

Gateway Community College

Master Plan Update 2012-2022

FINAL 31 December 2011

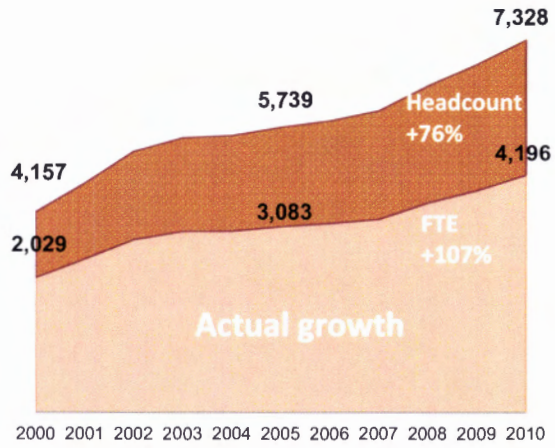
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Executive Summary

Executive Summary

Stated in the simplest terms, Gateway Community College's main "problem" is its success! Since President Dorsey Kendrick took office in 1999, the College has consistently exceeded expectations for enrollment growth. The College's average *annual* enrollment growth from 2000 to 2010 was 7.6%, and total enrollment has increased 76% from 2000 to 2010, significantly more than the 42.7% average across the Connecticut Community College system in that period.

Figure A: Actual Headcount and FTE Enrollment Growth, Fall 2000 to Fall 2010



Data source: Connecticut Community Colleges Office of Planning, Research and Assessment Enrollment Reports

Gateway Community College (GCC) was especially careful when planning the size of the New Haven Campus in 2004-2005. The most conservative growth rate was selected for three reasons: it aligned with the available capital resources, the potential for excellence of this formerly under-performing College was unknown, and President Kendrick and her new administration had just begun to turn around GCC.

Given GCC's continuing success, the College technically reached the capacity of the New Haven Campus. In 2010 the size of the New Haven Campus (273,000 ASF) was based on achieving the projected enrollment of 7,000 headcount students by Fall 2014. But, in fact, GCC's headcount enrollment grew far faster than predicted in 2005, and over 7,300 headcount students were enrolled by Fall 2010.

A portion of the College's growth is attributed to the U.S. economic recession that began in 2008. Recessions typically drive up community college enrollments, which more or less equally impact enrollments across all such colleges. But that has not been the case: GCC is one of the fastest-growing community colleges both nationally and in the Connecticut Community College system.

Other reasons for GCC's rapid growth include:

- the College's approach of positioning itself on the cutting edge of student needs,
- its responsiveness to the workforce training needs of Connecticut and New Haven employers, and
- the role of community colleges in general as affordable, accessible educational alternatives.

Today, Gateway is a vibrant, dynamic community college that primarily serves students from the greater New Haven community. Over 7,300 full- and part-time students enrolled in 2010, the full-time equivalent of over 4,200 students. Almost 75% of students come from the 12 towns in the greater New Haven region, 25% are from other Connecticut towns, and a few come from out of state.

Gateway's students in Fall 2010 were:

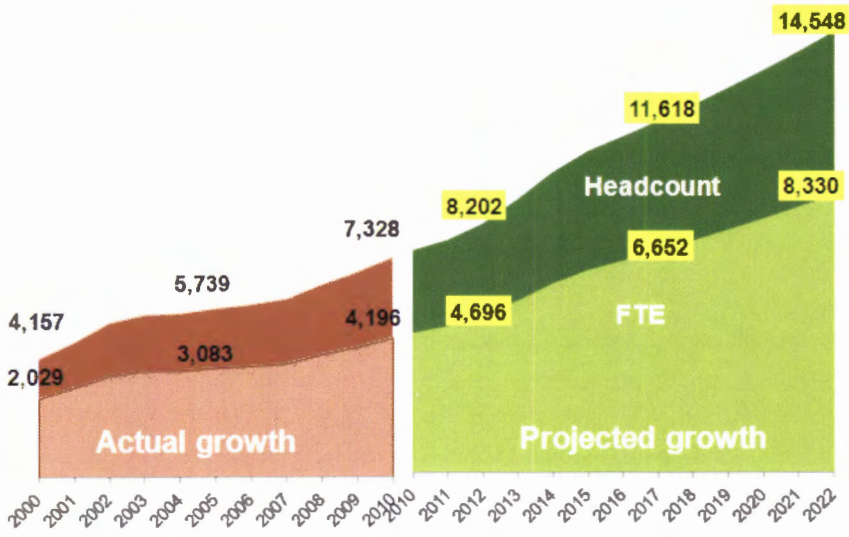
- 44% white, 37% African American/Hispanic, 19% other
- 60% female, 40% male
- 65% part-time, 35% full-time
- 40% are under 22, 44% are 22-40, 16% are over 40

GCC's current lack of space is its primary limitation in offering additional new programs to serve this varied and diverse community. The New Haven Campus will go a long way towards addressing these needs, but the dramatic increase in enrollment growth since 2005 means that some spaces may be "stretched" sooner rather than later. Science labs, a health and fitness area, "incubator" space for developing new programs, venues for speakers and cultural events, and Nursing program space are examples of space needs expected to grow in the early years of occupancy. Facilities are also needed for new or emerging programs such as the Center for Sustainable Energy, the Center for Transportation Technology, Allied Health, Music Therapy, Criminal Justice Protective Services, and Paralegal.

Gateway is poised to make a major leap as an academic institution and an urban presence when it moves to the New Haven Campus in Fall 2012. And it is likely to keep growing.

- GCC could have as many as 8,200 headcount students in 2012, an increase of over 12% from the 7,300 headcount students enrolled in 2010, if enrollment continues to grow.
- GCC could have as many as 9,900 headcount students by 2014, *over 40% more* than the 7,000 students projected as the maximum for 2014 back in 2005.
- The conservative 2010 enrollment projections showed 14,548 students by 2022, or double the 2010 enrollment, just 10 years after the new campus opens.

Figure B: Actual and Projected Headcount and FTE Enrollment Growth, Fall 2000 to 2022



History suggests that even these enrollment projections could be exceeded, as the same factors that created GCC's rapid growth over the past 10 years will continue to impact its growth in the coming decade:

- Community college enrollments historically increase and shift in poor economic times.
- Nationally, community colleges are increasingly becoming the affordable educational alternative of choice for many families.
- Community colleges are the choice of many veterans returning from the wars in Iraq and Afghanistan.
- New campus facilities are well-known to increase enrollments. Recent experience on other CCC campuses shows increased enrollments between 4% and 14% in the three years after the opening of new facilities.

"Will the New Haven Campus be big enough? How soon will GCC 'run out of space'?" are two questions about capacity that are often heard on the GCC campuses today. Concerns about the size of the new campus can be traced back to 2005, when changes were made to the size of the new campus.

The construction budget for the New Haven Campus was $144 million, but due to a dramatic spike in construction material costs across the country, by 2005 that budget was able to support a lot less building than GCC needed. To stay within budget, the only choice was to reduce the size of the new campus from 273,000 ASF to 232,000 ASF: it was decided that Automotive Technology (AT) and Continuing Education/Workforce Development (CEWD) would remain on the North Haven Campus in the near-term. In 2011, GCC decided to relocate CEWD to the New Haven Campus, with AT remaining at North Haven along with the emerging Railroad Technologies (RRT) and the Center for Sustainable Energies (CSE) programs. Therefore, in 2012, Gateway will occupy 232,000 ASF on the New Haven Campus and 25,000 to 30,000 ASF on the North Haven Campus.

