

# Research Way Lab Building Test Fit Study

Re: Cordley Hall Surge Space

29 Sept 2018 - Final Report



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PREPARED BY:

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W/ ANDERSEN  
CONSTRUCTION

## **RESOURCES:**

- 1984 Original Drawings
- 2000 CGMP Project Drawings
- 2001 AVI BioPharma Drawings
- 2005 SIGA Drawings
- 2007 SIGA Tech Inc. Drawings
- Serepta/Siga Research & Office Bldg - Due Diligence Study, 2 May 2018
- OSU Cordley Hall Pre-Design Report, 13 July 2018

## **PROFESSIONAL AND CONTRACTOR RESOURCES**

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## **GLOSSARY OF TERMS USED IN THIS REPORT**

**Assignable Area:** Area within the building that can be allocated to a department, research group or individual for a specific use.

**Program:** The desired set of space types within a proposed building or renovation.

**Tabular:** Quantitative information format.

**Take-off:** Calculation of area (in square feet) by digitally scaling floor plan boundaries.

**Target Surge Capacity:** The total assignable area required to accommodate the established program for Botany & Plant Pathology and Integrative Biology at the RWLB without renovation required between phases.

**Surge Space:** Facilities that are occupied temporarily to allow renovation within another building.

# **INTRODUCTION**

## **PURPOSE AND LIMITATIONS OF STUDY**

This study is for the use of the OSU team tasked with providing surge space within the recently purchased Research Way Laboratory Building (RWLB) for program elements temporarily displaced by renovation efforts at Cordley Hall on the OSU campus. The study outlines a strategy to maximize the capacity and functionality of the RWLB building for this purpose with a surgical renovation approach constrained by a known construction budget.

A summary of ideal program capacities is provided based on an analysis of final program information from the Cordley Hall renovation project. The study provides an analysis of existing available space types at the RWLB and resultant program areas associated with proposed renovation work. The analysis allows a test-fit of the established Cordley program capacities and is the basis of project constraints discussed in the report. Program analysis does not include specific review of individual lab spaces or research focus and does not optimize surge capacity requirements based on these factors.

A concept plan for the build-out of existing spaces at the RWLB to meet those program requirements and to optimize flexibility and functionality is provided. These diagrams are used for rough square footage take-offs to help confirm project costs and define the program limitations.

The study also includes an estimated construction budget summary to identify the limits of renovation scope likely to be possible within the available funding. Project budget estimating was developed with Andersen Costruction based on a pre-schematic level assessment of the affected areas.

Although discussed sequentially in this report, the program analysis, concept plans, and construction budgeting were developed in parallel, each informing and adjusting the others through multiple cycles.

# **PROGRAM ANALYSIS**

## **CORDLEY HALL - EXISTING & PROPOSED PROGRAM**

A summary of the existing and proposed Cordley program areas are tabulated in this report in order to better illustrate the programmatic changes occurring with the Cordley renovation and to establish reasonable expectations for temporary space at the RWLB. Proposed Cordley program requirements are taken from the final Cordley Hall Pre-Design Report. Data for existing Cordley space types is estimated by area take-offs from the existing scale plans included in the final Cordley Hall Pre-Design Report.

The Cordley project team has provided direction that only the two main departments, Botany and Plant Pathology (BPP) and Integrative Biology (IB), are to be accommodated by the surge space at the RWLB. All other minor departments currently housed within Cordley will be relocated elsewhere during the renovation. Likewise, all collaboration space, classrooms, teaching laboratories, and teaching support space are excluded from the program analysis.

For the purposes of this study, all departmental tabular program data can be presumed to be shown as assignable area.

## **TARGET SURGE CAPACITY**

A target surge capacity was determined by comparing the final departmental program requirements for the two main departments to be housed in Cordley Hall. The worst case capacity requirements within each program type are included such that both surge phases can be sequentially accommodated without the need for additional renovation. As an example, if more environmental rooms are required by one department but more chemical storage is required by the other, then the higher requirement for each program element is included in the target surge capacity.

## **RWLB - EXISTING ASSIGNABLE AREA**

The existing available program area at the RWLB is established by area take-offs from the current plans. Room types are categorized into the same major program types (research, support, office, etc.) and color coding as shown in the final Cordley program for direct comparison. These designations have been made based on the type and configuration of the plan and on-site verification where necessary.

For the purposes of this study, the existing SIGA tenant space has been excluded from the available assignable area. It is the expressed preference of OSU to accommodate the surge capacity for the Cordley renovation without needing to terminate the current SIGA lease.



A second tenant - Active 911 - is located in a portion of room 2001A. This small area is currently included in the available assignable area. If OSU decides to continue to lease this space, it will not significantly affect the program numbers. However, it may be advantageous to the university to include this room in the second floor renovation. This opportunity should be considered during Schematic Design.

The GMP Cleanroom Facility is also excluded from the available assignable area. Although this facility contains approximately 2,000 sf of subdivided space that could be used for research lab and lab support purposes, there are no identified program elements from Cordley that will benefit from the enhanced air quality of these spaces enough to warrant continued certification, maintenance and operation of the GMP Facility.

### **RWLB - PROPOSED ASSIGNABLE AREA**

The assignable area capacities that can be achieved at the RWLB within the available renovation budget do not meet the targeted surge capacity requirements for all program types. There is a significant deficit in available research and research support space.

To partially offset this deficit, a limited amount of new research area is proposed to support a percentage of Cordley research and research support program that may not specifically require a wet lab environment. This area is envisioned as a dry lab “platform”. It will have basic infrastructure to support a variety of non wet-lab research activities but will be stripped of most casework, accessories, etc. typically found in a finished lab environment. Infrastructure might include new electrical panels and flexible distribution, lighting modifications, and possibly compressed air, vacuum or similar shop-grade services. Worktables, storage units, etc. that may ultimately be required or these dry lab spaces are assumed to be owner provided and held outside the direct construction budget.

Detailed program information from the Cordley research labs is not available for this report to verify specific lab compatibility with this approach. Furthermore, even with successful utilization of the proposed dry lab platforms, significant compression of the Cordley research program will likely be required to move the departments into the RWLB. Up to a 30% reduction in overall research and research support program space may be necessary.

# PROGRAM SUMMARY

Tabular

## Cordley Hall

Existing Program by Dept	Program Area (sf)					Subtotals
	Research	Res. Support	Field/Misc.	Collections	Offices	
BPP	22,448	11,726	NA	3,069	15,454	52,697
IB	19,274	12,455	NA	3,598	17,630	52,957

Proposed Program by Dept	Program Area (sf)					Subtotals
	Research	Res. Support	Field/Misc.	Collections	Offices	
BPP	16,775	15,817	1,748	3,965	11,749	50,054
IB	12,810	11,920	1,384	4,752	12,409	43,275

## Target Surge Capacity

See page 6 for Target Surge Capacity Detail

Program Area (sf)						Subtotals
Research	Res. Support	Field/Misc.	Collections	Offices		
16,775	17,287	1,748	4,752	14,062	54,624	

## Research Way Laboratory Building

Existing Assignable Area	Program Area (sf)					Subtotals
	Research	Res. Support	Field/Misc.	Collections	Offices	
Flr 1	3,088	1,596	9,245	1,064	18,628	33,621
Flr 2	9,727	5,159	551	NA	25,697	41,134
total	12,815	6,755	9,796	1,064	44,325	74,755
Program area deficit/surplus	(3,960)	(10,532)	8,048	(3,688)	30,263	

Proposed Assignable Area (Option 5 - Program Bars 2)	Program Area (sf)						Subtotals
	Research	Res. Support	Field/Misc.	Collections	Offices	Dry Lab	
Flr 1	3,102	3,230	3,154	5,161	9,229	3,285	27,161
Flr 2	8,737	7,059	548	0	21,710	728	38,782
total	11,839	10,289	3,702	5,161	30,939	4,013	65,943
Program area deficit/surplus	(4,936)	(6,998)	1,954	409	16,877	4,013	

# TARGET SURGE CAPACITY

Detail

Program Element	Cordley Phase 1		Cordley Phase 2		Target Surge Capacity	
	BPP		IB		RWLB	
	Mods	Area (sf)	Mods	Area (sf)	Mods	Area (sf)
<b>Research</b>						
Research Labs (Dedicated)	55.0	16,775	42.0	12,810	55.0	16,775
Research Subtotal		16,775		12,810		16,775
<b>Research Support</b>						
Lab Support (Dedicated)	23.7	7,229	22.0	6,710	23.7	7,229
Freezer Farm	3.8	1,152	0.0	0	3.8	1,152
Walk-in Freezer Room	0.3	80	0.0	0	0.3	80
Controlled Environmental Room/Cold Rm	10.2	3,120	8.5	2,600	10.2	3,120
Fume Hood Alcove	1.0	320	0.5	160	1.0	320
Glassware and Autoclave Room	3.1	960	1.6	480	3.1	960
Media Prep	1.3	400	0.7	200	1.3	400
Chemical Storage	1.0	300	2.1	640	2.1	640
Equipment Rm	4.2	1,280	0.0	0	4.2	1,280
Plant Clinic	3.2	976	0.0	0	3.2	976
Vivarium Suite and Support	0.0	0	3.7	1,130	3.7	1,130
Res Support Subtotal		15,817		11,920		17,287
<b>Misc.</b>						
Fieldwork & Prep	5.9	1,748	4.7	1,384	5.9	1,748
Misc. Subtotal		1,748		1,384		1,748
<b>Collections</b>						
Research Collections	12.3	3,763	12.6	4,146	12.6	4,146
<b>Collections</b>						
Teaching Collections	0.6	202	1.8	606	1.8	606
Collections Subtotal		3,965		4,752		4,752
<b>Department Office - By room or workstation</b>						
Waiting Area	1.0	100	1.0	100	1.0	100
Department Head Office	1.0	120	1.0	120	1.0	120
Associate head Office	1.0	120	1.0	120	1.0	120
Admin Assistant Office	1.0	120	1.0	120	1.0	120
Admin Workstations - Open Office Large (80sf)	3.0	240	5.0	400	5.0	400
Advising Office	0.0	0	5.0	600	2.0	600
Facility Mgmt	1.0	120	1.0	120	1.0	120
<b>Department Office Support</b>						
Large Conference Room	0.5	458	0.5	458	1.0	916
Medium Conference Room	0.5	305	0.5	305	0.0	0
Small Conference Room	3.0	540	3.0	540	3.0	540
Kitchenette/Prep Room	1.0	153	1.0	153	1.0	153
Mail/Copy Room	1.0	153	1.0	153	1.0	153
Shipping/Receiving	1.0	120	1.0	120	1.0	120
File Room	1.0	120	1.0	120	1.0	120
Storage	1.0	120	1.0	120	1.0	120
<b>Offices</b>						
Private Offices	29.0	3,480	36.0	4,320	36.0	4,320
Open Office Med (60sf)	58.0	3,480	33.0	1,980	58.0	3,480
Open Office Small (40sf)	50.0	2,000	64.0	2,560	64.0	2,560
Office subtotal		11,749		12,409		14,062
<b>Totals</b>		50,054		43,275		54,624

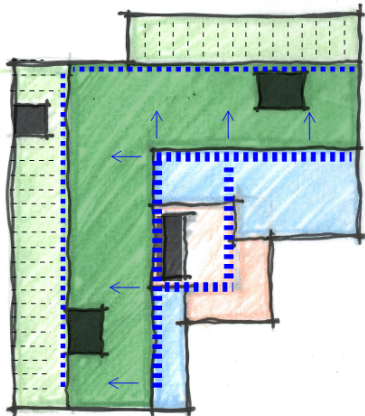
# STRATEGIC PLANNING

## CONCEPT PLAN

Several goals for the RWLB have been established. The primary goal is for the RWLB to serve as surge space for the program displaced during the Cordley Hall renovation. Several other laboratory building renovation projects at the OSU campus are projected in the future and OSU has expressed the desire to continue to utilize the RWLB as surge space during these additional renovations. Ultimately, there is also a goal to turn the RWLB building into a permanent home for STEM-focused programs or other research programs at this location.

The existing floor plan of the RWLB is highly disorganized, as it has been renovated over time for isolated tenants. Although the existing spatial configuration of the building may support the initial Cordley surge functions, it is not set up to facilitate long term flexibility for multiple surge iterations. Nor is it configured to provide the necessary resiliency for permanent academic research programs or departments.

A new concept plan has been developed for the RWLB. It is not expected that this program configuration be realized entirely with the initial renovation. It is intended as a long term planning tool to help guide incremental renovations at the RWLB towards a cohesive vision for the building.



**Final Concept Plan:**  
Option 5 - Program Bars 2  
See appendix for full scale concept and strategy diagrams. Program colors are also keyed on Pg 5.

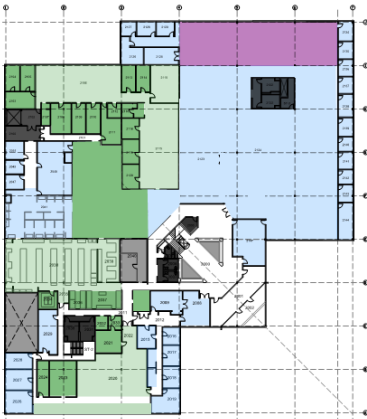
The final concept plan seeks to balance the need for improved circulation and modular infrastructure with connections to existing laboratory and support zones. The concept plan targets roughly a 1:1.25:1 ratio of open lab, lab support and office space. This is based on a balance of the final Cordley Hall program, spatial constraints at the RWLB, and future expectations for research in the building. The scheme is configured however, such that these ratios can easily shift to suit future iterations of the research program by shifting the linear boundaries between program types.

The concept plan establishes a bar of flexible lab modules along two long edges of the building perimeter. These modules are intended to serve as the primary open research labs. They are currently shown as 10x30ft and 10x40ft modules situated within the building's 30x40 structural grid. Adjacent to these bars, internal to the building, is placed the lab support zone. This zone is envisioned as a possible extension of the infrastructure modules of the open labs but is likely to accommodate a wide variety of individual and shared research support spaces of various sizes. Primary building circulation is planned along the edge of this zone. Office space is located adjacent to the main building circulation core. This relationship creates possibilities for collaboration space and shared resources, while still providing immediate connection to the research zones.

## PROGRAM TEST FIT

### COMPLETE FIT

A complete fit of the targeted program capacity was performed to establish an upper limit to the potential renovation required for the Cordley surge. This complete fit scenario applied new program elements according to the concept plan configuration and utilized to the largest extent possible the existing lab locations within the building. This approach yields a renovation scope well above the limitations of the current budget. The primary driver of these costs is the construction of additional research and research support space to resolve the deficit of existing assignable program area. Further analysis of the complete fit scenario is included in the appendix for reference.



### CONSTRAINED FIT

To determine what program can actually fit in the building within the current limitations of the renovation budget, a “constrained fit” plan has been developed. Here, the complete fit plan is scaled back to reflect only those improvements that are likely to be supported by the budget. Priority is given to code required improvements and minor improvements that restore or gain critical program functionality.

Because of the associated expense, new wet-lab space has been mostly eliminated from the plan. However, minor modernizations of the existing labs are included to ensure they can be effectively utilized.

Dry lab platform spaces are included to help offset the deficit in available research area. This space type is described previously in the Program Analysis section (pg 4). In the constrained fit plan these areas are located in zones that are identified by the concept plan as likely future open lab research modules. The intent is that the dry lab platform areas be developed in a manner that is an initial step towards these spaces becoming fully outfitted wet labs. Services and circulation would be established on the same module likely to be used for the future wet-labs.



#### Constrained Fit Plans:

Ground Floor (bottom) and 2nd Floor (top)  
See appendix for full scale concept and strategy diagrams. Program colors are also keyed on pg 5.

The constrained fit plan is limited by the construction budget summarized in the next section. It defines the actual program capacities likely to be available at the RWLB subsequent to the renovation work. It provides an allowance of dry lab research space that may help the Cordley departments optimize their use of wet lab space. It also preserves a substantial amount of open office area that may be utilized for storage, data analysis or certain dry lab functions. A substantial deficit remains however with regards to research area capacity and specifically with regards to wet lab space.

## **POTENTIAL IMPACT**

### **CORDLEY PROGRAM ADJUSTMENTS**

According to the program analysis, after potential renovation, the available program area at the RWLB will still be significantly lower than the program area being planned for the Cordley departments in the renovation of the east and west Cordley wings. Several temporary adjustments in the program may help to allow each phase to fit into the available surge space.

Program area may be able to be temporarily compressed for the duration of the departments tenancy at the RWLB. Individual researchers may be able to sustain their work with less linear feet of bench, or with a smaller open office workstation. Ideally this compression is limited to that which can occur with minimal or no impact to ongoing research productivity.

The required surge program area at the RWLB may also be reduced by finding other space for specific Cordley program elements outside of the RWLB. In some instances, this may be preferred over further compression of other program.

A third program strategy is to effectively capitalize on the new dry lab platform space and have each department designate portions of their research program that can be pulled out of wet-lab areas and into less specialized space within the building. This type of strategic space allocation can also be extended where possible to the surplus of open office area in the RWLB assuming that some of the research program is compatible with an office environment. This study does not include detailed program information that can verify the feasibility of this approach.

Under normal circumstances a small amount of area deficit can easily be accommodated with the use of the above program adjustments without an impact to research productivity. In this case the deficit in research area is substantial. Likely a combination of the above program adjustments will need to occur to allow each Cordley phase/department to temporarily be housed at the RWLB. However, even with these adjustments, it is highly likely that a significant impact to research productivity, will occur.

The magnitude of the program constraints coupled with the temporary use of the space also increases the risk of environmental and health and safety issues. These risks should be acknowledged and planned for as space begins to be allocated at the RWLB.

### **CORDLEY DESIGN AND CONSTRUCTION**

The capacity limitations at the RWLB are only one half of the overall surge space equation with the program requirements from Cordley

being the other. While the program requirements are primarily driven by an agreed upon departmental need, the surge space demand on the RWLB is also affected by the design and construction phasing of the Cordley project itself.

The phasing outlined in the final Cordley program includes a much larger research area requirement during the first phase (west wing - BPP relocation) than the second. This effectively either requires more surge space at the RWLB or more program adjustments in the first phase. As discussed above, the budgeted program area at the RWLB is finite, and the extent of program adjustment may in fact be limited.

Ideally, the surge space requirements at the RWLB would not only be minimized but also equalized in each phase. This would allow a minimum amount of area to be most effective for both departments. This approach may only prove effective however, if a similar equality of program capacities exist in each phase of the Cordley renovation such that the departments can move back into the renovated space without either a deficit or surplus of space. Due to the nature of the existing Cordley wings, one 4-story and one 5-story, and the concept program distribution outlined in the final Cordley program document it is unclear if this balance is possible with the current phasing plan.

Additional planning with the affected departments may be required to develop a successful program strategy to facilitate the Cordley project phasing.

# CONSTRUCTION BUDGETING

## OVERALL BUDGET SUMMARY

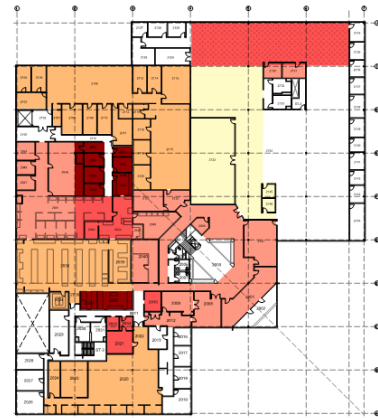
The maximum total project budget for RWLB has recently been confirmed by OSU to be \$10M. For the purposes of this study, the target direct construction cost is assumed to be a maximum of \$7M.

