Contents

VOLUME ONE

Acknowledgements

Reading the Report

Executive Summary
  Introduction
  Background: The 25-Year Master Plan
  The Phase One Space Allocation Plan
  Conclusion

Section 1: Analysis of Opportunities, Challenges and Preliminary Options
  Introduction
  Space Needs
  Capacity of Facilities
  Priority Program
  Condition of Facilities
  Code Compliance
  Renovation Budget
  Preliminary Options
  Conclusion

Section 2: The Phase One Space Allocation Plan
  Introduction
  Integrated Sciences Complex
  General Academic Building No. 1
  Renovation of Existing Buildings
  Projects in Other Buildings
  Budget
  Conclusion

Section 3: Implementation
  Introduction
  Step One: Early Projects
  Step Two: Integrated Sciences Complex and Subsequent Renovations
  Step Three: General Academic Building No. 1 and Subsequent Renovations
  Conclusion

Section 4: Glossary of Terms Frequently Mentioned in this Report

Section 5: List of Volume Two Appendices

VOLUME TWO: Appendices

Appendix A: Methodology and Process
Appendix B: Analysis of Opportunities, Challenges and Preliminary Options
Appendix C: Phase One Space Allocation Plan
Appendix D: Implementation
Acknowledgements

DCAM

David B. Perini, Commissioner
Michael McKimmey, Deputy Commissioner
Michael Williams, AIA, Director of Programming
Ellen Whittemore, Deputy Director,
Gail Rosenberg, Project Manager
Deborah Carey, Project Manager
Melissa Robin, Project Manager
Craig Holmes, Senior Cost Estimator
Sarah Tindall, Planning Assistant

UMass Boston

UMass Boston Executive Leadership Team
J. Keith Motley, Ph.D., Chancellor
Winston Langley, Ph.D., Provost and Vice Chancellor for Academic Affairs
Christopher Hogan, Chief of Staff
Theresa Mortimer, Assistant Chancellor
Ellen M. O’Connor, Vice Chancellor for Administration and Finance
Charlie Titus, Vice Chancellor for Athletics and Recreation, Special Programs and Projects
Kathleen S. Teehan, Vice Chancellor for Enrollment Management
Arthur Bernard, Vice Chancellor for Government Relations and Public Affairs
John Ciccarelli, Associate Vice Chancellor for Government Relations and Public Affairs
Patrick K. Day, Vice Chancellor for Student Affairs
Gina Cappello, Interim Vice Chancellor for University Advancement
Anne Scrivener Agee, Vice Provost for Information Technology
Zong-Guo Xia, Vice Provost for Research and Strategic Initiatives
Steven Neville, Special Assistant to the Chancellor
Juan Nunez, Chief Diversity Officer
Jennifer Brown, Director of Institutional Research
Kristy Alster, Strategic Planning and Implementation Chair
Peter Langer, Strategic Planning and Implementation Chair
Philip Quaglieri, Dean, College of Management
Donna Kuizenga, Dean, College of Liberal Arts
Greer Glazer, Dean, College of Nursing & Health Sciences
Andrew Grosovskey, College of Science & Mathematics
Felicia Wilczenski, Interim Dean, College of Education and Human Development
Steve Crosby, Dean, McCormack Graduate School of Public Policy and Global Studies
Dennis Maxey, Interim Dean, University College
Cuf Ferguson, Interim Administrator, College of Public and Community Service
Joan Liem, Associate Provost for Graduate Studies
Jeff McCue, Assistant Vice Chancellor for Human Resources
DeWayne Lehman, Director of Communications
General Academic Building No. 1 Steering Committee
Anne Scrivener-Agee, Vice Provost for Information Technology and Chief Information Officer
Kristine Alster, Associate Provost, Office of the Provost and Vice Chancellor for Academic Affairs
Tim Blackman, Assistant Dean, McCormack Graduate School of Policy and Global Studies
Carol Colbeck, Dean, College of Education and Human Development
Steve Crosby, Dean, McCormack Graduate School of Policy and Global Studies
Carroy Ferguson, Interim Administrator, College of Public and Community Service
Greer Glazer, Dean, College of Nursing and Health Sciences
Andrew Grosovsky, Dean, College of Sciences and Mathematics
Duane Jackson, Office of the Chancellor
Donna Kuizenga, Dean, College of Liberal Arts
Peter Langer, Associate Provost, Office of the Provost and Vice Chancellor for Academic Affairs
Winston Langley, Provost and Vice Chancellor for Academic Affairs
Dennis Maxey, Interim Dean, University College
Ellen O’Connor, Vice Chancellor for Administration and Finance
Phil Quagliari, Dean, College of Management
Marion Winfrey, Associate Dean, College of Nursing and Health Sciences

Academic and Campus Administrators
Joan Becker, Vice Provost for Academic Support Services
David Cesario, University Registrar
Brian Dumser, Director, Office of Environmental, Health, and Safety
Cheryl Liberatore, Assistant Registrar
Anita J. Miller, Associate Vice Chancellor for Academic Affairs
Kathy Teehan, Vice Chancellor for Enrollment Management

Staff from the Office of Campus Master Planning and Office of Facilities Management
Shaun Curry, Deputy Director of Facilities for Planning and Information, Office of Facilities Management
Christine DePalma, Assistant Campus Planner, Office of Campus Master Planning
Dorothy Renaghan, Assistant Vice Chancellor for Facilities Management, Office of Facilities Management
Susan Wolfson, Director of Campus Master Planning, Office of Campus Master Planning

ARCHITECT

Goody Clancy
Roger Goldstein, FAIA, LEED, Principal in Charge
Susan Pranger, AIA, LEED, Project Director
Heather Leibman, LEED, Project Architect
David Salvia, Graphic Designer
Danielle DeLorme, Intern Architect
CONSULTANTS

Planning/Programming—Rickes Associates
Persis Rickes, PhD, Higher Education Planner
Lori K. DeRosa, Higher Education Planner
Timothy K. Quirk, AIA

Science & Lab Planner—Strategic Science & Technology Planners (SST)
David McCullough, Principal

MEP—R.G. Vanderweil Engineers, LLP
Ronald B. Manganaro, PE, LEED, Associate Principal

Structural—Richmond So Engineers, Inc.
Richmond So, PE, Principal

Cost Estimators—Vermeulens Cost Consultants
Craig Chiarelli

Code—Rolf Jensen & Associates (RJA)
Jeremy Mason, PE
Chris Lynch, PE
Reading the Report

This report comprises four components which contain varying levels of detail of the information gathered, the analyses made, and the recommendations put forth from the Phase One Space Allocation Plan.

1. Executive Summary:
   The Executive Summary is an overview of the goals, process and conclusions of the Phase One Space Allocation Plan study.

2. Sections 1, 2 and 3
   The body of the report is a more detailed explanation of the study. Here, the reader can find specific numbers and facts that were gathered during the process. The space needs of the University are reviewed and the resulting priority program explained and then allocated to new or renovated spaces. The phasing and overall renovation budget are examined to give the reader a greater understanding of how the Phase One Space Allocation Plan meets the needs of the University within the constraints of the proposed projects.

3. Glossary
   The reader may find unfamiliar terminology within the document. As much of the subject matter is technical in nature, Section 4 is a glossary that contains definitions of many words to provide clarity.

4. Appendix
   The Appendix contains documents that were generated throughout the Phase One Space Allocation Plan process. It is not intended that this section be read in sequential order, but rather be available as a source for additional information as required. There are references to the Appendix throughout Sections 1, 2, and 3 although not all documents are referenced. Section 5 lists all the documents included in the Appendix and contains a brief summary of each document.

In addition, it is important to realize that UMass Boston is continually evolving. The information and numbers in this document represent a moment in time. UMass Boston’s March 2009 Space Inventory was used as the basis for the majority of numerical calculations in the document unless noted otherwise. This Space Inventory documents the size of each room on campus and to which department it is assigned.
The department names themselves are also changing. As the documents in the Appendix were created during a 2-year period, the names of some departments changed midway through the process while some have changed since this document went into production. Some examples are:

- McCormack Graduate School of Policy and Global Studies (formerly McCormack Graduate School)
- College of Education and Human Development (formerly Graduate College of Education)
- University College (formerly Corporate, Continuing and Distance Education)
- Massachusetts Office of Public Collaboration (formerly Massachusetts Office of Dispute Resolution)
Executive Summary

INTRODUCTION

This document is the final product of a two-year planning effort known as the Phase One Space Allocation Planning project, undertaken by UMass Boston and the Division of Capital Asset Management (DCAM), supported by a consultant team led by architectural firm, Goody Clancy. That overall effort built upon and extended the work of the 25-year Master Plan, completed in 2009, as a step toward implementing many of the projects envisioned in that document. The campus-wide Phase One Space Allocation Plan effort reviewed order-of-magnitude projected space needs for all academic and administrative units at UMass Boston, and juxtaposed those needs with the currently-available space and new space being developed out of the Master Plan over the next few years (2011-2015).

This report on the Phase One Space Allocation Plan presents the team’s methodology, objectives, and recommended strategies and is intended to be a planning framework for that time period. It will serve as a tool to help guide decision-making as the campus moves forward with the much more detailed programming and design work required before actual construction can start on any of the recommended projects.

The Phase One Space Allocation Plan anticipates that the construction of two new buildings—the Integrated Sciences Complex (ISC) and the General Academic Building No. 1 (GAB No. 1)—as well as selected renovations, primarily in McCormack and Wheatley Halls, will occur during this time frame. The demolition of the Science Center and those portions of the substructure and plaza that are not under buildings occurs after this time frame.
Implementation of the recommended Phase One Space Allocation Plan renovation strategies, as described herein, will occur within the limits of a $75 million (Total Project Cost) budget targeted exclusively for phased renovations of existing campus buildings, principally McCormack and Wheatley Halls. That fiscal parameter provided the boundary within which the project team developed its multiple options, and it required that UMass Boston be quite specific about its priorities for the many potential strategies that were considered during the study.

BACKGROUND: THE 25-YEAR MASTER PLAN

As part of its 2008-2010 Strategic Plan, UMass Boston identified the need for the creation of a 25-year Master Plan to ensure thoughtful growth of the campus; that is, that the highest and best uses were targeted for both fiscal and physical resources. Key goals of the Master Plan include:

- Bring instructional and research space up to state-of-the-art standards through new construction and renovations to existing facilities
- Create a more welcoming campus environment
- Address space needs associated with targeted enrollment growth, and
- Provide campus housing options.

The Master Plan found that the aggregate space needs of the campus were more profound than those of many other campuses—both within the UMass System and at peer institutions elsewhere—and that many facilities had reached the end of their useful life. It also confirmed that UMass Boston lacked space to meet its current and future enrollment goals based on industry-standard planning metrics. Further, the report identified the clear need that more detailed space and facility planning was necessary in order to properly prepare for Master Plan implementation.

As UMass Boston implements the first projects described in its campus Master Plan, it has the opportunity to strategically allocate academic, administrative and student space in renovated facilities as well as new buildings. The Phase One Space Allocation Plan directly supports the Master Plan’s goals of improving the campus and accommodating growth in the student population by:

- Improving substandard space for multiple components of the campus community
- Re-purposing existing space to address current and future needs, and
- Building new academic facilities in alignment with strategic and academic priorities.
THE PHASE ONE SPACE ALLOCATION PLAN

Goals of the Phase One Space Allocation Plan

The following goals emerged from discussion among the members of the project team (UMass Boston, DCAM, and Goody Clancy):

• Define order-of-magnitude space projections for general-purpose classrooms, specialized instructional spaces, and administrative and academic departmental spaces for 15,000 and 18,000 student (headcount) enrollments. Base these space projections on industry standards and best practice.

• Examine current and projected building code requirements as they influence the potential renovation of existing buildings.

• Identify a comprehensive list of other planned space changes and improvements, to be considered in the context of this planning effort.

• Anticipate the planned demolition of the Science Center by identifying preferred strategies for relocating its current occupants.

• Strategically develop a recommended conceptual space plan or “test fit” within the funding limitations for accommodating the prioritized academic needs in renovated space (principally in McCormack and Wheatley Halls, but also potentially in other campus buildings), taking into account those programs slated to be housed in the Integrated Sciences Complex and General Academic Building No. 1.

• Determine the optimum phasing sequence for selected renovations, including incremental relocations over time of each program or occupancy.

Process

The Space Allocation Planning project involved a large array of participants, including UMass Boston deans, faculty, staff, and administrators; DCAM representatives who both managed the process and provided input and counsel; and a consultant team led by Goody Clancy, including specialist consultants for academic planning, mechanical/electrical systems, cost estimating, building and accessibility code compliance, and structural engineering. Please refer to the Acknowledgements page for a comprehensive list of project participants.
The process was highly participatory and, over a two-year period, involved more than fifty meetings with UMass Boston and DCAM, including milestone presentations and workshops that involved, at various points, the Provost and Deans of all UMass Boston colleges as well as members of UMass Boston’s senior administration. The consultant team engaged in extensive analyses of enrollment and course scheduling data, existing building and use statistics, physical conditions and other information provided by UMass Boston, complemented by benchmarking of peer institutions’ data, and professional experience. In addition, UMass Boston and DCAM provided considerable input and iterative feedback throughout the process.

After an initial period of data gathering and validation of the team’s findings, the team analyzed the data and synthesized a set of options for accommodating the identified needs in the available space and within the funding parameter of $75 million. UMass Boston participated in both the development and evaluation of those options, and in the selection of the preferred approach, illustrated in this report. It is important to note that this approach is a “test fit” at a conceptual level, not a detailed design, and is based upon a series of planning assumptions that are subject to change.

**Methodology of the Phase One Space Allocation Plan**

The approach and methodology of developing the plan involved several discrete but related analyses and assessments, including the following:

**Current Space Conditions Survey Assessment**

As part of its work to assist in the development of the program and design for the ISC, Goody Clancy surveyed most of the spaces occupied by departments in the College of Science and Mathematics as well as the Psychology Department within the College of Liberal Arts, and the departments within the College of Nursing and Health Sciences. Spaces were surveyed in an effort to identify occupancy and condition. During the Space Allocation Planning process, UMass Boston assisted the team in assessing the balance of specialized instructional spaces in McCormack and Wheatley Halls in a similar manner. This data, after further analysis, enabled the team to determine the suitability for reuse of nearly all of the academic space in those two buildings.

**Space Needs Assessment**

Building upon initial work performed under the Master Plan, Rickes Associates, a higher education planning firm and subconsultant to Goody Clancy, developed an updated Space Needs Assessment (2009). This study involved interviews with key staff and faculty to assess current and future needs, from which was derived a comprehensive set of projected space needs. Those space needs contrasted current space requirements with the projected space requirements to accommodate the target enrollment of 18,000 headcount students. Space projections addressed campus-wide needs, encompassing all academic, administrative, and student-related
spaces, and included adjusting ("right-sizing") space projections to current standards. The findings in that study were integral to the Space Allocation Plan effort, in that UMass Boston could quantitatively and objectively assess its priorities for near-term and longer-term timeframes. It is important to note that these results are order-of-magnitude projections at the departmental level, suitable for planning decisions within the Space Allocation Planning effort but not for detailed design.

**General Purpose Classroom Analysis**

Rickes Associates performed an analysis of classroom utilization across the campus, looking first at current utilization of the approximately one hundred teaching spaces and subsequently at scenarios to adjust the mix of classroom sizes and accommodate projected growth of student enrollment using industry-accepted metrics for station size, room utilization, and seat occupancy. The analysis also identified the need and desire by UMass Boston's academic leadership to explore the potential for future pedagogical changes in teaching style, ranging from the size and style of classrooms to the use of distance and collaborative learning. This analysis revealed the need for the aggregate area of teaching spaces to nearly double, and to significantly change the mix of room sizes. This information, after further feedback from the Deans and Provost, became an input into the development of space allocation plan options, both for renovated buildings and for GAB No. 1. The latter, in particular, will support the creation of flexible and contemporary instructional spaces.

**Code Analysis of McCormack Hall, Wheatley Hall, and Quinn Administration Building**

Because building code compliance is an integral component of any renovations contemplated at UMass Boston, the Phase One Space Allocation Plan study included several levels of code analysis. The team examined the current and projected code requirements, and developed a strategic approach to renovations in McCormack and Wheatley Halls based upon code "trigger points," i.e. thresholds of construction magnitude and/or cost beyond which more extensive code compliance would be required. The recommended renovations strategies emerged from a careful balancing of available resources, code compliance (at each phase and over time), and prioritization of space needs. From the broadest perspective, the university intends that the buildings become incrementally safer and more accessible as a result of the proposed renovations. One important finding of these analyses is that the $75 million renovation project does not trigger wholesale accessibility-code upgrades of McCormack Hall, Wheatley Hall, or the Quinn Administration Building.

The consultant team synthesized the findings of all of these analyses into an integrated set of options for UMass Boston and DCAM to evaluate. More detailed information about all of these analyses can be found within the body of this final report.
Objectives of the Phase One Space Allocation Plan

The principal desired outcomes or objectives of the Phase One Space Allocation Plan are as follows:

- Provide general purpose classrooms of appropriate size and quantity
- Provide specialized teaching and research spaces of appropriate size and quality
- Improve some existing faculty and staff offices and administrative areas
- Provide more student interaction spaces, and
- Relocate all departments from the existing Science Center to enable its demolition.

Strategies of the Phase One Space Allocation Plan

The Plan, as embodied in the preferred space allocation plan option and the underlying analysis work in this study, focuses on making the best use of the available space at UMass Boston, while remaining within the funding constraints. The primary strategies include the following:

- Use new construction for spaces with sophisticated ventilation, technical, or height requirements such as bench research, Chemistry teaching, Art studios, and tiered classrooms
- Maximize utilization of existing building infrastructure by locating “wet” labs in existing “wet” space with access to existing heating, ventilating and air conditioning (HVAC) and plumbing chases
- Avoid investment in temporary relocation space to the greatest extent possible
- Avoid re-investment, beyond critical maintenance, in the Science Center which is scheduled to be demolished
- Minimize disruption and the cost of relocation by maximizing one-way moves (i.e. a given occupant moves only once, into the final destination space, rather than into an interim location first), and
- Minimize escalation costs—thereby gaining the maximum value from the available funds—by doing work as early as possible in the sequence of construction.
Implementation of the Phase One Space Allocation Plan

As noted above, implementation of the Phase One Space Allocation Plan encompasses the construction of two new buildings—the ISC and GAB No. 1—and selected phased renovations of existing campus buildings, as well as preparation for the demolition of the Science Center and those portions of the plaza and substructure that are not under buildings. As these new buildings are completed, programs will be sequentially relocated into them from the Science Center and McCormack and Wheatley Halls, thus enabling the phased renovation of the space vacated in McCormack and Wheatley Halls. It is anticipated that these multiple renovation increments will take place in a carefully organized sequence over the next few years from 2011 through 2015. The phases of renovations are described in more detail later in this report.

The proposed approach divides the Phase One Space Allocation Plan implementation into three sequential steps of new construction and renovation. These steps are broadly defined as follows, with more detail below:

• Step One comprises a series of selective renovations that can occur in the immediate future within existing vacant space in multiple buildings to accommodate many UMass Boston academic programs.

• Step Two starts at the projected completion in 2013 of the ISC. The ISC will provide modern, state-of-the-art research and teaching space and be a catalyst for cutting-edge laboratory research, training, and instruction. This step also includes sequential renovations of McCormack and Wheatley Halls, made possible by moving programs into the ISC.

• Step Three starts at the projected completion of the GAB No. 1 in 2014. This new building will add teaching space, both general-purpose classrooms and specialized instructional space as well as new homes for several academic programs. Step Three also includes continued sequential renovations of portions of McCormack and Wheatley Halls now vacated by moving programs into GAB No. 1.

At the conclusion of this work, twenty-five percent of the campus’s net assignable square footage will be newly constructed space while an additional fifteen percent will have been improved or renovated. See Figure 8 for a breakdown of space allocation at the end of Phase One (Steps One, Two and Three).
Step One: Early Projects

The goal of Step One is to take best advantage of currently existing vacant and under-utilized space to expedite later work, and to immediately provide additional space for many UMass Boston academic programs. Selected projects totaling almost 20,000 net assignable square feet will include renovation of space currently vacant or underutilized:

- Renovation of former cafeteria space in McCormack Hall for the College of Nursing and Health Sciences
- Renovation of existing space potentially in the Service and Supply Building or similar space for the IT Data Center and College of Science and Mathematics (CSM) Machine Shop
- Renovation of existing underutilized cafeteria in the Quinn Administration Building for new classrooms
- Construction of a new Biology Greenhouse at grade

When these projects are completed, several goals and objectives of the Space Allocation Plan will have been addressed incrementally, including:

- Right-sized classrooms that respond to the projected preferred classroom mix will have been added to the campus inventory
- Improved and right-sized space for the College of Nursing and Health Sciences will have been provided
- Several functions will have been relocated out of the Science Center, initiating the process of emptying out the facility so that it can eventually be razed.

