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Predesign Guidelines

For Campus Facilities Projects

MINNESOTA STATE

Greg Ewig, System Director, Capital Development
651-201-1775
gregory.ewig@minnstate.edu

Michelle Gerner, Facilities Senior Planner
651-201-1531
michelle.gerner@minnstate.edu

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Context for Predesign

When a college or university seeks funding for a capital project--whether from the state legislature (Capital Bonding, HEAPR) or via student fee fund (Revenue Fund bonds)--a predesign is the planning tool to identify the need, scope, costs, and schedule for the project.

Predesign is the planning activity and documentation required for capital projects by the Minnesota State system and the Minnesota Department of Administration. It follows initial planning and precedes the design and construction stages. Predesign marks the beginning of project planning; it is not the result of a design concept already selected. Think of the predesign as the "business plan" for a capital project that identifies the goals for how a project will function to serve operations and how it will enhance the campus.

The predesign tests project feasibility by examining and answering the following questions:

- How does the facility meet the objectives of the college or university?
- How does it meet the objectives of the Minnesota State Board of Trustees' strategic framework?
- How does the proposed facility meet the campus's operational plan?
- What are the capital costs of the project?
- What are the funding sources for the project and their respective amounts?
- What is the proposed project schedule when the funding sequence schedule for legislative action on capital budgets is considered?
- What is the total cost of ownership of the project? (Long term projection of operating expenses and expected useful life of the facility, including the campus share of debt service.)
- What are the risks associated with the project?
- What alternatives to the proposed project were considered during the predesign process?

Should the project receive funding, the predesign is the document used to communicate the project requirements to the design team.

What is the role of the predesign within the Minnesota State system?

Predesign is an integral part of the system's Capital Budget, HEAPR, and Revenue Fund processes. During the predesign process, the campus will work with the system office to ensure the predesign complies with all state and system requirements for Capital Budget, HEAPR, or Revenue Fund projects. Predesigns for Capital Budget projects are then used in Minnesota State's Capital Budget scoring process that determines whether a project will be included in the Minnesota State Capital Budget Request to the State.

A predesign must describe how the proposed project reflects the *Board of Trustees Strategic Framework*:

- Ensure access to an extraordinary education for all Minnesotans
- Be the partner of choice to meet Minnesota's workforce and community needs
- Deliver to students, employers, communities and taxpayers the highest value/most affordable option.

Though the level of detail within a predesign does not generally rise to the level of actual design work, the campus and its predesign consultant should keep in mind that the eventual project design will need to follow the Minnesota State *Facilities Design Standards* and the *Space Planning Guidelines*.

What comes before predesign?

Comprehensive Facilities Planning (formerly known as Master Planning), which occurs on a five-year cycle for each campus, precedes predesign work; within the campus's Comprehensive Facilities Plan, capital projects are proposed for future funding. Predesigns should build upon the information contained within the campus's CFP.

Facilities planning that precedes predesign is not eligible for bonding because it is not project-specific. After campus planning and predesign have occurred, design and construction processes are eligible for bond funding.

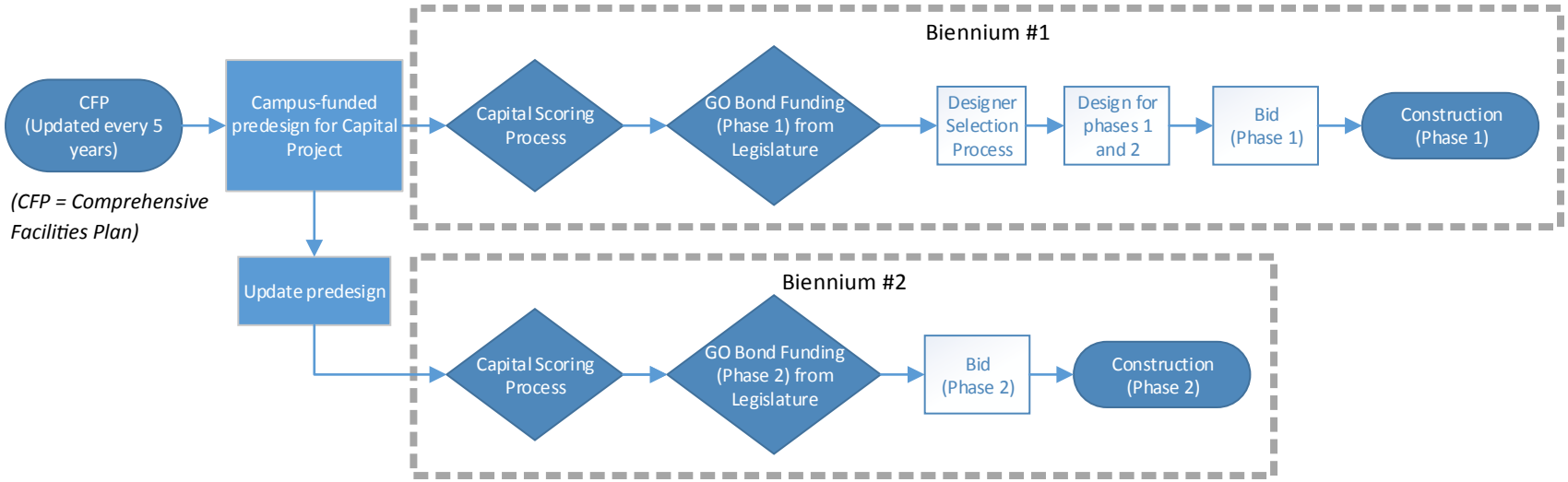
What is the relationship of predesign to the first major funding?

The Minnesota State system requires that a predesign be completed before a campus may make a Capital Budget or Revenue Fund request. Not all projects with completed predesigns will be funded for design and construction. Information from the predesign process forms the basis for a decision on whether a project should receive additional funding for design and construction.

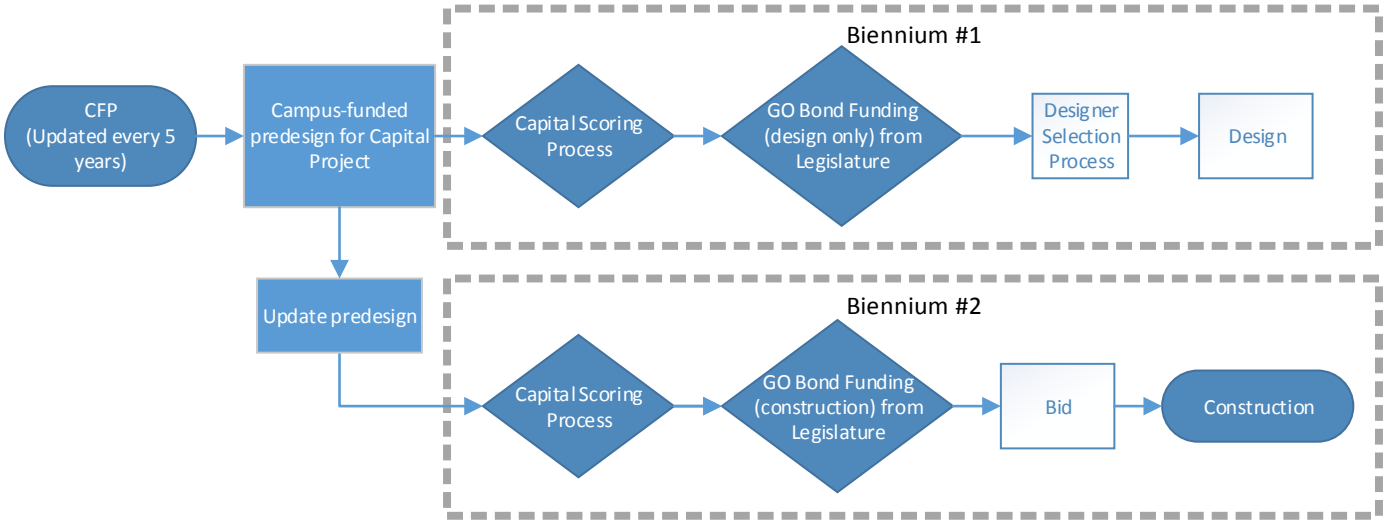
Design and construction funding can be sequenced in a number of ways; diagrams on the following pages outline these methods.

Capital Project Funding Pathways

Note: *For all Capital Budget projects, if GO Bond funding is not received, the project predesign may be updated and resubmitted for Capital Budget Scoring in a later biennium.*

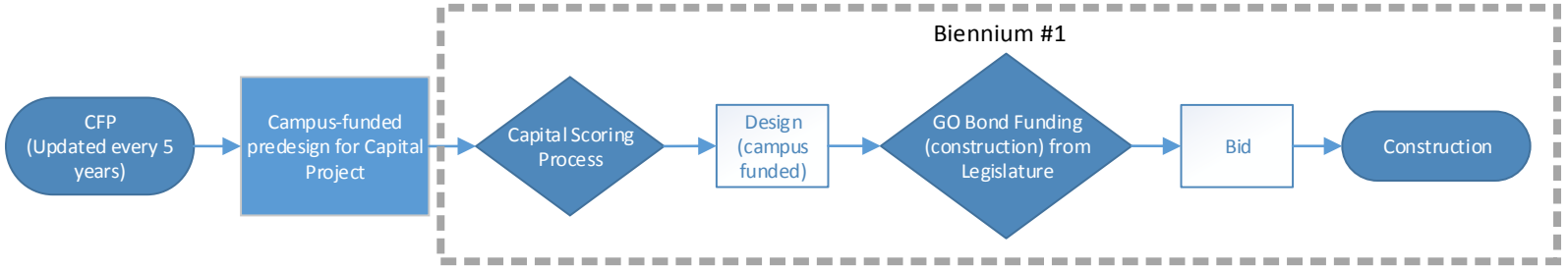


Option 1, Capital Budget (GO Bond) funding/phasing: *Design and construction (Phase 1) in biennium #1; remainder of construction (Phase 2) in biennium #2. Each phase of the project goes through the Capital Budget Scoring Process separately. This is one of the most common funding pathways.*

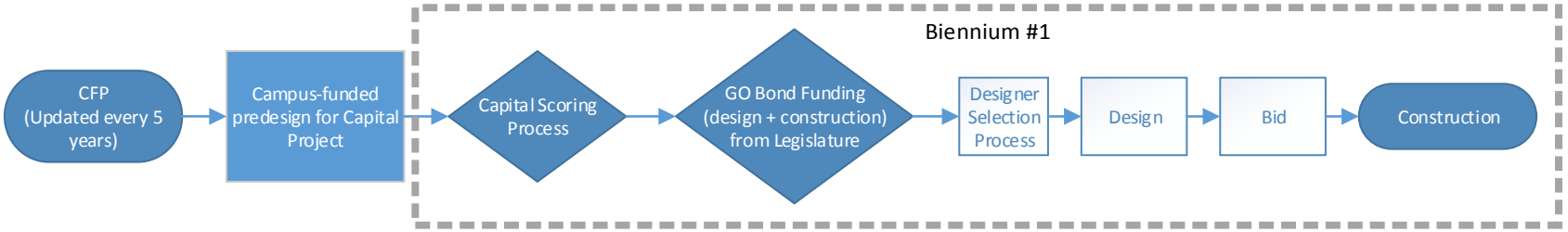


Option 2, Capital Budget (GO Bond) funding/phasing: *Design only in biennium #1; construction in biennium #2. Each phase of the project goes through the Capital Budget Scoring Process separately. This is one of the most common funding pathways for projects over $10 million total project cost.*

Note: *For all Capital Budget projects, if GO Bond funding is not received, the project predesign may be updated and resubmitted for Capital Budget Scoring in a later biennium.*



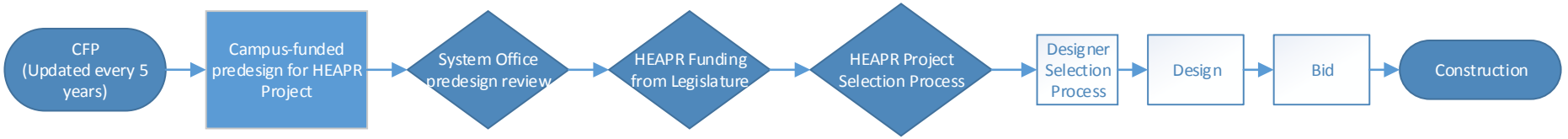
Option 3, Capital Budget (GO Bond) funding: *Campus self-funds all of design after Capital Scoring process; construction is funded by GO Bonds.*



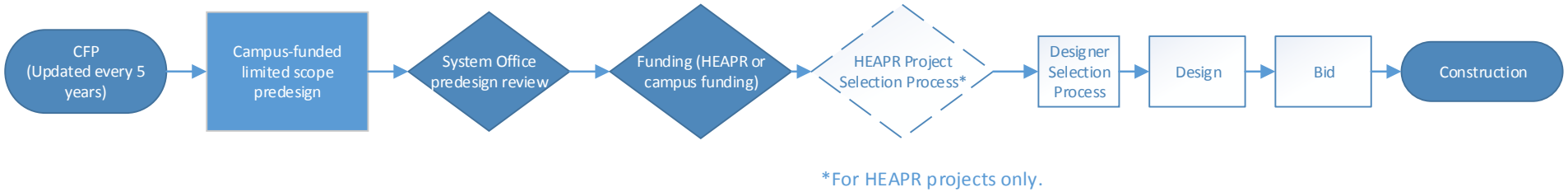
Option 4, Capital Budget (GO Bond) funding: *Design and construction in the same biennium. Only recommended for projects with a total project cost under $10 million.*

Capital Project Funding Pathways

Revenue Fund project funding: *Design and construction are funded by Revenue Bonds. Revenue Fund projects are not subject to the State Designer Selection Board process, but using a similar designer selection process is recommended.*



HEAPR project funding (projects over $750K construction cost): *Design and construction are funded by HEAPR funds. HEAPR projects are not subject to the State Designer Selection Board process, but using a similar designer selection process is recommended.*



Limited-scope HEAPR or campus-funded project (construction cost between $100K and $750K): *Design and construction are funded by HEAPR or campus funds. HEAPR projects are not subject to the State Designer Selection Board process, but using a similar designer selection process is recommended.*

When is a predesign required?

All Capital Budget or Revenue Fund projects require a full predesign.*

Minnesota Statute §16B.335, Subdivision 3, requires the results of predesign to be submitted by Minnesota State to the Department of Administration before commencing design. However, HEAPR projects and projects whose construction cost will be less than $750,000 are exempt from Dept. of Administration predesign review. (Certain project types are also exempt, including demolition or decommissioning, utility infrastructure projects, and storage facilities not consisting primarily of offices or heated work areas; for more details, see MN §16B.335 (1b).)

The system office submits the predesign to the Dept. of Administration on behalf of the campus. Admin reviews the predesign and makes a recommendation to Minnesota State regarding the status of the predesign; a favorable recommendation by the Department of Administration is required to satisfy the requirements of the predesign statute.

***For more detail on HEAPR predesign requirements, please see the *HEAPR Full and Limited-Scope Predesign Checklists* section, starting on page 34.**

Type of predesign required by project type

Project Type (funding source)	Type of Predesign (PD) Required		Related Documents Required
	Full PD	Limited Scope PD	
Capital Budget Request (CBR)	All projects	n/a	CBR Narrative (.doc) and Workbook (.xls); Project Data Sheet
Revenue Fund project	All projects	n/a	Financial proforma
HEAPR project*	Constr. cost over $750K	Constr. cost $100K-$750K	HEAPR project budget worksheet
All other funding sources	Constr. Cost over $750K	Constr. Cost $100K-$750K	Project budget worksheet

Predesign sections required by predesign type*

Predesign Section	Required/Optional sections:	
	Full predesign	Limited Scope
— Front Matter	R	R
1: Summary	R	R
2: Project Narrative	R	O
3: Project Description (Scope)	R	R
4: Sustainability and Energy	R	O
5: Financial Information - Capital Expenditures	R	R
6: Financial Information - Ongoing Operating Expenditures	R	n/a
7: Schedule	R	R
8: Technology Plan/Budget	R	n/a
9: Appendix	R	O

What is the role of predesign after funding is or is not received?

If the project receives funding, the predesign document will be used as the basis for designer selection, terms of the contract with a designer, and for the ultimate design and construction of the building.

Minnesota Statute §16B.33, Subdivision 3, requires that the State Designer Selection Board (SDSB) select the primary designer for the project when the estimated construction cost is greater than $2,000,000 or for a planning project with estimated fees of $200,000 or greater. Minnesota State must make a written request to the Commissioner of Administration, who then forwards the request to the SDSB. This requirement applies to projects in State-owned buildings or new buildings that will be owned by the State. The project does not need to go through the SDSB process until the project receives funding.

Note: The State Designer Selection Board is not a requirement of the Revenue Fund Capital Project process, but the campus should plan on establishing a designer selection process similar in approach to the SDSB.

If the project does not receive funding and the campus intends to request funding for the project in the next capital bonding session, the predesign should be retained, updated, and resubmitted. Note that updated predesigns must be a complete document, with all sections updated.

Developing a Predesign

Who performs predesign?

We recommend that campuses retain qualified architectural and/or engineering consultants to develop the bulk of the predesign, due to the complexity of issues, elements, and systems in building projects. A multidisciplinary team may be needed if the project is particularly complex. The campus proposing the project will be responsible for providing information on their statutory requirements, strategic plan, operational program, and anticipated changes in their operating costs. The system office can assist the campus in preparing a Request for Proposal (RFP) to obtain the services of an architectural/engineering (A/E) consultant firm to help the campus prepare the predesign document.

Responsibilities

Task	Campus	Consultant	System Office
Getting Started/Selecting a Consultant			
Preliminary planning (facilities, financial, strategic)	x		
Use template to create draft RFP	x		
Review RFP	x		x
Send RFP to consultants or release publicly	x		
Review consultant proposals	x		x
Consultant interviews (optional)	x	x	x
Select consultant and finalize contract/agreement	x		
Developing the Predesign			
Provide reference materials: Existing campus facilities, strategic, academic, technology, financial plans; program data; ongoing operating costs; etc.	x		
Site visits, review existing conditions		x	
Conduct/attend meetings w/ stakeholders, student groups, community groups	x	x	
Revenue Fund projects only: Prepare proforma	x		
Develop document drafts (50%, 95%)	x	x	
Submit document drafts to system office via SharePoint	x		
Review document drafts	x		x
Final Steps			
Prepare final presentation (after 95% review complete)	x	x	
Final presentation to Assoc. Vice Chancellor, via Webex	x	x	x
Update/revise document as required, following presentation	x	x	
Submit final (100%) Predesign and other documentation to system office via SharePoint	x		

The campus or other entity requesting funds--not the consultant, if any, preparing the report--is responsible for submitting the final predesign to the system office and ensuring that the report is consistent and complete. The final predesign report must include two cover letters (see the templates at the end of this document):

1. Cover letter from the institution's president, addressed to the Associate Vice Chancellor for Facilities (not required for HEAPR projects)
2. Cover letter from the A/E consultant addressed to the primary campus project contact.

