

ENVIRONMENTAL HEALTH & SAFETY

UNIVERSITY *of* WASHINGTON

CAPITAL SAFETY PROJECT PROGRAM MANUAL

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TABLE OF CONTENTS

TABLE OF CONTENTS	2
INTRODUCTION	4
PURPOSE.....	4
SCOPE	4
ROLES AND RESPONSIBILITIES	6
PROGRAM PROCESS, REQUIREMENTS AND PROCEDURES.....	9
STRATEGIC PLANNING.....	9
CAPITAL SAFETY PROJECT LIST MANAGEMENT	11
PROJECT FUND REQUEST	11
CAPITAL FUND MANAGEMENT	14
PROJECT INITIATION	15
PROJECT REQUIREMENTS.....	16
DELIVERY METHODS	17
PROJECT DESIGN	17
PROJECT OVERSIGHT	19
CONSTRUCTION OVERSIGHT	20
FINAL ACCEPTANCE / AUTHORITY HAVING JURISDICTION (AHJ) INSPECTIONS.....	20
COMMISSIONING / TRANSITION TO OCCUPANCY (T2O).....	20
PROJECT CLOSEOUT.....	21
PROJECT TRACKING DATABASE.....	21
PROJECT BILLING.....	21
LESSON LEARNED	21
TRAINING	22
METRICS.....	22
REFERENCES.....	23
APPENDIX A: ACRONYMS / DEFINITIONS.....	24
ACRONYMS	24
DEFINITIONS.....	24

APPENDIX B: CAPITAL SAFETY PROJECT REQUEST 26

APPENDIX C: GENERAL RISK ASSESSMENT PROCESS AND MATRIX..... 28

APPENDIX D: FIRE AND LIFE SAFETY RISK RANKING 32

APPENDIX E: CAPITAL SAFETY PROJECT TRACKING..... 33

APPENDIX F: OWNER PROJECT REQUIREMENTS (OPR) TEMPLATE..... 34

APPENDIX G: CAPITAL SAFETY PROJECT TRACKING DATABASE..... 38

APPENDIX H: CAPITAL PROJECTS LOG DATABASE 39

INTRODUCTION

The University of Washington (UW) Environmental Health and Safety Department (EH&S) is allocated a specific amount of funds from the state of Washington to invest in capitalized safety improvements across the UW community. The Occupational Safety & Health section (OSH), Building & Fire Safety unit (BFS) of EH&S is responsible for the management of the allocated funds. This program manual provides an overview of the management of the funds and the functioning of the [EH&S Capital Safety Project Program](#).

PURPOSE

The Capital Safety Project Program manages the state of Washington minor capital funds allocated to support projects to mitigate occupational and environmental risks and/or ensure compliance with local, state, and federal applicable laws. The program aligns with the UW commitment to create, maintain, and enhance a safe and healthful environment for all individuals associated with the institution, including students, faculty, staff, patients, and visitors. This commitment is stated in [UW Presidential Executive Order 55](#), which may be viewed at www.washington.edu/admin/rules/policies/PO/EO55.html.

The two major components of the Capital Safety Project Program are to:

- Identify, select, prioritize, and communicate to UW Facilities specific projects that address fire and life safety issues related to deficiencies in existing facilities and equipment; fire and life safety issues include risks or code compliance gaps related to the safety, health, and welfare of the UW community and the surrounding environment.
- Manage funds allocated by UW Facilities to EH&S to manage safety projects that pose a safety or regulatory compliance risk and meet EH&S Capital Safety Project Program criteria; this does not include funds designated under capital funding for minor repairs and/or deficiencies.

SCOPE

The Capital Safety Project Program applies to UW owned properties, including facilities, land, systems, and equipment. It does not include facilities that UW leases from other owners and out-of-state facilities. The program scope covers the following:

- Identify and process safety projects
- Manage project funds
- Manage projects within budgeted funds
- Identify and facilitate projects that address safety issues that exceed the EH&S capital safety budget

EH&S capital safety funds may be allocated to UW departments, units, and organizations to address fire and life safety issues within the capital safety budget allocated to EH&S.

Examples of capital safety projects in this program include:

- Upgrades of fire alarm systems
- Installation of eyewash/shower systems for potential chemical exposures
- Fire sprinkler system upgrades
- Address potential fall hazards on roofs and fixed ladders
- Improve ventilation in chemical use areas and fume hoods
- Improve safe access to roof hatches to address potential fall hazard/muscle strain
- Address potential fall hazards at stairs and walkways with handrails and guardrails

Excluded from this scope are capital safety improvement projects identified for self-sustaining organizations and the UW Bothell and Tacoma campuses. Funding for similar projects in these organizations and campuses is provided separately.

ROLES AND RESPONSIBILITIES

Roles	Responsibilities
EH&S Management	<ul style="list-style-type: none"> • Designates personnel within the organization who have the necessary knowledge, skills, and training to anticipate, identify and analyze hazards, assess risks, and determine appropriate controls to manage risks and provide compliant designs for mitigation • Reviews project requests to determine if projects should be approved, placed on hold or denied • Approves budget changes • Informs UW Real Estate of projects that may impact buildings that they manage.
Manager of Building and Fire Safety (BFS)	<ul style="list-style-type: none"> • Provide management oversight of Capital Safety Projects, working closely with the Capital Safety Project Program Owner • Receives and initially reviews request forms from requesters for capital safety projects • Attends meetings with Capital Safety Project team members, EH&S Management, Facilities Capital Projects, and others as required • Manages capital project billing and funding • Communicates with project requesters and others as required
EH&S Capital Safety Project Program Owner	<ul style="list-style-type: none"> • Responsible for the Capital Safety Project Program implementation and sustainment • Track and manage expenditures for all projects • Receives and initially reviews request forms from requesters for capital safety projects • Present project requests to EH&S management • Provide re-appropriation estimates to EH&S Planning & Administration (P&A) • Collaborates with EH&S P&A to determine where capital safety funds should be transferred and/or allocated