See Figure 16 on page xiv for a summary table of the implementation by step.
Step Two: Integrated Sciences Complex (ISC) and Subsequent Renovations

Step Two begins with the completion of the ISC, the first new academic building since the campus opened in 1974. When it opens for classes in September 2013, it will be instrumental in attracting and sustaining outstanding students and faculty as UMass Boston strives to become a prominent national public research university and one of Greater Boston’s finest research institutions. The approximately 118,000 net assignable square foot facility will help address a number of the Space Allocation Plan goals and objectives:

- Its research laboratories and related support space will be state-of-the-art facilities that address the research needs of the departments of Biology, Chemistry, Environmental, Earth, and Ocean Sciences, Physics, and Psychology. These spaces, which replace poor-quality spaces in existing buildings, will be sized and outfitted to current standards with long-term flexibility in mind.

- Its introductory Biology teaching laboratories will replace the outmoded, undersized, and technically deficient existing instructional spaces.

- Its faculty and administrative offices will be complemented by a range of spaces designed to foster interaction at a variety of scales.

- Its social spaces will serve as campus-wide resources for major gatherings, celebrations, and events that also draw upon the larger community.
Departments moving into the Integrated Sciences Complex will vacate research and teaching labs and some faculty offices in the Science Center, McCormack Hall, and Wheatley Hall. This is the first point in the implementation of the Phase One Space Allocation Plan at which significant progress can be made toward addressing UMass Boston’s space needs. The vacated research labs in McCormack Hall and Wheatley Hall will be renovated and reconfigured to provide new teaching labs, classrooms, and other academic space, as described in this report. Those renovations will meet several of the Space Allocation Plan goals and objectives as follows:

- Improved specialized instructional spaces for Biology, Environmental, Earth, and Ocean Sciences, Physics, and Psychology
- Improved space for a number of smaller academic programs
- Renovated, technology-enhanced classrooms of a range of sizes

See Figure 16 on page xiv for a summary table of the implementation by step.
Step Three: General Academic Building No. 1 and Subsequent Renovations

Step Three begins with the completion of GAB No. 1. Closely following the completion of the ISC, GAB No. 1 will serve a large cross-representation of students, faculty, and staff through diverse programming, including state-of-the-art classrooms and specialized teaching spaces and new homes for several academic programs. With detailed programming beginning in early 2011 and construction anticipated to be completed in Spring 2014, the new facility will help achieve a number of the Space Allocation Plan’s goals and objectives:

- Its classrooms will comprise significantly expanded inventory of teaching spaces at a variety of sizes and configurations. In particular, this is the point within the Phase One Space Allocation Plan, at which the largest required classrooms can be added to the campus inventory and when the mix of classrooms will be right-sized to support the need of 15,000 students.

- Its teaching laboratories and related support space will be state-of-the-art facilities that address many of the needs of the departments of Chemistry, Computer Science, and Mathematics. These spaces, which replace poor-quality spaces in existing buildings, will be sized and outfitted to current standards with long-term flexibility in mind.

- Its specialized instructional spaces will meet the particular needs of the departments of Art and Performing Arts, replacing substandard space in existing buildings.
• Its faculty and administrative offices, including the Honors Program and Graduate Studies will be complemented by a range of spaces designed to foster interaction at a variety of scales.

• Its social spaces will serve as campus-wide resources for major gatherings, celebrations, and events that also draw upon the larger community.

See Figure 16 on page xiv for a summary table of the implementation by step.
Completion of Phase One Space Allocation Plan

Departments moving into GAB No. 1 will vacate space in the Science Center, McCormack Hall, Wheatley Hall, and the Campus Center. The vacated space in McCormack and Wheatley Halls will be renovated and reconfigured to provide additional and larger classrooms, new teaching labs, new space for College of Nursing and Health Sciences, and other academic space. Those renovations will meet the following Space Allocation Plan goals and objectives:

- Renovated, technology-enhanced classrooms of a range of sizes
- Improved space for a number of programs (see table that follows, Figure 16)

McCormack Hall

The renovation of McCormack Hall in Steps One, Two and Three will include a substantial renovation of approximately 75,000 net assignable square feet, almost half of the building’s net assignable area. Additionally, unrenovated classrooms (approximately 10% of the building’s net assignable square footage) will receive improvements to heating, ventilating, and air conditioning (HVAC) controls and equipment. See Figure 13 for graphical description of the percentage renovated, upgraded and unrenovated space in McCormack Hall. Most of the renovated area will be vacated when occupants move into the ISC or into GAB No. 1 and the remaining areas will be vacated for renovation as occupants move into previously renovated space. Construction will be phased over the next few years, tentatively from 2011 through 2015.

Wheatley Hall

The renovation of Wheatley Hall over Steps Two and Three will include substantial renovation of approximately 56,000 NASF, one-third of the building’s existing net assignable area. Additionally, unrenovated classrooms (9% of the building NASF) will receive improvements to HVAC controls and equipment. See Figure 15 for graphical description of the percentage renovated, upgraded and unrenovated space in Wheatley Hall. Half of the renovated area will be vacated when occupants move into the ISC or GAB No. 1, and the remaining areas will be vacated for renovation after occupants move into previously renovated space. Construction will be phased over two years, starting with completion of the new buildings in 2013 (ISC) – 2014 (GAB No 1).
### Phase One Space Allocation Plan: Implementation by Step

<table>
<thead>
<tr>
<th>Integrated Sciences Complex</th>
<th>General Academic Building No. 1</th>
<th>McCormack Hall Renovation</th>
<th>Wheatley Hall Renovation</th>
<th>Work in Other Buildings and New Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STEP ONE</strong></td>
<td></td>
<td>Department of Nursing research and teaching labs and faculty offices</td>
<td></td>
<td>Classrooms IT Data Center CSM Machine Shop Biology Greenhouse</td>
</tr>
<tr>
<td></td>
<td>Introductory Biology teaching labs</td>
<td>Biology teaching labs and departmental offices</td>
<td>Psychology research and teaching labs, faculty and departmental offices</td>
<td>Classrooms EEOS and Physics teaching labs and departmental offices WISP McNair CSM Dean's Office CSM Student Success Center MGS Gerontology offices University College teaching labs and offices Faculty offices</td>
</tr>
<tr>
<td></td>
<td>Biology, Chemistry, EEOS, &amp; Physics research labs and faculty offices</td>
<td>Anthropology research labs</td>
<td>CSM Freezer Farm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Psychology research labs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Developmental Sciences Research Center</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Center for Personalized Cancer Therapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Animal Care Facility (vivarium)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sandbox</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Classrooms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemistry teaching labs and departmental offices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Computer Science Department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mathematics Department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Art Department including studio spaces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Performing Arts Department including instructional spaces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graduate Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Honors Program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STEP TWO</strong></td>
<td></td>
<td>Classrooms</td>
<td>Exercise Health Sciences teaching labs, faculty and departmental offices</td>
<td>Classrooms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Nursing faculty and departmental offices</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CNHS Dean's Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STEP THREE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 16
Next Steps for the Phase One Space Allocation Plan:

General Academic Building No. 1

UMass Boston and the UMass Building Authority (UMBA) have selected Wilson Architects, a Boston based architectural firm, as architect for General Academic Building No. 1. This decision will enable detailed programming and preliminary design for this new facility to be completed by June 2011.

UMass Boston is continuously responding to changes in student, faculty, and administrative needs including the evolving nature of learning and teaching. The classroom mix will be refined as part of the detailed programming for both the GAB No. 1 and the McCormack and Wheatley Hall renovations. It will continue to be adjusted during future projects based on current thinking regarding the style, size, quantity, and utilization of classrooms, and evolving changes in pedagogy.

Phase One Space Allocation Plan Renovation Projects

As noted above, the preferred option for the $75 million renovation project described in this report is a broad-scope “proof of concept,” (i.e. it shows that the programs can be accommodated in the space available at each Step of implementation). However, there is a considerable amount of detailed programming and design yet to be performed. The next step is for UMass Boston to move forward with selection of a designer or designers, detailed programming, and eventually the design of the phased renovations.

Other issues in McCormack Hall and Wheatley Hall to be addressed concurrently with these activities include the following:

- Adjustment of the calculation of the replacement value of McCormack and Wheatley Halls to include the existing substructure under the buildings. This calculation needs to be reviewed at the start of each Step to confirm how the latest cost projection relates to the code thresholds for accessibility compliance.
- Study of the exterior envelope
- Detailed study of existing HVAC systems
- Study of energy performance of the buildings
- Study of accessibility requirements for renovation
- Study of regulated materials
- Study of additional projects that can be made to spaces within every college through the Owner’s Scope Contingency
CONCLUSION

In summary, the Phase One Space Allocation Plan will serve as a planning framework for UMass Boston, guiding a multi-faceted, multi-building, multi-step implementation of new construction and renovation over the next few years. Given its broad-scope nature, the plan will provide UMass Boston with sufficient flexibility to accommodate the likely evolutions that will occur in program needs and priorities, while still enabling accomplishment of the many goals and objectives outlined here.
Section 1: Analysis of Opportunities, Challenges and Preliminary Options

INTRODUCTION

The Phase One Space Allocation Plan study identified the opportunities and challenges of the Phase One projects, prior to allocating program to specific new or existing building space. This section summarizes the following topics:

- Space Needs
- Capacity of Facilities
- Priority Program
- Conditions of Facilities
- Code Compliance
- Renovation Budget
- Preliminary Options
- Conclusion

SPACE NEEDS

Enrollment at the UMass Boston Campus has grown from 6,000 students in 1974 to over 15,400 in 2010. UMass Boston is currently studying enrollment targets for the period from now until 2025 as part of the its strategic planning process. A new Campus Center was completed in 2004 to provide expanded space for a variety of administrative, campus, and academic services that support students, faculty, staff, and visitors. However there has been no significant growth in academic space in the past 35 years.

The process of identifying the campus-wide space needs for UMass Boston began with the development of the Master Plan (initiated in 2006). This included a detailed Space Needs Assessment study (Rickes Associates, 2009)¹ that was started during the Master Plan process, and completed concurrent with the Phase One Space Allocation Plan. The September 2009 Space Needs Assessment refined and confirmed the campus-wide space need by using more focused metrics and incorporating input from academic and administrative departments, identifying a campus wide space need of 1,161,000 net assignable square feet (NASF)².

---

¹ Rickes Associates, Space Needs Assessment, dated September 29, 2009, see Appendix B, Item 4
² Net Assignable square feet (NASF) refers to the measurement of areas inside walls used for activities and programs, not including support spaces such as toilets, mechanical spaces, and corridors.
During the development of the Phase One Space Allocation Plan, the campus-wide needs were analyzed and then prioritized to produce a Priority Program for Phase One. This process involved a review of the overall space needs identified in the Space Needs Assessment and a review of the space needs for the Integrated Sciences Complex (ISC), which had been programmed by Goody Clancy as the Architect for the ISC. The team then conducted a study of the needs for general purpose classroom space on UMass Boston’s campus and explored the space available on campus, including both existing buildings and the new ISC and General Academic Building No. 1. An understanding of the needs, priorities, and space available created a framework to establish a priority program for the Phase One Space Allocation which is consistent with the goals of the Master Plan to grow and improve the campus.

The Campus-Wide Space Needs Assessment

The Space Needs Assessment identifies the current and projected space required campus-wide for academic, athletic, administrative and student services at the department level.

Space need is based on information provided by UMass Boston and a variety of industry standard factors:

- The existing and projected student enrollment
- The number of existing and projected faculty and staff
- The correct or “right-size”\(^3\) for individual spaces, such as an office, classrooms, or specialized labs
- The overall “right-sized” space required for a certain student enrollment, for example the overall amount of lounge space for a similar university of this size and mission.

The methodology for the Space Needs Assessment combined the extensive experience of Rickes Associates, best practices, benchmarked comparable facilities and the Council of Educational Facility Planners International (CEFPI) methodology and guidelines. An analysis of existing and projected instructional space (general purpose classrooms and specialized instructional space) use was conducted, and the results were incorporated into the space projections. Note that these space projections are order-of-magnitude, and are reliable as aggregated totals. They are useful for planning purposes, but detailed architectural space programming will be necessary before design and construction proceed.

---

3 Right-Size is the correct amount of space for a room, based on a factor of the expected occupancy. See Glossary
A series of comprehensive and inclusive interviews with representatives from each academic and administrative department, including the Provost and Vice Provosts, helped to inform the current and future space needs of each group. The final step of the needs assessment was a “reality check” with campus leadership in 2009 to adjust the recommended growth. The September 29, 2009 campus-wide Space Need Assessment indicated a need for 1,161,000 NASF to provide the “right-size” space for 15,000 students, which is 207,000 NASF beyond the existing space. The study showed that some departments have a surplus of space, primarily in administrative type spaces. However, the majority of the departments, especially the departments with academic research and teaching spaces, showed a substantial need for larger and better configuration of space. The complete Space Needs Assessment, which is included in Appendix B, Item 4 includes a breakdown by department and by NCES code of the existing, the right-sized space for 15,000 students and projected growth for 18,000 students.

**Space Need for the Integrated Sciences Complex**

UMass Boston, in collaboration with the Division of Capital Asset Management (DCAM), began planning for the Integrated Sciences Complex (ISC) in 2008. Two UMass Boston committees, the ISC Executive Committee and the ISC Capital Project Advisory Committee, helped develop a vision for the new building and advised and recommended plans for its academic program. The Integrated Sciences Complex (ISC) was envisioned as a facility in which nearly all of UMass Boston’s research laboratories and related specialized support space could be brought together in a single building, both to relocate research on campus into more up-to-date, properly-sized facilities and to demonstrate to the larger community that UMass Boston is an emerging research center within the Greater Boston academic community.

By Fall 2008, Goody Clancy was hired as the project’s architect and assisted the campus with detailed programming efforts. Over the course of the next year, Goody Clancy, in partnership with DCAM and the UMass Boston, prepared a building study that included a space program, a description of the project’s requirements, an estimate of capital and operating costs, and an implementation schedule. The building is scheduled to open for classes in September 2013.

When programming began, academic programs under consideration for inclusion in the ISC’s academic program were all of the College of Science and Mathematics departments, the College of Nursing and Health Sciences, and the Psychology program within the College of Liberal Arts. The Provost/Deans Scenario 1A-5, ISC4 finalized the specific components of each of those departments that would be located in the ISC. This scenario was incorporated into the Rickes campus-wide Space Needs Assessment.

---

4 Provost/Dean Scenario 1A (August 24, 2009). See Appendix B, Item 1
The 1A-5 ISC scenario includes the following breakdown:

1. The total space needs of these departments, independent of location
2. The portion of the total space that will be located in the Integrated Sciences Complex building, and
3. The remaining portion of space (called “renovated space”) which will be located in “backfilled” renovated space or in future new facilities, such as the General Academic Building No. 1.

The total need for the Integrated Sciences Complex was approximately 264,000 NASF, of which 108,000 NASF, or less than half, will be in the “new” Integrated Sciences Complex. That “new” program also includes a 15% contingency towards the future needs of the research programs. The 156,000 NASF “renovated” program includes the balance of the program for the original ISC departments. That “renovated” program includes growth to right-size only (with no contingency space).

Both the “new” and “renovated” programs for the ISC departments were developed into more detailed programs. The "renovated" program is included in Appendix B, item 2 for reference and planning.

Following is a summary of the Provost/Deans Scenario 1A-5.

**Summary of Provost/Deans Scenario 1A-5 for Integrated Sciences Complex Programs**

<table>
<thead>
<tr>
<th>Program</th>
<th>Total</th>
<th>New Integrated Sciences Complex</th>
<th>Renovated Space or New General Academic Building No. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Science &amp; Mathematics</td>
<td>188,044</td>
<td>81,372</td>
<td>106,672</td>
</tr>
<tr>
<td>College of Liberal Arts - Psychology</td>
<td>22,948</td>
<td>10,343</td>
<td>12,605</td>
</tr>
<tr>
<td>CLA + CSM Non-departmental Space</td>
<td>7,200</td>
<td>7,200</td>
<td>0</td>
</tr>
<tr>
<td>College of Nursing and Health Sciences</td>
<td>34,162</td>
<td>0</td>
<td>34,162</td>
</tr>
<tr>
<td>General Use Shared Assignable</td>
<td>11,400</td>
<td>8,900</td>
<td>2,500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>263,754</strong></td>
<td><strong>107,815</strong></td>
<td><strong>155,939</strong></td>
</tr>
<tr>
<td>Contingency</td>
<td>10,379</td>
<td>10,379</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total including Contingency</strong></td>
<td><strong>274,133</strong></td>
<td><strong>118,194</strong></td>
<td><strong>155,939</strong></td>
</tr>
</tbody>
</table>
General Purpose Classroom Mix and Pedagogy

General purpose classrooms are assigned by the Registrar’s Office based on space needs generated by UMass Boston’s colleges, pre-collegiate programs, and non-credit courses offered by University College. Once these academic space needs are met, other user groups are allowed the opportunity to reserve general purpose classrooms for events and other activities. Currently, scheduling of UMass Boston’s general purpose classrooms is severely constrained by the available stock of small and very crowded classrooms. Providing appropriate size, quantity and configuration of general purpose classrooms is a high priority of the Master Plan and of the Phase One Space Allocation Plan.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rooms are crowded</td>
<td>Right-size rooms</td>
</tr>
<tr>
<td>Unbalanced mix with too many smaller classrooms. Right-sizing will create an even greater number of small classrooms</td>
<td>Balance mix with more large classrooms, providing a range of classroom sizes in every academic building</td>
</tr>
<tr>
<td>Technology and furniture layouts are inadequate</td>
<td>Better support pedagogy by enhanced technology, appropriate room configuration and different furniture options in new and existing classrooms</td>
</tr>
<tr>
<td>Departmental Conference Rooms used for classes</td>
<td>Provide general purpose classroom space to meet the need</td>
</tr>
<tr>
<td>Limited daytime hours with 35 hours scheduled per week</td>
<td>Examine scheduling window and classroom utilization rates</td>
</tr>
</tbody>
</table>

UMass Boston is continually adjusting the inventory of general purpose classrooms to accommodate the demands of the campus.

The classroom space need for the Space Needs Assessment was developed in 2008 based on the existing class demand in 2006, and updated in 2010 based on the inventory from Fall 2009. Worksheets for cost and overall renovation area are based on the 2009 inventory to be consistent.

Nevertheless, for the detailed analysis of the classroom mix, the Spring 2010 inventory was used. This inventory does not include existing conference rooms and specialized instruction teaching spaces that are used as classrooms. However, the need generated by the use of conference rooms was incorporated into the demand for classrooms.
**UMass Boston Spring 2010 Existing General Purpose Classrooms**

<table>
<thead>
<tr>
<th>Building</th>
<th>Total # Rooms</th>
<th>Total NASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healey Library</td>
<td>2</td>
<td>3,390</td>
</tr>
<tr>
<td>McCormack Hall</td>
<td>44</td>
<td>22,956</td>
</tr>
<tr>
<td>Science Center</td>
<td>7</td>
<td>7,620</td>
</tr>
<tr>
<td>Wheatley Hall</td>
<td>46</td>
<td>28,350</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>99</strong></td>
<td><strong>62,316</strong></td>
</tr>
</tbody>
</table>

In order to right-size rooms and provide the correct quantity, a number of target measures were considered and compared to the actual rates in 2009:

**Station Size**

The existing average area per student station at UMass Boston is 14 NASF, demonstrating that classrooms are extremely overcrowded, given that the normative standard is 22 NASF/student seat (see Fig. 1.6). The proposed classroom area is based on this standard, which allows for a range of classroom styles such as lecture, seminar, or executive seating with a corresponding range of station sizes. This will aid flexibility, and reduce overcrowding, as the future program and building design for the renovations and new buildings proceed.

