



UNIVERSITY OF UTAH SCHOOL OF MEDICINE FACILITY STUDY

December 20, 2013



MHTN
ARCHITECTS



Lee, Burkhardt, Liu Inc.
Architecture, Planning, Interiors

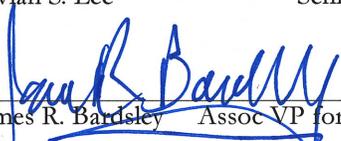
Review Signatures

We have reviewed the

**University of Utah
School of Medicine
Facility Study**

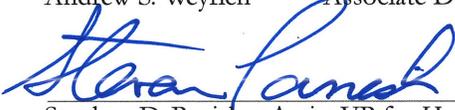
and warrant that it adequately represents our request for a facility study to fulfill our mission and programmatic needs. All appropriate parties representing the University have reviewed it for approval.

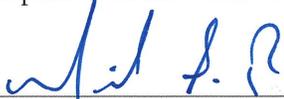

 Vivian S. Lee Senior Vice President for Health Sciences Date 3/4/14

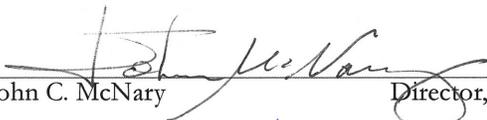

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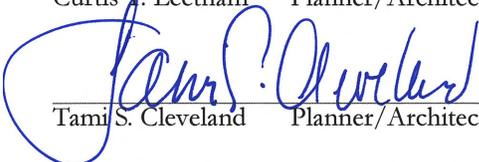

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The University of Utah
School of Medicine Facility Study

December 20, 2013

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EXECUTIVE SUMMARY

The University of Utah Medical Center, 1965 (source: UU School of Medicine Medical Graphics and Photography)



Introduction

Since its construction in 1965, the University of Utah School of Medicine (SOM), also identified as Building 521, has served as a teaching hospital and medical school, with functional spaces that have evolved as the campus has grown and needs have changed. Its 600,000-plus square feet have provided inpatient units, inpatient and outpatient clinics, research laboratories, teaching spaces, departmental and administrative offices, and support functions. Over the years, the building has undergone significant change, internally and externally, in response to evolving functions and campus growth. In the late 1960's, the facility stood nearly alone on the foothills east of the University of Utah main campus. Now, fifty years later, Building 521 is surrounded by a busy and densely-built Health Sciences Center (HSC) campus comprised of more than 30 buildings.

Recent facility studies concluded that the building's seismic issues are significant enough that the building is unsuitable for continued use as a clinical care and research facility. A 2011 study noted the complexity of relocating the multiple existing functions and recommended that the University develop a relocation strategy and make a final determination whether the existing building can be upgraded and repurposed for "lighter" uses.

Study Purpose

The purpose of this study is to assist the University to:

- 1) Determine whether Building 521 should be entirely or partially razed or repurposed, and
- 2) pending the outcome of point #1, establish a relocation strategy for Building 521 occupants and functions.

The study scope also included:

- Preliminary discussions regarding the programs, area amounts, and future expansion needs for the School of Medicine building
- Analysis of existing utilities, buildings, and pedestrian and vehicular circulation in the Building 521 vicinity
- Estimates of the cost to renovate the existing Building 521 or replace it with a new building
- Determination of the preferred site for the School of Medicine if 521 is demolished
- Renderings of a renovated or proposed new building

Study Process

The study process took place from January through September of 2013. The consultant team was led by Salt Lake City based MHTN Architects and Lee, Burkhardt, Liu, Inc., a health sciences planning specialist located in San Francisco. The team also included locally based engineering consultants.

A Working Committee with representatives from University and Health Sciences Center facilities planning and administration had oversight of the study process. A Steering Committee comprised of Health Sciences, School of Medicine and Campus Facilities administrators filled the decision-making role.

School of Medicine department chairs participated in the study process during several of their regularly-scheduled weekly meetings. Additional campus community members were involved in the information-gathering or planning phases of the study on an as-needed basis.

As the study direction progressed, the process included presentations to campus leadership such as the Board of Trustees and the President’s Cabinet.



Project Steps

The project process included the following:

1 - Background Data

Background information provided by the University to establish a project knowledge base

2 - Discovery & Analysis

Definition of stakeholder vision

Analysis and documentation of Building 521 space, configuration and systems

Analysis of current Building 521 occupants, programs and functions

Analysis of the HSC campus to determine the preferred location for a potential new School of Medicine building

3 - Project Direction

Critical decisions regarding replacement vs. renovation, preferred site, and phasing

4 - Implementation

Strategies and schedules to decant Building 521; the “enabling” projects

5 - Documentation

Documentation of study process, decisions and conclusions



Steering Committee visioning session

The vision and guiding principles established for the School of Medicine Facility Study build upon “The Vision” in the 2008 Campus Master Plan. The Vision guides the development of the University of Utah campus as a whole; its seven planning principles are reproduced below.

The Vision 2008 Campus Master Plan

A lively campus; a magnet for student, faculty, staff and public life.

State of the art facilities to support the University’s mission for teaching, research and public life.

A setting to foster interdisciplinary collaboration and interaction.

Campus as a destination for the public.

Functional and sustainable transportation services.

Capitalize on the natural landscape setting.

Leaders in environmental stewardship.

Vision

Early in the study process, project stakeholders defined their vision for the School of Medicine and the Health Sciences Center (HSC) campus. The vision was expressed in guiding principles which were used to guide facility study decisions, direction and conclusions.

The study process led to the decision that the existing Buildings 521 and 531 should be replaced by a transformative building for the School of Medicine, identified as the MED - the Medical Education and Discovery building. The visioning session’s guiding principles are represented here, along with descriptions of how they will be fulfilled in the future MED.

As a transformative project identified in the 2008 Campus Master Plan, the new School of Medicine and the future HSC campus will:

Create vitality centered around a true heart of campus.

The MED and the adjacent outdoor space will be the heart of the HSC campus. The building will be a campus icon – easy to see, identify and locate. It must be welcoming, approachable and transparent.

Integrate informal spaces for gathering and learning.

The MED building and site will foster interaction and collaboration among the HSC campus community.

Promote interdisciplinary learning between all health care programs.

Building programs will support the interdisciplinary aspect of health sciences education, research and clinical practice.

Be energized around an easily accessed transportation node.

The project will include a new central roadway for mass transit and service vehicles. The new building will provide an enclosed pedestrian path from the HSC campus center to the nearby TRAX stop.

Have a well-planned sustainable campus utility infrastructure.

The MED’s design will reinforce campus sustainability goals and strategic utility and infrastructure improvements.

Overcome challenging topography & “missing links” by an enhanced network of connections and actively used open space.

The MED will contain an internal pathway for pedestrians traversing the campus east-west hillside. The building’s adjacent plaza will provide outdoor activity space and will contribute to a strong sense of place.

Enable a pedestrian and bike friendly culture through a compact academic campus.

The MED will have adjacent pedestrian and bicycle pathways, and will provide amenities that support an active lifestyle, such as shower and changing rooms.

Enable a stress-free and personalized patient experience that inspires confidence and trust.

Construction of the MED will include campus modifications that improve visitor access and wayfinding, easing the patient and visitor experience.

Have easily identifiable gateways.

The building will have multiple entries that provide easy and welcoming access from all directions.

Discovery & Analysis

The consultants used the discovery phase to gain an understanding of the site conditions, space needs and physical structure of Buildings 521 and 531. The information gathered was used to make critical decisions regarding the existing facilities and the future direction for the School of Medicine.

Conclusions and decisions made at the end of this phase included:

Existing Conditions

The building's seismic deficiencies are a potential hazard to occupants and a liability to the University; mitigation should be prioritized and hastened.

In addition, the building's mechanical and electrical systems are at the end of their useful lifespans. With the possibility of component failure at any time. This poses a serious threat to the building's functioning that must be addressed.

Replacement Over Renovation

The building should be demolished and replaced rather than renovated. The cost of the substantial renovation required for the building is only a small amount less than the cost to replace it. The existing building has fundamental design flaws that will remain after a renovation (low floor-to-floor heights, small structural bays, large column sizes). The money saved by renovating is not worth the end result of a flawed building with questionable utility.

Renovate vs. Replace Cost Comparison

Options	Cost/SF
Renovate existing Building 521	\$222
Construct new academic building	\$231
Savings to renovate vs. replace	\$9

Note: New construction cost is for building only; site development and other costs are not included.

Preferred Site

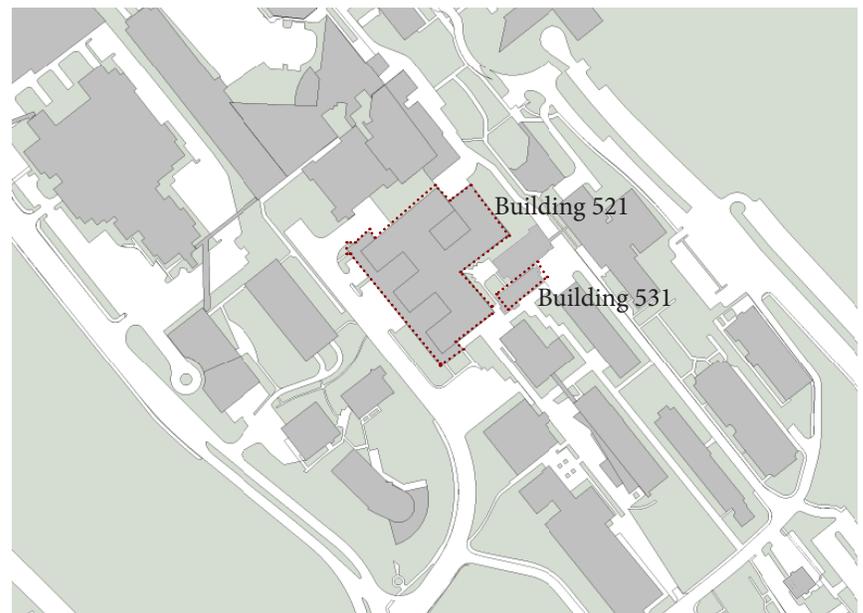
After considering five alternative site locations, the project team concluded that the existing Building 521 site is the preferred site for a future School of Medicine building. This site best fulfills the defined stakeholder vision to create a true heart of campus that promotes collaboration and interdisciplinary learning among all health care programs.

Single Phase Demolition

The building is recommended to be demolished at one time rather than in multiple phases. Demolishing in one phase is significantly more cost effective and also shortens the process to replace the facility by several years. Shortening the replacement process is beneficial from a safety and liability standpoint. A shorter construction period will minimize disruption and inconvenience to this highly congested and heavily used area of campus.

Single vs. Multiphase Demolition Cost Comparison

Options	GSF	Cost	Comment
Demolish Phase 1 only	154,000	\$6.2 million	25% of total building
Demolish entire building in 4 phases	600,000	\$24.8 million	4 x \$6.2 million
Demolish entire building at one time	600,000	\$11.3 million	



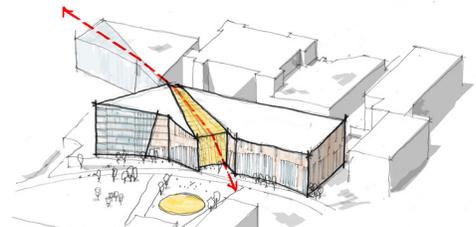
Buildings 521 and 531 are surrounded by the densely built HSC campus

The MED

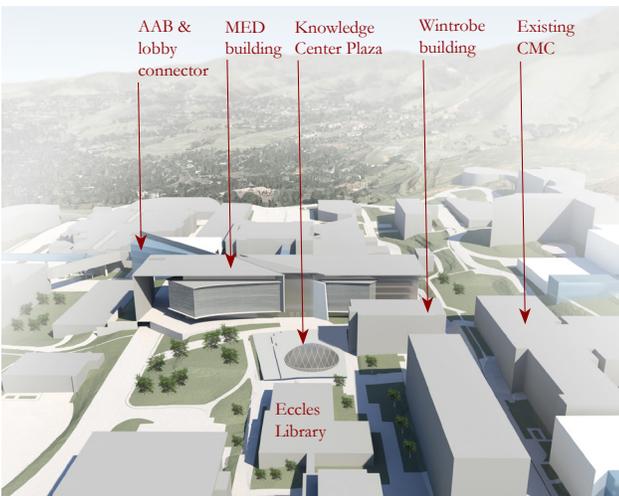
The analysis phase led to the conclusion that the existing Building 521 must be replaced by a new School of Medicine building, which is being reconceived as the MED - the Medical Education and Discovery building. The MED is seen as a transformational opportunity to reinforce the interdisciplinary and collaborative teaching and learning methods that exist on the campus. It is hoped that the MED will strengthen the integration of the HSC research, academic and clinical missions, leading to enhanced possibilities for discoveries of all kinds within the health sciences realm.



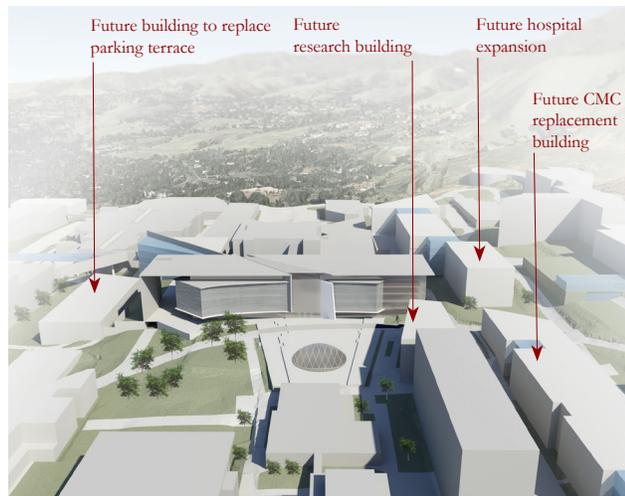
Exterior approach from the west



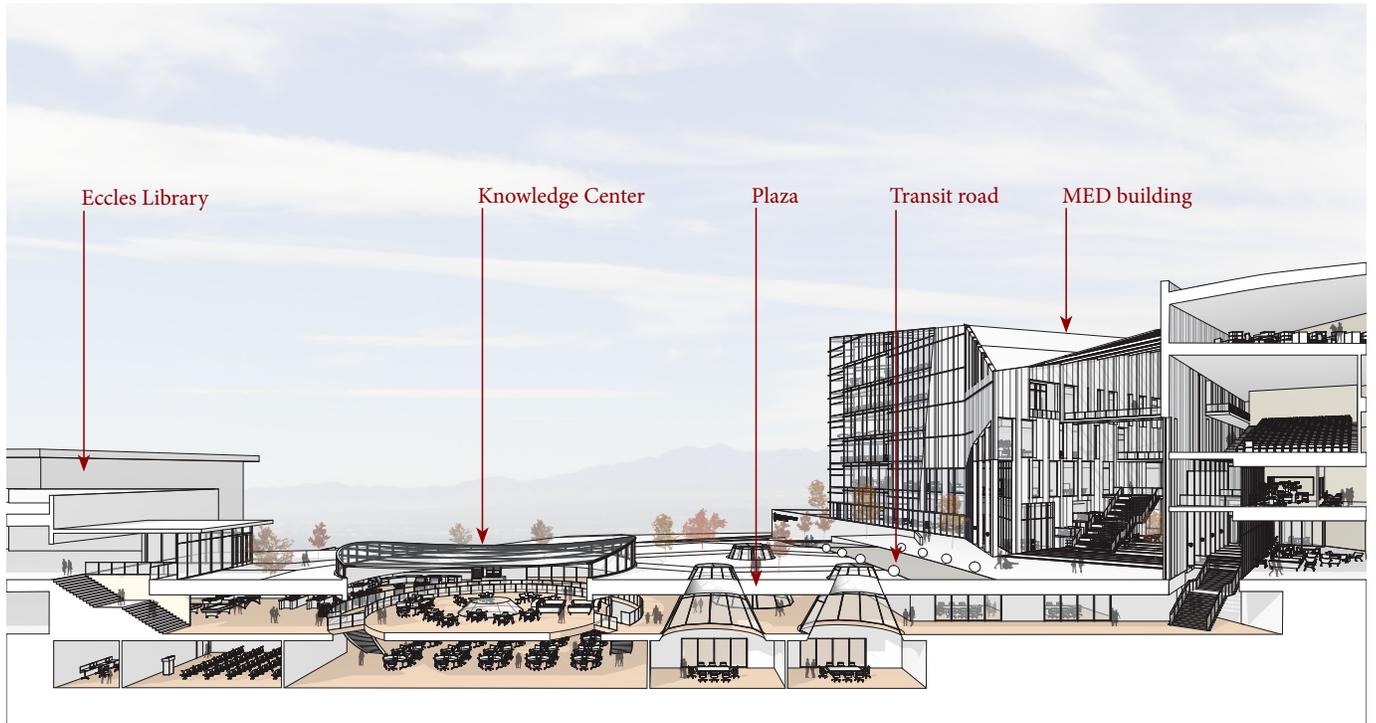
Several concepts were explored as design approach possibilities. Shown here is one concept based on the notion of the regional mountain landscape.



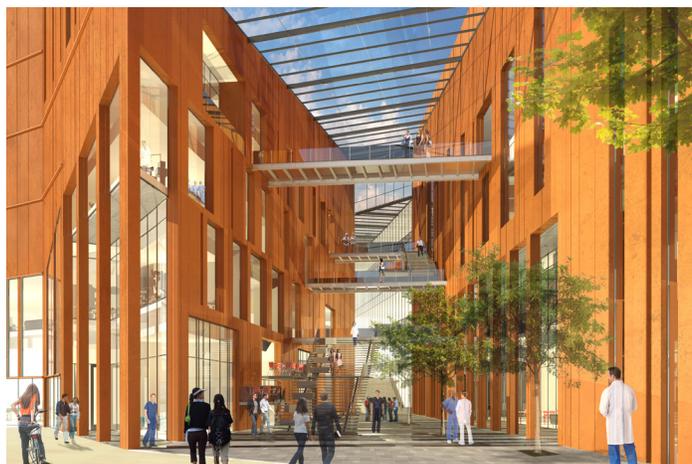
Campus Heart: Near term with existing Wintrobe building



Campus Heart: Long term with future building massings



Site section looking west



Interior lobby connector view



Interior lobby connector view

The University has decided that a future preprogramming study will be used to determine the programs and area amounts of the future new MED building.

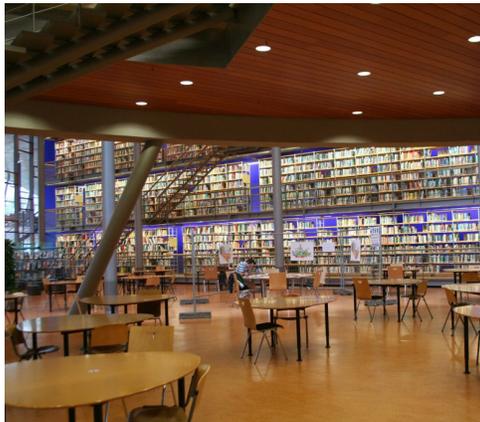
A placeholder size of 400,000 GSF was used for the future building in the current planning studies.

The University is strongly considering use of a new activity-based space model for administrative office space in the future MED. This new model provides private offices only as needed for functionality. It is seen as an efficient and flexible use of space which encourages a greater amount of communication and collaboration among building occupants.

Preliminary discussions included the following as definite or potential elements for inclusion in the MED:

- Dean’s office
- SOM department administrative space
- Student space
- Knowledge center
- Teaching space
- Simulation labs
- Telemedicine center
- Biomedical informatics
- School of Dentistry administrative space
- HSC institutes
- Physician’s Assistant program
- Gross Anatomy program
- Selected offices of the College of Health

The MED is anticipated to contain: a Knowledge Center with access to information in all formats; a telemedicine center; simulation labs; and activity based academic and administrative space (photos: top left, Delft Library; top & bottom right: Lee, Burkhardt, Liu Architects; bottom left: Steelcase)



Enabling Projects

The decision to demolish existing Buildings 521 and 531 at one time led to the need to decant the buildings of all occupants and programs.

University and HSC facilities and administrative staff formed subcommittees to determine the most effective decant locations for the building’s primary functions: research, clinical, academic and hospital support services.

Decant goals included:

- Using the relocations as an opportunity to further HSC strategic goals and to improve functionality and relationships among SOM departments
- Minimizing relocation costs, especially for temporary relocations
- Minimizing disruption to the HSC community, including limiting the number of moves for any one group, locating the occupants in as few locations as possible and keeping the displaced occupants as close as possible to the HSC campus.