<p>Project Manager</p>	<p>Manages an individual capital safety project; may be from EH&S, the subject project department/unit/organization, UW Facilities Project Delivery Group (PDG) or Facilities Maintenance and Construction (FMC)</p> <ul style="list-style-type: none"> • Manages the project from project origination to project closure • Accountable for project meeting Owner Project Requirements (OPR) (see Appendix A: Acronyms / Definitions), timeline and budget • Qualified to identify hazards, has the knowledge to mitigate those hazards, and assure compliance with all applicable laws (e.g., codes, regulations, standards) • Coordinate with subject matter experts (SME) as needed • Track schedules and timeline • Coordinate with SME on design reviews and construction • Ensure contractors adhere to UW design and construction standards and specifications • Responsible for addressing any changes to OPR from the project department/owner/organization.
<p>Project Lead</p>	<p>Project Lead and Project Manager may be the same person depending on project scope.</p> <ul style="list-style-type: none"> • Represents EH&S as the client for the project • Tracks project status, including budget and schedule, from approval through completed status; updates the project tracking database, and provides updates to the Capital Safety Team • Approve invoices and other billing requests • Coordinates with subject matter experts (SME) as needed • Tracks project through phases, reviews changes to scope and funds, reviews submittals, troubleshoots issues as needed • Reviews requests for changes to the budget and provides technical advice to EH&S management
<p>Subject Matter Experts (SME)</p>	<p>SME may also be the Project Manager and/or Project Lead of a project. SME may be EH&S staff member or designated by EH&S.</p> <ul style="list-style-type: none"> • Identify and evaluate safety issues • Provide technical requirements to establish the Owner Project Requirements (OPR) • Verify that project requirements are met

Project Site Contact	<p>May be project requester, manager or designated person from the site that is the owner or appointed designee for a project</p> <ul style="list-style-type: none"> • Act as site liaison for the duration of a project • Work with project team to complete the Owner Project Requirements (OPR) document
EH&S Planning and Administration (P&A)	<ul style="list-style-type: none"> • Provides financial oversight for capital safety project funds • Reviews and evaluates monthly Financial Accounting System (FAS) reports • Coordinates management of capital safety funds with UW Facilities (UWF), including: <ul style="list-style-type: none"> ○ Payments ○ Transfers ○ Re-appropriations • Approves budget changes as needed
UW Facilities (UWF)	<ul style="list-style-type: none"> • UWF provides EH&S: <ul style="list-style-type: none"> ○ Monthly FAS reports ○ Re-allocation of funds at EH&S request ○ Re- appropriation of capital safety funds • UWF Sourcing and Procurement maintains an approved supplier and vendor list. • UWF Sourcing and Procurement facilitates a competitive bid process for projects over \$10,000 and not already on the approved supplier list. • Oversees building renewal, minor works, programmatic renewal and resource conservation, and the annual five-year capital budget • Supports EH&S in Capital Safety Project Program requirements regarding the finance and administration of capital safety projects • Assists EH&S in identifying and allocating capital funds to support design and execution of safety projects outside of the scope of the capital safety project funds allocated to EH&S
UW Real Estate	<ul style="list-style-type: none"> • UW Real Estate will assist in delivering projects at locations under their control such as Friday Harbor Labs and Olympic Natural Resources Center.

[Back to top](#)

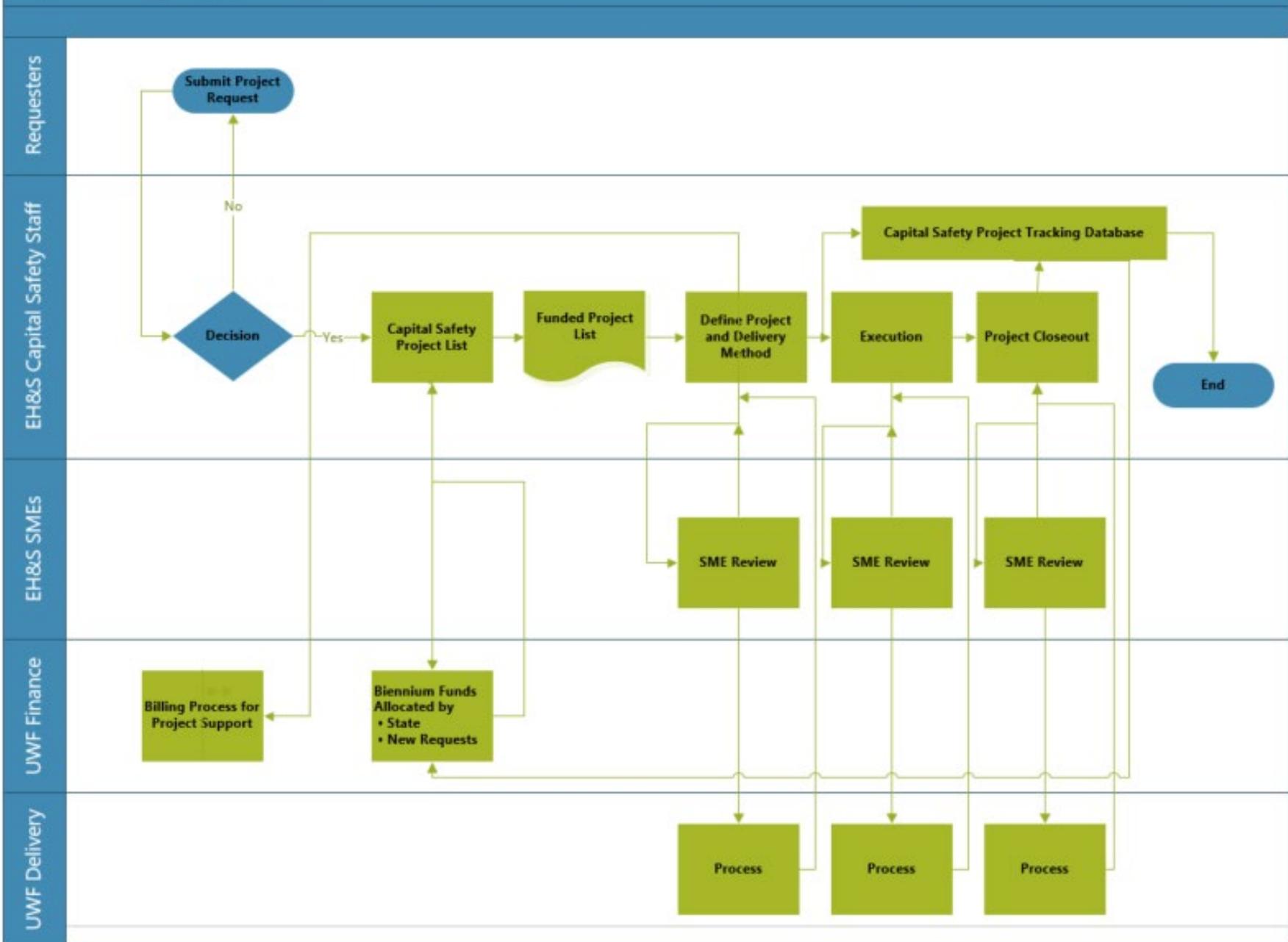
PROGRAM PROCESS, REQUIREMENTS AND PROCEDURES

A flow chart summarizing the basic steps and key roles in the capital safety project process, from development and management through to completion, is shown on page 10. The process, requirements, and procedures are described in detail throughout this section. Additional procedural details, as needed, are listed in the Reference Files section on the [Capital Safety Projects webpage](#).