Cost of predesign

Predesign, including any subsequent predesign updates, is funded directly by the campus(es) proposing the project. Predesign fees vary depending upon the scope and schedule of the project; approximate ranges are shown in the matrix on this page. Achieving these cost ranges is highly dependent on the campus completing its campus facilities, strategic, and academic planning before undertaking predesign. The project scope and expertise required will play a large role in determining predesign fees; for instance, if a cost benefit analysis is needed, there will be a cost for a financial consultant. It's important that predesign fees be sufficient to allow the consultant to understand and analyze existing conditions, project scope and requirements, and the full range of project costs for cost estimating.

Results of predesign

The main result of predesign is a clear project plan that, if implemented, will meet all project objectives. The project plan is a reconciliation of the campus's operational needs with project financial planning, scheduling, and the requirements of the capital budget legislative process.

The predesign presentation

All Capital Budget and Revenue Fund projects must present their final predesigns to the Associate Vice Chancellor for Facilities. This presentation occurs via Webex teleconference and typically involves the campus's primary project contact, the A/E consultant (if desired), and 3-4 system office personnel. For more details, see the *Guide to the Predesign Presentation*, found at the Facilities website.

Checklist: Document Format

- All pages numbered by section (except Front Matter, Tabs/Dividers)
- Font size no less than 10 points
- Entire document to be capable of clear black and white reproduction
- Site maps/plans to include campus identification, north arrow, graphic scale, street names
- Floor plans/building maps to include campus or building identification, north arrow, and graphic scale
- Draft submittals (50%, 95%): Electronic copy (PDF) submitted to campus and system office (campuses may request printed copies)
- Final submittal (100%): One printed copy and one electronic copy (PDF) submitted to campus and system office. 3-ring binder format: Binder to be labeled on front **and spine** with institution name; predesign status (Final/100%); consultant firm name, name of primary contact, address, phone, and email; date of submittal.
- *Printing on both sides of the page is encouraged.*

Predesign fee ranges, by construction cost

	Construction Cost		
	Under $1M	$1M-$10M	>$10M
Predesign Fee Range	0.50%-2%	0.25%-0.75%	0.25%-0.6%
Predesign Fee Average	1%	0.60%	0.50%

The high end of each range will generally be for more complex projects that affect multiple building systems. Simpler projects typically generate smaller predesign fees. Predesign updates may have smaller fees. Campuses should budget for multiple predesigns per project (original predesign and predesign updates for multiple capital budget cycles).

Predesign Section Descriptions

What follows are detailed descriptions of all sections of a predesign document. For each section, you'll find a summary of the section goals and intent followed by a checklist of items to include in your document. The checklist also indicates which checklist items must be included within each draft of the document. (For HEAPR projects, see the HEAPR Predesign Checklists section of this document.) Example graphics follow each section summary page.

Note: Example graphics are taken from recent predesigns and are shown here only to illustrate general concepts. They should not be adhered to stylistically verbatim or taken as current factual data.

Overview

The predesign sections described in the following pages allow for some flexibility in what content is required, depending on the needs and complexity of the proposed project. For example, a project consisting only of interior remodeling would not need to provide extensive information on site selection, stormwater control strategies, etc. If the predesign omits a certain section or requirement, it should note why that section was not included.

Within the section checklists, required forms or letters are identified in ***bolded italics***. Sample templates can be found at the end of this document; downloadable versions are available at the Facilities website.

Checklist: Front Matter	Document draft 50%	95%	100%
Title/Cover Page	●	●	●
Cover letter from campus*			●
Cover letter from consultant*			●
Table of Contents	●	●	●

● = required item

**Cover letter from consultant must include architect or engineer's certification with date, signature and consultant's Minnesota registration number; see template on page 48.*

***Cover letter from campus (template on page 47) is not required for HEAPR projects.*

Section 1: Summary

Briefly summarize the basic data of the project:

- **What** the project is,
- **Where** it is on the campus,
- **Who** participated in the predesign process (partners, stakeholders) and who benefits (students, etc.),
- **How** this project serves the strategic framework; how much does it cost; how is the project funded and delivered,
- **Why** the project is needed, and
- **When** the project is expected to be designed, funded, and constructed.

Other considerations (summarize within narrative):

- Renewable energy
- Campus contribution
- Enrollment impact (for affected programs and college or university as a whole); are the affected programs new or existing?

Checklist: Section 1: Summary	Document Draft 50%	95%	100%
Brief description of project: Scope, size, cost, schedule, stakeholders, why is the project needed, how will the project be delivered	●	●	●
Description of how the project is funded	●	●	●
Brief description of program delivery as it relates to the project	●	●	●
Description of academic and operational programs affected by the project	●	●	●
Summary of major facilities issues affected by the project: Deferred maintenance/renewal, space utilization improvement, sustainability, B3 Guidelines adherence, renewable energy, etc.	●	●	●
Cost breakdown: Demolition, new construction, renovation, renewal		●	●
Summary of project schedule, including milestone dates and funding		●	●
Costs and schedules for all project phases, if project includes multiple phases	●	●	●
List of past GO Bond appropriations (for design or previous phases).	●	●	●
Summary of backlog reduction		●	●

● = required item

1 Predesign Summary Statement

Project Title

Bemidji State University:
Academic Learning Center & Campus Renovation

Project Scope

This project will entail the replacement of 82,500 GSF of severely outdated classroom and office space with a state-of-the-art (28,200 GSF) classroom and learning center along with significant renovation of existing space on campus. The existing facility is one of the most highly used buildings with one of the highest FCI values on campus, and has never been significantly renovated since the initial construction over 40 years ago. All HVAC systems are beyond their expected lifespan; all finishes are dated and worn; there is extensive water infiltration in the lower level mechanical room; light levels are poor to adequate; daylighting is severely limited; there are limited student gathering spaces; and instructional spaces are limiting pedagogy. Additional scope to include the renovation/renewal of 72,100 GSF space in existing academic buildings on campus: Bensen Hall, Sattgast Hall, Bridgeman Hall, Bangsford Hall, Deputy Hall and A.C. Clark Library.

View of University's Main Entrance

Major Impacts of Project

- Save operating costs by **reducing campus size by 53,300 GSF**.
- Increase space utilization of classrooms from approximately 47% to **70%**.
- Demolition of Hagg-Sauer (FCI .31) will **eliminate over $7.5 million** from the backlog of required maintenance and asset preservation. Renovation/renewal of 72,100 GSF will **eliminate another $1.5 mil** from the backlog of required maintenance and asset preservati
- Reduce campus-wide **FCI of 0.11 to under 0.09**
- Create **"Learning Communities"** for synergistic departments to increase student/faculty contact, establish strong program identity, encourage increased enrollment and retention, and develop stronger community and academic partnerships.
- Encourage students and faculty to engag any levels, from the formal classroom environment to inform co in the community niches created within corridors and dedic ed "h " areas.
- Create **full-spect m learning facilities** The new enovated facilities will acc mmodate traditional lect res, col o learning, private study, co munity meetings, faculty o s, confere and s l gathering student gathering spaces tudent study are and o teracti instruction.
- Increas li ation of existing facilitie through space optimization of existing on campus. This project ates significant portions of t demic buildings.
- Reduce instru tion lities square footages by greater than **10%** to improve ove l utiliza
- Start **imple entation of the Master Facility Plan** by reinforcing the academic co of the campus and connections to Lake Bemidji.
- **Increased ergy efficiency**, reduction of greenhouse gases and compliance ith 2009 revisions to MSBG (B3).
- Renewable Energy: Potential installation of photovoltaic panels for demonstration purposes to support Bemidji State University and MnSCU's commitment to environmental responsibility.
- Support Academic Plan

Project Location
Bemidji State University
1500 Birchmont Drive NE
Bemidji, MN 56601

2014 Appropriation
Planning and Design
Funding Provided:
$1,000,000

2016 Appropriation
Construction Funding Request:
$15,933,000 without inflation
$18,079,000 with inflation

Project Summary
New Construction: 28,900 GSF
Renovation: 54,700 GSF
Renewal: 17,400 GSF
Demolition: 82,500 G
Construction S t: July 2016
Midpoi struction:
June 201
Occupancy: M 2018

Example project summary.

1.1 Summary Statement

Location:
Anoka-Ramsey Community College
11200 Mississippi Blvd. N
Coon Rapids, MN 55433

Schedule:
2016 P ding
L Funding
July
Design anities
July 20 Dec ber 2016
Construct anities
January 2 - December 2017
Design NALC
July 2016 - 017
Request
$4,965,000
2018 Bonding
gislative Funding
uly 2018
Construction
August 2018 - August 2019
Occupancy
Fall 2019
Request
$24,926,000
2020 Bonding
Legislative Funding
July 2020
Construction
August 2020 - August 2021
Request
$10,260,000

The Nursing and Active Learning Center Project (NALC) is focused on the SE Corner of the ARCC Coon Rapids campus.

Anoka - Ramsey Community College is seeking funding to address several challenging needs for its Coon Rapids Campus. The funds will allow development of an accessible and welcoming entrance to the college that will showcase Student Services, Nursing ctive Learning Center classrooms and simplified internal circulatio ne conc pt for the project is a balanced combination of demolitio new construction with minor renovation.

Anoka - Ramsey Commun College C n Rapids Campus specific needs:

- Resolve long standing concer have an entry at is visible, welcoming, and directly accessible for
- Respond to Nursing student en ent increa and curriculum changes; including Microbiology ire s for all nursing students reate correctly sized, flexible, tech gy rich classrooms
- fine Student Serv e areas that will simplify the process and are conve- tly located at th point of entry to the college.

Projec liver

A four s p approach for the project design and construction
1. Design Nursing and Active Learning Center.
2. Renovation of Humanities Building.
3. Demolition of BN Extension and construction of Nursing and Active Learning Center.
4. Vacate BN, demolish building, construct new front entry and aproach roads.

Results upon completion:

- Creates new entry and visibility for campus while ensuring safety, accessibility, and simplifying overall campus circulation.
- Benefits multiple campus programs including Nursing, Science, and Student Services specifically but not exclusively.
- Provides physical and programmatic flexibility by creating the Active Learning Center. Improves classroom scheduling and utilization through reduction of classrooms, rightsizing new classrooms, and designing for multiple-disciplined, flexible use.
- Improves campus sustainability efforts by interconnecting buildings and by replacing an inefficient building with one that exceeds B3 and 2030 guidelines as required by the state of Minnesota.
- Eliminates $4 M backlog in the BN Building and the BN Extension.

Project Capsule

1.	Existing Building Removal =	51,600 GSF
2.	New Construction =	51,200 GSF
3.	Net area gain	- 400 GSF
4.	Predesign Construction Budget 2018 =	$17,587,000
	Predesign Construction Budget 2020 =	$ 5,373,000
5.	Predesign Project Budget 2018	$24,926,000
	Predesign Project Budget 2020	$10,260,000

Example project summary.

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

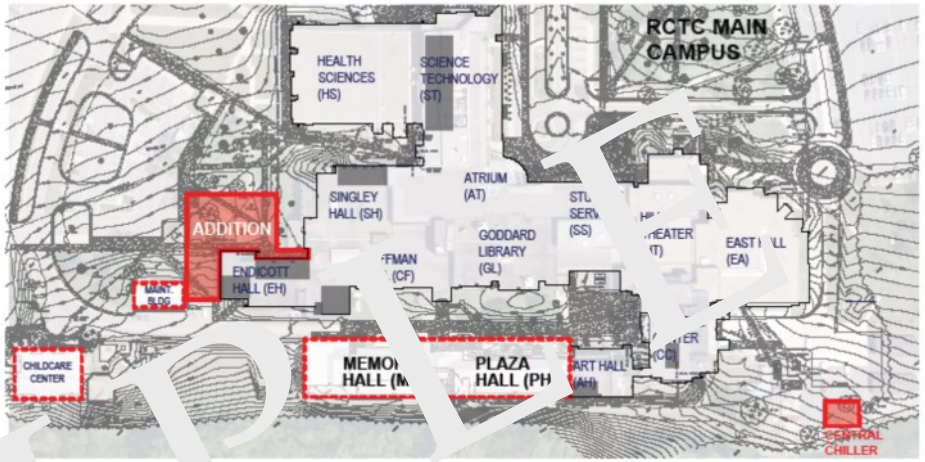
F. Construction Cost Breakdown by Construction Type

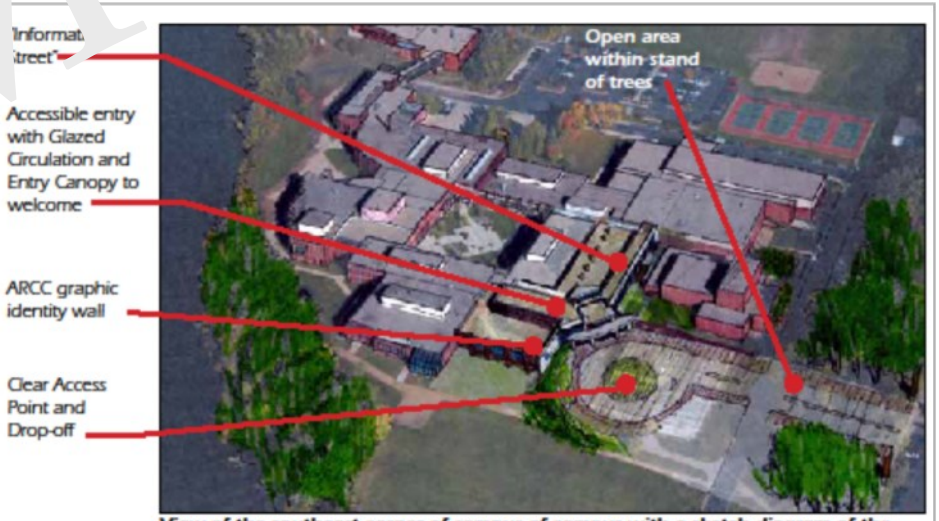
CONSTRUCTION COST	Proposed Area	Proposed Construction Cost
Demolition of Childcare	4,000 GSF	$40,000
Demolition of Memorial & Plaza Halls	32,000 GSF	$480,000
Demolition of the Maintenance Shed	2,000 GSF	$6,000
Repair West Face of Art Hall	200 GSF	$40,000
Courtyard & Site Development		
West Site Access		$100,000
Campus Courtyard		,000
Utilities and Stormwater		
Renewable Energy (B3)		
New Chiller Plant		$5,2 ,000
New Classroom/Office Addition	GSF	$6,00 000
Remodeled Space in Existing Building	SF	$1,739, 0
TOTAL CONSTRUCTION COST	,390	$14,455,

G. Schedule and Phasing

PRO HEDULE	
Commence sig truction Documen s, and MnSCU Review	Spring 2015
Design Fund	Summer 2016
Project Start c nstruction	Fall 2016
Phased Renova Concu t with New Construction	
Project Construc ubstantial Completion	Summer 2017
Project Occupanc	Fall 2017

B. Major Impact of Project
Project Scope





View of the southeast corner of campus of campus with a sketch diagram of the ARCC. NALC project highlighting a new accessible entry.

Example summary graphics.

Example site plans.

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Section 2: Project Background Narrative

This section justifies the need for the project and describes its background, including existing conditions and program needs.

- *Description of project relative to academic and facilities planning:* Describe how the campus's plans support the need for this project. Include relevant excerpts from those plans (or include the plans in the Appendix).
- *Description of project need:* Use demographic, DEED, and other types of data to show how the programs affected by this project support workforce needs. What are the enrollment and growth trends of the affected programs? Are those programs accredited?

  Academic program data are critical in telling the story of the project and establishing a strong case for funding. Include both current data and projections of future workforce/program growth and needs.
- *Existing facilities systems summary:* Describe how existing facilities factors are affecting the need for this project.
- *Description of planning process:* The predesign process should be inclusive and participatory, gathering views from a variety of stakeholders. Describe how the process encouraged participation by students, faculty, and the campus community.
- *Analysis of Alternatives:* The analysis and planning process should define alternative ways that were considered to meet the project's operational program requirements. Alternatives may include using existing space, adapting existing space, new construction, or leasing space. While replacing square footage (demolishing existing space and building new, more efficient space in its place) is generally encouraged within Minnesota State, new construction (adding new square footage to the campus) is discouraged and should only be considered when all other alternatives have been deemed unsuitable for the program needs. Campuses are encouraged to consider alternatives that share space with neighboring or nearby Minnesota State campuses.

  When alternatives have been defined, conduct an analysis and summary of alternatives to meet the project's operational program and service delivery requirements. Indicate which alternative was selected and describe how it

Checklist: Section 2: Project Background Narrative	Document Draft 50%	95%	100%
Describe how this project fits with the campus's mission, strategic, and academic plans, and how it positively impacts students	●	●	●
Describe where this project fits in the campus Comprehensive Facilities Plan; context for any changes between the CFP and this proposed project	●	●	●
Description of supporting data, analysis, or studies that support the proposed program delivery and demonstrate project need: Type of pedagogy, enrollment, workforce, regional issues, etc.	●	●	●
Accreditation status (if relevant) of affected programs		●	●
Description of academic and operational programs affected by the project; describe any effect on class schedules	●	●	●
Existing facilities systems summary: Key facilities performance indicators, backlog, FCI, renewal for campus and for buildings affected by the project		●	●
Existing floor plans of all affected spaces/buildings		●	●
Description of planning process, participants, and significant outcomes during the process		●	●
Space utilization analysis (campus as a whole and affected buildings): Include last two years' average space utilization data (from EMS Campus system)	●	●	●
Sustainability highlights: Sustainable concepts or technologies that may be used by this project		●	●
List of alternatives or options evaluated for this program delivery (site, leasing, or building options)	●	●	●
List of statutory requirements, if applicable, that drive the operational program		●	●
Describe current classroom & class lab scheduling policy		●	●
Photos of proposed renovation area or potential new building location	●	●	●

maximizes program suitability and minimizes first cost and life of the program costs. Include a clear explanation of the thought process and criteria used to select the preferred alternative. Describe the nature and breadth of participation by user groups within the campus.