## PROGRAM IMPROVEMENTS

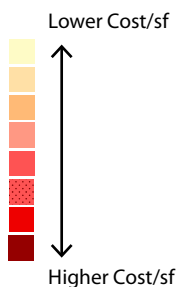
Most of the program areas within the RWLB will require some amount of modification to be move-in ready for the various Cordley program components. These improvements range from minor finish repairs to more significant improvements such as integration of new environmental rooms into the building. Additional renovation may be important to restore connections between areas of the building that were previously isolated by former tenants. And some new program area must be incorporated into the building to help satisfy the programmatic requirements of Cordley to the greatest extent possible.

The various program improvements can be separated into several renovation types. Each type has been given an outline scope and a ROM construction square footage cost has been allocated to it. The rough budget numbers have been developed with Andersen Construction based on current market costs in the area for the various portions of scope. Full descriptions of the renovation categories are provided in the appendix for reference.

Renovation Cost Heat Maps have been developed that indicate the location and extent of the various renovation types. The colors corresponding to the various renovation types represent the intensity of their associated cost with yellow indicating a lower cost/sf and red indicating higher cost/sf.



Renovation Cost Heat Map  
Ground Floor (bottom) and 2nd Floor (top)  
See appendix for complete enlarged diagrams.



## ADDITIONAL PROJECT COSTS

In addition to the above program improvements, specific construction scope has been identified that may be necessary to facilitate permitting of the renovation work at the RWLB. Also included are previously identified deferred maintenance issues that may warrant inclusion in the initial renovation project if funds are available. Construction budgeting information for these portions of scope has been developed with Andersen Construction by reviewing the following scope summaries, applying current construction cost factors and comparing to recent similar work. Because the construction scope for these items cannot be well defined at this early stage, the numbers merely establish a general allowance within the overall budget for such work. Descriptions of these construction scopes are provided in the appendix for reference.



# BUDGET ANALYSIS

## Option 5 - Program Bars 2

### Program Improvements

#### Renovation Type

1	Light Office Remodel
2	Storage w/ HVAC (Temp Collections)
3	Light Lab Remodel
4	Moderate Office Remodel
5	Moderate Lab Renovation
5.5	Dry-Lab Platform
6	Heavy Lab Renovation
7	Specialty Rooms (CT rooms/Coolers)

\$/SF	
Low	High
16	31
15	43
44	85
54	88
100	169
180	200
350	500
250	350

subtotals  
TI \$/sf

Option 5 - Phase 1			
Area (sf)	Low	Ave.	High
10,000	\$162,500	\$237,500	\$312,500
4,088	\$61,320	\$117,530	\$173,740
17,233	\$758,252	\$1,114,221	\$1,470,190
9,214	\$495,253	\$650,739	\$806,225
1,838	\$183,111	\$246,924	\$310,737
3,379	\$608,220	\$642,010	\$675,800
0	\$0	\$0	\$0
2,611	\$652,750	\$783,300	\$913,850
48,363	\$2,921,405	\$3,792,224	\$4,663,042
	\$60.41	\$78.41	\$96.42

### Additional Project Costs

#### Infrastructure Upgrades/Deferred Maintenance

- Plumb - Industrial/Potable Water Split - Code req'd
- Plumb - Tempered Water/E-fixtures - Code req'd
- Plumb - Lab Waste Split/Neutralization - Code req'd
- HVAC - Equipment upgrades
- Elect - Lighting upgrade - LEDs
- ADA restroom upgrades - Code req'd
- ADA path upgrades - Code req'd
- EIFS Detailing/Repair
- Window replacment
- Misc. Roof and Parapet repair
- Door and Hardware upgrades/Security
- Systems Furniture

subtotals

Additional Costs			
Low	Ave.	High	Targeted
\$213,600	\$240,300	\$267,000	\$240,300
\$338,400	\$380,700	\$423,000	\$380,700
\$186,000	\$209,250	\$232,500	\$209,250
\$591,000	\$664,875	\$738,750	\$664,875
\$540,000	\$607,500	\$675,000	excluded
\$42,000	\$171,000	\$300,000	\$42,000
\$84,000	\$102,000	\$120,000	\$120,000
\$95,000	\$100,000	\$105,000	excluded
\$300,000	\$315,000	\$330,000	excluded
\$105,000	\$107,500	\$110,000	excluded
\$405,000	\$577,500	\$750,000	\$50,000
\$450,000	\$625,000	\$800,000	excluded
\$2,900,000	\$3,475,625	\$4,051,250	\$1,707,125

### Total Direct Construction

- Option 5 Phase 1 - from above
- Additional Project Costs - Targeted
- Pre-Design Estimating Contingency

20%  
subtotals  
total \$/sf

Low	Ave.	High
\$2,921,405	\$3,792,224	\$4,663,042
\$1,707,125	\$1,707,125	\$1,707,125
\$925,706	\$1,099,870	\$1,274,033
\$5,554,236	\$6,599,218	\$7,644,201
\$114.84	\$136.45	\$158.06

Escalation/mo

12 mos 0.625%

\$416,568	\$494,941	\$573,315
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### Total Direct Construction Budget Estimate

total \$/sf

Low	Mid	High
\$5,970,804	\$7,094,160	\$8,217,516
\$123.46	\$146.69	\$169.91

# Research Way Lab Building Test Fit Study

Re: Cordley Hall Surge Space

29 Sept 2018 - Final Report

PREPARED BY:

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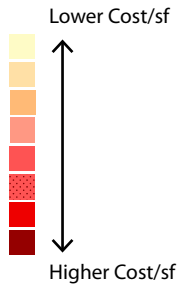
W/ ANDERSEN  
CONSTRUCTION

## APPENDIX

- I. Construction Scope Detail
- II. Final Master Strategy Diagram Poster
- III. Previous Concept Cycles
- IV. Complete Fit Analysis

# I. CONSTRUCTION SCOPE DETAIL

## RENOVATION TYPES



- Light Office Remodel:** Update of existing office area function.
  - Limited finishes repair (flooring patch, ACT tile replacement, new paint)
  - Limited signage replacement
  - Minor electrical (limited device/fixture replacement)
  
- Temp Collections:** Use of existing storage or office areas for temporary storage of departmental “collections”.
  - Limited finishes repair (flooring patch, ACT tile replacement, new paint)
  - Limited signage replacement
  - Some short term HVAC modifications
  
- Light Lab Remodel:** Update of existing lab and lab support space to serve surge capacity.
  - Limited signage replacement
  - Limited casework repair
  - Limited cap and removal of abandoned services
  - Limited HVAC modifications to restore lab function
  - Limited electrical circuit and device modifications
  
- Moderate Office Remodel:** Conversion of non-office space to temporary surge and permanent office functions.
  - Flooring/ceiling demo and replacement
  - Interior partition demo and relocation
  - Moderate interior-only reconfiguration of existing HVAC to serve associated area
  - Demo of existing plumbing
  - Moderate electrical device and circuit modifications
  - New light fixtures
  
- Moderate Lab Renovation:** Modification of non-lab area or sub-standard lab area to support temporary surge lab functions.
  - Flooring/ceiling demo and replacement
  - Casework replacement or new casework
  - Limited partition reconfiguration
  - Limited removal and cap of abandoned services
  - Limited HVAC modifications to existing systems to improve lab functions
  - Moderate electrical device and circuit modifications
  - New light fixtures
  
- Dry Lab “Platform”:** Modification of existing office space to support dry lab research activities.
  - Flooring/ceiling demo and replacement
  - Limited partition reconfiguration
  - Limited removal and cap of abandoned services
  - Moderate interior-only reconfiguration of existing HVAC to serve associated area
  - Significant electrical device and circuit modifications
  - New light fixtures
  
- Heavy Lab Renovation:** Modification of non-lab area to support permanent lab functions.
  - Complete replacement of existing finishes with lab-grade finishes

- New modular/fixed casework (80/20 split)
- New safety fixtures
- New lab equipment (fume hoods, etc.)
- Modifications to door and interior partition configurations
- New lab services distribution
- New lab HVAC including rooftop supply and exhaust units.
- Significant electrical device and circuit modifications
- New electrical panels (normal and standby)
- New light fixtures

**Specialty Rooms:** Addition of Constant Temperature rooms (or other specialty areas).

- New independent environmental control/monitoring systems
- Panelized insulated enclosure assemblies and openings
- Cost/sf range reflects number of individual room environments

## INFRASTRUCTURE UPGRADES

**Plumbing upgrade - Industrial/Potable Water:** Only 1 out of 7 existing wet lab zones in the building are currently provided with code required industrial water for lab uses. This scope includes providing a new RPBP station at the incoming water supply main and distributing new piping to each lab zone and separating lab fixtures from domestic fixtures accordingly.

### **Plumbing upgrade - Tempered Water for Emergency Fixtures:**

Emergency fixtures within the building are not currently provided with code required tempered domestic water. Mixing valves will be required at each lab zone and new emergency eyewash fixtures will be required in many locations (Qty:~20). Existing shower locations will be reconnected to the new tempered water distribution.

**Plumbing upgrade - Acid Waste and Neutralization:** Only 2 out of 7 existing lab zones in the building are currently plumbed with separate code required acid waste piping. This scope includes replacing the waste piping serving the second floor labs and one of the ground floor labs with acid resistant lab waste piping. This work includes some ground floor slab modification to connect to the building outflow. The building also does not currently have acid neutralization required by code for wet laboratory environments. This scope includes the addition of a subgrade passive acid neutralization system for the building.

**HVAC Equipment Repair and Upgrades:** Several pieces of HVAC equipment were identified in the due diligence study as in need of some repair or replacement. There is also an acknowledgement that only 2 of the 7 existing wet lab zones have HVAC systems that can provide 100% outside supply air and exhaust (one-pass) at modern wet-lab ventilation rates. In some areas, these shortcomings can be incrementally improved with component replacement and controls upgrades as end of life equipment is replaced.

**Electrical upgrade - Lighting:** Currently the building is served by several different types of fluorescent lighting fixtures. This scope

includes LED replacement of lighting fixtures for an approx. 60,000 sf of program area. This does not include upgrade for unused areas of the building, and areas of major renovation would receive new lighting as part of the program improvement scope captured elsewhere.

**ADA Restroom Upgrade:** The restrooms that currently serve the building are not compliant with ADA requirements. Scope may range from individual restroom stall modification to the addition of new fully compliant multiuser restrooms.

**ADA Site Path Upgrade:** The exterior accessible pathway is in need of sidewalk repair/replacement, including modification of the current ADA parking stalls and ramps.

**EIFS Detailing and Repair:** The EIFS detail over the windows at both levels creates a ledge that appears to retain moisture causing discoloration and deterioration of the cladding system. This construction scope includes repair and replacement of this window head detail at roughly \$65-75 per linear foot.

**Window Repair/Replacement:** Many of the original windows (installed in 1984-85) exhibit a light cloudy film over a high percentage of the pane. The insulated glazing unit seals may be at the end of life allowing moisture to seep into the unit and condense. The replacement of the IGU's within the existing frames is estimated at roughly \$42-45 per square foot.

**Misc. Roof and Parapet Repair:** Removal and replacement of Parapet Cap Flashing and related parapet caulk joints. Roof hatch replacement.

**Door and Hardware Upgrades/Access Control Upgrade:** This scope includes upgrade of the building hardware throughout to meet ADA, OSU construction standards and implement improved security and access control.

**Systems Furniture:** Based on the Cordley program analysis, a budget for procurement and installation of furniture and seating for private offices, open offices and conference rooms has been provided. The upper value accounts for standard quality products with institutional discounting. The lower end of the range excludes all task seating with the assumption that existing task seating will be relocated to the RWLB. All numbers exclude task seating for the laboratories under the assumption that these will be relocated from existing Cordley spaces.

## II. FINAL MASTER STRATEGY DIAGRAM POSTER

During the test fit study a set of diagrams were developed for each proposed concept plan that allowed the team to reconcile the resulting program and cost parameters. The diagrams are shown together in large format for enhanced clarity. The attached Final Master Strategy Diagram Poster is the result of the final planning cycle of the test fit study.

### DIAGRAMS

**Concept Plan:** Concept sketch of program configuration. Intended to guide current and future building renovations.

**Existing RWLB Plans:** Color coded according to program types to match Cordley program document.

**Major Impact Areas:** Highlights areas of significant construction impact likely to be included in the renovation project.

**Proposed Improvements:** Represents final program allocation available with the proposed renovation extent.

**Circulation Improvements:** Highlights specific circulation improvements achieved with the renovation scope.

**Renovation Heat Map:** Allocates renovation types to specific areas of the plan to show the relative proposed renovation cost intensity across the project area.

### PHASE 1 & 2

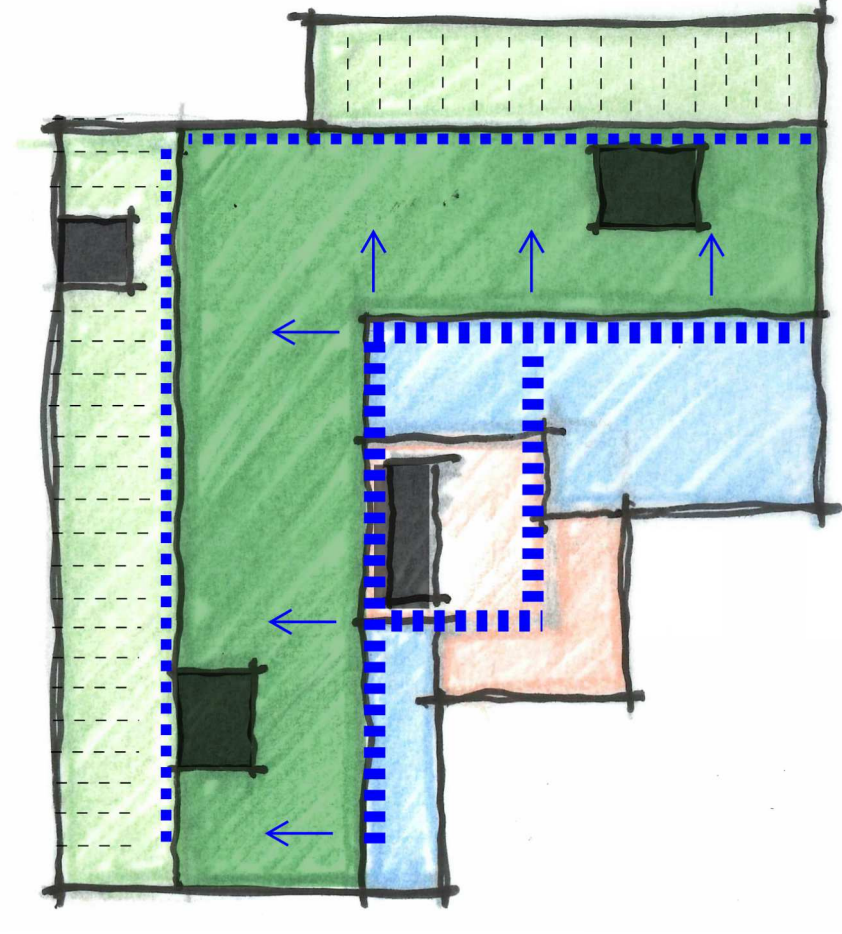
Phase 1 diagrams demonstrate the proposed renovations and program allocations necessary to maximize the program capacity available at the RWLB for use as surge space during the Cordley Hall renovations.

Phase 2 diagrams demonstrate the future implementation of the complete concept plan.



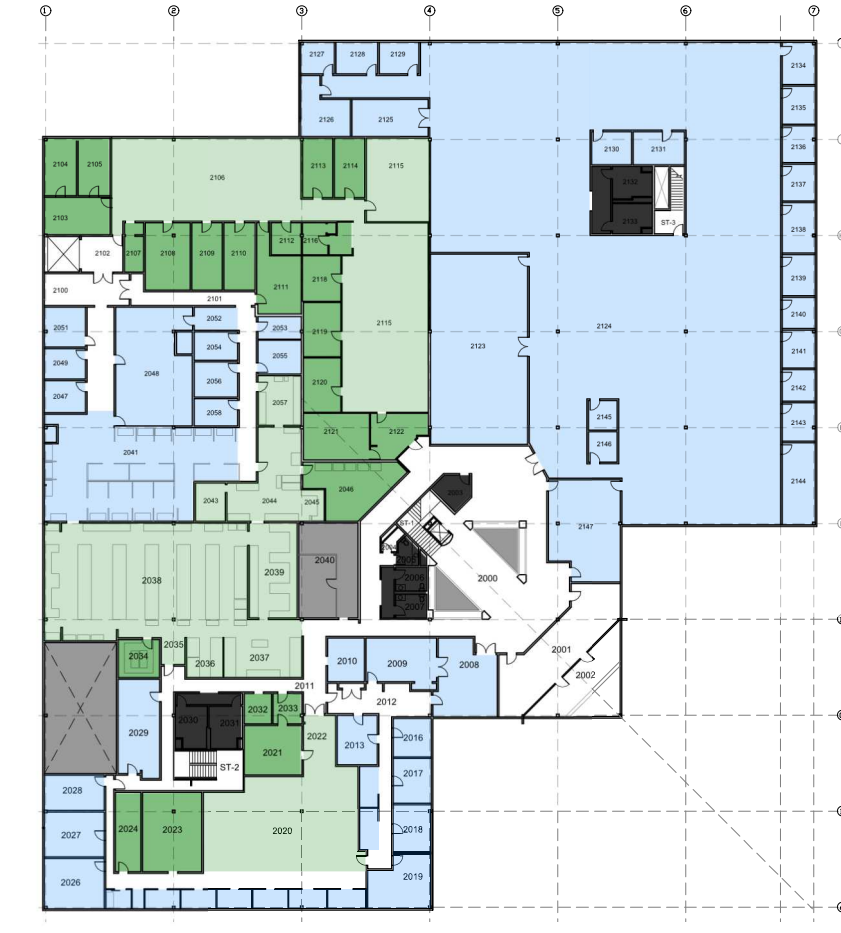
**RWLB Master Plan**  
Option 5 - Phase 1