STRATEGIC PLANNING

1. Annual goals and objectives must align with the EH&S Department Strategic Plan, including these specific objectives:
 - Safety Culture – Develop risk management strategies (SC3)
 - Resources – Appropriately allocate resources to prioritized activities (R2)
 - Resources - Advocate for investments in university-wide health and safety (R3)
 - Compliance – Communicate compliance and safety information that promotes awareness and action (C3)
2. The capital projects list is reviewed each biennium budget period and updated to ensure alignment with the strategic plan.
3. EH&S partners with UWF to identify and coordinate on capital safety projects to address fire and life safety risks identified by EH&S and which qualify for Capital Safety Project funds.
4. EH&S coordinates with UWF on prioritizing proposed capital safety projects for funding through the Capital Safety Project Program.
5. EH&S P&A assists UWF in preparing proposals for joint venture projects between EH&S and UW Facilities, for capital safety projects which are beyond the ability of EH&S to fully fund.
6. The EH&S Capital Safety Project Program Owner participates in regularly scheduled meetings with UWF to review fire and life safety and other risks identified by EH&S, the strategic plan and the proposed overall UWF campus minor works plan (which includes projects less than \$5 million).
7. The EH&S Capital Safety Project Program Owner schedules regular program progress meetings with all Project Managers and EH&S Management. The purpose of meetings will be to evaluate project funding requests, obtain status updates on ongoing capital safety projects and to discuss any other items related to the program.

Capital Safety Project Program Process Flow



CAPITAL SAFETY PROJECT LIST MANAGEMENT

A list of proposed capital safety projects is maintained by the Capital Safety Project Program Owner. The proposed project list reflects projects in the EH&S strategic plan and includes fund requests for projects that have been submitted for review. The proposed project list is reviewed as new projects are identified or, at a minimum, once a month. Projects identified for the current funding biennium are moved from the proposed project list onto the current funding list for execution.

Projects are prioritized by assessing compliance and risk ranking. Refer to the details in the [Prioritization Process](#) section below.

EH&S provides the list of proposed projects to UWF, in a timely manner, per the UWF capital funding planning schedule.

The EH&S Capital Safety Project Program Owner participates in regularly scheduled progress meetings with UWF throughout the biennium.

PROJECT FUND REQUEST

Capital safety project fund requests are submitted to EH&S for review and approval.

The Capital Safety Project Program Owner coordinates the review process to determine project eligibility.

Capital safety projects must meet the following [UW Construction Capitalization Policy \(UW Administrative Policy Statement 61.8\)](#) criteria listed below for capitalized expenditures and do not qualify if they meet the criteria for non-capitalized expenditures.

A. Capitalized Expenditures

Expenditures should be capitalized if they:

- Result in additional asset services (expanded facilities);
- Result in more valuable asset services (upgraded facilities); or
- Extend normal service life beyond one year.

B. Non-Capitalized Expenditures

Expenditures should not be capitalized if they:

- Are incurred to maintain assets in good operating condition; and/or
- Do not meet the criteria for capitalization as stated in Section A. above.

The following examples, although not all-inclusive and subject to varying circumstances, are considered to be current non-capitalized expenditures:

- Roof repairs and replacements
- Repainting

- Window replacements
- Furniture refurbishing
- Alterations and rearrangements which prepare existing space for new purposes
- Replacement projects that cost less than \$250,000 and are not equal to ten percent of the replacement value of the asset
- Replacement floor and window coverings, such as: linoleum, tile, carpets, blinds, and drapes; such costs associated with new construction, however, are capitalized.

Capital fund requests may be submitted via the [Capital Safety Project Request Form \(Appendix B\)](#) with email notification to the EH&S Building and Fire Safety unit (BFS). Alternatively, a request can be communicated to EH&S by other means during the biennium. All projects follow the same review process described below.

BFS reviews each [Capital Safety Project Request form](#) and determines if the project meets the criteria for a capital project.

The EH&S Capital Safety Project Program Owner reviews project requests with EH&S Management to determine if projects should be approved for funding, placed on the Capital Safety Project List for future funding, or denied funding.

Once confirmed that the project meets the criteria, the project is included in the list of approved projects and prioritized. The Capital Safety Project staff members prioritize potential projects using the prioritization process described in the section below.

The project is assigned to a Project Manager for tracking purposes.

The BFS Manager, EH&S Capital Safety Project Program Owner, or Project Manager communicates with the capital safety project requester on the status of the request (approved or not approved).

Prioritization process

General risk ranking

Risk ranking uses a process to assign a numerical risk number to each proposed project for the purpose of prioritizing projects. Risk is defined as the likelihood of an outcome multiplied by the severity of an outcome:

$$\text{Risk} = (\text{Likelihood}) \times (\text{Severity})$$

The process used allows for the assignment of odd numbers from one to nine for both likelihood and severity. The numbers for likelihood and severity are defined in [Appendix C](#), as is the risk ranking matrix.

The likelihood would ideally use a numerical probability based on literature; however, this is usually not available; a subjective estimate based on actual failure scenario experience, internally or externally, is more commonly used.

The severity can be based on a worst-case credible outcome, without regard for controls in place, that results in personal injury, environmental impact, equipment loss or operations loss. The outcome category with the highest severity rating is used for risk ranking calculation.

The risk ranking results in risks ranked low, medium, and high. Based on risk alone, those in the high-risk category would have a high priority for funding.

The risk rank will be determined by the risk assessment matrix and definitions for severity and likelihood as shown in [Appendix C](#).

Fire protection project risk ranking

Due to the number of UW owned buildings that require upgrades to the fire protection systems, a more detailed risk ranking tool has been developed to help prioritize investments to address these specific facility improvements that directly impact the life safety of the occupants related to fire risks.

To compare and rank fire suppression and fire alarm projects, a Fire and Life Safety Risk Ranking spreadsheet (example shown in [Appendix D](#)) is used to analyze the buildings to determine relative overall risk for a particular building/area.

Other factors

There are additional factors to risk ranking that need to be considered when prioritizing projects for funding. This includes regulatory compliance, estimated cost, likelihood of completing the project, and other factors:

- **Regulatory compliance:** federal, state, county, or local
- **Estimated cost:** Is the estimated rough cost of the project in line with the total annual Capital Safety Project budget managed by EH&S, or should we recommend it be placed on the UWF Project Delivery Group (PDG) list? Generally, projects with budgets that exceed 50% of the total annual Capital Safety Project budget will be recommended for the USF PDG list.
- **Likelihood of completing the project:** Projects that are likely to be completed in the assigned biennium should be prioritized over projects that are less likely to be completed in the biennium. Factors that affect this include project complexity and project delivery options.
- **Difficulty of completing a project because of internal/external resources**, such as:
 - Projects that can be completed with less personnel resources should have a higher priority. This can include personnel internal or external to UW.