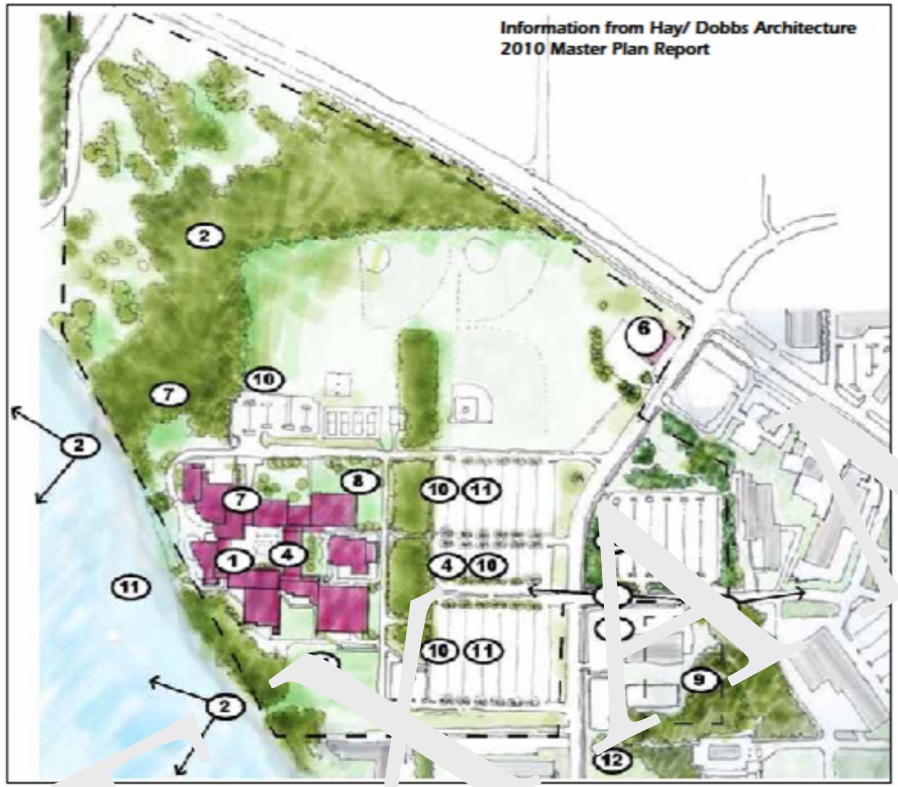
- *Photos of proposed renovation area:* **As part of each Capital Budget Request, campuses must submit 2-3 high quality digital photographs of the areas to be improved by the proposed capital project.** Photos should be at least 10 megapixels (3872 x 2592), 8-bit RGB high quality/lightly compressed jpg. The pictures should be publication quality, as they may be used for the system's capital bonding book, scoring, and capital budget presentations. Campuses should submit these photos through the Capital Budget Request SharePoint site.

Revenue Fund projects only: *Student consultation/local jurisdiction requirements (see checklist at right)*

Address and outline the consultative process the campus undertook and is undertaking with student leadership and student body; explain the participation of students in the project committee work; discuss and summarize the specific work with the local jurisdiction related to alignment of project and building and/or zoning code conversations.

Checklist: Section 2: Project Background Narrative	Document Draft 50%	95%	100%
Revenue Fund projects only — Supplemental Requirements: *Describe student consultation process and outcomes:*		●	●
Identify the dates/times the consultant and campus leadership met with students leading up to the predesign work		●	●
Identify and include copies (in Appendix) of formal presentation provided to students		●	●
Describe how students were solicited for feedback in the process – student referendums, surveys, task forces, social media campaigns		●	●
Summarize meeting minutes with local jurisdictions in preparation for this project; were there conditions imposed on the project that would affect other development on the campus?		●	●

2.4 Facilities Master Plan



2010 ARC[illegible]aster Plan
Coon Rapi[illegible]ampus I[illegible]atives

1. Flexi[illegible]rogram space
2. Respe[illegible] the river envi[illegible]nment & natural areas *
3. Public a[illegible]ness & [illegible]ty *
4. Partnersh[illegible]ommunity, city, & county entities
5. Collegial [illegible]ces *
6. Create a better arrival sequence from the east *
7. Create a better front door to the campus, possibly at Mississippi River Boulevard or Pheasant Ridge Road *
8. Look to externalize library and/or repurpose current library space
9. Add space for wellness, music and circulation
10. Evaluate options for student housing with private developer
11. Evaluate parking needs and locations *
12. Campus-wide stormwater management *
13. Explore land acquisition of adjoining properties as they become available.

* This predesign proposal is committed to fostering improvements for the ARCC Coon Rapids Campus in each of these specific initiatives from the 2010 Facilities Master Plan.

Option D (2016 PreDesign)

Scope: This Option is similar [illegible]ption A with the scope to include the complete gutting of th[illegible]ting building (82,000 GSF) down to the structural frame. The diff[illegible]ce would [illegible]e in the extent of the renovation. In this option it is [illegible]posed th[illegible] the entire basement Mechanical Level would be fille[illegible] [illegible]e ma[illegible]taining utility runs) and ab[illegible]ndoned to avoid costly w[illegible]roofing repai[illegible], and a significant [illegible]n of the existing third level [illegible]vated into a [illegible]w mechanical ro[illegible] instead of building a new pen[illegible]se as des[illegible]ed in Option A.

Pros: [illegible]nificant energy savings throu[illegible]mbodied energy in salvage structu[illegible] Significant savi[illegible]gs in constr[illegible]ction costs through reuse of primary [illegible]uctural framing; Alignment with 2014 Master Plan; Maintain continuity [illegible] existing ut[illegible]s; Increased connection to Lake Bemidji; Minor incr[illegible] in s[illegible] utilization/optimization.

Cons: Deep structural floor plate not advantageous for daylight harvesting; Existing structural footprint not optimal for needed classroom configuration to meet program; Logistics of relocating faculty and classes on a short term basis during construction is challenging and costly; Campus footprint is not reduced; Low floor-to-floor heights limits clearances for ductwork, lighting, communication, and fire protection pathways; adjacent parking is not adequate.

Status: Not selected

Option E (2016 PreDesign)

Scope: This option is similar to Option B, but at a much smaller scale, in order to aggressively address budgetary and space utilization issues. The complete demolition of the 82,000 SF Hagg-Sauer would be followed by the construction of a small structure on the same site that would house both classrooms and offices for faculty, but at a much reduced scale from Option B. It is intended that the structure would be connected to Bridgeman by a skyway, and an alternative Option F.1 would be reviewed that considers the new structure to be designed as an addition to Bridgeman Hall. During the study of this Option alternative locations on campus will be briefly studied, but the university considered Option C's (previous Predesign) proposed alternative location on the campus to be unacceptable.

Pros: Alignment with 2014 Master Plan; Maintain continuity of existing utilities; Increased connection to Lake Bemidji; Minor increase in space utilization/ optimization; Significant improvement in energy efficiency.

Cons: Logistics of relocating faculty and classes on a short term basis during construction is challenging and costly; adjacent parking is not adequate; Required program cannot be accomplished with available funding in all new construction; Does not align with MnSCU's directive to reduce campus square footage by as much as possible without compromising quality of instruction; Large majority of space would be used to accommodate faculty and support services, not improved learning environments.

Status: Not selected

Example comprehensive facilities plan description/illustration

Example description of considered alternatives

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Site plan options studied include several approaches. Key to the preferred diagram is its ability to complete connections for all campus buildings, enhancing internal circulation and exterior access.

Option A/B explores construction in 2 areas connecting all buildings.

Option C explores a more dynamic plan in a single area

Option C explores construction in a single area with a double loaded corridor approach.

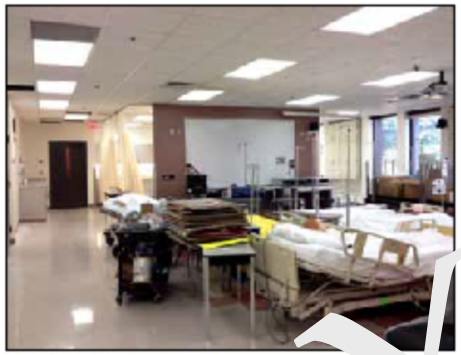
Option A/B is the consensus preferred diagram as it addresses both academic as well as campus wide concerns.

Example analysis of site selection alternatives (new construction)

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

View of unwelcoming student access from parking lot

View of infill area between Science, BN Extension and the BN Building.



Existing Nursing Practicum area

Typical Humanities Classroom

Typical small classroom in the BN Building

Tiered lecture room in the BN Extension Building

sagging ceiling tile

non-ADA compliant door at restrooms

Example photos of renovation areas, with captions

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Space Utilization Analysis (02/26/2014)

Spring 2014 Campus Wide Figures
Campus Square Feet: 925, 844 GSF
GSF/ FYE: 219 SF/ FYE
Number of Classrooms and labs: 101
Percent Room Use: 53%
Percent Seat Use: 35%

Spring 2014 Hagg-Sauer figures
Building Square Feet: 82,478 GSF
Number of Classrooms: 21
Number of Labs: 0
Classroom Room Use: 82%
Classroom Seat Use: 38%

Spring 2014 Bensen Hall figures
Building Square Feet: 53,342 GSF
Number of Classrooms: 7
Number of Labs: 1
Classroom Room Use: 53%
Classroom Seat Use: 28%

Spring 2014 Bangsberg Hall figures
Building Square Feet: 86,878 GSF
Number of Classrooms: 3
Number of Labs: 0
Classroom Room Use: 36%
Classroom Seat Use: 19%

Spring 2014 Sattgast figures
Building Square Feet: 77,598 GSF
Number of Classrooms: 6
Number of Labs: 11
Classroom Room Use: 29%
Classroom Seat Use: [illegible]

Spring 2014 AC Clark Lab figures
Building Square Feet: 71,462 [illegible]
Number of Classrooms: 0
Number of Labs: [illegible]
Classroom Room Use: 53%
Classroom Seat Use: NA

Spring 2014 Class Size

01-20 :	4 classes that met in small seminar rooms
20-25 :	19 classes
26-35 :	40 classes
40-45 :	34 classes
50-60 :	7 classes
74-100 :	25 classes
143-250 :	3 classes

Example space utilization analysis

Example space utilization "heat map"

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

2.3 Project Planning Process

Academic Concerns cont'd

- Current Nursing technology does not accommodate partner requirements from Metropolitan State University or Bemidji State University.
- The MANE curriculum is more demanding than the previous nursing curriculum. This is causing increased demand for Microbiology courses which can't be re solved in the current buildings.

New MANE Nursing Program

Choose one of the following two options:

PROGRAM REQUIREMENTS: THREE-SEMESTER OPTION — 35 CREDITS

The following courses must be taken in the sequence listed:

- ☐ NURS 2700 Foundations of Nursing — Theory (4), Lab (2), Clinical (3) 9
- ☐ NURS 2750 Nutrition & the Role of the Professional Nurse 2
- ☐ NURS 2800 Pharmacology & the Role of the Professional Nurse 3
- ☐ NURS 2820 Applied Pathophysiology for Nursing I 2
- ☐ NURS 2850 Chronic & Palliative Care — Theory (3), Clinical (3), Lab (1) 7
- ☐ NURS 2900 Acute & Complex Care — Theory (3), Clinical (3), Lab (1) 7
- ☐ NURS 2920 Applied Pathophysiology for Nursing II 2
- ☐ NURS 2950 Nursing Leadership (Theory (2), Clinical (1) 3

PROGRAM REQUIREMENTS: LPN MOBILITY OPTION — 30 CREDITS

The following courses must be taken in the sequence listed:

- ☐ NURS 2720 Transition to the Role of the Professional Nurse — Theory (3), Lab (1) 4
- ☐ NURS 2750 Nutrition & the Role of the Professional Nurse 2
- ☐ NURS 2800 Pharmacology & the Role of the Professional Nurse 3
- ☐ NURS 2820 Applied Pathophysiology for Nursing I 2
- ☐ NURS 2850 Chronic & Palliative Care — Theory (3), Clinical (3), Lab (1) 7
- ☐ NURS 2900 Acute & Complex Care — Theory (3), Clinical (3), Lab (1) 7
- ☐ NURS 2920 Applied Pathophysiology for Nursing 2
- ☐ NURS 2950 Nursing Leadership I (Theory (2), Clinical 3

LPN ADVANCED STANDING CREDITS — 5 CREDITS

GENERAL EDUCATION/MnTC REQUIREMENTS — 40 CREDITS

Complete a minimum of 40 credits from the Minnesota Transfer Curriculum (MnTC), including the following:

- ☐ BIOL 1106** Principles of Biology I 4
- ☐ BIOL 2113* Anatomy & Physiology I 4
- ☐ BIOL 2114* Anatomy & Physiology II 4
- ☐ BIOL 2201* Microbiology 4
- ☐ CHEM 1050** Chemistry in Society 3
- ☐ CMST 1110 Introduction to Communications Studies
  OR CMST 2220 Interpersonal Communications 3
- ☐ ENGL 1121* College Writing & Critical Reading 4
- ☐ PHIL 1200 Medical Ethics 3
- ☐ PSYC 1110 General Psychology 4
- ☐ PSYC 2235* Lifespan Development 4
- ☐ SOC 1111 General Sociology 3

**Biol 1106 as needed for pre-requisite for Biol 2113 4 credits
**Chem 1050 as needed for Biol 1106 3 credit

Previous Nursing Program

Choose one of the following two options:

PROGRAM REQUIREMENTS: TWO-YEAR OPTION — 34 CREDITS

The following courses must be taken in the sequence listed:

- ☐ NURS 2584* Pharmacology for Nurses & Related Health Professionals 2
- ☐ NURS 1180* Health Assessment 3
- ☐ NURS 1181* Foundations of Holistic Nursing 3
- ☐ NURS 1182* Nursing Interventions I 2
- ☐ NURS 1280* Pathophysiological Phenomena for Nurses I 2
- ☐ NURS 1281* Holistic Nursing Care I 3
- ☐ NURS 1282* Nursing Interventions II 3
- ☐ NURS 2380* Pathophysiological Phenomena for Nurses II 2
- ☐ NURS 2381* Holistic Nursing Care of Special Populations 3
- ☐ NURS 2382* Nursing Interventions III 3
- ☐ NURS 2480* Pathophysiological Phenomena for Nursing III 2
- ☐ NURS 2481* Holistic Nursing Care II 3
- ☐ NURS 2482* Nursing Interventions IV 3

PROGRAM REQUIREMENTS: LPN MOBILITY OPTION — 22 CREDITS

The following courses must be taken in the sequence listed:

- ☐ NURS 1280* Pathophysiological Phenomena for Nurses I
- ☐ NURS 1281* Holistic Nursing Care I
- ☐ NURS 1283* LPN Transition to RN 2
- ☐ NURS 2380* Pathophysiological Phenomena for Nurses II 2
- ☐ NURS 2381* Holistic Nursing Care of Special Populations 3
- ☐ NURS 2383* LPN Transitions Interventions 2
- ☐ NURS 2480* Pathophysiological Phenomena for Nursing III 2
- ☐ NURS 2481* Holistic Nursing Care II 3
- ☐ NURS 2482* Nursing Interventions IV 3

LPN ADVANCED STANDING CREDITS — 12 CREDITS

GENERAL EDUCATION/MnTC REQUIREMENTS — 30 CREDITS

Complete a minimum of 30 credits from the Minnesota Transfer Curriculum (MnTC), including the following:

- ☐ BIOL 2113* Anatomy & Physiology I 4
- ☐ BIOL 2114* Anatomy & Physiology II 4
- ☐ BIOL 2201* Microbiology 4
- ☐ CMST 1110 Introduction to Communications Studies
  OR CMST 2220 Interpersonal Communications 3
- ☐ ENGL 1121* College Writing & Critical Reading 4
- ☐ PSYC 1110 General Psychology 4
- ☐ PSYC 2235* Lifespan Development 4
- ☐ SOC 1111 General Sociology 3

**A&P I and II must be taken within 7 years prior to program start date.*

Note the increase in credits required to satisfy the Nursing Degree program.

Example academic program analysis

2. Project Background Narrative

2.3 Project Planning Process

Existing Building Concerns

Business/ Nursing Building and Business/Nursing Extension

- Built in 1971, the BN Building is the only single story building connected to the main campus. The building contains 31,119 GSF with 21,661 assignable.
- Campus wide circulation is limited by this building on the upper level where it serves poorly as an entry and on the lower level where the unexcavated areas beneath the classroom with tiered seating, restricts logical connections for both levels.
- Classrooms within this Building are inadequate in size, acoustically deficient, and the technology is awkwardly distributed.

The BN Building has become a barrier for the campus to expand and resolve its circulation difficulties

- Terraced classrooms in the BN Extension Building further limit class usage.
- The penthouse for this building is located immediately over BN 235 and houses the ceiling above this lecture room air return air plenum. The equipment is old and extremely noisy rendering one of the lecture halls on the campus unusable. Add to this the sloping floor which also limits class usage.
- HEAPR funding for asset preservation totaling ±$3.2 million are needed. Note that additional work on the foundation will increase this amount.
- Sloping lecture room floors and inflexible classroom size limitations have constrained class registrations.
- Lack of flexibility has resulted in lower utilization ratios.

Humanities Building

- The Humanities Building has limited opportunity for classroom modifications and there are major utility connections in the building. This dictates that the building program should have more office space and less classroom space.

Example background narrative

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Student Consultation and Local Jurisdiction Requirements

4.1. Student Consultation:

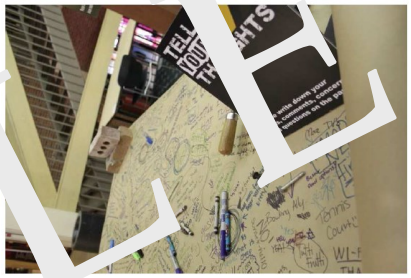
The University commitment from the beginning was to maximize student involvement and consulation throughout the process, and the result would be different if that involvement had not occurred. The Predesign Core Committee included a student senate representative. The Planning Committee of 18 students included three student senate representatives. Outside of the Predesign Planning Committee, official student consultation occurred with both Student Senate and Comstock Union Committee (student union governing board).

During the development of the space program/space adjacencies and the conceptual plans, the Planning Committee was highly involved in brainstorming, identifying needs and setting priorities. Attendance at the four three-hour workshops was consistently good, and student members were active participants. In addition, several of the Student Activities staff members on the Planning Committee were in regular contact with Union users, and had the opportunity to bring observations and direct requests from undergraduate students.

Three other methods were used to solicit input from students outside the Predesign Planning Committee. First, during their first trip to campus, the consultants performed a series of Focus Groups to learn about specific activities and student group needs. These groups included:

Focus Group—Administrative Offices
(Student Activities, First Year Programs, Diversity & Inclusion, International Student Services)
Focus Group-Student Programming
(Dragon Entertainment Group, Welcoming & After Dark Students and Staff)
Focus Group—Recreation (Recreation & Outing Center Staff, Student Manager, Business Manager and student users)
Focus Group—Sociology 375-Sociology of Health and Medicine Class, Dr. Susan Humphrey-Ginther
Focus Group—International Students
Focus Group—Multicultural Students
Focus Group—Dining/Retail
(Dining Services Management Team, Business Manager, Student Manager of Etcetera Shop/Compass)
Focus Group—Residence Hall Students
Focus Group—Student Organizations
Focus Group—Student Senate

Second, in contacts referred to as "intercept interviews," Consultants reached out to individual students on campus, to get the opinions of those who might not be as involved in the Union at present. Thirdly, a table display in the main lounge of the Union informed students of the process under way and asked for thoughts. Of the 405 ideas and suggestions for the Union, only 26 were negative.



Student consultation did not end with the completion of the Predesign Planning Workshops in April 2012. The University officially presented the results to Student Senate on the following dates:

- 10/4/12—Predesign Report
- 11/15/12—Predesign Status Update
- 9/[illegible]3—Predesign Final Report

Again, feedback from students was consistently positive, and the Senate, which has turned over nearly 100% since the Predesign process began, issued their letter of support in September 2013.

Example description of student consultation process (Revenue Fund projects only)

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Section 3: Project Description

While previous sections discussed the academic programs that the proposed project serves, the architectural/engineering program ("A/E program") as referenced in this section is a compilation of instructions to the consultants who design the project after predesign is complete. The nature and extent of these instructions are specific to the project.

Projects that include classroom, class lab, applied technology lab, office, library, or student lounge/study spaces are to follow the system's most current S*pace Planning Guidelines*, available at the Facilities website.