GCC began a Master Plan Update in Fall 2010 to address these questions, to examine the College's near- and long-term space needs, and to determine the best way to satisfy these needs between the New Haven, Long Wharf and North Haven campuses.

The New Haven Campus will have a more-than-adequate number of general-purpose classrooms in 2012 and for some time to come. The new campus will have 55 classrooms -- 15 more than on the existing campuses – that are designed to support current teaching methods and equipped with the latest technology.

Using current scheduling assumptions, GCC should have adequate classroom space until approximately 2017... and if GCC modifies its scheduling or its enrollment strategy, that could extend out even further. The 55 GPCR on the New Haven Campus are predicted to be fully utilized when enrollment attains 11,600 headcount students, but the actual date this occurs depends on how quickly enrollment grows. Pro-actively managing GCC's enrollment growth could extend the date of full utilization even further.

It is important to note that these dates reflect potential limitations associated with *classroom utilization only*. The many other kinds of space that the College will need to support an increased number of students, such as offices, community spaces, dining facilities, and library/computer space, remains to be determined. Calculating how much more of this space will be needed should be done after the New Haven Campus is occupied for the first year or two. By then, the College will have a good understanding of how it actually uses its new space, and can therefore more accurately project future space needs.

What are GCC's near-term 2012-2015 space needs and where should they be accommodated?
For the near-term, the programs that are not relocating to the new campus and therefore require space elsewhere are Automotive Technologies (AT), Railroad Technologies (RRT), and the Center for Sustainable Energies (CSE). The estimated total space need for these programs is approximately 25,000 to 35,000 ASF in the near-term.

Gateway has carefully studied the optimal location for these programs, with the goal of minimizing operational expenses and at the same time consolidating the College as much as possible. The following criteria were identified for the optimal location for these programs:

- A maximum of only one other campus (in addition to the New Haven Campus),
- At least 35,000 ASF of space,
- Able to be operational by 2012, when the New Haven Campus opens, and
- Provide large, high-ceilinged, open-bay, ground floor labs for AT and RRT.

Based on these criteria, three options were identified to meet near-term needs.

1. Occupying a portion of the North Haven Campus through 2015 is the most viable and manageable option for the College's near-term needs. A facilities condition audit should be conducted to identify the renovations needed to make a portion of the campus a comfortable place to study and work for the next five years, and seek funding for those renovations.

2. Occupying a portion of the Long Wharf Campus through 2015 is not a viable near-term option due to the configuration of the existing building, which cannot house the AT and RRT labs. The best near-term use of this campus is for parking and storage for the New Haven Campus, both low-cost uses.

3. Building the 70,000 GSF expansion of the New Haven Campus satisfies only the College's near-term space needs. It also could not be funded and built by 2012. It would leave no means of addressing space needs that emerge over time on the new campus - the reason the new steel structure's capacity was increased in 2005. In addition, since the expansion space is a small floor plate on floors 2 through 7, it is not possible to build the large, ground floor AT and RRT labs. These programs would either have to remain at North Haven permanently, or close down completely, as building the 70,000 ASF expansion would consume all capital funds for the foreseeable future.

As this iteration of GCC's Master Plan is completed in Fall 2011, the consensus recommendation going forward includes two components.

First, due to its successful previous long-range planning, it is now clear that Gateway will have plenty of state-of-the-art classrooms and general campus facilities in the New Haven Campus in 2012. GCC should have adequate classrooms until at least 2017, and possibly even longer. To maintain its programs while at the same time being efficient with its space and operating budget, GCC should keep open a portion of the North Haven Campus to support AT and RRT, at least through near-term 2015.

Second, the Master Plan Update process has revealed that many of the data points needed to make a definitive and prudent recommendation for Gateway's long-term future are simply not available at this time. Some of the information needed for effective planning includes the following:

- While it is the nature of good long-range planning to look ahead at what will be needed next, it is difficult to even think of asking for more space now, when the New Haven Campus has not even opened. The reality is that GCC needs time to adapt to this incredible new campus, time to seek out the new efficiencies, synergies, and opportunities it can provide. This can be anticipated - but not fully understood - until after the College actually occupies the campus for a period.
- The external realities – the fiscal challenges of the next few years – need time to play out and make their implications known in terms of managing enrollments and gaining a comfort level with the facilities that will be available to meet student needs. It will take some time for GCC to work out how best to address these challenges.
- Gateway's move to the new campus will provide innumerable and exciting opportunities for partnerships with educational institutions and businesses downtown. The nature of these partnerships cannot be predicted in advance, but will likely include Gateway developing new academic and training programs in response to the needs of its new downtown partners. Perhaps the College will have use of downtown space owned by its partners, thus reducing some of GCC's need for future space. The College will fully and aggressively explore these opportunities, but it needs time to develop them and allow the possibilities to unfold.

- Finally, there are many unknowns surrounding enrollment growth. Recent experience at Housatonic, Tunxis and Three Rivers Community Colleges demonstrates that enrollments often dramatically rise when new campus facilities open. On the other hand, some predictions indicate that Connecticut's high school population, a primary source of community college students, will decrease by more than 10% in the next decade. In addition, Connecticut's fiscal issues suggest implementing a new strategy of managed enrollment for GCC and its peer institutions. Since space needs are based on the number of students served, GCC's future needs cannot be planned until some of these enrollment issues have been resolved.

Therefore, the second consensus recommendation is that Gateway should more accurately assess its long-term growth needs after the 2012-2013 "shake-down" year on the New Haven Campus, when much more information will be available and the economy has hopefully stabilized. The 2013 Master Plan Update should include a revised enrollment forecast based on the Census data expected to be available then, as well as a more detailed cost estimate for the long-term option(s) that are considered most viable from the perspective of a year's occupancy of the new campus. With the move to the New Haven Campus and the next iteration of the Master Plan, Gateway will have what it needs to evaluate the highest and best use of the funds available to support its future growth and mission.

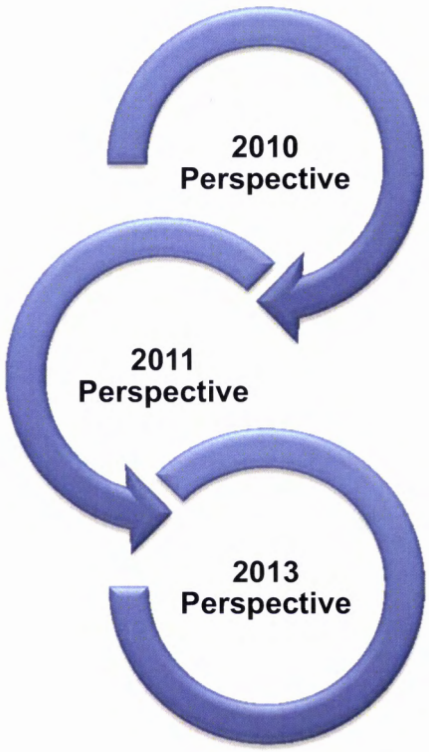
Historical footnotes:

- Gateway Community College was founded in 1992 by the merger of Greater New Haven Technical College in North Haven and South Central Community College on Long Wharf. GCC has always been divided between the two campuses, and it has always expressed the goal of unifying on a single campus.
- GCC commissioned a Master Plan in 2001 to look at a variety of options for consolidation, from renovating and adding to the Long Wharf campus, to building a brand new campus.
- When the City of New Haven offered the former Macy's and Malley's sites, GCC finalized the Educational Master Plan and the 273,000 ASF program for the design and construction of the New Haven Campus.
- Construction completion is on target for Fall 2012, when GCC's 8,200 students will occupy 232,000 ASF on the New Haven Campus and 25,000 to 30,000 ASF on the North Haven Campus. The new 595-car parking garage occupies another 198,000 GSF.
- The New Haven Campus is on budget at $144 million (construction).