- Projects that require design services may have a lower priority. Design services are costly and often of marginal quality due to the UW not having an internal team to provide this service.
- Projects that require less EH&S staff time to manage or provide technical support should have a higher priority.
- **Any facility or programmatic change** that would impact the short-term or long-term benefits of the project.
- **Organizations that have a greater responsibility** or greater ability to fund the project.
- **Planned regulatory changes** will impact the need for the project.

Project submittal format and timing

A formal list of capital safety projects is submitted to UWF several months before the biennium.

CAPITAL FUND MANAGEMENT

EH&S P&A is responsible for the overall management of the capital safety project funds allocated from UWF.

EH&S P&A will provide the Capital Safety Project Program Owner with the monthly spending for all capital safety projects.

EH&S P&A will meet monthly with UWF to ensure capital safety project funds allocated reflect the actual status of the project.

Tracking of funds and expenditures

- A Capital Safety Project Tracking spreadsheet ([Appendix E](#)) is used to track the status of each capital safety project and the monthly expenditures.
- The Capital Safety Project Program Owner will review with each Project Manager the financial status of each project monthly.
- All capital safety project funding and expenditures are reviewed and audited by EH&S P&A.
- Project Lead will coordinate with other University and outside entities as needed (UWF Real Estate, vendors, facilities minor project group, FMC maintenance & construction, and capital projects).
- Project Lead will review and authorize all funding and contractual agreements for all EH&S managed capital safety projects.

Transfer of funds

- Fund transfers are done by EH&S P&A.

- The transfer of funds requires approval from the OSH Assistant Director.
- New projects identified during the biennium for funding shall follow these steps:
 - EH&S P&A contacts UWF to establish a project tracking number.
 - UWF will create a budget number for project tracking (code 40).

Fund re-appropriation

- Funds may be re-appropriated at the end of the biennium.
- The amount re-appropriated will be based on the estimated spending assessed six months prior to the end of the biennium (preliminary estimate). All efforts should be made to reduce the amount of re-appropriation to the minimum possible as the re-appropriation amount could affect future biennium fund allowances to EH&S.
- EH&S P&A will provide the amount of funds required to be re-appropriated to UWF during the legislative process. The goal is to get as close to the estimate and drive this value as low as reasonably achievable.

Project completion and closure of funds

- The Project Manager will inform EH&S P&A when a project has been completed and all requirements of the Owner Project Requirements (OPR) have been met.
- EH&S P&A will request that the project be closed and if there are any funds remaining, transfer those funds to the capital safety reserve budget (code 064).

PROJECT INITIATION

Project initiation

- Projects approved at the start of the new biennium will automatically be assigned budget and project tracking numbers along with an initial budget amount by UWF.
- Emerging projects identified during the biennium and approved for funding will require a request by the EH&S Capital Safety Project Program Owner to EH&S P&A to establish budget and project tracking numbers along with an initial budget.
- Once a budget number has been established and the project becomes active, the Project Manager will be responsible for entering the project into the project tracking database.

Project assignment

- EH&S Capital Safety Project Program Owner along with EH&S Management will evaluate each approved project to determine assignment of Project Manager, Project Lead and SME.

- The Project Manager and Project Lead will be assigned based on schedule availability, previous similar project management experience, familiarity with the project delivery method and other, pertinent subject matter expertise. The Project Manager and Project Lead do not necessarily need to be a SME for the assigned project.
- A formal notice to the project delivery in UW Facilities or outside contractor to proceed is granted.

PROJECT REQUIREMENTS

A project charter or project definition document that outlines the basic requirements for the project and the need that is being met, risk or compliance, is required to proceed forward with developing the project estimate.

The Project Manager is responsible for putting together the basic description and driver for the project, and developing the Owner Project Requirements (OPR) document (refer to OPR document template in [Appendix F](#)).

The party requesting the project and/or the Project Site Contact along with at least one SME (EH&S or designee) should be consulted to verify that the information is accurate and complete.

A project cost estimate is required when submitting the capital safety project list to UWF or when requesting a new project tracking number. Depending on the complexity of the project, the estimate should include:

- The narrative of the scope of work
- The estimated cost to deliver the project from initial design through completion, including:
 - Equipment costs
 - Design costs
 - Installation costs
 - Regulated building material testing and abatement costs
 - Project management costs
- Critical activities included in the scoping document (e.g., regulated building materials, crane lifts, environmental permitting)
- Design schematics or preliminary drawings
- Expected project delivery method

EH&S will not typically have the resources to generate an accurate estimate and may utilize past projects or UWF to provide an estimated project cost. The OPR document can be utilized to collect information necessary to generate an estimate.

The project delivery method can be determined when the capital safety project list is submitted to UWF for the biennium, or it can be determined during the project scoping phase.

The assigned Project Manager, with support from the EH&S Capital Safety Project Program Owner, is responsible for assisting with determining the delivery method and verifying that it fits the needs of the project and is within the project budget.

DELIVERY METHODS

There are three project delivery methods:

EH&S Project Management

Projects that are managed by EH&S are managed through the following funding mechanisms:

- UWF Shop direct
- Purchase Order (Vendor or Contractor)
 - Projects with total costs less than \$10,000 with an approved supplier and a project tracking code 40 budget can be sent to UWF.
 - Projects with a total cost greater than \$10,000 must go through a competitive bid process unless there is an approved Master Service Agreement (MSA) with the vendor/supplier.
 - Purchases associated with approved suppliers can be invoiced and paid with the project tracking code 40 budget or can be submitted via ARIBA procurement service.

UW Facilities Maintenance & Construction (FMC) Project Management

Projects that are up to \$90,000 in construction costs and may be complex, are recommended to be managed by UW FMC.

UW Facilities Project Delivery Group (PDG) Project Management

Projects with values greater than \$90,000 in construction costs that require management of general contractors and/or sub-contractors are managed by the UW Project Delivery Group (PDG) as Job Order Contract, Minor or Major Capital projects.

PROJECT DESIGN

The Project Lead is responsible for the development and coordination of the Owner Project Requirements document.

Owner Project Requirements Document (OPR)

- An OPR document ([Appendix F](#)) shall be used to help develop the design requirements for the project.
- The OPR will be developed in coordination between the Project Site Contact, SMEs, and Project Lead.
- The OPR will be utilized by the project management team to develop the design documents for the project.
- The OPR can be a simple to complex document that outlines the basis of safety for the project. Permits and registrations are identified and verified at project closure.
- At each phase of the design process, the Project Lead will ensure that the design documents meet the OPR requirements.
- Changes to the OPR requirements must be approved by the Project Lead prior to any changes to the design documents are approved.
- Information in the OPR document may be used to support a cost estimate for the project.