Wet lab research and clinical functions will not be included in the new MED, so these relocations were planned to be long term.

Ambulatory clinical relocations were studied in light of the HSC long-term goals to restructure the ambulatory service delivery system and distribute some functions to locations nearer patient localities.

Research relocations were planned to enhance collaboration, cohesion and synergy among the HSC research community.

Major functional categories, their existing area amounts and their possible relocation destinations are shown in the chart below and are described on the following pages.

Building 521 Existing Functions & Possible Decant Locations

Functional Category	Existing NSF	Possible Decant Locations
Research Laboratory	75,000	Wintrobe, Biopolymers, Human Genetics, EEJMRB
SOM Academic/Administrative	175,000	Dumke, HSEB, Moran, AAB
Clinical, Inpatient	30,600	Psych: U Hospital; Rehab: Rehab Hospital, U Hospital 5th Floor
Clinical, Outpatient/Amb	44,100	AAB, community clinics
Hospital Support Services	65,000	AAB, U Hospital

AAB: Proposed new Administrative & Ambulatory Building

Rehab Hospital: Proposed new building to be constructed east of Hospital



Wet Lab Research

1. Wintrobe Research Building
2. Biomedical Polymers Research Building
3. Eccles Institute of Human Genetics
4. Emma Eccles Jones Medical Research Building



SOM Academic/Administrative

5. Dumke Building
6. HSEB
7. Moran Building (limited)
8. Administrative & Ambulatory Building, AAB (proposed to be constructed west of University Hospital)



Clinical, Inpatient - Psych

9. University Hospital

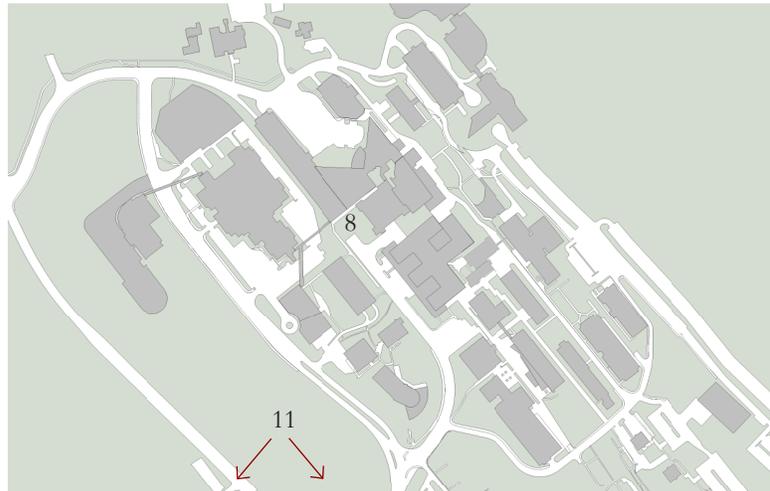
Clinical, Inpatient - Rehab

- 9. University Hospital 5th Floor
- 10. Rehabilitation Hospital (proposed to be constructed east of University Hospital)



Clinical, Outpatient/Ambulatory

- 8. Administrative & Ambulatory Building, AAB (proposed to be constructed west of University Hospital)
- 11. Distributed Model: Clinical functions distributed to community clinic locations



Support Services

- 8. Administrative & Ambulatory Building, AAB (to be constructed west of University Hospital)



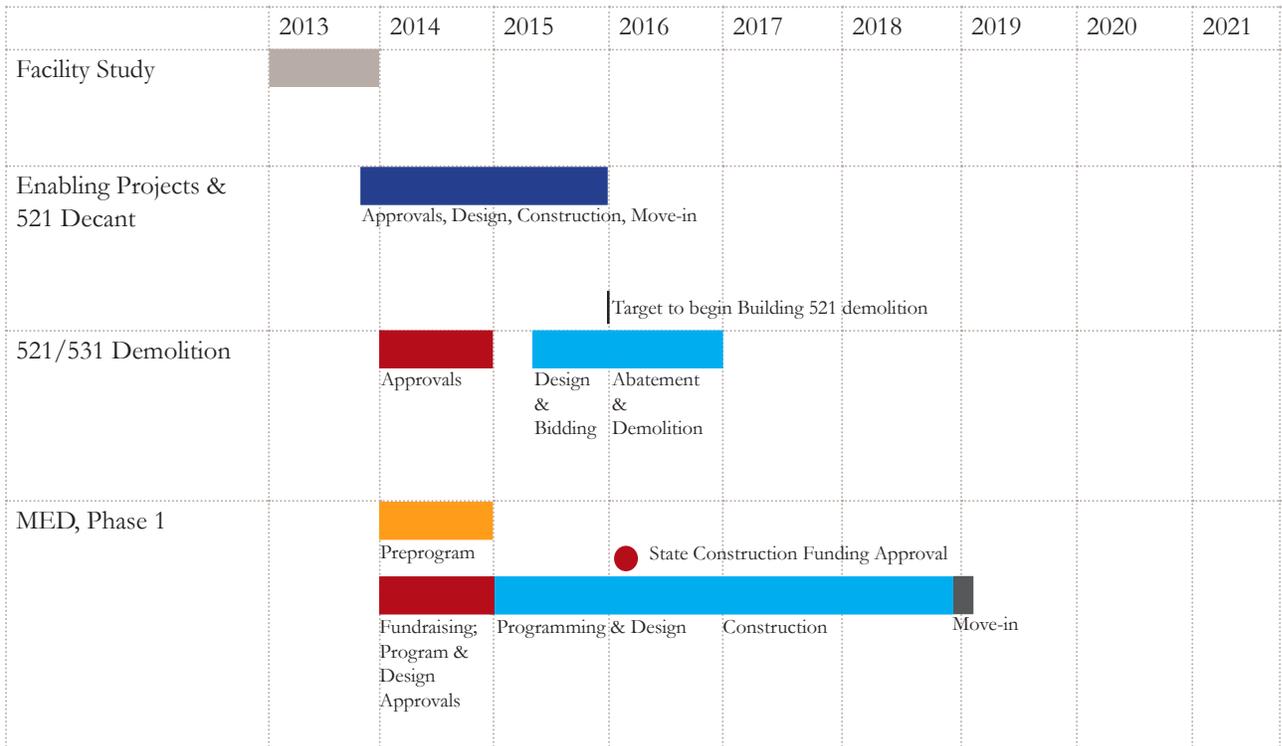
Implementation

Health Sciences Center (HSC) administrators have a goal to demolish Building 521 and construct Phase 1 of the new Medical Education and Discovery building (MED) within the next five years.

This chapter describes sequencing and scheduling that will help to accomplish that goal. The process includes:

1. Construction of the enabling projects described in Chapter 6, which allow the decanting of the Buildings 521/531
2. Demolition of Buildings 521 and 531
3. Construction of the MED Phase 1

The facility study was concurrent with an update of the Health Sciences Center campus master plan. The implementation site plans in this chapter show some future projects that are contained in the master plan update and that are expected to occur prior to or at the same time as the MED construction.



Implementation Schedule

Note: At the time of documentation finalization, the implementation schedule was under evaluation; the final schedule may vary from that shown above.



1 Enabling Projects & Buildings 521/531 Decant

AAB/Administrative and Ambulatory Building

The AAB will contain incoming and outgoing docks for the University Hospital (currently located in the lower level of Building 521), in addition to other components

100,000 GSF (up to) \$41,300,000 (up to)

Possible projects to enable 521/531 decant (not denoted on plan above):

New Patient Rehab Services facility

Renovations of existing facilities:

- Wintrobe
- Biomedical Polymers
- Inst. of Human Genetics
- EEJ Medical Research Bldg
- Dumke Building
- HSEB
- Moran Eye Center
- University Hospital
- Community clinics

Note: Refer to the space subcommittee reports for final information regarding the decant projects

- Existing Building
- New Building
- New Building (Connection Space)
- Demolished Building
- Built in Separate Sequence

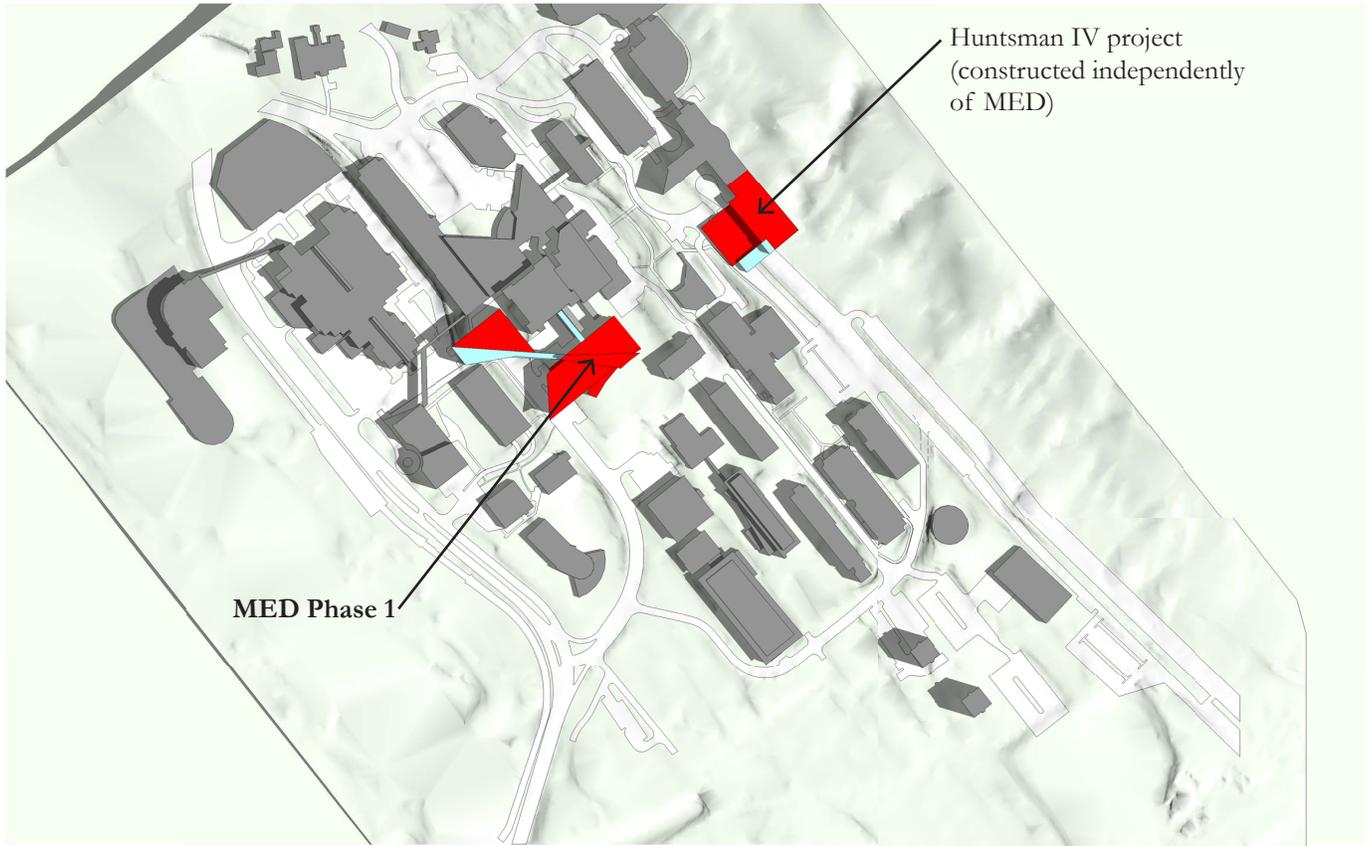


2 Demolition

Asbestos abatement and demolition of Buildings 521 and 531

\$10,900,000

- Existing Building
- New Building
- New Building (Connection Space)
- Demolished Building
- Built in Separate Sequence



3 Initial MED Construction

Construction of MED Phase 1 with Knowledge Center

250,000 GSF \$90,075,000

- Existing Building
- New Building
- New Building (Connection Space)
- Demolished Building
- Built in Separate Sequence



INTRODUCTION

1

Study Purpose

Buildings 521 & 531

The existing School of Medicine (Building 521) and the Medical Research and Education Building, MREB, (Building 531) are connected physically and functionally and have systems interdependencies. The facility study scope included the analysis of both buildings. References to Building 521 throughout the facility study can be assumed to include Building 531 as well.

Since its construction in 1965, the University of Utah School of Medicine (SOM), also identified as Building 521, has served as a teaching hospital and medical school, with functional spaces that have evolved as the campus has grown and needs have changes. Its 600,000-plus square feet have provided inpatient wards, inpatient and outpatient clinics, research laboratories, teaching spaces, departmental and administrative offices, and support functions.

Over the years, the building has undergone significant change, internally and externally, in response to evolving functions and campus growth. In the late 1960's, the facility stood nearly alone on the foothills east of the University of Utah main campus. Now, fifty years later, Building 521 is surrounded by a heavily used and densely built Health Sciences Center (HSC) campus comprised of more than 30 buildings.

Recent facility studies have concluded that the building's seismic issues are significant enough that the building is unsuitable for continued use as a clinical care and research facility. A 2011 study noted the complexity of relocating the multiple existing occupants and functions and recommended that the University develop a relocation strategy, and well as determine whether the existing building can be upgraded and repurposed for "lighter" uses.

The scope of the current facility study was to assist the University in its efforts to:

1. Determine whether Building 521 should be entirely or partially razed or repurposed.
2. Pending the outcome of point #1, establish a relocation strategy for Building 521 occupant and functions.

For the existing Building 521, particular objectives included:

- Determine whether all or a portion of the existing building should be renovated and repurposed
- If the building is recommended to be razed: establish costs for abatement and demolition; analyze the impact of the demolition on the campus; and develop a site plan of the post-demolition footprint

For a renovated or potential new School of Medicine building, particular objectives included:

- Conduct preliminary discussions regarding the programs, area amounts, and future expansion needs for the School of Medicine building
- If the existing building is recommended to be replaced, determine the preferred site and orientation for the new building
- For the preferred site, analyze issues of utilities, adjacent buildings, and pedestrian and vehicular circulation
- Estimate the cost of the new building(s)
- Provide renderings of the proposed building(s) within the context of the Health Sciences Center campus



The University of Utah Medical Center, 1965 (source: UU School of Medicine Medical Graphics and Photography)



HSC campus growth over time

Study Process

The study process took place from January through October of 2013.

A Working Committee was established to have direct involvement throughout, meeting with the consultant team on a biweekly basis, and shaping the development of project considerations and options.

A Steering Committee comprised of Health Sciences, School of Medicine and Campus Facilities top administrators filled the decision-making role. Steering Committee meetings occurred on a monthly to bi-monthly basis.

School of Medicine department chairs were informed of the study process and were given opportunities for input during presentations at department chair regularly scheduled weekly meetings.

The process included coordination with additional related entities, through visitor attendance at project meetings or sideline meetings set up by University or consultant team members. The related entities included Campus Commuter Services, UU Parking and Transportation, the Huntsman IV design team, among others.

Subcommittees comprised of Health Sciences facilities and management staff were formed to focus on the projected space needs and possibilities for relocation, for the areas of research, clinical, inpatient, and education/administration.

The study process included preparations by the consultant team for presentations to Board of Trustees, the President’s Cabinet, and meetings with potential donors.

The work of the study was documented as the study progressed. Meeting reports for all Working and Steering Committee meetings were generated by the consultant team. Information was shared within Health Sciences through postings on the Intercom, the Health Sciences internal website.



Steering Committee visioning session



Project direction and guiding principles were defined in a Steering Committee visioning session

Project Steps

The project process included five steps:

Step 1 - Start Up

The consultant team collected background information from the University, which was used to formulate a project knowledge base.

The team defined goals and drivers that would be used for project decision-making.

Step 2 - Discovery & Analysis

The Steering Committee provided direction in a session to define stakeholder vision for the School of Medicine replacement and the HSC campus.

The consultant team studied and documented Building 521 and 531 occupants, their net square foot amounts and anticipated growth, and the buildings' construction history and resulting configuration. The consulting team engineers provided input on the building systems that had a bearing on whether Buildings 521/531 should undergo a phased renovation or demolition, with particular focus on the structural and heating, ventilating and cooling systems.

Parallel to the space and infrastructure study, the consultant team analyzed the Health Sciences Center campus to determine the optimal location for a potential new building. They considered issues such as campus connections, functional adjacencies, master plan compliance, and transportation, parking, and utility impacts.

The consultants developed cost opinions for the scenarios being considered by the project team.

Step 3 - Project Direction

About midway through the study process, the University made the following critical decisions:

- The building should be completely demolished and replaced
- The demolition should occur in a single phase
- Construction of a replacement facility should occur in two phases
- The optimal site for the new School of Medicine was the location of the existing building

Step 4 - Implementation

Following these decisions, the team focused its efforts on determining how best to implement the logistically difficult task of replacing a fully-occupied 600,000-plus square foot building on its existing site, without phased demolition.

The process included the formulation of “enabling” projects that would allow the decanting of the entire existing building and its demolition at one time. The consultants also continued with the development of the proposed orientation and configuration of the new School of Medicine. All elements – the enabling projects, the decanting and demolition of Building 521, and the construction of a new School of Medicine building – were assigned timelines and estimated costs.

Step 5 - Documentation

As project decisions were finalized, the consultant team prepared documentation of the study process, decisions and conclusions.

	step 1	step 2	step 3	step 4	step 5
TASK ELEMENT	START UP Data collection Past studies Building plans Occupants & SF Site information Project goals & drivers	DISCOVERY/ANALYSIS Project vision Building occupants/SF Building systems Site & surroundings Alternative sites Initial cost opinions	PROJECT DIRECTION Replace vs. renovate Single vs. multi-phased demolition Preferred site Cost opinions	IMPLEMENTATION Building 521 decant Enabling projects MED phasing/timeline Final cost opinions	DOCUMENTATION Draft document Stakeholder review Feedback Modifications Final publication
MEETINGS	Project scoping Consultant coordination Working Committee	Working Committee Steering Committee visioning session Department chairs Consultant coordination	Working Committee Steering Committee Department chairs Consultant coordination	Working Committee Steering Committee Space subcommittees President's Cabinet Board of Trustees	Working Committee Steering Committee
TIMELINE	January 2013	February - April 2013	May - June 2013	July - September 2013	September - October 2013



VISION

The vision and guiding principles established for the School of Medicine Facility Study build upon “The Vision” in the 2008 Campus Master Plan. The Vision guides the development of the University of Utah campus as a whole; its seven planning principles are reproduced below.

The Vision 2008 Campus Master Plan

A lively campus; a magnet for student, faculty, staff and public life.

State of the art facilities to support the University’s mission for teaching, research and public life.

A setting to foster interdisciplinary collaboration and interaction.

Campus as a destination for the public.

Functional and sustainable transportation services.

Capitalize on the natural landscape setting.

Leaders in environmental stewardship.

Guiding Principles

An important early step in the facility study process was the definition of the vision for a new School of Medicine (SOM) and the Health Sciences Center (HSC) campus by key project stakeholders. A visioning session conducted during the first Steering Committee meeting resulted in the guiding principles outlined in this chapter. The principles were used by the project team to guide decisions as well as development of the study’s direction and conclusions.

A Transformative Project

As the study progressed, project team members concluded that the existing Building 521 must be replaced by a new School of Medicine building which is being reconceived as the MED - the Medical Education and Discovery building. The name expresses the aspirations that HSC team members have for the building: that it will be truly transformative; that it will reinforce collaborative and interdisciplinary teaching and learning methods; and that it will strengthen the integration of the research, academic and clinical missions. All this will lead to enhanced opportunities for discovery among HSC community members.

As a transformative project identified in the 2008 Campus Master Plan, the new School of Medicine and future HSC Campus will:



(Photo: University of Utah)

Create vitality centered around a true heart of campus.

The MED will become the heart of the HSC campus. Together with its adjacent plaza and open green space, it will offer an iconic and inspiring presence, similar to Presidents Circle on the University main campus.

As a transformative project identified in the 2008 Campus Master Plan, the new School of Medicine and future HSC Campus will:

Integrate informal spaces for gathering and learning.