Master Plan Sketch

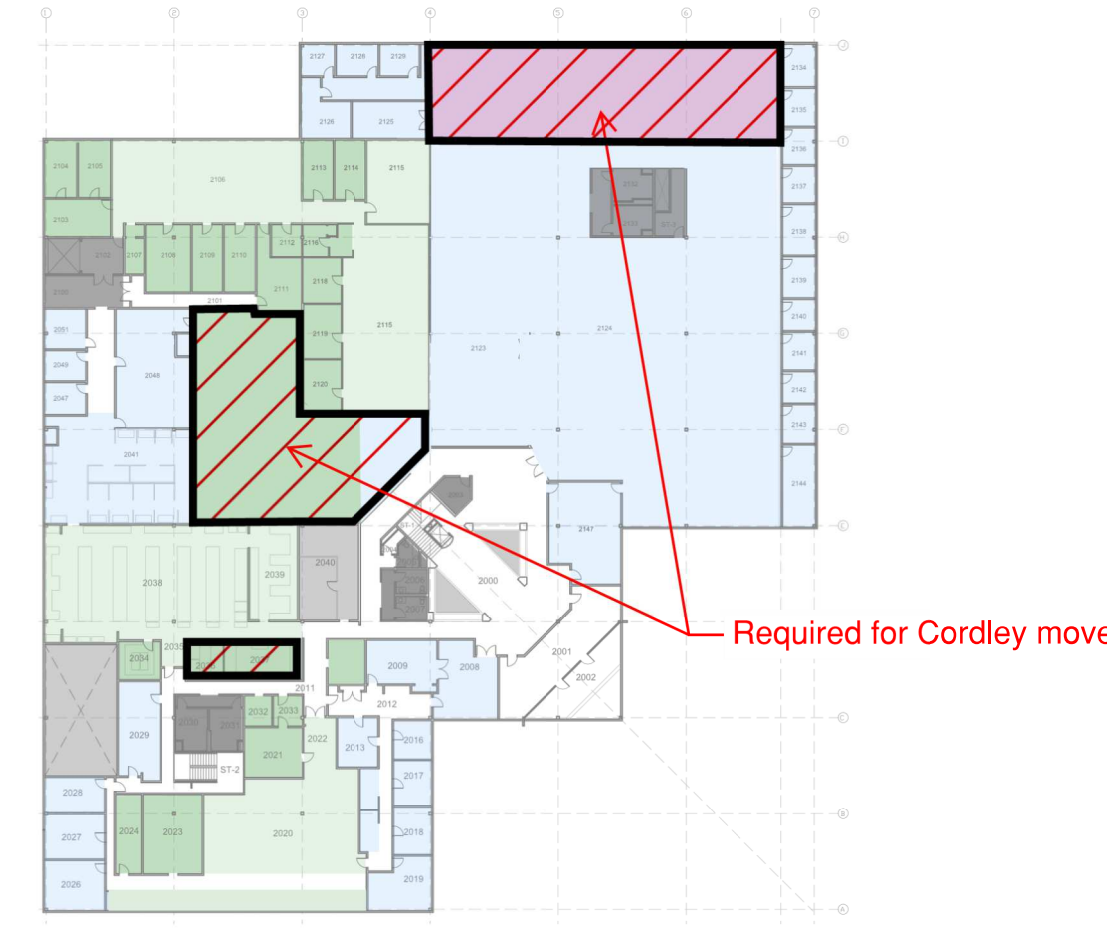


Second Floor

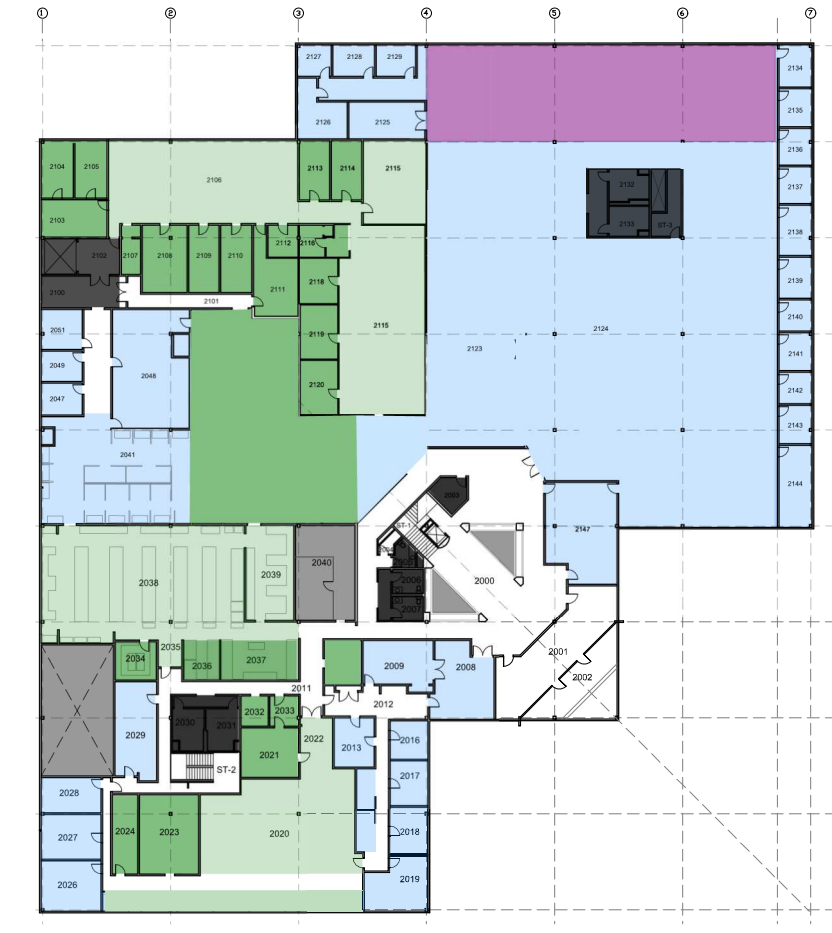
Existing Space Plan



Major Impact Areas



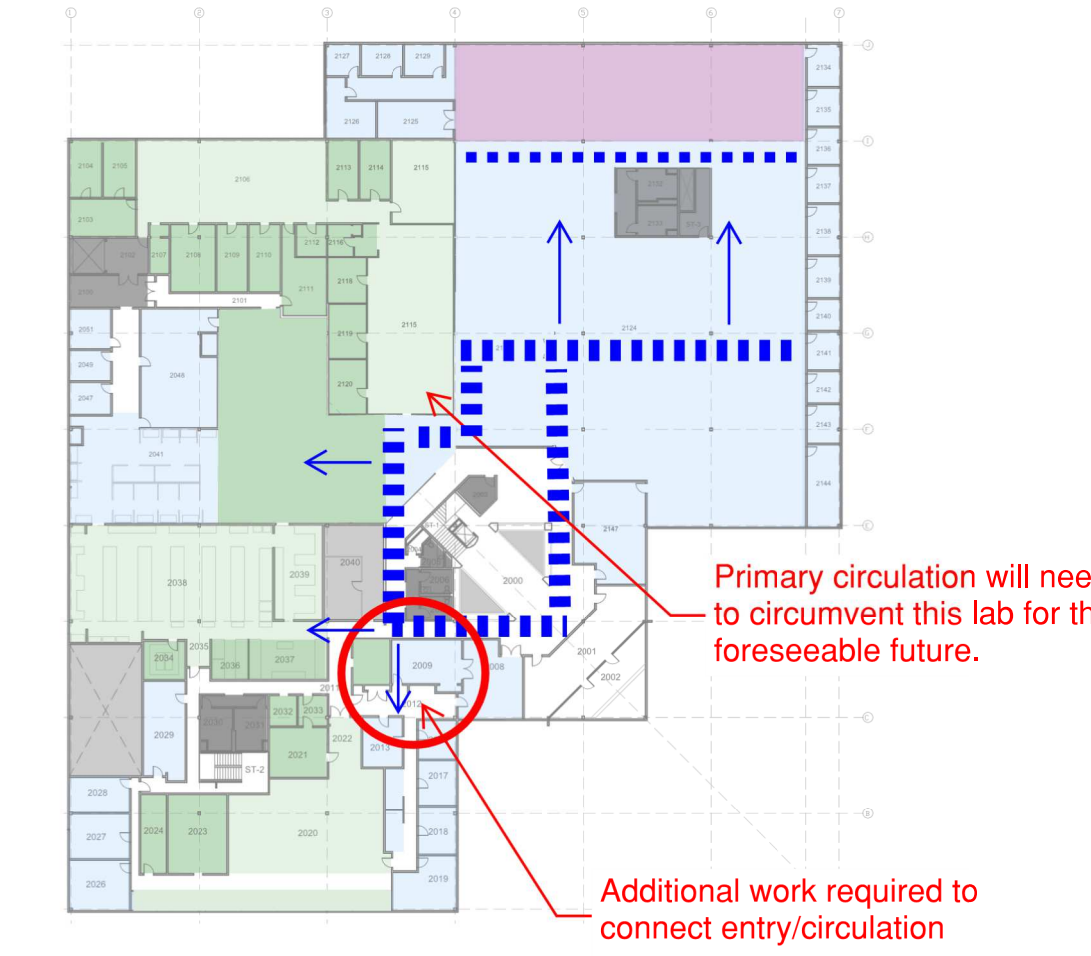
Final Space Plan



- Office 21,710 sf
- Research Lab 8,737 sf
- Research Support 7,059 sf
- Dry Lab Platform 3,285
- Storage/Misc. 548 sf
- Collections 0 sf

Note: new program zones have a 20% circulation factor deducted from the gross take-off area shown (for office and research support areas only).

Circulation Improvements



Primary circulation will need to circumvent this lab for the foreseeable future.

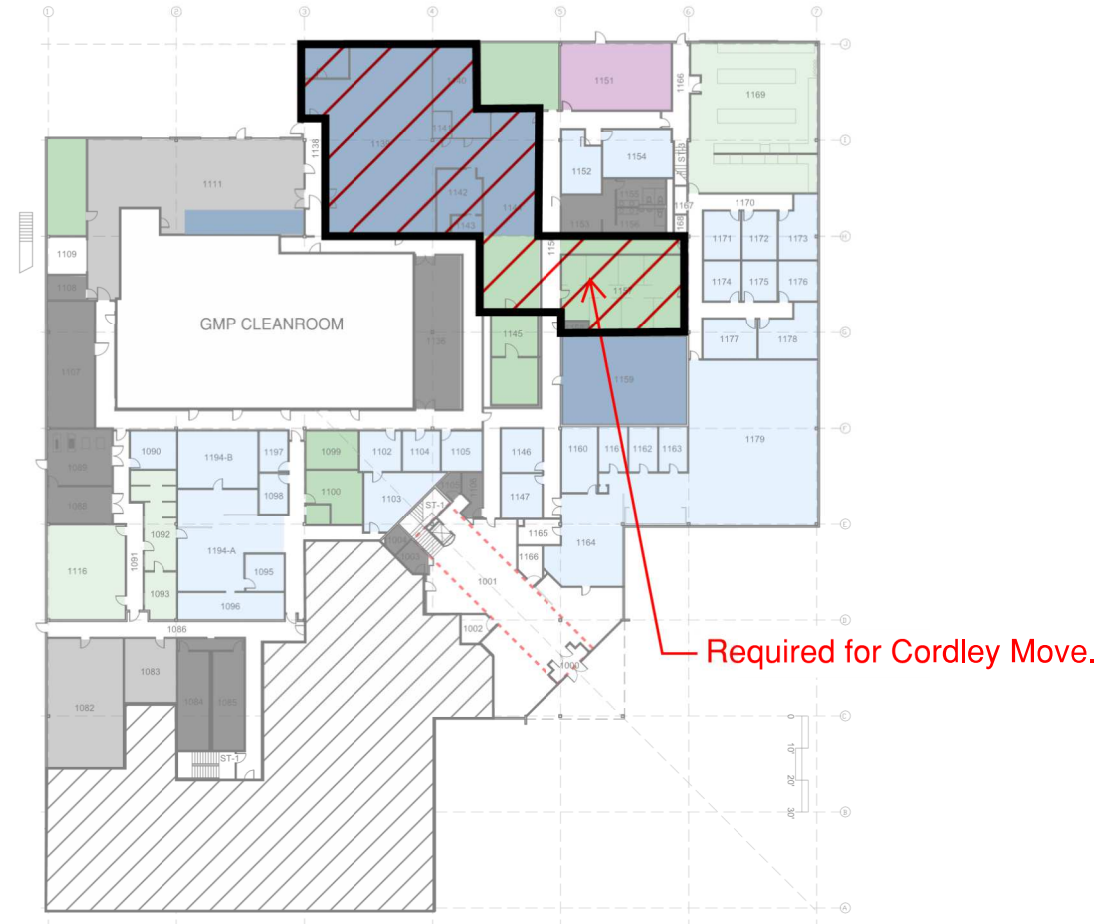
Additional work required to connect entry/circulation

Renovation Cost - Heat Map



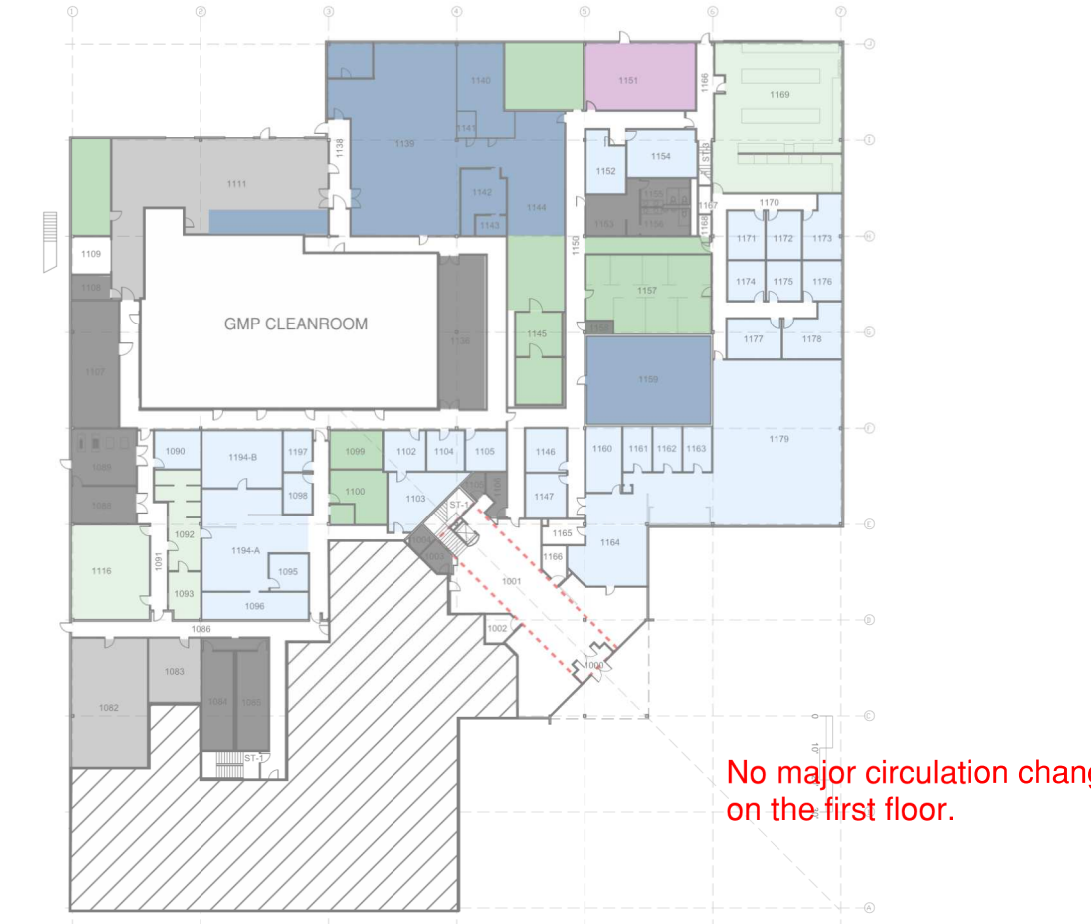
- 1. Light Office
- 2. Temp Collections
- 3. Light Lab
- 4. Moderate Office
- 5.5 Dry Lab Platform
- 6. Heavy Lab
- 7. Specialty

First Floor

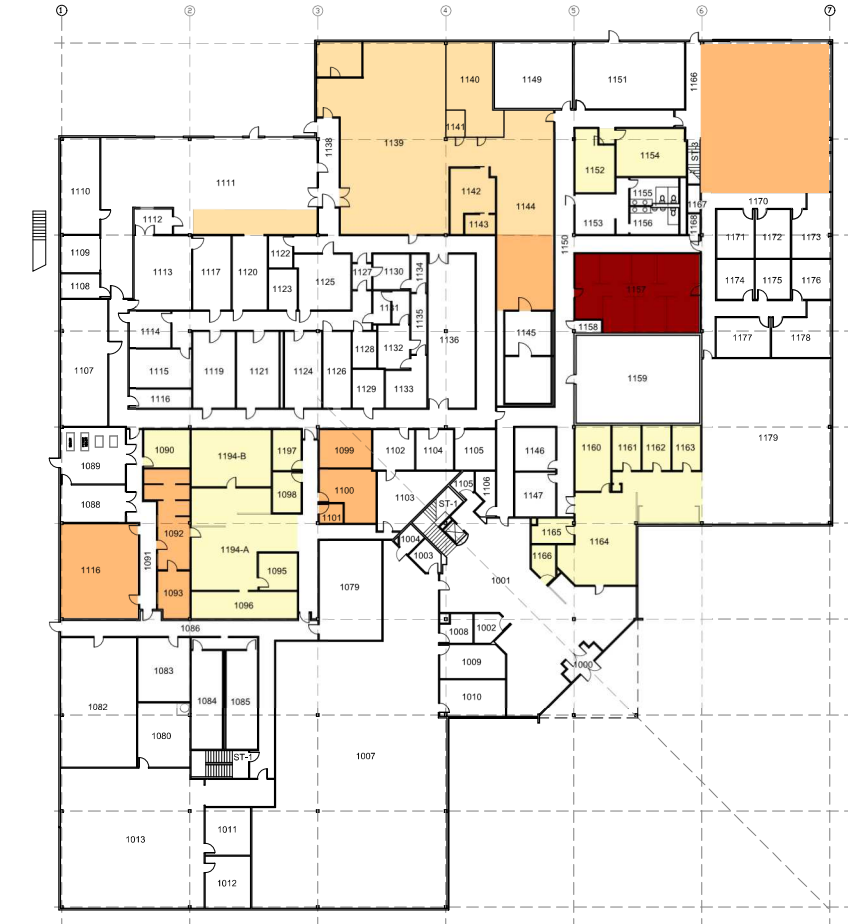


- Office 9,229 sf
- Research Lab\* 3,102 sf
- Research Support\* 3,230 sf
- Dry Lab Platform 728 sf
- Storage/Misc. 3,154 sf
- Collections 5,161 sf

\*does not include cleanroom  
Note: new program zones have a 20% circulation factor deducted from the gross take-off area shown (for office and research support areas only).



No major circulation changes on the first floor.