Basis of Concept / Basis of Design

EH&S partners with the design team and participates in design development during the Scope Definition and early Design Phase of the project to ensure:

- EH&S requirements are properly integrated into the conceptual design and Basis of Design (BOD) document
- EH&S requirements align with the project scope per the UW project support program requirements

This will require attending meetings with the project team.

Approval of the BOD document is required prior to notice to proceed with construction.

Detailed Design

During the Detailed Design phase, the Project Lead confirms that [EH&S Design Standards and Requirements](#) identified in OPR and BOD are documented in the detailed design packages. Design packages can include:

- Electrical, fire protection, fire alarms, security, plumbing, structural
- Piping and instrumentation diagrams
- Abatement plan
- Commissioning plan
- Contractor safety plan

- Building permits from authorities having jurisdiction (AHJ)
- Contractor pre-qualification scorecard
- Process hazard analysis reports

The Project Lead shall verify EH&S related permits and approvals have been submitted and/or received.

The Project SME shall identify requirements to conduct detailed risk assessments where other risk assessment tools must be utilized.

The Project Lead shall approve any changes to the design that impact the OPR and BOD.

Submittal & design review oversight

- The Project Manager is responsible for determining the submittal and design review process on their project.
- The Project Lead shall review project submittals, Requests for Information (RFI), design changes, and other relevant construction documents.
- The Project Lead shall assign review of project submittals, RFI's, design changes and other relevant construction documents to project SME.
- The Project Lead will approve detailed design documents prior to construction. This can occur in a phased approach if the detailed design drawings have been reviewed and EH&S comments are addressed prior to construction.
- The Project Lead will give notice to proceed with construction.

PROJECT OVERSIGHT

The Project Manager shall monitor the project execution to ensure the EH&S OPR requirements, cost and timeline are being met.

The Project Manager shall track project status in the project tracking database. Refer to the [Project Tracking Database Section](#) for further details.

Any changes to the cost of a project shall be reviewed with EH&S P&A and the EH&S Capital Safety Project Program Owner.

Projects that exceed the estimated costs shall be reviewed by EH&S P&A and the EH&S Capital Safety Project Program Owner to determine if funds can be transferred to the project to cover the additional costs. Refer to the [Capital Fund Management Section](#) for further details.

- Changes to the OPR requirements during execution must be approved by the Project Manager and the Project Site Contact.
- The Project Manager shall monitor the project schedule and will provide regular updates to the EH&S Capital Safety Project Program Owner.

- Projects which may not be completed during the biennium are to be reviewed by EH&S P&A to verify that funds can be re-appropriated or carried over into the next biennium. Refer to the [Capital Fund Management Section](#) for further details.

CONSTRUCTION OVERSIGHT

The Project Manager shall provide limited construction oversight for projects that are performed by UWF shops directly and vendor projects where the Project Manager is directly managing work without a UW construction manager. The limited oversight shall include:

- Project safety review for all projects other than a Purchase Order- Vendor supplied project.
- SMEs inside or outside EH&S (as appropriate) shall be engaged by the Project Manager to provide safety reviews.

Project Lead shall conduct project site visits during the construction phase.

FINAL ACCEPTANCE / AUTHORITY HAVING JURISDICTION (AHJ) INSPECTIONS

The Project Manager is responsible for directly conducting acceptance testing of projects without AHJ oversight or arranging for a SME to conduct the acceptance testing.

For projects which require acceptance testing by the AHJ, the EH&S Project Manager will verify that such tests are scheduled by FMC or PDG assigned construction managers or by the responsible contractor.

The Project Manager will receive copies of all final acceptance and/or AHJ inspection records for retention with project closeout documents.

COMMISSIONING / TRANSITION TO OCCUPANCY (T2O)

Requirements for Commissioning/T2O shall be outlined in the OPR, including:

- Functional performance testing will be conducted on all new equipment.
- Where applicable, integrated testing of new and existing equipment will be performed.
- Applicable lockout/tagout procedures will be provided.
- Applicable maintenance requirements and schedules will be provided.

The Project Manager is responsible for ensuring commissioning has been conducted in accordance with the commissioning plan.

Issues identified during the commissioning will be documented and corrections tracked until closure unless accepted by the Project Manager and EH&S Capital Safety Project Program Owner.

PROJECT CLOSEOUT

- The Project Manager shall notify EH&S P&A and EH&S Capital Safety Project Program Owner when a project has been completed.
- EH&S P&A will notify UWF that project is ready for closeout.
- EH&S P&A and the EH&S Capital Safety Project Program Owner will review and approve requests from UWF regarding final billing and retainage release (if applicable).

When the project is completed for a Capital Safety Project Request, the Project Lead or Project Manager is required to send completion notices (via email) to the Project Site Contact.

PROJECT TRACKING DATABASE

A Capital Safety Project Tracking Database ([Appendix G](#)) is used to track the project lifecycle activities for each project. Entries shall be made in the tracking database for each project to track progress during the lifecycle of the project.

The Project Lead is responsible for entering a new project into the tracking database once a project number is established for a project.

The Project Lead is responsible for updating the tracking database on a regular basis.

PROJECT BILLING

The BFS Manager shall ensure that all Capital Safety Projects are entered into the Capital Projects Log Database ([Appendix H](#)) per the procedures listed in the Reference Files section on the [Capital Safety Projects](#) webpage.

The Project Manager and/or Project Lead shall ensure that time spent on the project, including project management and design review, is billed at the hourly rate for all personnel supporting the project.

Each month the Project Manager and/or Project Lead shall ensure project hours are entered and accurately reflect the monthly billing report.

Once the review has been completed, the monthly billing report is submitted to EH&S P&A.

LESSON LEARNED

Following the closure of a project, EH&S shall conduct a project “lessons learned” meeting to review the project for its successes, failures, and areas where improvements could be made.

Information gained from the “lessons learned” review shall be integrated into the program and process documents, design standards, and other vehicles utilized to capture information that can be used in subsequent projects.

TRAINING

The Project Managers and Project Leads must be qualified to perform their responsibilities which include the following:

- Project Management, including financial aspects
- Project Design Review Process

Qualifications can be met through the following:

- Education, Bachelors or MS degree in engineering, industrial hygiene, specific subject for SME or,
- Work experience; conducting design review for construction projects, engineering design, safety system risk assessments, project management, or
- Specific training in related subjects; certifications, and
- Reading and understanding the UW policies, procedures and guidelines for project management, design review and billing.