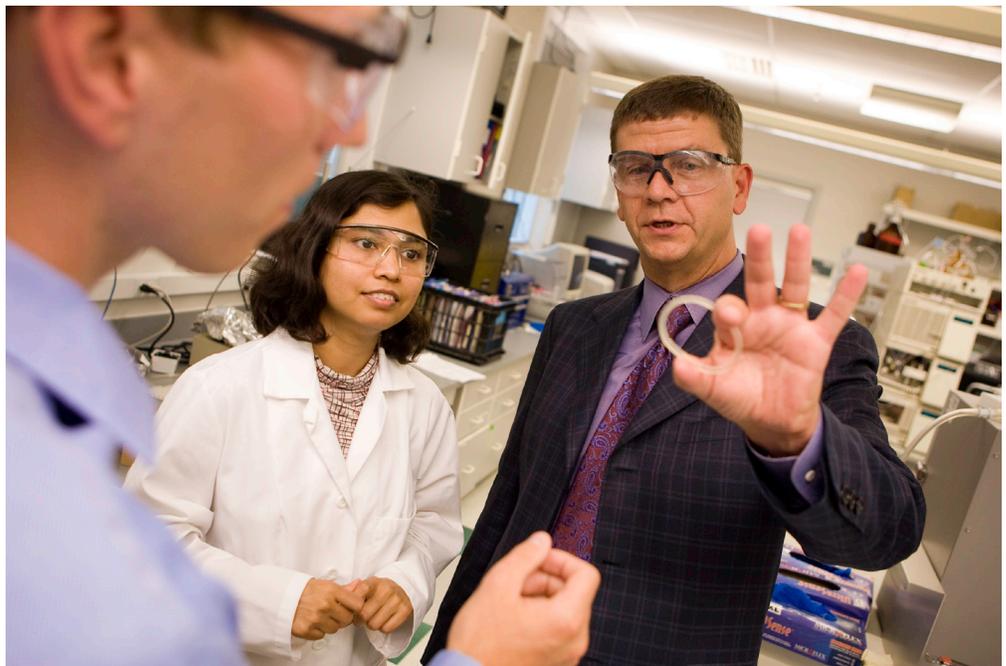
- a variety of spaces – small and large, quiet and active – for collaborating, learning, and socializing



(Photo: Stanford University)

Promote interdisciplinary learning between all health care programs.

- cutting-edge technology that strengthens the UU Health Sciences



(Photo: University of Utah)

As a transformative project identified in the 2008 Campus Master Plan, the new School of Medicine and future HSC Campus will:

Be energized around an easily accessed transportation node.

- a “campus without cars”
- promotion of alternative transportation methods
- minimal impact from passenger and service vehicles



(Photo: University of Utah)

Have a well-planned sustainable campus utility infrastructure.

- promotion of campus sustainability goals and strategic utility and infrastructure improvements



(Photo: UC Merced Central Plant)

As a transformative project identified in the 2008 Campus Master Plan, the new School of Medicine and future HSC Campus will:

Overcome challenging topography & “missing links” by an enhanced network of connections and actively used open space.

- openness and visibility to the surrounding natural environment



(Photo: University of Utah)

Enable a pedestrian and bike friendly culture through a compact academic campus.

- a pedestrian and bike friendly site design
- offering the range of activities and services needed in daily life



(Photo: University of Utah)

As a transformative project identified in the 2008 Campus Master Plan, the new School of Medicine and future HSC Campus will:

Enable a stress free and personalized patient experience that inspires confidence and trust.

- easy access and wayfinding
- HSC collaboration and discovery that results in optimal patient care



Have easily identifiable gateways.

- welcoming to visitors
- clear wayfinding



(Photo: Salt Lake City Main Library)



DISCOVERY & ANALYSIS

Introduction

Background materials received from the University included:

- Previous Building 521 master planning and feasibility studies
- Buildings 521, 525, 531 and 535 construction drawings and floor plans
- Buildings 521, 525, 531, and 535 existing space spreadsheets
- Current site plan of the Health Sciences Center campus
- University of Utah parking study

Buildings 521 & 531

The existing School of Medicine (Building 521) and the Medical Research and Education Building, MREB, (Building 531) are connected physically and functionally and have systems interdependencies. The facility study scope included the analysis of both buildings. References to Building 521 throughout the Facility Study can be assumed to include Building 531 as well.

In order to achieve the desired outcomes of the facility study, the consultants used the discovery phase to gain an understanding of the site conditions, space needs and physical structure of the existing School of Medicine building (SOM), also identified as Building 521, and the adjacent and connected MREB, Building 531. The process included these elements:

- Using the information provided by past building studies as a basis for moving forward with the current study
- Evaluating the buildings' location and campus surroundings, in order to identify sites that should be considered for a potential new School of Medicine building, and to determine which is the preferred site
- Analyzing the current departments, spaces, and functions that occupy the existing buildings

- Coordinating the work of the consultant team engineers, who examined and validated past analysis of the buildings' structural, mechanical and electrical systems
- Examining the considerations around phased demolition

The process included providing summaries of the information that was gathered for review and input by the Working Committee. The resulting scenarios and preliminary conclusions were then presented to the Steering Committee for decisions or further input as appropriate.

This chapter contains: summaries of the gathered information; Steering Committee decisions regarding Buildings 521/531, the future School of Medicine and the preferred site; and the reasons for the decisions.



Health Sciences Center Campus, located on the foothills of the Wasatch Mountains



Health Sciences Center Campus Boundary



Health Sciences Center Campus Buildings

No.	Name (Code)	No.	Name (Code)
302	East Campus Chiller/HTH Plant (ECP)	535	Ezekiel R. & Edna Dumke Building (Dumke)
366	PCMC Ambulatory Care (EPCOS)	540	Health Science Parking Terrace (HSCPT)
369	Ambulatory Parking Structure (APS)	550	Clinical Neurosciences Building (CNC)
373	Primary Children's Parking Terrace (PCPT)	555	Huntsman Cancer Institute (HCI)
374	Primary Children's Medical Center (PCMC)	556	Huntsman Cancer Hospital (HCH)
375	State Department of Health (SDH)	560	Health Sciences NE Terrace (HSNET)
377	Medical Examiner's Office (MedEx)	561	HSC North Parking Terrace & Helipad (HNPTH)
379	WIC Building/Children's Special Needs Clinic	565	E.E. Jones Medical Research Building (EEJMRB)
521	School of Medicine (SOM)	570	Biomedical Polymers Research Building (BPRB)
522	West Pavilion (hosp) (WPAV)	575	Health Sciences Education Building (HSEB)
523	Moran Eye Center (Moran)	581	Skaggs Pharmacy Research Building (SRB)
524	Medical Center Parking Terrace (MCPT)	582	L.S. Skaggs Hall (SK H)
525	University Hospital (U hosp)	585	Radiobiology Lab (RB LAB)
526	Hospital Generating Plant (HospPl)	586	Radiobiology Lab (RB ADM)
527	University Hospital Parking Terrace (UHPT)	587	Comparative Medicine Center (CMC)
529	Eccles Critical Care Pavilion (ECCP)	588	College of Nursing Building (CNB)
530	Maxwell Wintrobe Research Building (Wintro)	589	Eccles Health Sciences Library (Eccles)
531	Medical Research and Education (MREB)	701	Medical Plaza North Tower (Bd 701)
533	Eccles Institute of Human Genetics (EIHG)	702	Medical Plaza South Tower (Bd 702)

Previous Studies

The University commissioned studies of Building 521 in 2002 and 2011. The purpose and conclusions of each are summarized below.

Master Planning Data for Removal of Building 521

Architectural Nexus, February, 2002

The study's purpose was to document the building's uses and associated area amounts at the time of the study (year 2002) and estimate the area amount that would be needed in ten years, in a building replacement project. The study also began to look at the feasibility of a phased replacement of Building 521 on the existing site, in particular from the standpoint of mechanical and electrical systems.

The study projected a significant increase in space needs, concluding that in ten years the existing 639,000 GSF Building 521 would require a replacement facility of 916,000 GSF (43% growth). This assumed that a future School of Medicine would contain all of the functions currently existing in Building 521.

The study also concluded that the existing building could potentially be removed or replaced in thirds, with the northwest portion needing to be the final phase due to the location of mechanical and electrical equipment.

Building 521 Feasibility Study

GSBS Architects, December, 2011

The purposes of the 2011 study were to identify significant issues related to the continued use of Building 521 and also to recommend a logical and feasible direction for future facilities to house the School of Medicine. Study conclusions and recommendations included:

- Building 521 cannot accommodate patient care and research functions because of its floor-to-floor heights and structural limitations.
- The existing Building 521 is vulnerable to structural, mechanical and electrical systems failures. A strategy should be established to relocate critical patient care and research functions before failures occur.
- Although a total replacement scenario best meets the defined evaluation criteria, the possibility of renovating a portion of the building for office functions should receive further study.
- Strong consideration should be given to the construction of a new plant operations facility which would provide infrastructure support to Building 521 and adjacent facilities.



Dignitaries attending the 1962 cornerstone ceremonies for the 1965 Medical Center included Leland B. Flint, left, Clarence Bamberger, Royden G. Derrick, L. David Hiner, Harry Loynd, A. Ray Olpin, and George D. Clyde (source: UU Health Care History and Achievements website)



The 1965 University Medical Center, a unified medical school and teaching hospital (source: UU Health Care History and Achievements website)

Site Analysis

Site Configuration

The Health Sciences Center (HSC) campus is located on the foothills of the Wasatch Mountains and has a significant upward slope upward from west to east.

The campus is built on “benches”, leveled areas that step up the hillside. Buildings are generally aligned with the north-south axes of the benches.

The 180’ elevation change poses challenges for all forms of transportation and access. The existing campus is especially lacking in good pedestrian and bicycle routes for traversing the hillside.

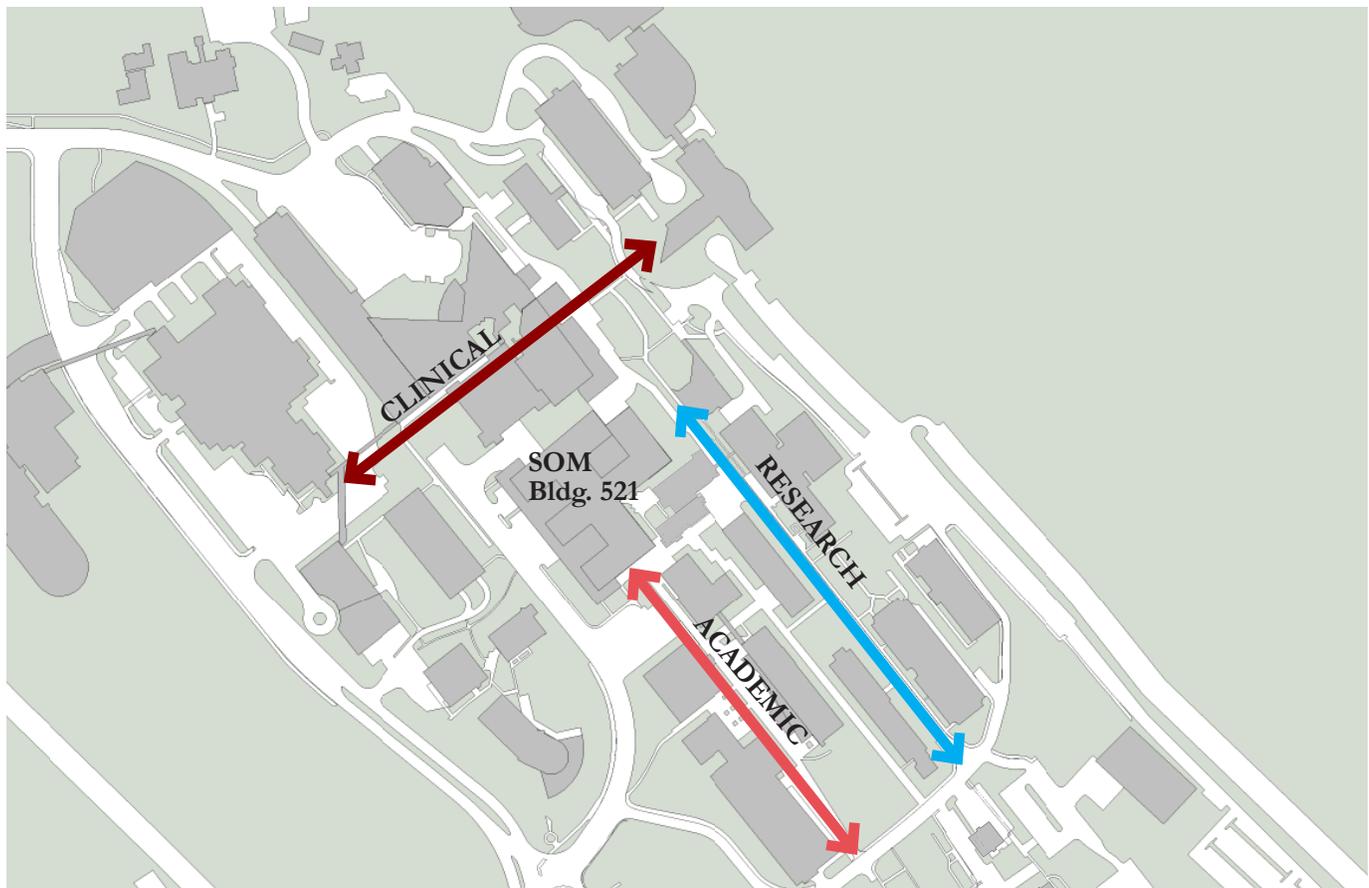
The campus has three functional zones that correspond to its primary missions:

Clinical on the north end where the hospital is located

Research which has developed over time along the easternmost bench

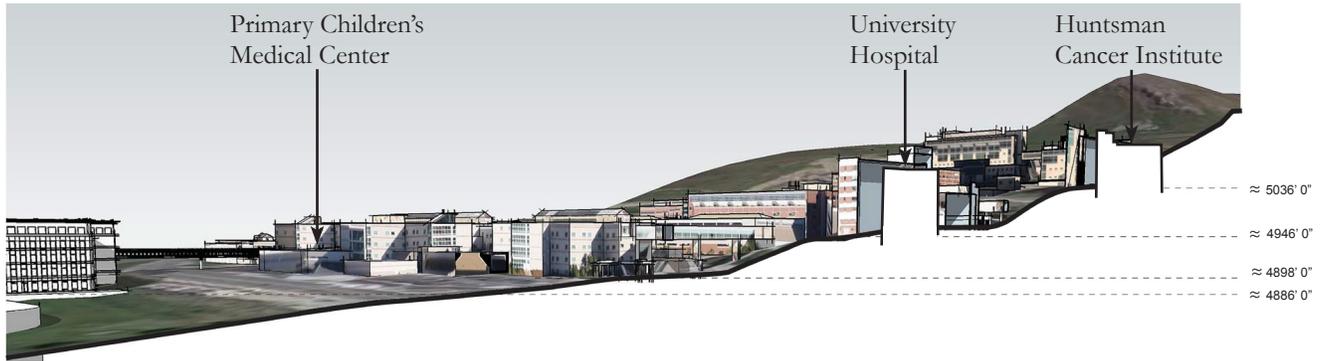
Academic which extends south of the hospital and School of Medicine

Building 521 is located in the approximate north-south center of the central bench, at the juncture of the three zones.

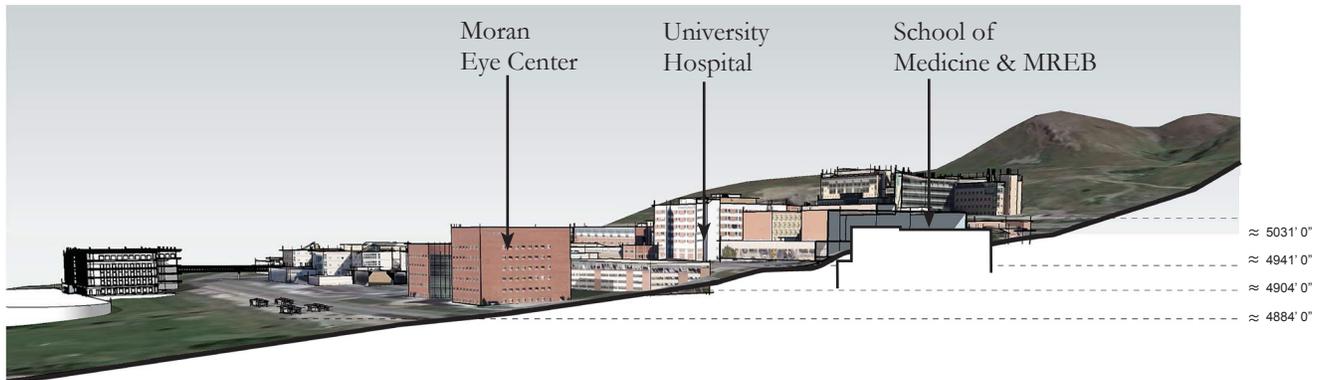


Health Sciences Center Campus Functional Zones

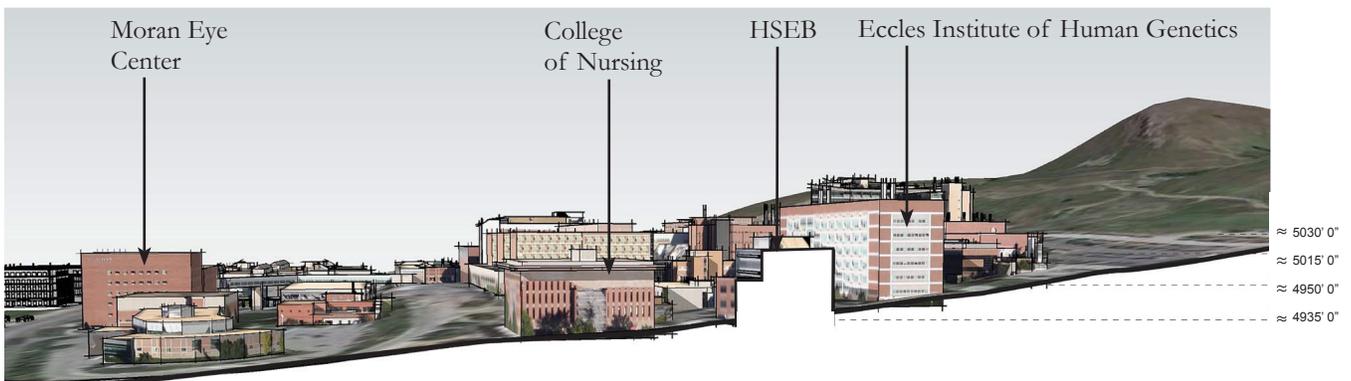




EW - SITE SECTION 01



EW - SITE SECTION 02



EW - SITE SECTION 03

Section cuts through HSC campus showing elevation gain from west to east



Building 521 Surroundings

The School of Medicine was constructed in 1965 as one of the first buildings on the site of the future Health Sciences Center campus. In the years since, the campus has grown up around the building, without a well-defined plan for organization, access and wayfinding, open space, or sense of place. Building 521 and its surroundings have become highly congested, confusing and difficult to access.

Building 521 is surrounded by these facilities, starting on the north side and moving in a clockwise direction:

University Hospital (525), north, directly connected by two enclosed walkways. Constructed 1981; 448,000 GSF

Dumke Research Building (535), east. Constructed 1980; 16,200 GSF

Wintrobe Research Building (530), at the southeast corner. Constructed 1981; 70,000 GSF

Medical Research and Education Building, MREB (531), directly connected to southeast corner of Building 521. Constructed 1951; 24,000 GSF

Eccles Health Sciences Library (589), south. Constructed 1971; 46,000 GSF

Plaza and parking for the College of Nursing (588), southwest corner. The College of Nursing is south of the plaza / parking.