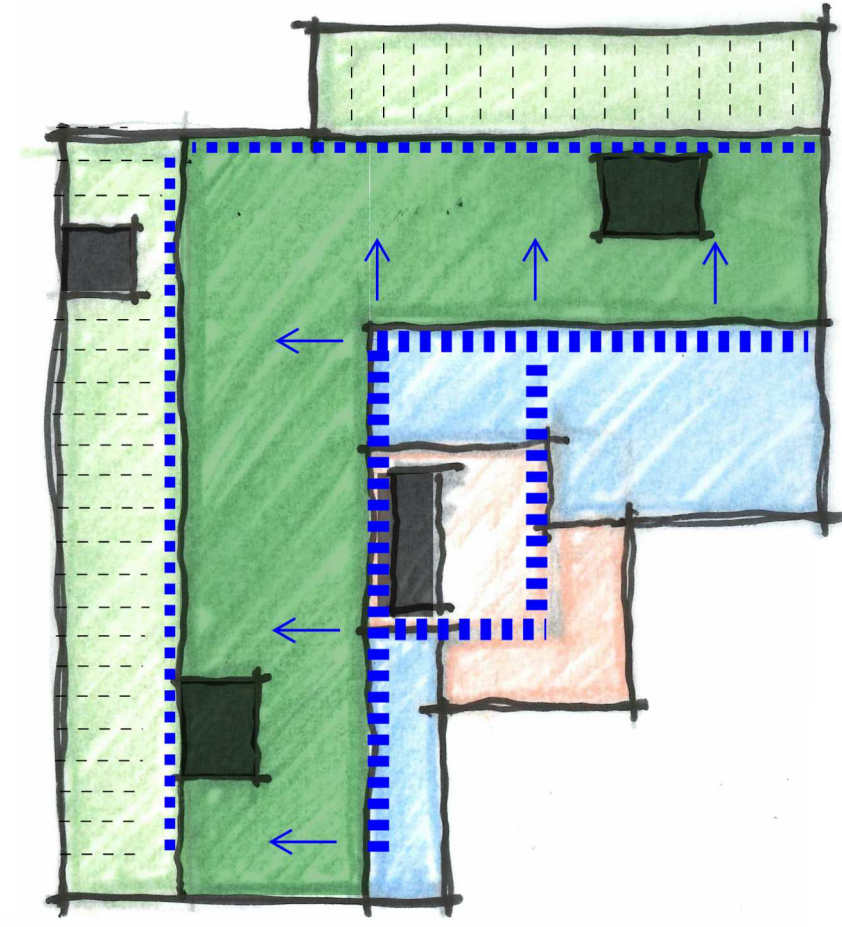


- 1. Light Office
- 2. Temp Collections
- 3. Light Lab
- 4. Moderate Office
- 5. Moderate Lab
- 5.5 Dry Lab Platform
- 6. Heavy Lab
- 7. Specialty

Proposed Assignable Area	Research	Res. Support	Field/Misc.	Collections	Offices	Dry Lab	Subtotals
Flr 1	3,102	3,230	3,154	5,161	9,229	3,285	27,161
Flr 2	8,737	7,059	548	0	21,710	728	38,782
<b>total</b>	<b>11,839</b>	<b>10,289</b>	<b>3,702</b>	<b>5,161</b>	<b>30,939</b>	<b>4,013</b>	<b>65,943</b>
Program area deficit/surplus	(4,936)	(6,998)	1,954	409	16,877	4,013	

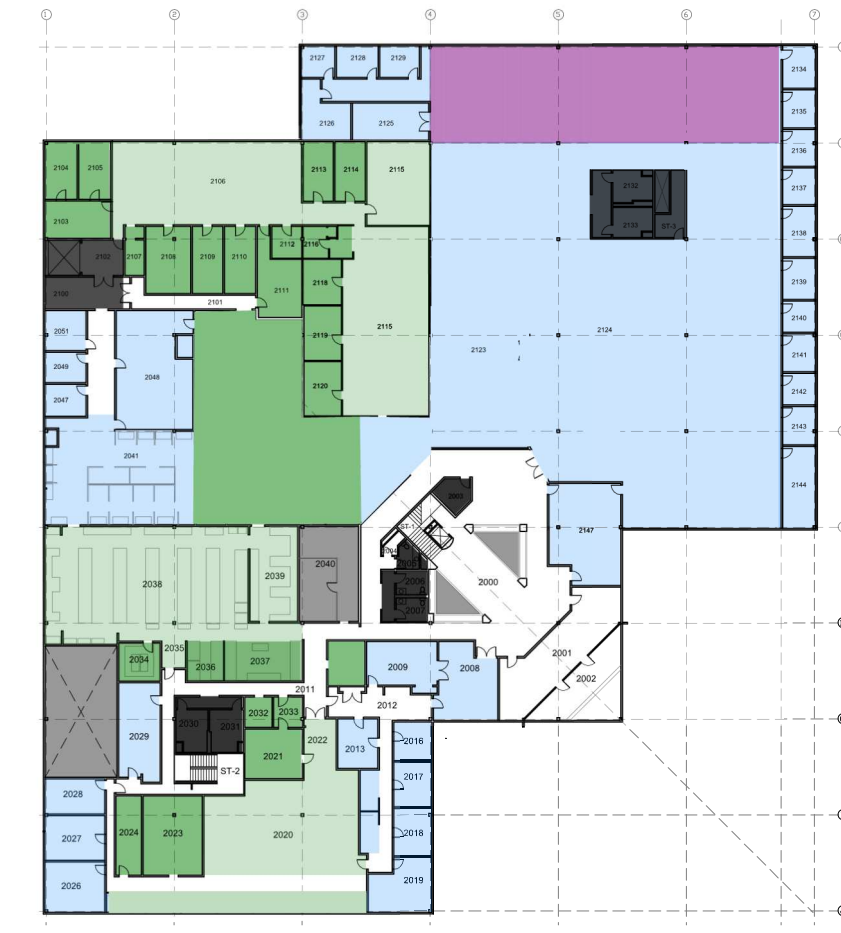
**RWLB Master Plan**  
Option 5 - Phase 2 - Full build-out of Flr 2

Master Plan Sketch

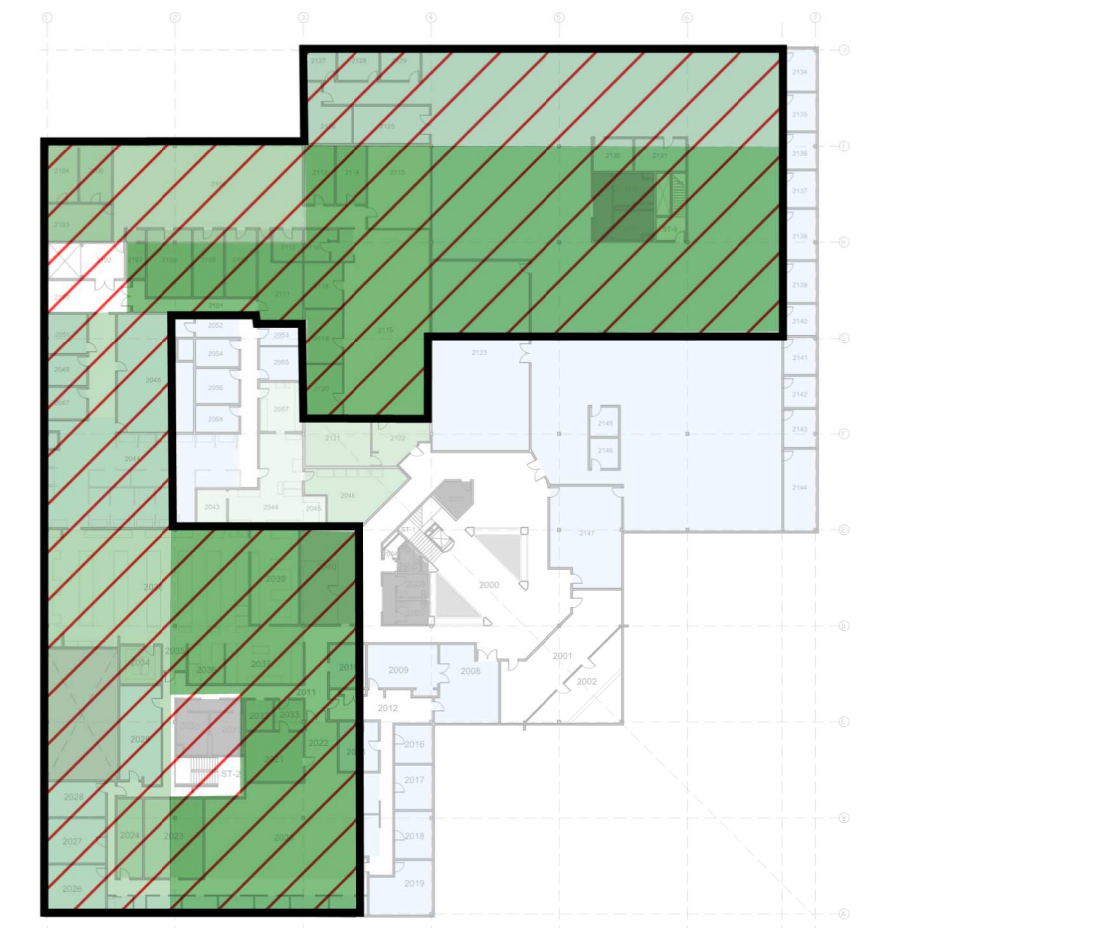


Second Floor

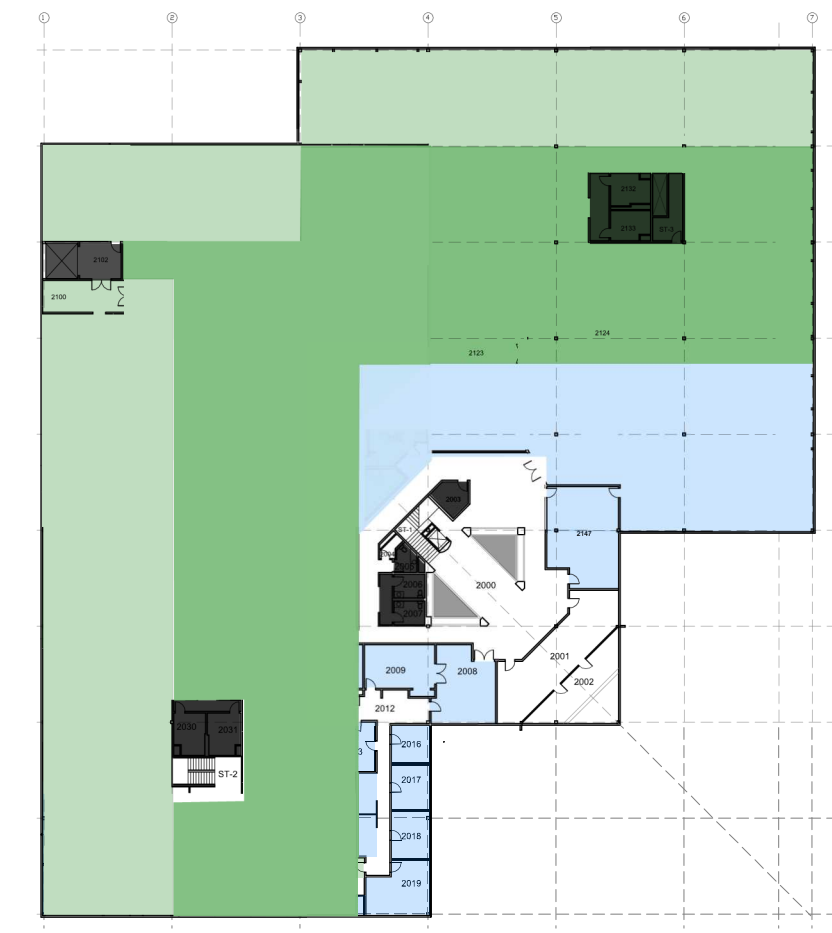
Existing Space Plan



Major Impact Areas

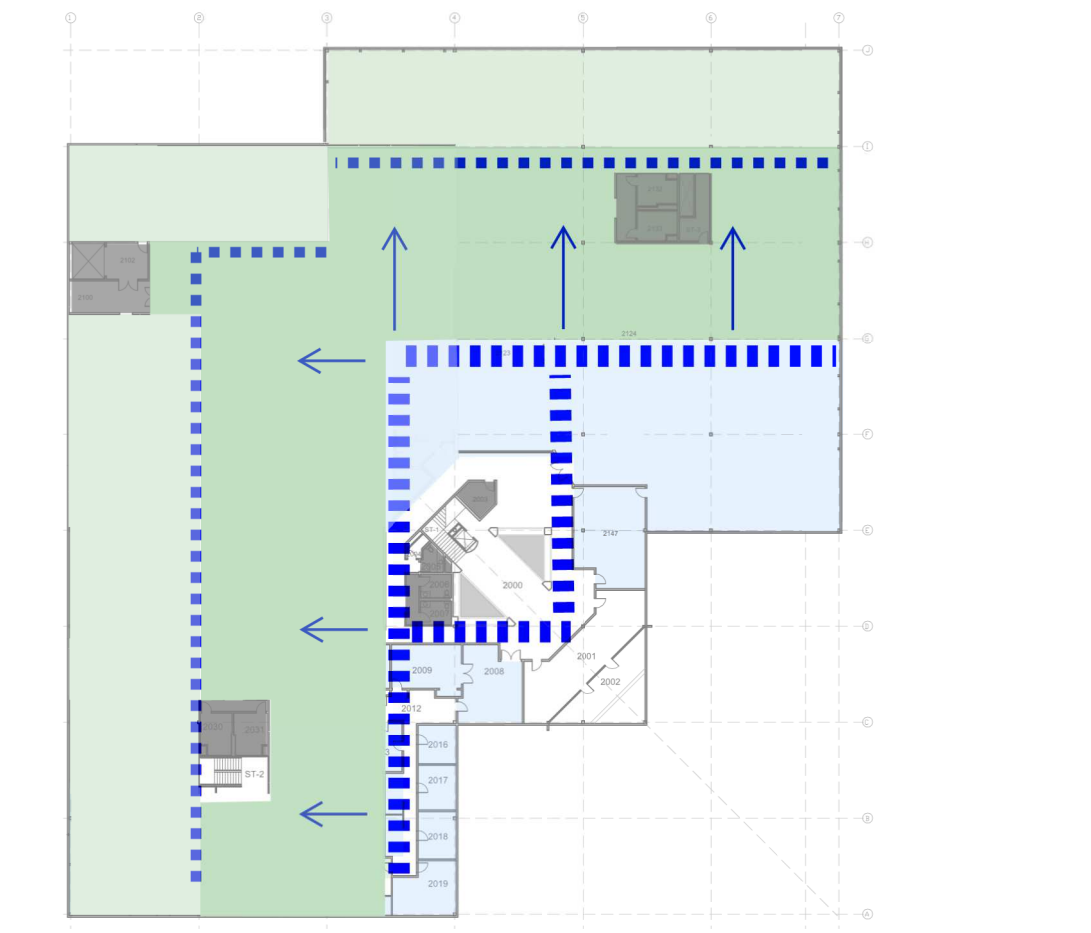


Final Space Plan



- Office 8,385 sf
- Research Lab 15,318 sf
- Research Support 17,609 sf
- Storage/Misc. 0 sf
- Collections 0 sf

Circulation Improvements

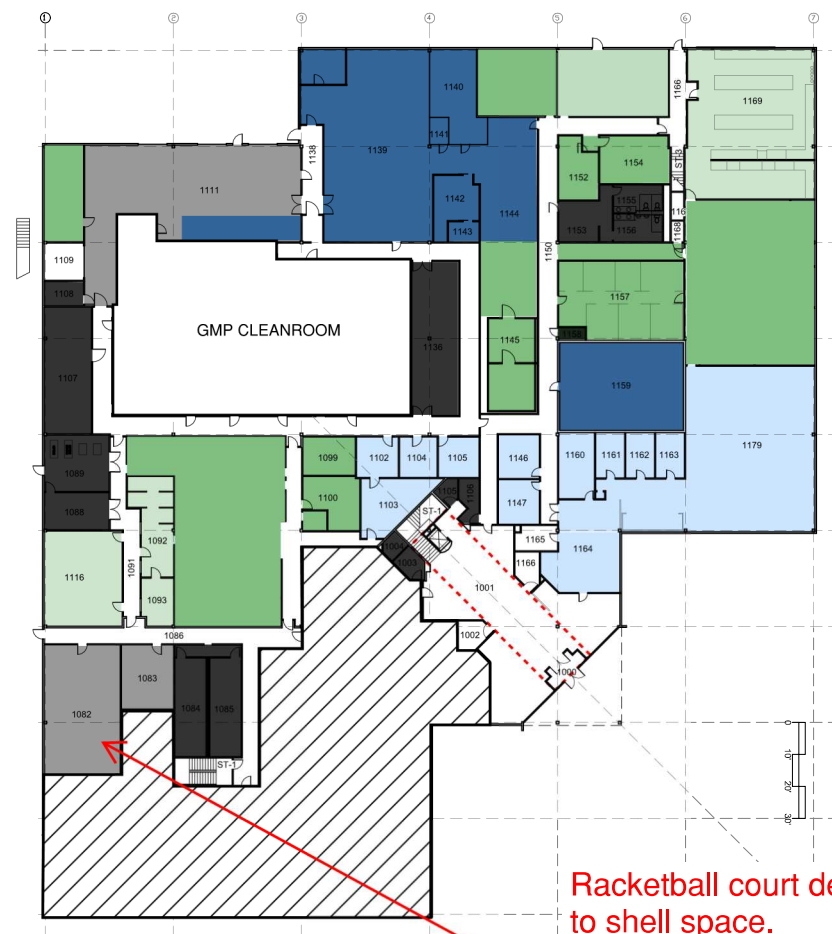
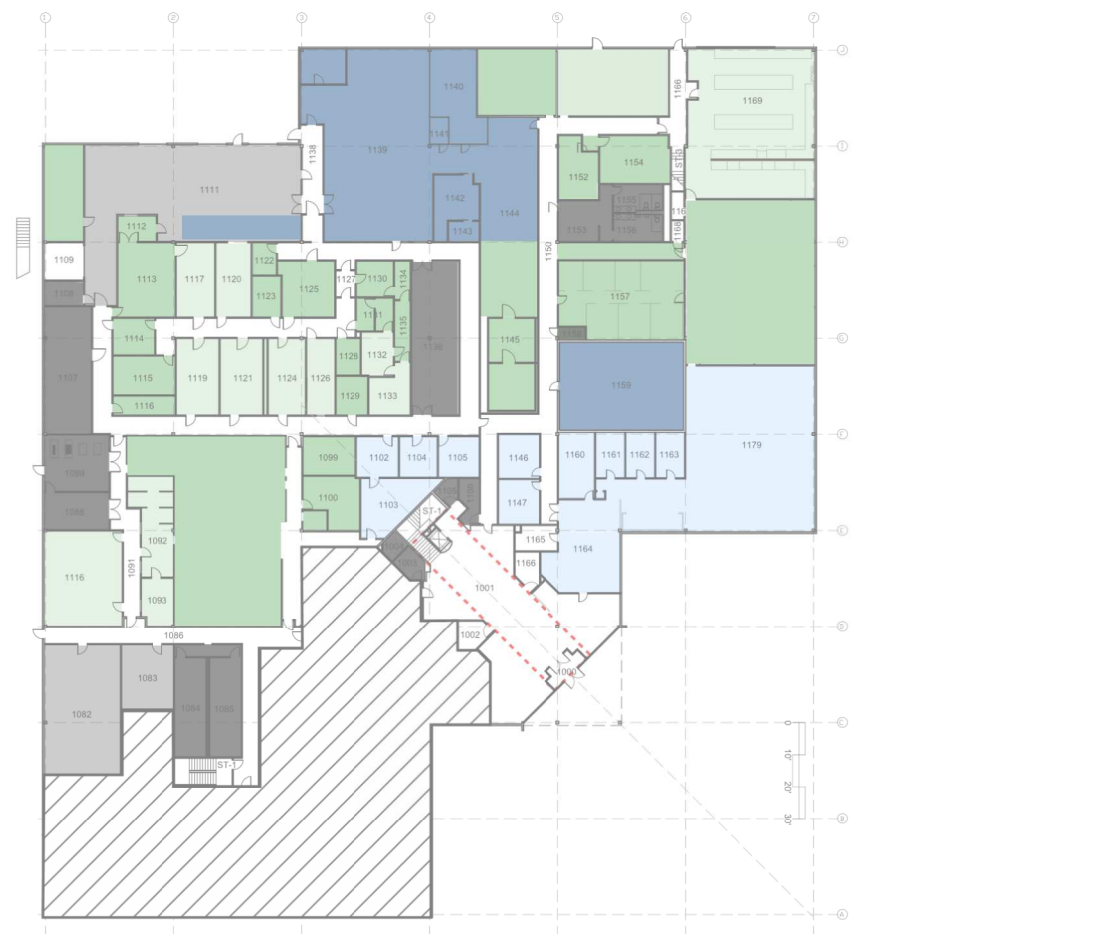