The EH&S Capital Safety Project Program Owner and EH&S Management shall determine if the personnel designated for each role are qualified.

METRICS

Metrics shall be developed to reflect program productivity. Examples of metrics can include, but are not limited to:

- Project milestones met/planned
- Amount spent/budgeted
- Number of projects completed/planned
- Project safety metrics (leading and lagging)

[Back to top](#)

REFERENCES

[UW Executive Order 55](#)

[APS 10.1](#)

[APS 16.1](#)

ANSI/ASSE Z590.3 Prevention through Design Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Processes

ISO 31000 Standard: Risk management: principles and guidelines

APPENDIX A: ACRONYMS / DEFINITIONS

ACRONYMS

AHJ	Authority Having Jurisdiction
BOD	Basis of Design
EH&S	Environmental Health & Safety Department
EH&S BFS	EH&S Building & Fire Safety
EH&S OSH	EH&S Occupational Safety & Health
EH&S P&A	Planning & Administration
FMC	Facilities Maintenance & Construction
MSA	Master Service Agreement
OPR	Owner Project Requirements
PDG	UWF Project Delivery Group
RFI	Requests for Information
SME	Subject Matter Expert
UW	University of Washington
UWF	UW Facilities

DEFINITIONS

ARIBA – Procurement service used by UW

Authority Having Jurisdiction (AHJ) – the organization, office, or individual responsible for issuing permits, approving layout drawings, enforcing the requirements of a code or standard or approving materials, an installation, or a procedure. Usually, the AHJ is the building or fire official of the city or county in which the job site is located. In certain cases, such as health care facilities, transient accommodations, and day care facilities, the AHJ is the city or county building or fire official and the director.

Basis of Design (BOD)– The BOD is a document that records the general expectations, performance criteria and specific requirements as they relate to the equipment, processes, facility, and technical design elements. The BOD is not intended to be a substitute for the OPR or the design professional's project design drawings and specifications. The BOD includes both narrative descriptions and specific key lists of required equipment, processes, or facilities and documents the assumptions behind design decisions that were made to meet the OPR, specifically the basis of safety for the project. In some cases, e.g., small projects, the OPR can represent the BOD.

Biennium – At UW, a biennium is a two-year budgeting period that begins on July 1 of odd-numbered years and ends on June 30 of odd-numbered years.

Capital Project – Construction project of size and cost typically performed by outside contractors supervised by UW Facilities project managers

Capital Safety Project Program Owner – EH&S staff member responsible for the Capital Safety Project Program implementation and sustainment

Capital Safety Project Lead – Tracks individual capital safety project status, including budget and schedule, from approval through completion, updates project tracking database, provides updates to the Capital Safety Team. Project Lead and Project Manager may be same person depending on project scope

Capital Safety Project Manager – Manages individual capital safety project from beginning to completion. This person may be from EH&S, the subject project department/unit/organization, UW Facilities Project Delivery Group (PDG) or Facilities Maintenance and Construction (FMC).

Capital Safety Project Requester – Individual who submits a capital safety project request to EH&S on behalf of their department, unit, or organization

Capital Safety Team – Individuals involved in a capital safety project

Facilities Maintenance & Construction (FMC) - is dedicated to the stewardship of the University's buildings and grounds by providing maintenance, repair, and construction services to the University community.

Owner Project Requirements (OPR) – Document that details requirements for a capital safety project

Project Delivery Group (PDG) – The Project Delivery Group (PDG) is responsible for the delivery of capital projects that help fulfill the University's teaching, research, health care and innovation mission. From concept to completion to transition to occupancy, PDG leads the planning, design and construction required to execute and successfully complete projects ranging from small remodels to new buildings.

Subject Matter Expert (SME) – EH&S staff member or designated by EH&S to identify and evaluate safety issues, and provide technical requirements for the project

UW Capital Planning – works across schools, colleges, and campuses with executive stakeholders, academic and administration leadership, and within UW Facilities to support a portfolio management approach that guides the development of the campus built environment in a strategic manner, supporting institutional priorities and long-term financial and ecological sustainability.

[Back to top](#)

APPENDIX B: CAPITAL SAFETY PROJECT REQUEST

The [Capital Safety Project Request Form](#), shown on next page, is available on the EH&S website. It is a fillable form that a requester can submit electronically.

CAPITAL SAFETY PROJECT REQUEST FORM

Complete this form to request assistance with implementing a project to improve safety-related building elements and safety systems in a University-owned building or property.

Submit this form to the uw_ehs_capprojreqform@uw.edu.

Visit the [Capital Safety Projects](#) webpage on the EH&S website for more information.

Date:

Request completed by:

Department:

Phone:

Email:

I. PROJECT DESCRIPTION

- A. Problem:
- B. Possible capital safety solution:
- C. Location (building, room, area, etc.):
- D. Estimated cost:
- E. Estimate based on:
- F. Have you done any design or planning work on this project?

II. PROJECT DATA

- A. Has an accident or injury incident occurred at this location? Yes No
If yes, provide date and brief description:
- B. Is this project necessary to meet a regulatory requirement? Yes No
If yes, identify:
- C. Have any citations been received because of this problem? Yes No
- D. Have any efforts been made to correct this problem to date? Yes No
- E. Are any other sources of funds available to partially fund this project? Yes No
Explain:
- F. Approximately how many students, faculty, staff and/or volunteers are impacted by this situation on a daily basis?

APPENDIX C: GENERAL RISK ASSESSMENT PROCESS AND MATRIX

The risk ranking assigned to each project request is an attempt to rank the risk to the University if the project is not completed. The risk ranking is based on an evaluation of the severity and likelihood of the outcome. Outcomes include injury or other health effects as well as financial and productivity costs to the University.

Severity risk ranking estimates are based on factors shown below in Table C-1. Likelihood risk ranking estimates are based on factors shown in Table C-2. The values are usually estimated based on professional judgement but include a review of the relevant literature if necessary.

The severity of an outcome is multiplied by the likelihood of the outcome resulting in a risk ranking. This ranking is then compared with a matrix to assign the risk of each outcome as a low, medium, or high-level risk. The risk ranking matrix is shown in Table C-3 below.