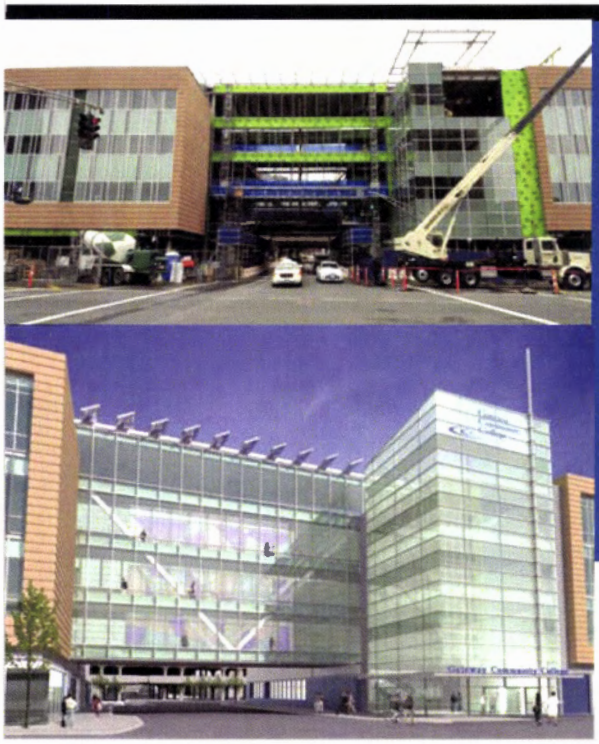
While it is axiomatic that institutional master plans are a "snapshot in time" – in Gateway's case, Fall 2010 – institutions can be confident that the analysis concepts that result from that snapshot nevertheless still provide a fundamental and valid basis for all future planning.

This axiom has never been more true than at Gateway. The Master Plan Update 2012-2022 began in the midst of a major recession and concluded in the midst of significant organizational and financial changes to the Connecticut Community College system. In early summer 2011, the final Master Plan was presented to and reviewed by GCC. Summarized in the Executive Summary, this presentation was subsequently described as the "2010 perspective" (see the Addendum in the next section). When the Master Plan was presented to the Board of Trustees just months later in October 2011, its major recommendations had been revised in response to the rapidly-evolving context in Connecticut. This has been called the "2011 perspective" in the Addendum.

The Addendum is based on the October 2011 presentation to the Board, and is presented in its original graphic format annotated with the addition of a text narrative for each slide. There are two main changes in recommendations from the "2010 perspective" to the "2011 perspective." First, one short-term recommendation has been added: the College will take an entrepreneurial approach with its New Haven and Long Wharf campuses to make them revenue-producers for program development on the New Haven Campus. Second, the Addendum explicitly calls for the development of a "2013 perspective" in the next iteration of the Master Plan, as the context of public higher education in Connecticut is still evolving.



Gateway Community College



Connecticut Community Colleges
Board of Trustees

Gateway Community College
Master Plan Update 2012-2022

October 17, 2011

Rickes Associates Inc.
Excellence in Higher Education Planning

This Addendum is the final presentation of the Master Plan Update given to the Connecticut Community College Board of Trustees on October 17, 2011, supplemented by a descriptive narrative of that presentation.

Master Plan Update: Purpose

1. Near-term action

Will there be enough space when New Haven Campus opens in 2012?

2. Long-term planning

How much space will GCC need by 2022 if enrollment growth continues?

Gateway last updated its Master Plan in 2005. While a typical master planning cycle is 10 years, two unique circumstances made it prudent to do a Master Plan Update in 2010: (1) GCC's impending move to the New Haven Campus, and (2) GCC's high annual enrollment growth rate of 5.5% average over the past five years, and 7% in the past two.

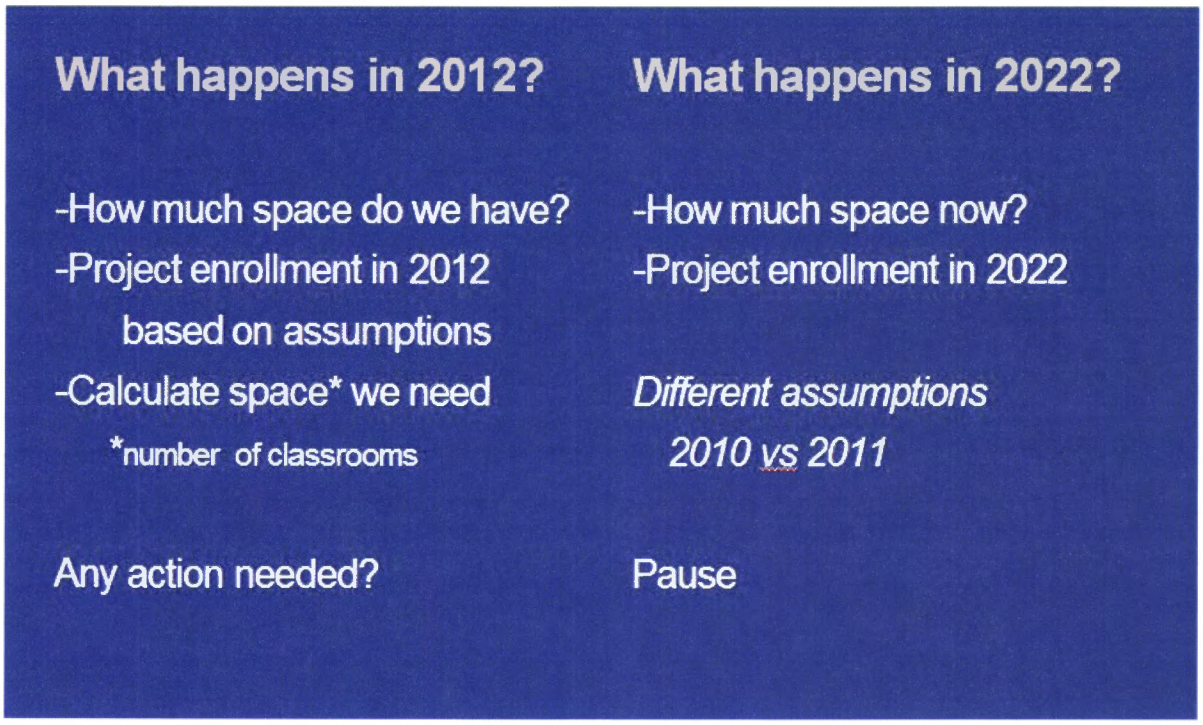
Two main questions emerged during the process as the focus of the update. The first was a near-term question. With this high level of enrollment growth, would there be adequate space when Gateway moved to the New Haven Campus in Fall 2012? Was any near-term action needed as a result?

The second question concerned long-term planning. If GCC's recent high enrollment growth continued through 2022, how much additional space would be needed ten years after the New Haven Campus opens?

A Master Plan by nature is a snapshot in time of an institution, whose purpose is to create a perspective on the future. This perspective is based on making clearly-defined assumptions about future trends and then projecting what the future might look like. The current Master Plan Update began in Fall 2010 under a certain set of assumptions about GCC's enrollment growth, and projected future enrollment to 2022 from that basis. This has come to be called the "2010 perspective."

However, by Fall 2011 a number of political and economic changes in Connecticut required using an entirely different set of assumptions about enrollment growth to project future enrollment. The College went from using an average 6% growth assumption in the Fall 2010 projections, to a flat or no-growth enrollment policy in Fall 2011 for an unspecified period of time. With this new "2011 perspective" was born the need for this Addendum.

Master Plan Process



The Master Plan process is essentially the same for both near-term and long-term planning. After quantifying the amount of space the College has at a specified moment in time, enrollment is projected to a future date (in this case, 2012 and 2022), and the space that will be needed is calculated with a particular emphasis on classrooms.

This standard process unraveled, however, when Connecticut's flat enrollment policy was implemented, as there was no longer a basis for making enrollment projections, and therefore no way to determine how much space would be needed.

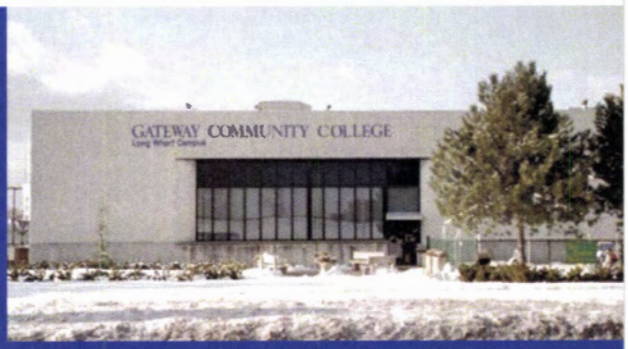
An alternate method of looking at the near-term planning, and a recommendation for long-term planning, is discussed in this Addendum.

How much space do we have?

2004 - 2010

Long Wharf + North Haven

204,000 ASF



2012

New Haven "plus"

261,000 ASF

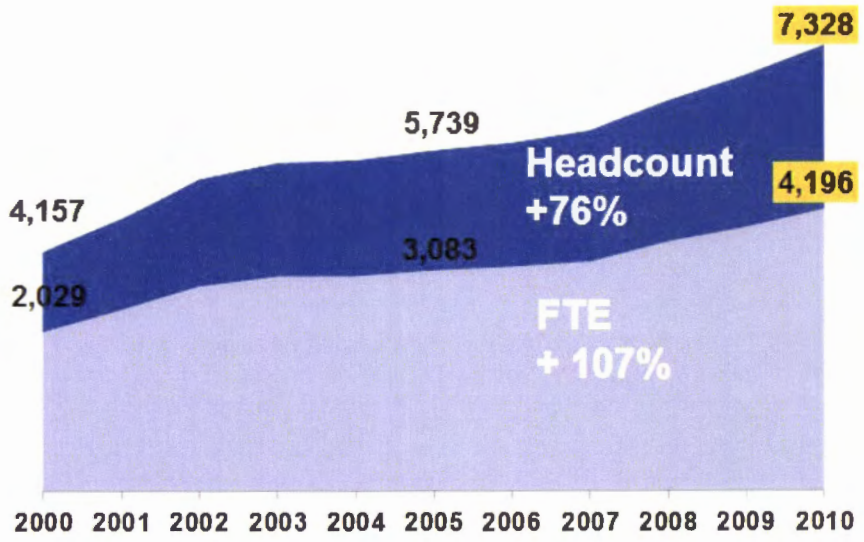


Quantifying how much space the College had in 2010-2011 and how much it will have in 2012 is simple.

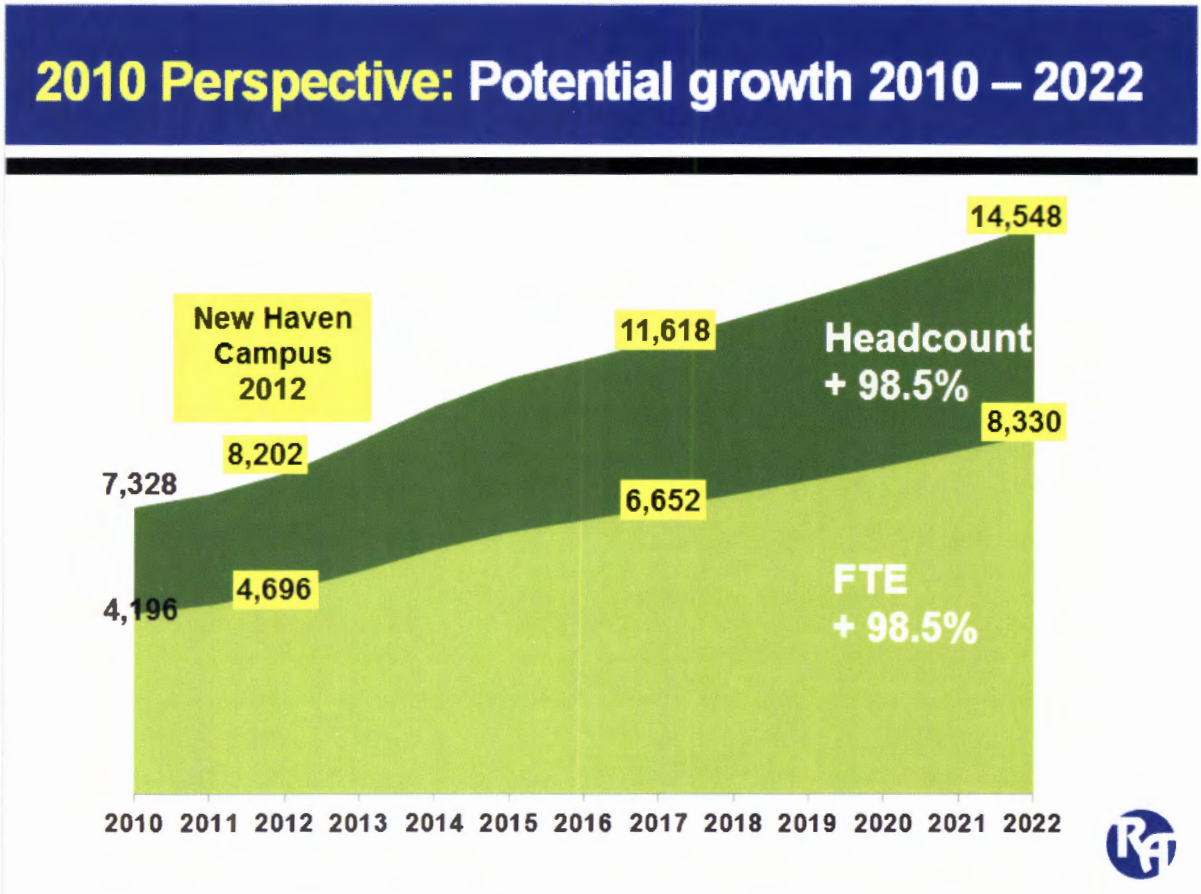
The 2010 space inventory for the North Haven and Long Wharf Campuses of approximately 204,000 ASF has not changed since 2005 (although these outdated facilities have experienced an additional five years of wear and tear).

In 2012, GCC will have a total of 231,000 ASF on the New Haven Campus and 30,000 ASF on the North Haven Campus, or 28% more space than in 2011. The brand-new downtown space will obviously differ dramatically from the existing campuses. Furthermore, unlike the College's existing space, the new campus space has been designed specifically for the uses that will occupy it.

GCC Enrollment Growth 2000 - 2010



The number of students enrolled is a major driver of the amount of space needed by a college. For the past decade, GCC has experienced steady enrollment growth. Since 2000, head count has increased 76% and FTE has grown 107%, making GCC one of the fastest growing community colleges in the U.S. as well as in the CCC system. Back in 2005, enrollment projections showed 7,000 students by 2014, a head count milestone that GCC exceeded by 2010.



The "2010 perspective" in this graph was created before the flat enrollment policy was enacted. It shows how many headcount and FTE students might be enrolled from 2010 through 2022 if enrollments were unconstrained.

The method used to project enrollment is described in the main report in detail, but essentially an assumption is made about how much growth can be expected in the future based on previous growth rates and a sense of how much growth is sustainable over time.

In this case, a conservative average growth rate of 4.6% per year was selected for GCC over the next decade. Even though GCC's growth averaged 6-7% for past 5 years, that rate was expected to be unsustainable in the current economy. Based on recent experience at Housatonic, Three Rivers and Tunxis Community Colleges, where enrollment increased up to 13% per year after new facilities opened, the so-called "new building factor" was included in GCC's projections. A conservative growth rate of 10% per year for the two years after the New Haven Campus opens was used in the calculations.

The 2010 perspective shows that enrollment in 2012 could be 8,200 headcount. In 2022, it could be over 14,500, or *double* the 2010 enrollment. This optimistic but somewhat daunting projection raised the questions, "How soon will GCC need its next new building?" and "Where will all these new students come from?"

Where will more students come from?

1. Capture rate from service region

Fall 2010 CCC: 1.57% across system

Fall 2010 GCC: 1.31% = room for growth

2. The need is still not being met

Fall 2011 GCC: *Had to* turn away 500 students

Had to cancel 51 course sections

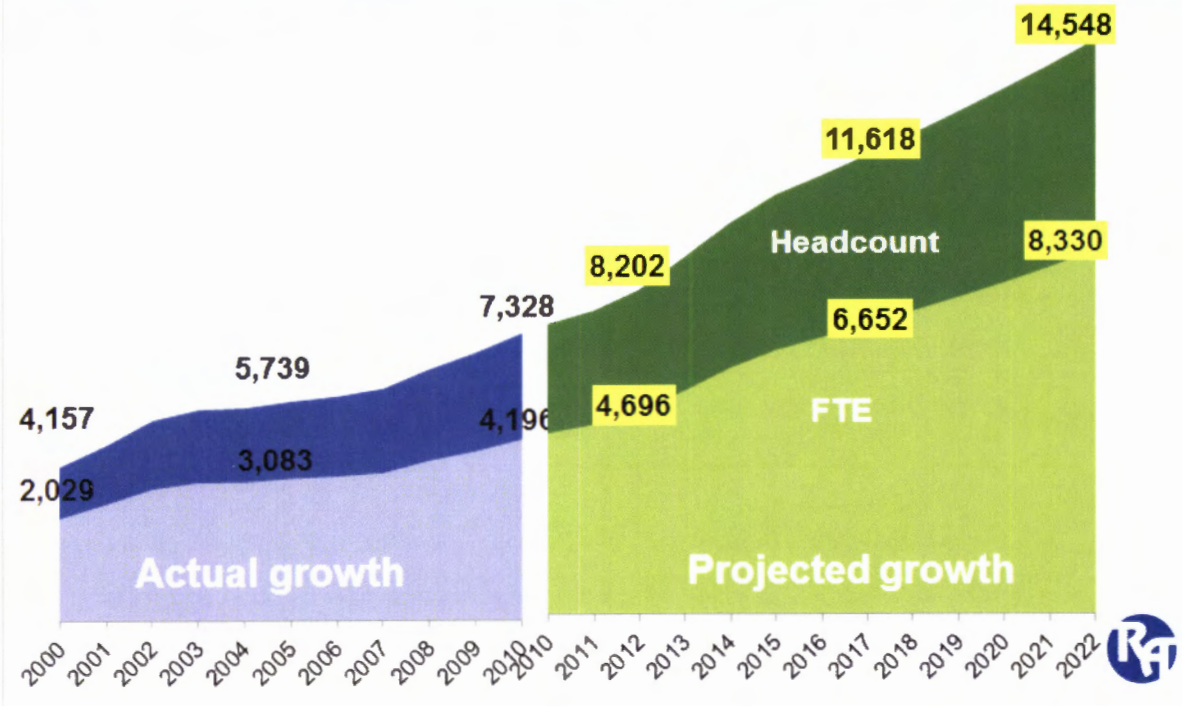
3. "New building factor"

8% to 13% annual growth

In addition to the "new building factor," two other sources of additional students in the 2010 perspective give GCC confidence that student demand will be there.

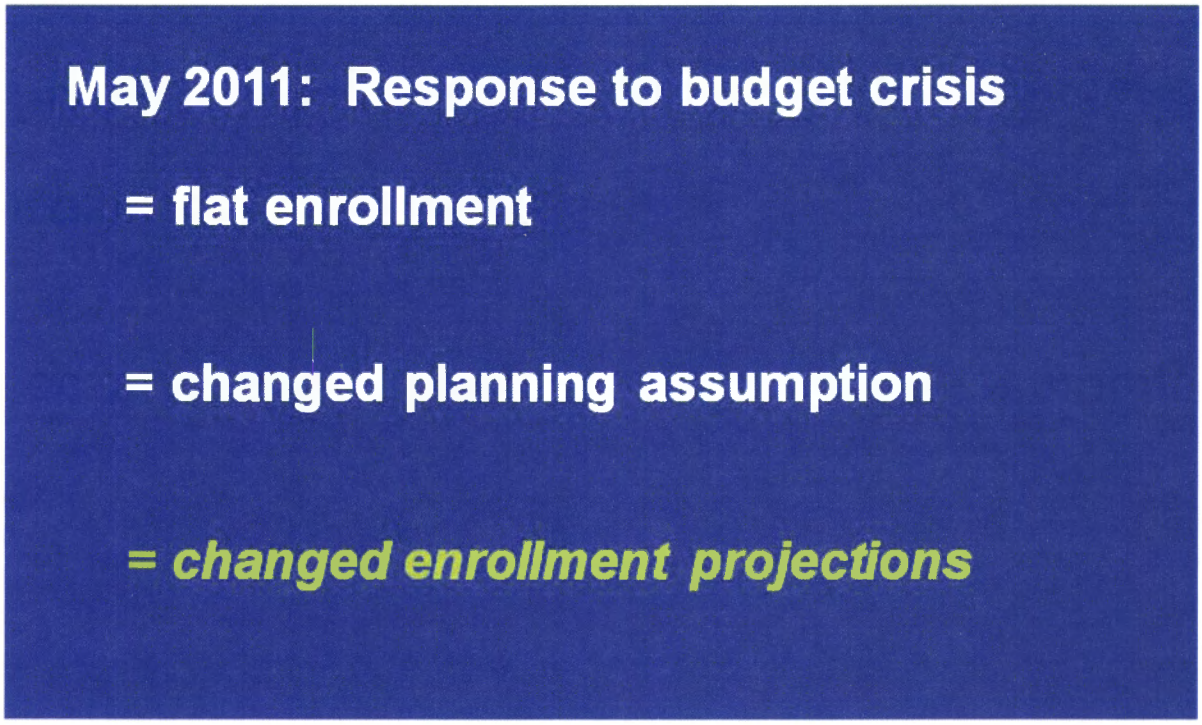
1. Gateway's capture rate from its 12-town service region in 2004 was 0.9%, and in 2010 was 1.31%. The CCC average in 2010 was 1.57%. This means that GCC's capture rate has been increasing, but that there is still room for growth.
2. There is still much un-met need for the kind of education that Gateway offers in this part of Connecticut. In Fall 2010, over 500 students were turned away due to their inability to pay tuition and GCC's inability to provide enough financial aid. In addition, GCC had to cancel 51 course sections due to lack of funding to pay adjunct professor salaries to teach these courses.

2010 Perspective: 2000 - 2022

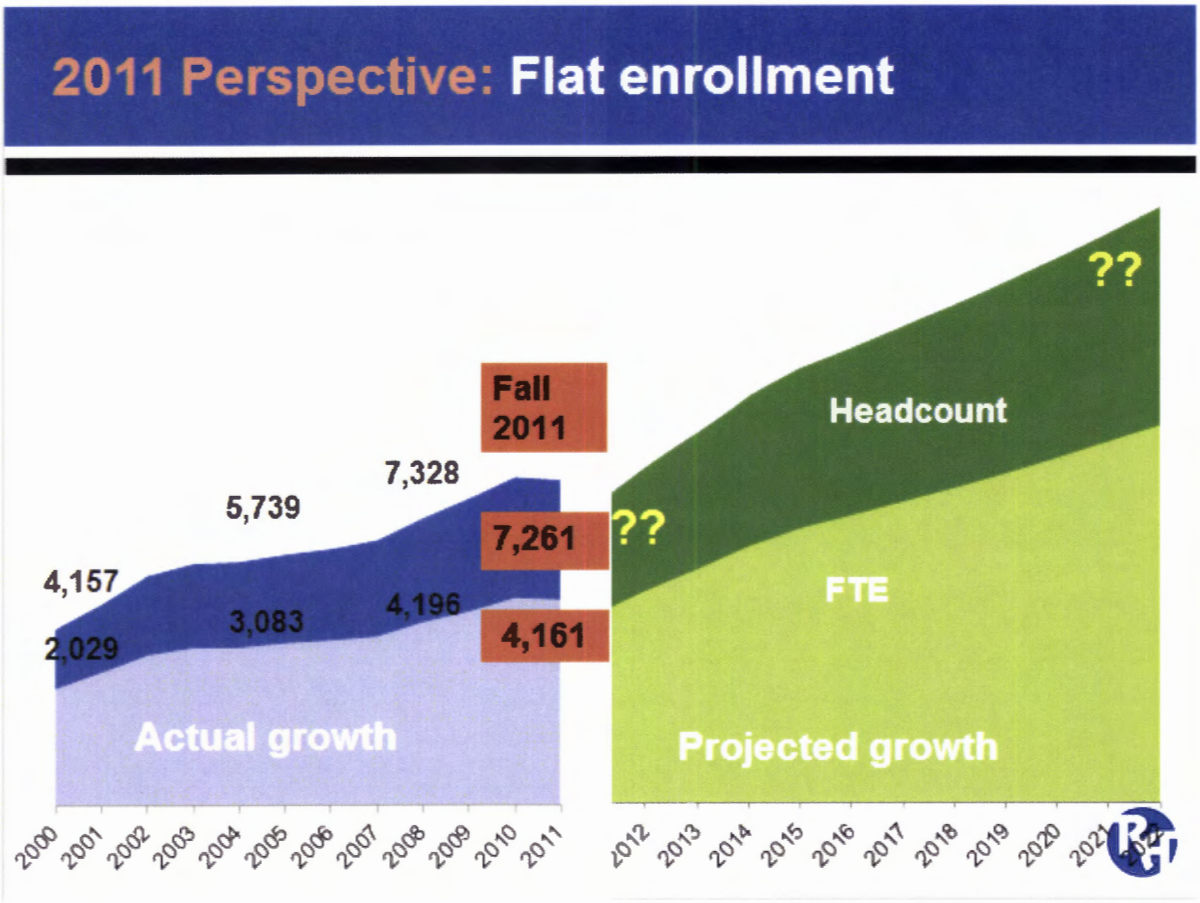


This summary shows Gateway's actual growth from 2000 to 2010 and the "2010 perspective" projected growth from 2010 to 2022.

And the math changed....



In May 2011, the State of Connecticut had to respond to the economic crisis in the state when preparing its biennial budget. Part of that response was to call for flat enrollment in all 12 community colleges, thus changing the Master Plan's underlying assumptions and enrollment projections in a very significant way.



The "2011 perspective" therefore is very different from the "2010 perspective." Enrollment in Fall 2011 was down 1% to 2% both across the system and at Gateway. Headcount was -0.9% at GCC versus -1% in the CCC system, and FTE is -0.8% compared to -2% in the system.

From the 2011 perspective, with no indication of when the flat enrollment policy will be rescinded and no way to predict how long the economic crisis will last, it is not possible to create useful future enrollment projections at this moment in time.

Back to the Master Plan questions



But, back to the Master Plan question about whether there will be enough space in 2012, and what near-term action might be needed. One way to answer that is to look at when will GCC "run out" of classrooms, since if the College doesn't have enough classrooms, it can't fulfill its major purpose.

When will GCC "run out" of classrooms?



It is relatively simple to project how many students it will take to fill all the new classrooms in the New Haven Campus based on the number of classrooms and seats, and the courses taught in them. The very good news is that Gateway's "technical full point" is whenever it reaches an enrollment of 11,600 students. Another way to say this is that there is essentially 60% more classroom capacity for GCC to grow into than is needed for 2011's enrollment of 7,261.

The next question is, "*When* will GCC have those 11,600 students?" Because of the flat enrollment policy and the uncertainty about how long it will be in place, that date is simply not knowable at this time. The 2010 perspective in the main report suggests that enrollment could occur as soon as 2017. The good news is that Gateway will have enough classrooms at a minimum for the first five years on the new campus, and likely for much longer.

Back to Master Plan question #2

1. Near-term action

Will there be enough space when New Haven Campus opens in 2012?

2. Long-term planning

How much space will GCC need by 2022 if enrollment growth continues?

Let us now turn back to the second question that the Master Plan was to answer: How much space will GCC need by 2022 if (and this is now a big "if") enrollment growth continues?

Other space needs grow too

When enrollment increases.... Student Services…Gathering Space…Computer Labs…Parking….Specialized Instructional Spaces…Cafeteria…Community Space….Library….

When expand or add programs…. Allied Health…Human Services ….Step Forward….Criminal Justice Protective Services…. …Paralegal….Sustainability…Expand transfer program…. ..."Transportation Center"…Music Therapy....STEM….Mentoring program…Former inmate education program…Expand ESL... ….Tutors in Math, Science, English, Reading…..

For long-term growth… Freshman seminar…Athletic facilities…. …Expand tutorial services…Peer mentoring…Expand Registration and Advising…."Incubator space" for new programs…More support of FT student needs….Testing facilities…Automotive conversion training… …Contract training for local town fleets…Event space for cultural events

While we can project the growth of classroom space needs relatively easily based, other kinds of space needed on a college campus grow based on different factors than classrooms, and are more difficult to project.

Some kinds of space needs grow in **direct proportion to enrollment**, such as gathering space, the cafeteria, or computer labs.

Space needs can also grow when the College **expands or adds programs** in the near-term, when those programs require specialized spaces the do not currently exist, such as Step Forward when it expands with a new Autism Spectrum program, or when a new Music Therapy program is added.

During the interview process for the Master Plan, many ideas for **long-term program growth** were mentioned, the items that "would be nice to have" in an ideal world. Many, although not all, of these will need more or different space than the New Haven Campus will have.

Measuring total space need

Assignable Square Feet (ASF) per Full-Time Equivalent (FTE) student

CCC target	95 ASF/FTE
2005 projection for 2012	75
Current 2011	49
New Haven Campus 2012	63 flat enrollment

The amount and type of space these programs will need can't be measured until much more is known about them. However, one standard method to approximate the total space need in the long-term is by looking at the ASF/FTE, the overall amount of usable or assignable square feet needed for each FTE student.

The CCC system set a planning target of 95 ASF/FTE, which RA concurs is a good target for community colleges. When the New Haven Campus was planned in 2005, the original program provided 75 ASF/FTE, considered at that time to be good progress towards meeting CCC's target. By 2010-2011, Gateway had a very low 49 ASF/FTE, about half of CCC's target.

In 2012, the New Haven Campus will have approximately 63 ASF/FTE if enrollment remains flat. At two-thirds of the CCC target, it will be a vast improvement over current conditions at Long Wharf and North Haven. While the qualitative differences between new and existing space are more difficult to measure than the quantitative, there will also be a marked improvement in the quality of brand-new space designed for GCC's specific needs.

Recommendations

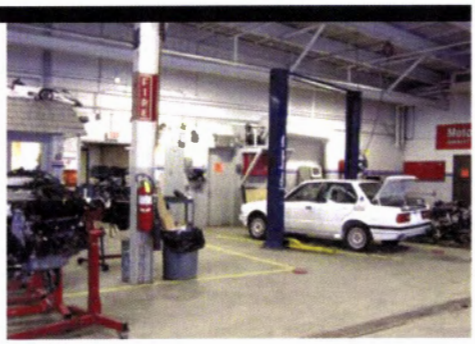


GCC, CCC and RA together arrived at recommendations for both near-term action and long-term planning.

Recommendations: Near-term Action

1. New Haven Campus

Move in, unpack, go!



2. Keep part of North Haven

Automotive Technologies

Railroad Technologies

Center for Sustainable Energies

3. Entrepreneurial Long Wharf and North Haven

Produce revenue

Support GCC new campus and programs

There are three recommendations for near-term action.

1. This Master Plan Update hopefully allays the concerns expressed in Fall 2010 about the adequacy of the space on the New Haven Campus. There will be more than adequate high-quality classroom and other space for at least the next five years, even with some enrollment growth. The only near-term action recommended there is to move in, unpack, and get to work!
2. The main report discusses in detail how the North Haven Campus was selected to fill the near-term gap in GCC's space needs. Three programs are currently in specialized instructional space on that campus: Automotive Technologies, Railroad Technologies, and the Center for Sustainable Energies. With no other options available to meet the needs of these growing programs, they will remain in that space for the near-term. Of the 103,000 ASF at North Haven, about 30,000 ASF will be needed to house these programs, with the majority of the space used by Automotive Technologies.
3. Towards the end of the Master Planning period, Gateway decided to take an entrepreneurial approach with the space it owns but will not need in the near-term, and to make it revenue-producing to support new programs on its new campus. A number of options are currently being considered for the 101,000 ASF at Long Wharf and the 73,000 ASF remaining at North Haven.

While GCC still has a single campus as a long-term strategic goal, in the near-term the College will occupy one and one-third campuses, and will lease or rent out another one and two-thirds campuses. This not an optimal solution, but it is thought to be the best way to keep all options open until some of the many current uncertainties are resolved.

Recommendation: Long-term Planning

Update the Master Plan in 2013

Economy

(Hopefully) stabilizes

State enrollment policy

Data will be available

Census service area population projections for 2020

One more year of GCC enrollment data

There is only one recommendation for long-term planning, and that is to update the Master Plan again in 2013. There are too many important pieces of data missing, too many decisions about enrollment policies to be made, and too many uncertainties in the economy to do meaningful and responsible long-term planning at this time.

It is hoped that by 2013, the national economy will have stabilized somewhat, and the state will be able to determine the time period for its flat enrollment policy. In addition, the U.S. Census expects to publish its 10-year population projections for every city and town in the country in 2013, which will allow a more informed projection of the capture rate from GCC's service region through 2020. The College will also have one full year of enrollment data on the new campus to help inform future enrollment projections.

Update the Master Plan in 2013

2013 Perspective - after a year in New Haven



Figure out what you have, how to use it, what is needed

Programs to grow or expand

Evolve new downtown partnerships

Continuing Education = revenue

Entrepreneurial with LW and NoH

Understand future needs and costs

Most importantly, though, Gateway will have had time to develop its "2013 perspective," which will be radically different from the perspectives of 2010 or 2011. While it is possible to guess now at the impacts the new campus will have on GCC's "sense of self," it cannot really be understood until it has been experienced.

The 2013 Master Plan Update will give the College the opportunity to express and articulate the new sense of identity and possibility for the future that will come from occupying the new campus for a year. This experience will provide the basis for a vision for GCC's future along with a better understanding of its future needs, allowing scenarios for future expansion to be developed and their costs estimated.

With updated data, (a bit) less uncertainty, and a 2013 perspective, GCC can update its vision and its long term plan to make an effective, confident case to seek support for its future.

Chapter 1

Overview and Process

1.0 Overview and Process

1.1 Overview

This chapter describes the context, methodology, and process for the development of the *Master Plan Update 2012-2022* for Gateway Community College (GCC).

1.1.1 Brief History

Gateway Community College, one of the 12 Connecticut Community Colleges, was founded in 1992 by the merger of Greater New Haven Technical College (in a former North Haven middle school) and South Central Community College on Long Wharf (in a former industrial building). While GCC's space has been divided between the two campuses, the College's goal has always been to consolidate all of its operations on one campus.

In 2001, GCC commissioned a Master Plan and Space Program from Alan Dehar Associates Architects and Rickes Associates (RA) to study how to merge the programs in both locations and to consolidate the College on a single campus. Several options were programmed and estimated, including renovating and expanding the existing Long Wharf campus, or building a brand new campus on that site. As part of a larger urban initiative, the City of New Haven offered the former Macy/Malley's downtown site for a New Haven Campus, a fortuitous and mutually beneficial collaboration. Gateway and the Community–Technical Colleges Board of Trustees adopted the downtown site for a consolidated campus in November 2002.

As part of the design process, the 2002 *Master Plan* was updated in 2005 to finalize the program for the design and construction of the New Haven Campus. GCC's enrollment growth from 2001 to 2005 was used to project the need for 273,000 assignable square feet (ASF), or 374,000 gross square feet (GSF) of space. At the same time, across the country the cost of construction materials began to rise dramatically due to a sudden major surge of construction activity both in the U.S. and in China. GCC's construction budget was fixed at $144 million, but by 2005, that money was able to buy far less building than it had when the budget was originally established.