Renovation Cost - Heat Map



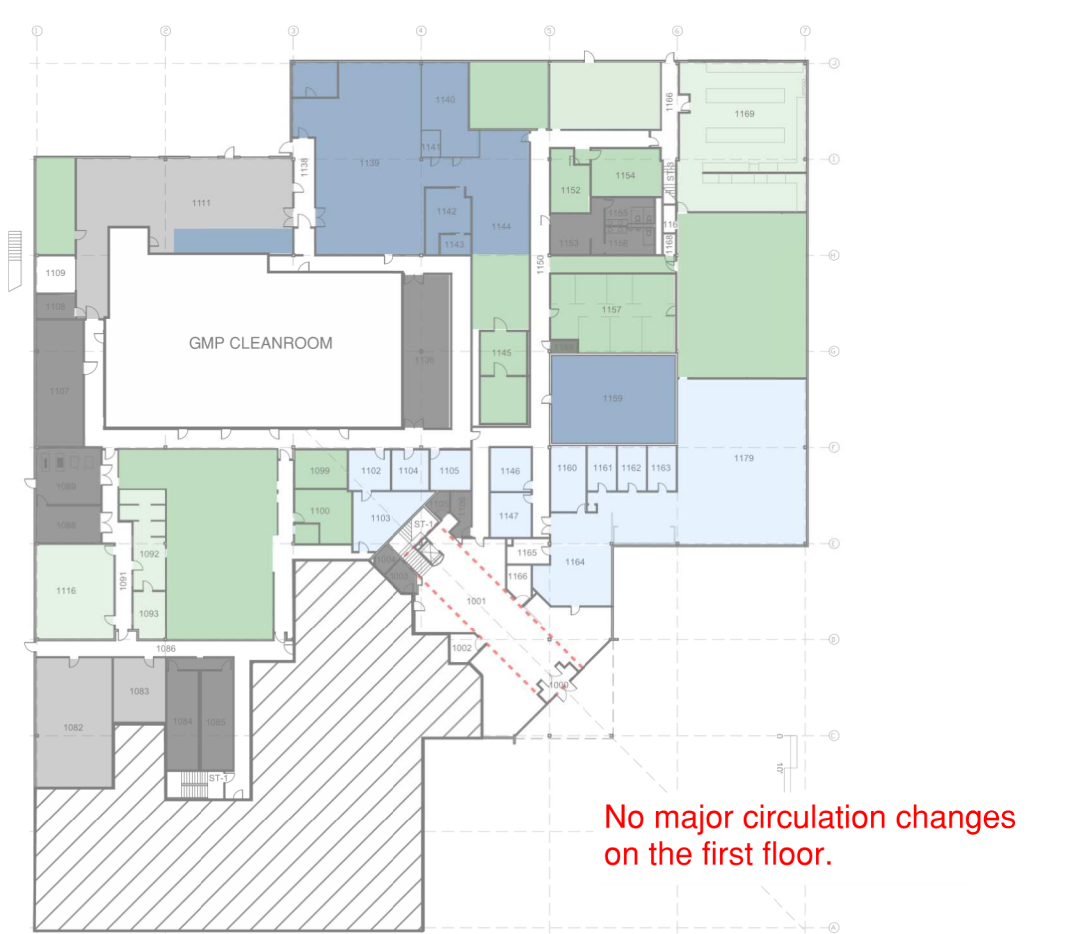
- 1. Light Office
- 2. Temp Collections
- 3. Light Lab
- 4. Moderate Office
- 5. Moderate Lab
- 6. Heavy Lab
- 7. Specialty

First Floor

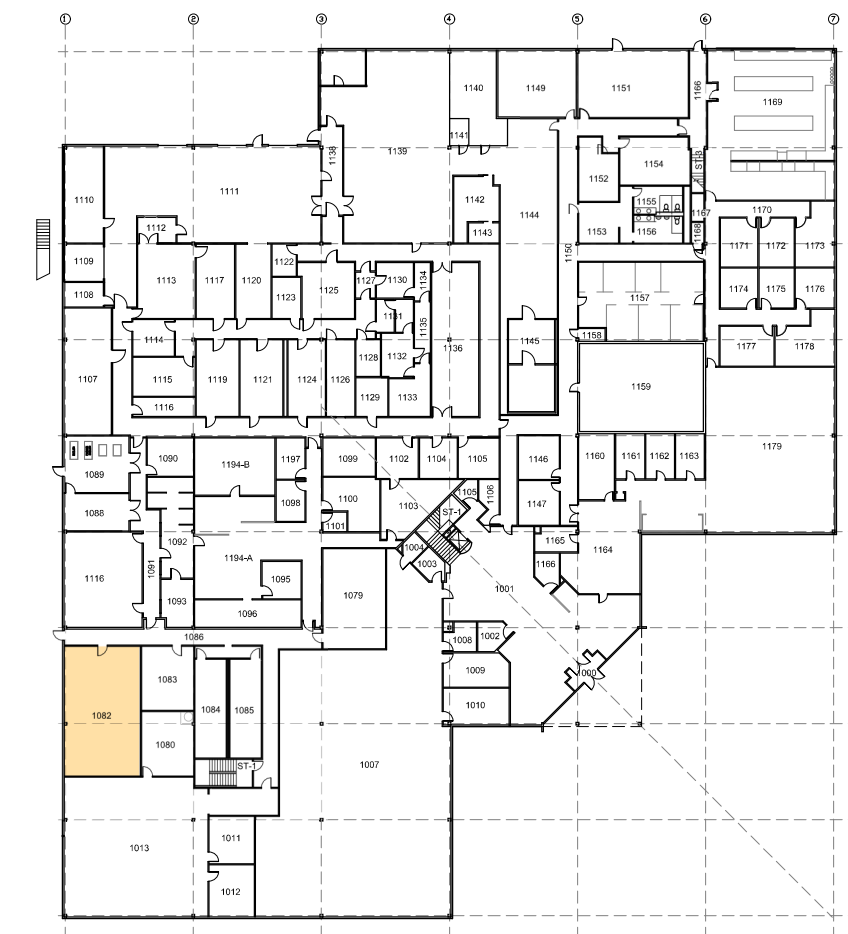


- Office 4,116 sf
- Research Lab\* 3,830 sf
- Research Support\* 7,067 sf
- Storage/Misc. 3,154 sf
- Collections 5,161 sf

\*does not include cleanroom



No major circulation changes on the first floor.



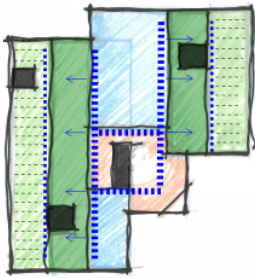
- 1. Light Office
- 2. Temp Collections
- 3. Light Lab
- 4. Moderate Office
- 5. Moderate Lab
- 6. Heavy Lab
- 7. Specialty



### III. PREVIOUS CONCEPT CYCLES

#### PLANNING PROCESS

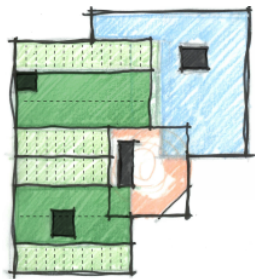
Several rounds of review with OSU refined these concept plans and a final concept was developed that addresses future build-out clarity, as well as initial circulation, connectivity and adjacency improvements. The following is a summary of the previous concepts explored.



Option 1 - Program Bars

#### OPTION 1 - PROGRAM BARS

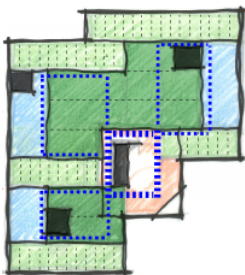
This scheme organizes the lab, lab support and office areas of the program into long bars that provide maximum flexibility in how they are divided into research groups. The labs are placed along a perimeter for access to daylight. The office space is centralized for flexibility and to enhance connection with main circulation and common collaborative space. The rigid order of the scheme maximizes the modularity within each zone which increases long-term flexibility.



Option 2 - Program Wings

#### OPTION 2 - PROGRAM WINGS

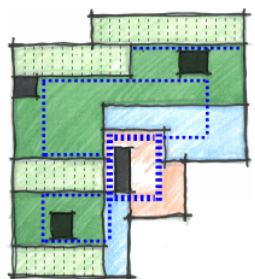
This scheme maximizes the reuse of existing programmatic zoning of the second floor. It dedicates the existing large office area on the second floor to new office use. To satisfy the lab requirements of the targeted program, extensive revision is necessary to the ground floor spaces, including adaptation of the SIGA tenant area. Because of the tenant impact this option was eliminated early in the the review process.



Option 3 - Neighborhoods

#### OPTION 3 - NEIGHBORHOODS

This scheme attempts to establish a order that integrates much of the existing second floor laboratory layout into the final order of building. It clusters these laboratory zones with support space and office space in several research “neighborhoods”. These neighborhoods have the advantage of being able to foster closer interaction between users within an individual neighborhood, but the scheme lacks strong connectivity between separate neighborhoods. Also the ability to expand or compress a neighborhood to accommodate changes in departmental needs is limited.



Option 4 - Neighborhoods 2

#### OPTION 4 - NEIGHBORHOODS 2

This scheme was developed to provide a more direct relationship between the office areas and the central vertical circulation. It enhances the possibility of integrating central collaboration space into the layout of the building without sacrificing the efficiency of modular lab layouts. Fundamental to this scheme, however, is the assumption that the basic configuration of the existing laboratories is not revised over time.



## **IV. COMPLETE FIT ANALYSIS**

Prior to project budget confirmation, a diagrammatic assessment was performed to analyze a complete fit of the entire target program capacity and determine the likely associated renovation cost. The methodology described in the test study report was used to estimate the extent of program improvements and additional construction costs. Since a cost/benefit assessment was understood to be possible for additional improvements beyond the target program capacity, the full implementation of the concept plan was also included.

Two budgeting scenarios were explored. The first includes an initial phase of construction to meet the target program capacity and a second phase to implement the remainder of the concept plan with a significant time gap between the phases. The second scenario combines the two phases into a single construction project.

Budget analysis and master strategy diagrams for the complete fit of the target program capacity are attached for reference.

# BUDGET ANALYSIS

## Option 5 - Implement Partial Master Plan

### Program Improvements

#### Renovation Type

- 1 Light Office Remodel
- 2 Storage w/ HVAC (Temp Collections)
- 3 Light Lab Remodel
- 4 Moderate Office Remodel
- 5 Moderate Lab Renovation
- 6 Heavy Lab Renovation
- 7 Specialty Rooms (CT rooms/Coolers)

\$/SF	
Low	High
16	31
15	43
44	85
54	88
100	169
350	500
250	350
subtotals	
TI \$/sf	

Option 5 (Phase 1a)			
Area (sf)	Low	Ave.	High
10,178	\$165,393	\$241,728	\$318,063
4,088	\$61,320	\$117,530	\$173,740
3,654	\$160,776	\$236,254	\$311,732
7,876	\$423,335	\$556,243	\$689,150
2,941	\$292,997	\$395,105	\$497,213
15,629	\$5,470,150	\$6,642,325	\$7,814,500
2,608	\$652,000	\$782,400	\$912,800
46,974	\$7,225,971	\$8,971,584	\$10,717,197
subtotals			
TI \$/sf			

Option 5 (Phase 1b)			
Area (sf)	Low	Ave.	High
1,201	\$19,516	\$28,524	\$37,531
0	\$0	\$0	\$0
13,145	\$578,380	\$849,906	\$1,121,433
3,478	\$186,943	\$245,634	\$304,325
627	\$62,465	\$84,234	\$106,002
0	\$0	\$0	\$0
0	\$0	\$0	\$0
18,451	\$847,304	\$1,208,297	\$1,569,291
subtotals			
TI \$/sf			

Option 5 (Phase 2 - 2nd Flr Lab Upgrade)			
Area (sf)	Low	Ave.	High
0	\$0	\$0	\$0
0	\$0	\$0	\$0
0	\$0	\$0	\$0
0	\$0	\$0	\$0
3,363	\$335,039	\$451,798	\$568,557
17,541	\$6,139,350	\$7,454,925	\$8,770,500
0	\$0	\$0	\$0
20,904	\$6,474,389	\$7,906,723	\$9,339,057
subtotals			
TI \$/sf			

Option 5 - Phase 2 shown below as future project

Option 5 (Phase 1 - Combined)			
Area (sf)	Low	Ave.	High
46,974	\$7,225,971	\$8,971,584	\$10,717,197
18,451	\$847,304	\$1,208,297	\$1,569,291
65,425	\$8,073,274	\$10,179,881	\$12,286,488
subtotals			
TI \$/sf			

### Additional Project Costs

#### Infrastructure Upgrades/Deferred Maintenance

- a. Plumb - Industrial/Potable Water Split Code Req'd
- b. Plumb - Tempered Water/E-fixtures Code Req'd
- c. Plumb - Lab Waste Split/Neutralization Code Req'd
- d. HVAC - Equipment upgrade
- e. Elect - Lighting upgrade - LEDs
- f. ADA restroom upgrades Code Req'd
- g. ADA path upgrades Code Req'd
- h. EIFS Detailing/Repair
- i. Window replacment
- j. Misc. Roof and Parapet repair
- k. Door and Hardware upgrades/Security
- l. Systems Furniture

Additional Costs			
Low	Ave.	High	Targeted
\$213,600	\$240,300	\$267,000	\$267,000
\$338,400	\$380,700	\$423,000	\$423,000
\$186,000	\$209,250	\$232,500	\$232,500
\$591,000	\$664,875	\$738,750	\$664,875
\$540,000	\$607,500	\$675,000	
\$42,000	\$171,000	\$300,000	\$300,000
\$84,000	\$102,000	\$120,000	\$120,000
\$95,000	\$100,000	\$105,000	
\$300,000	\$315,000	\$330,000	
\$105,000	\$107,500	\$110,000	
\$405,000	\$577,500	\$750,000	\$405,000
\$450,000	\$625,000	\$800,000	
\$2,900,000	\$3,475,625	\$4,051,250	\$2,412,375

Mid point used to reflect likely VE options  
 Excluded from budget totals - upgrade not likely  
 Excluded from budget totals  
 Excluded from budget totals  
 Excluded from budget totals  
 Low end used to reflect lower count of access points  
 Will be captured in Owner's costs

### Total Direct Construction

- Option 5 (Phase 1a and 1b Combined) - from above
- Additional Project Costs - Targeted
- Pre-Design Estimating Contingency

15%  
subtotals  
total \$/sf

Low	Ave.	High
\$8,073,274	\$10,179,881	\$12,286,488
\$2,412,375	\$2,412,375	\$2,412,375
\$1,572,847	\$1,888,838	\$2,204,830
\$12,058,497	\$14,481,095	\$16,903,693
\$184	\$221	\$258

Escalation/mo 12 mos 0.625%

\$904,387	\$1,086,082	\$1,267,777
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### Total Direct Construction Budget Estimate

Partial Build-out of 2nd Floor

total \$/sf

Low	Mid	High
\$12,962,884	\$15,567,177	\$18,171,470
\$198	\$238	\$278

### Add for Future 2nd Floor Lab Upgrade

~8 yrs out

Low	Ave.	High
\$6,474,389	\$7,906,723	\$9,339,057
\$971,158	\$1,186,008	\$1,400,859
\$7,445,547	\$9,092,731	\$10,739,916
\$356.18	\$434.98	\$513.77

\$4,467,328 \$5,455,639 \$6,443,949 Escal. - 8 yrs

Low	Mid	High
\$11,912,876	\$14,548,370	\$17,183,865
\$569.88	\$695.96	\$822.04

# BUDGET ANALYSIS

## Option 5 - Implement Full Master Plan

### Program Improvements

#### Renovation Type

- 1 Light Office Remodel
- 2 Storage w/ HVAC (Temp Collections)
- 3 Light Lab Remodel
- 4 Moderate Office Remodel
- 5 Moderate Lab Renovation
- 6 Heavy Lab Renovation
- 7 Specialty Rooms (CT rooms/Coolers)

	\$/SF		Option 5 (Phase 1a)				Option 5 (Phase 2 - 2nd Flr Lab Upgrade)			
	Low	High	Area (gsf)	Low	Ave.	High	Area (gsf)	Low	Ave.	High
1	16	31	10,178	\$165,393	\$241,728	\$318,063	0	\$0	\$0	\$0
2	15	43	4,088	\$61,320	\$117,530	\$173,740	0	\$0	\$0	\$0
3	44	85	3,654	\$160,776	\$236,254	\$311,732	0	\$0	\$0	\$0
4	54	88	7,876	\$423,335	\$556,243	\$689,150	0	\$0	\$0	\$0
5	100	169	2,941	\$292,997	\$395,105	\$497,213	3,363	\$335,039	\$451,798	\$568,557
6	350	500	15,629	\$5,470,150	\$6,642,325	\$7,814,500	17,541	\$6,139,350	\$7,454,925	\$8,770,500
7	250	350	2,608	\$652,000	\$782,400	\$912,800	0	\$0	\$0	\$0
subtotals			46,974	\$7,225,971	\$8,971,584	\$10,717,197	20,904	\$6,474,389	\$7,906,723	\$9,339,057
TI \$/sf				\$153.83	\$190.99	\$228.15		\$309.72	\$378.24	\$446.76

	Option 5 (Full Build-out of 2nd Floor)			
	Area (gsf)	Low	Ave.	High
Phase 1a from above	46,974	\$7,225,971	\$8,971,584	\$10,717,197
Phase 2 from above	20,904	\$6,474,389	\$7,906,723	\$9,339,057
subtotals	67,878	\$13,700,360	\$16,878,307	\$20,056,254
TI \$/sf		\$202	\$249	\$295

### Additional Project Costs

#### Infrastructure Upgrades/Deferred Maintenance

	Low	Ave.	High	Targeted	
a. Plumb - Industrial/Potable Water Split	\$213,600	\$240,300	\$267,000	\$213,600	Low end targeted - cost is not entirely capture in \$/sf
b. Plumb - Tempered Water/E-fixtures	\$338,400	\$380,700	\$423,000	\$338,400	Low end targeted - cost is not entirely capture in \$/sf
c. Plumb - Lab Waste Split/Neutralization	\$186,000	\$209,250	\$232,500	\$186,000	Low end targeted - cost is not entirely capture in \$/sf
d. HVAC - Equipment upgrade	\$591,000	\$664,875	\$738,750		Excluded - captured in new lab costs
e. Elect - Lighting upgrade - LEDs	\$540,000	\$607,500	\$675,000		Excluded from budget totals - upgrade not likely
f. ADA restroom upgrades	\$42,000	\$171,000	\$300,000	\$300,000	
g. ADA path upgrades	\$84,000	\$102,000	\$120,000	\$120,000	
h. EIFS Detailing/Repair	\$95,000	\$100,000	\$105,000		Excluded from budget totals
i. Window replacment	\$300,000	\$315,000	\$330,000		Excluded from budget totals
j. Misc. Roof and Parapet repair	\$105,000	\$107,500	\$110,000		Excluded from budget totals
k. Door and Hardware upgrades/Security	\$405,000	\$577,500	\$750,000	\$405,000	Low end targeted to reflect lower count of access points
l. Systems Furniture	\$450,000	\$625,000	\$800,000		Will be captured in Owner's costs
subtotals	\$2,900,000	\$3,475,625	\$4,051,250	\$1,563,000	

### Total Direct Construction

	Low	Ave.	High
Option 5 (Phase 1a and 1b Combined) - from above	\$13,700,360	\$16,878,307	\$20,056,254
Additional Project Costs - Targeted	\$1,563,000	\$1,563,000	\$1,563,000
Pre-Design Estimating Contingency	\$2,289,504	\$2,766,196	\$3,242,888
subtotals	\$17,552,863	\$21,207,503	\$24,862,143
total \$/sf	\$259	\$312	\$366