Table C-1 Risk Ranking – Severity Grouping

Category Description	Personnel Injury or Illness	Environmental Impact	Equipment Loss and Product Loss	Operations Down-time
9 – Severe	Fatality	Long term (5 years or more) environmental damage; clean up requiring >\$1 million dollars to correct or in penalties	Greater than \$1 million in damages	Greater than four months
7 - Major	One or more injuries or illnesses requiring hospitalization or more than one OSHA recordable injury	Long term (1-5 years or more) environmental damage; clean up requiring >\$250K - \$1 million to correct or in penalties	\$250K to \$1 million in damages	One month to four months
5 – Moderate	One OSHA recordable injury or illness	Short term (up to 1 year) environmental damage; clean up requiring >\$100K to \$250K to correct or in penalties	\$100K to \$250K in damages	Two weeks to one month
3 - Minor	One minor (first aid classification) injury or illness	Minor environmental damage readily restored or requiring \$1K - \$100K to correct or in penalties	\$1K to \$100K in damages	One day to two weeks
1 - Insignificant	No injury or illness	Minor environmental damage readily restored or requiring <\$1K to correct or in penalties	Less than \$1K in damages	Less than one day

Table C-2 Risk Ranking – Likelihood Grouping

Level	Definition	Numerical Probability
9 Frequent	Failure is almost inevitable. Consistent failure observed.	1 out of 1 - 10 ($10^{0 \text{ to } -1}$)
7 Likely	Failure is likely and will occur in most circumstances. Repeated failures observed.	1 out of 10 - 1000 ($10^{-1 \text{ to } -3}$)
5 Occasional	Failure is probable at some time and has been observed.	1 out of 1000 – 10,000 ($10^{-3 \text{ to } -5}$)
3 Unlikely	Failure could occur at some time. Only isolated incidents observed.	1 out of 10,000 – 10,000,000 ($10^{-5 \text{ to } -7}$)
1 Remote	Failure is extremely unlikely, no history of failure.	1 out of 10,000,000 – 1,000,000,000 ($10^{-7 \text{ to } -9}$)

*System life cycle to be determined by project team.

Table C-3 Risk Ranking Matrix

			Severity				
			Insignificant	Minor	Moderate	Major	Severe
			1	3	5	7	9
Likelihood	Frequent	9	9	27	45	63	81
	Likely	7	7	21	35	49	63
	Occasional	5	5	15	25	35	45
	Unlikely	3	3	9	15	21	27
	Remote	1	1	3	5	7	9
			1	3	5	7	9

Risk Acceptance Zones:

Relative Risk (RR) = Severity X Likelihood

Low	Medium	High
No action required, although controls may be deemed appropriate by the project team and/or site management.	Implementation of controls to minimize, mitigate or eliminate risk is not required, but may be deemed appropriate by the process owner or by site management, especially for higher severity risks.	Implementation of controls to minimize, mitigate or eliminate the risk is required. Approval by corporate executive management or site head is required to accept the risk without further action.

[Back to top](#)

APPENDIX D: FIRE AND LIFE SAFETY RISK RANKING

	Flammables	Lab	Shops	Multi-Stories	High Occupancy Centers	Constructed or Modified	Life Safety Score	Fire/Smoke Damper Protection at shafts/floor penetrations	Sprinkler Protection	Fire Alarm Systems - Smoke/Heat Detector Coverage	Structural Fire Risk	Business Continuity	Code Compliance Questions?	Structure Protection Risk	Combined Scope Risk Number	Residual Risk	Other Factors
Building	1 = no/negligible amounts	1 = No Labs	1 = No Shops	1 = 1 story	1 = reg Conf. Rooms		(Sub-Total) High > 18	FSD protection throughout = 1	Partial sprinkler protection = 3	100% coverage = 1	> Non-Combustible and Fire Rated Const = 1	No impact = 1		> 25 = H	> 25 = H	> 25 = H	Historical significance, asbestos present, bldg. future plans, unique hazards, etc.
	3 = 50% CZL (240 gal)	3 = Incidental Labs	3 = Incidental Shops	3 = 2 stories	3 = Cafeterias/ Training Center	1 = > 2002	Med 12 - 18	Fire dampers only = 3	No Sprinkler protection = 5	Partial coverage = 3	Non-Combustible Const only = 2	Rated Const and Fire = 3	Mission Critical = 3	No = 1	15 - 25 = M	15 - 25 = M	15 - 25 = M
	5 = 100% CZL (480 gal)	5 = Primary Function	5 = Primary Function	5 = > 2 stories	5 = Auditoriums	3 = < 2000	Low < 12	No FSD protection = 5	Sprinkler protection throughout = 1	No coverage = 5	< Combustible Const = 5	MFL = 5	Yes = 5	< 15 = L	< 15 = L	< 15 = L	
A	1	1	3	5	5	3	18		3	3	1	1	5	13	31		Unprotected High Pile Storage
B	1	1	3	5	5	3	18		3	3	1	1	5	13	31		High Rise Bldg.
C	1	1	1	5	1	3	12		3	3	1	3	1	11	23		Medical clinics
D	3	3	5	5	5	3	24		3	3	1	1	1	9	33		

[Back to top](#)

APPENDIX E: CAPITAL SAFETY PROJECT TRACKING

This is a view of a spreadsheet that Capital Safety Project Owner, Project Managers, and Project Leads use to monitor monthly spending for all capital safety projects.

											Estimated Monthly Spending Amount								Estimated Total	Deficit/Surplus	
Project Number	P/C Budget Code Number	Fund	Project Name	Budget Accurate?	Anticipated Deficit or Surplus?	Phase?	Comments	Anticipated Completion Date?	Original Project Allotment	Current Budget Amount	Nov 2020	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	Jun 2021			

[Back to top](#)

APPENDIX F: OWNER PROJECT REQUIREMENTS (OPR) TEMPLATE

The Owner Project Requirements (OPR) template document is shown below. A Word document of the template is available on the [EH&S website](http://www.ehs.washington.edu/resource/owner-project-requirements-template-capital-safety-project-1198) at www.ehs.washington.edu/resource/owner-project-requirements-template-capital-safety-project-1198.

OWNER PROJECT REQUIREMENTS (OPR) FOR CAPITAL SAFETY PROJECT

[NAME OF PROJECT]

[Month Year]



Owner Project Requirements (OPR) for Capital Safety Project	[Project name]
Project number	[i.d.]
Budget number	[i.d.]
Date prepared	[date]
Prepared by	[name]
Project Owner (requester and/or requesting department/unit/organization representative)	[name]
Project Manager	[name]
Project Lead	[name]
Project Subject Matter Expert(s)	[name(s)]
Revisions:	[date]
	[date]
Approved:	[name]
	[date]

[Overview and Instructions: The purpose of the UW EH&S Owner Project Requirements (OPR) document is to provide clear and concise documentation of the Project Owner's goals, expectations and requirements for the capital safety project. It shall detail:

- Functional requirements of the project
- Expectations of the project's use and operation
- Regulatory requirements related to the project
- UW EH&S and UW Facilities design requirements
- Facility and utility requirements

This template contains basic recommended components and can be adapted as needed to suit the project. The OPR document should be completed before start of design and given to the design team.]