**Room Utilization**

Room utilization rate reflects the frequency of use of a classroom or group of classrooms (hours of use/hours of available time, expressed as a percentage). The average existing room utilization is slightly lower than the target (60% vs. 67%), even though the demand for classrooms high, because the rooms available are not the sizes that are in demand. As the renovations and new buildings provide classrooms of the correct size and mix over the next few years, it is anticipated that the room utilization will increase slightly to match the goal of 67% daytime utilization. In addition, as student enrollment increases, there will be room for the utilization rate to increase beyond 67% to meet the increasing demand. Note that the number of classrooms is driven by the larger daytime use. As a result, the evening utilization rate is currently, and will remain, lower.

**Seat Occupancy**

Seat occupancy is the number of seats filled at any given time, expressed as a percentage. Due to a shortage of larger rooms, the largest classes often fill classrooms (not including Lipke Auditorium) to or even beyond capacity. The existing inventory of classrooms provides more seats in less space than is standard to accommodate the current 15,000 student enrollment. Some faculty may request rooms with a larger seat capacity than required, knowing that the rooms are undersized.
Classroom Seating Space Needs and Room Utilization

<table>
<thead>
<tr>
<th>Summary of Target Measures</th>
<th>Fall 2009 Actual</th>
<th>Recommended 2009 Needs 15,000 Headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Feet per Seat</td>
<td>14.0</td>
<td>22.0</td>
</tr>
<tr>
<td>Square Feet per Seat – movable only</td>
<td>14.8</td>
<td>22.0</td>
</tr>
<tr>
<td>Weekly Room Hour Utilization Rate, day</td>
<td>60%</td>
<td>67%</td>
</tr>
<tr>
<td>Weekly Room Hour Utilization Rate, evening</td>
<td>41%</td>
<td></td>
</tr>
<tr>
<td>Seat Occupancy Rate, day</td>
<td>68%</td>
<td>67%</td>
</tr>
<tr>
<td>Seat Occupancy Rate, evening</td>
<td>53%</td>
<td></td>
</tr>
</tbody>
</table>

Fall 2009: 15,000 Headcount

Square Feet per Seat

Square Feet per Seat – movable only

Weekly Room Hour Utilization Rate, day

Weekly Room Hour Utilization Rate, evening

Seat Occupancy Rate, day

Seat Occupancy Rate, evening

Preferred Class Mix

In 2009 the Registrar and the Deans stressed that existing class sizes were being artificially constrained by the size of classrooms. In order to reflect a reasoned physical planning approximation that reflected the desired mix of general classrooms, the Project Team (DCAM, Goody Clancy, and staff from the Facilities Department and the Office of Campus Master Planning) worked with UMass Boston’s Deans from January to June 2010 to develop a recommended classroom mix that reflected the preferred distribution of class section sizes. This adjustment to the mix is intended to:

- adjust for the constraints of the existing classroom stock
- reflect a desired shift towards a combination of larger introductory lecture halls and smaller seminar or breakout rooms
- reflect the differences in teaching styles and needs of different colleges and departments

The team factored this analysis into the day and evening use and developed a recommended mix, total number and total estimated area of classrooms for the current 15,000 headcount at UMass Boston.

<table>
<thead>
<tr>
<th></th>
<th>Current Inventory</th>
<th>Right-sized Inventory</th>
<th>Recommended Inventory for 15,000 Headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Classrooms (10-29 Seats)</td>
<td>36</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>Medium Classrooms (30-49 Seats)</td>
<td>42</td>
<td>16</td>
<td>67</td>
</tr>
<tr>
<td>(50-99 Seats)</td>
<td>16</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Large Classrooms (100-549 Seats)</td>
<td>5</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>TOTAL</td>
<td>99</td>
<td>99</td>
<td>114*</td>
</tr>
<tr>
<td>Total Area</td>
<td>62,433 ASF</td>
<td>62,433 ASF</td>
<td>128,150 ASF* (est)</td>
</tr>
</tbody>
</table>

* Note: Final recommended inventory and area are subject to UMass Boston adjustment of scheduling window, detailed programming process and other pedagogical concerns.
This study also identified the need and desire by the Deans to explore the potential for future pedagogical changes in teaching style, ranging from the size and style of classrooms to the use of distance and collaborative learning. While the mix and size of individual classrooms is expected to be refined to address the evolving nature of pedagogy, the total area of the proposed classroom mix is sufficient to allow changes in the actual mix. It is also important to note that this further detailed study of the classroom needs resulted in the proposed area of classrooms space increasing beyond the order of magnitude 97,211 ASF allocated in the Space Needs Assessment.
CAPACITY OF FACILITIES

To provide appropriate and cost effective space reallocation, this study examined the existing and projected capacity of campus facilities. In 2010 UMass Boston has approximately 954,000 NASF in eight existing buildings, including: Campus Center, Clark Athletic Center, Healey Library, Quinn Administration Building, Service and Supply Building, and three buildings that are primarily used for academic programs: McCormack Hall, the Science Center, and Wheatley Hall.

After completion of Phase One and in preparation for the demolition of the Science Center, the space on campus will increase from 954,000 NASF to approximately 1,079,300 NASF (as illustrated below) when considered at a level of detail appropriate for this order-of-magnitude study.

Approximate Available Space for Growth in Phase One (Net Assignable Square Feet)

| Existing Space (Includes Vacant Space) | 954,000 NASF |
| Integrated Sciences Complex | 118,000 NASF |
| General Academic Building No. 1 | 150,000 NASF |
| Demolition of Science Center | (142,700) NASF |
| **Revised Total Space Available at end of Phase One** | **1,079,300 NASF** |
| Less Space Utilized by Existing programs | (940,000) NASF |
| **Approximate Space Available for Phase One Growth** | **139,300 NASF** |

Compared to the need of an additional 207,000 NASF from the Space Needs Assessment, the available space will therefore address approximately two-thirds of the existing shortage of space on campus.
PRIORITY PROGRAM

The needs identified by the *Space Needs Assessment*, the Integrated Sciences Complex programming study, and the Preferred Classroom Analysis were used to develop a Phase One Space Allocation Plan program that both reflected UMass Boston priorities and could be accommodated by the space available in General Academic Building No. 1 and in the existing academic buildings.

These goals were as follows:

- Provide general purpose classrooms of the appropriate size, quantity and technology and reclaim departmental conference rooms for departmental uses.
- Provide quality and contemporary specialized instructional space
- Provide quality and contemporary research space for Psychology, Nursing, and the College of Science and Mathematics
- Provide additional office space and student collaborative space
- Relocate all departments from the existing Science Center
- Consolidate any departments that are relocated in this process

The Priority Program includes relocation, growth and/or renovation of the following academic spaces. Programs which are previously allocated to the new Integrated Sciences Complex (ISC) are not included in the program.

- General purpose classrooms
- Research and specialized instruction spaces for CLA Psychology
- Specialized instructional spaces for CSM, CNHS, and the Psychology, Anthropology, Art and Performing Arts departments of CLA.
- Student interaction and breakout space
- Faculty offices
- Honors Program
- Graduate Studies
- All other departments to be relocated from the Science Center that have not been accommodated in the new Integrated Sciences Complex
- Programs that are relocated within McCormack Hall and Wheatley Hall to facilitate the renovation
The Priority Program: (1) meets the goal of the Master Plan to provide growth for research, teaching and other student collaboration space, and (2) is feasible given the available space for growth at the end of Phase One — 139,000 NASF.

The following spreadsheet provides a breakdown of the total space need required to accommodate the program in existing buildings or in the new General Academic Building No. 1. However, it does not include space that will be located in the Integrated Sciences Complex or that already exists in McCormack Hall or Wheatley Hall. In other words, some of the departments listed include only a portion of their total department area. It does include new space required to replace existing program space moving from the Science Center or Campus Center, existing offices moving from existing non-code compliant offices within the McCormack Hall stairs, and space required to allow growth of a program to right-size, where that growth is a priority. Refer to Appendix C, Item 3 for information regarding the growth priorities established for each department.
### Priority Program by department

<table>
<thead>
<tr>
<th>Departments impacted by new buildings or by renovations (all other departments remain unchanged)</th>
<th>Space Needed in Existing Buildings or GAB No. 1 (Does not include space already accommodated in these buildings or the ISC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Relocation from Campus Center or Science Center</td>
</tr>
<tr>
<td>Graduate Studies</td>
<td>516</td>
</tr>
<tr>
<td>Honors Program</td>
<td>1,539</td>
</tr>
<tr>
<td>New Lounge space to be distributed</td>
<td></td>
</tr>
<tr>
<td>IT–Communication and Infrastructure Services</td>
<td>5,890</td>
</tr>
<tr>
<td>CLA–Anthropology</td>
<td>880</td>
</tr>
<tr>
<td>CLA–Art</td>
<td>8,895</td>
</tr>
<tr>
<td>CLA–Performing Arts</td>
<td>0</td>
</tr>
<tr>
<td>CLA–Psychology</td>
<td>900</td>
</tr>
<tr>
<td>CNHS–Dean’s Office</td>
<td>453</td>
</tr>
<tr>
<td>CNHS–Exercise and Health Science</td>
<td>2,382</td>
</tr>
<tr>
<td>CNHS–Nursing</td>
<td>12,021</td>
</tr>
<tr>
<td>CSM–Biology</td>
<td>240</td>
</tr>
<tr>
<td>CSM–Biology - Greenhouse</td>
<td>N/A</td>
</tr>
<tr>
<td>CSM–Chemistry</td>
<td>21,730</td>
</tr>
<tr>
<td>CSM–Computer Science</td>
<td>8,660</td>
</tr>
<tr>
<td>CSM–Dean’s Office - Non department Student Success</td>
<td>200</td>
</tr>
<tr>
<td>CSM–Dean’s Office - Non department space-Machine Shop</td>
<td>3,610</td>
</tr>
<tr>
<td>CSM–Dean’s Office - Non department space-Freezer Farm</td>
<td>0</td>
</tr>
<tr>
<td>CSM–EEOS</td>
<td>9,340</td>
</tr>
<tr>
<td>CSM–Mathematics</td>
<td>3,250</td>
</tr>
<tr>
<td>CSM–McNair Program</td>
<td>230</td>
</tr>
<tr>
<td>CSM–Physics</td>
<td>13,875</td>
</tr>
<tr>
<td>CSM–Watershed Integrated Sciences Partnership</td>
<td>270</td>
</tr>
<tr>
<td>Dining Services</td>
<td>0</td>
</tr>
<tr>
<td>University College (CCDE)</td>
<td>0</td>
</tr>
<tr>
<td>Total P/VC ACADEMIC AFFAIRS (Classrooms)</td>
<td>7,620</td>
</tr>
<tr>
<td>GRAND TOTAL (includes classrooms)</td>
<td>102,261</td>
</tr>
</tbody>
</table>

---

*Fig. 1.18*
**Proximity and Location Requirements**

The renovation of McCormack Hall and Wheatley Hall will provide opportunities to consolidate departments, as they are relocated. For example, departments that are moving from Healey Library and/or the Science Center should be located, wherever feasible, adjacent to their existing departmental space in McCormack Hall or Wheatley Hall, or consolidated in the General Academic Building No. 1. These departments include:

- Psychology Teaching and Research
- Anthropology
- (Visual) Art

In addition, desired adjacencies between departments were identified for specific departments such as:

- Locating Biology, Chemistry, EEOS, and Physics Research space together will facilitate integrated research and shared use of supporting infrastructure and equipment
- Locating Computer Science and Mathematics together will facilitate integrated teaching and shared use of computer facilities.

The following principles were derived to support the Master Plan goal to provide students with exposure to a variety of programs and experiences with a mix of types of spaces, including classrooms, specialized instructional space, faculty offices and collaborative space in each new and renovated academic building:

- Classrooms and/or specialized instruction space will be distributed among the academic buildings so that they occupy no more than 40% to 60% of the building area
- A range of classroom sizes and types will be provided in each academic building.
- The remaining space will be occupied by “permanent” residents such as faculty and administrative offices to give the building a sense of ownership and life at all hours, independent of class schedules.
CONDITION OF FACILITIES

Building Conditions: Previous Studies

A number of previous studies evaluated the condition of McCormack Hall and Wheatley Hall. Previous studies include:

- Study for the Integrated Sciences Complex  
  (Goody Clancy with R.G. Vanderweil survey,  
  August 14, 2009, Binder 2.2.3 Item 2)

- Existing Buildings and Design Implications –  
  McCormack Hall and Wheatley Hall  
  (Rolf Jensen & Associates, August 14, 2009, Binder 2.2.4 Item 1)

- UMass Boston Master Plan - Volume 2a  
  Existing Conditions / Data Collection and Analysis  
  (Chan Krieger Sieniewicz, July 10, 2008)

- UMass Boston Master Plan - Appendix 4  
  Code Study Summary  
  (R.F. Walsh Collaborative Partners, September 4, 2009)

These studies were supplemented by additional surveys conducted by the UMass Boston Facilities Department, assisted by DCAM, to identify the condition, use and accessibility of the existing classrooms and specialized instruction space.

- Survey of specialized instruction labs (Appendix B, Items 8 and 9)
- Survey of classrooms (Appendix B, Item 5)
- UMass Boston Building Plans – by floor with existing HVAC Zones  
  (Binder 2.2.2 Item 3)

Existing Conditions

The Phase One Space Allocation Plan study identified the existing deficiencies in McCormack Hall and Wheatley Hall based on a review of the previous studies, interviews with UMass Boston staff, and survey information.

Building systems

With a few exceptions, most of the Mechanical, Electrical and Plumbing (MEP) systems including Heating, Ventilation and Air Conditioning (HVAC) systems are original and in need of replacement or upgrades. For more detailed existing condition information, reference Appendix B, Item 6.

Newer systems include:

- Fire Protection systems (10 years, with more recent control panels)
- Addressable Fire Alarm systems
**Condition of Specialized Instruction Space**

Specialized instructional space includes teaching laboratories (both science and non-science), art studios, performing arts theater space, and other similar instructional spaces that have specific technical and design requirements, and are purpose-built to a specific program.

Some current labs have deficient characteristics that are tied to the use of existing space, and may be addressed by relocating the programs to appropriate new space, or by providing renovations to existing space. Examples are:

- Provisions for ventilation and chemical waste disposal in Art labs
- Provision of semi-wet lab space for Anthropology

**Condition of “Wet” Research and Teaching Labs**

The condition of existing research and specialized instructional space for “wet” labs, labs that require specialized ventilation and plumbing systems, was evaluated in detail during the Integrated Sciences Complex study. The majority of the existing science labs were found to be in poor or fair condition. In addition, the teaching labs are generally undersized for teaching. The research labs, which tend to be smaller, are substantially undersized for reuse as teaching spaces.

Labs were determined to be in 1 of 4 categories:

- **Good** = Minor to no renovation needed
- **Fair** = Minor renovation needed; possible extensive work required
- **Poor** = Extensive renovation needed; substantial deficiencies in the space
- **Unable to Access** = Occupied during the survey or locked support spaces

Fig. 1.20: Existing Biology Teaching Lab

Fig. 1.21: Comprehensive Survey of CSM and Psychology Specialized Instruction (Teaching and Research) in McCormack Hall

Fig. 1.22: Comprehensive Survey of CSM and Psychology Specialized Instruction (Teaching and Research) in Wheatley Hall
**Condition of Other Specialized Instruction Labs**

Additional "dry" or "semi-wet" specialized instructional spaces were visited and evaluated during the Phase One Space Allocation study. Their condition varied by building and location. See Appendix B, Items 8 and 9 for more detail.

**Condition of Specialized Instruction – Teaching – McCormack Hall (by number of labs)**

<table>
<thead>
<tr>
<th>Department</th>
<th>Space Type</th>
<th>Total Number of Labs</th>
<th>Percent Good</th>
<th>Percent Fair</th>
<th>Percent Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSM–Biology</td>
<td>Teaching Laboratory</td>
<td>7</td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>CLA–Anthropology</td>
<td>Teaching Laboratory</td>
<td>2</td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>CLA -- Performing Arts</td>
<td>Teaching Laboratory</td>
<td>8</td>
<td>12.5%</td>
<td>37.5%</td>
<td>50%</td>
</tr>
<tr>
<td>CLA -- Psychology</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCDE</td>
<td>Teaching Laboratory</td>
<td>2</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT -- Media Services</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGS -- Public Policy</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>22</strong></td>
<td><strong>18%</strong></td>
<td><strong>32%</strong></td>
<td><strong>50%</strong></td>
</tr>
</tbody>
</table>

Fig. 1.23

**Condition of Specialized Instruction – Teaching – Wheatley Hall (by number of labs)**

<table>
<thead>
<tr>
<th>Department</th>
<th>Space Type</th>
<th>Total Number of Labs</th>
<th>Percent Good</th>
<th>Percent Fair</th>
<th>Percent Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSM–Biology</td>
<td>Teaching Laboratory</td>
<td>9</td>
<td>44%</td>
<td>56%</td>
<td></td>
</tr>
<tr>
<td>CLA–Art</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLA -- Economics</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLA -- Performing Arts</td>
<td>Teaching Laboratory</td>
<td>5</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPCs</td>
<td>Teaching Laboratory</td>
<td>3</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GCE -- Curriculum and Instruction</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GCE -- Dean's Office</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGS -- Gerontology Institute</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>22</strong></td>
<td><strong>14%</strong></td>
<td><strong>36%</strong></td>
<td><strong>50%</strong></td>
</tr>
</tbody>
</table>

Fig. 1.24

Fig. 1.25: Survey of Teaching Labs in Wheatley Hall

Fig. 1.26: Survey of Teaching Labs in McCormack Hall

Fig. 1.27: Survey of Teaching Labs in Healey Library and Campus Center
Condition of Specialized Instruction –Teaching– in the Campus Center and Healey Library (by number of labs)

<table>
<thead>
<tr>
<th>Department</th>
<th>Space Type</th>
<th>Total Number of Labs</th>
<th>Percent Good</th>
<th>Percent Fair</th>
<th>Percent Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLA -- Art</td>
<td>Teaching Laboratory</td>
<td>4</td>
<td>25%</td>
<td>25%</td>
<td>50%</td>
</tr>
<tr>
<td>Honors Program</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT -- Educational Technology and Learning Commons</td>
<td>Teaching Laboratory</td>
<td>11</td>
<td>55%</td>
<td>36%</td>
<td>9%</td>
</tr>
<tr>
<td>IT -- Media Services</td>
<td>Teaching Laboratory</td>
<td>6</td>
<td>50%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>MGS -- Public Policy</td>
<td>Teaching Laboratory</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>23</strong></td>
<td><strong>52%</strong></td>
<td><strong>35%</strong></td>
<td><strong>13%</strong></td>
</tr>
</tbody>
</table>

Extent of Existing Specialized Instruction and Research Space

The Space Allocation study also considered the quantity of “wet” research labs that will be vacated by programs moving to the new ISC.

McCormack Hall and Wheatley Hall each have existing “wet” departments, comprising both research and teaching labs. Both types of labs are severely outdated for current lab needs, the teaching labs are undersized, and the ductwork is undersized and leaks. These are, however, the largest potential lab spaces in these buildings and the adjacent shafts provide space for new infrastructure. As a result, there is a definite advantage to locating new “wet” labs in the same location as these existing “wet” labs. The existing shafts in McCormack Hall are larger, and have more available capacity, than those in Wheatley Hall. As a result, McCormack Hall is the preferred location for departments with heavier mechanical, electrical, plumbing and ventilation needs, such as Biology.

Wheatley and McCormack Laboratory Spaces Vacated by Labs Moving to the ISC

<table>
<thead>
<tr>
<th>NCES code</th>
<th>NASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>210, 220</td>
<td>(3,572)</td>
</tr>
<tr>
<td>250</td>
<td>(22,083)</td>
</tr>
<tr>
<td>255</td>
<td>(15,741)</td>
</tr>
<tr>
<td>250</td>
<td>(2,575)</td>
</tr>
<tr>
<td>255</td>
<td>(985)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>(44,956)</strong></td>
</tr>
</tbody>
</table>

---

5 Refer to Appendix B, Item 3, Rickes Associates Order of Magnitude Space Needs Methodology for description of NCES codes.
Below is an example of one floor plan showing existing uses. Plans identifying all specialized instruction space and the condition of all existing ISC labs in McCormack and Wheatley are included in Appendix B, Item 9.

Condition of Classrooms

UMass Boston's Facilities Department conducted a survey of the use, condition and accessibility of existing classrooms. The number and types of seating within each room were documented along with the level of technology present. The majority of classrooms were noted to have HVAC concerns of insufficient air changes, possibly due to overcrowding and the current HVAC unit capacity. Several classrooms were noted to have egress issues which should be evaluated during the design phase. See Appendix B, Item 5 for additional information.
Recommendations

Based on this information, the Space Allocation Plan includes general recommendations for renovation work for the purpose of estimating the feasible scope of the $75 million renovation project.