This section should include the forms described below. *Note that it is not required that the predesign use these exact templates — campuses and their consultants may reformat the templates to fit the graphic style of the predesign document, as long as all the information on these templates is included in the document.*

Space Needs Inventory: A template is located on page 51. Space needs should be thoroughly documented and developed in consultation with the future users of each space type. Current, as well as anticipated, infrastructure or amenities needs should be described in detail. Generally, space needs should be described in Net Assignable Square Feet (NASF).

Building Summary Form: Templates are located on pages 49 (existing buildings) and 50 (new building). Include a separate copy of this form for each existing building affected by the project or for each proposed new building.

For projects affecting multiple building systems (HVAC, security, plumbing, fire suppression, etc.), the appropriate subconsultants should be included in the predesign process. *These subconsultants must conduct in-person site surveys of all buildings involved in the project before making their recommendations.*

Checklist: Section 3: Project Description (Scope)	Document Draft 50%	95%	100%
Detailed description of design intent (include in Appendix any supporting materials, meeting minutes, or studies)	●	●	●
Detailed description of purpose/rationale for the project: Describe how the scope of the project responds to academic and information technology plans, workforce and economic development, access goals and objectives.		●	●
Detailed discussion of how this project fulfills the objectives of the Board of Trustees' Strategic Framework		●	●
*A/E Program: Complete a **Space Needs Inventory** (template in Appendix) for each required space, to include the following:*	●	●	●
Table and descriptions of all required spaces and adjacencies	●	●	●
Describe technology and/or special furniture requirements		●	●
Narrative description, including required performance characteristics, of major systems requirements: architectural, civil, structural, MEP, and specialties.		●	●
Graphics and maps: Aerial map, conceptual site plans, conceptual building plans for proposed project, other graphics that help describe the project	●	●	●
Bibliography: List of applicable codes, standards, cited research, and other publications referenced.		●	●
Special security issues or safety concerns affecting the operations or scope of the project		●	●

Checklist *continued on next page.*

Checklist: Section 3: Project Description (Scope)	Document Draft 50%	95%	100%
Building Summary Form—Existing Buildings *for all buildings/ spaces affected by the project, to include:*	●	●	●
Physical condition audit and recommendations, including photos of affected interior and exterior spaces	●	●	●
Deferred maintenance backlog and renewal data; FCI and other facilities condition data	●	●	●
Haz. mat. abatement needs and other environmental concerns		●	●
Space utilization analysis		●	●
Current conditions, adjacencies, spatial issues, and user needs for affected academic programs	●	●	●
Building Summary Form—New Building for any proposed new building (if applicable). This form does not apply to additions.	●	●	●
Analysis of project alternatives and options related to program delivery, site options, building scope, cost options, phasing, etc.		●	●
Description of past actions that affect the project (self-funded renovations by the campus, etc.)	●	●	●
Description of project impact on parking, landscape, wayfinding (internal and external), other signage or site issues		●	●
Description of how the project will address any COPE issues (see *Definitions for description of COPE details).*		●	●
Description of project phasing (if applicable), including temporary relocations/swing space needs, and effects on operating budget		●	●
Description of project's infrastructure effects or needs		●	●

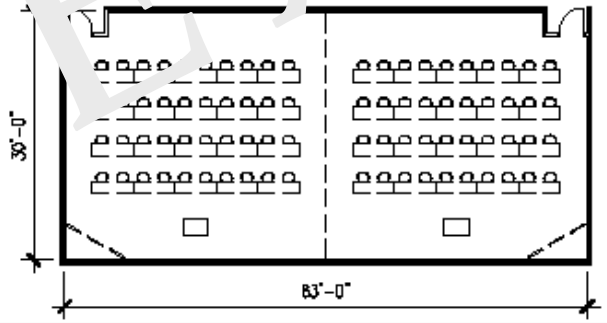
DEPARTMENT: Serving All Departments
SPACE NAME: Classroom for 80, Divisible

AREA:	1,860	**OCCUPANT LOAD:**	80
QUANTITY:	1	**HOURS/DAYS:**	
TOTAL AREA:	1,860	**DESCRIPTION OF ACTIVITY:**	typical classroom

ARCHITECTURAL		**SPECIALTIES**		**MECHANICAL**	
Adjacencies	classrooms	Casework		Temperature	
Access	secure	Teaching Station	■	Heating	■
Noise Control	yes	Projection Screen	■	Cooling	■
Doors	hm	Markerboard	■	Humidity Control	
Walls	gyp	Chalkboard		Exhaust	
Ceiling	acp	Tackboard		Controls	
Floors	cpt	Other	■ Dividing overhead wall	Other	
Base	rb				
Windows		**COMMUNICATIONS**		**ELECTRICAL**	
Other		Voice	■	Lighting Type	LED
		Data	■	Lighting Level	Adjustable
FURNITURE / EQUIPMENT		Wireless	■	Task Lighting	
		Projector	■	Zoned Lighting	
Table	■	Speakers		Outlets	■
Chairs	■	Other		Security	
Desk				Other	Controls
File Cabinet		**PLUMBING**			
Computer		Sink			
Printer		Kitchenette			
Copier		WC			
Other		Other			

TYPICAL ROOM LAYOUT

SCALE: 1/16" = 1'-0"



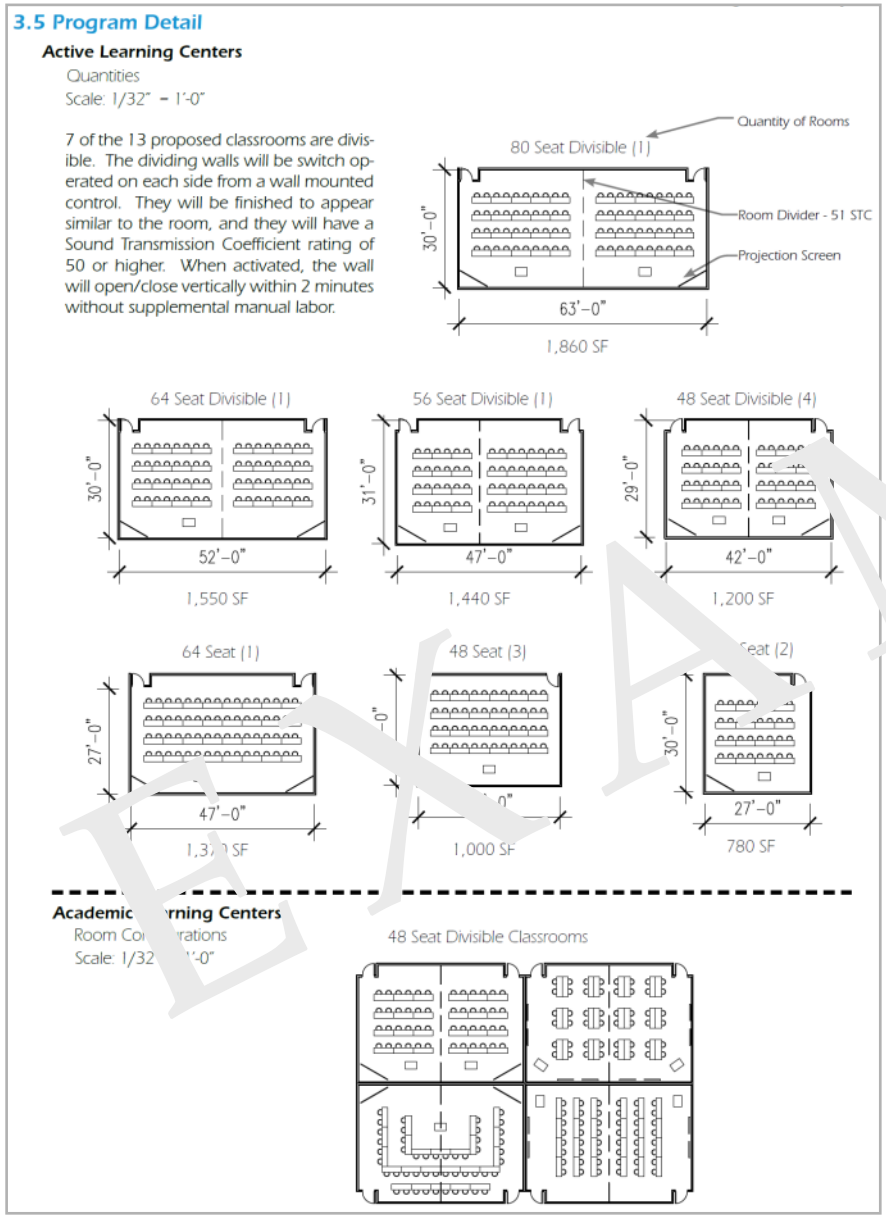
Example Space Needs Inventory

3 Project Description

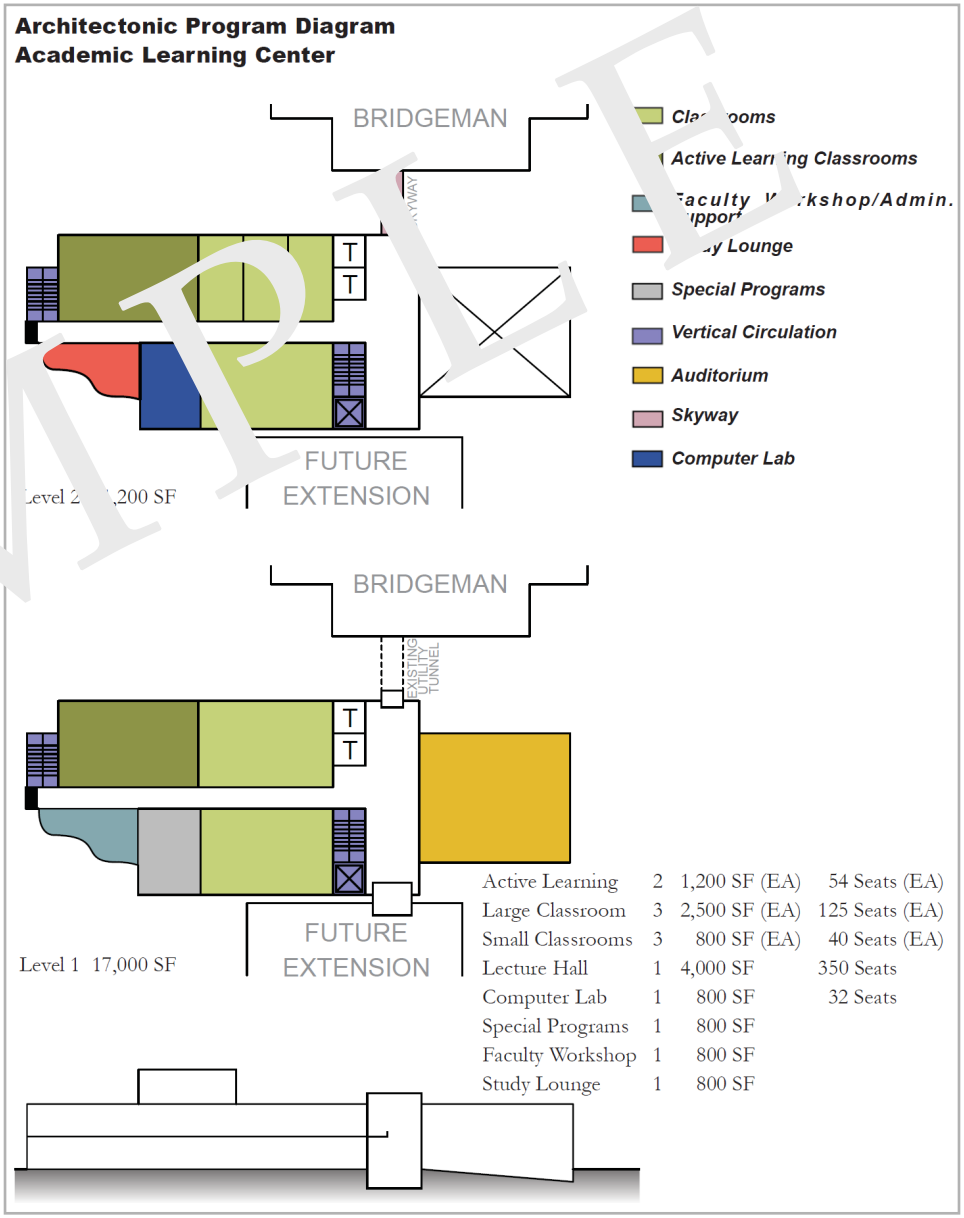
Room Name	Quantity	Unit NSF	NSF
New Construction			
Classrooms - Serving all Departments			
Classroom for 80, Divisible	1	1,860	1,860
Classroom for 64, Divisible	1	1,550	1,550
Classroom for 64	1	1,370	1,400
Classroom for 56 Divisable	1	1,400	1,400
Classroom for 48, Divisible	4	1,200	4,800
Classroom for 48	3	1,000	3,000
Classroom for	2	780	1,560
	13		**15,570**
Science			
Micro Biology Lab	1	1,400	1400
Prep Room	1	300	300
	1		**1,700**
Nursing			
Student Waiting	1	300	300
Department Files	1	100	100
Faculty Offices	3	100	300
Simulation Lab	4	190	760
Debriefing Room	2	390	780
Control Room	1	200	200
Simulation Patient Records	1	24	24
Simulation Supply Closet	1	24	24
Practicum Lab	1	2,290	2,290
Demonstration/ Classroom	1	850	850
Open Lab	1	910	910
Equipment Storage	1	400	400
General Storage	1	530	530
	14		**7,468**
Student Services			
Information Desk	1	185	185
Waiting Area	2	300	600
Conference Room	2	110	220
Commons	1	1500	1,500
Workroom	1	225	225
Admin Support Station	4	65	260
Secure Files Storage	1	50	50
Admissions Director	1	120	120
Admissions Office	2	100	200
Dean Office	2	120	240
Director Office	2	120	240
Advisor Office	8	100	800
Counselor Office	4	100	400
Transitional Room	1	80	80
Career Resources Staff Office	2	100	200
Institutional Research Office	2	100	200
Station	1	100	100

Example A/E program summary

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

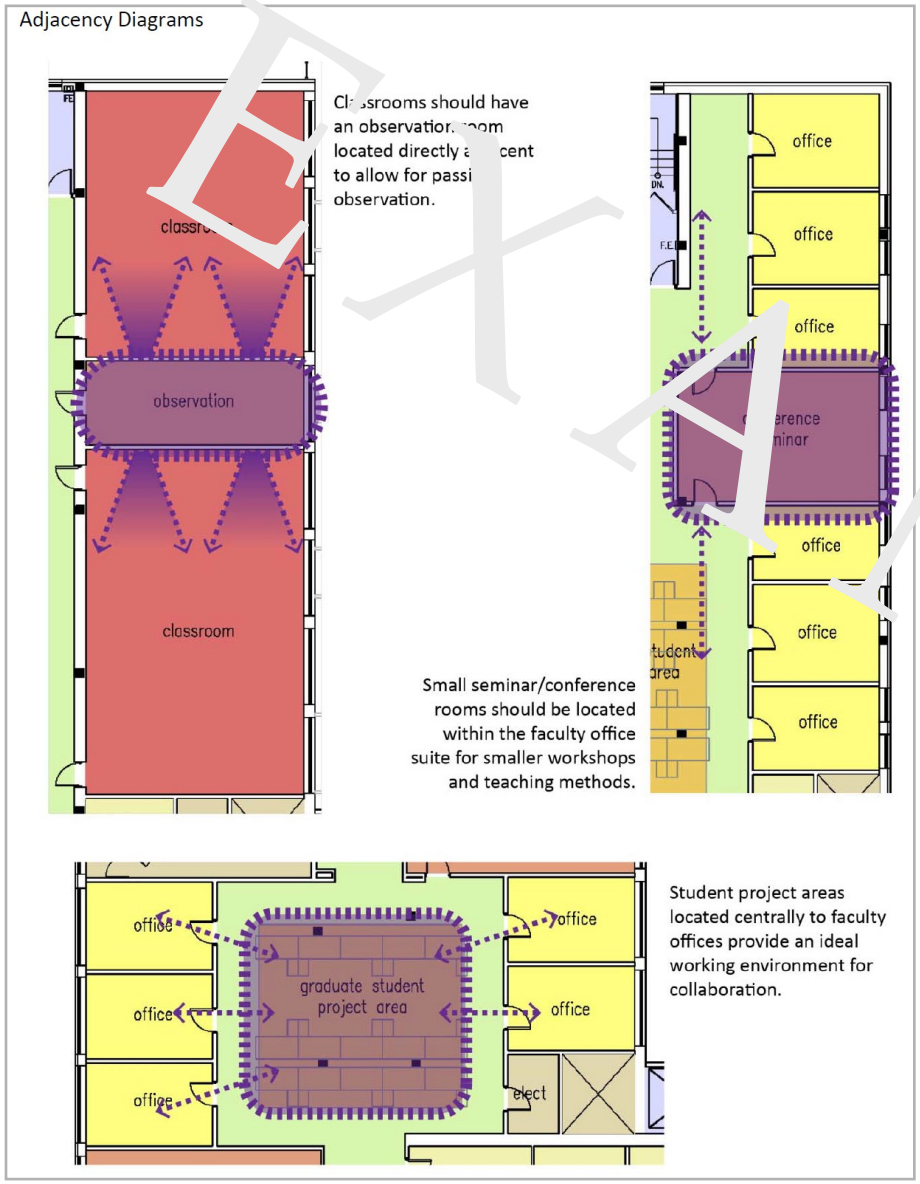


Example Space Needs Inventory

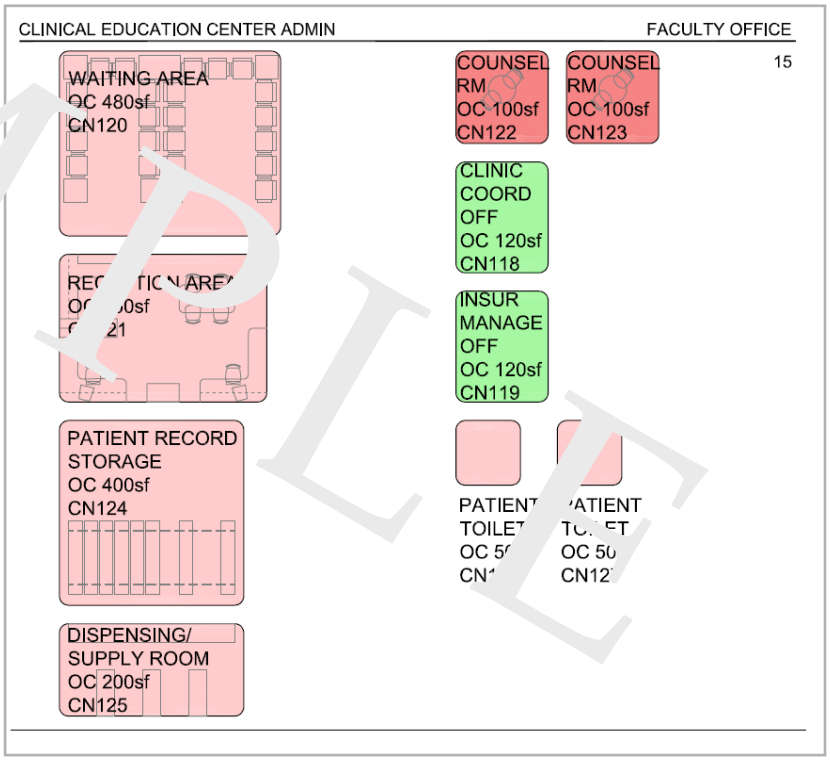


Example A/E program diagram

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.



Example adjacency diagrams



Example graphic program

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

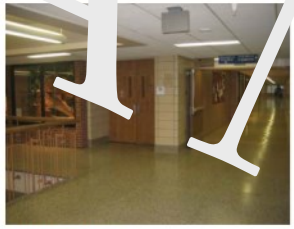
Sattgast Hall

Fast Facts:

Letter on Key Plan	D.
Building Number	070S1162
Building U	Academic
Year Built	1962, 1989
Building Size	107,598
Number of Flo	3 + penthouse
Current Repla Value	$40,332,000
Backlog of R s Value	$2,101,000
Curre acility ndition Index (FCI)	0.05
ar Renewa recast	
5 Year Facility C lition Index (FCI)	

Keyplan


Exterior View


Main Entrance Lobby


Lab Space


Typical Corridor


Outdated Electronics Lab


Seating Area with Lakeside View

Example Building Summary sheet (existing building)

ncial Sciences B ng Ph e 2 Renovation and Renewal

FCI and Deferred ntenance B log Reduction Matrix

Building	De	Existi SF	SF Cost	Tota Reno Cost	Deferred Backlog 2016	CRV	2016 Pre Project FCI	Post Project FCI
Armstrong Hall	ychology	3202	$165	$,330				
		1993	$75	49,475				
	sub total	*5195*		*$677,805*	*$6,123,000*	*$ 30,000*	*0.1*	*0.14*
Wissink Hall	Nursing	4453	$	$578,890				
		2905	$25	$ 25				
	roof	25000	$43	$1,075,000				
	sub total	*32358*		*$1,726,515*	*$1,386,*	*$19,462,000*	*0.07*	*0.00*
Wiecking	FCS	3345	$200	$669,000				
		2416	$80	$193,280				
		3785	$40	*$151,400*				
	sub total	*9546*		*$1,013,680*	*$6,686,000*	*$29,085,000*	*0.23*	*0.19*
Morris Hall	IELI, Campus	4639	$160	$742,240	$625,000	$13,125,000	0.03	0.00
	Total Sq.Ft.	***51,738***		***$4,160,240***		***Avg FCI***	***0.12***	***0.08***

Example backlog reduction summary

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Building Code Summary

The following summary is based on the 2006 IBC and 2007 MNSBC.

Occupancy Group

B; higher education

Construction Type

II-B; Non-combustible and non-fire rated construction.
Allowable Height: 4 stories and 55 feet; the proposed building is 3 stories high plus a penthouse and less than 55 feet tall
Allowable Area:

- 23,000 SF/floor and 69,000 SF total
- 37,950 SF/floor and 113,850 SF total with 90% of perimeter open to 30 feet
- Proposed building area is approximately 79,000 SF with no single floor exceeding approximately 29,500 SF. Both are less than maximum allowed

Summary

Hagg-Sauer Hall is an existing academic building housing facu offices, classrooms and administrative offices. It is approximate 82,500 square feet including the baser ent mechanical room. Th building was constructed around 1969 a major asbestos abate nt project was undertaken in 1986.

The building's str ural system is stee colum beam structural frame with com site floor slabs, conc te o deck. The beams have hea d steel studs welded ar top fla that they act mpositely ith the concrete slab ove thereby i easing their capac hum s are steel wide flange hapes which bear on cast-in-place c piers. The concrete p rs bear on shallow spread footings. The or construction is in place slab on grade except for the rea the partial basement with is a cast-in-place concrete slab.

The steel fra e is fire protected with spray-on fire protection on the beams and c ncrete masonry blocks surrounding the columns. The s ray-on fire protection was removed and replaced during the course o the asbestos abatement work.

The exterior walls are primarily brick veneer cavity walls with one inch insulation and concrete masonry block back-up. The concrete blocks are painted on the inside forming the finished wall surface. There are projected soffits at the second floor and third roofs consisting of factory precast concrete panels with exposed aggregate. A new roof was installed in 2011.

Interior walls are primarily painted concrete masonry. Ceilings are suspended acoustical 2x4 panels and flooring is a combination of carpet, vinyl tile and ceramic tile in the bathrooms.

Example building code summary (existing construction)

Proposed Building Construction

- Proposed Finish Date of Construction: Spring 2018
- Proposed gsf: TBD (approximately 27,000 - 28,000
- Proposed Number of Floors: 2 plus penthouse
  - First Level: 12,000 - 13,000 GSF
  - Second Level: 12,000 - 13,000 GSF
  - Penthouse:
- Proposed Use: Primarily i ional space

A new classroom building will most ly consist of 2 stories of ab grade construction t a baseme nd with a roof top mecha ical penthouse roposed c struction typ re as follows.
For footi nd found ons: Based on soil borin gs in the original building co uction d wings it is likely t any construction can be supporte on tradi ional shallow spread ings. Footings for heated space should a minimum of 5'-0" bel w finished grade, and footings for unheated ar should bear a minimum of 6'-0" below finished grade. Actual so conditions as well as allowable bearing pressures for oundation design ll need to be confirmed by a geotechnical investigation or to proceeding in design. Foundation walls and below grade b ment walls w uld be cast-in-place (CIP) concrete.

Ex or Walls

Exterior walls above grade would be concrete masonry units (CMU), either 8" or 12" thick depending on overall height of the building and the loads that the walls need to support. The exterior walls would also serve as the primary lateral force resisting system (shear walls) for the building.

Floor Construction

Floors could be constructed with either ordinary reinforced CIP concrete flat slabs, or CIP pan and joist systems, precast concrete hollow core planks supported on precast concrete beams or steel beams, or steel beams with composite steel deck (concrete over metal deck, similar to the existing building). For a CIP floor system supporting columns would typically be CIP concrete. For the precast floor system interior columns would be precast concrete if precast beams are utilized, or steel wide flange (WF) or square tube (HSS) sections if steel beams are used. As an alternative in lieu of a beam and column system the building could be constructed with interior CMU bearing walls, however this allows much less flexibility for future modifications.

Roof Construction

The roof framing selected would depend somewhat on the floor framing selection. Typically for a CIP beam, column and floor system the roof construction would be similar to the floors below. For a precast or composite floor system the roof framing would be steel bar joists with metal deck. The floor area under the roof top mechanical penthouse would be either precast hollow core plank or composite deck.

Example building construction summary (new construction)

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Section 4: Sustainability and Energy

Minnesota State seeks to reduce energy consumption by at least 2% per year, with a goal of achieving Net Zero energy systemwide by 2030. Every predesign must contain a renewable energy analysis. The applicable statutory framework as described below is a minimum analysis.

Per MN statute §16B.325, for Capital Budget projects, the B3 guidelines (http://www.b3mn.org/guidelines/index.html) apply to all new buildings and to renovations over 10,000 GSF or where the project adds or replaces a standalone mechanical system. Minnesota State has elected to apply B3 to *all* Revenue Fund projects.

Per state statutes, predesigns for most Capital Budget projects must contain an analysis and applicable plan for the applicability of alternative energy systems, including solar energy and wind generation, as described below. To check applicability of these statutes to your project, see *Applicability of Statutes for Projects Receiving State Funding* on page 44.

Statutory Requirements — Energy

§16B.323 Solar Energy in State Buildings

A project for the construction or major renovation of a state building, after the completion of a cost-benefit analysis, may include installation of "Made in Minnesota" solar energy systems of 40 kilowatts capacity on, adjacent, or in proximity to the state building (a state building is defined as one that receives state bond proceed funding). The cost of the solar system must not exceed 5% of the appropriation. A project subject to this section is ineligible to receive a rebate for the installation of a solar energy system under section 116C.7791 or from any utility. The use of solar energy systems is strongly encouraged within Minnesota State.

40 KW Photovoltaic Solar System

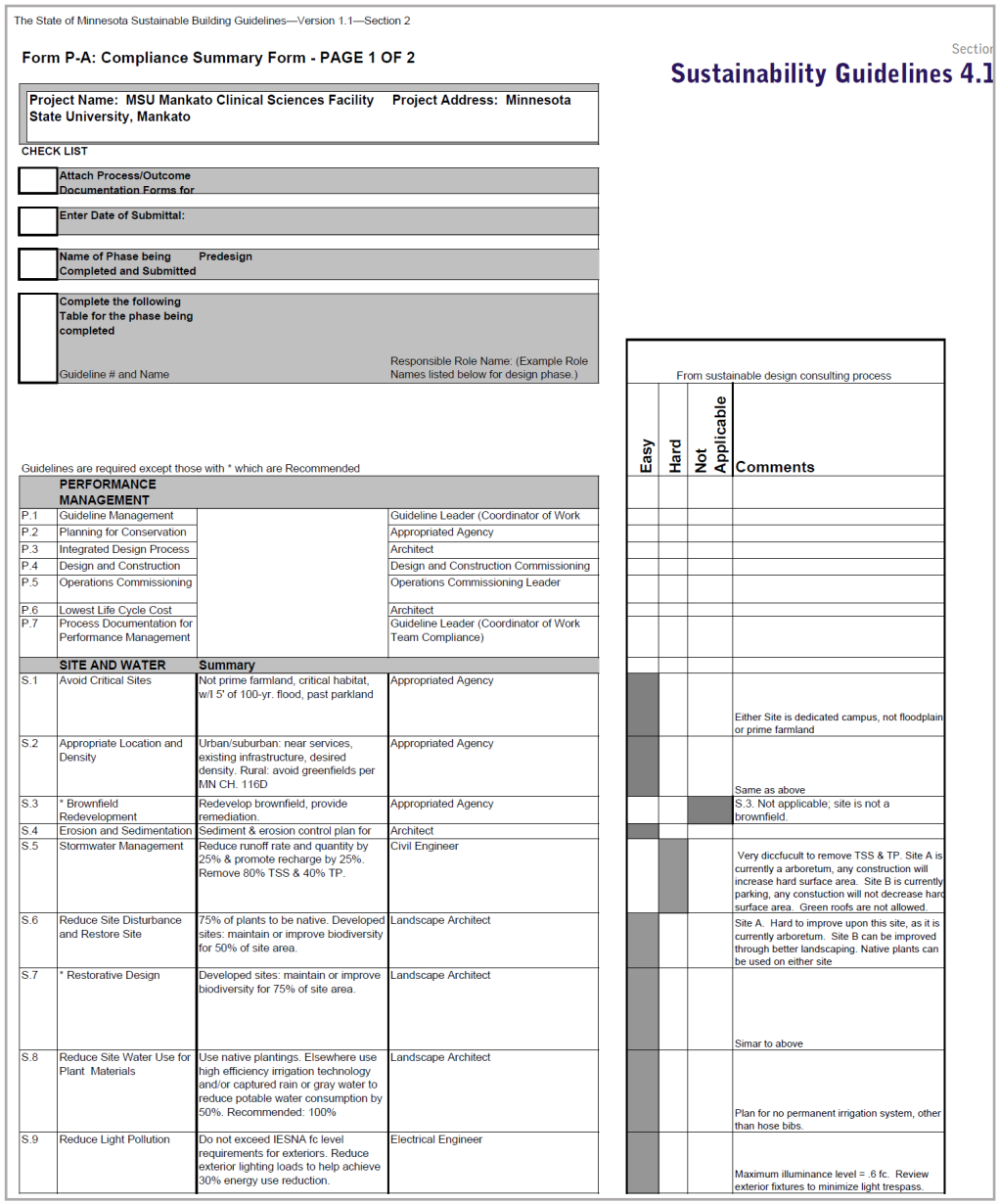
Provide a cost/benefit calculation and a summary of why a PV Solar system will/will not be incorporated into the project.

Checklist: Section 4: Sustainability/Energy	Document Draft 50%	95%	100%
Campus B3 Benchmarking data	●	●	●
Description of plan to achieve compliance with MN B3 guidelines		●	●
Provide a table of energy design initiatives to exceed state Energy Code by 30%		●	●
Description of low-cost efficiency measures to be included in the project		●	●
Waste Management and Recycling Program Plan for demolition and construction		●	●
Statutory Requirements for Energy (see page 44): Analysis and plan for application of alternative energy systems:		●	●
MN §16B.32, Subd 2: Energy Conservation Goals (may participate in Program – not mandatory)		●	●
MN §16B.323: Cost/benefit analysis of solar energy system for new buildings or significant renovations (solar photovoltaic modules installed in conjunction with a solar thermal system).		●	●
MN §16B.325: Sustainable Guidelines (B3) for new building or where the project adds/replaces a stand-alone mechanical system (after Jan 1, 2009, applies to all renovations over 10,000 s.f.).		●	●
MN §16B.326: For new buildings, new HVAC systems, or when replacing an HVAC system: Provide written plan to consider providing geothermal or solar energy heating & cooling systems.		●	●

§16B.326 Heating and Cooling Systems, State-Funded Buildings (Geothermal, Solar Thermal)

All projects that receive any state funding for replacement of heating or cooling systems must include, within the predesign, a study for geothermal and solar thermal applications as possible uses for heating or cooling for all building projects. When practicable, geothermal and solar thermal heating and cooling systems must be considered when designing, planning, or letting bids for necessary replacement or initial installation of cooling or heating systems in new or existing buildings that are constructed or maintained with state funds. The predesign must include a written plan for compliance with these state statutes.

Definition: "solar thermal" means a flat plate or evacuated tube with a fixed orientation that collects the sun's radiant energy and transfers it to a storage medium for distribution as energy for heating and cooling.



The State of Minnesota Sustainable Building Guidelines—Version 1.1—Section 2

Section

Sustainability Guidelines 4.1

Form P-A: Compliance Summary Form - PAGE 1 OF 2

Project Name: MSU Mankato Clinical Sciences Facility **Project Address: Minnesota State University, Mankato**

CHECK LIST

- **Attach Process/Outcome Documentation Forms for**
- **Enter Date of Submittal:**
- **Name of Phase being Completed and Submitted** **Predesign**
- **Complete the following Table for the phase being completed**

Guideline # and Name — Responsible Role Name: (Example Role Names listed below for design phase.)

Guidelines are required except those with * which are Recommended

From sustainable design consulting process

	PERFORMANCE MANAGEMENT			Easy	Hard	Not Applicable	Comments
P.1	Guideline Management		Guideline Leader (Coordinator of Work				
P.2	Planning for Conservation		Appropriated Agency				
P.3	Integrated Design Process		Architect				
P.4	Design and Construction		Design and Construction Commissioning				
P.5	Operations Commissioning		Operations Commissioning Leader				
P.6	Lowest Life Cycle Cost		Architect				
P.7	Process Documentation for Performance Management		Guideline Leader (Coordinator of Work Team Compliance)				
	SITE AND WATER	**Summary**					
S.1	Avoid Critical Sites	Not prime farmland, critical habitat, w/I 5' of 100-yr. flood, past parkland	Appropriated Agency				Either Site is dedicated campus, not floodplain or prime farmland
S.2	Appropriate Location and Density	Urban/suburban: near services, existing infrastructure, desired density. Rural: avoid greenfields per MN CH. 116D	Appropriated Agency				Same as above
S.3	* Brownfield Redevelopment	Redevelop brownfield, provide remediation.	Appropriated Agency				S.3. Not applicable; site is not a brownfield.
S.4	Erosion and Sedimentation	Sediment & erosion control plan for	Architect				
S.5	Stormwater Management	Reduce runoff rate and quantity by 25% & promote recharge by 25%. Remove 80% TSS & 40% TP.	Civil Engineer				Very diccfucult to remove TSS & TP. Site A is currently a arboretum, any construction will increase hard surface area. Site B is currently parking, any constuction will not decrease hard surface area. Green roofs are not allowed.
S.6	Reduce Site Disturbance and Restore Site	75% of plants to be native. Developed sites: maintain or improve biodiversity for 50% of site area.	Landscape Architect				Site A. Hard to improve upon this site, as it is currently arboretum. Site B can be improved through better landscaping. Native plants can be used on either site
S.7	* Restorative Design	Developed sites: maintain or improve biodiversity for 75% of site area.	Landscape Architect				Simar to above
S.8	Reduce Site Water Use for Plant Materials	Use native plantings. Elsewhere use high efficiency irrigation technology and/or captured rain or gray water to reduce potable water consumption by 50%. Recommended: 100%	Landscape Architect				Plan for no permanent irrigation system, other than hose bibs.
S.9	Reduce Light Pollution	Do not exceed IESNA fc level requirements for exteriors. Reduce exterior lighting loads to help achieve 30% energy use reduction.	Electrical Engineer				Maximum illuminance level = .6 fc. Review exterior fixtures to minimize light trespass.

Example B3 compliance form

C. Renewable Energy Analysis Continued

The estimated cooling load for the 20,000 sq. ft office/c room addition would be approxima 80 tons, which at 400 square foot per bore hole would requ e 00 square feet (180 fe by 180 fee , or 0.74 acres of land area dedicated to support the loop fie d.

Ground coupled heat pump syste s can achieve abou 30% nerg vings over conventional systems. We estimated 828 MMBtu r of heating energy a 23,480 KW cooling energy, and assumed utility rates f ral ga of $9.07/MMBtu and n electric cost or $0.09/KWh. Yearly energy cost savings for heating a ol g in the range of $2,9 could result.

An sum ed cost for the horiz re field and add onal mechanical system equipment is about $3,500 per vertical bore, or an a ded c the overall heating and cooling system of about $280,000. This results in a simple payba of about 9 years.

Table 1
Summary of Renewable Energy Summary

Ty of System	Wind	Solar PV	Solar DHW*
Cap ty	5 kW	12.5 kW-dc	53.4 MMBtu
Annu voided Energy	12 MWh	12 MWh	24.2 MMBtu
% - Annual Load	2%	2%	1%
Annual Avoided Expense	$1,260	$1,250	$218
Construction Cost	$5,000 to $10,000	$46,000	$16,000
Payback Period, years	8	37	73

*Note: SB2030 limits the use of solar thermal systems to no more than 25% of the cost of a solar system installation at 2% of the building energy needs.

Example renewable energy analysis

Renewable Energy

In order to reduce the impact on the environ t, reduce the carbon footprint of the Campus, and meet the re qu ents of Minnesota State Statute 16B.32, the feasibility of using alterna nergy sou es should be considered. Additional information on the f wing s ms and technologies can be found at the U.S. Departme Energy website for Energy Efficiency a Renewable Energy (http:/ w.eere.energy gov).

Biomass Energy

The Bemidji State iversity Climate Action Plan es several r ble energy o ns and recommends the us of biomass to produ thermal ene electricity an chilled water. Please see the 2011 port for more ils.

Geoth ermal Energy

A geothermal heat pump system is a heating and/or an air conditioning system that uses the Earth's ability to store heat in the ground and ater thermal masses. These systems operate based on the stability of derground temperatures: the ground a few feet below surface has a stable temperature throughout the year, depending upon location's annual climate. A geothermal heat pump uses that available heat in the winter and puts heat back into the ground in the summer. The two main types of systems include wells and horizontal loop systems. Wells are more compact, but tend to be less efficient and more costly than a loop system. Using nearby Lake Bemidji as a heat sink would be a possibility as well, although previous discussions with the DNR rejected that option. The proposed facility is currently connected to the centralized campus power plant distribution system and can easily accommodate the expanded energy demands created by this project. Therefore, geo-thermal is not economically viable.

Photovoltaic Panels

While the use of photovoltaic panels can help reinforce the institution's commitment to sustainability, the initial investment is cost prohibitive for wide scale application for this project. As the price of photovoltaic panels continues to fall and their efficiency continues to rise, the building should be made "PV-ready" to minimize costs of installation when the technology becomes feasible. Consideration should be given to using PV for demonstration purposes, since the required scale of an installation with significant power generation would be very large and impractical.

Wind Power

Capturing wind power involves installing tall turbines to take advantage of the wind speeds at elevated heights above the ground plane. In general, wind turbines are best suited for rural areas with consistent and unobstructed winds. Small scale building mounted systems could be installed, but would not provide significant power to greatly affect energy performance for the building. This technology may be a good demonstration project, but high initial costs may be prohibitive for a significant installation to reduce dependence on the traditional power grid.

Example renewable energy analysis

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Alternative Energy Requirements & Analysis
Renewable Energy Screening

As compiled by
Sebesta Blomberg & Associates, Inc.

Energy Basis

The heating system for Building 9 consists of six boilers rated at 2 MMBTUH each. Two of the six boilers provide reserve capacity for heating. On this basis, sufficient capacity is available for maximum heating loads with two of the boilers out of service. One water cooled chiller, 300 tons, and one air cooled chiller, 100 tons, comprise the building cooling system.

Estimated energy requirements for heating and cooling are based on annual full load equivalent hours (FLEH). The FLEH for heating is 1,800. The water-cooled and air-cooled chillers have been assigned 1,200 FLEH and 900 FLEH, respectively.

On this basis the expected energy load for heating is 14,400 MMBTU per year. With energy ratings of 0.85 kW/ton and 1.05 kW/ton for the water cooled and air cooled chillers, respectively, the energy requirement for cooling is approximately 400,500 kWh (306,000 kWh + 94,500 kWh).

Heating:	4 x 2,000 MBH x 1,800 FLEH = 14,400 MMBTU
Cooling:	1 x 300 Tons x 1,200 FLEH x .85 kWh/Ton-hr = 306,000 kWh
	1 x 100 Tons x 900 FLEH x 1.05 kWh/Ton-hr = 94,500 kWh
DHW	10,500 Gal/day[1] x 365 days/year x 583.8 BTU/gal[2] ÷ 70% = 3,195.3 MMBTU
Electric	124,925 square feet x 19 kWh/square foot-year = 2,373,575 kWh

The domestic hot water (DHW) load is based on 10,500 gallons per day, 365 days/year, average temperature rise of 70° F., and seasonal efficiency of 70%, yielding a total energy requirement of 3,195.3 MMBTU. The anticipated non-cooling electric consumption is based on 19 kWh/square foot/year or about 2,375,575 kWh.

Renewable Energy Screening

The Clean Energy Project Analysis Software of RETScreen International was used to forecast the capacity and performance of the following systems: solar photovoltaic, solar domestic hot water, solar heating for ventilation, and wind. The software of RETScreen International software was developed by Natural Resources Canada with sponsorship of NASA, United Nations Environment Program, Renewable Energy and Energy Efficiency Partnership, and World Bank. The software incorporates local weather conditions, and was specifically designed as a decision making tool for the analysis of renewable energy systems.

The results of the screening (summarized in table 1) capital cost, annual energy reduction, first year avoided energy expense and simple payback period) are highlighted in Table 1. For ease of presentation, the first year avoided energy expense is exclusive of minor electric loads necessary to operate the solar air and solar DHW systems. The value or avoided unit expense of energy is $10/MMBTU for natural gas and $0.06/kWh for electricity. Estimated capital costs inclusive of procurement, installation and engineering.

Table 1
Summary of Renewable Energy Screening

Type of System	Wind	Solar PV	Solar DHW	Solar Air
Capacity	10 kW	5.6 kWe	9.98 kW	200 Sq. Ft.
Annual Avoided Energy	12 MWh	8.3 MWh	76.5 MMBTU	362.3 MMBTU
%-Annual Load	3%	2%	2%	2%
Annual Avoided Exp	$720/ year	$498	$765	$362
Capital Cost	$25,000	$67,200	$22,000	$35,000
Payback Period, years	29.8	134.9	28.8	96.7

[1] 300 Residents x 35 Gal/resident-day = 10,500 Gal/day
[2] 8.33 LB/gal x 1 BTU/lb/°F. x 70.1° F. temperature rise = 583.8 BTU/gal

0801/76276MPX page 1 of 2 1.7 **Alternative Energy Requirements & Analysis**

Each system highlighted in Table 1 provides about 2% of the respective loads. However, the capital investment in the renewable energy systems can not be justified exclusively on the basis of project economics gauged by simple payback period. Tax incentives and grants may be available to subsidize the capital cost and operation of these renewable energy systems. Use of these incentives and grants are generally conditioned on ownership by taxable entities. Analysis of eligible ownership structures and applicable incentives and grants are beyond the scope of this general screening of renewable energy systems.

Geothermal (Ground Source Heat Pumps)

Ground Source Heat Pump (GSHP) systems utilize the solar energy stored in the earth as a heat sink for extracting and rejecting heat from building air conditioning systems. This technology relies on the availability of the site to support the installation of underground loop fields. These loop fields consist of buried high density polyethylene (HDPE) piping to act as a heat transfer medium. The loop fields can be buried as horizontal piping or as vertical pipe installed in 8" diameter boreholes.

Typical vertical GSHP loop fields require roughly 225 square feet of land for each 1 ton borehole (at 100 foot depth). The current design load for Building 9 is 400 tons, which would require 90,000 square feet (2.06 acres) of land area that can be dedicated to support a loop field.

Soil borings for the Veteran's Home site indicate that limestone bedrock exists within 5 to 8 feet from the soil surface. These drilling conditions in bedrock will result in an extremely high installation cost. The installation cost for a 400 ton loop field at this site could easily achieve over $4 million dollars if it is feasible at all.

Typical energy savings of these systems can yield 20% to 40% less energy consumption when compared to boilers and chillers. This would result in an energy savings of $33,600 to $67,200 annually. However using even the highest savings of $67,200 and a first cost of $4.0 m, this system would yield a payback of 59 years.

Example alternative energy analysis (from MN Dept. of Administration)

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Section 5: Financial Information—Capital Expenditures

Estimate the capital expenditures for the project, including alternate solutions, using the forms provided at the Capital Budget page on the Facilities website. Cost planning is based on the principle that new project budget ranges should be derived from analysis of historical data for similar projects. If the proposed project costs do not follow historical cost patterns, then the reasons should be determined and explained in the proposed project budget.

Note: *Please do not include a copy of the Project Workbook (.xls file) within the predesign. Campus personnel should submit the Workbook separately.*

In addition to the construction cost, determine the full project cost and how it will affect campus budgets. Consider alternate or modified funding mechanisms, such as community, campus, or other potential funding sources.

Costs and inflation (escalation): Cost estimates should detail costs in current (today's) prices; an inflation factor set by the state (the MMB multiplier) will be applied to the project costs based on the midpoint of construction (see below) and updated throughout the project request process. This inflation factor is based on forecasts of future trends in building costs. The appropriation for HEAPR projects is not inflated. If design will be done as a separate phase (for example, when design is funded in one biennium and construction is funded in a subsequent biennium), the design fees are not subject to inflation.

Costs within the Project Cost worksheet:

State Staff Project Management: Costs a campus or the system office charges to a construction project to cover internal personnel administrative management.

Nonstate Construction Management: Construction management services provided by staff outside the campus or system office; for example, Owner's Representative or Construction Manager at Risk.

Furniture, Fixtures, and Equipment (FF&E): Items not normally considered permanently attached to the structure but are considered a bondable cost and not part of the construction costs. Office systems furniture is an example. Most FF&E is

Checklist: Section 5: Financial Information - Capital Expenditures	Document Draft 50%	95%	100%
Estimate of capital expenditures for the project, including alternative solutions. To include:	●	●	●
Full project cost: FF&E, interior/exterior signage, landscaping and exterior fixtures, telecommunications devices, security systems, or other specialized elements such as lockers, trash compactors, window coverings, washing equipment, etc.		●	●
Project GSF and separate line items for new construction, renovation, and renewal costs	●	●	●
Budget and schedule impact for atypical considerations that may affect the project.		●	●
Inflation/escalation factor tied to midpoint of construction, provided by Minnesota Management and Budget (MMB)		●	●
Cost histories, adjusted for program variations, that support the proposed budget.		●	●
Identification of project funding sources: capital bonding, revenue bonding, etc.	●	●	●
References to other cost estimations (i.e. comparable campuses or regional facilities whose construction cost is relevant to the current project)		●	●
Evaluation of academic schedule options and construction sequencing as a means to optimize construction dollars; include alternative schedules that affect the scope or cost of the project		●	●
Project procurement and delivery: Describe recommended project delivery method (design-bid-build, constr. manager @ risk, etc.) and why this method should be used; estimate costs associated with this method.		●	●
Financial proforma *(Revenue Fund projects only)*		●	●

Checklist *continued on next page.*

purchased by the college or university using recommendations from the project architect, MinnCor (prison industries), or local preferences and sources. Computers and other technology equipment may also be procured this way as part of the project.

IT Costs: These costs are calculated separately and are not included within the total project cost.

Midpoint of Construction: The midpoint between the arrival of site work crews and obtaining the certificate of occupancy (substantial completion) for the project. Midpoint of construction is used to calculate the inflation factor because it most accurately represents the costs that contractors will use at the time of bid preparation.

System Calculated Contingency: On the Project Cost worksheet, this contingency is automatically calculated as 5% of the total project cost.

Checklist: Section 5: Financial Information - Capital Expenditures	Document Draft		
	50%	95%	100%
Describe how the construction budget will accommodate:			
Sustainability (renewable energy systems)		●	●
Furniture, fixtures, and equipment (FF&E)		●	●
IT/technology funding		●	●
Security costs		●	●
Costs for upgrades to existing utilities, if required. Verify that existing utilities have adequate capacity to support the proposed project.		●	●
Special mechanical or electrical needs/upgrades		●	●
Hazardous material work/clean-up (asbestos abatement, fuel tank removal, removal of contaminated soils); all project sites must have a Phase I environmental study completed if the site was previously developed		●	●

5.1 Capital Expenditures Estimate

There are no anticipated schedule impacts for this project. The project will utilizing vacant space within the West Building and property. Full project cost for renovation and new construction is estimated at $5,822,000. An allowance for FF&E, Telecommunications and Security is broken down as follows:

FF&E (4% of construction cost) = $134,000

Telecommunications (1% of construction cost) = $34,000

Security Equipment (1% of construction cost) = $34,000

Hazardous Materials: $500,000

The renovation of the West building will impact 15,164 GSF with a renovation cost of $2,346,020 i[illegible]ction.

The new construction of the greenhouse will im[illegible] GSF with a construction cost of $275,000

Innovation Farming (Pl[illegible]rms) will impact 4.25 Acr[illegible] of land with a estimate of [illegible].

[illegible]flation	
Mid Point of Construct[illegible] (mo/yr)	Dec[illegible]
Multiplier	25.61%
[illegible]on Cost	$1,187,000
Inflation[illegible]djustment (explain)	0

The project will be funded through proceeds of the capital bonding.

Currently South Central College, Normandale Community College have 2018 Capital boding projects for STEM renovations. Both of their projects were reviewed for cost estimates based on square footage impact and are comparable.

There are no anticipated schedule impacts for this project.

5.2 Project Procurement + Delivery

Project Procurement and Delivery – It is recommended to use a collaborative delivery system such as Construction Manager at Risk, CM@R. This delivery system allows for early involvement from a Construction Manag[illegible] provide assistance for budgeting project scope and con[illegible]ctability reviews during design. Additionally, a CM@R app[illegible]h typically identifies a Guar[illegible]teed M[illegible]num Price, G[illegible] project budget that [illegible]s the Owne[illegible]o know what [illegible]r maximum financial obli[illegible]ons will b[illegible].

5.3 [illegible]ancial Proform[illegible]

Not [illegible]p[illegible]able.

5.4 [illegible]on[illegible]uction Budge[illegible]ccomodations

Base[illegible] on p[illegible]minary energy m[illegible]eling a 25kW phot[illegible]voltaic [illegible]y will support 2% of the renewable [illegible]ner[illegible]y target f[illegible]s project. At the time of this e[illegible]tion, a structural roof loading analysis has not been [illegible]ompleted to determine the feasibility of locating a photovoltaic array on the existing roof, so the concept of a ground mounted array has been evaluated. With the addition of a ground mounted photovoltaic array the College will not only receive the benefits of a renewable energy source, but this will also create a unique teaching opportunity for the students of Riverland. See section 5.1 for FF&E, IT and Security Breakdown. There will be no utility upgrades for this scope of work.

A solar domestic hot water heating system will be used to supplement the new system. The total capacity of the system will not meet the 2% of energy use threshold, but will offset the total added energy load. Further impact will be determined during when further programming is developed.

Example project costs analysis

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Section 6: Financial Information—Ongoing operating expenditures

Describe the ongoing operational costs (using the Operating Costs worksheet within the Capital Project Workbook) and compare those costs with current levels of funding for operations, maintenance, and staffing. Address campus debt capacity, both in general and specifically for the proposed project. The campus should verify current and proposed debt information with the system office Financial Services Director and include this information in the document.

Describe any plans to supplement or schedule capital projects with campus funded projects (for example, scheduling a campus funded office renovation to be under construction at the same time as a nearby capital bonding project, in order to minimize disruption in that part of campus).

Relocation costs (moving, temporary storage, etc.) are not bondable; campuses should be prepared to cover these costs from campus funds.

Note: *Please do not include a copy of any worksheets from the Project Workbook (.xls file) within the predesign. Campus personnel should submit the Workbook separately.*

Checklist: Section 6: Financial Information - Ongoing Operating Expenditures	Document Draft		
	50%	95%	100%
Quantify total ownership cost of project, accounting for the estimated lifespan of building/site elements affected by the project.		●	●
Quantify the project's effects on operating budgets associated with the occupancy and operation of the project area.		●	●
List the budget for ongoing building repair, replacement, and maintenance	●	●	●
Identify alternative funding sources, such as GESP (Guaranteed Energy Savings Program); describe specifically what would be accomplished by the alternative funding.		●	●
Review and incorporate any COPE (Construction Occupancy Protection Exposure) findings and how they will be addressed with the project.		●	●
Provide 5-year projection of operating budget(s) that identifies major categories of expenditures and identifies associated revenue sources	●	●	●
Campus to estimate staffing levels and corresponding salaries as well as building repair, replacement and maintenance costs (such as impact of additional maintenance engineers) required during and/or after new building construction. Estimate operating cost for energy (HVAC, electrical and other utilities).		●	●
Indicate campus debt capacity and the institution's ability to pay debt. Campus to verify current and proposed debt information with the system office finance unit and note this information in the document.		●	●
Identify whether the campus is subject to a Financial Recovery Plan.		●	●

6. FINANCIAL INFORMATION - ONGOING OPERATING EXPENDITURES

6.1 Operating Budget Results

Sec[illegible]ghting/Electricity	$305,482.00
Ste[illegible]	$190,654.00
W[illegible]/Sewer	$ 32,127.00
N[illegible]ral Gas	56,658.00
[illegible]al:	$[illegible]4,921.00

Operation budget will be reduced [illegible]he elimination of Building G, Links, & Building F's southwest wing - 21,892 sf total. New energy efficient HVAC systems in Buildings "L" and "M" will replace 45 year old systems, operating cost will be reduced with savings in energy as well as maintenance costs.

6.2 Staffing, Repair, & Maintenance Costs

With this right sizing project, staffing will not significantly be affected. Repair and maintenance costs shall be reduced by an expected 10% ($60,000) due to the elimination of one building and a portion of another building and linkways and installation of two (2) new HVAC systems. This will allow staff to concentrate on preventive maintenance throughout the remainder of the facilities.

6.3 Debt Capacity

GO BOND DS	1/3 Bonds Payable by Inst and SO	1/6 Cash paid by Inst
Average Current DS	139,229	69,614
Average Added DS	224,450	112,225
Max Current DS	401,673	200,836
Max Added DS	302,391	151,196
Min Current DS	8,469	4,235
Min Added DS	33,857	16,929
1st yr affected - Current DS	192,059	96,030
1st yr affected - Added DS	219,195	109,598

Example operating expenses analysis

Building Operating Expenditures

Building Operating Expenditures have been estimated by MSU Mankato facilities staff, using expense history on similar buildings on campus and national benchmarking, and extrapolated using a square footage basis. The expenditures have been adjusted to account for anticipated operational characteristics of the completed project.

Building Operations Expenses (heating, cooling, electrical, refuse, 1% renewal account, etc): The operating cost for utilities (gas, water, sewage, electricity, chilled water) is estimated to increase the universities cost by 1.43/SF or $123,000. The custodial, maintenance and grounds personnel costs are expected to increase by $1.28/SF or $221,000. The 1% for renewal costs is $247,000 for a total building operations expense of $586,000.

Example operating expenses analysis

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Section 7: Schedule

Graphically convey a realistic schedule that balances the construction process with academic needs and the capital budget cycle. The schedule should allow for design review periods after each design stage that will allow the campus and system office to thoroughly review and approve the design documents and cost estimates. Allow at least 2 weeks of review time for each predesign draft (50%, 95%) and at least 4 weeks of review time for Schematic Design. If alternative project delivery options are available, describe them and how these options affect the schedule.

The schedule should accommodate owner-related functions such as:

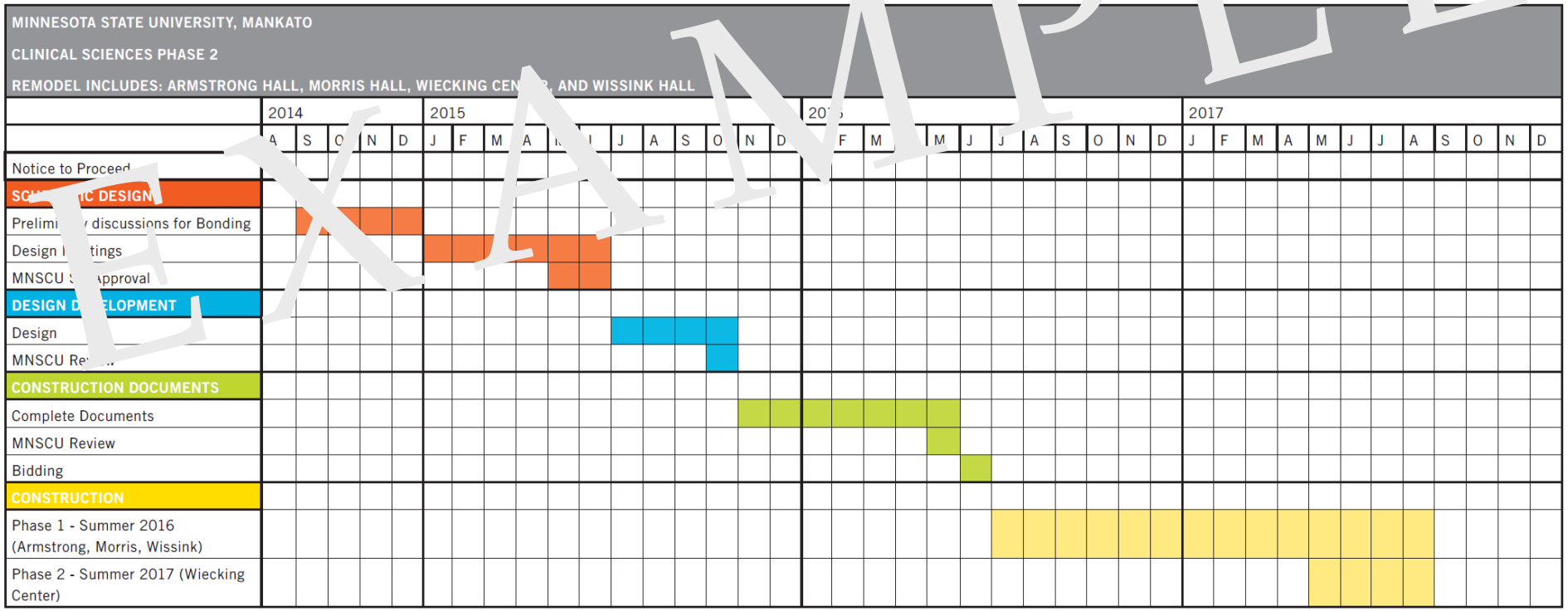
- Develop land to provide needed utility services.
- Environmental assessments or impact statements
- Owner-required shut-downs
- Secured access by contractors (work within a secure facility will extend the construction schedule due to entry/exit inspections, tool inventories, and security functions which typically reduce actual hours worked per day).
- Owner review of documents
- Regulatory reviews (codes, Health Dept., environmental, etc.).
- Material delivery lead times.

The graphic schedule must include, at a minimum, the following milestone dates:

- Funding received
- Design Completion Date
- Bidding/Award of Construction (if using Design/Bid/Build project delivery)
- Construction Start Date
- Midpoint of Construction (see Project Cost Form and Inflation table)
- Construction Completion Date
- Move-in date(s)

Checklist: Section 7: Schedule	Document Draft 50%	95%	100%
Graphically convey (bar or Gantt chart) a realistic schedule for all project stages; include time for haz mat abatement, phasing, relocation/moving, potential long-lead-time materials, etc.	●	●	●
Identify project options or phasing that could accommodate limitations in funding		●	●
Indicate a proposed funding sequence if the project may receive funds from more than one capital appropriation cycle.		●	●

Design through Construction Documents was included with th 12 Capital Request for design funds and the project will be fully designed d ready to bid upon construction funding appro the spring of 2016.



Example bar schedule

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Section 8: Technology Plan/Budget

Summarize the campus's Technology Plan and current Information Technology infrastructure as it impacts this particular program or project, and describe how the project will use technology to achieve the project goals.

Checklist: Section 8: Technology Plan/Budget	Document Draft 50%	95%	100%
Summarize existing Technology Plan and Information Technology infrastructure as it impacts this project	●	●	●
Describe how this project will improve or address problems with existing and future infrastructure		●	●
Describe how this project's IT plan correlates with the campus Comprehensive Facilities Plan		●	●
Describe additional positive outcomes that may be a direct or indirect consequence of technology implementation associated with this project.		●	●
Describe technology alternatives or options studied that would affect budget.		●	●

INFORMATION TECHNOLOGY

A. Technology Master Plan Summary

The Rochester Community and Technical College (RCTC) Technology Master Plan provides a framework for future investments and articulates a common vision for technology that is aligned with institutional strategic goals, as well as to comply with Minnesota State Colleges and Universities (MNSCU) Board policy. The Technology Master Plan serves RCTC's mission, vision and value statements and is a coordinated part of other College master plans, including the Academic Master Plan and the Facilities Master Plan. Additionally, it must also coordinate with the Minnesota State Colleges and Universities Board of Trustee's Strategic Plan as well as the more specific and most recent MNSCU Information Technology Services Plan, which coordinates state of Minnesota efforts and funding investments in technology for the entire system. The objectives are to balance strategic, long-range vision for educational and enterprise technology, partner services and community resources with shorter term, attainable goals and projects which allow for incremental progress toward the long-range visions. This plan replaces and/or updates and expands on previous technology plans for Rochester Community and Technical College.

Rochester Community and Technical College Master Technology Plan has the primary goals:

1. Complete and full disclosure of the college's existing technology environment.
2. Clear and accurate description of recommended solutions to meet any deficiencies that may be present.
3. Prioritize and implement solutions based on institutional need and resources availability.

This plan identifies a number of specific goals and recommendations, including prioritization of efforts in technology-related initiatives already underway:

- Increase Wireless Access
- More Efficient Hardware Utilization
- Increase Internet-based Infrastructure, Platforms and Services
- Create a Collaborative Environment
- Build Valued Relationships with Student from Recruitment to Graduation and Beyond
- Facilitate Mobile Learning

In order to meet future needs and facilitate new learning models that are evolving, RCTC has identified the following critical goals:

- More Effective Use of Learning Spaces
- Deploy Secure Short-Distance Data Transmission
- Interactive Campus Mapping
- Increased use of Alternative Media

Example technology master plan summary

8.1 Technology Plan

The technology plan includes objectives to increase technology in teaching and learning opportunities. Buildings "F", "G", "L" and "M" were constructed prior to current classroom technology standards and the design systems used within the MnSCU system. This will require that the college review current technology infrastructure in order to determine the potential for additional equipment such as routers, wireless hubs and connection points for digital projectors, etc.

At a minimum, the renovated classrooms will be supplied with technology that is consistent with the level of technology provided in classrooms in Buildings "B" and "C".

8.2 Technology Applications

The general instruction classroom equipment currently installed ranges from VCR's, telecommunication systems, and digital projectors to overhead transparency projectors. The graphics media lab has an extensive amount of electronic equipment for use by the students.

The College participates in a number remote learning opportunities within the NHED system. These typically enable course access using ITV networks. This impacts several of the programs within the transfer/liberal arts programs requiring level IV technology be provided in strategic locations throughout the project area. Recommended locations are in medium or large sized general instruction classrooms.

8.3 Technology Improvements

The demolition of Building G an portion of Building F will reduce the backlog of deferred technology upgrades. Classrooms currently lack the necessary technology to meet the demands of teaching and learning in an 'e-environment'. The existing library lacks the technology infrastructure and hardware required to serve students in the way that a contemporary media center would provide services. New technology spaces greatly reduce the need for an extensive print collection, which allows for a much smaller library than the current space. Finally, the student services area lacks the technology space and infrastructure to conduct any type of group admissions, registration or testing work. The current layout and distance between spaces makes upgrading the technology infrastructure cost prohibitive. A new single building that includes this infrastructure in the design would eliminate these deferred maintenance costs and efficiently bring these learning and services spaces up to today's standards.

8.4 Technology Improvements - Proposed Rightsizing Project

The demolition of Building G and part of Building F in conjunction with the renovations of Buildings L and M and the main entrance addition will enable the college to effectively utilize its technology budget to target the remaining areas of the campus most in need of upgrading.

Rather than thinly spreading technology dollars throughout the rest of the HCC campus, the college intends to concentrate critical technology updates at the media center/student core area where they will provide the most readily available, efficient services to all students, staff and the community.

Example technology narrative

Example graphics only illustrate general concepts, and should not be adhered to stylistically verbatim or taken as current factual data.

Section 9: Appendix

The Appendix contains important facilities and program information related to the predesign and serves as a useful reference for campus administration and facilities staff.

Checklist: Section 9: Appendix	Document Draft 50%	95%	100%
Meeting minutes		●	●
Academic Master Plan			●
Technology Master Plan			●
Pertinent sections of Comprehensive Facilities Plan			●
Campus-generated space utilization (EMS Campus) reports for all buildings/areas affected by this project		●	●
Capital Renewal (FRRM) data for affected building(s)		●	●
B3 Benchmarking data for affected building(s)		●	●
Workforce or demographic data relevant to this project			●
Other studies or related supporting information			●

HEAPR (Higher Education Asset Preservation and Replacement) Full and Limited-Scope Predesigns

This section outlines requirements and instructions for HEAPR projects as well as checklists for required items to be included in a full or limited scope HEAPR predesign document.

Eligible Projects

As a general principle, Minnesota State seeks to keep colleges and university students, faculty and staff safe, warm and dry. State statute outlines the types of projects that qualify for HEAPR funding, which include:

- Code compliance including health and safety
- Americans with Disabilities Act requirements
- Hazardous material abatement
- Access improvement, or air quality improvement
- Building energy efficiency improvements using current best practices
- Building or infrastructure repairs necessary to preserve the interior and exterior of existing buildings, or
- Renewal to support the existing programmatic mission of the campuses

(From Minn. Stat. 135A.046, Subd. 2.)

Prioritization

- *Facilities Condition Index.* Minnesota State maintains a facilities condition index that measures backlog and future renewal needs. The condition index is updated annually and serves as a framework for asset preservation requests and used as general guidance when evaluating the priority of campus HEAPR projects.
- *Campus Priorities.* Minnesota State colleges and universities each evaluate and monitor their actual building conditions through a variety of means, such as roof surveys, engineering studies and through monitoring energy and water consumption.

Minnesota State considers the following five factors when prioritizing overall system-wide HEAPR requests:

1. *Safety and security.* A building system or circumstance that poses an impending threat or harm to the safety of students, faculty, and staff. For example, securing loose bricks on the exterior of the building, or repairing a boiler or piping system that is at risk of rupture or failure.
2. *Code, compliance or identified obligation.* Imminent enforcement actions or fines for failure to comply that can't otherwise be covered by campus operating funds. For example, projects that would bring campus facilities into compliance with the latest ADA or OSHA requirements.
3. *Imminent facility system failure.* Where there is no suitable back up option and failure will directly halt or severely impact space or operations. For example, a roof failure that causes water to flow into a classroom, library or lab, making the space unusable, or replacement parts are no longer being manufactured for a boiler system.
4. *Integral part of state system needs and/or leverages other funds.* A situation where the college or university may have other sources of funds and where leveraging HEAPR dollars is advantageous. For example, if the college or university uses performance contracts to improve energy efficiency, there may be advantage to leveraging HEAPR dollars at the same time.
5. *Supporting academic programming.* Where a companion capital project requires additional building infrastructure needs, such as power or specialized air handling, to accomplish the program objectives. Examples include enhanced building systems to accommodate welding, automotive and chemistry programs or the need to establish a centralized plant to accommodate steam or other specialized needs.

Overview: HEAPR Predesigns

All HEAPR projects require a predesign. HEAPR projects with construction costs over $750,000 must submit a full predesign containing all sections and checklist items listed on the following pages. HEAPR projects with estimated construction costs between $100,000 and $750,000, as well as demolition-only projects, may submit a *limited scope* predesign. This type of predesign describes a project that only affects a small part of a building or a building system (HVAC, fire protection, building envelope, etc.); its requirements are listed in the "Lim." column of the following checklists. Sections within a limited scope predesign are typically less extensive than those of a full predesign. If the predesign omits a required section or checklist item, the document must discuss why that section or item was not included.

Within the section checklists, required forms or letters are identified in ***bolded italics***. Sample templates can be found at the end of this document; downloadable versions are available at the Facilities website.

Exception for roof projects: HEAPR projects for roof repair or replacement do not require a separate predesign. Instead, campuses should submit to the CBR SharePoint site:

- HEAPR Project Budget Worksheet
- The current Roof Spec roof report for the project.

(If the Roof Spec report is more than 3 years old, it may need to be updated. Contact the system office for assistance.)

Checklist: Front Matter	Predesign Type** Lim.	Full
Title/Cover Page	●	●
Cover letter from consultant*	●	●
Table of Contents	●	●

● = required item

**Cover letter from consultant must include architect or engineer's certification with date, signature and consultant's Minnesota registration number; see template on page 48.*

***Lim.: Limited scope predesign*
Full: Full predesign

HEAPR Section 1: Summary

Checklist: Section 1: Summary	Predesign Type: Lim.	Predesign Type: Full
Brief description of project: Scope, size, cost, schedule, stakeholders, why is the project needed, how will the project be delivered	●	●
Description of how the project is funded	●	●
Summary of major facilities issues affected by the project: Deferred maintenance/renewal, sustainability, B3 Guidelines adherence, renewable energy, etc.	●	●
Cost breakdown: Demolition, new construction, renovation, renewal	●	●
Summary of project schedule, including milestone dates and funding	●	●
Costs and schedules for all project phases, if project includes multiple phases	●	●
List of past appropriations (for previous phases).	●	●
Summary of backlog reduction		●

Lim.: Limited scope predesign

Full: Full predesign

● *= required item*

HEAPR Section 2: Project Background Narrative

Checklist: Section 2: Project Background Narrative	Predesign Type: Lim.	Predesign Type: Full
Describe where this project fits in the campus Comprehensive Facilities Plan; context for any changes between the CFP and this proposed project		●
Existing facilities systems summary: Key facilities performance indicators, backlog, FCI, renewal for campus and for buildings affected by the project		●
Existing floor plans of all affected spaces/buildings		●
Sustainability highlights: Sustainable concepts or technologies that may be used by this project		●
List of statutory requirements, if applicable, that affect the project		●
Photos of proposed renovation area or building system		●

HEAPR Section 3: Project Description

Checklist: Section 3: Project Description (Scope)	Predesign Type Lim.	Full
Detailed description of project scope (include in Appendix any supporting materials, drawings, meeting minutes, or studies)	●	●
Graphics and maps: Aerial map, conceptual drawings for proposed project, or other graphics that help describe the project	●	●
Bibliography: List of applicable codes, standards, cited research, and other publications referenced.	●	●
Special security issues or safety concerns affecting the operations or scope of the project	●	●

Checklist: Section 3 (continued)	Predesign Type Lim.	Full
Building Summary Form—Existing Buildings *for all buildings/ spaces affected by the project, to include:*		●
Physical condition audit and recommendations, including photos of affected interior and exterior spaces		●
Deferred maintenance backlog and renewal data; FCI and other facilities condition data		●
Haz. mat. abatement needs and other environmental concerns		●
Current conditions, adjacencies, spatial issues, and user needs for affected academic programs		●
Analysis of project alternatives and options related to cost options, phasing, etc.		●
Description of past actions that affect the project (self-funded renovations by the campus, etc.)	●	●
Description of how the project will address any COPE issues (see *Definitions for description of COPE details).*		●
Description of project phasing (if applicable), including temporary relocations/swing space needs, and effects on operating budget	●	●
Description of project's infrastructure effects or needs		●

HEAPR Section 4: Sustainability and Energy

Checklist: Section 4: Sustainability/Energy	Predesign Type Lim.	Full
Campus B3 Benchmarking data		●
Description of plan to achieve compliance with MN B3 guidelines (if applicable)	●	●
Waste Management and Recycling Program Plan for demolition and construction		●
Statutory Requirements for Energy (see page 44: Analysis and plan for application of alternative energy systems:		●
MN §16B.32, Subd 2: Energy Conservation Goals (may participate in Program – not mandatory)		●
MN §16B.323: Cost/benefit analysis of solar energy system for new buildings or significant renovations (solar photovoltaic modules installed in conjunction with a solar thermal system).		●
MN §16B.325: Sustainable Guidelines (B3) for new building or where the project adds/replaces a stand-alone mechanical system (after Jan 1, 2009, applies to all renovations over 10,000 s.f.).		●
MN §16B.326: For new buildings, new HVAC systems, or when replacing an HVAC system: Provide written plan to consider providing geothermal or solar energy heating & cooling systems.		●

HEAPR Section 5: Capital Expenditures

Checklist: Section 5: Financial Information - Capital Expenditures	Predesign Type Lim.	Full
Estimate of capital expenditures for the project, including alternative solutions. To include:	●	●
Full project cost estimate	●	●
Budget and schedule impact for atypical considerations that may affect the project.	●	●
Identification of project funding sources (HEAPR, campus funding, etc.)	●	●
References to other cost estimations (i.e. comparable campuses or regional facilities whose construction cost is relevant to the current project)		●
Project procurement and delivery: Describe recommended project delivery method (design-bid-build, constr. manager @ risk, etc.) and why this method should be used; estimate costs associated with this method.	●	●

HEAPR Section 6: Ongoing Operating Expenses

Checklist: Section 6: Financial Information - Ongoing Operating Expenditures	Predesign Type Lim.	Full
Quantify total ownership cost of project, accounting for the estimated lifespan of building/site elements affected by the project.		●
Quantify the project's effects on operating budgets: List the budget for ongoing repair, replacement, and maintenance.	●	●
Identify alternative funding sources, such as GESP (Guaranteed Energy Savings Program); describe specifically what would be accomplished by the alternative funding.	●	●
Review and incorporate any COPE (Construction Occupancy Protection Exposure) findings and how they will be addressed with the project.		●

HEAPR Section 7: Schedule

Checklist: Section 7: Schedule	Predesign Type Lim.	Full
Graphically convey (bar or Gantt chart) a realistic schedule for all project stages; include time for haz mat abatement, phasing, relocation/moving, potential long-lead-time materials, etc.	●	●
Identify project options or phasing that could accommodate limitations in funding		●
Indicate a proposed funding sequence if the project may receive funds from more than one capital appropriation cycle.	●	●

HEAPR Section 8: Technology Plan

Checklist: Section 8: Technology Plan/Budget	Predesign Type Lim.	Full
Summarize existing Technology Plan and Information Technology infrastructure as it impacts this project		●
Describe how this project will improve or address problems with existing and future infrastructure, if applicable		●
Describe technology alternatives or options studied that would affect budget.		●

HEAPR Section 9: Appendix

Checklist: Section 9: Appendix	Predesign Type Lim.	Full
Meeting minutes (if applicable)		●
Pertinent sections of Comprehensive Facilities Plan		●
Capital Renewal (FRRM) data for affected building(s)		●
B3 Benchmarking data for affected building(s)		●
Other studies or related supporting information	●	●

Definitions

Architectural/engineering (A/E) program: A written statement setting forth design objectives, constraints and criteria for a project, including space requirements and relationships, flexibility and expandability, special equipment and systems, and site requirements, if applicable.

Asset Preservation: The state's capital budget guidelines describe it as "committing necessary resources to preserving, repair, or adaptive re-use of current assets." Renewal in this context is defined as "expenditures to keep the physical plant in reliable operating condition for its present use, without programmatic change." Higher Education systems are governed under Minn. Stat. §135A.046, Asset Preservation and Replacement, which further defines the categories of asset preservation and replacement. See **HEAPR**.

B3: Buildings, Benchmarks and Beyond: B3 refers to two component items designed to reduce energy consumption in public buildings – building sustainability requirements and energy benchmarking. The B3 Sustainable Building Guidelines are statutory requirements applicable to all new buildings and major renovations of 10,000 sq. ft. or more that include replacement of HVAC. Guidelines are available at www.b3mn.org/guidelines/index.html. Energy benchmarking is found here: mn.b3benchmarking.com/default.aspx **.**

Building Operating Expenses: Costs related to the operations of the physical building such as maintenance, utilities, security, repair and alteration, and any other costs associated with the building operations.

Capital project: A project for construction, renovation, major repair/replacement, and/or land acquisition, such that the total cost is "capitalized" on the books of the college or university under traditional accounting standards. Capital projects are normally authorized and funded by the state legislature, through the sale of tax exempt state general obligation bonds. Bonds are backed by the "full faith and credit" of the state, with interest based on the state's current bond rating, and are repaid over 20 years. The state of Minnesota carries 2/3 of the cost of the bonds for higher education capital projects, while the higher education system's pick up 1/3 of the cost of their respective costs. A capital project includes all costs associated with delivery of that project: design, construction, demolition, testing, inspection, furniture and furnishings, equipment, land acquisition, and project management.

Capital Renewal (formerly FRRM): This program, implemented in 2005, forecasts the life cycle of building components and systems to determine and quantify campus conditions, both in terms of backlog of needs not addressed (or deferred due to lack of funding) and the upcoming needs for renewal of major systems and sub-systems. The model is updated by campus personnel on a yearly basis, thus providing an ongoing forecast of campus conditions. The model has 2005 as the base year and is updated by campus personnel annually.

Changes in State Operating Costs: Serves in the capacity of a facilities note that seeks determination of the project's impact on the agency's operating budget over a six-year period. This requirement is mandated by state statutes (Minn. Stat. §16A.105, sec. 5, subd. 5). Both direct and indirect costs should be identified for the current and future biennia including, but not limited to, staffing costs, program/service costs, and increased building operation and utility expenses. These costs should reflect the agency budget associated with the request.

Commissioning: A basic four-part process verifying the review of the project program through design and construction, the interaction and training process for facility personnel, the correction of project deficiencies, and the recording of warranties and guarantees.

Compensation (Program & Building Operations): Refers to all the direct and indirect program and building operations staffing costs associated with this request.

Construction: The phase of the project where construction trades build the new facility, or renovate or repair the existing facility. Construction is normally accomplished through one contract with one general contractor, thereby minimizing risk to the owner. However, two or more contracts may be used to facilitate progress, e.g. an early contract for asbestos removal, site work and utilities; or a later contract for a parking lot, landscaping, or ancillary items able to be funded through cost savings over the life of the project. Construction normally represents about 70% of the total project cost.

Construction Cost: The total cost or estimated cost to the Owner of all elements of the project designed or specified by the design team (architect and/or engineer). It does not include the compensation of the architect and the architect's consultants, the cost of land, rights-of-way, financing, or other costs that remain the responsibility of the owner.

Construction Contingency: An amount of money set aside for unforeseen conditions in a construction project. The amount can vary from 2% to 3% in new construction to 5% to 10% in projects of a remodeling nature, based on project size and complexity. Differences in localized costs, design contingencies, or other items should be factored into the general construction cost.

Construction Management: Management services provided to an owner of a project during the design and/or construction stage by a person or entity possessing requisite training and experience. These services may include advice on the time and cost consequences of design and construction decisions, scheduling, cost control, coordination of contract negotiations and awards, timely purchasing of critical materials and long-lead items, and coordination of construction activities.

Contract Administration: The duties and responsibilities of the architect and owner's representative (state) during the construction stage.

Contract Documents: The agreement between the owner and contractor, conditions of the contract (general, supplementary, and others), drawings, specifications, and addenda issued prior to execution of the contract, other documents listed in the agreement and modifications issued after execution of the contract.

COPE: The four property risk characteristics an underwriter reviews when evaluating a submission for property insurance: *Construction* (e.g., frame, masonry, masonry veneer, superior construction, mixed—masonry/frame); *Occupancy* (how the building is being used for commercial property and whether it is owner-occupant or renter-occupied for homeowners and the number of families for which the building is designed); *Protection* (e.g., quality of the responding fire department including whether it is paid or volunteer, adequacy of water pressure and water supply in the community, distance of the structure to the nearest fire station, quality of the fire hydrant, and the distance of the structure to the nearest hydrant); and *Exposure* (risks of loss posed by neighboring property or the surrounding area, taking into consideration what is located near the property, such as an office building, a subdivision, or a fireworks factory). (From irmi.com.)

Debt service: Payments made by the state for principal, interest and issuance costs for the 20-year general obligation bonds. The college or university benefiting from the project pays one-third of the debt service on authorized projects except Higher Education Asset Preservation and Replacement funding (HEAPR).

Deferred Maintenance and Repair Backlog ("Backlog"): Necessary facilities renewal work that has not been accomplished and has been deferred due to lack of funding and forecast based on the Capital Renewal tool (formerly FRRM). This is often referred to as "deferred maintenance" which can give the mistaken impression that work has been deferred due to inattentiveness to maintenance or repair. A better term is "deferred capital renewal." Items in the Capital Renewal backlog run the gamut from being in marginal condition, to being obsolete where replacement parts are no longer available, to failing or already-failed condition that will require expensive repairs in the future. For Capital Renewal purposes, backlog represents the existing (or extrapolated) estimated costs associated with major maintenance, repair and replacement requirements for buildings, grounds, fixed equipment and infrastructure. The total equals the amount of funding that is needed for a facility or entire campus to be "whole and at current value." It does not include work that is associated with program or academic improvements. Note the word 'deferred' is used only in that lack of funding creates this 'deferred' condition and does not imply that the campus has willingly chosen to not maintain the physical plant.

Demolition/Decommissioning Costs: Cost for razing a facility or removing from service permanently. Hazardous material abatement associated with this action shall be itemized separately under the Hazardous Material Abatement category but included in the total cost of the project budget.

Design: The stage in the development of a project during which schematic, design development, and contract documents are produced.

Design Development: The stage of the architect's services in which the architect prepares from the approved schematic design studies the design development documents, for submission to the owner for the owner's approval.

Design Fees: These design services include normal architectural, structural, mechanical and electrical engineering services that cover the schematic, design development, contract documents, bidding, and construction administration stages of a construction project. Reimbursable items, additional services and specialty consultants should be added.

F.T.E. Personnel: The number of full time equivalent employees associated with this request.

Facility Condition Index (FCI): A ratio to measure the physical condition of a building, or entire campus, with the value of deferred maintenance and repair divided by the replacement plant value. Minnesota State considers

an FCI less than 5% (0.05) "excellent", 5% to 15% as "good", 15% to 30% as "average", 30% to 50% as "poor", and over 50% as "crisis." Through the Capital Renewal (FRRM) documentation, the system has been tracking conditions since 2005. The 2010 extrapolation for all the campuses indicated a system wide average FCI of 0.11 or 11%. Campus FCI will be evaluated over a three year time period in connection with review of projects.

Furniture, Fixtures and Equipment (FF&E): Items not normally permanently attached to the structure but that are considered a bondable cost and not part of the construction costs. Office systems furniture is an example. Most FF&E is purchased by the college or university using recommendations from the project architect, MinnCor (prison industries), or local preferences and sources. Computers and other technology equipment may also be procured this way as part of the project.

General Obligation (G.O.) Bonds: Bonds issued by the state for capital projects in accordance with the Minnesota Constitution and implementing statutes. Secured by a pledge of the state's full faith, credit and taxing authority towards payment of the principal and interest on the bonds when due.

Guaranteed Energy Savings Program (GESP): A financing and construction strategy using energy and operational savings achieved through 1) the installation of energy efficient and renewable energy equipment and 2) implementation of operational best practices to finance the cost of building retrofit and renewal projects, with no net cost increase to the public entity. Although GESP has been in existence for many years, the state has recently prioritized the use of the GESP through the Department of Commerce program.

Hazardous Material Abatement: Any costs associated with the encapsulation and/or abatement of hazardous materials in structures associated with the construction project.

Higher Education Asset Preservation and Replacement (HEAPR) ("hee-puhr"). The HEAPR program, defined in Minnesota Statutes Chapter 135A.046, focuses on facilities maintenance and repair needs that are capital in nature and unable to be funded through the campus operating budget. HEAPR also includes funding for compliance with life safety and building codes; Americans with Disabilities Act (ADA) requirements; hazardous material abatement and indoor air quality improvements; and facilities renewal in support of existing programs. As a part of the capital budget, HEAPR is usually expressed as a total, lump-sum requirement for appropriation purposes with a detailed campus-by-campus project list provided as backup information. HEAPR, since its inception in 1992, has been funded by general obligation bonds. The state covers the entire debt service of HEAPR with no debt service obligation on behalf of the Minnesota State system.

Inflation (escalation): The rate that cost of construction increases over the duration of the project calculated to the midpoint of construction.

Infrastructure/Roads/Utilities Costs: Costs for the construction or enhancements to infrastructure/roads/grounds/utilities beyond the site perimeter.

Life cycle costing: Life cycle costing is a method of calculating the total cost of ownership over the life span of the asset. Initial cost and all subsequent expected costs of significance are included in the calculations as well as disposal value and any other quantifiable benefits to be derived.

MN Management & Budget Multiplier: Referenced in the most current Biennial Capital Budget Instructions. From the Minnesota Management & Budget (formerly the Department of Finance).

Nonstate-Owned Lease Expenses: All the costs related to a commercially leased facility. This would include the lease (rental) cost, tenant (leasehold) improvements, security, and any other costs associated with an agency leasing a commercial facility.

Occupancy: The purpose for which a building, or part thereof, is used or intended to be used.

One Percent for Art: An allocation of one percent of the construction costs only (MS 16B.35). Allocations may be exempted or reduced depending on the project.

Operating Costs: In context with the capital budget, projects must consider the impact on the campus operating budget. Operating costs include utilities, custodial care, maintenance and repair and staff labor expenses. For purposes of operating costs, debt service is included in this definition. The state does not provide additional operating budget funding in support of new or expanded facilities.

Operational program: The operational function of a facility described in terms of services provided, products delivered, activities performed, resources needed, and results expected.

Predesign: The stage in the development of a project during which the purpose, scope, cost, and schedule of the complete project are defined and instructions to design professionals are produced.

Predesign Fees: The fees consumed in the preparation of the predesign document. The fees depend on the scale and complexity of the project.

Project Management: The process of planning, scheduling, and controlling the critical aspects of the Owner's program. The quality, budget, and deadlines are protected through the use of campus staff (Owner Administration) and/or outsourcing (Construction Management).

Property Acquisition: The use of funds to acquire land, easements, options, or land with buildings or other improvements.

Reinvestment: The amount of funds that must be spent on an existing facility each year to preserve its physical state of readiness and programmatic value; the funds needed to return the capital asset to its full intended use, whether through planned renewal or reduction of the backlog. In the Capital Renewal context, it is funding of Backlog plus Renewal. All building components have a predicted life span and must be replaced and/or refreshed periodically. To not reinvest is to "defer" and thus build a backlog of maintenance, repair and renewal.

Remodeling (Adaption)(Alterations): Expenditures required to adapt the physical plant as required to the evolving needs of the institution and to changing standards.

Renewal: The amount required to maintain facilities "at par" condition; the current or anticipated replacement need of a subsystem. For example, a 40-year old boiler that is scheduled to be replaced due to its age in 2012 would be indicated in that year as a "renewal" need. The Capital Renewal model predicts future renewal requirements.

Repair and Replacement (R&R): The amount of investment from a campus for items that assist in lengthening the life of the building which are typically coded from Fund 830.

Schematic Design: Drawings and other documents illustrating the scale and relationship of project components.

Security Equipment: Specialty equipment usually supplied by a separate contract from those of construction or FF&E.

Site and Building Preparation: Work performed within the perimeter of the land parcel but beyond five feet from the existing structure or new construction that would include infrastructure/roads and utilities.

Space needs analysis: Includes estimates of amount and type of space needed, survey of existing space, investigating ways to utilize existing space as an alternative to new construction, investigating other alternatives to new construction, and identifying the selection criteria for the preferred alternative.

Space utilization: A measure of how efficiently space is used as expressed by hours of class room usage over a given time period. Measurements are taken after 30 days have elapsed in a given term. The current baseline is considered to be 32 hours a week of any credit class and any timeframe (day or hourly) for 100% utilization.

State Staff Project Management: Costs a campus or the system office charges to a construction project to cover internal personnel administrative management.

Strategic Plan: A projection of Minnesota State facility needs based on trends, policies, and standards that define the need.

Sustainability: There's considerable variation in the definition of sustainability. In the context of the capital budget process, sustainability is focused primarily on financial and facilities sustainability. Components of sustainability include recycling and minimizing solid waste, conserving water and energy, purchasing appropriate goods and materials, low maintenance cost construction and development, and appropriate grounds maintenance. For further information contact the United States Green Building Commission at www.usgbc.org or the local Minnesota sustainable guidelines found at www.sustainabledesignguide.umn.edu.

Telecommunications (voice & data): Specialty equipment supplied by a separate contract from those of construction or FF&E.

NOTES: "Owner" refers to the State of Minnesota.

Applicability of Statutes for Projects Receiving State Funding

Reference: Link to State Statutes: https://www.revisor.leg.state.mn.us/pubs

APPLICABILITY OF STATUTES FOR PROJECTS RECEIVING STATE FUNDING

REFERENCE: Link to State Statutes: https://www.revisor.leg.state.mn.us/pubs

STATUTE	Required by FUNDING RECIPIENT		
	State Agency	Higher Ed	Political Subdivisions
1. §16B.241 Coordinated Facility Planning	YES (required)	NO (not required)	NO
2. §16B.32, Subd 1 Alternative Energy Sources	YES	NO	NO
3. §16B.32, Subd 1a Renewable Energy Sources - 2% of energy use Solar or Wind	YES	NO	NO
4. §16B.32, Subd 2 Energy Conservation Goals (may participate in Program – not mandatory)	YES	YES	NO
5. §16B.325 Apply Sustainable Guidelines (B3-MSBG) (New Bldgs & Major Renovations – See Applicability Criteria at http://www.msbg.umn.edu) 5b: §216B.241 Sustainable Building 2030 requirements	YES	YES	YES
6. §16B.326 Written plan w/predesign to consider providing Geothermal & Solar Energy Heating & Cooling Systems on new or replacement HVAC systems	YES	YES	YES
7. §16B.33 State Designer Selection Board	YES	YES	NO
8. §16B.335, Subd 1, Notification to House & Senate Committees	YES	YES	YES
9. §16B.335, Subd 3 Predesign Submittal See Statute for exempted projects	YES	YES	YES
10. §16B.335, Subd 4 Energy Conservation Standards (Minnesota Energy Code MN Rule 7676 http://www.doli.state.mn.us/bc_energy.html)	YES	YES	YES
11. §16B.335, Subd 5 & 6 Information Tech. Review by OET	YES	NO	NO
12. §16B.335, Subd. 3c Consider the use of MINNCOR products www.minncor.com	YES	YES	YES
13. §16B.35 % for Art When considered in original legislative request; & when constn is $500K or greater	YES	YES	YES

Form Templates

Indicates form that must be included as-is within the predesign document without modification of formatting.

LETTERHEAD
of college or university

[date]

[name]
Associate Vice Chancellor for Facilities
30 E 7th Street, Suite 350
St. Paul, MN 55101

Dear AVC ***[name]***,

RE: Predesign Submittal for ***["a new"]*** *or* ***["the remodeling of"] [name]*** building at ***[name of college/university]***

In accordance with Minnesota Statutes §16B.335, Subdivision 3, enclosed you will find the Predesign submittal document for the ***[name of project, building & location]***. This predesign outlines ***[name of college/university]***'s capital budget request for the ***[year]*** state legislative session.

This project consists of the ***[new construction of*** *or* ***remodeling of] [number of square feet]*** of space to support ***[insert operational plan/goal]***. The total project cost is estimated to be ***[amount]***. This proposal seeks ***[full funding*** *or* ***matching funds]*** in the amount of ***[amount]***.

Sincerely,

[president's name]

cc:

LETTERHEAD
of consultant

[date]

President *[president's name]*
College/university
address
City, MN 5xxxx

Dear ***[president's name]***,

We are pleased to submit to you the final predesign for the *[project name]*. The attached document has been prepared in accordance with the Minnesota State Predesign Guidelines and in collaboration with you, your staff, and the Steering Committee.

The scope of our work on the project has been to *[describe scope of work and overall outcome of the predesign process]*.

Sincerely,

[lead consultant's name]
[lead consultant's title]
MN Registration #*xxxxxx*

I certify that this report was prepared by me or under my direct supervision and that I am a duly licensed *[architect or engineer]* under the laws of the state of Minnesota.

MINNESOTA STATE

Predesign Building Summary Form -- Existing Building Data

Code Information				
Occupancy group(s) (existing):				
Primary space types (office, classroom, etc.):				
Type of construction (per current MN Building Code):				
Building Size (GSF):	Allowable height:		Actual height:	
	Allowable area/floor:		Actual area/floor:	
	Total building area:		Space efficiency (%):	

Building Systems (describe type of system and current condition)	
Roofing type(s):	
Structural system type(s):	
Mechanical system type(s):	
Electrical system type(s):	
Fire protection type(s):	
Exterior wall type(s):	
Interior wall type(s):	
Conveying system(s):	
Life expectancy of building and systems:	
Technology systems:	
Sustainability/alternative energy systems:	
Notes on existing FF&E:	

Metrics			
Current backlog:		Current renewal:	
Current space utilization:		Proposed space util.:	

Note: Predesigns may use this template but its use is not required. All information noted above must be included for each affected building in the predesign.
Form updated 04/19/17

MINNESOTA STATE

Predesign Building Summary Form -- New Construction

Code Information				
Occupancy Group(s):				
Primary space types (office, classroom, etc.):				
Type of construction (per current MN Building Code):				
Building Size (GSF):	Allowable height:		Proposed height:	
	Allowable area/floor:		Proposed area/floor:	
	Total building area:		Space efficiency (%):	

Building Systems			
Roofing type(s):		Structural system type(s):	
Mechanical system type(s):		Fire protection type(s):	
Electrical system type(s):		Exterior wall type(s):	
Interior wall type(s):		Technology systems:	
Conveying system(s):		Sustainability/energy:	
Life expectancy of building and systems:			
Notes on proposed FF&E:			

Construction Schedule			
Construction start date:		Occupancy date:	

Note: Predesigns may use this template but its use is not required. All information noted above must be included for each new building.
Form updated 04/19/17

MINNESOTA STATE

Predesign Space Needs Inventory and Diagrams

Space Information			
Space number:		Space name:	
Proposed size (NSF):			
Department(s) served:			
Number of rooms needed:		Occupants per room:	
Function(s):			
Critical adjacencies:			

Systems and Finishes	
Typical finishes:	
Typical lighting:	
Typical HVAC, plumbing, electrical requirements:	
Typical technology requirements:	
Furniture, fixtures, and equipment (FF&E) required:	
Other requirements:	

(Provide a typical floor plan, including furniture layout if applicable.)

(Provide an adjacencies layout diagram if applicable.)

Note: Predesigns may use this template but its use is not required. All information noted above must be included for each space outlined in the predesign.

Form updated 04/19/17