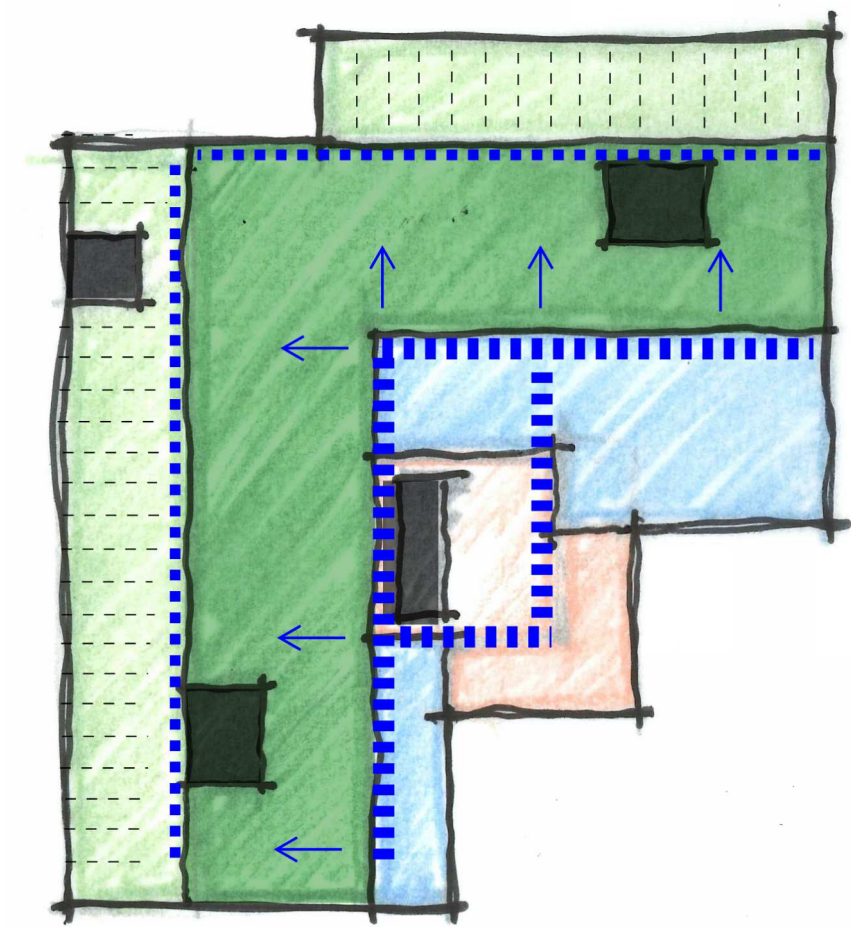
Escalation/mo	12 mos	0.625%	\$1,316,465	\$1,590,563	\$1,864,661
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### Total Direct Construction Budget Estimate

	Low	Mid	High
Partial Build-out of 2nd Floor	\$18,869,328	\$22,798,066	\$26,726,803
total \$/sf	\$278	\$336	\$394

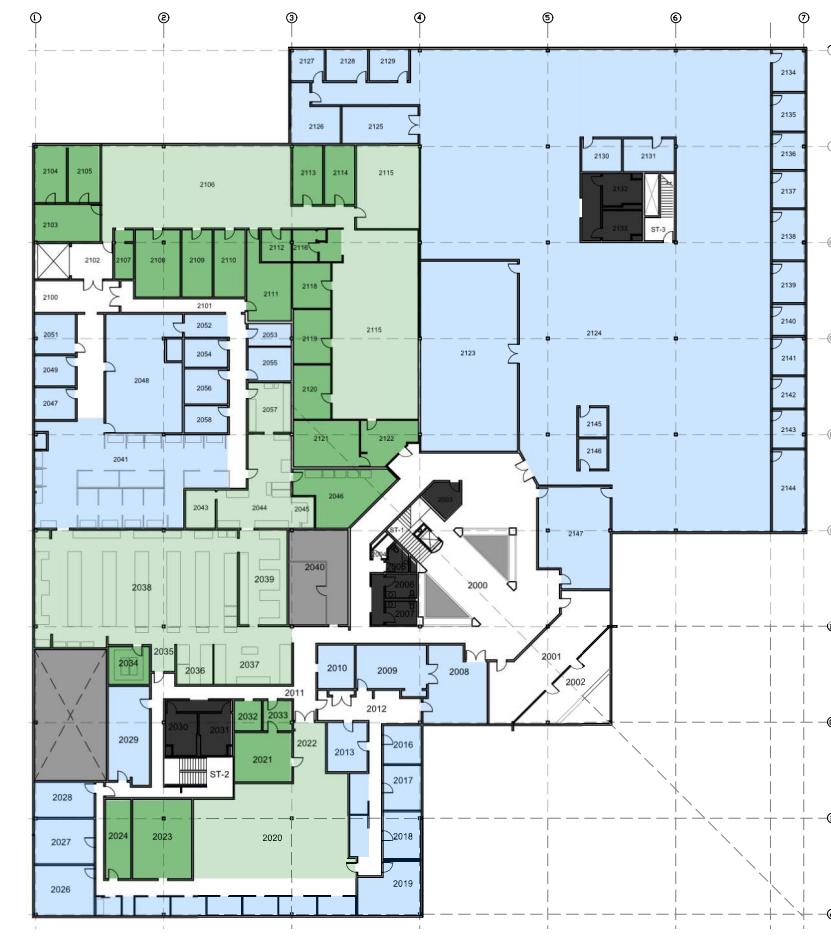


**RWLB Master Plan**  
Option 5 - Phase 1a and 1b

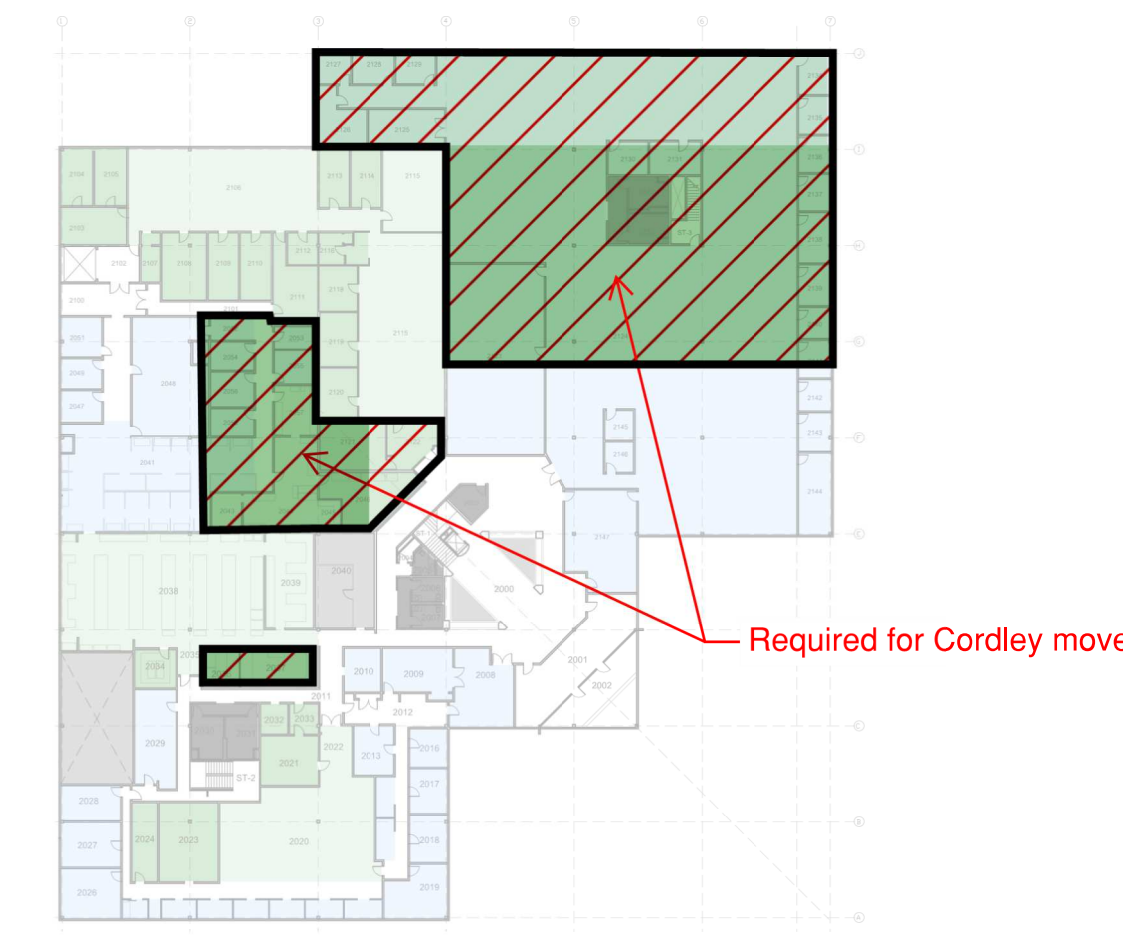


Second Floor

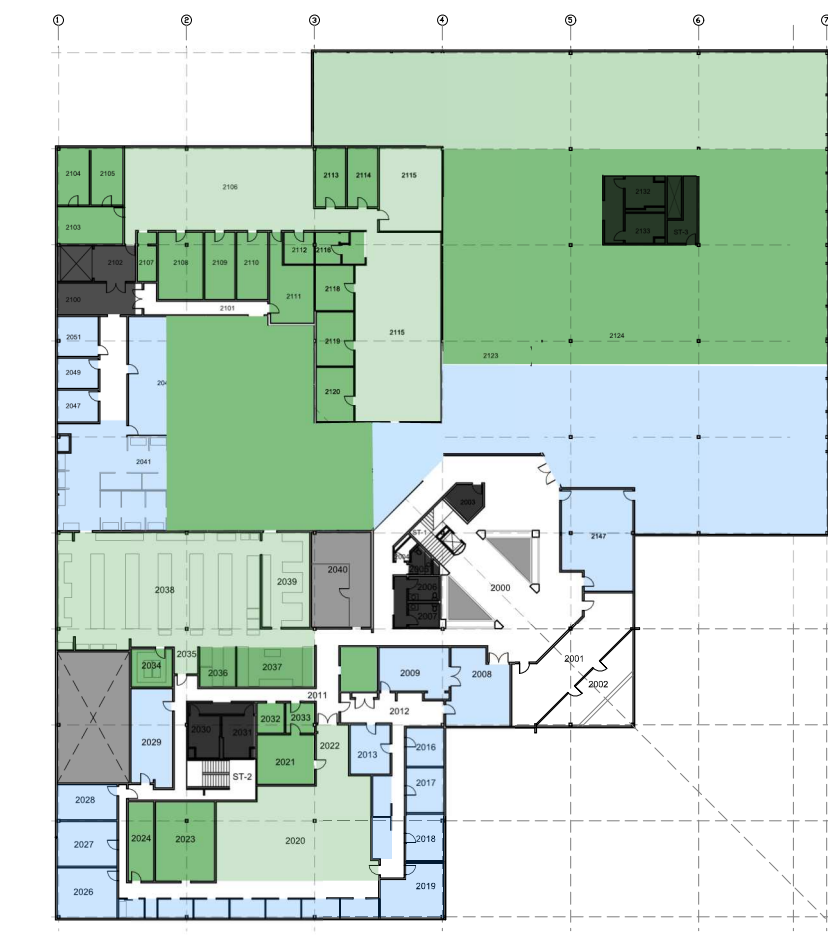
Existing Space Plan



Major Impact Areas



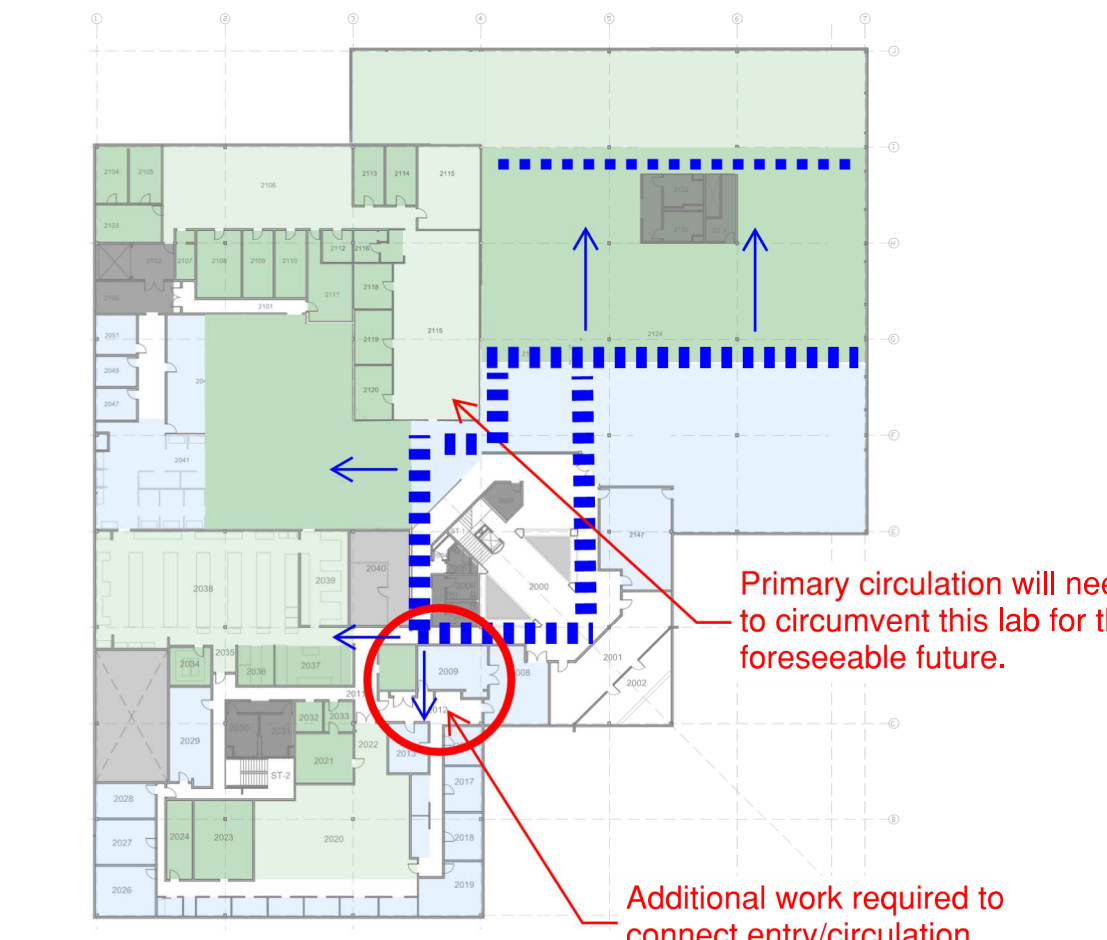
Final Space Plan



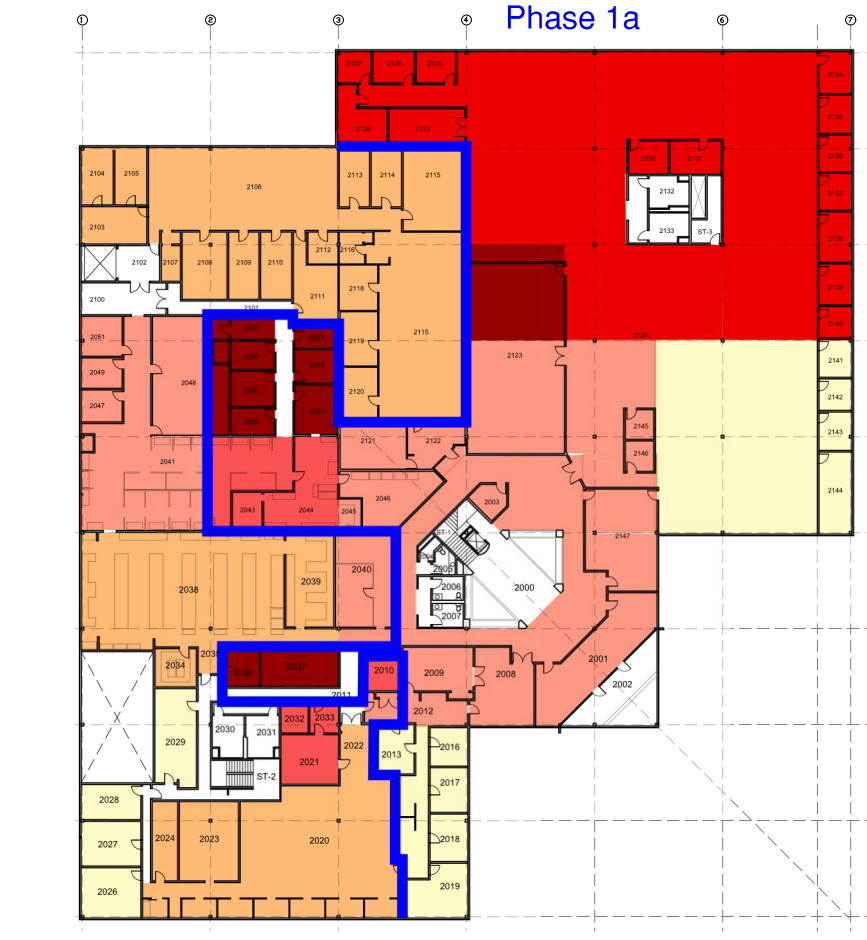
Office 10,822 sf  
Research Lab 13,036 sf  
Research Support 11,728 sf  
Storage/Misc. 548 sf  
Collections 0 sf

Note: new program zones have a 20% circulation factor deducted from the gross take-off area shown (for office and research support areas only).