- Original HVAC equipment and systems and roof-top equipment should be replaced in general purpose classroom zones, where poor ventilation combines with high occupancy to result in uncomfortable conditions.

- Based on the condition of the labs and the percentage of labs that will be vacated by programs moving to the new ISC, renovation of all “wet” lab areas in McCormack Hall and Wheatley Hall is recommended.

- Original HVAC equipment and systems, including risers and roof top equipment should be replaced in existing “wet” HVAC zones, where poor ventilation could pose a health issue.

- Total or moderate renovations to individual rooms should include upgrades to the HVAC, plumbing and electrical distribution, fire protection and fire alarm systems to meet current code requirements, and as required by any reconfiguration.

- The renovation should include miscellaneous Life Safety improvements throughout the building, such as the repairs or maintenance of existing LED exit signs and/or emergency circuits.

Work in Progress

The Campus has already undertaken several projects to improve existing systems, including:

- Emergency stabilization of the existing buildings supported by the parking substructure
- Fire alarm panel upgrades
- Planning for elevator upgrades
- Healey Library Emergency Generator Replacement
- Relocation and replacement of the main medium voltage switchgear

Recommended Additional Studies

Additional investigation of systems is recommended before or as part of the future renovation:

- Detailed evaluation of HVAC systems
- MAAB Accessibility evaluation
- Energy analysis
- Investigation of the building envelope
- Power and Emergency Power services
- Data and technology systems
- Abatement of Hazardous Materials
CODE COMPLIANCE

At the beginning of the Space Allocation planning process, to anticipate the impact of proposed renovations on code compliance, a Code Strategy Report was developed, based on the 7th Edition 780 CMR. After a consensus plan was developed, a second Code Report was completed based on the recently adopted 8th Edition, to address the specific Phase One renovations.

The Code Strategy Report

The purpose of the Code Strategy Report was to identify the potential scope and cost of major fire protection, life safety and structural code requirements, prior to developing options for Phase One renovations in McCormack Hall and Wheatley Hall. The report reviewed:

- Minimum requirements that are retroactive
- New requirements that apply to the area being renovated
- Additional requirements that are triggered by renovation work, but apply to portions of the building not included in the renovation plans.

The Code Strategy Report Code was based on the following codes:

- 780 CMR 7th Edition MSBC (Massachusetts State Building Code)
- 521 CMR AAB (Massachusetts Architectural Access Board) January 27, 2006
- 527 CMR MFPR (Mass Fire Prevention Regulations) November 4, 2005

Major conclusions of the report are the following:

- An existing building is considered to be code compliant if it meets the requirements of the code at the time it was constructed. The construction of McCormack Hall and Wheatley Hall began in 1971, prior to the adoption of the first Massachusetts State Building Code in 1975. As such it is presumed that both buildings were constructed in accordance with a national building code; however it is not known which code was used. However, it should be noted that the Massachusetts Architectural Access Board was established in 1968. Compliance with the 1968 MAAB regulations has not been determined.

- McCormack Hall and Wheatley Hall are currently classified, and are expected to continue to be classified, as a mixed use of B Business and A3 Assembly occupancy categories as defined by the Massachusetts State Building Code.

- Hazardous materials, such as lab chemicals, will be limited to the control areas allowed by the code.


7 See Appendix C, Item 4 for complete 8th Edition Code Report
• The buildings are fully protected with automatic sprinkler systems.
• Egress capacity complies with the building code.
• Construction type is 1B Noncombustible protected as defined by the Massachusetts State Building Code

Chapter 34 of 780 CMR 7th Edition MSBC (Massachusetts State Building Code) addresses the minimum requirements that the code retroactively imposes when a renovation or alteration occurs, to ensure that the building remains safe once upgrades are made. This minimum work required under Chapter 34 is likely to include removal of non-conforming uses within stair enclosures such as the existing offices in McCormack Hall.

In general, renovated areas are required to comply with the code for new construction. For purposes of the renovation study, the estimated costs of code upgrades that will be triggered by renovation scope are included in the unit cost for each type of renovation. The unit price for moderate or complete (gut) renovations includes the cost of related code upgrades, such as local modifications to fire protection and fire alarm systems.

Examples of requirements with potential impact on the project include:
• Fire separation, smoke dampers and HVAC requirements for labs.
• Limits for storage of hazardous materials within properly constructed control areas
• Upgrades to emergency lighting, exit lights, fire alarm and fire protection systems where they are reconfigured by the renovation.
• Requirements of the energy conservation code
• Structural upgrades triggered by structural modifications.
• Provision of ADA accessible path of travel requirement to altered primary function areas.

MA 521CMR AAB (Regulations of the Massachusetts Architectural Access Board) requires that any renovation costing more than $100,000 but less than 30% of the full and fair cash value of the building, meet certain requirements. Applicable work that should be included as part of the required renovation scope and budget:
• Accessible entrance(s) that currently exist must be maintained during the renovation to the extent that they serve occupied areas. All occupied areas of the building should have an accessible entrance after the renovation.
• Accessible toilet rooms must be provided;
• Accessible telephone (if telephones are provided); and
• Accessible drinking fountain (if a drinking fountain is provided).
Renovation work in excess of certain code thresholds has the potential to trigger additional work that could be greater than can be accommodated under the existing $75 million budget. Potential work in these areas should be evaluated carefully to identify the related work. Examples include:

- The requirements of the energy conservation code must be considered as a part of the project. Similarly, this project should consider the impact of HVAC and electrical system improvements that would improve the energy consumption of the building(s). For example, UMass Boston has indicated it would like to replace the heating systems in the remaining areas that are served by electric heat in these buildings.

- The overall scope of structural modifications should be evaluated to verify that it remains within the allowable limits for Level 1 structural work. Level 1 structural impacts are likely limited to the area where structural upgrades or other upgrades occur during the renovation project, rather than impacting the entire building. However, the Structural Engineer of Record will need to verify, as required by the MSBC, that other areas are not impacted by the new work.

We recommend that this evaluation be based on the provisions of the 8th Edition of the MSBC because the 8th Edition, and any related changes in the structural section of the code, would apply to the most probable renovation time frame from 2011-2014.

- Alterations to the existing open stair in McCormack Hall that enlarge the extent of the stair would trigger requirements for an atrium, including smoke evacuation systems.

**The 8th Edition Massachusetts State Building Code**

During the course of the planning process, the 8th Edition of the 780 CMR Massachusetts State Building Code was adopted (on August 6, 2010). A Code Analysis was completed based on the 8th Edition for the proposed renovation scope. The results of that study are included in the scope and cost of work described in Section 2, and in Appendix C, Item 3.

The majority of the findings from the 7th Edition to the 8th Edition are the same. However, the major change in the 8th Edition has been the definition of "work area" whereas in the 7th Edition this was not defined. Thus, the code requirements of the upgrades for any project should be clearer based on the explicit requirements contained in the 8th Edition code. Further, the 8th Edition also has more defined structural upgrades that generally entail less work than the 7th Edition. Ultimately, the amount and type of upgrades will depend on the scope of the project and will be determined by the Structural Engineer of Record.
RENOVATION BUDGET

The renovation of McCormack Hall and Wheatley Hall is currently limited to a total budget of $75 million. Total Project Costs (TPC) include “hard” and “soft” costs. Hard costs include Estimated Construction Cost (ECC) i.e. the “hard costs” of construction, including Subcontractor work and General Contractor overhead, profit and contingency. Soft costs include Owner’s administrative and management costs, Architectural and Engineering fees, Design and Owner’s contingencies, legal fees, etc.

The following figure shows the breakdown of budget between Total Project Costs (soft and hard costs) and the Estimated Construction Cost (hard cost). By subtracting the estimated "soft costs" from the Total Project Cost of $75 million, it was determined that the budget for "hard costs" of actual construction costs is approximately $55 million.

*Renovation Budget in 2010 dollars - TPC, ECC and "Soft Costs"*

<table>
<thead>
<tr>
<th>Description</th>
<th>DCAM Projected Total Project Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL ESTIMATED CONSTRUCTION COST (ECC)</td>
<td>$55,346,588</td>
</tr>
<tr>
<td>Other Typical Costs (soft)</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>$935,357</td>
</tr>
<tr>
<td>Administrative</td>
<td>$60,000</td>
</tr>
<tr>
<td>Design</td>
<td>$5,268,995</td>
</tr>
<tr>
<td>Selected Construction Costs</td>
<td></td>
</tr>
<tr>
<td>Design Contingency</td>
<td>10.0% $5,534,659</td>
</tr>
<tr>
<td>Change Order Contingency</td>
<td>5.0% $2,767,329</td>
</tr>
<tr>
<td>Energy Modeling</td>
<td>0.3% $138,366</td>
</tr>
<tr>
<td>Commissioning</td>
<td>0.5% $276,733</td>
</tr>
<tr>
<td>Construction Manager (CM) Preconstruction</td>
<td></td>
</tr>
<tr>
<td>General Conditions Preconstruction</td>
<td>$240,000</td>
</tr>
<tr>
<td>CM Fees Preconstruction</td>
<td>$60,000</td>
</tr>
<tr>
<td>Administrative CM</td>
<td>$1,051,176</td>
</tr>
<tr>
<td>Furniture, Fixtures and Equipment</td>
<td>6.0% $3,320,795</td>
</tr>
<tr>
<td>ESTIMATED TOTAL PROJECT COST</td>
<td>$75,000,000</td>
</tr>
</tbody>
</table>

Fig. 1.32
While the budget for the Estimated Construction Cost is approximately $55 million in 2010 dollars, the value of this budget will decrease over time due to escalation. The challenge is to maximize the value of the renovation by using the funds strategically, where and when the campus can realize the most benefit.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs of renovation escalate over time</td>
<td>Commit to more space renovation in early steps, budgeting to stay within $75 million Total Project Cost</td>
</tr>
<tr>
<td>A variety of different space types (wet, dry, double height) exists in the buildings</td>
<td>Maximize reuse of each space type for suitable purpose (Wet to Wet, Dry to Dry)</td>
</tr>
<tr>
<td>Certain functions are better served by new construction such as expensive, highly technical space</td>
<td>Chemistry teaching labs, Art and Performing Arts move to General Academic Building 1</td>
</tr>
<tr>
<td>Minimize disruption and cost</td>
<td>All department occupants will be moved as few times as possible. Departments may be moved in stages.</td>
</tr>
</tbody>
</table>
PRELIMINARY OPTIONS

Based on the available space and budget, three options were developed for the renovation of McCormack Hall and Wheatley Hall. All three options included the same space program for the new buildings — the Integrated Sciences Complex and the General Academic Building No. 1. All three options provided roughly the same amount of renovation and growth based on the previously developed Priority Program. All options were developed and estimated to fall within the $75 million budget. The variation in cost among the options was negligible at this point in the process, and was therefore deemed to be irrelevant as a criterion to choose among them. For a summary of the costs for each option by building, see Appendix B, Item 21.

Each option explored different uses for the available vacant space based on the type of space:

- Use of existing wet space for "wet" departments such as Biology, Environment Earth & Ocean Sciences (EEOS), and to a lesser extent, Physics and Nursing
- Use of existing office space for relocation and growth of faculty and administrative offices
- Use of large areas for consolidation of large departments, such as Nursing
- Use of appropriately configured space for classroom configuration
- Use of vacant space adjacent to existing department space to consolidate departments such as Anthropology and Psychology

Options A, B, and C all located Biology teaching labs, Psychology research and teaching labs and Anthropology research and teaching labs in McCormack to take advantage of the McCormack wet space, and to consolidate Psychology and Anthropology near existing department space.

However, the distribution of general purpose classrooms between McCormack and Wheatley, and the locations of Nursing, Exercise and Health Sciences (EHS), Physics teaching, Environment Earth & Ocean Sciences teaching, Watershed Integrated Sciences Partnership and McNair varied between Options:

- **Option A** located Nursing in McCormack Hall and EEOS and Physics in Wheatley Hall
- **Option B** reversed the assignments, putting Nursing in Wheatley Hall and EEOS and Physics in McCormack hall
- **Option C** located Nursing in McCormack and Physics in Wheatley, similar to Option A, but shifted EEOS to McCormack Hall resulting in a shift of more classrooms to Wheatley

For plans of the three options and a detailed narrative describing them, see Appendix B, Item 21.
Other options were explored at the University’s request. They included:

- Reserving existing unassigned space in McCormack Cafeteria for other uses was considered but not pursued as there would be insufficient space to relocate all occupants from Science. Approximately 6,900 ASF of additional space would be required. See Appendix B, Item 15 for additional information.

- Relocation and consolidation of the entire College of Nursing and Health Sciences (CNHS) into the Quinn Administration Building was considered, but not pursued due to the associated increase in budget. Approximately two floors of Quinn would need to be relocated to accommodate CNHS. Refer to the Presentation of Options to the Deans dated 8/26/10 in Appendix B Item 19 for additional description and cost information.

After minor adjustments were made to Option A such as relocating EHS to McCormack Hall, it was selected for the Space Allocation Plan based on its advantages over both Options B and C:

- Immediate use of available space for growth for classrooms and high demand Nursing programs
- Ability to use existing space types more efficiently
- Consolidation of Nursing and EHS in McCormack Hall (with the exception of GoKids!, which will remain in Quinn Administration Building)

**CONCLUSION**

Although the combination of existing and proposed new building space and the renovation funds will not meet all of the current needs of the campus, the Phase One Space Allocation Plan will meet 93% of the current need as shown in Figure 1.34. The priority program will provide an appropriate mix of general purpose classroom space, along with quality specialized instructional and research space, additional office space and student collaborative space. In addition, the relocation of departments from the Science Center will allow the University to vacate the building and prepare for its demolition. The plan will improve selective instructional and research space and repurpose existing space to meet current and future needs while the University constructs new academic facilities to fulfill strategic and academic priorities.

---

8 The total projected space need from the Space Needs Assessment (1,161,00 NASF) is greater than the available space (1,079,300 NASF).
Section 2: The Phase One Space Allocation Plan

INTRODUCTION

The Phase One Space Allocation Plan assigns the priority program to specific locations in new or renovated space. The proposed plan meets the goals of the Master Plan by:

• Providing two new buildings to replace existing space and provide new space for enrollment growth
• Providing a $75 million strategic renovation for approximately 180,000 NASF of existing academic buildings

This section of the report describes the Phase One Space Allocation Plan and includes these components:

• Program for the Integrated Sciences Complex
• Program for the General Academic Building No. 1
• Program and plans for the partial renovation of McCormack Hall
• Program and plans for the partial renovation of Wheatley Hall
• Program and plans for projects in other buildings
• A detailed budget for the expenditure of the $75 million for campus renovations
• Conclusion

INTEGRATED SCIENCES COMPLEX

The 118,000 NASF program for the Integrated Sciences Complex building includes wet and dry labs with research support space for Biology, Chemistry, Environmental, Earth and Ocean Sciences, Physics and Psychology Research. The building also includes four Introductory Biology Teaching laboratories to ensure that a large cross section of students is exposed to UMass Boston's new research facilities and activities in the building. Approximately 108,000 NASF of the overall right-size program, plus a 15% contingency of 10,000 NASF for growth towards 18,000 students, will be located in this new facility along café, lounge, conference and lobby spaces to foster interaction among the building's occupants. (The final area of the Integrated Sciences Complex may vary slightly from the 118,000 NASF program as the final building program and design are developed.)
The ISC’s program includes:

<table>
<thead>
<tr>
<th>Space</th>
<th>Goals</th>
<th>NASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology; Chemistry; Environmental, Earth, and Ocean Sciences; and Physics and Engineering; and Psychology</td>
<td>State-of-the-art, flexible research laboratories and collaborative interaction spaces</td>
<td>86,640</td>
</tr>
<tr>
<td>Undergraduate Biology Teaching Labs</td>
<td>Open, flexible teaching labs that support a range of instructional techniques and approaches</td>
<td>6,420</td>
</tr>
<tr>
<td>“Sandbox”</td>
<td>Lab for advanced projects across a range of science disciplines</td>
<td>960</td>
</tr>
<tr>
<td>Psychology Observation Facility</td>
<td>Well-equipped, flexible facility to support observation of human subjects in a range of settings</td>
<td>2,000</td>
</tr>
<tr>
<td>Developmental Sciences Research Center</td>
<td>Interdisciplinary laboratory suite to support research initiatives that straddle Biology and Psychology</td>
<td>1,980</td>
</tr>
<tr>
<td>Center for Personalized Cancer Therapy</td>
<td>Sophisticated research center that interfaces with outside sponsors and research partners involved in cancer research</td>
<td>5,100</td>
</tr>
<tr>
<td>Animal facility (vivarium)</td>
<td>State-of-the-art small-animal (rodent) vivarium, comprising housing, procedure and behavioral spaces for biology and psychology research support</td>
<td>5,200</td>
</tr>
<tr>
<td>Conference rooms and break rooms Café, lounge, and lobby space</td>
<td>Attractive, inviting spaces to foster interaction and collaboration among all the building’s occupants, the larger campus community, and visitors</td>
<td>7,200</td>
</tr>
<tr>
<td>Loading entrance for building services</td>
<td>Functional, flexible and easily maintained space to accommodate a variety of services, deliveries and building-support functions</td>
<td>1,700</td>
</tr>
<tr>
<td>An enclosed pedestrian connection to the existing campus buildings</td>
<td>Strong connection to the campus pedestrian network, conveniently located and inviting</td>
<td></td>
</tr>
<tr>
<td>TOTAL NASF</td>
<td></td>
<td>118,000</td>
</tr>
</tbody>
</table>

For additional information on the ISC planning process and program, see *The Study for the Integrated Sciences Complex, Volumes One through Four (DCAM)*.

**GENERAL ACADEMIC BUILDING NO. 1**

**General Academic Building No. 1** is currently planned to include 150,000 NASF of space. In November 2009, UMass Boston convened the General Academic Building No. 1 Steering Committee comprising all of the deans, the vice provost for information technology, and the provost. The committee worked collaboratively to create the conceptual space program for the building that will serve a large cross-representation of students, faculty, and staff through diverse programming that includes state-of-the-art general purpose classrooms and specialized instructional spaces and new homes for several academic programs. Construction is projected to be complete in 2014.
The GAB No. 1 conceptual program includes:

<table>
<thead>
<tr>
<th>Space</th>
<th>Goals</th>
<th>NASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose Classrooms</td>
<td>Assumes relocation of all large classrooms (45 students +) from McCormack and Wheatley Halls in order to economically right-size these spaces and inclusion of large auditoria. Final classroom mix is currently being analyzed through a campus-wide space planning study.</td>
<td>57,000</td>
</tr>
<tr>
<td>Seminar/Breakout Rooms</td>
<td>Create 15 +/- rooms to better meet changing pedagogical methods and curricula delivery.</td>
<td>3,000</td>
</tr>
<tr>
<td>Food Service</td>
<td>Food Service “Grab and Go” type service to encourage activity and interaction in the building.</td>
<td>3,000</td>
</tr>
<tr>
<td>Student Lounge/Study Space</td>
<td>Spaces where students can socialize, study quietly, and have access to power, network connections Space connections, and comfortable furniture.</td>
<td>5,836</td>
</tr>
<tr>
<td>Performing Arts Theater and Art Studios</td>
<td>Inclusion of the theater will bring life to the building and can also be used as a general purpose classroom. Relocation of existing art studios to the new building is a cost-effective way of providing the proper ventilation that the existing studios now lack.</td>
<td>26,000</td>
</tr>
<tr>
<td>Chemistry Teaching Labs</td>
<td>It is more economical to build new Chemistry teaching labs in the General Academic Building No. 1 than to renovate existing space given sophisticated service and ventilation requirements. The majority of students enrolled in chemistry teaching lab courses (93%) are non-chemistry majors increasing the number of students that will use the new building.</td>
<td>28,230</td>
</tr>
<tr>
<td>Performing Arts &amp; Art offices building</td>
<td>Faculty- and staff-in-residence will help bring a sense of community to the building.</td>
<td>6,141</td>
</tr>
<tr>
<td>Chemistry faculty offices</td>
<td>Faculty and staff in residence will help bring a sense of community to the building.</td>
<td>1,900</td>
</tr>
<tr>
<td>Computer Science Dept. &amp; instructional spaces</td>
<td>Inclusion of the math and computer science departments associated with so-called “gateway” courses demonstrates UMass Boston’s goal of increasing retention rates.</td>
<td>10,503</td>
</tr>
<tr>
<td>Math Dept. &amp; instructional spaces</td>
<td>Inclusion of the math and computer science departments associated with so-called “gateway” courses demonstrates UMass Boston’s goal of increasing retention rates.</td>
<td>4,490</td>
</tr>
<tr>
<td>Honors Program</td>
<td>Relocating the Honors Program to this new building reflects UMass Boston’s status as a major academic enterprise and provides space for a cross-representation of undergraduate students.</td>
<td>1,500</td>
</tr>
<tr>
<td>Graduate Studies</td>
<td>The presence of the Office of Graduate Studies signals a key priority to strengthen research and corresponding graduate programs at UMass Boston.</td>
<td>2,400</td>
</tr>
<tr>
<td><strong>TOTAL NASF</strong></td>
<td>Total for new General Academic Building No. 1</td>
<td>150,000</td>
</tr>
</tbody>
</table>
RENOVATION OF EXISTING BUILDINGS

The plans on the next pages illustrate the recommended distribution of program elements in McCormack Hall, Wheatley Hall and other buildings after all the renovation steps are concluded. These plans are organized by building and by floor. Renovated department space is indicated by individual solid colors with unrenovated existing space for each department in the program shown with a dashed outline. In addition, the plans indicate the level of renovation and phase in which work will be done. The work included in each level of renovation (gut, moderate and minimum) is explained on page 2.19. Section 3 of this report explains each phase in detail.

Each set of plans is introduced with a table which summarizes renovated space by department. Enlarged plans are available in Appendix C, Item 2. Note that these are “test-fit” plans to assess the feasibility of fitting the required area for each program into the available space, with the desired adjacencies, and being mindful of the nature of the space, e.g. putting “wet” uses into “wet” spaces. Detailed architectural plans will be developed during the design phase which will precede the renovations.

McCormack Hall

The renovation of McCormack Hall will include substantial renovation of 74,797 NASF, approximately half of the building’s net assignable area. This includes department renovations (listed in figure 2.4) and removal of existing offices in stairwells for code compliance. Additionally, all unrenovated classrooms (16,488 NASF) will receive heating, ventilation, air conditioning (HVAC) improvements. Most of the renovated area will be vacated for renovation when occupants move into the Integrated Sciences Complex or into General Academic Building No. 1; the remaining areas will be vacated incrementally for renovation as occupants move into previously renovated space. Construction will be phased over several years, from 2011 through 2015, partially contingent on the schedule for the above new projects.

Work will include “gut” renovations of the existing labs to provide new teaching lab space for Biology and Anthropology, and substantial renovations for Psychology Research and Teaching space including renovations to Psychology offices. The College of Nursing and Health Sciences (CNHS) will be relocated to McCormack Hall with the Department of Nursing located across all floors while Exercise and Health Sciences will be located on the second floor and the CNHS Dean’s Office will be located on the fourth floor. Many classrooms will be reconfigured and have system improvements; the balance will have improved HVAC controls. Some classroom space will be converted to department space as new larger classrooms are constructed elsewhere.
Departments that will occupy renovated space in McCormack Hall:

<table>
<thead>
<tr>
<th>Space</th>
<th>Goals</th>
<th>NASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose Classrooms</td>
<td>Right-size existing classrooms and renovate surplus small classrooms and vacant space to meet recommended mix of classrooms for 15,000 students (includes reconfiguration to 7,207 NASF and HVAC upgrades to 16,488 NASF of classrooms)</td>
<td>23,695</td>
</tr>
<tr>
<td>Nursing</td>
<td>Right-size department and relocate from Science, providing growth for a high demand department.</td>
<td>23,215</td>
</tr>
<tr>
<td>Exercise Health Sciences</td>
<td>Right size department and relocate from Science</td>
<td>3,644</td>
</tr>
<tr>
<td>College of Nursing and Health Sciences Dean’s Office</td>
<td>Relocate Dean’s office to co-locate with Nursing</td>
<td>453</td>
</tr>
<tr>
<td>Biology Teaching</td>
<td>Right-size Biology Specialized Instructions space to accommodate students in appropriately sized space</td>
<td>22,940</td>
</tr>
<tr>
<td>College of Science and Mathematics Dean’s Office – Freezer Farm</td>
<td>Relocate CSM support space from Science</td>
<td>600</td>
</tr>
<tr>
<td>Psychology</td>
<td>Right-size department and consolidate to improve department identity and share support spaces</td>
<td>12,605</td>
</tr>
<tr>
<td>Anthropology</td>
<td>Relocate and right-size research area from Science, consolidating department.</td>
<td>2,258</td>
</tr>
<tr>
<td>McCormack Graduate School Dean’s Office,</td>
<td>Relocate MGS office space to renovated space of same of size in order to facilitate construction of a large classroom</td>
<td>257</td>
</tr>
<tr>
<td>Massachusetts Office of Dispute Resolution</td>
<td>Relocate MODR Programs to renovated space of same size in order to facilitate construction of a large classroom</td>
<td>150</td>
</tr>
<tr>
<td>Breakout Space</td>
<td>Provide new breakout or collaboration space</td>
<td>300</td>
</tr>
<tr>
<td>Faculty Offices</td>
<td>Renovation of faculty office space for future use</td>
<td>208</td>
</tr>
<tr>
<td>TOTAL NASF</td>
<td>Total Renovated Department Area in McCormack Hall including HVAC upgrades to classrooms</td>
<td>90,325</td>
</tr>
</tbody>
</table>

Fig. 2.4
Fig. 2.6: Option A2 Test Fit—McCormack Hall 2nd Floor
Fig. 2.7: Option A2 Test Fit—McCormack Hall 3rd Floor
Fig. 2.8: Option A2 Test Fit—McCormack Hall 4th Floor
**Wheatley Hall**

The renovation of Wheatley Hall will include substantial renovation of 55,750 NASF, one-third of the building’s net assignable area. Another 10% of the building (15,396 NASF), which is classrooms, will receive HVAC improvements. Half of the renovated area will be vacated for renovation when occupants move into the Integrated Sciences Complex or into General Academic Building No. 1, the remaining areas will be vacated for renovation after occupants move into previously renovated space. Construction will be phased over two years, starting with completion of the new buildings in 2013 – 2014.

Work will include “gut” renovations of the existing labs to provide new teaching lab space for Environmental, Earth and Ocean Sciences (EEOS) and Physics, new classrooms and substantial renovations for other departments. Minor renovations for faculty offices and other relocated offices will include new finishes and lighting. Many classrooms will be reconfigured and have system improvements; the balance will have improved HVAC controls.

Departments that will occupy renovated space in Wheatley Hall include the following:

<table>
<thead>
<tr>
<th>Space</th>
<th>Goals</th>
<th>NASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose Classrooms</td>
<td>Right-size existing classrooms and renovate surplus small classrooms and vacant space to meet recommended mix of classrooms for 15,000 students (includes reconfiguration to 24,892 NASF and HVAC upgrades to 15,396 NASF of classrooms)</td>
<td>40,288</td>
</tr>
<tr>
<td>Physics Teaching</td>
<td>Right-size department and relocate from Science, providing quality teaching space to accommodate students in appropriately sized space</td>
<td>13,488</td>
</tr>
<tr>
<td>Environmental, Earth and Ocean Sciences Teaching</td>
<td>Right-size department and relocate from Science, providing quality teaching space to accommodate students in appropriately sized space</td>
<td>8,225</td>
</tr>
<tr>
<td>Watershed Integrated Sciences Partnership</td>
<td>Relocate department to allow for the future demolition of Science</td>
<td>270</td>
</tr>
<tr>
<td>McNair</td>
<td>Relocate department to allow for the future demolition of Science</td>
<td>230</td>
</tr>
<tr>
<td>College of Science and Mathematics Student Success Center</td>
<td>Relocate CSM support space from Science, right-sizing the Student Success Center to promote access to excellence</td>
<td>1,000</td>
</tr>
<tr>
<td>University College (previously CCDE)</td>
<td>Relocate teaching labs and office space to consolidate department in Wheatley Hall which will improve department identity and share support spaces</td>
<td>2,416</td>
</tr>
<tr>
<td>McCormack Graduate School Gerontology</td>
<td>Relocate Gerontology to allow better use existing double of height space for tiered classroom</td>
<td>2,050</td>
</tr>
<tr>
<td>Breakout space</td>
<td>Provide new breakout or collaboration space</td>
<td>1,200</td>
</tr>
<tr>
<td>College of Science and Mathematics Dean’s Office</td>
<td>Relocate Office to renovated space of same size to facilitate consolidation of other departments</td>
<td>222</td>
</tr>
<tr>
<td>College of Education and Human Development Dean’s office (previously GCE)</td>
<td>Relocate department to renovated space of same size to facilitate consolidation of other departments</td>
<td>380</td>
</tr>
<tr>
<td>Faculty Offices</td>
<td>Renovation of faculty office space for future use</td>
<td>1,377</td>
</tr>
<tr>
<td><strong>TOTAL NASF</strong></td>
<td>Total Renovated Area in Wheatley Hall including HVAC upgrades to Classrooms</td>
<td>71,146</td>
</tr>
</tbody>
</table>
Fig. 2.11: Option A2 Test Fit—Wheatley Hall 1st Floor
Renovated Space Option A2

Fig. 2.12: Option A2 Test Fit—Wheatley Hall 2nd Floor
Fig. 2.13: Option A2 Test Fit—Wheatley Hall 3rd Floor
Fig. 2.14: Option A2 Test Fit—Wheatley Hall 4th Floor

Renovated Space Option A2

Wheatley 4th Floor

Legend:
- Anthropology
- Biology
- Storeroom
- Classroom
- CNED Dean's Office
- Un-Renovated Space
- University College
- Renovated Space
- Pathology
- Psychology
- Biomedical
- Unaligned

Only Areas Shown with a Solid Hatching are Scheduled to be Renovated

Phasing:
- Step 1: Enabling Projects
- Step 2: After Completion of EGC
- Step 3: After Completion of QM A

Renovation Level:
- "G" Total Renovation and Reconfiguration
- "Moderate" Moderate Renovation and Reconfiguration
- "Minimal" Renovation Only
- "HVAC" Classroom HVAC Renovation Only
PROJECTS IN OTHER BUILDINGS

Selected projects in new space or other buildings, totaling almost 18,000 NASF, will support the relocation of departments from the Science Center and growth of general use classrooms:

- **Biology Greenhouse** at grade (new construction, location to be determined)
- **IT Data Center** (Infrastructure) and associated staff offices to be relocated from the Science Center to renovated space in the Service & Supply Building or in a location yet to be determined
- **CSM Machine Shop** from Science Center to be relocated from the Science Center to renovated space in a location yet to be determined
- **New general purpose classrooms** to be added in renovated space in the existing Quinn Administration Building cafeteria.

The campus continues to study the needs and is exploring relocation options for the Biology Greenhouse, IT Data Center, and the CSM Machine Shop. In July 2010, SST Planners, Goody Clancy, and representatives from UMass Boston’s Offices of Facilities and Campus Master Planning met with representatives from the Biology Greenhouse and CSM Machine Shop programs in an effort to gain additional information and understanding of the needs of these two programs. The notes from these meetings can be found within Appendix B, Items 16 and 17.

Campus facilities and planning staff continue to study and explore possible at grade new construction siting options for the Biology Greenhouse while space in the Service and Supply Building is also being explored for the IT Data Center and CSM Machine Shop programs. In addition, UMass Boston’s Division of Information Technology has also recently hired an enterprise architect, Vantage Technology, to assist the campus with developing a Master Plan for Information Technology. Vantage Technology is currently studying the needs of the IT Data Center and is sharing its existing conditions and planning information with UMass Boston facilities and planning staff. This study will be discussed and considered when making decisions about the future location of this program.

The campus is committed to relocating the Biology Greenhouse, IT Data Center, and CSM Machine Shop and will continue to engage stakeholders in discussions and keep them informed about next steps.
The preliminary space estimate for these projects includes:

<table>
<thead>
<tr>
<th>Space</th>
<th>Goals</th>
<th>NASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose Classrooms</td>
<td>New classrooms in Quinn to replace those in former McCormack Cafeteria</td>
<td>3,447</td>
</tr>
<tr>
<td>Biology Greenhouse</td>
<td>Right-size department and relocate from Science, providing quality teaching space to accommodate students in appropriately sized space</td>
<td>5,000</td>
</tr>
<tr>
<td>CSM Dean’s Office – Machine Shop</td>
<td>Right-size department and relocate from Science, providing quality teaching space to accommodate students in appropriately sized space</td>
<td>3,500</td>
</tr>
<tr>
<td>IT Infrastructure</td>
<td>Relocate department to allow for the future demolition of Science</td>
<td>5,890</td>
</tr>
<tr>
<td>Academic Support Programs</td>
<td>Relocate department from McCormack to Campus Center to free up space for departments relocating from Science</td>
<td>160</td>
</tr>
<tr>
<td><strong>TOTAL NASF</strong></td>
<td><strong>Total Renovated Area in Other Buildings</strong></td>
<td>17,997</td>
</tr>
</tbody>
</table>

Fig. 2.16
BUDGET

The Phase One Renovation Project cost, including escalation based on the proposed schedule, is $75 million Total Project Cost (TPC), or approximately $55 million Estimated Construction Cost (ECC), both in 2010 dollars.

The Estimated Construction Cost (ECC) includes the actual cost of the construction including escalation, as well as several allowances:

- Temporary space (if needed) Allowance $0.5 million
- Site and Hazardous Material Abatement Allowance $1.0 million
- Phasing Premium Allowance $5.0 million
- Owner’s Scope Contingency $4.5 million

The Owner’s Scope Contingency will be used to pay for some amount of additional work under consideration:

- The campus will identify spaces that are not part of major moves for selective renovations and upgrades such as furnishings, lighting, ceilings and/or flooring.
- Working with the Facilities Department master schedule, painting improvements to McCormack and Wheatley will be targeted to aid building wide space improvement efforts.
- Through collaboration with NSTAR, monies will be used for a variety of energy saving initiatives such as sustainable new construction, lighting and major equipment upgrades and experimentation with new technologies.
- New ceilings, lights and HVAC improvements for College of Nursing and Health Sciences and Psychology office areas as deemed necessary.
- Accessibility improvements in areas not otherwise renovated.
The Estimated Construction Cost (ECC) is based on assumptions regarding a number of factors:

- Cost per square foot, based on extent of work
- Area renovated or built new
- Phasing, including date of construction or renovation
- Escalation rate

The cost per square foot is based on a range of work for each type of work, based on the extent of work (gut, moderate, minimum) and the type of space (lab, classroom, office, new construction or renovation). These figures have been substantiated with current construction values from the Division of Capital Asset Management (DCAM) projects and a database of recent projects maintained by Vermeulens Cost Consultants. Escalation costs are based on the proposed schedule and escalation rates developed by the Project team and reviewed by DCAM. Nevertheless, it should be noted that this is an order-of-magnitude estimate, and will be adjusted as the program and design are developed for the renovations. Detailed project cost and phasing spreadsheets are available in Appendix D, Item 1.

### Preliminary Cost per GSF of Various Types of Renovations

<table>
<thead>
<tr>
<th>Gut rehab</th>
<th>Moderate Rehab</th>
<th>Minimum Renovation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exist wet to remain wet: (gut)</strong></td>
<td><strong>Exist wet to remain wet: (mod)</strong></td>
<td><strong>Exist wet to remain wet: (min)</strong></td>
</tr>
<tr>
<td>W to W-G</td>
<td>W to W-Mod</td>
<td>W to W-Min</td>
</tr>
<tr>
<td>$305</td>
<td>$200</td>
<td>$110</td>
</tr>
<tr>
<td>- Gut and reconfigure</td>
<td>- Reconfigure teaching to research</td>
<td>- No reconfiguration</td>
</tr>
<tr>
<td>- New finishes &amp; casework</td>
<td>- New finishes and casework</td>
<td>- New ductwork within lab</td>
</tr>
<tr>
<td>- New MEP &amp; systems</td>
<td>- New ductwork within lab</td>
<td>- Minimal revisions to MEP and lights</td>
</tr>
<tr>
<td>- Replace duct risers in exist shaft</td>
<td>- Add new exhaust risers in exist shaft</td>
<td>- Add new duct risers in exist shaft</td>
</tr>
<tr>
<td>- New supply and exhaust equipment</td>
<td>- Replace existing exhaust fans</td>
<td>- Replace existing exhaust fans</td>
</tr>
<tr>
<td><strong>Exist dry to become wet: (gut)</strong></td>
<td><strong>Exist dry to become wet: (mod)</strong></td>
<td><strong>Exist dry to become wet: (gut)</strong></td>
</tr>
<tr>
<td>D to W-G</td>
<td>W to D-Mod</td>
<td>W to D-Min</td>
</tr>
<tr>
<td>$350</td>
<td>$215</td>
<td>$110</td>
</tr>
<tr>
<td>- Gut and reconfigure</td>
<td>- Moderate reconfiguration</td>
<td>- Moderate reconfiguration</td>
</tr>
<tr>
<td>- New finishes &amp; casework</td>
<td>- Remove casework and finishes</td>
<td>- New finishes</td>
</tr>
<tr>
<td>- New MEP &amp; systems</td>
<td>- New finishes</td>
<td>- Minimal revisions to MEP and Lights</td>
</tr>
<tr>
<td>- New duct risers in new shaft</td>
<td>- Existing supply and exhaust to remain</td>
<td>- Existing supply and exhaust to remain</td>
</tr>
<tr>
<td>- New supply and exhaust equipment</td>
<td>- No change to ductwork risers</td>
<td>- No change to ductwork risers</td>
</tr>
<tr>
<td><strong>Exist dry to remain dry: (gut)</strong></td>
<td><strong>Exist dry to remain dry: (mod)</strong></td>
<td><strong>Exist dry to remain dry: (min)</strong></td>
</tr>
<tr>
<td>D to D-G</td>
<td>D to D-Mod</td>
<td>CLSM</td>
</tr>
<tr>
<td>$240</td>
<td>$110</td>
<td>$200</td>
</tr>
<tr>
<td>- Gut and reconfigure</td>
<td>- Moderate reconfiguration</td>
<td>- Gut and reconfigure</td>
</tr>
<tr>
<td>- New finishes</td>
<td>- New finishes</td>
<td>- New finishes</td>
</tr>
<tr>
<td>- New MEP &amp; systems</td>
<td>- Minimal revisions to MEP and lights</td>
<td>- No reconfiguration</td>
</tr>
<tr>
<td>- Replace duct risers in exist shaft</td>
<td>- No change to ductwork risers</td>
<td>- No reconfiguration</td>
</tr>
<tr>
<td>- New supply and exhaust equipment</td>
<td>- No change to ductwork risers</td>
<td>- New ductwork within lab</td>
</tr>
<tr>
<td><strong>Classrooms: (gut)</strong></td>
<td><strong>Minimum Renovation</strong></td>
<td><strong>Minimum Renovation</strong></td>
</tr>
<tr>
<td>CLSM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Gut and reconfigure</td>
<td><strong>Exist dry to remain dry: (min)</strong></td>
<td><strong>Exist dry to remain dry: (min)</strong></td>
</tr>
<tr>
<td>$200</td>
<td>W to D-Min</td>
<td>CLSM</td>
</tr>
<tr>
<td>- New finishes</td>
<td>- No reconfiguration</td>
<td>- No reconfiguration</td>
</tr>
<tr>
<td>- New MEP &amp; systems</td>
<td>- New ductwork within lab</td>
<td>- New ductwork within lab</td>
</tr>
<tr>
<td>- New technology infrastructure</td>
<td>- Minimal revisions to MEP and lights</td>
<td>- Minimal revisions to MEP and lights</td>
</tr>
<tr>
<td></td>
<td>- Add new duct risers in exist shaft</td>
<td>- Add new duct risers in exist shaft</td>
</tr>
<tr>
<td></td>
<td>- Replace existing exhaust fans</td>
<td>- Replace existing exhaust fans</td>
</tr>
</tbody>
</table>

- Values are ECC costs in 2010 dollars
- Assumes that Structural and MAAB upgrades will not be triggered
- Does not include hazardous material abatement, exterior envelope work and energy code work

Fig. 2.18
## Estimated Construction Cost for Phase One Renovation

<table>
<thead>
<tr>
<th>Construction Cost</th>
<th>Consensus - Renovation costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work in other buildings</td>
<td>With Escalation</td>
</tr>
<tr>
<td>IT--Communication and Infrastructure Services</td>
<td>$1,877,614</td>
</tr>
<tr>
<td>Site CSM--Biology - Greenhouse</td>
<td>$2,415,000</td>
</tr>
<tr>
<td>TBD CSM--Dean's Office - Non department space-machine shop</td>
<td>$1,010,625</td>
</tr>
<tr>
<td>Quinn Classrooms</td>
<td>$810,734</td>
</tr>
<tr>
<td>Campus Center Academic Support Programs</td>
<td>$3,240</td>
</tr>
<tr>
<td>McCormack Department Space</td>
<td>$21,367,597</td>
</tr>
<tr>
<td>McCormack-other</td>
<td>$454,000</td>
</tr>
<tr>
<td>Wheatley Department Space</td>
<td>$15,593,000</td>
</tr>
<tr>
<td>Wheatley - other</td>
<td>$1,107,000</td>
</tr>
<tr>
<td><strong>Subtotal (Option worksheet)</strong></td>
<td><strong>$44,638,811</strong></td>
</tr>
<tr>
<td>Temporary Swing Space Allowance</td>
<td>$500,000</td>
</tr>
<tr>
<td>Site &amp; Abatement Allowance</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Phasing Premium Allowance</td>
<td>$5,000,000</td>
</tr>
<tr>
<td>Owner Scope Contingency</td>
<td>$4,050,663</td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED CONSTRUCTION COST (ECC)</strong></td>
<td><strong>$55,189,473</strong></td>
</tr>
<tr>
<td>Other costs per DCAM TPC worksheet</td>
<td></td>
</tr>
<tr>
<td>Study (ST1)</td>
<td>$932,702</td>
</tr>
<tr>
<td>Administrative</td>
<td>$270,000</td>
</tr>
<tr>
<td>Design (DS1)</td>
<td>$5,254,038</td>
</tr>
<tr>
<td>Selected Construction Costs (CM1)</td>
<td></td>
</tr>
<tr>
<td>Design Contingency 10.0%</td>
<td>$5,518,947</td>
</tr>
<tr>
<td>C.O. Contingency 5.0%</td>
<td>$2,759,474</td>
</tr>
<tr>
<td>Energy Modeling 0.3%</td>
<td>$137,974</td>
</tr>
<tr>
<td>Commissioning 0.5%</td>
<td>$275,947</td>
</tr>
<tr>
<td>CM Preconstruction</td>
<td></td>
</tr>
<tr>
<td>General Conditions Preconstruction</td>
<td>$240,000</td>
</tr>
<tr>
<td>CM Fees Preconstruction</td>
<td>$60,000</td>
</tr>
<tr>
<td>Administrative CM1</td>
<td>$1,050,076</td>
</tr>
<tr>
<td>Furniture and Equipment 6.0%</td>
<td>$3,311,368</td>
</tr>
<tr>
<td><strong>TOTAL ESTIMATED PROJECT COST (TPC)</strong></td>
<td><strong>$75,000,000</strong></td>
</tr>
</tbody>
</table>

Fig. 2.19
CONCLUSION

With the program for the Integrated Sciences Complex and the conceptual program for General Academic Building No. 1, and guided by the priorities set by the University and the constraints of the existing buildings, the $75 Million Renovation program was refined to support the development of test-fits of the remaining priority program areas. The plans generated are at the conceptual level, not a detailed design, but they show a preliminary layout which meets the needs of the University within the funding constraints. It is expected that, as the renovation program moves into the design phase, these spaces within the plans may be adjusted as new information is gathered, but the fundamental concepts behind the plans will remain:

- Use new construction for spaces with sophisticated ventilation or height requirements such as Integrated Sciences Complex research, Chemistry teaching, the Arts, and tiered classrooms
- Maximize utilization of existing building infrastructure by locating “wet” labs in existing “wet” space with access to existing heating, ventilating and air conditioning (HVAC) and plumbing chases
- Minimize investment in temporary relocation space
- Minimize disruption and the cost of relocation by maximizing one-way moves
- Minimize escalation costs by doing work as early as possible in the sequence of work

The majority of the $75 Million Renovation program work will be performed in McCormack and Wheatley Halls. The preliminary estimated construction costs for these buildings can be broken down into renovated area and the area receiving only HVAC upgrades. From this, the average cost per square foot of net assignable area can be calculated for a better understanding of the order-of-magnitude for this work.

<table>
<thead>
<tr>
<th></th>
<th>McCormack Hall</th>
<th>Wheatley Hall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Renovated Area</strong></td>
<td>74,797 NASF</td>
<td>55,750 NASF</td>
</tr>
<tr>
<td><strong>Total Renovation Cost</strong></td>
<td>$21,471,597</td>
<td>$16,373,000</td>
</tr>
<tr>
<td><strong>Average Cost Per NASF</strong></td>
<td>$287</td>
<td>$294</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>McCormack Hall</th>
<th>Wheatley Hall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HVAC Upgrade Area</strong></td>
<td>16,488 NASF</td>
<td>15,396 NASF</td>
</tr>
<tr>
<td><strong>Total Upgrade Cost</strong></td>
<td>$350,000</td>
<td>$327,000</td>
</tr>
<tr>
<td><strong>Average Cost Per NASF</strong></td>
<td>$21</td>
<td>$21</td>
</tr>
</tbody>
</table>
Section 3: Implementation of the Phase One Space Allocation Plan

INTRODUCTION

Given that current available space for renovations and growth of academic departments is extremely limited, the space for the reallocation of a majority of the programs will come from the space vacated by existing programs moving to new buildings or subsequently renovated space. The construction and occupancy of the ISC and the GAB No. 1 will provide significant vacated space in McCormack Hall and Wheatley Hall.

Since space will become available incrementally, three partially overlapping steps (phases) of construction and renovation are proposed, as follows:

- **Step One: Early Projects** (Estimated 2011-2012) – Renovate space available in the former cafeteria in McCormack Hall, the existing cafeteria in the Quinn Administration Building and in the existing Service and Supply Building storage space or similar space to be determined.

- **Step Two: Integrated Sciences Complex** (Estimated 2013) – Renovate space available in McCormack Hall and Wheatley Hall as functions move into the new Integrated Sciences Complex.

- **Step Three: General Academic Building No. 1** (Estimated 2014) – Renovate space available in McCormack Hall and Wheatley Hall as programs move into the new General Academic Building No.1.

This section summarizes the components, sequence and cost of each step. Refer to Appendix D, Item 1 for a detailed Phasing Plan that shows the sequence of work for each department that is relocated across all steps. Similar to those in Section 2, the plans on the next pages illustrate the recommended distribution of program elements in McCormack Hall, Wheatley Hall and other buildings. However, in this section the plans show the distribution of program elements at the end of each step. These plans are organized by building and by floor. Renovated department space is indicated by individual solid colors with unrenovated existing space for each department in the program shown with a dashed outline. Each set of plans is introduced with a table which summarizes renovated space by department. Full-page plans are available in Appendix D, Item 3.
### New and Existing Programs to be Located in New or Renovated Space, by Step

<table>
<thead>
<tr>
<th></th>
<th>Integrated Sciences Complex</th>
<th>General Academic Building No. 1</th>
<th>McCormack Hall Renovation</th>
<th>Wheatley Hall Renovation</th>
<th>Work in Other Buildings and New Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STEP ONE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Classrooms IT Data Center CSM Machine Shop Biology Greenhouse</td>
</tr>
<tr>
<td>Introductory Biology teaching labs</td>
<td></td>
<td></td>
<td>Department of Nursing research and teaching labs and faculty offices</td>
<td></td>
<td>Classrooms EEOS and Physics teaching labs and departmental offices WISP</td>
</tr>
<tr>
<td>Biology, Chemistry, EEOS, &amp; Physics research labs and faculty offices</td>
<td></td>
<td></td>
<td>Psychology research and teaching labs, faculty and departmental offices</td>
<td></td>
<td>McNair CSM Dean's Office</td>
</tr>
<tr>
<td>Psychology research labs</td>
<td></td>
<td></td>
<td>Anthropology research labs</td>
<td></td>
<td>CSM Student Success Center MGS Gerontology offices</td>
</tr>
<tr>
<td>Developmental Sciences Research Center</td>
<td></td>
<td></td>
<td>CSM Freezer Farm</td>
<td></td>
<td>University College teaching labs and offices Faculty offices</td>
</tr>
<tr>
<td>Center for Personalized Cancer Therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Care Facility (vivarium)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandbox</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STEP TWO</strong></td>
<td></td>
<td>Classrooms Chemistry teaching labs and departmental offices</td>
<td>Biology teaching labs and departmental offices</td>
<td>Classrooms</td>
<td></td>
</tr>
<tr>
<td>Computer Science Department</td>
<td></td>
<td></td>
<td>Psychology research and teaching labs, faculty and departmental offices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics Department</td>
<td></td>
<td></td>
<td>Anthropology research labs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Department including studio spaces</td>
<td></td>
<td></td>
<td>CSM Freezer Farm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing Arts Department including instructional spaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honors Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STEP THREE</strong></td>
<td></td>
<td>Classrooms Exercise Health Sciences teaching labs, faculty and departmental offices</td>
<td>Department of Nursing faculty and departmental offices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Department including studio spaces</td>
<td></td>
<td></td>
<td>CNHS Dean's Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing Arts Department including instructional spaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University College teaching labs and offices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty offices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 3.2
STEP ONE: EARLY PROJECTS

The goal of Step One is to take best advantage of existing vacant space to expedite later work, to immediately address needs of the University, and to minimize the impact of escalation by completing work as early as possible.

The most immediate needs identified by UMass Boston are right-sizing instructional spaces to accommodate its growth enrollment:

- Growth of classrooms

Other projects that could be implemented as soon as space and budget are confirmed:

- Relocation of IT Data Center (Infrastructure)
- Relocation of CSM Machine Shop
- Relocation of the Biology Greenhouse

Although very little vacant space exists on the campus, there are a few areas that are underutilized and can be used to implement these early projects:

- Approximately 10,000 NASF of underutilized former cafeteria space in McCormack Hall, which is currently partially occupied by two classrooms, will be renovated for Nursing.

- Approximately 3,500 NASF in the Quinn Administration Building, which is currently used as a cafeteria, is proposed to be renovated for classrooms. Combined with the discontinued used of the two classrooms in McCormack Cafeteria, there will be a net increase of 2,171 NASF of classroom space in Step One.

- Storage functions in the Service and Supply Building that could be condensed or moved off-site will be considered for renovation for the IT Data Center and/or the CSM Machine Shop. Other potential locations will also be explored.
Fig. 3.3: Renovated Space Option A2—Quinn UL Floor

Fig. 3.4: Renovated Space Option A2—McCormack 3rd Floor
### Phasing Plan, Step One

<table>
<thead>
<tr>
<th>Departments Impacted by the Phase One Space Allocation Plan</th>
<th>1</th>
<th>1A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2011</td>
</tr>
<tr>
<td>Preliminary Work</td>
<td>Renovate existing underutilized space</td>
<td>Move into renovated space</td>
</tr>
<tr>
<td>IT–Communication and Infrastructure Services</td>
<td>Renovate S&amp;S or other space for IT</td>
<td>Move IT to new S&amp;S space or other space</td>
</tr>
<tr>
<td>CNHS–Nursing</td>
<td>Move 3% of Nursing from Sci into renovated M Caf</td>
<td></td>
</tr>
<tr>
<td>CSM–Biology - Greenhouse</td>
<td>Build new Greenhouse</td>
<td>Move into new Greenhouse</td>
</tr>
<tr>
<td>CSM–Dean’s Office - Non department space</td>
<td>Renovate S&amp;S or other space for Machine Shop</td>
<td>Move Machine Shop to new S&amp;S space or other space</td>
</tr>
<tr>
<td>Dining Services</td>
<td>Vacate Quinn Caf</td>
<td>Renovate Quinn Caf for Classrooms</td>
</tr>
<tr>
<td>SPACE Committee (Vacant)</td>
<td>Renovate M Caf for % of Nursing</td>
<td>Move classrooms into Quinn Caf</td>
</tr>
<tr>
<td>Total P/VC ACADEMIC AFFAIRS (Classrooms)</td>
<td>Relocate classrooms from M Caf into temp space</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Arrow colors are for visual clarity only
If additional swing space is available, some work can be accelerated
Single office moves such as CSM Dean's Office, MGS Dean's Office, Massachusetts Office of Dispute Resolution, Academic Support Programs, CEHD Dean's Office and Psychology in Wheatley are not shown on this chart
Departments moving from Science to ISC are not shown

**Fig. 3.5**
Cost of Step One Renovations

Based on 2010 construction costs, the escalated Estimated Construction Cost in 2011 for Step One is approximately $8.8 million. Refer to Appendix D, Item 1 for a breakdown of the work and the Estimated Construction Cost.

Estimated Construction Cost (ECC) for Step One

<table>
<thead>
<tr>
<th>Departments impacted by Renovations</th>
<th>Step 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reno NASF</td>
</tr>
<tr>
<td>IT--Communication and Infrastructure Services</td>
<td>5,890</td>
</tr>
<tr>
<td>CNHS--Nursing</td>
<td>7,922</td>
</tr>
<tr>
<td>CSM--Biology - Greenhouse</td>
<td>5,000</td>
</tr>
<tr>
<td>CSM--Dean’s Office - Non department space-machine shop</td>
<td>3,500</td>
</tr>
<tr>
<td>P/VC Academic Affairs (classrooms)</td>
<td>3,447</td>
</tr>
<tr>
<td>TOTAL COST</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 3.6
STEP TWO – INTEGRATED SCIENCES COMPLEX AND SUBSEQUENT RENOVATIONS

Step Two provides state-of-the-art research space in the new Integrated Sciences Complex, and improved renovated laboratory space in McCormack Hall and Wheatley Hall.

In Step Two, the relocation of Biology and Psychology research labs and Biology introductory teaching space to the Integrated Sciences Complex will leave vacant space in McCormack Hall and Wheatley Hall. Renovating this space in McCormack Hall for Biology teaching space will allow Biology labs and their support services to be consolidated together in one building.

After Biology moves into right-sized renovated teaching space, the vacated space in Wheatley Hall will be renovated for right-sized Environmental, Earth and Ocean Sciences and Physics teaching labs and support spaces. During steps 2 and 3, Anthropology and Psychology functions will also be moved into renovated lab space near their existing space in McCormack Hall. Existing psychology space in McCormack will be reconfigured in order to incorporate the right-size growth for each component program.

<table>
<thead>
<tr>
<th>Program Space that moves from McCormack or Wheatley to the new Integrated Sciences Complex</th>
<th>Vacated Area—McCormack Hall (NASF)</th>
<th>Vacated Area—Wheatley Hall (NASF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLA–Psychology (ISC)</td>
<td>3,764</td>
<td></td>
</tr>
<tr>
<td>CSM–Biology (ISC)</td>
<td>18,551</td>
<td>25,643</td>
</tr>
<tr>
<td>Subtotal–Space Vacated by moves to Integrated Sciences Complex</td>
<td>22,315</td>
<td>25,643</td>
</tr>
</tbody>
</table>

New and Existing Programs to be located in New or Renovated Space in Step Two

<table>
<thead>
<tr>
<th>Integrated Sciences Complex</th>
<th>McCormack Hall Renovation</th>
<th>Wheatley Hall Renovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Biology teaching labs</td>
<td>Biology teaching labs and departmental offices</td>
<td>Classrooms</td>
</tr>
<tr>
<td>Biology, Chemistry, EEOS, &amp; Physics research labs and faculty offices</td>
<td>Psychology research and teaching labs, faculty and departmental offices</td>
<td>EEOS and Physics teaching labs and departmental offices</td>
</tr>
<tr>
<td>Psychology research labs</td>
<td>Anthropology research labs</td>
<td>WISP</td>
</tr>
<tr>
<td>Developmental Sciences Research Center</td>
<td>CSM Freezer Farm</td>
<td>McNair</td>
</tr>
<tr>
<td>Center for Personalized Cancer Therapy</td>
<td></td>
<td>CSM Dean’s Office</td>
</tr>
<tr>
<td>Animal Care Facility (vivarium)</td>
<td></td>
<td>CSM Student Success Center</td>
</tr>
<tr>
<td>Sandbox</td>
<td></td>
<td>MGS Gerontology offices</td>
</tr>
</tbody>
</table>

Fig. 3.7

Fig. 3.8
Biology

The remaining Biology teaching labs will be relocated, right-sized, and consolidated in McCormack Hall in a series of renovations. Existing small research and teaching labs will be reconfigured to larger teaching labs, taking advantage of existing “wet” lab plumbing and generously sized existing shafts. These renovations will be “wet to wet” gut renovations requiring complete reconfiguration of existing wet space to new wet space. Work will include new systems and finishes, including replacement of the vertical ductwork and roof-top ventilation and exhaust equipment to meet new standards.

- **Step 2**: Move Biology and Psychology research and Biology introductory teaching space to the newly completed Integrated Sciences Complex. The balance of the occupants of the new building will move from the Science Center.
- **Step 2A**: Vacant research and teaching lab space in McCormack Hall will be renovated for Biology teaching.
- **Step 2B**: Existing Biology teaching space in McCormack Hall will move into Step 2A renovated space, and then that space will be renovated for Biology teaching space remaining in Wheatley Hall.
- **Step 2C**: Existing Biology teaching space in Wheatley Hall will move into Step 2B renovated space.
- **Step 2A, B, and C**: As space is vacated in Wheatley, it will be renovated for EEOS, Physics, and Classrooms.

Environmental, Earth and Ocean Science and Physics

EEOS and Physics teaching spaces will be relocated from the Science Center, right-sized, and consolidated in Wheatley Hall after existing Biology teaching labs are relocated to McCormack Hall. Existing small research and teaching labs will be reconfigured to larger teaching labs, taking advantage of existing “wet” lab plumbing and existing shafts in Wheatley for the limited “wet” needs of Physics and EEOS.

Anthropology

The Anthropology Department will be consolidated in McCormack Hall. The existing Anthropology spaces in the Science Center will be relocated and right-sized to renovated space adjacent to the existing department space in McCormack Hall, and in an area where appropriate “wet lab” space can be provided. Existing program remaining in McCormack Hall will not be right-sized; however, a small portion is relocated to renovated space to consolidate Anthropology. These moves will also provide additional vacant area on the third floor that is adjacent to, and will be combined with, the former McCormack Cafeteria for Nursing.
**Psychology**

Psychology teaching, the remaining research space not provided in the new ISC, and faculty and departmental office space will be right-sized in McCormack Hall. The remaining research program in McCormack Hall will be consolidated into renovated space. This move may require that some Psychology space existing in McCormack Hall be temporarily relocated to allow the existing spaces to be renovated and right-sized. After this work is complete, the vacated research space will be renovated for teaching space relocating from within McCormack Hall and from the Science Center. These areas will be moderate "dry to dry" renovations, with significant reconfiguration, and all new finishes. In addition, Psychology faculty and departmental offices will be renovated with new finishes. As part of the Owner’s Scope Contingency, new ceilings, lighting and HVAC controls may also be provided.

**Miscellaneous College of Science and Mathematics Space**

Miscellaneous College of Science and Mathematics spaces, such as Student Success Center, Watershed Integrated Sciences Partnership, and McNair, will be relocated from the Science Center to renovated space in Wheatley Hall, and the CSM Freezer Farm will be located in McCormack Hall. The CSM Dean's Office space in McCormack will be relocated to Wheatley Hall, adjacent to the CSM Dean’s suite.

**McCormack Graduate School Of Policy and Global Studies (MGS)**

A portion of the Gerontology Department will be relocated within Wheatley Hall to allow its existing two-story space to be used for a tiered classroom. In addition, a small portion of the MGS Dean's office will relocate allow for future construction of a large classroom.

**General Classrooms**

Ten-thousand, six-hundred thirty-five (10,635) NASF of General Purpose Classrooms will be added in McCormack Hall and Wheatley Hall by the completion of Step Two. This space includes reconfiguration of existing small classrooms into larger classrooms, new classroom space in Wheatley Hall (formerly Biology labs) and the conversion of a limited amount of classroom space into department space for University College (see below).

**Other Departments**

University College (specialized instruction labs and offices) will be relocated to allow Nursing additional space on the third floor of McCormack, adjacent to their space in the former McCormack Cafeteria. This move to Wheatley Hall will consolidate the department. A small portion of College of Education and Human Development Dean’s office space is relocated within Wheatley Hall to facilitate the construction of a new large classroom.
Fig. 3.9: Renovated Space Option A2—McCormack 1st Floor, Step Two

Fig. 3.10: Renovated Space Option A2—McCormack 2nd Floor, Step Two
Fig. 3.11: Renovated Space Option A2—McCormack 3rd Floor, Step Two

Fig. 3.12: Renovated Space Option A2—McCormack 4th Floor, Step Two
**Fig. 3.13: Renovated Space Option A2—Wheatley 1st Floor, Step Two**

![Wheatley 1st Floor Plan](image1)

**Fig. 3.14: Renovated Space Option A2—Wheatley 2nd Floor, Step Two**

![Wheatley 2nd Floor Plan](image2)
**Fig. 3.15: Renovated Space Option A2—Wheatley 3rd Floor, Step Two**

![Renovated Space Option A2—Wheatley 3rd Floor, Step Two](image1.png)

**Fig. 3.15: Renovated Space Option A2—Wheatley 4th Floor, Step Two**

![Renovated Space Option A2—Wheatley 4th Floor, Step Two](image2.png)
Fig. 3.17: Renovated Space Option A2—Quinn UL Floor, Step Two
Fig. 3.20: Phasing Plan for Step Two
Cost of Step Two Renovations

Based on 2010 construction costs, the escalated Estimated Construction Cost in 2013 through 2014 for Step 2 is approximately $26.2 million. Refer to Appendix D, Item 1 for a breakdown of the work and the Estimated Construction Cost.

Estimated Construction Cost (ECC) for Step Two

<table>
<thead>
<tr>
<th>Departments impacted by Renovations</th>
<th>Step 2</th>
<th></th>
<th></th>
<th>2010 Cost</th>
<th>Escalated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reno</td>
<td>Reno</td>
<td>Unit Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NASF</td>
<td>GSF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLA--Anthropology</td>
<td>2,258</td>
<td>2,484</td>
<td>$305</td>
<td>$757,695</td>
<td>$1,023,000</td>
</tr>
<tr>
<td>CLA--Psychology</td>
<td>12,605</td>
<td>14,823</td>
<td>$110/$115</td>
<td>$933,052</td>
<td>$1,194,371</td>
</tr>
<tr>
<td>CSM--Biology</td>
<td>22,940</td>
<td>24,087</td>
<td>$305</td>
<td>$7,346,535</td>
<td>$9,918,000</td>
</tr>
<tr>
<td>CSM--Dean's Office (includes Emeritus Office)</td>
<td>222</td>
<td>244</td>
<td>$250</td>
<td>$61,050</td>
<td>$82,000</td>
</tr>
<tr>
<td>CSM--Dean's Office - Non department student success</td>
<td>1,000</td>
<td>1,100</td>
<td>$250</td>
<td>$275,000</td>
<td>$371,000</td>
</tr>
<tr>
<td>CSM--Dean's Office - Non department space-freezer farm</td>
<td>600</td>
<td>660</td>
<td>$305</td>
<td>$201,300</td>
<td>$272,000</td>
</tr>
<tr>
<td>CSM--EEOS</td>
<td>8,225</td>
<td>8,636</td>
<td>$250</td>
<td>$2,159,063</td>
<td>$2,612,000</td>
</tr>
<tr>
<td>CSM--McNair Program</td>
<td>230</td>
<td>253</td>
<td>$240</td>
<td>$60,720</td>
<td>$73,000</td>
</tr>
<tr>
<td>CSM--Physics</td>
<td>13,488</td>
<td>14,162</td>
<td>$250</td>
<td>$3,500,600</td>
<td>$4,284,000</td>
</tr>
<tr>
<td>CSM--Watershed Integrated Sciences Partnership</td>
<td>270</td>
<td>297</td>
<td>$240</td>
<td>$71,280</td>
<td>$86,000</td>
</tr>
<tr>
<td>University College (CCDE)</td>
<td>2,416</td>
<td>2,537</td>
<td>$240</td>
<td>$608,832</td>
<td>$822,000</td>
</tr>
<tr>
<td>Total P/VC ACADEMIC AFFAIRS (Classrooms)</td>
<td>16,865</td>
<td>17,202</td>
<td>$200</td>
<td>$3,440,460</td>
<td>$4,644,621</td>
</tr>
<tr>
<td>Existing Shortage of Faculty Offices - allowance</td>
<td>1,377</td>
<td>1,446</td>
<td>$15</td>
<td>$21,688</td>
<td>$26,000</td>
</tr>
<tr>
<td>Misc Relocations</td>
<td>380</td>
<td>399</td>
<td>$240</td>
<td>$95,760</td>
<td>$129,000</td>
</tr>
<tr>
<td>Relocate MGS Gerontology Institute</td>
<td>2,050</td>
<td>2,153</td>
<td>$240</td>
<td>$516,600</td>
<td>$625,000</td>
</tr>
<tr>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$26,161,992</td>
</tr>
</tbody>
</table>
STEP THREE – GENERAL ACADEMIC BUILDING NO. 1
AND SUBSEQUENT RENOVATIONS

Step Three includes the completion of General Academic Building No. 1, and the renovation of spaces that are vacated by programs moving into this new building. It includes additional relocations as occupants move into renovated space and their previous space can be renovated.

After the General Academic Building No. 1 is occupied, the availability of new general purpose classrooms will allow for the renovation of existing classroom space in McCormack Hall. This former classroom space will primarily be converted to department space for Nursing and Exercise Health Sciences.

Additional space in McCormack Hall and Wheatley Hall will be renovated with the relocation of the Art and Performing Arts Departments to the General Academic Building No. 1.

Program Space that moves from McCormack or Wheatley to the General Academic Building No. 1

<table>
<thead>
<tr>
<th>Program Space that moves from McCormack or Wheatley to the General Academic Building No. 1</th>
<th>Vacated Area—McCormack Hall (NASF)</th>
<th>Vacated Area—Wheatley Hall (NASF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose Classrooms</td>
<td>8,922</td>
<td>3,305</td>
</tr>
<tr>
<td>CLA–Art</td>
<td>5,434</td>
<td>700</td>
</tr>
<tr>
<td>CLA—Performing Arts</td>
<td>13,314</td>
<td>1,008</td>
</tr>
<tr>
<td>Subtotal—Space Vacated by moves to General Academic Building No. 1</td>
<td>27,670</td>
<td>5,013</td>
</tr>
</tbody>
</table>

In addition, the relocation of the Art Department will vacate space in Healey Library while space in the Campus Center will be vacated by the Honors Department and Graduate Studies. This newly vacated space is not scheduled to be renovated as a part of this study but will be available for future expansion.

New and Existing Programs to be located in New or Renovated Space in Step Three

<table>
<thead>
<tr>
<th>General Academic Building No. 1</th>
<th>McCormack Hall Renovation</th>
<th>Wheatley Hall Renovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classrooms</td>
<td>Classrooms</td>
<td>Classrooms</td>
</tr>
<tr>
<td>Chemistry teaching labs and departmental offices</td>
<td>Exercise Health Sciences teaching labs, faculty and departmental offices</td>
<td></td>
</tr>
<tr>
<td>Computer Science Department</td>
<td>Department of Nursing faculty and departmental offices</td>
<td></td>
</tr>
<tr>
<td>Mathematics Department</td>
<td>CNHS Dean's Office</td>
<td></td>
</tr>
<tr>
<td>Art Department including studio spaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing Arts Department including instructional spaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honors Program</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**General Purpose Classrooms**

After the existing Art and Performing Art departments are relocated to new space in the General Academic Building No. 1, their vacated space in McCormack Hall and Wheatley Hall will be renovated to create new classrooms of the correct size and configuration. The existing Performing Arts Theater in McCormack Hall will be converted to an auditorium-style general purpose classroom.

In addition, as new classrooms become available in the General Academic Building No. 1, some of the existing classrooms in McCormack Hall and Wheatley Hall will be reconfigured for new classrooms or other space. In Step Three, ten-thousand, seven-hundred forty-nine (10,749) NASF of new classroom space will be added, included the former Performing Arts Theater. Eleven-thousand, five-hundred five (11,505) NASF of classroom area will be reconfigured to create appropriately sized classrooms. In addition, the pool of space for general purpose classrooms will be reduced by eight-thousand, five-hundred eleven (8,511) NASF in McCormack Hall and Wheatley Hall in Step Three as classes move into new space in the General Academic Building No. 1. Finally, seven-thousand, six-hundred twenty (7,620) NASF of classrooms will be lost when the Science Center is demolished. However, the net change in classrooms in Step Three, including the renovations, new GAB No. 1 and demolition of the Science Center is a net addition of fifty-one thousand, six-hundred eighteen (51,618) NASF of classroom space.

Otherwise unrenovated classrooms will receive HVAC improvements (9,468 NASF in McCormack, 7,207 NASF in the McCormack auditorium and 15,396 NASF in Wheatley). Improvements include replacement of controls within the classroom, and replacement of the roof top Air Handling units that serve classrooms.

**College of Nursing and Health Sciences**

The College of Nursing and Health Sciences Dean’s office will occupy a renovated suite in the former Art offices on the 4th floor of McCormack. Faculty and departmental offices for the Department of Nursing will move from the Science Center into newly renovated space on all floors of McCormack, while Exercise Health Science will move to renovated space on the 2nd Floor. GoKids! will remain in their existing space in Quinn Administration Building.

**Massachusetts Office of Dispute Resolution (MODR)**

A small portion of Massachusetts Office of Dispute Resolution will be relocated to renovated space during Step 3A to allow for construction of larger classrooms.

**Academic Support Programs**

An office for Academic Support Programs will be relocated to the Campus Center during Step 3A to allow for construction of larger classrooms.
Fig. 3.22: Renovated Space Option A2—McCormack 1st Floor, Step Three

Fig. 3.23: Renovated Space Option A2—McCormack 2nd Floor, Step Three
Fig. 3.24: Renovated Space Option A2—McCormack 3rd Floor, Step Three

McCormack Hall
3rd Floor

Legend:
- Anthropology
- History
- Behavioral Health
- Psychology
- Sociology
- Social Work
- University College
- Undergraduate Program
- Undergraduate Research
- Total Renovations

Phasing:
- Step 1: Copying Projects
- Step 2: After Completion of Phase 1
- Step 3: After Completion of Phase 2

Renovation Level:
- "C"-Total Renovations and Renovations to Be Renovated
- "W"-Undergraduate Research
- "YAC"-Undergraduate Program

May 4, 2011

Fig. 3.25: Renovated Space Option A2—McCormack 4th Floor, Step Three

McCormack Hall
4th Floor

Legend:
- Anthropology
- History
- Behavioral Health
- Psychology
- Sociology
- Social Work
- University College
- Undergraduate Program
- University College
- Undergraduate Research

Phasing:
- Step 1: Copying Projects
- Step 2: After Completion of Phase 1
- Step 3: After Completion of Phase 2

Renovation Level:
- "C"-Total Renovations and Renovations to Be Renovated
- "W"-Undergraduate Research

May 4, 2011
Fig. 3.26: Renovated Space Option A2—Wheatley 1st Floor, Step Three

Fig. 3.27: Renovated Space Option A2—Wheatley 2nd Floor, Step Three
Fig. 3.28: Renovated Space Option A2—Wheatley 3rd Floor, Step Three

Fig. 3.29: Renovated Space Option A2—Wheatley 4th Floor, Step Three
Fig. 3.30: Renovated Space Option A2—Quinn UL Floor, Step Three
### Phasing Plan for Step Three

<table>
<thead>
<tr>
<th>Departments Impacted by the Phase One Space Allocation Plan</th>
<th>2014</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move into new GAB1</td>
<td>Renovate vacant space in W/M (4th wave)</td>
<td>Move into Renovated space (4th wave)</td>
</tr>
<tr>
<td>Graduate Studies</td>
<td>Move Graduate Studies from CC to GAB1</td>
<td>New Lounge in GAB1</td>
</tr>
<tr>
<td>Honors Program</td>
<td>Move Honors Program from CC to GAB1</td>
<td></td>
</tr>
<tr>
<td>New Lounge space to be distributed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLA—Anthropology</td>
<td></td>
<td>Renovate vacant Anthropology space in M for Nursing</td>
</tr>
<tr>
<td>CLA—Art</td>
<td>Move Art from H, Sci, W, M to GAB1</td>
<td></td>
</tr>
<tr>
<td>CLA—Performing Arts</td>
<td>Move Perf Arts from W, M to GAB1</td>
<td></td>
</tr>
<tr>
<td>CLA—Psychology</td>
<td></td>
<td>Renovate vacant Psychology space in M for EHS</td>
</tr>
<tr>
<td>CNHS—Dean's Office</td>
<td></td>
<td>Move CNHS Dean from Sci into renovated Art space in M</td>
</tr>
<tr>
<td>CNHS—Exercise and Health Sciences</td>
<td></td>
<td>Move EHS from Sci into renovated Clrm, PA &amp; Psych space in M</td>
</tr>
<tr>
<td>CNHS—Nursing</td>
<td></td>
<td>Move % of Nursing from Sci into renovated spaces in M from University College, Bio, Anthropology, Perf. Arts, Classrooms and Art</td>
</tr>
<tr>
<td>CSM—Biology</td>
<td></td>
<td>Move Biospace in M for Nursing</td>
</tr>
<tr>
<td>CSM—Chemistry</td>
<td>Move Chemistry from Sci into GAB1</td>
<td></td>
</tr>
<tr>
<td>CSM—Computer Science</td>
<td>Move Computer Science from Sci into GAB1</td>
<td></td>
</tr>
<tr>
<td>CSM—Mathematics</td>
<td>Move Mathematics from Sci into GAB1</td>
<td></td>
</tr>
<tr>
<td>Dining Services</td>
<td>New Dining space in GAB1</td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td>New space in GAB1</td>
<td></td>
</tr>
<tr>
<td>VC—Student Affairs</td>
<td>New space in GAB1</td>
<td></td>
</tr>
<tr>
<td>University College</td>
<td></td>
<td>Renovate vacant University College in M for Nursing</td>
</tr>
<tr>
<td>Faculty Offices</td>
<td></td>
<td>New Faculty Offices in renovated Art space in M</td>
</tr>
<tr>
<td>Total P/VC ACADEMIC AFFAIRS (Classrooms)</td>
<td>New classrooms (growth) in GAB1</td>
<td>Renovate classroom space for EHS and Nursing and reconfigure existing classrooms</td>
</tr>
</tbody>
</table>

**NOTE:** Arrow colors are for visual clarity only

If additional swing space is available, some work can be accelerated.

Single office moves such as CSM Dean's Office, MGS Dean's Office, Massachusetts Office of Dispute Resolution, Academic Support Programs, CEHD Dean's Office and Psychology in Wheatley are not shown on this chart.

Departments moving from Science to ISC are not shown.

---

**Fig. 3.31**
Cost of Step Three Renovations

Based on 2010 construction costs, the escalated Estimated Construction Cost in 2014 is approximately $9 million. Refer to Appendix D, Item 1 for a breakdown of the work and the Estimated Construction Cost.

Estimated Construction Cost (ECC) for Step Three

<table>
<thead>
<tr>
<th>Departments impacted by Renovations</th>
<th>Step 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reno NASF</td>
<td>Reno GSF</td>
</tr>
<tr>
<td>New Lounge space to be distributed</td>
<td>1,500</td>
<td>1,575</td>
</tr>
<tr>
<td>CNHS--Dean’s Office</td>
<td>453</td>
<td>498</td>
</tr>
<tr>
<td>CNHS--Exercise and Health Science</td>
<td>3,644</td>
<td>4,008</td>
</tr>
<tr>
<td>CNHS--Nursing</td>
<td>12,627</td>
<td>14,318</td>
</tr>
<tr>
<td>MGS--Dean’s Office</td>
<td>257</td>
<td>283</td>
</tr>
<tr>
<td>Massachusetts Office of Dispute Resolution</td>
<td>150</td>
<td>165</td>
</tr>
<tr>
<td>Academic Support Programs</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>Total P/VC ACADEMIC AFFAIRS (Classrooms)</td>
<td>22,254</td>
<td>15,971</td>
</tr>
<tr>
<td>Remove offices from stairs (stair renovation)</td>
<td>960</td>
<td>1,056</td>
</tr>
<tr>
<td>Existing Shortage of Faculty Offices - allowance</td>
<td>208</td>
<td>218</td>
</tr>
<tr>
<td>Convert Auditorium to Classroom use including minor renovations and HVAC</td>
<td>7,020</td>
<td>7,371</td>
</tr>
<tr>
<td>Upgrade HVAC for balance of classrooms</td>
<td>24,864</td>
<td>26,107</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 3.32
CONCLUSION

At the conclusion of the multi-step construction and renovation projects, UMass Boston will have dramatically increased and improve the quality of the academic space available to students on campus. The stock of general purpose classrooms will increase with the completion of each step, until the recommended number and size of classrooms are available to meet the needs of 15,000 students.

As a result of incorporating the recommendations of the Priority Program established as part of the Phase One Space Allocation Plan, selective academic departments will also be right-sized for 15,000 students. See Appendix D, Item 2 for a summary of the growth of all departments during Phase One and a comparison to their space needs as defined in the Space Needs Assessment.

In addition, the construction of two new academic buildings will provide more student interaction spaces. The new construction and renovation projects will also improve faculty and staff offices and administrative areas. These projects will vacate the Science Center, providing the University with the first step necessary to eventually demolish this building.
Section 4: Glossary of Terms Frequently Mentioned in this Report

A

Abatement – The removal and disposal of hazardous substances from a building.

Allowance – An amount of money set aside for scope that is, as of yet, insufficiently defined.

C

CAMIS – See “Commonwealth Asset Management Information System”.

Campus Master Plan – See “Master Plan”.

CCDE – See “University College” – Previously “Division of Corporate, Continuing and Distance Education”.

CEFPI – See “Council of Educational Facility Planners International”.

CEHD – College of Education and Human Development (CEHD), previously called the Graduate College of Education (GCE).

Central Lab Supply – Also called “Controlled Storage”. A room for delivery, storage and distribution of chemicals. Refer to the Code Strategy Report in Appendix B for special code requirements for ventilation and fire separation, and for limits on amount of chemicals that can be stored. May refer to the Central Lab Supply for the campus, or to decentralized lab supply rooms that serve a building or floor.

CLA – College of Liberal Arts

Classroom Mix – The number of classrooms of each size based on area and number of seats.

Classroom Utilization rate – See “Room Utilization Rate.”

Class Window – The period of time during which classes are offered. There are two class windows at UMass Boston: Daytime and Evening.

CMR – See “Commonwealth of Massachusetts Regulation 780.”

CNHS – College of Nursing and Health Sciences

Controlled Storage – See “Central Lab Supply”
Commonwealth Asset Management Information System – The replacement values of buildings owned or managed by the Commonwealth of Massachusetts are recorded in CAMIS (Commonwealth Asset Management Information System).


Controlled Storage – See “Central Lab Supply”

Council of Educational Facility Planners International (CEFPI) – The Council of Educational Facility Planners International (CEFPI) published Space Planning for Institutions of Higher Education to provide guidance in planning space at the macro level. Rickes Associates used the CEFPI guidelines and methodology to calculate many of the area-by-area projections described in the “Space Needs Assessment”.

CPCT – Center for Personalized Cancer Therapy

CPCS – College of Public and Community Service

CM – College of Management

CSM – College of Science and Mathematics

DSRC – Developmental Sciences Research Center

DCAM – Department of Capital Management for the State of Massachusetts

Dry Space – Space that has no requirements for water or gas services, or for special ventilation.

Enrollment – See “Student Enrollment”

Early Projects – Projects that can or should start prior to new space becoming available as a result of the completion of new buildings. Projects that can start include projects that will occur in space that is currently available, such as existing vacant or underutilized space, such as the reuse of the Quinn Cafeteria for new classrooms. Projects that should start are projects that will support the subsequent renovations, such as the IT Data Center.

ECC – See “Estimated Construction Cost”

EEOS – Environmental, Earth, & Ocean Sciences

EHS – Exercise & Health Sciences
Escalation – The increase in cost of construction services over time due to the rise of material and labor costs.

Escalation Factor – A multiplier applied to current costs to anticipate the rise in price that will occur if work is done in the future.

Estimated Construction Cost – The “hard costs” of construction, including Subcontractor work and General Contractor overhead, profit and contingency.

F

Facility Need(s) – the physical needs of the building facility, based on condition and proposed use.

FTE (Student) – A full-time equivalent undergraduate is a student who takes 15 credits per semester. A full-time equivalent graduate student is one who takes 9 credits. Thus, for UMass Boston, undergraduate FTE is calculated by taking all credits for which undergraduates are registered and dividing that total by 15. Graduate FTE is calculated by taking all credits for which graduates are registered and dividing that total by 9. The sum of these is UMass Boston’s total FTE. NOTE: No distinction is made between students registered for graduate or undergraduate courses in calculating FTE. This definition comes from the Office of Institutional Research.

Full-Time Student – Undergraduate student taking 12 or more credits; Graduate student taking 9 or more credits. This definition comes from the Office of Institutional Research.

G

GAB – General Academic Building

General Purpose Classroom – A classroom is a facility that is not tied to a specific subject or discipline by equipment or configuration of room, and is assigned by the Registrar.

Gross Square Feet – Gross square feet (GSF) is the measurement for all the space of a building. This includes toilet rooms, mechanical spaces and corridors.

GSF – See “Gross Square Feet”

Gut Renovation – Renovation including removal and reconfiguration and/or replacement of all interior walls, systems and finishes.

H

HCT – See “Headcount”
Headcount – The count of students, whether full-or part-time. This measure is mainly useful when examining the amount administrative services needed. Part-time students consume almost as many resources as full-time students in the areas of admissions, counseling, advising, etc. This definition comes from the Office of Institutional Research.

HVAC – Heating, Ventilating and Air Conditioning

ISC – “Integrated Sciences Complex”

IT – Information Technology

LL – See “Lower Level”

Lower Level – “Lower Level” refers to the lower level of the two-level substructure that currently exists under most UMass Boston buildings and under the Plaza.

MA 780 CMR – “Commonwealth of Massachusetts Regulation 780”

MAAB – See “Massachusetts Architectural Access Board”


Massachusetts State Building Code (MSBC) Depending on the context, it may refer to the Seventh Edition, which was in place during most of the duration of the Phase One Space Allocation Plan process, or the Eighth Edition, which was adopted by the state on August 6, 2010. The 7th Edition MSBC is an amended version of the 2003 International Building Code (IBC). The 8th Edition is an amended version of the 2009 International Existing Building Code.


MEP – Mechanical, Electrical and Plumbing

MEPFP – Mechanical, Electrical, Plumbing and Fire Protection

MGS – McCormack Graduate School

Minimum Renovation – No reconfiguration of walls and MEP systems unless noted otherwise; renovation may include new finishes, lighting and accessible hardware modifications.
MODR – Massachusetts Office Dispute Resolution,

Moderate Renovation – Minimal reconfiguration of walls and MEP systems with more extensive renovation of casework, finishes, lighting and accessible hardware modifications.

MSBC – See “Massachusetts State Building Code”

NASF – See “Net Assignable Square Feet”

NCES – The NCES coding refers to the classification developed by the National Center for Education Statistics. Refer to the Methodology for the RA Space Needs Assessment for the list and definition of NCES codes.

Net Assignable Square Feet (NASF) – Net Assignable Square Feet (NASF) refers to the measurement of assignable areas inside walls used for activities and programs. Interior and exterior walls, shafts, toilet rooms, mechanical spaces and corridors are not included in net assignable square feet.

Office – Office facilities are individual, multi-person, or workstation space specifically assigned to academic, administrative, and service functions. NCES code 300.

OLLI – Osher Lifelong Learning Institute, a grant-funded program within the McCormack Graduate School.

Part-Time Student – Any undergraduate student taking fewer than 11 credit hours and any graduate student taking fewer than 8 credit hours. (IPEDS definition) This definition comes from the Office of Institutional Research.

Phase One – For the purposes of the Space Allocation Plan, Phase One refers to the time period from the present day until the completion of the Integrated Sciences Complex, the General Academic Building No. 1, and the $75 Million UMBA renovation, up to but not including the demolition of the Science Center and adjacent plazas.

Phase One Space Allocation Plan – The Plan for allocation of space to the new and renovated space in Phase One, including phasing and budget for the Renovation.

Phase One Priority Program – Proposed allocation of space to departments that are relocated to new or renovated space in Phase One; does not include programs accommodated in the Integrated Sciences Complex.
Phasing Premium – Cost allowance to cover items which occur when a project is broken down into many small phases such as temporary swing space, inefficiencies from renovating small areas such as multiple mobilizations, protection of adjacent spaces not being renovated, limited work hours, and temporary systems to accommodate system shutdowns for staged renovations.

Preferred Classroom Mix – Recommended Classroom mix based on existing class needs, adjusted to allow for artificial constraints of existing classrooms and adjusted to reflect preliminary direction regarding future changes in teaching pedagogy.

Priority Space – See “Phase One Priority Space”

RA – Rickes Associates, Space Program Consultant

Right-Size(d) – The correct amount of space for a room or department based on current occupancy, population served and/or program space requirements.

Room Utilization (rate) – The frequency of use of a classroom expressed as a percentage of hours of use compared to the available hours. (i.e. class window).

Sandbox – Interdisciplinary Undergraduate Research Space; a space assigned to the College of Science and Mathematics.

SAP – See “Phase One Space Allocation Plan”

Seat Occupancy (Rate) The number of seats occupied in a given room at a given time, or the average number of seats occupied in a room over a period of time, as a percentage of the total available number of seats.

Semi-Wet Space – Program space that has limited requirements for water and/or gas services, and for special ventilation, such as Nursing or Art.

Space Allocation Plan – See “Phase One Space Allocation Plan”

Space Assignment The existing assignment of space to a given program, based on the UMB Campus Wide Space Assignment, dated March 2009, unless otherwise noted.

Space Needs – The current right-sized or projected amount of space (typically Net Assignable Square Feet) required by a given program, department, division or room.
Space Needs Assessment – The existing, current and projected Space Needs of the UMass programs as defined by the Rickes Associates (RA) Space Needs Assessment (SNA) dated September 2009, based on metrics and interviews.

Specialized Instruction – A laboratory or facility characterized by special purpose equipment or a specific room configuration which ties instructional or research activities to a particular discipline or closely related group of disciplines. (NCES Code 200)

Station Size – The average area per student station.

Step – An increment of Phase One, based on designated milestones including the completion of the two new buildings in Phase One.

Student Enrollment – The total number of full time equivalent students enrolled at the UMass Boston campus.

Student Headcount – The total number of full time and part time students enrolled at the UMass Boston campus.

Substructure – The existing upper level and lower level of the original 1970’s building and plaza at the UMass Boston campus; originally used primarily for parking and storage.

Temporary Space – An area used to house and operate a department, group of rooms or individual space while other space is renovated for future relocation.

Test Fit – Conceptual assignment of program space to available assignable floor space.

Total Project Cost (TPC) – Total “hard” and “soft” costs. Hard costs includes Estimated Construction Cost - the “hard costs” of construction, including Subcontractor work and General Contractor overhead, profit and contingency. Soft costs include Owner’s administrative and management costs, A/E fees, Design and Owner’s contingencies, cost of land, legal fees, etc.

TPC – See “Total Project Cost”

UL – See “Upper Level”

UMass Boston – University of Massachusetts, Boston – harbor campus

University College – A department of UMass Boston that will continue the mission and programs of the Division of Corporate, Continuing and Distance Education (CCDE) and also offer new programs.
Upper Level – “Upper Level” refers to the upper level of the two-level substructure that currently exists under most UMass Boston buildings and under the Plaza.

W

Wet Space – Program space that has extensive requirements for water and/or gas services, and for special ventilation, such as Chemistry or Biology teaching or research labs.

WISP – Watershed Integrated Sciences Partnership

Work Plan – The revised Architect’s scope of work for the Phase One Space Allocation Plan, which is part of the UMB0802 ST1 Integrated Sciences Complex contract between DCAM and Goody Clancy, dated December 2009.
Section 5: List of Volume Two Appendices

Appendices A through D include a selection of the documentation prepared throughout the development of the Phase One Space Allocation Plan.

Additional reference material is available in the following documents:

- The University of Massachusetts Campus Master Plan, prepared by Chan Krieger Sieneiwicz, Campus Master Plan for University of Massachusetts, Boston, dated December 2009.
- Binder #1, Log of Relevant Source Material for the UMass Boston Space Allocation Plan, dated January 4, 2010. The index for this document is included in Appendix A.
- Binder #2, Phase One Space Allocation Plan Deliverables. The index for this document is included in Appendix A.

Appendix A: Methodology and Process
Appendix A includes a summary of the Work Plan and resulting process used to develop the Phase One Space Allocation plan and report.

Appendix B: Analysis of Opportunities, Challenges and Preliminary Options
Appendix B includes additional information regarding Space Needs, Facility Needs and Capacity, Budget, and Code Analysis.

Appendix C: Phase One Space Allocation
Appendix C includes documentation of the consensus option, including department by department scope of work, growth and cost, and plans identifying the final location at the end of Phase One.

Appendix D: Implementation
Appendix D includes documentation of the implementation, including scope, growth and cost by phase, a phasing diagram and plans identifying the location at the end of each step of Phase One.
APPENDIX A: METHODOLOGY AND PROCESS

Appendix A includes a summary of the Work Plan and resulting process used to develop the Phase One Space Allocation plan and report.


This memorandum summarizes that actual execution of the work plan for the Space Allocation Plan process.

2. UMass Boston Integrated Sciences Complex-First Phase Space Allocation Plan, UMB0802 ST1, Revised Work Plan, dated December 21, 2009

This document is the work plan prepared by DCAM, with input from Goody Clancy, to guide the Space Allocation Plan process.


This document is a supplement to the Work Plan. It was prepared by DCAM with input from Goody Clancy, to explain the activities that would be common to each part of the Work Plan.

4. SAP Schedule, revised April 05, 2011.

This document is the most current revised schedule for the Space Allocation Plan work plan. It was originally an attachment to the 12/21/2009 Work Plan, but was revised as tasks and/or durations were revised or added.


This document is the INDEX for Relevant Source Material that was compiled at the beginning of the development of the Phase One Space Allocation Plan. The information listed is available in electronic format.


This document is an INDEX for all deliverables, including studies, memorandum and meeting minutes prepared throughout the development of the Phase One Space Allocation Plan. The information listed is available in electronic format. Copies of selected deliverables are included in Appendix A through D.

7. Existing Floor Plans for McCormack Hall, Quinn Administration Building and Wheatley Hall, dated February 2009

These plans were provided by UMass Boston in February and March of 2009 to document the existing allocation of space to various departments. Refer to Binder #1 for additional plans for other existing buildings, and for HVAC zone diagrams.
APPENDIX B: ANALYSIS OF OPPORTUNITIES, CHALLENGES AND PRELIMINARY OPTIONS

Appendix B includes additional information regarding Space Needs, Facility Needs and Capacity, Budget, and Code Analysis, as follows:

1. Provost/Deans Scenario 1A-5, Integrated Sciences Complex, dated August 24, 2009
   
   This document is the summary and backup analysis of the right-sized needs for the ISC developed by GCA and SST in conjunction with DCAM/UMB, the Provost and Deans of ISC departments. It includes an allocation into program that will be accommodated in the new ISC building and that which will be accommodated by future projects. It also includes an estimate for a 15% increase (contingency) in space to accommodate short-term enrollment growth. Refer to the RA methodology for additional detail.

2. Program for ISC renovated space, dated September 11, 2009
   
   This program is a more detailed breakdown of the needs of the ISC programs that will not be accommodated in the new ISC building. These spaces will be located either in the General Academic Building No. 1 or in renovated space in McCormack Hall, Wheatley Hall or other existing buildings.

   
   This is the methodology for the campus-wide Space Needs Assessment (SNA) completed by Rickes Associates (RA) in September 2009. It includes the SST methodology for the ISC program, and includes the description of the NCES (National Center for Education Statistics) coding for types of spaces.

   
   This document is the campus wide Space Needs Assessment completed by Rickes Associates in September 2009, and includes the existing (based on a combination of 2006 and 2008 data) personnel and space assignments, the “Right-sized” space needs for the current personnel and student headcount of approximately 15,000, and the projected personnel and space needs for a student headcount of 18,000 students. A summary by College, dated January 20, 2011 is provided for reference.

5. UMB Classroom Survey, dated January 8, 2010
   
   In January 2010, UMass Boston surveyed the general purpose classrooms on campus. This documents the size of each room, the size of the entrance door, the number of seats, and level of technology in each space. In addition notes were added to indicate any accessibility obstructions, HVAC issues, and egress concerns.

This memorandum and PowerPoint document the presentation on February 19, 2010 summarizing the criteria and issues regarding the building condition including the physical condition of the building and code issues related to both the existing use and the potential renovations.

7. Email from Brian Dumser/UMass Boston RE: Inventory update - classification for hazardous materials control area permitting, dated March 31, 2010

This email and attachment from Brian Dumser/UMass Boston includes a detailed inventory of the hazardous chemicals that are restricted by the Massachusetts Building code to specific quantities depending on the location and fire separation of the storage rooms. The requirements are described in the Code Strategy Report in Appendix B. The summary of the inventory is included in the bound copy of the appendix, but the full inventory (107 pages) is included in the electronic copy of the Appendix.

8. Existing Conditions Survey, Specialized Instruction and additional research laboratory spaces in McCormack Hall and Wheatley Hall, dated May 4, 2010

These survey forms were completed by the University to document the existing conditions of Specialized Instruction spaces campus wide and research laboratory spaces in McCormack Hall and Wheatley Hall that were not previously surveyed during the ISC study. In May 2011, additional spaces that could not be accessed in 2010 were surveyed and evaluated by UMB based on their expertise. However, no survey forms were collected for these rooms.


These plans indicate the locations of classrooms, specialized instructional and research spaces in Wheatley and McCormack Hall. The condition of specialized instruction and research spaces is coded along with an outline to indicate if the space will be vacated by moves to the ISC or GAB No. 1.

10. Department Space Program Analysis, Memorandum of Meeting and PowerPoint Presentation, dated May 3, 2010, revised May 17, 2010

This memorandum and PowerPoint document the presentation on May 3, 2010 summarizing the criteria and issues regarding the space issues in the existing buildings including the amount and suitability of each type of space for its intended use.

11. Workshop #1 – General Classroom Allocation, dated May 7, 2010

This memorandum and PowerPoint document the workshop on May 7, 2010 to determine the criteria and basis for allocation of classrooms, including the mix and potential phasing options.

This memorandum and PowerPoint document the workshop on May 7, 2010 to determine the criteria, priorities and basis for allocation of space and budget for the $75 Million Renovation of McCormack Hall and Wheatley Hall and for the new General Academic Buildings.

13. General Purpose Classroom Utilization Analysis with Preferred Section Sizes, Memorandum of Meeting June 10, 2010 and PowerPoint presentation, dated June 10, 2010, revised

This memorandum and PowerPoint document the presentation to the Registrar’s office on June 10, 2010 summarizing the criteria and issues regarding classroom size and distribution.


This memorandum and PowerPoint document the workshop on June 25, 2010 to review options to meet the priorities and goals established in Workshops #1 and #2. The options were refined based on this workshop and subsequent meetings with the Provost and Deans. See Appendix B, Item 21 - UMB - Option A, B, C Narrative and Plans. A detailed breakdown of the costs and phasing for these options is included in the Goody Clancy Deliverables - Invoice Backup, dated November 1, 2010. An index of this document is included in Appendix A.

15. Option D Memorandum, dated June 30, 2010

This memorandum provides the numerical analysis of Option D, which tests fits the priority program into McCormack Hall and Wheatley Hall while reserving the existing unassigned space in McCormack Cafeteria for other uses.


This is a memorandum of a meeting and survey to document the needs of the Biology greenhouse. Per the memo, the requested space is 6,500 NASF, which is larger than the requirement documented in the Space Needs Assessment. UMass Boston is reviewing this requirement. For the purposes of the study, the Space Needs Assessment, and the Priority Program will not be revised, but the increase in desired program will be noted.

17. Program for Machine Shop, dated July 23, 2010

This is a memorandum of a meeting and survey to document the needs of the machine shop. Per the memo, the requested space is 4,500 NASF, which is larger than the requirement documented in the Space Needs Assessment. UMass Boston is reviewing this requirement. For the purposes of the study, the Space Needs Assessment, and the Priority Program will not be revised, but the increase in desired program will be noted.
18. Recommended Classroom Mix, memorandum with attachments, dated August 3, 2010

This memorandum with attachments provides detail regarding the analysis of classroom size and distribution.

i. Rickes Associates analysis of daytime classroom needs based on Fall 2009 classes, and adjusted based on Preferred Class Size Analysis.

ii. Rickes Associates analysis of extra classroom space to accommodate the classes currently held in Department Conference rooms.

iii. Rickes Associates analysis of evening classroom needs based on Fall 2009 classes, with adjustments based on verbal feedback from the Deans in meetings in 2010.

19. Presentation of Options to the Deans, dated August 26, 2010

This memorandum and PowerPoint document the presentation on August 26, 2010 to review the challenges and responses of the Phase One Space Allocation Plan to the Deans and Provost of UMass Boston. A revised option A and options B and C were presented along with the Quinn alternative, showing the plans, costs and advantages of each scheme.


The Code Strategy Report identifies the code upgrades and related budget implications that would be required as part of the required renovation scope, and optional renovation scope that is not feasible because it would trigger code requirements with budget implications of which would exceed the renovation budget or divert funds from other required renovation scope.


This memorandum documents and compares the Options presented at Workshop 3, with subsequent revisions to Option A that were discussed at the workshop and at subsequent meetings with the Provost and Deans.

22. Classroom Benchmarking, dated July 2010

These spreadsheets compare the classroom distribution, and the daytime, evening and activity scheduling windows of UMass Boston to Peer Institutions as compiled by DCAM.
APPENDIX C: PHASE ONE SPACE ALLOCATION PLAN

Appendix C includes documentation of the preferred option, including department by department scope of work, growth and cost, and plans identifying the final location at the end of Phase One.

1. Presentation of Preferred Option, dated November 1, 2010, revised November 18, 2010

This memorandum and PowerPoint document the final presentation of the preferred renovation option to the University of Massachusetts Boston Provost, Deans and other administration.

2. Renovation Floor Plans, dated June 03, 2011

These are the same floor plans that are in the Section 2 report, but at a larger scale.


This spreadsheet gives breakdown of additional space required in McCormack Hall, Wheatley Hall or in the new General Academic Building. It does not include space that will be located in the Integrated Sciences Complex or that already exists in McCormack Hall, Wheatley Hall. It does include new space required to replace existing program space moving from the Science Center or Campus Center, existing offices moving from existing non-code compliant offices within the McCormack Hall stairs, and space required to allow growth of a program to right size, where that growth is a priority.


The 8th Edition Code Report is a review of the code requirements specific to the Consensus Plan for the proposed renovation of McCormack Hall, Wheatley Hall and Quinn Administration Building.

5. Presentation of Phase One Space Allocation Plan, dated June 03, 2011

This PowerPoint presentation summarizes the challenges and response of the Phase One Space Allocation Plan.
APPENDIX D: IMPLEMENTATION

Appendix D includes documentation of the implementation, including scope, growth and cost by phase, a phasing diagram and plans identifying the location at the end of each step of Phase One.

1. Scope and Cost Spreadsheets for Preferred Option, dated June 03, 2011

This is a series of spreadsheets showing the scope for departments that are affected by the Phase One work. It includes the following:

A. Summary of costs
B. Summary of MAAB thresholds
C. Total program after Phase 1
D. Breakdown of space need
E. Scope and cost of work in other buildings
F. Scope and cost of work in McCormack Hall
G. Scope and cost of work in Wheatley Hall
H. Existing space distribution
J. Phasing Plan

2. Summary of Campus wide Growth during Phase One, dated June 03, 2011

This spreadsheet provides the existing area, right size goals, and projected growth at the end of Phase One for all departments.

3. Renovation Floor Plans, by Phase, dated May 04, 2011

These are the same floor plans that are in the Section 3 report, but at a larger scale.

4. Classroom Mix by Building, dated May 04, 2011

This chart shows the distribution of classrooms for 15,000 students by size and by building including existing mix, right-sized mix, rooms being reused and new rooms required.

5. Existing Classroom Itemization dated May 04, 2011

This spreadsheet charts all the existing 2010 classrooms on campus and any modifications or additions from each phase of the study.