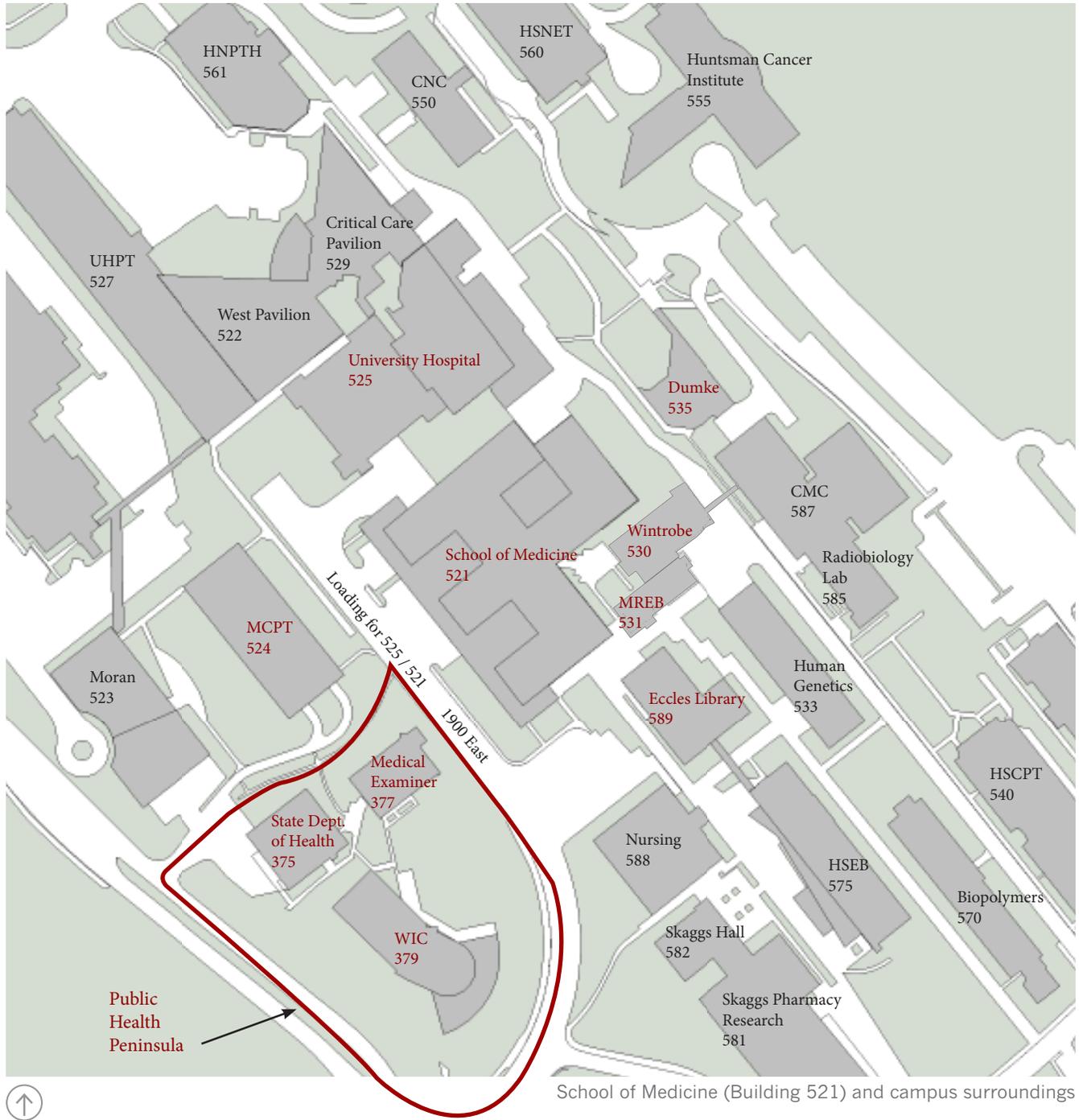
1900 East Street, parallels the west side of Building 521, providing access to the service area at the northwest corner of 521, Level A (below Level 1).

These facilities are directly west of 1900 East:

(South end) The “Public Health Peninsula”^{*} consisting of the **State Department of Health (375)**, **Medical Examiner’s Office (377)**, and **Children’s Special Needs Clinic**, also called the **WIC Building (379)**.

(North end) **Medical Center Parking Terrace (524)**; constructed in 1979; 154,000 GSF

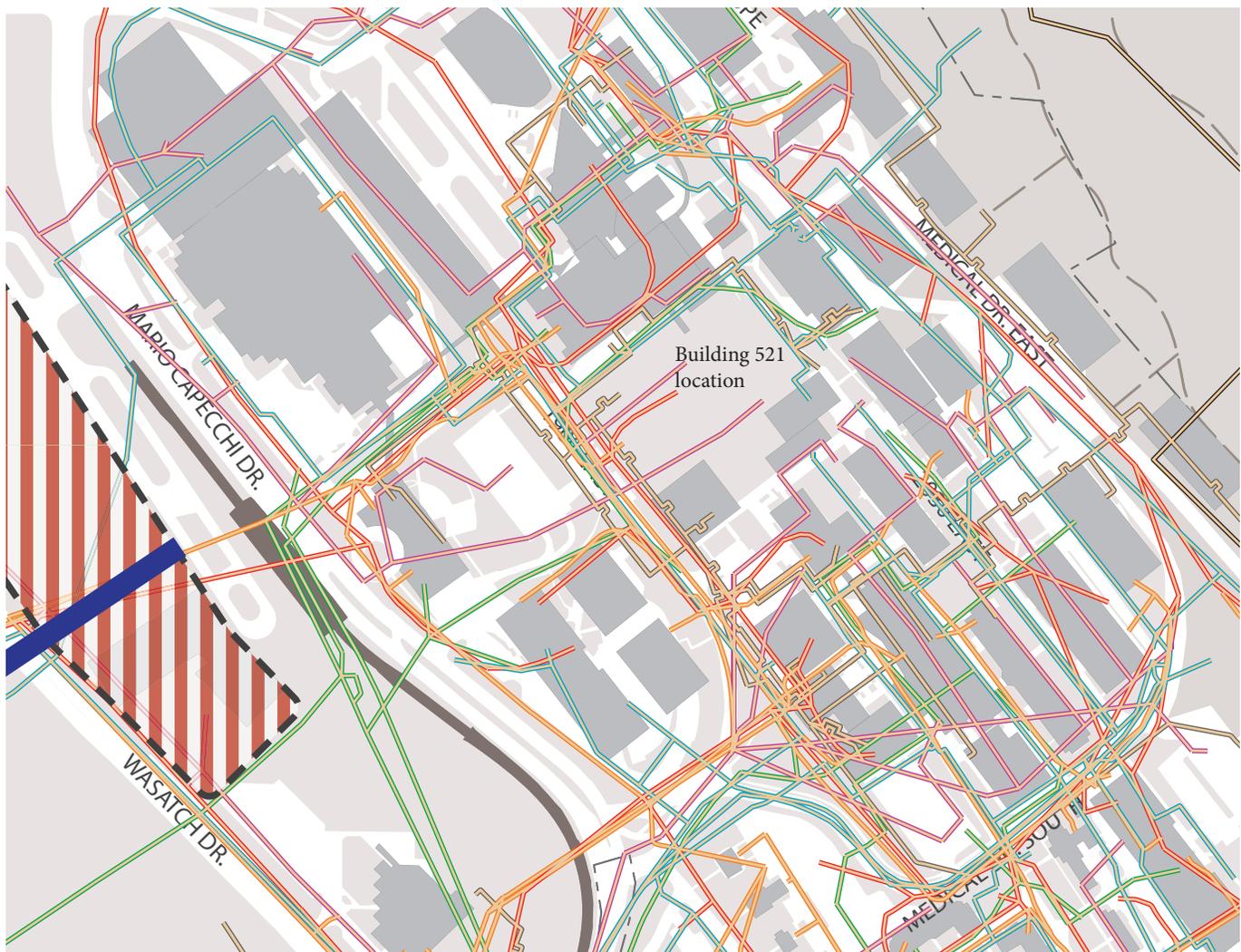
** The Public Health Peninsula buildings have been owned and occupied by the State of Utah, but are undergoing transition to the University. The University now owns the State Department of Health (375), also called the Frasier Building, which is planned for eventual demolition. The University anticipates receiving possession of the State Medical Examiner’s Office building in about four years, after relocation of the M.E. Office. The University is considering possible relocation of existing WIC Building functions, so that it can use that facility/ site for other programs or services more suitable to its location.*



Utility Locations & Capacity

To understand the conditions, limitations and parameters of this area of campus, existing utility locations were identified. As shown in the plan below, below-grade campus utilities exist at nearly the entire perimeter of Building 521. They are particularly dense below the 1900 East service road that runs along the west side of Building 521, and at the southeast corner of the hospital.

The HSC campus utility system has sufficient capacity for existing facilities, but will need to increase chilled water capacity before more buildings are added. Building 521 is very utility inefficient; its demolition would return a significant amount of capacity to the campus system. Building 521’s replacement will be a highly efficient and likely much smaller building, so a replacement project in and of itself will not require campus utility system augmentation.



Existing utilities surrounding Building 521



Site Evaluation

Aging Buildings

In order to determine possible sites for a potential new School of Medicine facility, the team identified aging campus buildings that have reached or are near the end of their expected life spans. All were located in the central zone of the campus, as shown on the facing page.

Site Evaluation Criteria

Criteria were developed to evaluate the sites that would be considered:

- Size and capacity
- Functional possibilities
- Proximity to clinical, research and academic functions
- HSC master plan compatibility
- Long range growth possibilities
- Flexibility
- Campus connectivity
- Prominence/visibility
- Community impact
- Transportation access
- Campus parking strategy
- Service access
- Utility and infrastructure integration
- Ability to aid decant of Building 521
- Construction phasing
- Construction access
- Overall cost

Strong emphasis was given to the vision expressed by the Steering Committee to establish a vibrant heart and sense of place on the campus.

The team determined that the evaluation process would include size and fit studies to calculate the maximum square foot capacity of each site for a given number of building stories. The increase in utility infrastructure required to build the maximum capacity on each site was included in the evaluation.

Considered Replacement Sites

With the existing Building 521 site considered a baseline, the team identified five additional areas to be evaluated as the site for a potential new SOM building:

- A. Dumke Building
- B. North of College of Nursing
- C. West of hospital & Building 521
- D. Public Health peninsula (Medical Examiner, State Health Dept., WIC building)
- E. Moran expansion site, west of Mario Capecchi Drive

Sites A and B were eliminated due to insufficient size and capacity. Site E was eliminated because of its lack of availability and its distance from the heart of the HSC campus.

The C, D and existing Building 521 sites continued to be evaluated. Further consideration led to these conclusions:

- Site C, west of the hospital, was judged to be too congested to accommodate the proposed new building. This site also lacked the opportunity for visibility or prominence.
- Site D, the Public Health Peninsula, was seen as a highly visible location suitable for a prominent “statement” building; however, a School of Medicine in this location would shift medical students away from the HSC academic core.

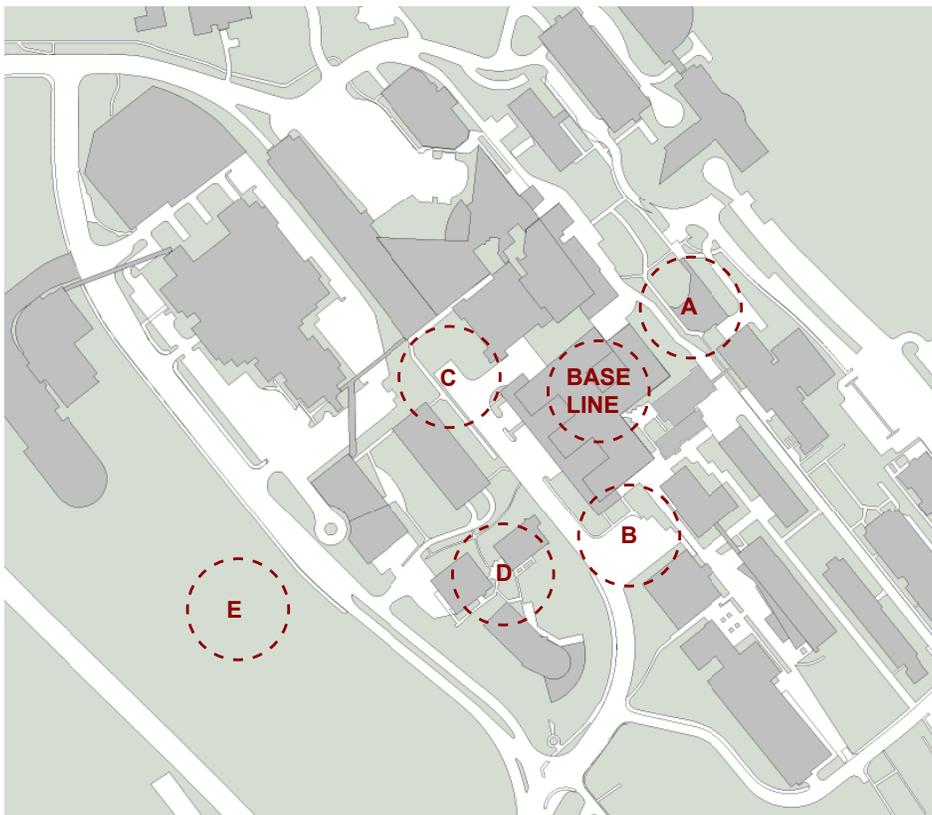


HSC Campus Aging Buildings



HSC Campus Aging Buildings

- 1 School of Medicine, Bldg. 521
- 2 MREB, Building 531
- 3 Dumke
- 4 CMC
- 5 Medical Center Parking Terrace
- 6 State Department of Health
- 7 Medical Examiner's Office
- 8 WIC Building



Considered Replacement Sites

- Baseline: Existing Building 521
- A Dumke Building
- B North of College of Nursing
- C West of Hospital & Bldg. 521
- D Public Health peninsula
- E Moran expansion site



School of Medicine (Building 521) Considered Replacement Sites

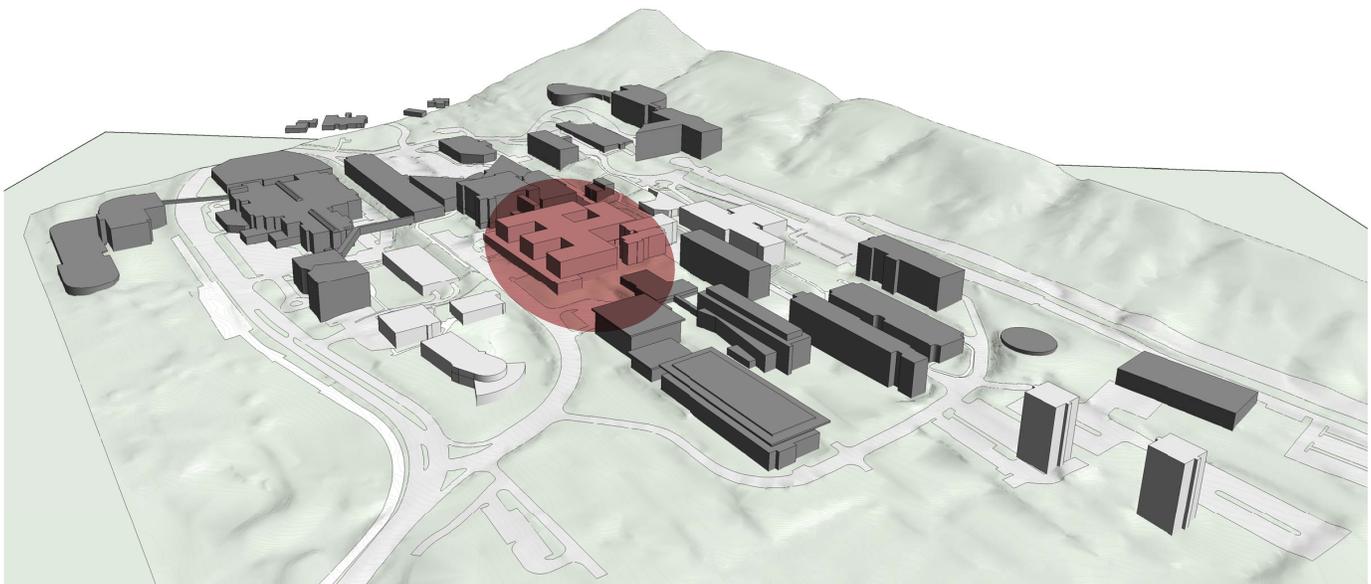
Preferred Site

The evaluation process extended over the course of several Working Committee and department chair lunch meetings, with eventual consensus that the site of existing Building 521 was the best location for a potential new SOM.

The recommendation was presented to the Steering Committee, who agreed with that direction.

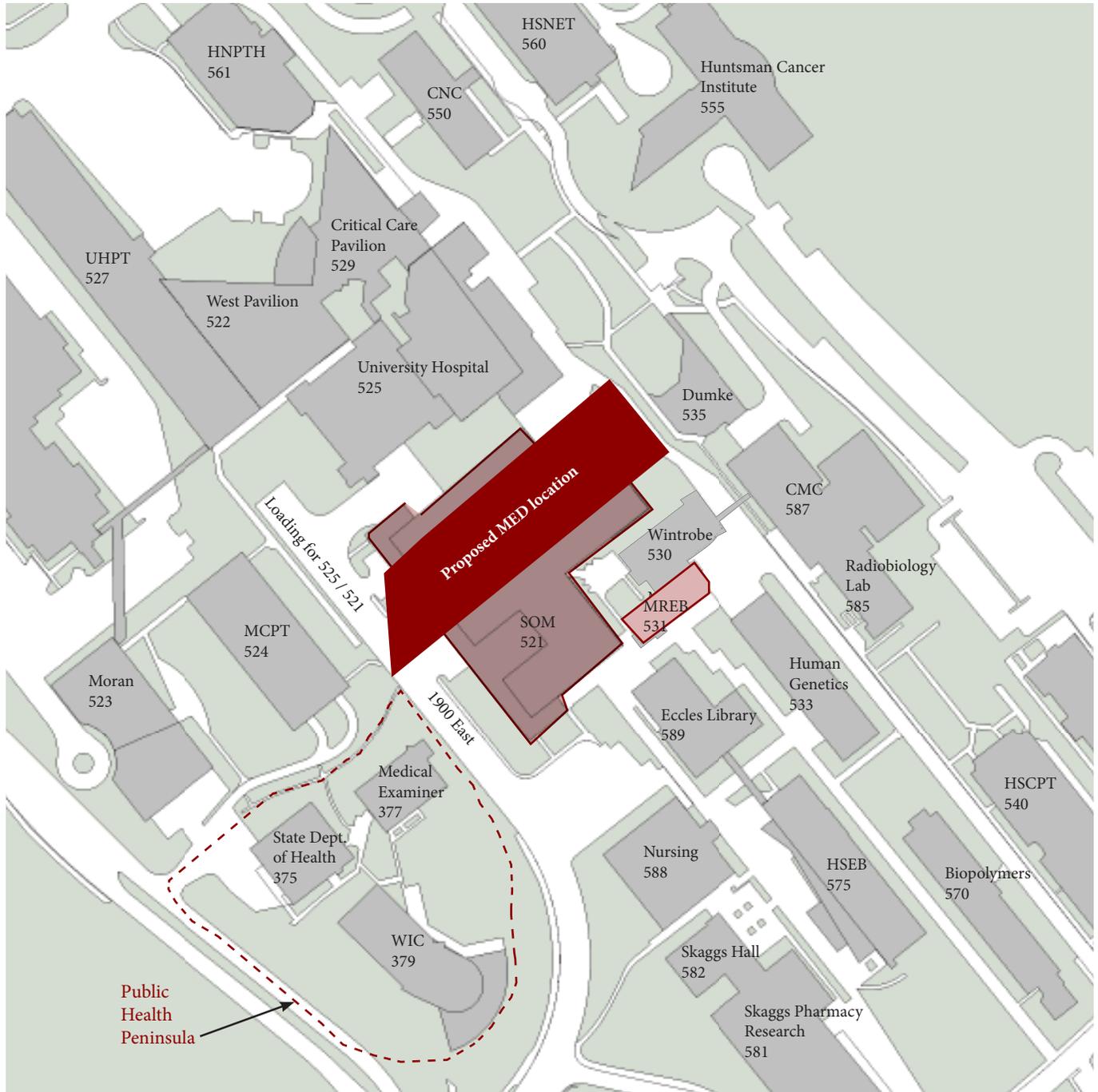
The existing Building 521 site was seen to be the optimal location to fulfill the defined stakeholder vision to create a heart of the campus that is central to the three primary HSC missions – research, clinical and education.

Project stakeholders noted that this site is also at the juncture of translational and basic research on campus and that a building there would be a logical link between the clinical and research arenas. A new School of Medicine in this location has the potential to bring clinical, academic and research groups together, and to become a collaborative crossroads and true heart of the HSC campus. Located at the heart of campus, a new facility will be able to truly fulfill the vision behind a mission of Medical Education and Discovery.



School of Medicine (Building 521) Preferred Replacement Site





Proposed MED location overlaid on site of Buildings 521 and 531

Existing Facility Analysis

Building Occupants & Area

The discovery phase included analysis and documentation of Building 521's existing occupants and space amounts. This information was used to:

1. Provide a starting point for the determination of the occupants and space amounts for the new MED building project.
2. Identify space amounts needed for any phasing and temporary relocations that are part of the new MED building.
3. Quantify needed space amounts for existing Building 521 functions that will not be in the future MED, and that must be decanted elsewhere on campus or off site.

Clarifying the current Building 521 occupants and space amounts was challenging, due to the building's size, complexity and multi-functional nature. Building 521 was originally and is currently a building where the Health Sciences Center's primary functions of clinical, research and education are collocated. In the current analysis, it was necessary to distinguish the different functional areas within each department and entity. In addition, the internal layout of Building 521 has experienced continual change over recent years in response to HSC needs. Because of the building's density, it has not always been possible to implement needed changes in a clean and logical manner. Many departments are spread among several different locations in the building; floor layouts do not necessarily make functional sense.

The space analysis identified:

- Department name
- Function (research, clinical, administrative, hospital support)
- Existing space amount
- Future anticipated space amount
- Desired adjacencies

During the years prior to this study, Health Sciences Center facilities planning staff had studied Building 521 occupants and their current and potential future space needs. This data was used as a starting point by the current planning consultants.

Health Sciences Center team members gave input on expected growth rates for Building 521 departments.

To gain insight on affinities and desired future locations, the consultants used a Working Committee meeting session to perform an exercise delineating optimal adjacencies for existing Building 521 occupants. The existing elements were reviewed one by one, with the group giving input on the desired location for each in relation to the campus heart – the Hospital and the School of Medicine. The results of the exercise are shown on the facing page.

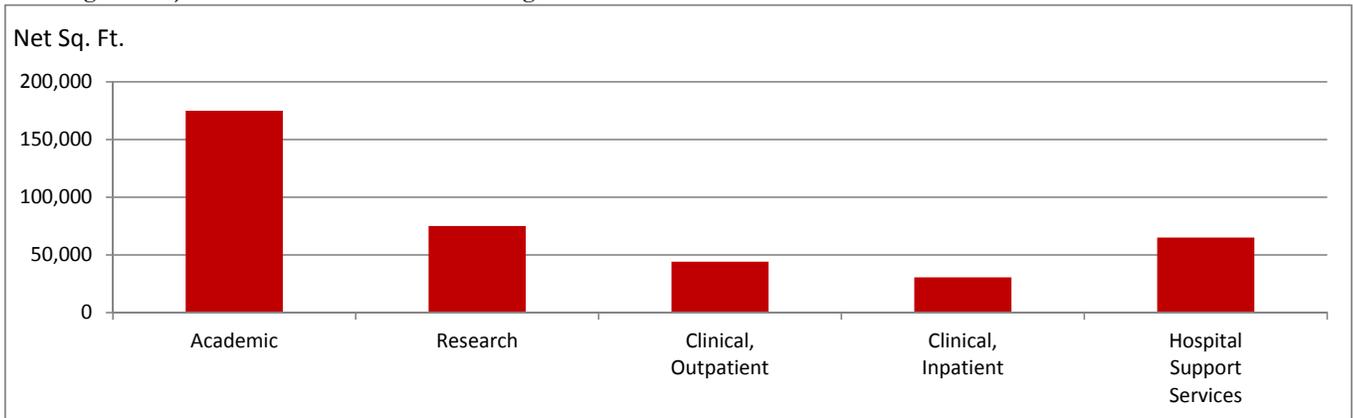
All space and location information was refined over several months, eventually becoming the responsibility of space subcommittees that were tasked with determining the optimal decant locations for Building 521 occupants.

A brief summary of initial existing Building 521 information is presented on the following pages. More detailed space information is available in the document appendix.

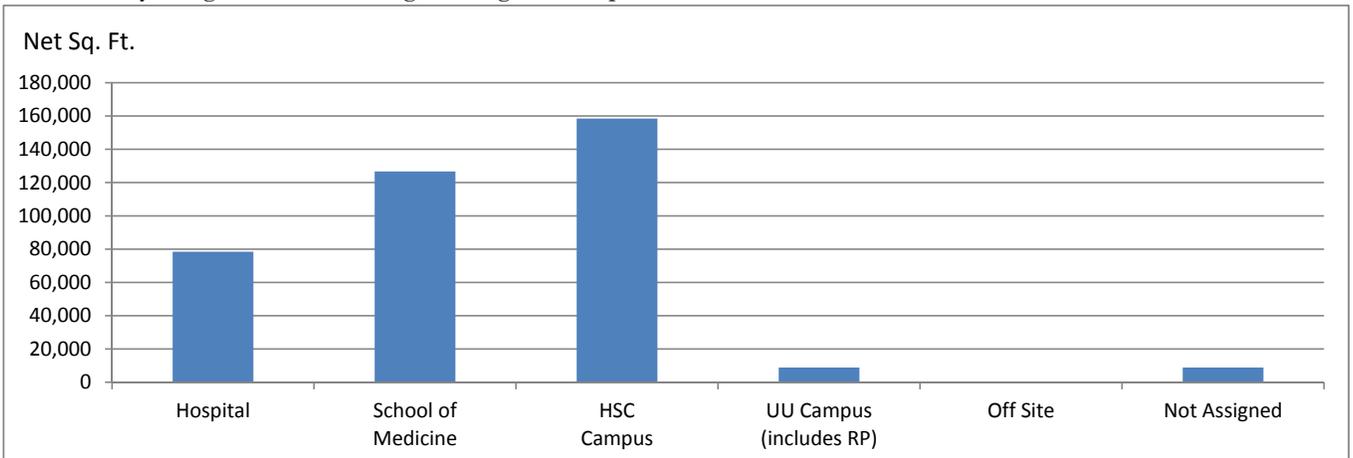


Working Committee session to delineate the desired proximities of existing Building 521 occupants

Building 521 Major Functional Elements & Existing NSF Amounts



Initial Affinity Designations for Existing Building 521 Occupants





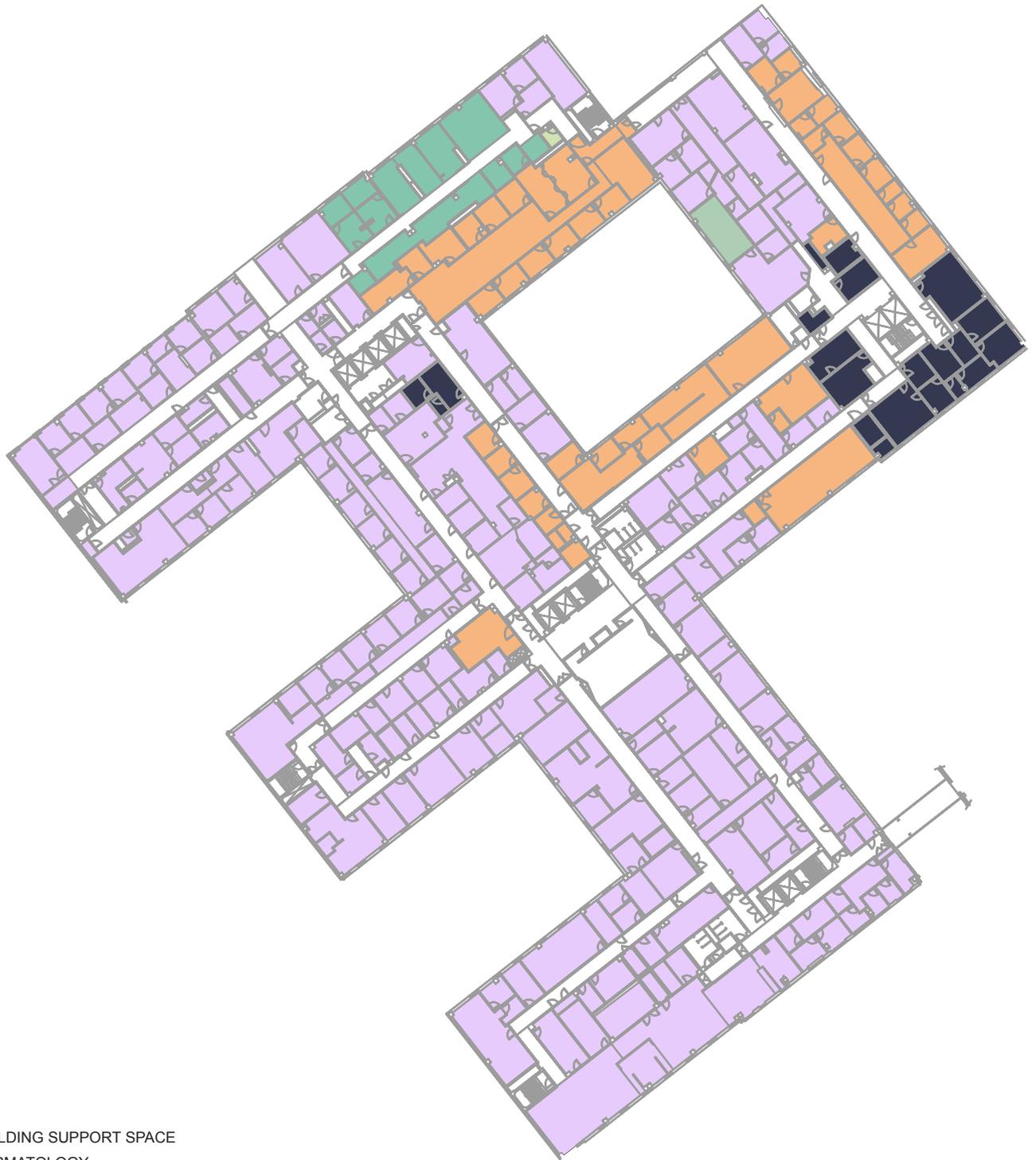




- ANESTHESIOLOGY
- BUILDING SUPPORT SPACE
- INTERNAL MEDICINE
- NEUROLOGY
- Neuro OP Clinics
- ORTHOPEDIC SURGERY
- OUTSIDE AGENCY
- Outpatient Clinics
- PATHOLOGY
- SCHOOL OF MEDICINE-DEAN
- SURGERY
- Surgical Services / Procedures



Building 521 Departments, Level 3



- BUILDING SUPPORT SPACE
- DERMATOLOGY
- HSC CORE RESEARCH FACILITIES
- INTERNAL MEDICINE
- PEDIATRICS
- SCHOOL OF MEDICINE-DEAN
- Surgical Services / Procedures



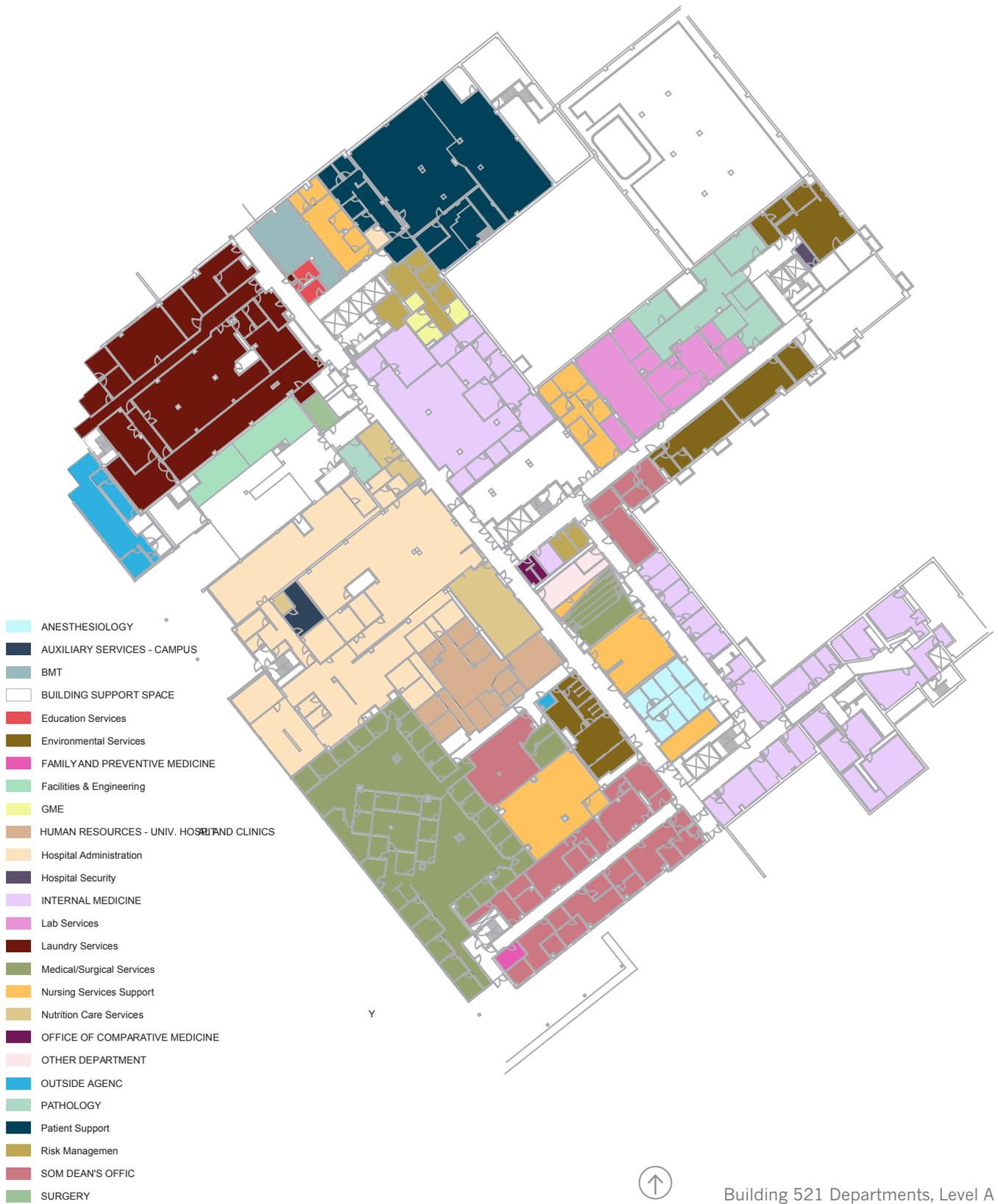
Building 521 Departments, Level 4



- ANESTHESIOLOGY
- BUILDING SUPPORT SPACE
- EXECUTIVE OFFICES
- HSC CORE RESEARCH FACILITIES
- Hospital Administration
- Human Resources
- INTERNAL MEDICINE
- Inpatient Units
- Nursing Services Support
- PATHOLOGY
- PSYCHIATRY
- SURGERY



Building 521 Departments, Level 5



The building systems analysis process included:

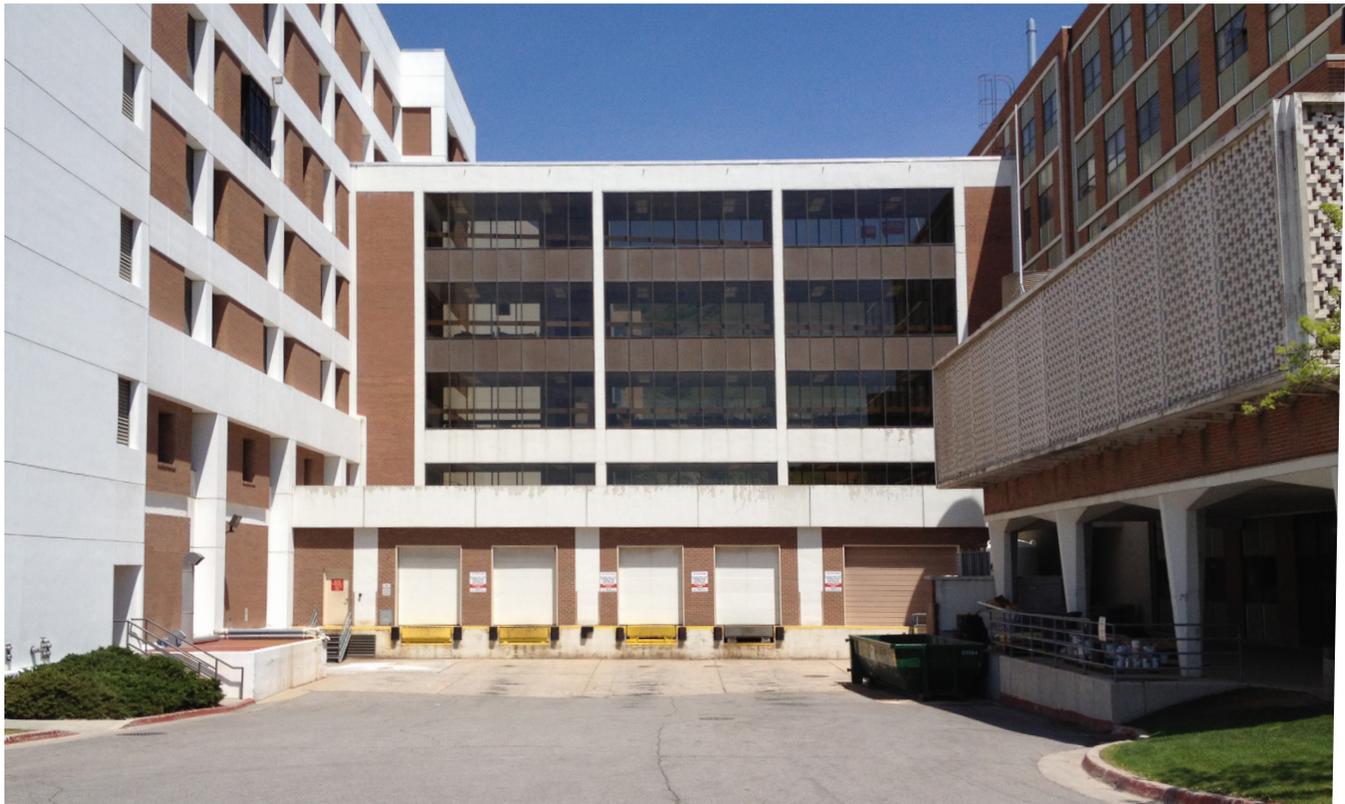
- Review of past studies and documentation about the building’s physical structure
- Visual observation of existing equipment and infrastructure
- Meetings with maintenance staff to gain their knowledge of maintenance and building issues

Building Systems Analysis

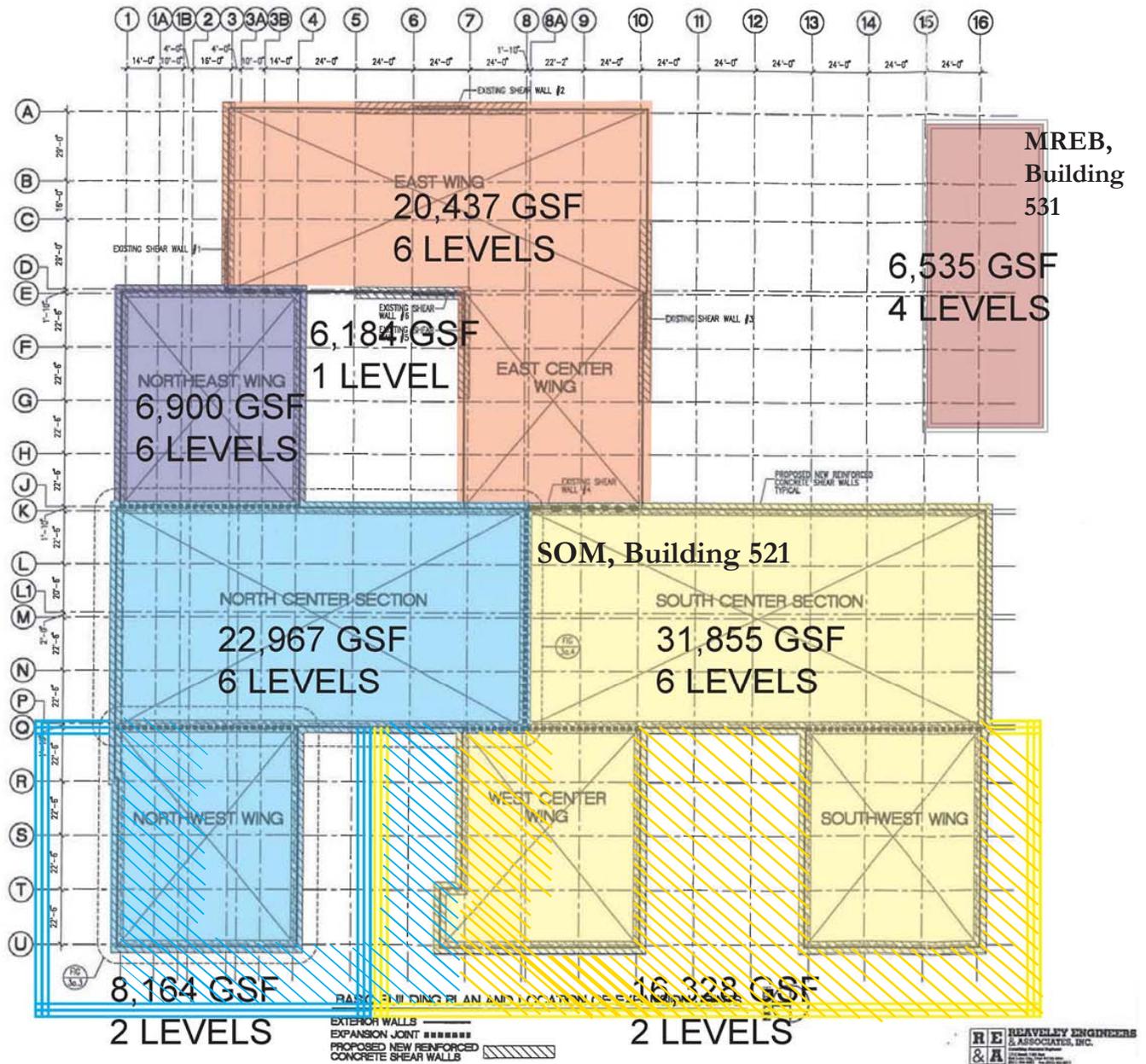
The project team’s consulting engineers analyzed the physical structure of Building 521 to assist the team’s evaluation of the suitability of the building for reuse and the feasibility of phased demolition or renovation.