Circulation Improvements

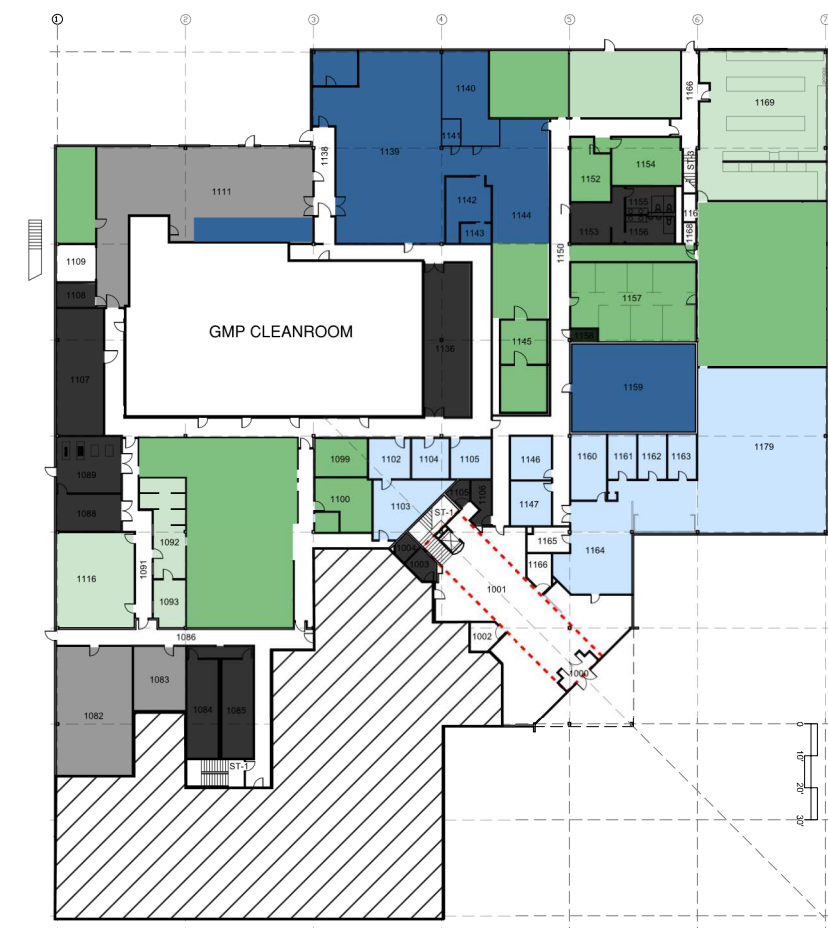
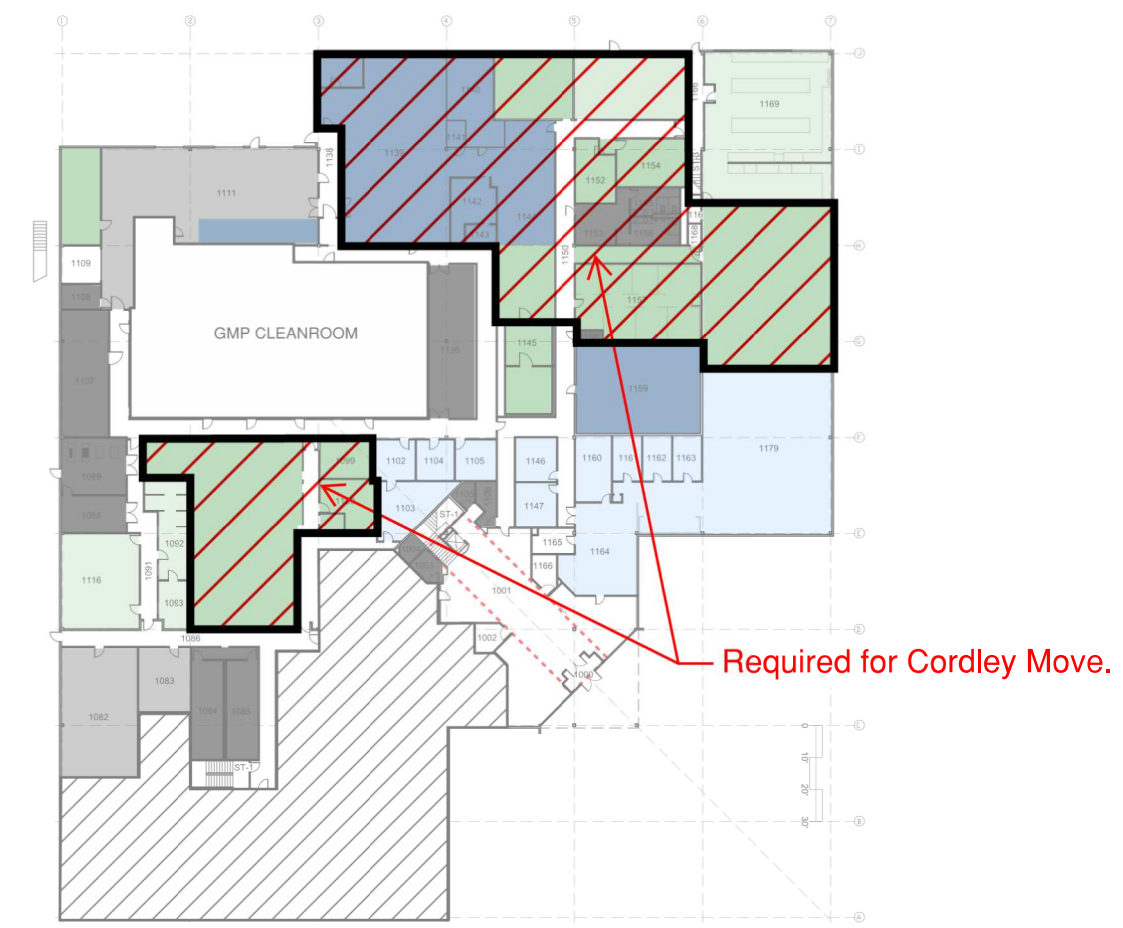


Renovation Cost - Heat Map



- 1. Light Office
- 2. Temp Collections
- 3. Light Lab
- 4. Moderate Office
- 5. Moderate Lab
- 6. Heavy Lab
- 7. Specialty

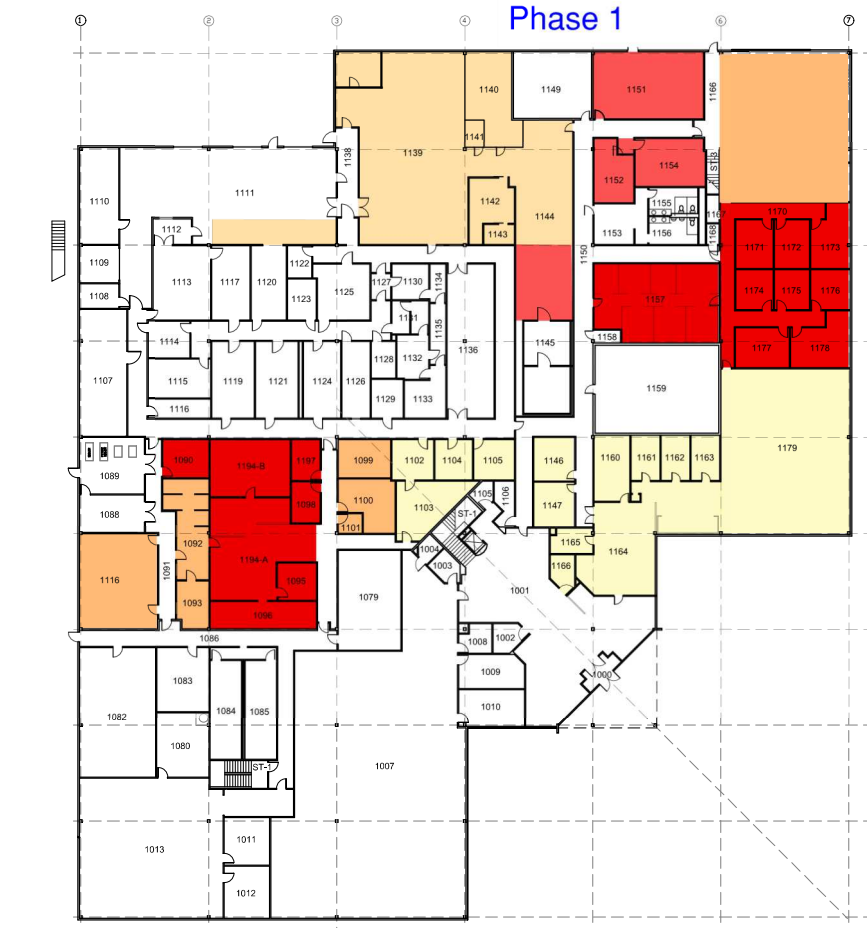
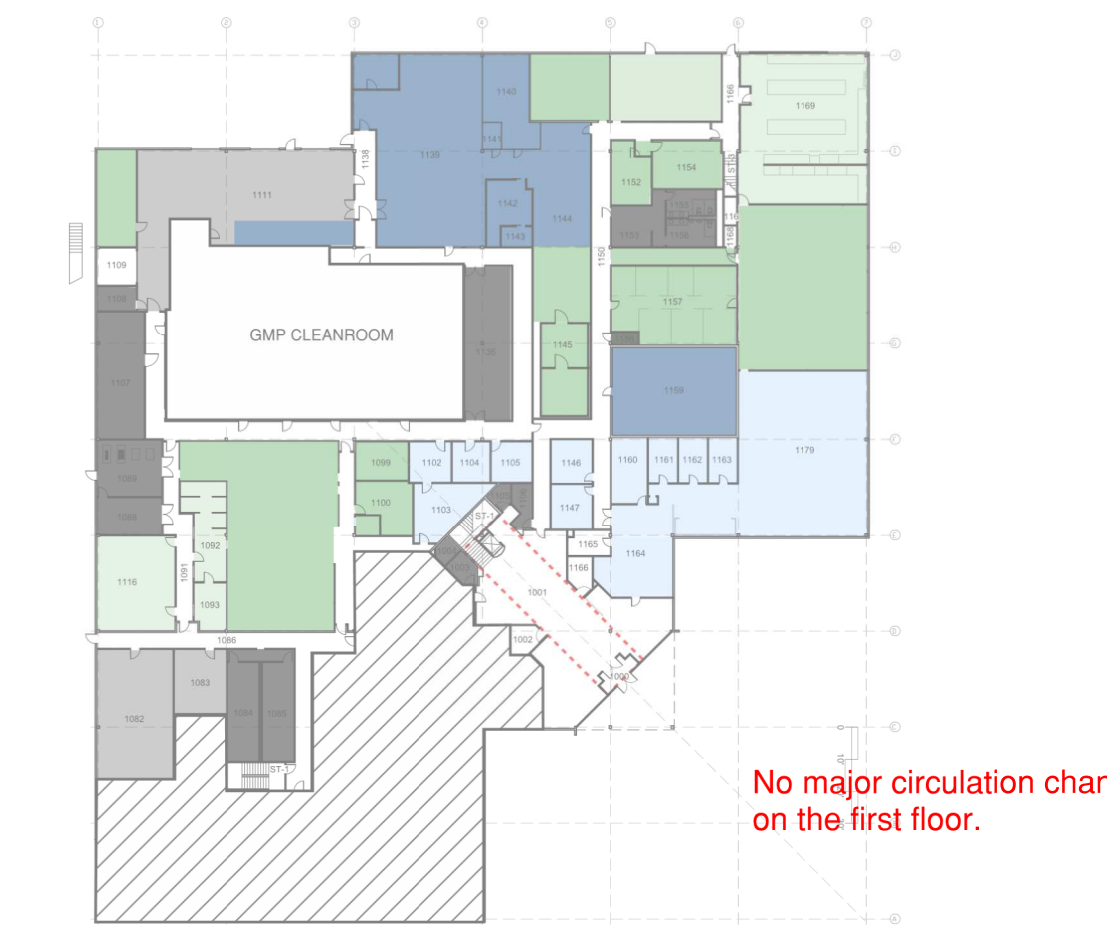
First Floor



Office 4,116 sf  
Research Lab\* 3,830 sf  
Research Support\* 7,069 sf  
Storage/Misc. 3,154 sf  
Collections 5,161 sf

\*does not include cleanroom

Note: new program zones have a 20% circulation factor deducted from the gross take-off area shown (for office and research support areas only).

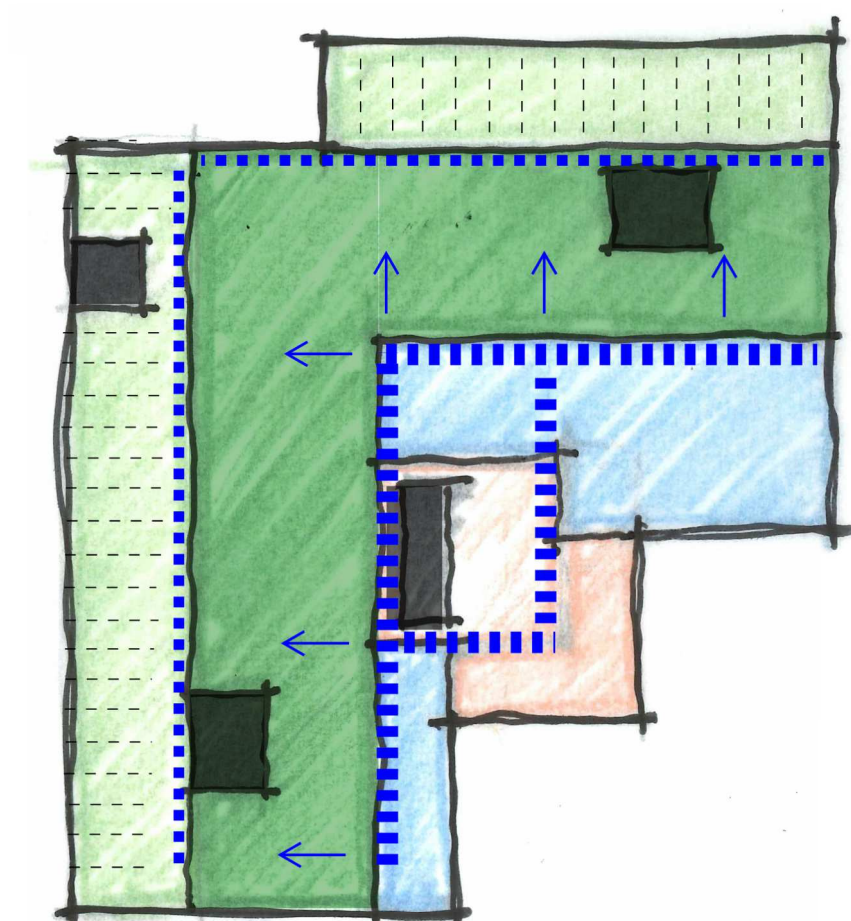


- 1. Light Office
- 2. Temp Collections
- 3. Light Lab
- 4. Moderate Office
- 5. Moderate Lab
- 6. Heavy Lab
- 7. Specialty

**Proposed RWLB**

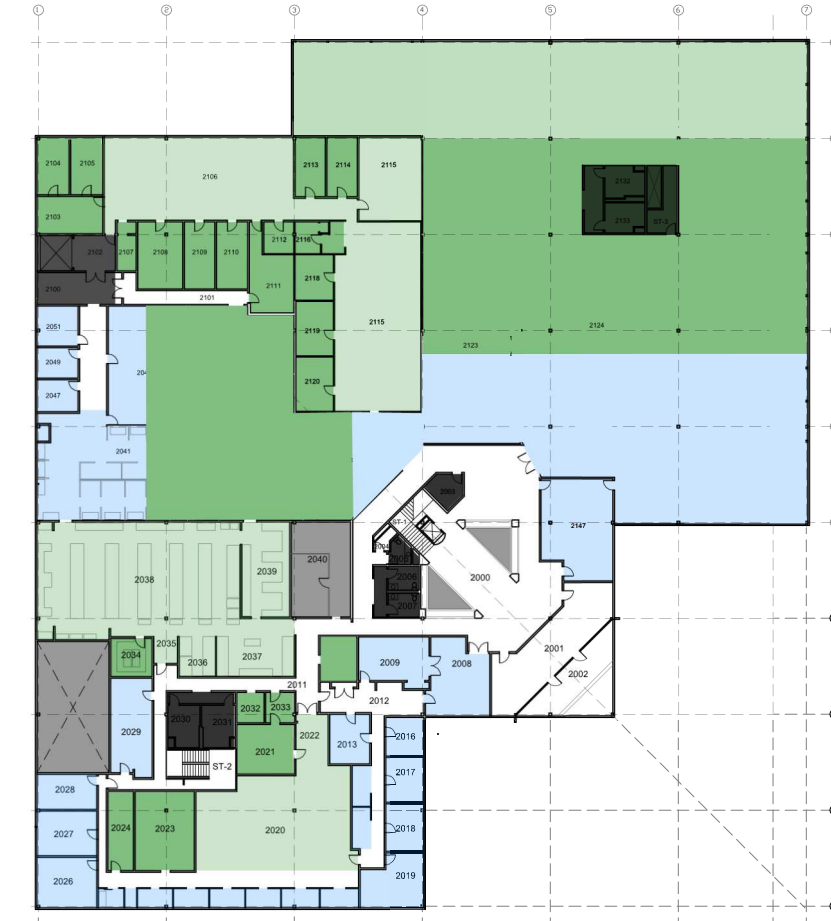
Option 5 - After Phase 1a and 1b	Fir	Research	Res. Support	Field/Misc.	Collections	Offices	Collaboration	Subtotals
RWLB w/ Renovation	1	3,830	7,069	3,154	5,161	4,116	0	23,330
Excludes 1st Fir tenant	2	13,036	11,728	548	0	10,822	0	36,134
	Subt	<b>16,866</b>	<b>18,797</b>	<b>3,702</b>	<b>5,161</b>	<b>14,938</b>	<b>0</b>	<b>59,464</b>
Target delta		91	1,511	1,954	409	876	NA	4,841

**RWLB Master Plan**  
Option 5 - Phase 2



Second Floor

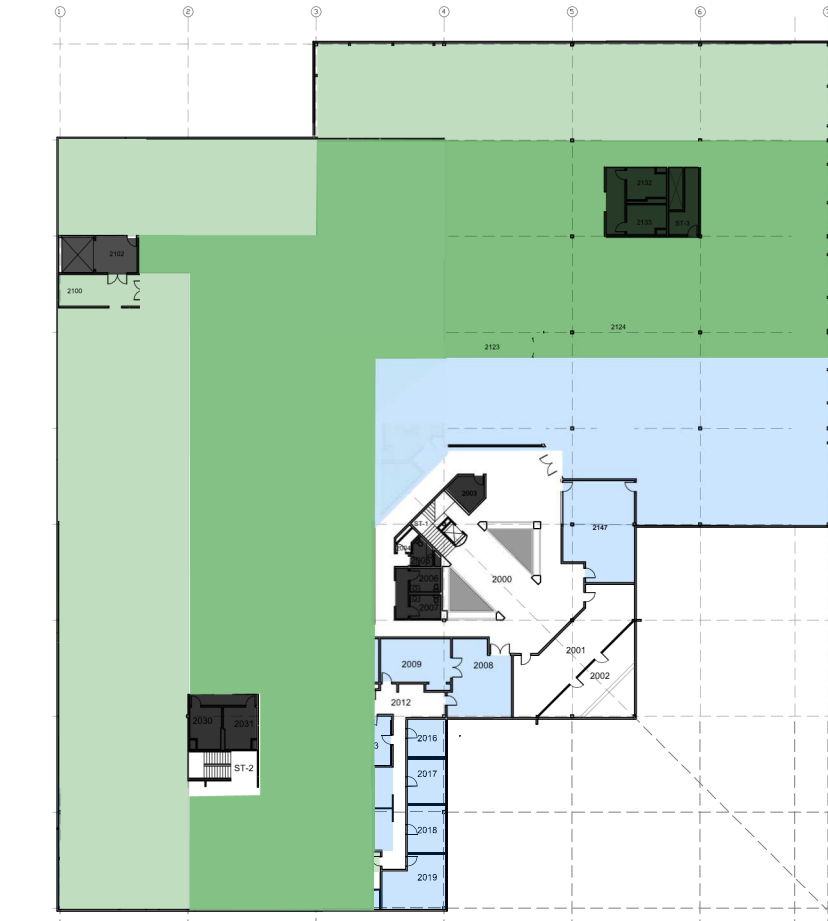
Existing Space Plan



Major Impact Areas

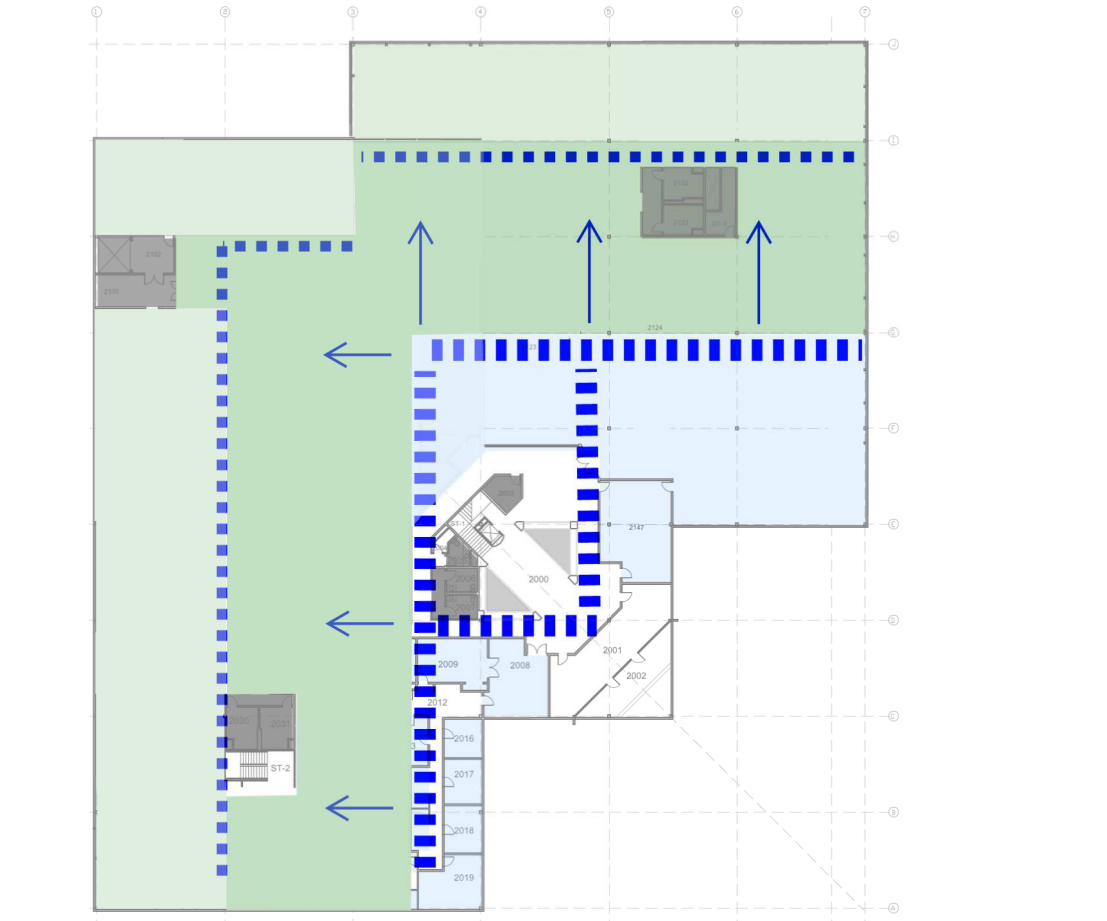


Final Space Plan

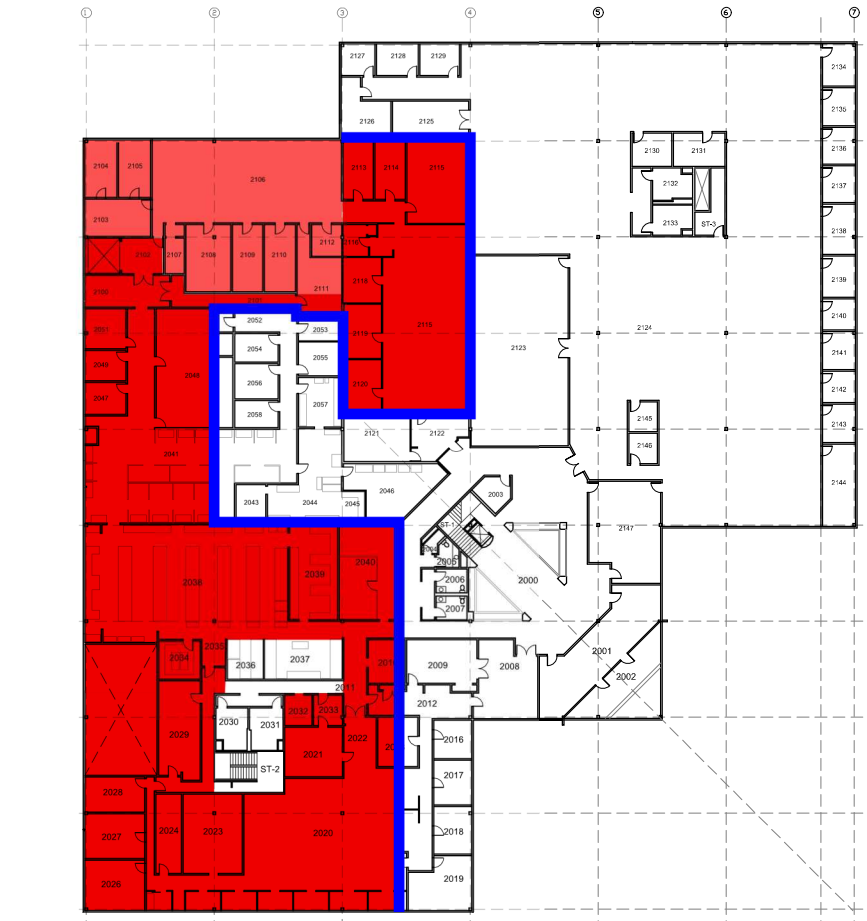


Office 8,385 sf  
Research Lab 15,318 sf  
Research Support 17,609 sf  
Storage/Misc. 0 sf  
Collections 0 sf

Circulation Improvements

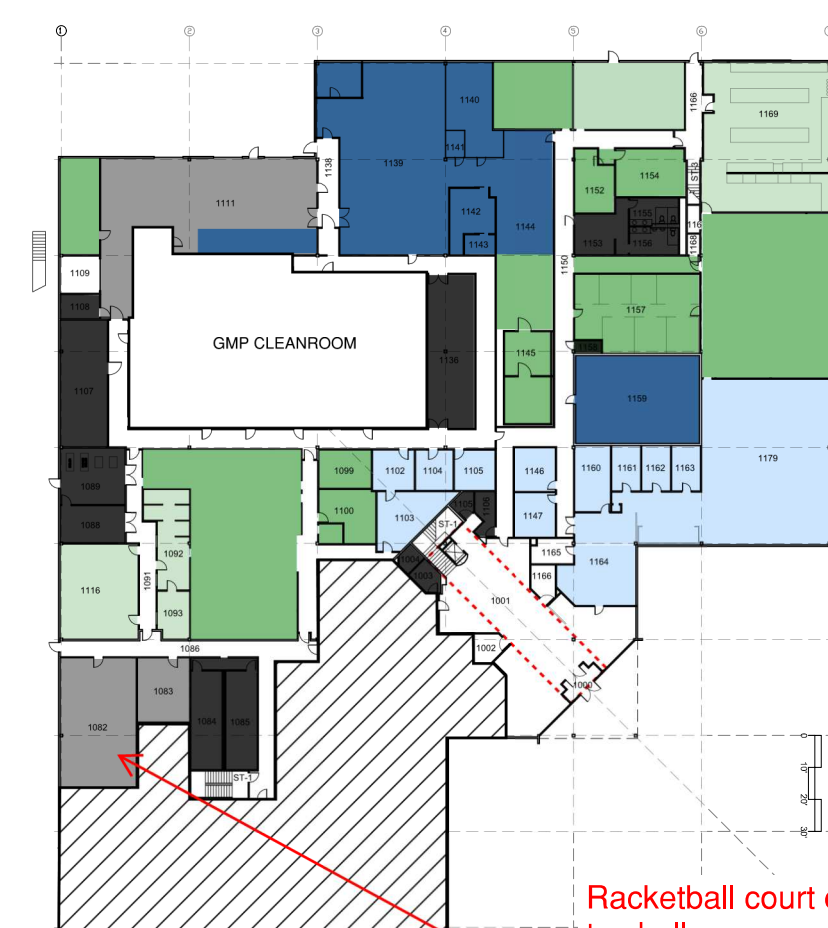
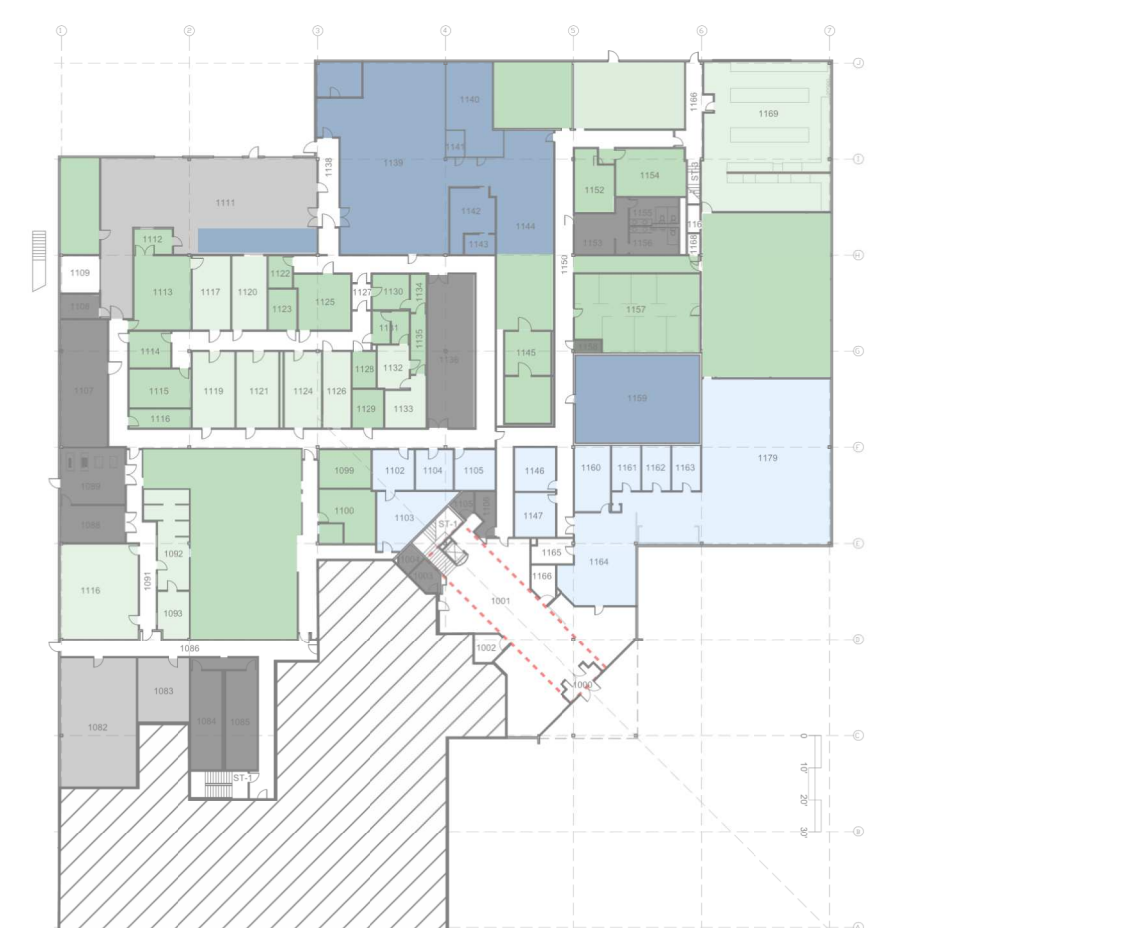
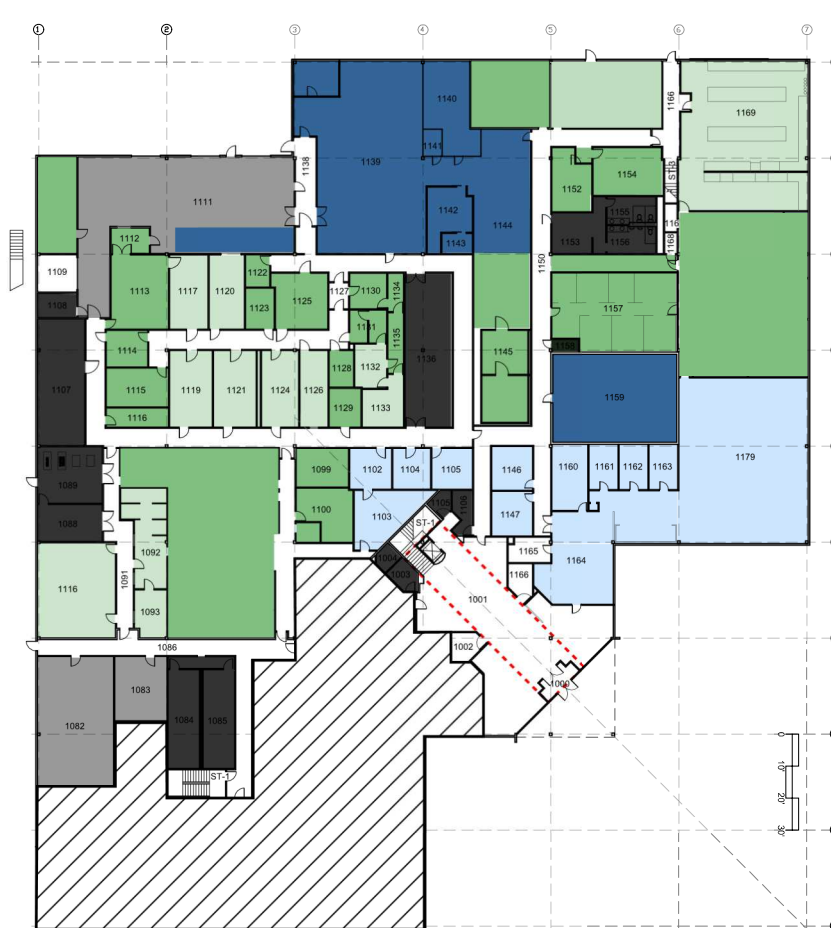


Renovation Cost - Heat Map



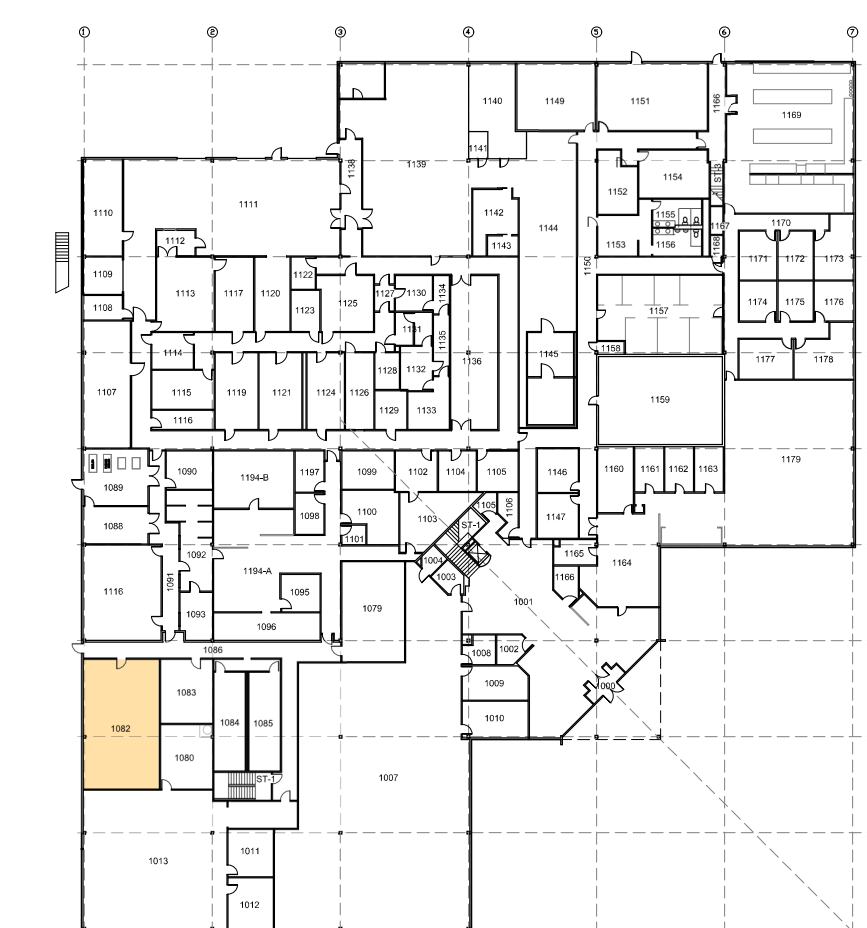
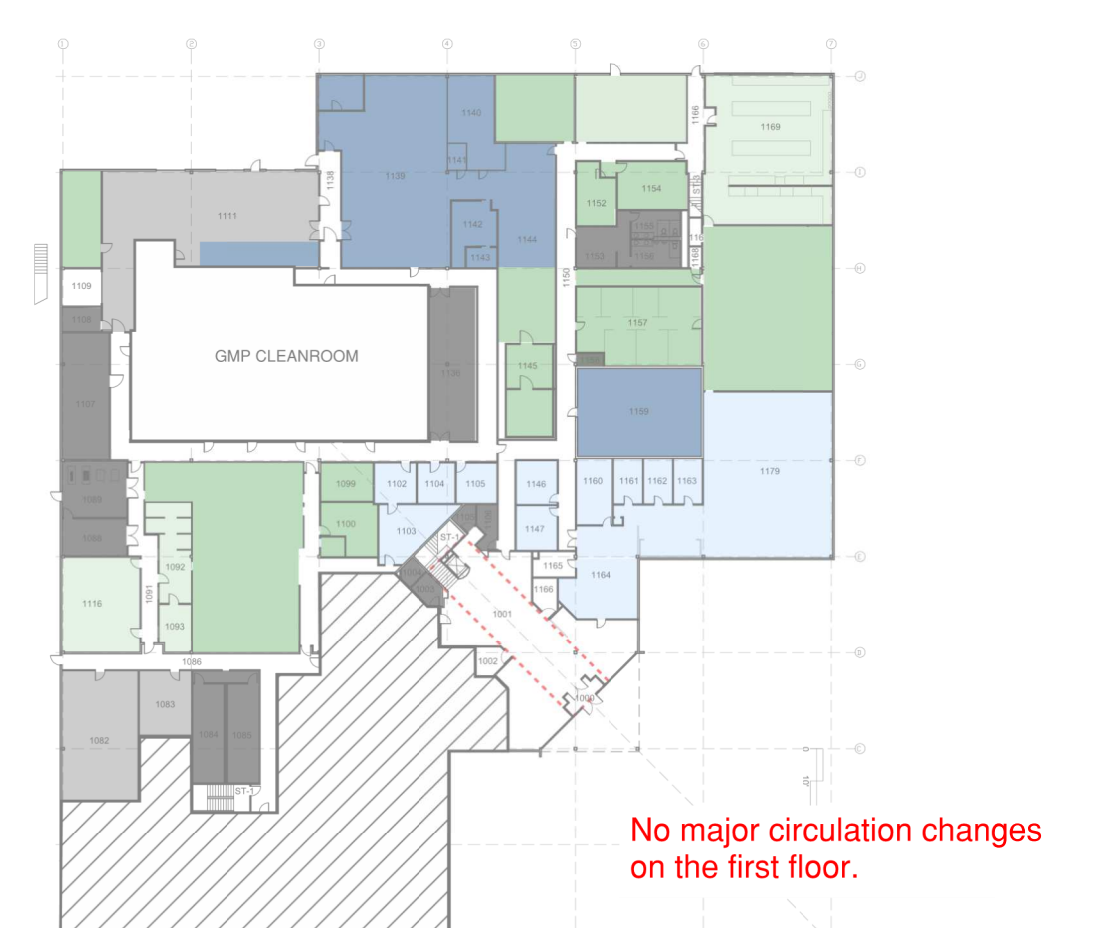
- 1. Light Office
- 2. Temp Collections
- 3. Light Lab
- 4. Moderate Office
- 5. Moderate Lab
- 6. Heavy Lab
- 7. Specialty

First Floor



Office 4,116 sf  
Research Lab\* 3,830 sf  
Research Support\* 7,067 sf  
Storage/Misc. 3,154 sf  
Collections 5,161 sf

\*does not include cleanroom



- 1. Light Office
- 2. Temp Collections
- 3. Light Lab
- 4. Moderate Office
- 5. Moderate Lab
- 6. Heavy Lab
- 7. Specialty

Option 5 - After Phase 2	Fir	Research	Res. Support	Field/Misc.	Collections	Offices	Collaboration	Subtotals
RWLB w/ Renovation	1	3,830	7,069	3,154	5,161	4,116	0	23,330
Excludes 1st Fir tenant	2	15,318	17,609	0	0	8,285	0	41,212
	Subt	<b>19,148</b>	<b>24,678</b>	<b>3,154</b>	<b>5,161</b>	<b>12,501</b>	<b>0</b>	<b>64,642</b>
Target delta		2,373	7,392	1,406	409	(1,561)	NA	10,019