314-362-3100) with any service requests once transition has occurred.

Assessments, evaluations and lessons learned are facilitated by the planner/PM during this phase. This provides the customer with an opportunity to provide feedback and suggest improvements in the Planning and Project Delivery process.

After customers occupy the facility, it continues to be the Project Team’s responsibility to ensure any outstanding work is completed. Warranty items are reviewed 11 months after occupancy with the architect/engineer, Facilities Operations and the customer. Transition, Activation and Closeout lasts through the duration of the project warranties (typically one year). Project closure also requires that all contracted work be completed and final invoices processed for payment. Once the project account is reconciled with the university’s general ledger, the project account can be closed in the general ledger and construction management system.

Deliverables
- Certificate of Occupancy (e.g., Temporary Certificate, Final Occupancy, and 100% Final Reports)
- Final drawings that reflect any changes (record drawings), operating manuals and maintenance manuals
- Planned building turnover to customer and Facilities Operations

Goal
- To facilitate the occupancy and turnover of the finished project to the customer and Facilities Operations (or an auxiliary maintenance/operations area).

Closeout and Transition Steps
- Final Commissioning
- Complete any outstanding work
- Project transition to OFMD and customers
- Training programs for building operating systems
- Customers move in
- Final payments are made
- Project assessments and lessons learned
- Final financial reconciliation
ONCE THE BUILDING OR SPACE HAS BEEN TRANSITIONED to the customer and OFMD, routine Service Requests for buildings on main campus should be requested through ServiceNow (link found at https://facilities.med.wustl.edu/). A full list of services can be found at facilities.med.wustl.edu/a-z-list-of-services/.

If an additional scope of work for design, construction cost estimates or signage is identified once the project is complete, a new Project Planning and Project Intake Form should be submitted.

Requesting a Service
FISC handles all routine customer requests on main campus, including:
- Custodial
- General Facilities Support
- Grounds
- Maintenance
- Badging
- Service Questions
- Small Project Requests
- Utilities

Your Facilities Operations Staff
Facilities Operations offers an integrated service model that provides customers with a single point of contact and around-the-clock service.

Service Requests
To submit a service request, dial 314-362-3100 (FISC) or email wusm@wusm.wustl.edu.
CREATING A CAMPUS THAT IS TIMELESS, maintainable and flexible, incorporating responsible use of fiscal, environmental and human resources and having minimal environmental impact is critical to WUSM. The commitment to campus sustainability and stewardship is a responsibility shared by each and every member of our campus community.

WUSM Sustainability Programs

THE CULTURE OF SUSTAINABILITY
The empowering of OFMD staff through education, assignments and training opportunities is the foundation for OFMD to realize sustainability through campus design, management, stewardship and operation of the physical resources. OFMD recognizes progress on sustainability and showcases it through staff achievement awards.

ENERGY & EMISSIONS
Design and operate the School of Medicine’s energy systems and buildings to reduce university greenhouse gas emissions.

SUSTAINABLE BUILDINGS & LANDSCAPES
Become a model among peers in the sustainable design and management of School of Medicine buildings and landscapes.

HEALTHY FOOD
Provide the campus community with health food that is locally and sustainability sourced.

WASTE MANAGEMENT
Reduce chemical use and increase the diversion of solid waste from landfills.

TRANSPORTATION
Maintain or exceed the current School of Medicine profile of 47% of students, faculty and staff using modes of transportation other than single occupancy vehicles when commuting to or traveling through the medical campus.

ENGAGEMENT
Funding a position to lead and coordinate sustainability activities. Regularly communicate about sustainability activity and its value to the School of Medicine, including at departmental meetings, regular operational interactions, service surveys, monthly newsletters, and targeted signage and sustainability communication. Encourage OFMD staff to contribute to and engage in the campus community, the neighborhoods that surround the campus and their own communities.

Sustainability in the Workplace
The Operations & Facilities Management department believes that departmental sustainability expands beyond the physical environment and includes three critical realms: staff resource development, programs/projects and community engagement.

We believe our excellence will develop from our internal strength, values and the dedication of our group’s staff that is the foundation of our team-based service model.

SUSTAINABILITY IN BUILDINGS & LANDSCAPES
The School of Medicine aspires to be a model among its peers in the sustainable design and management of its buildings and landscapes. The School of Medicine commits to bringing greater focus to the sustainable design and management of its lab and office space.

Key objectives are to promote air quality, reduce energy demand and water use, reduce use of chemicals and increase safe practices of recycling and disposing of lab wastes.

A transformation of the campus landscapes and outdoor physical environment is underway. Through study and practice, it is improving the selection of plants based on site conditions. The School of Medicine is planting new trees every year to increase the campus tree canopy, continually identifying candidate locations for enhancement, and using native and adaptive plant material to improve the School of Medicine landscape.
**historic buildings**

**MCMILLAN** was first constructed in 1929.
Building GSF: 179,888
Architect: Jamison & Spearl

Far Left: McMillan Hospital, circa 1946
Left: McMillan Hospital, 2015

**THE NORTH BUILDING** was first constructed in 1913.
Building GSF: 66,649
Architect: Theodore C. Link & Son

Right: North Building, circa 1930
Far Right: North Building, 2015

**MATERNITY HOSPITAL** was first constructed in 1925.
Building GSF: 75,551
Architect: La Beaume & Klein

Far Left: Maternity Hospital, circa 1950
Left: Maternity Hospital, 2015

**THE SOUTH BUILDING** was first constructed in 1913.
Building GSF: 56,174
Architect: Theodore C. Link & Son

Right: South Building, circa 1914
Far Right: South Building, 2015