Early in the analysis process, the engineers considered potential demolition sequencing to examine if phased demolition would be viable. They concluded that phased demolition or renovation would be most feasible from south to north. The northwest portion of the building contains critical systems infrastructure as well as the Building 521 and Hospital service dock; this area would need to remain in place as long as possible. Demolition of the initial south portion should also include the demolition of Building 531 (MREB).

The engineers also noted that the existing Building 521 is highly inefficient in terms of energy use and utility infrastructure. If it undergoes a significant remodel or is replaced by a new building of the same size, demands on the campus utility systems will decrease.



Loading docks at northwest corner of existing Building 521 are an essential University Hospital function



Structural analysis assisted in determining Building 521 potential phases of demolition

POTENTIAL PHASES OF DEMOLITION

- Last to be demolished: Houses primary electrical equipment and service entries.
- Contains Oxygen service to the Hospital. Service can be rerouted.
- Phases can be separate or combined.

Notable findings for each building system included:

Mechanical

Existing Conditions

1. Mechanical and plumbing systems are well beyond their projected useful life.
2. Many elements are corroded, leaking, plugged and damaged. Existing systems are kept functioning by replacing components as they fail.
3. The air handling systems are vulnerable to failure at any time. Failure would result in large areas of the building being unusable (without heat, ventilation and air conditioning).

Phasing

1. South to north phased demolition is problematic because mechanical equipment located in the south (Area C) serves space to the north (Area B) and would need to be replaced and located in Area B until B is demolished.
2. Partial, phased demolition may require the addition of air handlers to the building, depending on how the demolition is done.
3. An in-depth survey of piping systems will be required to see how a partial demolition can be done.

Electrical

Existing Conditions

1. Most electrical system equipment is at the end of its useful life.

Phasing

1. There are no reliable records of currently existing wiring pathways and connections; a partial demolition brings a risk of unexpected loss of power in building areas still in use.

Structural

Existing Conditions

1. The building's structural system has significant seismic design deficiencies and poses a life safety hazard to occupants.
2. Level A has a particular vulnerability in a significant seismic event.
3. Exterior masonry cladding is not anchored appropriately and could fall during a significant event.
4. Interior elements such as partitions, ceilings, piping and ductwork are not adequately braced and may fall during an earthquake.
5. The building's low floor to floor heights makes it unsuitable for research or clinical uses.

Phasing

1. The building has expansion joints that separate it into seven independent building sections. This would facilitate phased demolition, as it allows demolition of one or more building sections without impacting those that remain.



Building 521 viewed from the southwest



Aerial view of existing Building 521 from the northwest

Facility Conclusions & Decisions

Life Safety & Liability Concerns

As the discovery phase concluded, the project team uncovered information causing a greater awareness of the implications of the existing building’s aged condition and safety issues.

The building’s seismic deficiencies pose a potential danger to occupants and a liability to the University. A significant seismic event could result in catastrophic building failure. A less severe event may not result in total building failure, but could cause interior elements (walls, ceilings, piping, ductwork) to fall, injuring building occupants. A less severe event could also result in the building being condemned, rendering it immediately unusable.

In addition, the building’s mechanical systems are susceptible to failure at any time, with potentially far-reaching consequences for School of Medicine clinical, research and educational functions.

The project team responded by studying options that would prioritize and hasten the mitigation of the existing conditions.

Renovate vs. Replace Cost Comparison

Options	Cost/SF
Renovate existing Building 521	\$222
Construct new academic building	\$231
Savings to renovate vs. replace	\$9

Note: New construction cost is for building only; site development and other costs are not included.

Renovation or Replacement

When presented with data regarding the renovation versus the replacement of Building 521, the Steering Committee chose to demolish in a single phase and replace the building. Reasons included:

Fundamental Design Flaws. The building has characteristics typical of its era of construction that pose a challenge for today’s functions: small structural bays (about 20 feet), large column sizes, and low floor-to-floor heights (12’-5”). These elements do not meet today’s building design standards and make the building difficult to reuse effectively.

Age-Related Challenges. Building 521 has many challenges due to its age. The mechanical and electrical systems must be completely replaced. Fundamental elements do not meet current building codes (exterior skin, insulation/air barrier, windows, stair widths, etc.) and must be replaced or modified. The team concluded that all building elements except the basic structure need to be replaced, and the building structure must be mitigated for increased seismic resistance. The facility analysis showed that all portions of the building are in similar condition – all areas must receive the same level of renovation.

Cost to Renovate vs. Replace. The cost for the deep renovation needed by Building 521 would be around \$222/SF, while the cost to build new educational and office space is around \$231/SF in today’s dollars. The money saved by renovating is not worth the end result in this case: a building with fundamental design flaws and constrained utility.

Consideration of a Phased Occupied Replacement

Early in the study process, the team concluded that it would be possible to have a phased, on-site replacement of Building 521. This scenario received further analysis to understand its implications. Two factors led to the decision to demolish the building at one time, rather than in phases.

Costs. A phased demolition is estimated to be significantly more costly than demolishing the building at one time. Phased demolition requires augmentation of the building’s HVAC system so that portions of the building in future demolition phases can remain operational. In addition, asbestos abatement within an occupied building, necessary in a phased demolition, is more costly.

Time. Phased demolition and replacement would extend the process by several years. Because this project is in the center of a very congested area of campus, the demolition and construction will be highly disruptive. The period of disruption should be as short as possible.

Single vs. Multiphase Cost Comparison

Options	GSF	Cost	Comment
Demolish Phase 1 only	154,000	\$6.2 million	25% of total building
Demolish entire building in 4 phases	600,000	\$24.8 million	4 x \$6.2 million
Demolish entire building at one time	600,000	\$11.3 million	



Aerial view of existing Building 521 from the southeast



NEEDS PROJECTIONS

Introduction

The MED

The facility study process included many discussions regarding the future MED:

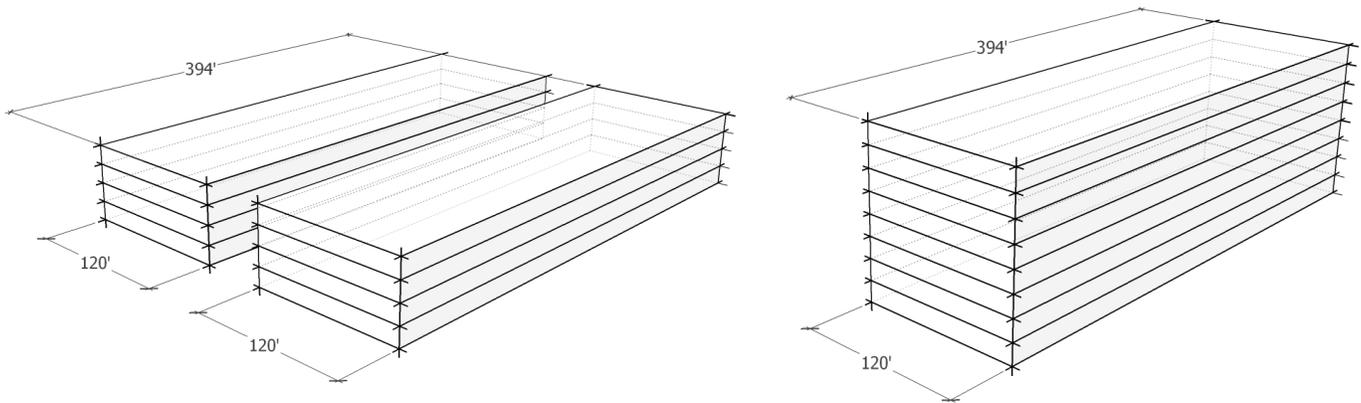
- Configuration - the possible shape and number of stories
- Building orientation on the preferred site
- Potential program elements and occupants
- Space model to be used for internal planning

The facility study process included preliminary consideration of the future program elements and space amounts for a new School of Medicine (SOM) building, now identified as the Medical Education and Discovery building (MED). With this information, the team could begin to estimate the approximate size and desired adjacencies for the future building, which were needed to determine the preferred site.

This chapter contains a summary of the program-related discussions that occurred during the study process.

Midway through the study process, University team members decided on a placeholder of 400,000 gross square feet for the size of the future MED. This square foot amount was used for the facility study conceptual planning.

A more in-depth determination of the MED building program elements and needed space amounts will be the focus of a separate preprogramming study to take place in the near future. The preprogramming study will consider the complex issues that will shape the future building's program, including: Health Sciences Center (HSC) strategic goals; current programs and space amounts; future growth needs; potential additional programs; and the preferred space model.



Block diagrams of various configurations were used to test the capacity of sites under consideration for the future MED

MED Program Elements

The following were discussed as definite or potential program elements for a future School of Medicine building:

Dean's Office. The Dean and administrative offices of the School of Medicine will be located in the future building.

Department Administrative Space. The future MED will include office space for School of Medicine departments currently in Building 521 and those that have moved out due to lack of space (Pediatrics and Family and Preventive Medicine have moved to the Williams Building in Research Park). The School of Medicine has twenty-two departments of varying sizes and space needs.

Future MED preprogramming will need to consider the preferred office locations for researchers and clinicians: near their research labs and clinical areas, or within departmental office space.

Student Space. Student space will include collaborative lounge, study, and other types of support space similar to that found in the College of Nursing, HSEB, and the new pharmacy building expansion.

Knowledge Center. The Knowledge Center will provide space designed to promote interaction and collaboration among all HSC students, faculty and staff, as well provide access to information in all forms. The Knowledge Center will be designed for synergy with the existing Eccles Health Sciences Library in consideration of how information is accessed and shared.

Teaching Space. The future MED may include some general teaching space, with types and quantities to be determined.

Excluded Programs

Discussions regarding the future MED program included functions that will be excluded from the building as well as those that may be included.

Health Sciences Center administrators have determined that wet lab research, ambulatory clinical, and inpatient clinical functions are not foreseen to be included in a new MED.

Programs belonging to these categories that are currently located in Building 521 will be moved to locations that support HSC strategic goals, which include: consolidating like functions, particularly research, for maximum synergy and collaboration; and improving the patient clinical experience.



The MED will be designed for synergy with the existing Eccles Health Sciences Library (photo: TU Delft Library)



Although below grade, the Knowledge Center will be filled with natural light (photos, top & bottom left: Mansueto Library, University of Chicago; bottom right: James B. Hunt, Jr. Library, North Carolina State University)

Simulation Labs. As highly effective learning environments, simulation labs are increasingly prevalent in health care education. The future School of Medicine is anticipated to contain one or more of these labs.

Telemedicine. Telemedicine is a growing application of clinical medicine which uses communication and information technologies to deliver clinical care from a distance. A telemedicine center in the future MED should be located for convenient access by clinical physicians to encourage a high rate of participation.

Biomedical Informatics. Biomedical informatics is an interdisciplinary program which focuses on the understanding and use of information, aided by technology, to improve patient care and health sciences research. This program will likely be located in the new MED building.

School of Dentistry Offices. Although the new School of Dentistry is located in Research Park, the Dean's office and other administrative space may be located in the MED, in order to maintain strong ties among HSC educational programs.

Health Sciences Center Institutes. There are several HSC institutes which may be housed in the future MED.

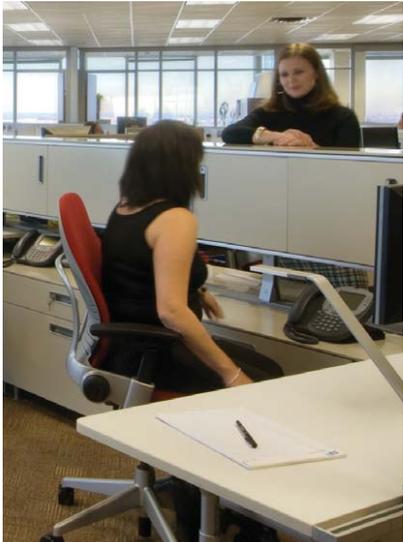
Physician's Assistant Program. This program is currently located in the Health Professions Education Building (HPEB) in Research Park and is being considered for inclusion in the future MED.

Gross Anatomy Program. Also currently located in the HPEB, the Gross Anatomy program is being considered for the future MED.

Selected Offices of the College of Health.



Simulation labs & telemedicine facilities will promote collaborative learning (photos: Lee, Burkhardt, Liu Architects)



(photos: top, Kaiser Permanente Information Tech. office; bottom left, Leeco Steel open office space; bottom right: Steelcase)

Activity based space models

Space Model Considerations

University of Utah Health Sciences Center administrators are strongly considering use of an activity-based space model for planning both the future MED and the temporary space that will be occupied by administrative departments during construction of the new building.

In the past, a traditional office space model was used on the HSC campus, providing private offices for the majority of faculty and staff members without consideration for function. The facility study process included many discussions regarding the trend away from traditional space models on health sciences campuses nationally, and the trend toward “activity-based” space models. This change is occurring on other campuses for several reasons:

- The activity-based model fosters communication and interdisciplinary interaction, which is a goal on health sciences campuses.
- The activity-based model is more space-efficient and can result in space and cost savings.
- The activity-based model uses a greater amount of open office space, resulting in greater flexibility to accommodate ongoing changes in departmental structures and space needs.
- Dedicated office space is not always needed from a functional standpoint, in some functional categories, private offices are vacant or unused for a large percentage of time.

In an activity-based model, private offices are provided where required for functionality. Where enclosure within walls is not needed, semi-enclosed workstations or open, shared “touch down” space is provided.

Two functions that influence the need for a private office include: grant writing, which requires great concentration; and telephone or in-person discussions where patient confidentiality must be maintained.

Activity-Based Design Considerations

Well-planned activity-based office design includes:

- Enclosed spaces that can be easily accessed when sound privacy is needed
- Floor configurations that maximize flexibility and allow multiple layouts
- HVAC systems that accommodate the expected occupant density, typically higher than a traditional space model
- Use of sound masking systems to assist auditory privacy

Space Model Culture Shift

Discussions regarding space models and future planning acknowledged that moving to an activity-based model would be a culture shift for University of Utah HSC faculty and staff. The new model is anticipated to be implemented as a beta layout for temporary space occupied by academic functions during the Building 521 demolition and replacement. This will be a helpful interim step in the transition, and can be used to identify the most positive and successful aspects of the new space model.



Activity-based space (photos: top, My Studio by Herman Miller; bottom, Russell Investments Center)



PLANNING PRINCIPLES

The MED

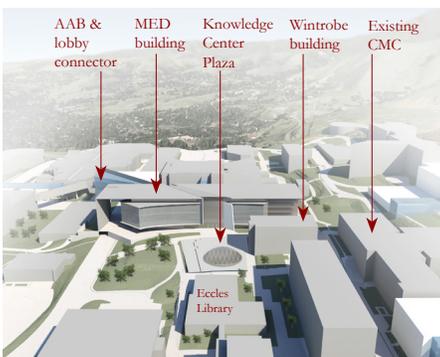


Exterior approach from the west

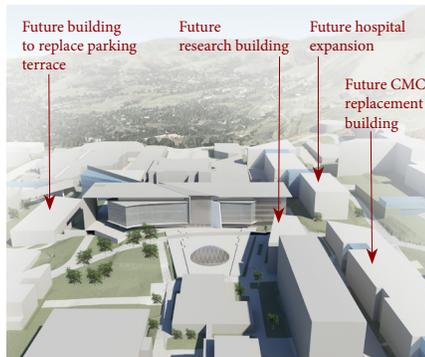
The discovery and analysis phase of the facility study led to the conclusion that the existing Building 521 must be demolished and replaced by a new School of Medicine building, reconceived as the MED - the Medical Education and Discovery building. The MED provides a transformational opportunity for the School of Medicine and Health Sciences Center to reinforce the interdisciplinary and collaborative methods of a leading health sciences program. The MED will allow a strengthening of the integration of the HSC research, academic and clinical missions, leading to enhanced possibilities for discoveries within the realm of health sciences.

Conceptual planning for the MED took place within the framework of the HSC campus master plan update that was concurrent with the facility study. The site plans and images on these pages use the updated master plan as a background.

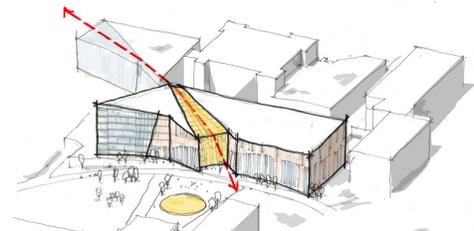
The planning principles articulated during the early steps of the facility study are contained on the following pages, accompanied by descriptions of how the principles will be fulfilled in the future MED building.



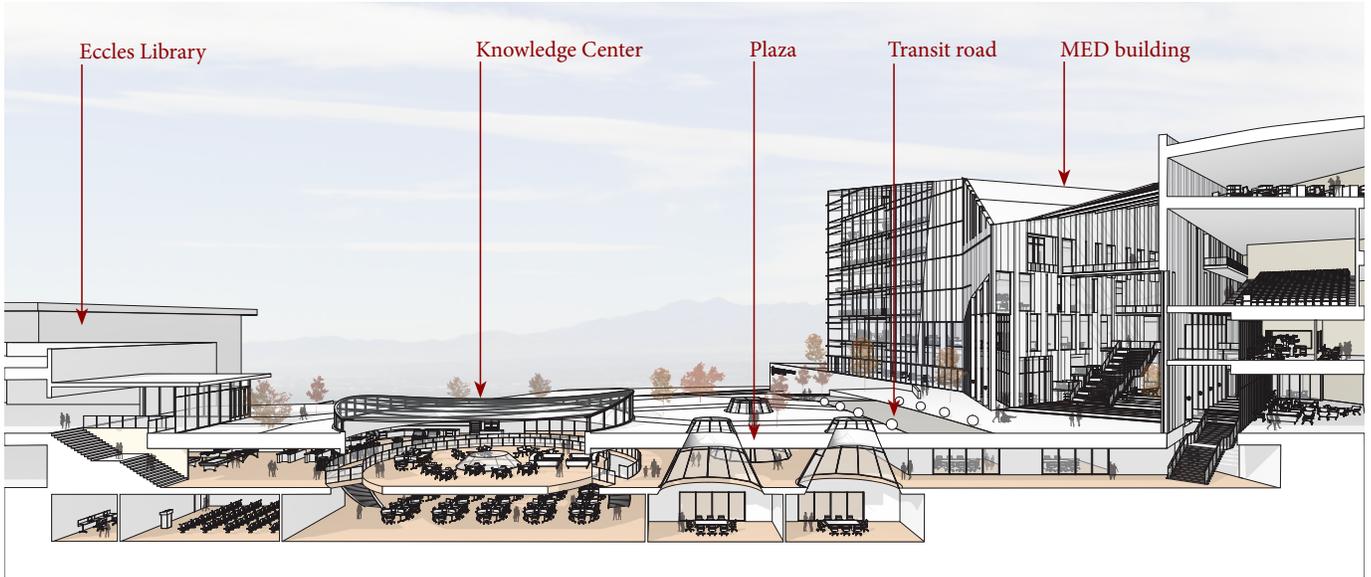
Campus Heart: Near term with existing Wintrobe building



Campus Heart: Long term with future building massings



Several concepts were explored as design approach possibilities. Shown here is one concept based on the notion of the regional mountain landscape.



Site section looking west



Interior lobby connector view



Interior lobby connector view

Guiding Principles

As a transformative project identified in the 2008 Campus Master Plan, the Medical Education and Discovery building and future Health Sciences Center campus will:

Create vitality centered around a true heart of campus.

The MED and the open plaza to its south will form the heart of the HSC campus. The building must be a highly visible icon – easy to see, identify and locate. As the heart, it must be welcoming and approachable, with a transparency that allows those outside to see the activity within, and those inside to perceive the adjacent exterior plaza and campus buildings, and the natural surroundings beyond.

Integrate informal spaces for gathering and learning.

The program for The MED is anticipated to include a Knowledge Center designed to foster interaction and collaboration among the entire HSC campus community. The program will include food service and lounge spaces that provide space for informal gathering and collaborative meetings.

Promote interdisciplinary learning between all health care programs.

The building will contain elements – simulation labs, telemedicine suites, and biomedical informatics – that support the interdisciplinary aspect of health sciences. Located at the apex of the research, clinical and academic zones of the campus, the building will be easy for all to access and use.

Be energized around an easily accessed transportation node.

The MED will be located on a new circular road that runs through the heart of campus, serving public transportation, mass transit, and service vehicles. The road will provide a vehicular connection to mass transit stops on campus. For pedestrians, the new building will provide an enclosed walkway from the center of the campus to the TRAX stop on Mario Capecchi Drive.



The MED will foster informal collaboration among all HSC community members (Photos: University of Utah)

Have a well-planned sustainable campus utility infrastructure.

The MED will embody sustainable design principles, starting with its favorable east-west solar orientation, and will promote campus sustainability goals. It will replace the highly-inefficient, 600,000 gross square foot Building 521, easing demands on the campus utility infrastructure and taking a big step in campus strategic utility and infrastructure improvements.

Overcome challenging topography & “missing links” by an enhanced network of connections and actively used open space.

The MED will be planned with an internal pathway for use by pedestrians who are traversing the east-west hillside of the campus. The plaza on the south side of the MED will provide a space for outdoor activities in addition to contributing strongly to the campus sense of place.

Enable a pedestrian and bike friendly culture through a compact academic campus.

The MED project scope will include the creation of clear pedestrian and vehicular/ bicycle pathways immediately adjacent, thereby improving the campus bicycle and pedestrian fabric. A central exterior plaza will be integrated with the project as an active programmable and people-centric place. The building will provide convenience for bicycle commuters and other active community members with shower and changing facilities.

Enable a stress-free and personalized patient experience.

Construction of the MED will include campus modifications that improve visitor access and wayfinding, easing the patient and visitor experience. HSC collaboration fostered by the MED will lead to discoveries that enhance and optimize patient care.

Have easily identifiable gateways.

In addition to its prominent front door facing the plaza to the south, The MED will have multiple entries and gateways, oriented toward adjacent campus zones and functional areas. These entries will be design to provide easy and welcoming access from all directions.



The MED will improve the establishment of gateways and a sense of place on the HSC campus (Photos: Lee, Burkhardt, Liu Architects)



ENABLING PROJECTS

Introduction

During the decant study process, the team strived to meet several overarching goals:

- Use the decant as an opportunity to further HSC strategic goals and to improve functionality and relationships among School of Medicine departments
- Keep costs to a minimum, especially for temporary relocations
- Minimize disruption to the HSC community, including limiting the number of moves for any one group, locating the occupants in as few locations as possible (avoiding fragmentation) and keeping the displaced occupants as close as possible to the HSC campus

Following the Steering Committee decision to demolish Buildings 521/531 in a single phase, the project team focused on the need to completely decant the buildings of their occupants prior to demolition. Space subcommittees of University and Health Sciences Center (HSC) administrative and facilities staff were formed to study options and make recommendations regarding occupant relocations.

The space subcommittees analyzed the following: existing space; needed space; potential space efficiencies to be gained; locations of functionally-related elements on the HSC campus; vacant HSC campus space; and possibilities for locating functions off campus.

Because wet lab research and clinical functions will not be located in the new Medical Education and Discovery building (MED), the team made it a priority to decant these elements to locations where they could remain for a minimum of ten years.

Ambulatory clinical relocations were studied in light of the HSC long-term goal to restructure the ambulatory service delivery system and distribute some functions to locations nearer patients’ localities.

Academic relocations were necessarily temporary, as these functions are planned to be located in the completed MED. Decanting goals included placing academic functions in existing space that requires minimal modification, in order to save expense, grouping them in as few locations as possible, identifying “drop-in” space close to the epicenter of the Hospital for clinical faculty to use between appointments, and keeping the office/administrative space as close to the HSC campus as possible.

The chart below is a summary of the major functional categories currently in Buildings 521/531, existing area amounts and possible relocation destinations.

Functional Category	Existing NSF	Possible Decant Locations
Research Laboratory	75,000	Wintrobe, Biopolymers, Human Genetics, EEJM RB
SOM Academic/Administrative	175,000	Dumke, HSEB, Moran, AAB
Clinical, Inpatient	30,600	Psych: U Hospital; Rehab: Rehab Hospital, U Hospital 5th Floor
Clinical, Outpatient/Amb	44,100	AAB, community clinics
Hospital Support Services	65,000	AAB, U Hospital

AAB: Proposed new Administrative & Ambulatory Building

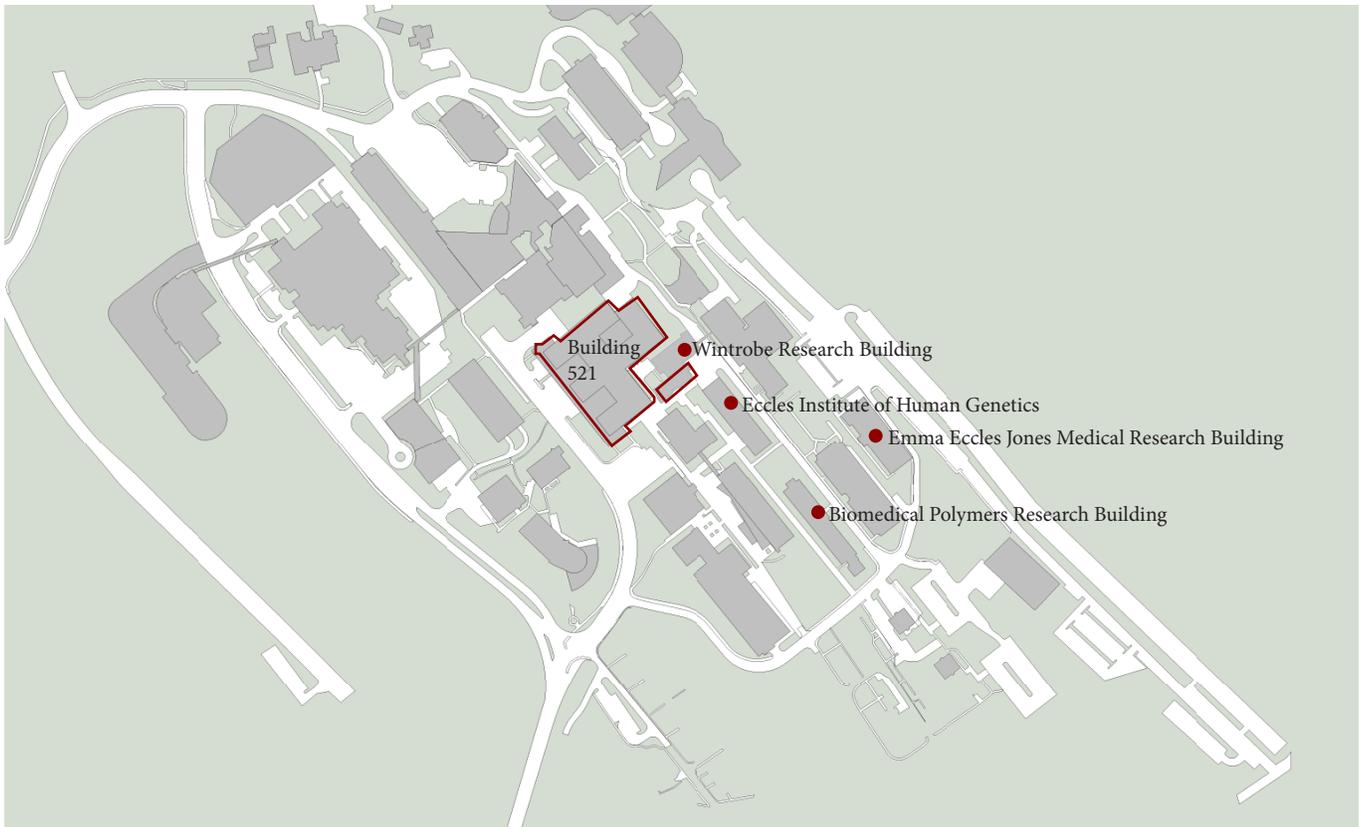
Rehab Hospital: Proposed new building to be constructed east of Hospital

Possible Decant Locations

Subcommittee recommendations and reports were ongoing at the time of the facility study finalization, with subcommittee members continuing the work of identifying and obtaining optimal decant space. Possible decant locations under consideration at the time are listed in the following pages.

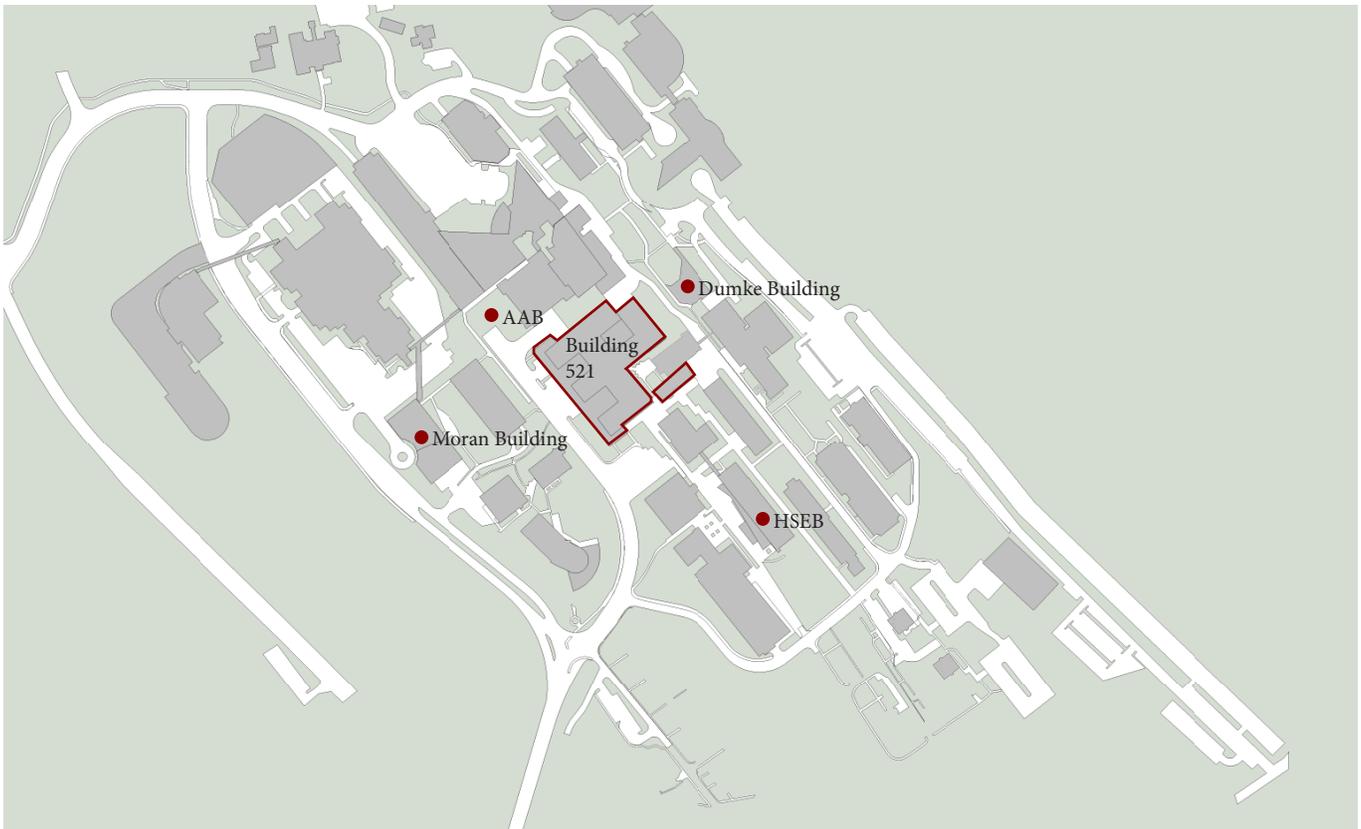
Wet Lab Research

- Wintrobe Research Building
- Biomedical Polymers Research Building
- Eccles Institute of Human Genetics
- Emma Eccles Jones Research Building



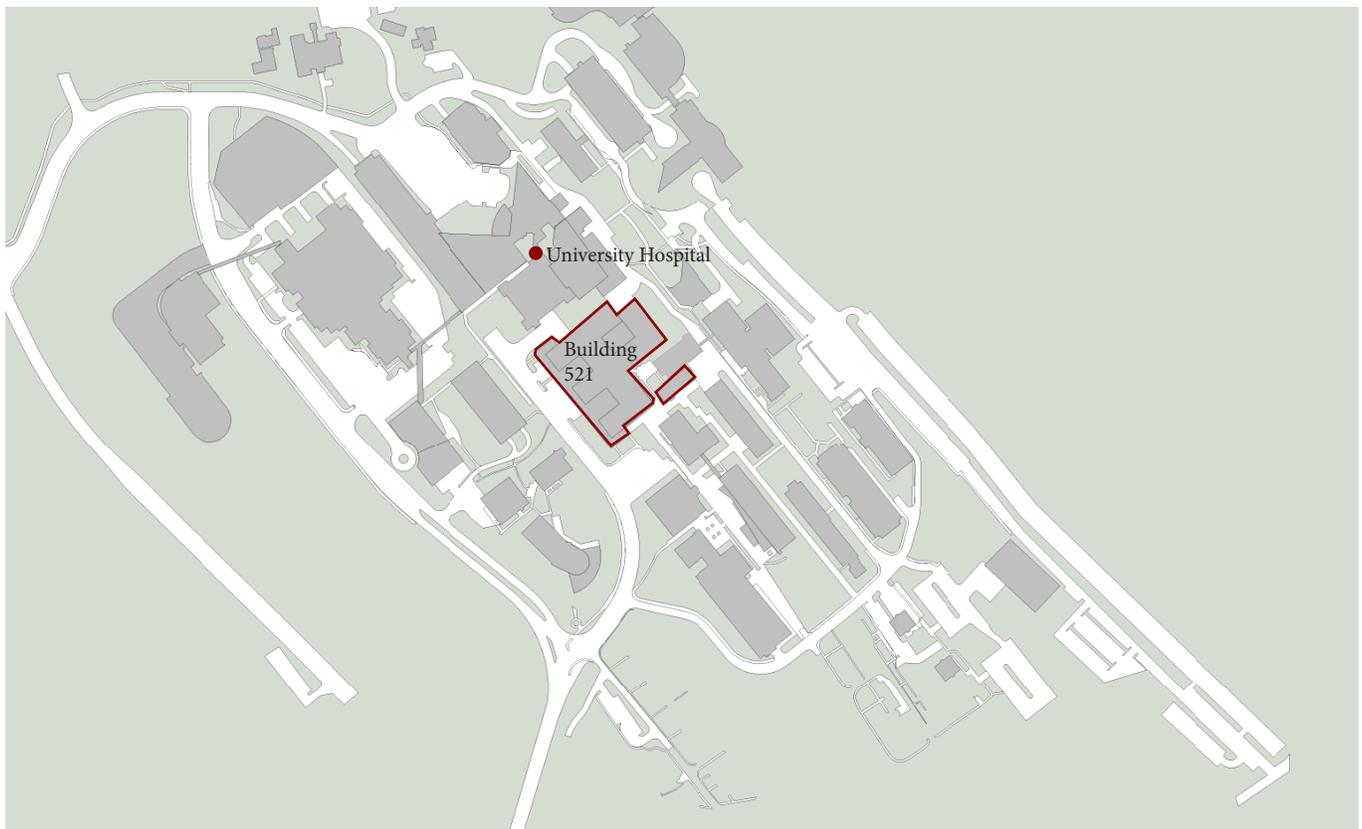
School of Medicine Academic/Admin

- Dumke Building
- HSEB
- Moran Building (limited)
- Administrative & Ambulatory Building, AAB (proposed to be constructed west of University Hospital)



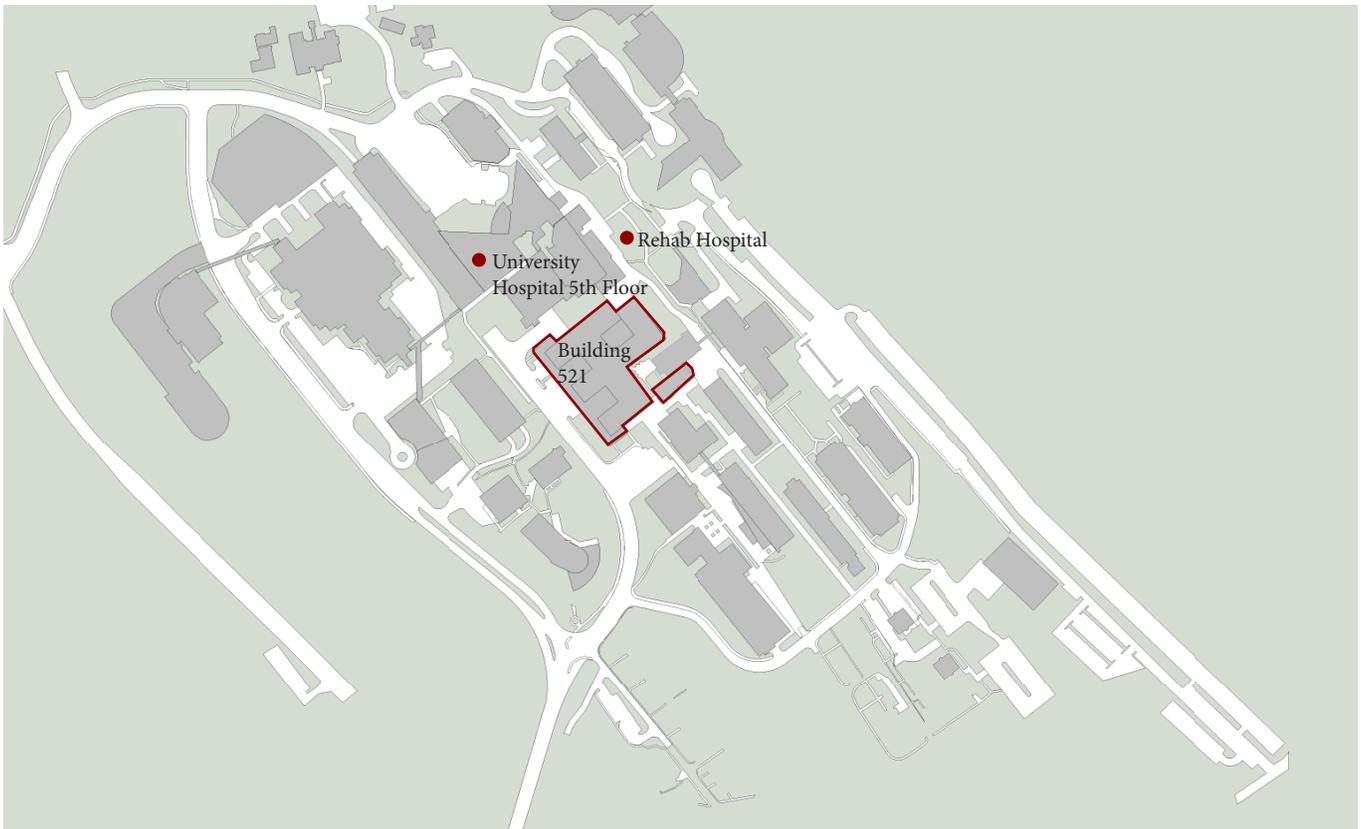
Clinical, Inpatient – Psych

- University Hospital



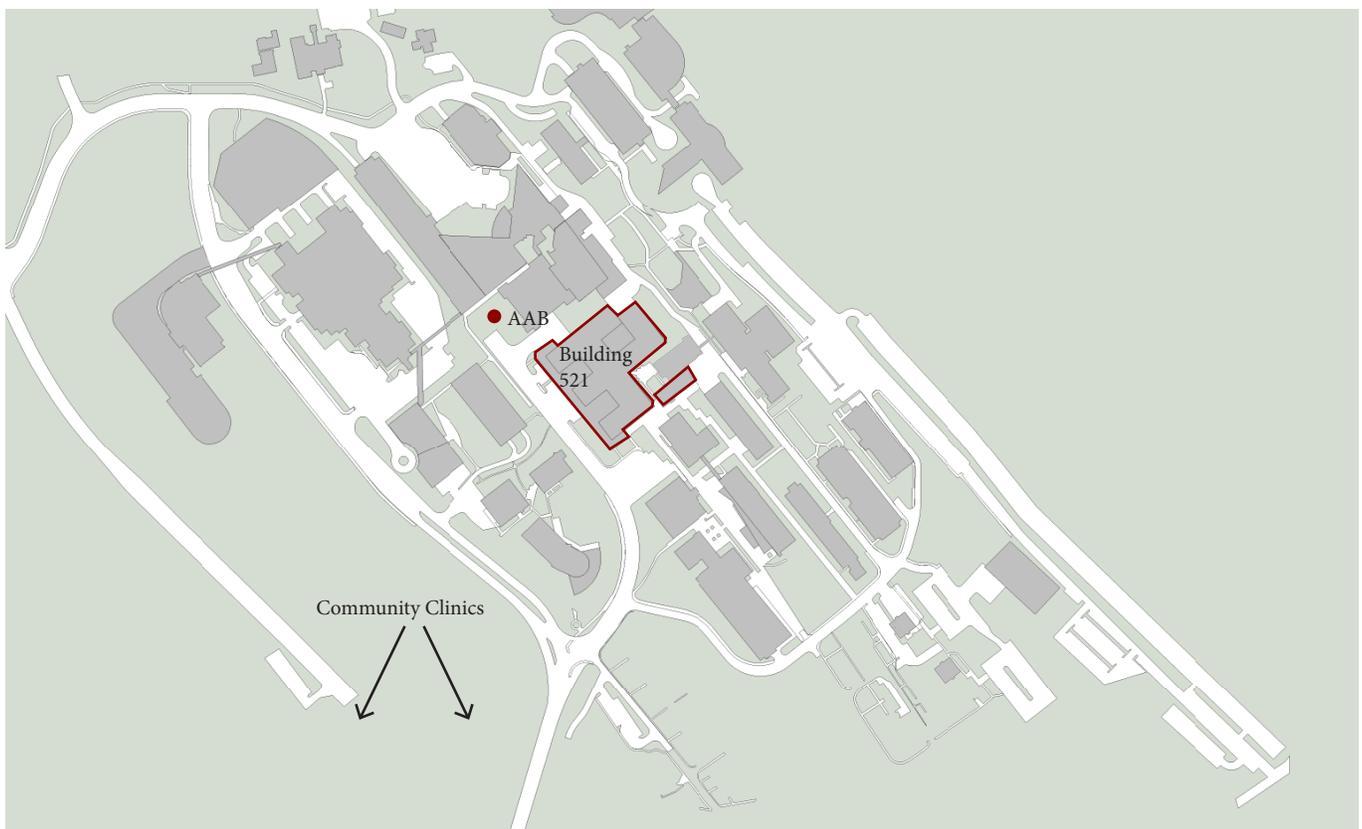
Clinical, Inpatient – Rehab

- Rehabilitation Hospital (proposed to be constructed east of University Hospital)
- University Hospital 5th Floor



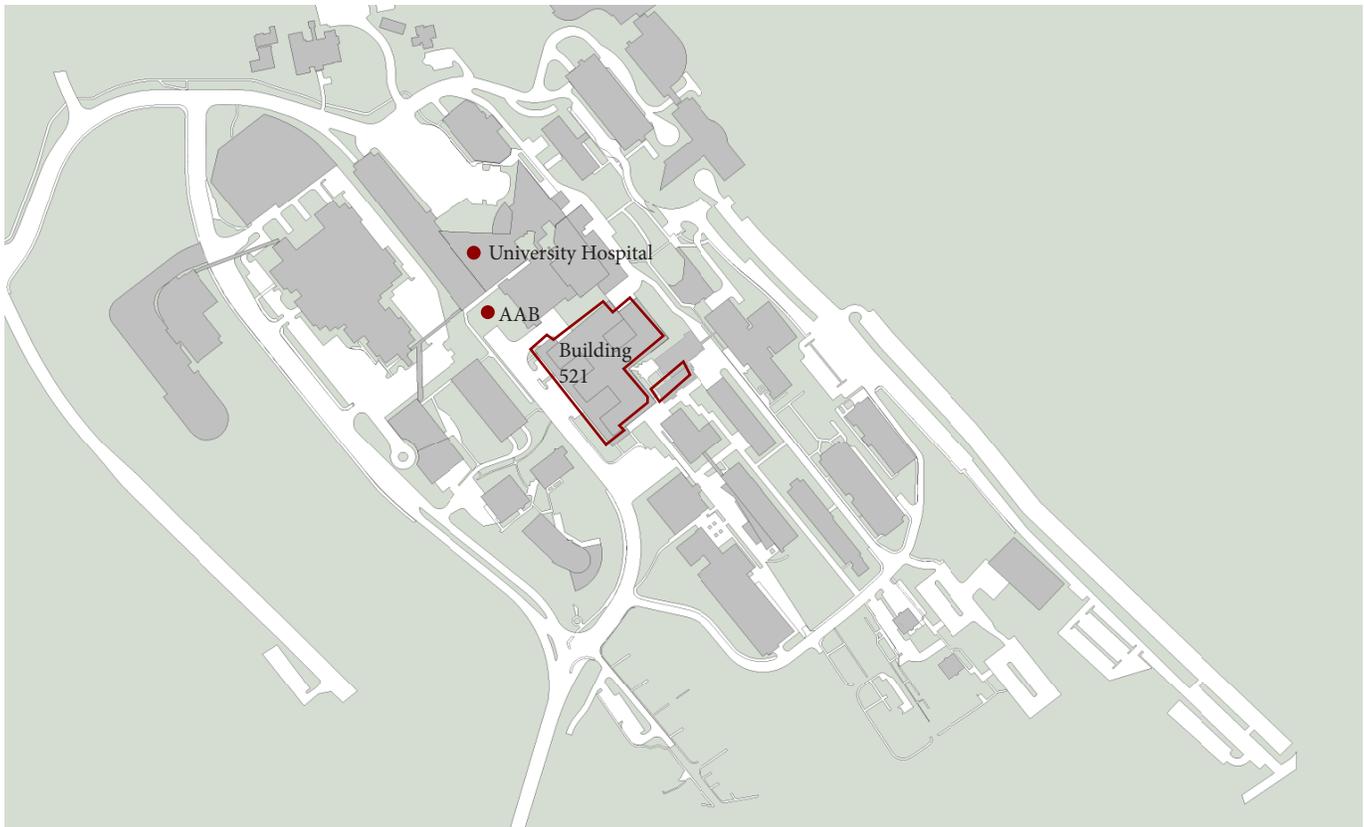
Clinical, Outpatient/Ambulatory

- Administrative & Ambulatory Building, AAB (proposed to be constructed west of University Hospital)
- Distributed Model: Clinical functions distributed to community clinic locations



Hospital Support Services

- Administrative & Ambulatory Building, AAB (proposed to be constructed west of University Hospital). At a minimum, this new building would contain the Hospital's incoming and outgoing docks, essential functions currently location on Level A of Building 521. The AAB may also provide space for clinical or academic functions; those space needs will determine if space is available for additional hospital support services.
- University Hospital





IMPLEMENTATION

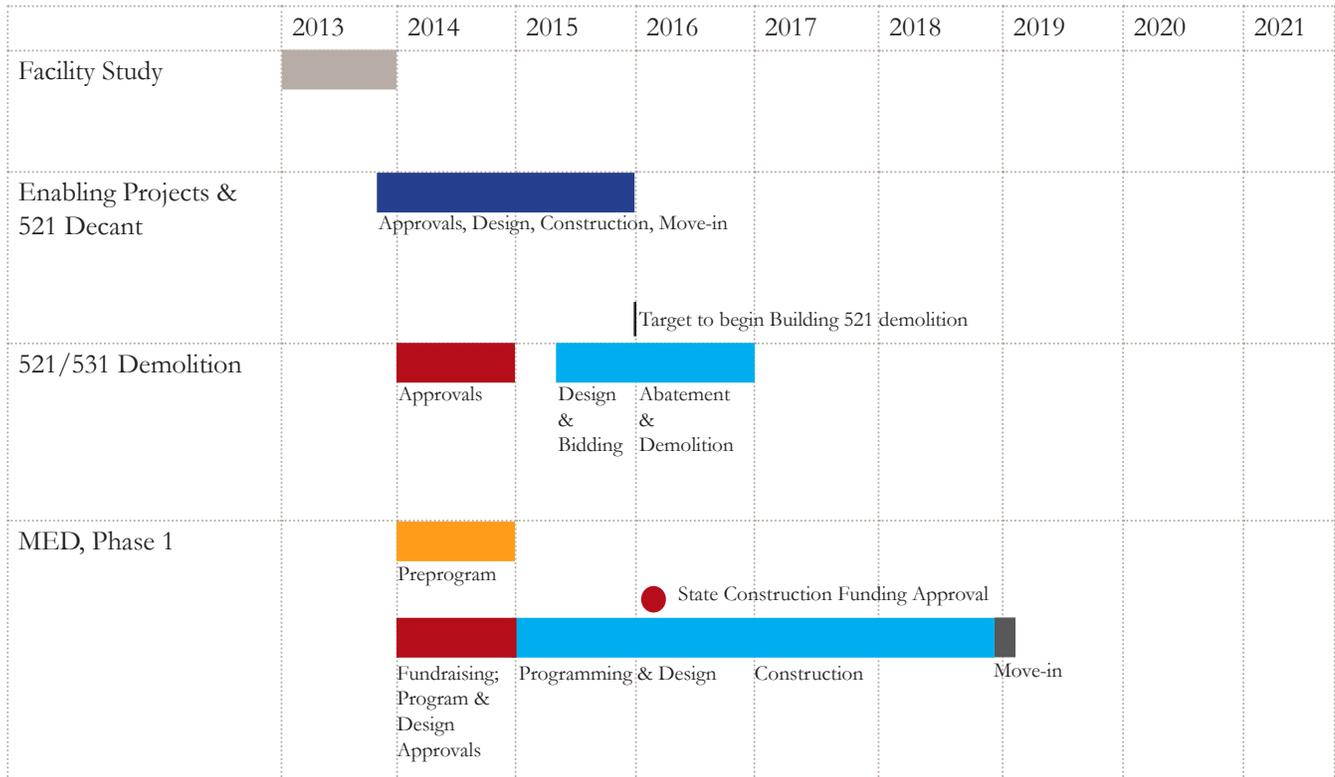
Implementation

Health Sciences Center (HSC) administrators have a goal to demolish Buildings 521/531 and construct the new Medical Education and Discovery building (MED) within the next five years.

This chapter describes sequencing and scheduling that will help to accomplish that goal. The process includes:

1. Construction of the enabling projects described in Chapter 6, which allow the decanting of Buildings 521/531
2. Demolition of Buildings 521/531
3. Construction of the MED Phase 1

The facility study was concurrent with an update of the Health Sciences Center campus master plan. The implementation site plans in this chapter show some future projects that are contained in the master plan update and that are expected to occur prior to or at the same time as the MED construction.



Short Range Master Plan Implementation Schedule

Note: At the time of documentation finalization, the implementation schedule was under evaluation; the final schedule may vary from that shown above.



1 Enabling Projects & Buildings 521/531 Decant

AAB/Administrative and Ambulatory Building

The AAB will contain incoming and outgoing docks for the University Hospital (currently located in the lower level of Building 521), in addition to other components

100,000 GSF
(up to)

\$41,300,000
(up to)

Possible projects to enable 521/531 decant (not denoted on plan above):

New Patient Rehab Services facility

Renovations of existing facilities:

- Wintrobe
- Biomedical Polymers
- Inst. of Human Genetics
- EEJ Medical Research Bldg
- Dumke Building
- HSEB
- Moran Eye Center
- University Hospital
- Community clinics

Note: Refer to the space subcommittee reports for final information regarding the decant projects

- Existing Building
- New Building
- New Building (Connection Space)
- Demolished Building
- Built in Separate Sequence

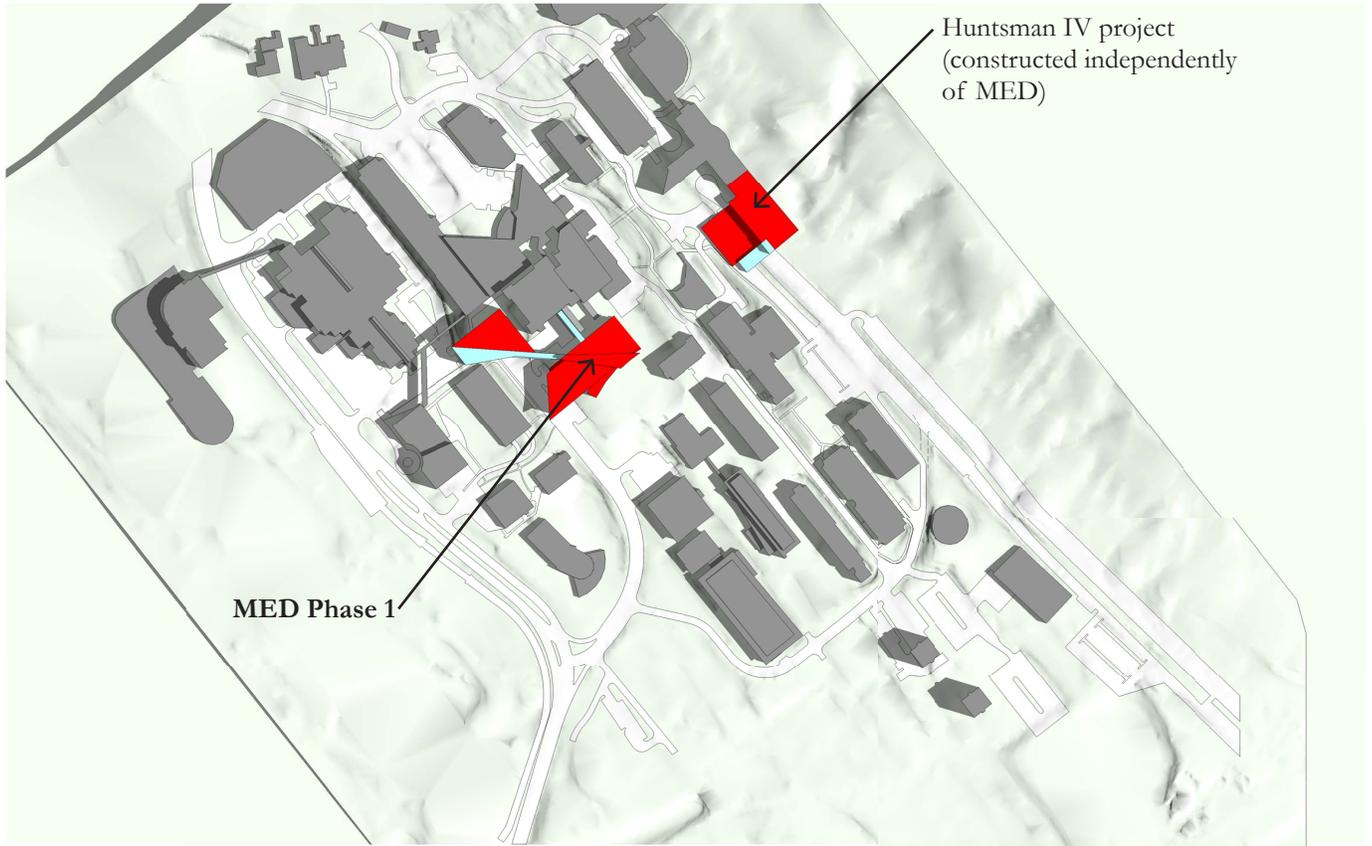


2 Demolition

Asbestos abatement and demolition of Buildings 521 and 531

\$10,900,000

- Existing Building
- New Building
- New Building (Connection Space)
- Demolished Building
- Built in Separate Sequence

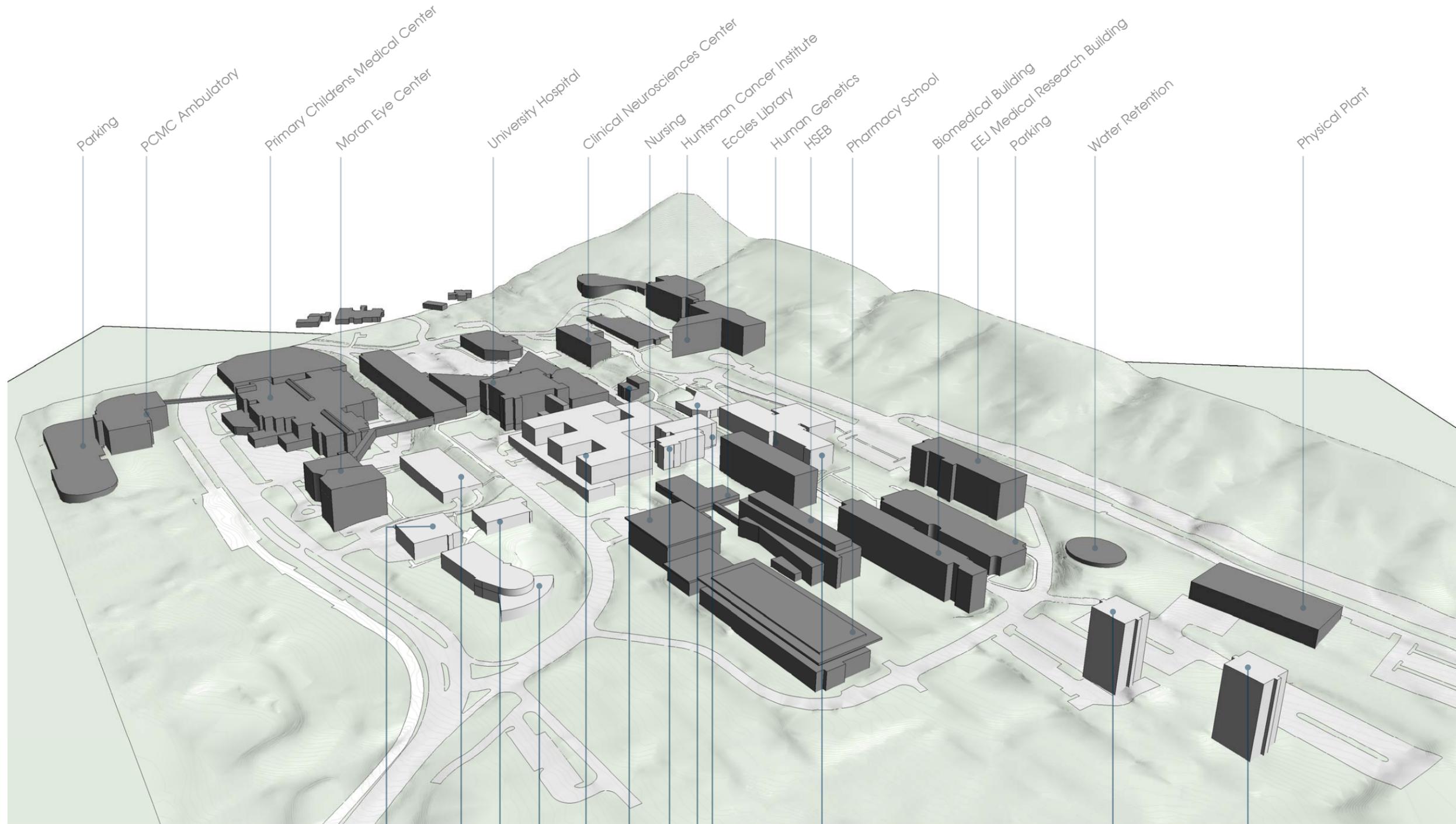


3 Initial MED Construction

Construction of MED Phase 1 with Knowledge Center

250,000 GSF \$90,075,000

- Existing Building
- New Building
- New Building (Connection Space)
- Demolished Building
- Built in Separate Sequence



Potential buildings to be replaced or removed

Potential buildings to remain

- Parking
- PCMC Ambulatory
- Primary Childrens Medical Center
- Moran Eye Center
- University Hospital
- Clinical Neurosciences Center
- Nursing
- Huntsman Cancer Institute
- Eccles Library
- Human Genetics
- HSEB
- Pharmacy School
- Biomedical Building
- EEJ Medical Research Building
- Parking
- Water Retention
- Physical Plant
- State Department of Health/Fraser
- Parking Terrace
- Medical Examiner's Office
- Children's Special Needs Clinic (WIC)
- School of Medicine
- Hospital Power Plant
- MREB (531)
- Dumke
- Wintrobe
- Comparative Medicine Center/Radiology Lab
- Medical Plaza Tower North
- Medical Plaza Tower South