TABLE OF CONTENTS

PROJECT PURPOSE AND SCOPE	4
PURPOSE	4
SCOPE	4
PROJECT FUNDAMENTALS	4
BUSINESS DRIVERS	4
KEY OBJECTIVES	4
KEY ASSUMPTIONS.....	4
EXCLUSIONS.....	4
REGULATORY REQUIREMENTS AND GUIDELINES.....	5
REGULATORY AGENCIES.....	5
ASSUMPTIONS	5
REGULATIONS AND GUIDELINES.....	5
UW EH&S AND UW FACILITIES REQUIREMENTS.....	5
UW GUIDELINES, STANDARDS AND SPECIFICATIONS.....	5
FACILITY REQUIREMENTS.....	5
UTILITY REQUIREMENTS.....	6
COMMISSIONING	6
TRAINING.....	6
RECORDKEEPING.....	6
AS-BUILT DRAWINGS.....	6
OPERATIONS AND MAINTENANCE (O&M).....	6

PROJECT PURPOSE AND SCOPE

[What is the primary purpose and use of this project? Describe general size and scope of the project. Specify project location(s), building(s), campus(es). What safety hazard(s) is addressed? Describe related project history, and list reference documents if applicable.]

PURPOSE

SCOPE

PROJECT FUNDAMENTALS

[Is this project needed to comply with existing or upcoming specific local, state, or federal regulatory requirements? Is the project needed to comply with UW EH&S or UW Facilities requirements?]

BUSINESS DRIVERS

KEY OBJECTIVES

KEY ASSUMPTIONS

EXCLUSIONS

REGULATORY REQUIREMENTS AND GUIDELINES

[What regulatory agencies and regulations apply for the project? What assumptions made to ensure compliance? List and link to specific regulations/guidelines.]

REGULATORY AGENCIES

ASSUMPTIONS

REGULATIONS AND GUIDELINES

UW EH&S AND UW FACILITIES REQUIREMENTS

[Are there specific UW EH&S and/or UW Facilities requirements to follow to complete this project, such as project safety plan, fall protection work plan if working at heights, etc.? List and link.

When building or modifying safety systems refer to [UW Facilities Design Standard](#) which includes UW EH&S Design Standards, such as specifications for fire and life safety systems, laboratory safety and ventilation systems, etc.]

UW GUIDELINES, STANDARDS AND SPECIFICATIONS

FACILITY REQUIREMENTS

[Are there facility requirements, such as facility modifications, needed for this project?]

UTILITY REQUIREMENTS

[Are there utility requirements, such as electrical and water, needed for this project?]

COMMISSIONING

[Are there functional tests and commissioning on the project?]

TRAINING

[When the project is completed do employees in the department/unit/organization need to be trained on the system or its use? Do Facilities operations and maintenance staff need training on the new system O&M requirements?]

RECORDKEEPING

[Provide information on as-built drawings, photos, O&M instructions on the project.]

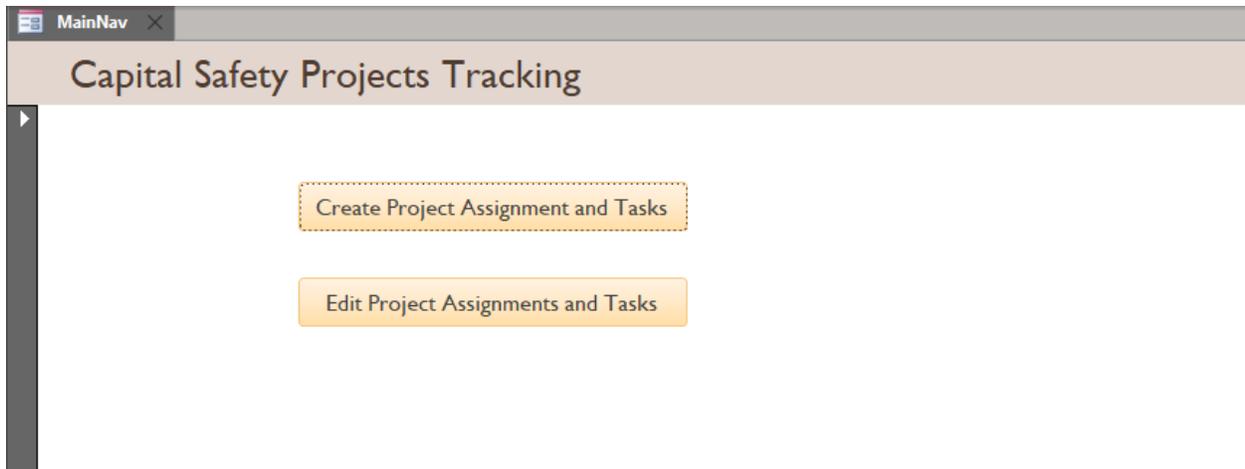
AS-BUILT DRAWINGS

OPERATIONS AND MAINTENANCE (O&M)

APPENDIX G: CAPITAL SAFETY PROJECT TRACKING DATABASE

Below are screenshots of the login page of the Capital Safety Project Tracking Database and a page for entering data.

Login page:



Data entry page:

MainNav x projectmaintask

Edit Assignment Tasks Form

Assign. #: 2 Find Record Close Form

PDG Project #: 205407 **EH&S Lead:** U.W. Husky

Project Name: AT&T Cell Tower Upgrades 3 Locations

Project Descript: CPO will assist AT&T and coordinate and manage upgrades to (3) three new cell tower sites at Mary Gates, Lander, and Haggett Halls

PM: Budget 403018

Task	Status	Start Date	Due Date	% Complete	Notes	Completed Date
Project Definition	NA			0		
Subtask						
Review project request						0
Research safety issue with SMEs						0
Define project and summarize scope						0
Develop owner project requirements (OPRs)						100
Establish Contract	NA			0		
Subtask						
Submit work request						0
Issue P.O.						0
Initiate PDG project						0
Provide Notice to Proceed (NTP)						0
Detailed Design	NA			0		
Subtask						
Visit site						0
Generate design documents						0
Review design documents						0
Approve final design documents and proceed to construction						0
Construction	NA			0		
Subtask						
Hold construction kick-off meeting						0
Visit site						0
Review documents (RFIs, submittals, TAR reports, etc.)						0

APPENDIX H: CAPITAL PROJECTS LOG DATABASE

Below are screenshots of the login page of the Capital Projects Log Database and a page for entering data. For all projects, data entry into the Capital Projects Log Database must follow the procedures in the Reference Files list on the [Capital Safety Projects](#) webpage.

Login page:

Data entry page: