
8.0

Implementation Plan

8.1 Introduction

The proposed implementation strategy provides a logical sequence of projects that will allow the CoE to meet the overall projection of space needs in a master plan in phases or steps. Project sequencing takes into consideration 1) enabling projects that allow other projects to proceed, 2) enrollment growth, 3) CoE priorities, 4) and an ability to adjust to the pace of funding. Projects have been grouped into short-term, mid-term, and long-term intervals to correspond to sequential six-year plans required by state statutes. Availability of funding may necessitate the need to adjust this time line as implementation progresses.

Many short-term operational solutions can provide some immediate space relief by more intensively using the existing space. For example, scheduling existing space earlier in the morning, later in the afternoon, and at other times provides additional classroom and teaching capacity without adding new space. In addition, optimizing use of the CoE's highest and best facilities for high-priority functions can help re-balance the current deficits in the quantity and quality of research and teaching spaces.

Short-term projects discussed and identified include:

- Facilities and utilities projects required to keep existing facilities operational and safe for employees. While not a focus of this Master Plan report, the projects identified by the UW Physical Plant team are included for reference.
- Renovation projects in existing facilities to address current deficits in quality research space and the right types and sizes of classroom spaces. Recommendations for the sequence of projects were determined based on CoE priorities and funding in conjunction with FPM review and input.

Mid- to long-term projects recommended include a replacement building for 1410 Engineering Drive, construction of a new facility on the WEI Phase II site, and construction of a replacement building for the Engineering Research

Building. The order in which these are constructed was studied by the team and recommendations were based on outcomes of time and value studies that are outlined later in this section.

This implementation plan provided a possible view for future projects. Future capital planning will need to respond to evolving conditions, priorities, and new information. As new information is discovered through future studies, additional projects may be identified that are of alternative urgency and revised biennial university priorities may supersede the implementation plan contained in this document.

8.2 Project Phasing Sequencing, Costs and Funding Source

Facilities and Utilities Projects

The following projects have been identified by the UW Physical Plant team for the CoE buildings and site. Not all projects have been funded or deemed high priority. Those identified as SPR Pending are Small Project Requests, which have been filed with DFD and are pending approval. SPR pending and those identified by FPM as priority are included on the CoE Master Plan Implementation Plan included at the end of this section.

COLLEGE OF ENGINEERING - FACILITIES & UTILITIES PROPOSED PROJECTS
2/17/2015

ID	BUILDING NAME	PROJECT TITLE	STATUS	BUDGET	COMMENTS
432	WATER SCIENCE	PRESSURIZED EXHAUST DUCT - FANS & FUME HOODS		TBD	REPURPOSE BLDG
1744	WATER SCIENCE	BLDG CONDITION EVALAUTION IS NEEDED		TBD	REPURPOSE BLDG
438	WENDT LIBRARY, KURT F	LIGHTING UPGRADE AND CEILING REPL		\$555,000	LOW PRIORITY
1745	WENDT LIBRARY, KURT F	REPLACE EMERGENCY GENERATOR		\$75,000	
1871	WENDT LIBRARY, KURT F	WENDT LIBRARY EXPANSION JOINTS & CAPS REPAIR		\$200,000	PRIORITY
1869	MECHANICAL ENGINEERING	MECH ENG TERRA COTTA ROOF STABILIZATION		\$1,500,000	PRIORITY
1124	ENGINEERING HALL	REPL ALL STORE FRONT ENTRANCES WEST END		TBD	
1681	ENGINEERING HALL	REPL ELEVATOR - REGULATED OBJECT#501615		\$250,000	
1682	ENGINEERING HALL	INSTALL FA SPRINKLER SYSTEM		TBD	PRIORITY
2005	ENGINEERING HALL	ENGINEERING HALL EXTERIOR CAULK	SPR PENDING	\$183,600	13-15
2038	ENGINEERING HALL	ENG HALL REPAIR DUCT INSULATION ON ROOF		\$75,000	PRIORITY
2115	ENGINEERING HALL	ENGINEERING HALL REPL ROOF AREAS #21, 22 25 AND 26	SPR PENDING	\$181,400	13-15
1679	ENG DR 1410	ABANDONED CHILLER TO BE SALVAGED		TBD	LOW PRIORITY
1770	ENG DR 1410	CONTROLS UPGRADE		TBD	REPURPOSE BLDG
1700	MATERIALS SCIENCE	TWO CELING HUNG AHUS IN ROOM 125 AND 150 IN BAD SHAPE		TBD	
782	ENGINEERING RESEARCH BUILDING	ERB EXT ALUM DOOR/STOREFRONT REPL (20)		\$75,000	
1270	ENGINEERING RESEARCH BUILDING	SPRINKLER SYSTEM, FIRE DAMPERS, GENERATOR		\$2,631,000	REPURPOSE BLDG
911	ENGINEERING CAMPUS	ENG HALL STORM SEWER REPL		\$1,500,000	LOW PRIORITY

Renovation Projects

The following three renovation projects, outlined in Section 7, have been identified by the CoE and FPM for implementation in the short-term:

- 1410 Engineering Drive First Floor Remodeling: Summer 2015
- Engineering Hall Lobby 1000 Remodeling: Summer 2015

- Wendt Commons Third Floor renovation from library to general assignment classrooms – All Agency Project Request for the 2015-17 Biennium.

These are included in the short-term section of the Implementation Plan included at the end of this section.

New Construction

The team looked at multiple options for the sequence of new construction and evaluated the options relative to the following considerations:

- Condition of existing facilities and potential costs to maintain for ongoing use and purpose.
- Occupants housed in each of the existing buildings and comparisons with short-term and long-term facility needs.
- Current lack of “swing” space on CoE campus to relocate existing occupants when an existing facility is taken out of use, or demolished.
- Escalation costs and potential impact on deferral of new construction.
- Opportunity to optimize footprint and volume of existing CoE building sites.

Based on these considerations, it is recommended that the 1410 Engineering Drive Building be the first building to be replaced. Overall, the comprehensive model for quality suggests significant costs to upgrade this building in order to maintain continued use in its current capacity and function for the next 20 years. With the majority of major systems nearing the end of their useful lives, the FQI suggests the cost for renovation approaches or exceeds 75% of the replacement value, making the 1410 Engineering Drive Building the first site option for new construction.

The team reviewed two paths for the second and third step in new construction:

- The base path explored new construction on WEI Phase II Site as the second step in the process with ERB replacement as the third step.
- The alternate path explored ERB replacement as the second step in the process, followed by new construction on WEI Phase II Site.

Figure 8A on page 8.4 illustrates the differences between the base and alternate paths relative to overall ASF and to project cost. The team elected to pursue the base path, because overall ASF increase is greater after the second step than the alternate path. The new facility could therefore provide some “swing” space that could house a portion of the existing ERB occupants when that building is decanted and the site prepped for development of a replacement facility.

It must be recognized that deferring replacement of ERB to the third step in the process implies that more funds be spent in the interim to maintain the existing facility and incorporate appropriate life safety upgrades.

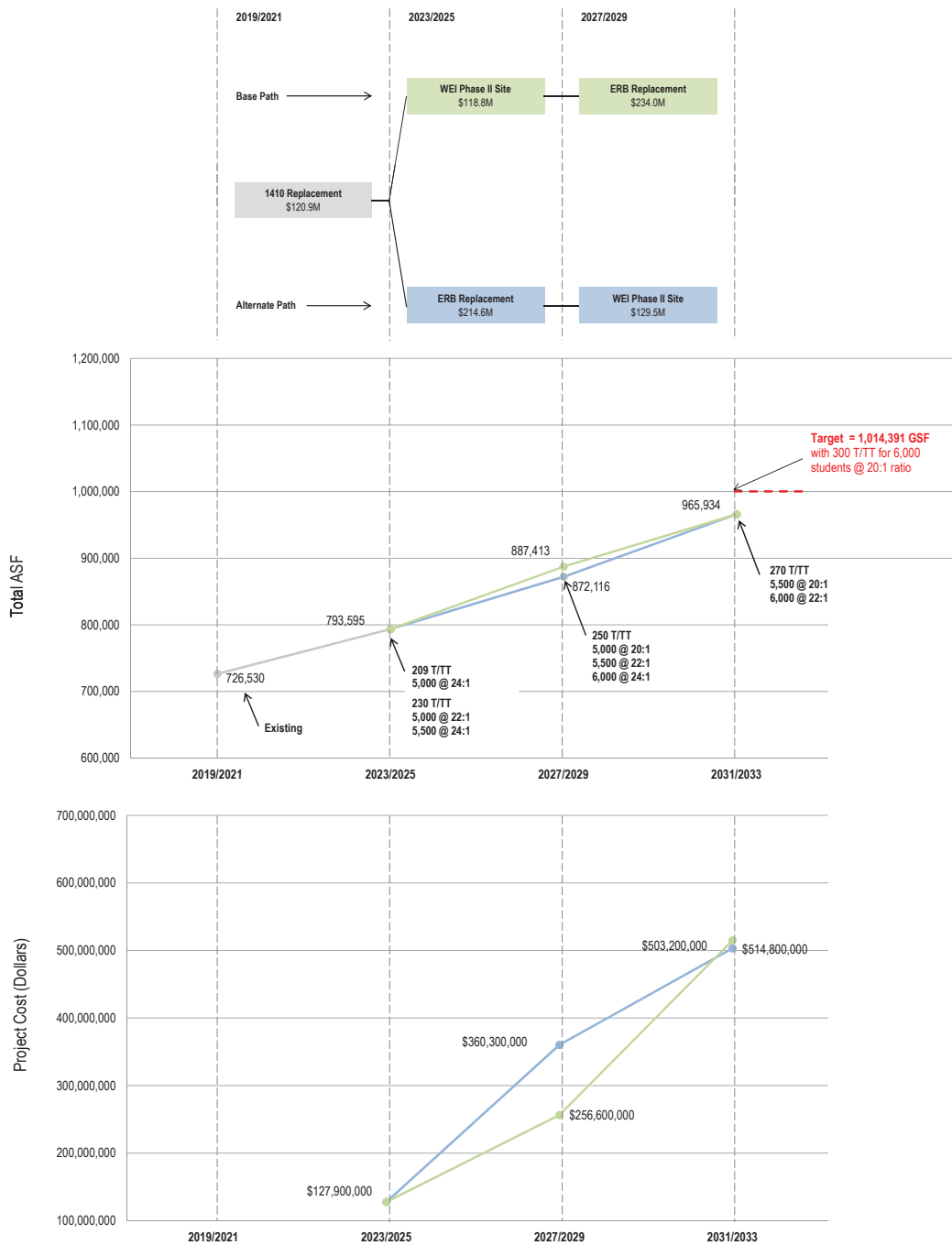
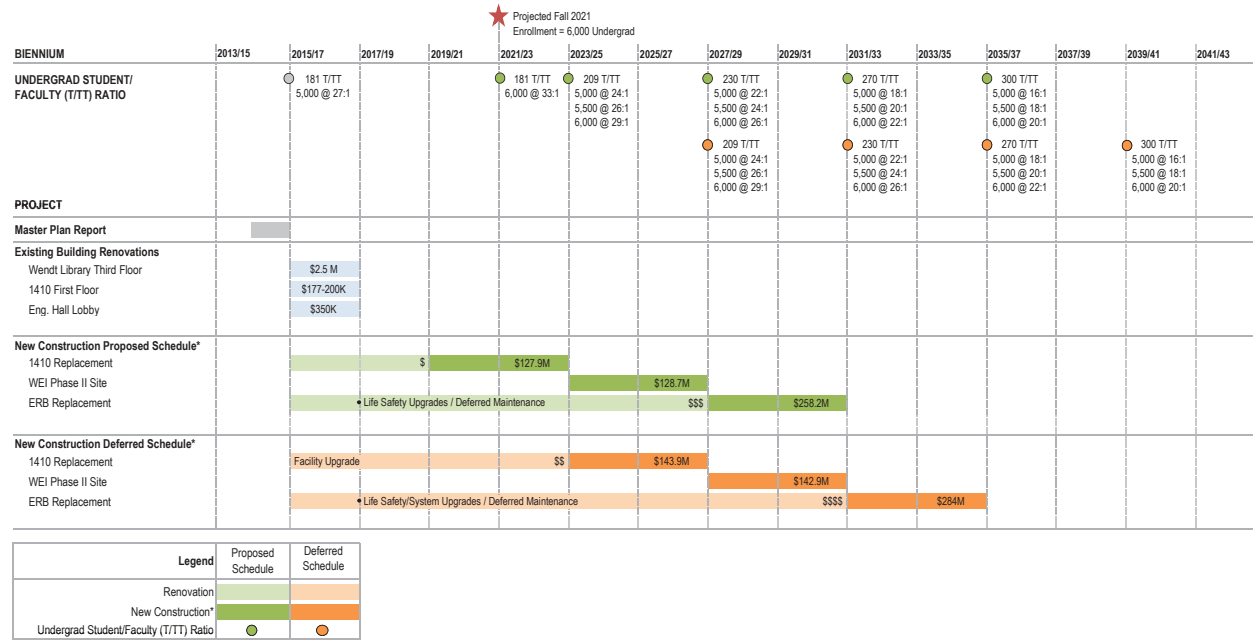


Figure 8A: New Construction Scenarios

Figure 8B illustrates the recommended sequence of projects (relative to number of undergraduate students to T/TT ratio) and targeted funding biennia. As noted in Section 8.1, this implementation plan represents a current view in time, and targeted biennia are subject to evolving conditions and priorities. The “Deferred Schedule” in Figure 8B illustrates implementation costs related to deferral. While not quantified in the graphic, it should also be noted that deferral of the 1410 and ERB replacement buildings will require an increased capital investment in the existing buildings to maintain safety and functionality.



*Capital Project - Assumes 24 months prior to construction, including 18 months design time + 6 months approval / Post-approval, assumes 24 months for bidding and construction

Figure 8B: Implementation Plan Summary

Figure 8C illustrates the detailed implementation plan for short, mid and long-term.

IMPLEMENTATION PLAN - SHORT TERM (0-6 YEARS)

Project Type*	Project Name	Project Size			Construction Cost		Project Cost			Capital Funding Source				Comments
		ASF	GSF	Efficiency	Unit Cost	Total Est. Cost	Unit Cost or % of Const. \$	Escalation %	Total Est. Cost Budget	GSFB	PRSB	CASH	Gifts/Grants	
Facilities and Utilities Projects through PAC.¹														
Priority														
R	ID #2005 - Engineering Hall - Exterior Caulk								\$183,600					SPR Pending - 2013-15
R	ID #2115 - Engineering Hall - Replace Roof Areas #21, 22, 25 & 26								\$181,400					SPR Pending - 2013-15
R	ID #1871 - Wendt Commons - Expansion Joints & Caps Repair								\$200,000					
R	ID #1869 - Mechanical Engineering - Terra Cotta Roof Stabilization								\$1,500,000					
R	ID #1862 - Engineering Hall - Install FA Sprinkler System								TBD					
R	ID #2038 - Engineering Hall - Repair Duct Insulation on Roof								\$75,000					
Renovation Projects														
R	Wendt Commons - Convert 3rd Floor to Classrooms					\$1,510,000			\$2,507,000			\$2,507,000		Fiscal Year 2015-16
R	Engineering Hall - Lobby 1000 Remodeling								\$350,000			\$350,000		Summer 2015
R	1410 Engineering Drive - 1st Floor Remodeling		2,750						\$177,000 - \$200,000			\$177,000 - \$200,000		Summer 2015
New Construction Projects														
Enabling Projects														
	Relocation of Existing Occupants	34,390	63,561	54%										CoE operational costs to be determined by CoE
Replacement Building														
D	1410 - Demolish Building	34,390	63,561	54%	\$10	\$635,610	40%	28%	\$1,139,013					Assumes 4% escalation for 7 years - assuming approval in 2019/21 biennium. Assumes site improvement costs (hardscape/landscape) in building construction numbers. Site Utility costs based on information received from FPM and reviewed by AEI. AEI notes: site utility costs do not include surface restoration, temporary utilities, demolition of existing utilities, AT&T utility locates, erosion control, traffic/pedestrian control, permits, utility locates design, construction management, abatement.
NC	1410 - Replacement Building	101,455	169,091	60%	\$400	\$67,636,400	40%	28%	\$121,204,429					
U	Site Utilities Work associated with new construction	n/a	n/a	n/a	LS	\$3,100,000	40%	28%	\$5,555,200					
TOTAL 1410 NEW CONSTRUCTION		101,455	169,091			\$71,372,010			\$127,898,642					

¹ Per information received from UWFPM 2/17/2015 for projects to be coordinated through the FPM Project Administration Center (PAC)

IMPLEMENTATION PLAN - MID TERM (7-12 YEARS)

New Construction Projects														
Enabling Projects														
	Relocation of Existing Occupants													Operational costs
Replacement Building														
D	WEI - Demolish ROTC Building	20,218	24,589	82%	\$10	\$245,890	40%	44%	\$495,714					Assumes 4% escalation for 11 years - assuming approval in 2023/25 biennium. Assumes site improvement costs (hardscape/landscape) in building construction numbers. Site Utility costs based on information received from FPM. Site Utility costs based on information received from FPM.
NC	WEI Phase 2 - New Construction	93,818	156,364	60%	\$400	\$62,545,600	40%	44%	\$126,091,930					
U	Site Utilities Work associated with new construction	n/a	n/a	n/a	LS	\$1,000,000	40%	44%	\$2,016,000					
TOTAL WEI-PHASE 2 NEW CONSTRUCTION		93,818	156,364			\$63,791,490			\$128,603,644					

IMPLEMENTATION PLAN - LONG TERM (13-20 YEARS)

New Construction Projects														
Enabling Projects														
	Relocation of Existing Occupants	84,479	157,510	54%										CoE operational costs to be determined by CoE
	Utility relocation East of existing ERB													Cost to be confirmed with FPM
Replacement Building														
D	ERB - Demolish Building	84,479	157,510	54%	\$10	\$1,575,100	40%	60%	\$3,528,224					Assumes 4% escalation for 15 years - assuming approval in 2027/29 biennium. Assumes site improvement costs (hardscape/landscape) in building construction numbers. Site Utility costs based on information received from FPM and reviewed by AEI. AEI notes: site utility costs do not include surface restoration, temporary utilities, demolition of existing utilities, AT&T utility locates, erosion control, traffic/pedestrian control, permits, utility locates design, construction management, abatement.
NC	ERB - Replacement Building	163,000	271,667	60%	\$400	\$108,666,667	40%	60%	\$243,413,333					
U	Site Utilities Work associated with new construction	n/a	n/a	n/a	LS	\$5,000,000	40%	60%	\$11,200,000					
TOTAL ERB NEW CONSTRUCTION		163,000	271,667			\$115,241,767			\$258,141,557					

¹ Note: escalation is based on current DFD allowance of 4% per year. UWFPM will do feasibility studies to validate project costs and escalation numbers at start of any new project.

*LEGEND:
UC-Under Construction R - Renovation A-Addition NC-New Construction D-Demolish S-Site P-Parking U-Utilities C-Circulation

Figure 8C: Implementation Cost Schedule