Figure 1.1: ASF/GSF History

	APR 2001	NOV 2002	DEC 2005 for Fall 2012	Fall 2010
	Rickes Campus Master Plan	Dehar Facilities Master Plan	Rickes Master Plan Update	Under Construction
Projected % Growth	up to 30%	up to 30%	4.6%	7% actual
Projected FTE	2,600	2,600	3,500	4,196 actual
Cumulative ASF needed	252,000	239,070	273,340	398,620
New Haven Campus ASF	252,000	239,070	273,340	-231,624
***Additional* Cumulative ASF Needed**				**166,996**
Cumulative GSF Needed				632,730
New Haven Campus GSF	400,000	379,476	433,873	-367,000
***Additional* Cumulative GSF Needed**				**265,730**

Assumptions:
1. Applied BOT space planning guideline of 95 ASF/FTE
2. 42,000+ ASF additional in "alternate location" not included
3. 0.63 multiplier applied (=231,624 ASF / 367,000 GSF)
4. Parking garage = 197,530 GSF additional

In order to keep the project moving forward, several strategic programmatic decisions were made. First, 42,000 ASF of the total 273,340 ASF was reduced from the program in order to meet the budget. It was decided that two groups totaling approximately 42,000 ASF - Automotive Technology, and Continuing Education and Workforce Development - would remain on the North Haven campus until another solution could be found. Second, a space optimization program was undertaken to further reduce academic space by increasing building efficiency, thus allowing the New Haven Campus design and construction to move forward. A revised New Haven Campus was designed with 231,624 ASF (367,000 GSF).

As part of the current Master Plan Update, GCC revisited these assumptions in light of emerging fiscal constraints. After careful review, the College decided to minimize its presence on the North Haven Campus by moving all of CEWD to the New Haven Campus, leaving only AT, RRT and the Center for Sustainable Energies (CSE) on that campus in approximately 25,000 to 30,000 ASF.

GCC is poised to make a major leap as both an academic institution and an urban presence when it moves to its brand-new campus in downtown New Haven in Fall 2012. As one of the fastest-growing colleges nationally as well as in the Connecticut Community College system, GCC grew from 4,200 headcount students in 1999 to 7,300 today, an overall 74 percent increase in headcount enrollment in 11 years. The past decade has shown a solid average growth of over 6 percent per year, with the highest growth in the past few years, fueled in no small part by the recession and by one of GCC's primary missions, job retraining. This is one of the primary reasons that GCC exceeded the rate of growth predicted in 2005.

GCC currently is housed on two separate campuses. Long Wharf has 101,000 ASF (150,000 GSF), and North Haven has 103,000 ASF (160,000 GSF), for a combined total of 204,000 ASF (310,000 GSF).

When it opens, the New Haven Campus will have 231,624 ASF (367,000 GSF), approximately 25,000 to 30,000 ASF in North Haven, plus a parking garage of 197,530 GSF.

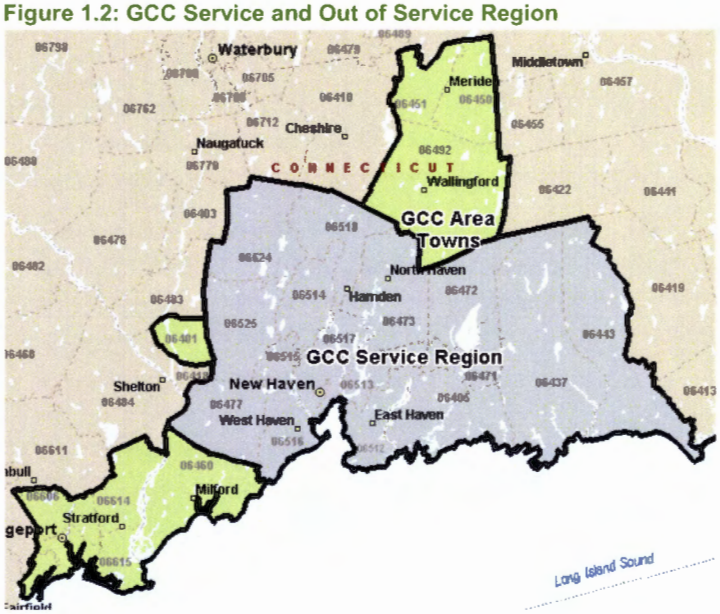
1.1.2 Service Region

Gateway today is a vibrant, dynamic community college that primarily serves students from the greater New Haven community. Over 7,300 full- and part-time students enrolled in 2010, or the full-time equivalent (FTE) of 4,200 students. Almost 75 percent of students come from the 12 towns in the greater New Haven region, 25 percent are from other Connecticut towns, and a handful comes from out of state.

Gateway's service area includes 12 towns: Bethany, Branford, East Haven, Guilford, Hamden, Madison, New Haven, North Branford/Northford, North Haven, Orange, West Haven, and Woodbridge. Credit courses are also offered at two area high schools within Gateway's service area, East Haven and Hamden. This is down from five in 2005, likely due to the lack of funding for necessary support services off-campus.

In addition to the towns within the service region, Gateway also draws a significant number of students from immediately adjacent towns.

Figure 1.2: GCC Service and Out of Service Region



1.1.3 Mission and Vision

Gateway adopted its mission statement in 1997, reiterating it in the College's new 10-year strategic plan, *Gateway 2020: Ten-year Vision Statement:*

> "Gateway Community College offers high-quality instruction and comprehensive services in an environment conducive to learning. We respond to the changing academic, occupational, technological, and cultural needs of a diverse population."

Gateway 2020 also affirms Gateway's adoption of the Connecticut Community Colleges system-wide Strategic Goals to:

1. Create an environment in which student success is an expectation.
2. Diversify and strengthen resource development and external funding.
3. Balance enrollment demands and services with existing resources while maintaining flexibility to manage and improve operating efficiency.

Finally, *Gateway 2020* articulates the College's own "Wildly Important Goals".

1. Student Success: Focus on fostering student outcomes by supporting and encouraging cultivation of their intellectual development and establishing a foundation for life-long learning.
2. Community Relations: Collaborate with external stakeholders to find ways to meet their educational needs and create mutually beneficial opportunities through college programs and activities.
3. Institutional Efficiency and Effectiveness: Provide high-quality instruction in an organizational climate that supports open, honest and respectful dialog among all disciplines and across the entire college.

In January 2011, Gateway's *Fifth-year Interim Report*, its re-accreditation update, noted that the College looks forward to the opportunity to revisit its mission and vision in the context of the New Haven Campus once it is occupied in 2012.

1.2 Planning Process

1.2.1 Purpose

The impetus for the *Master Plan Update 2012-2022* is the anticipated 2012 completion and occupancy of the New Haven Campus that was envisioned in the *Master Plan and Space Program Update* of December 2005.

In Fall 2010, GCC began this *Update* to build on the 2005 plan and to conceptualize the long-term growth needs of the College, to make recommendations for the programs remaining on the North Haven Campus, and to assess the implications of higher-than-expected enrollment growth on the New Haven Campus in its first years of operation.

GCC's current lack of space limits its ability to offer new programs. More science labs, a health and fitness area, an "incubator" space for developing new programs, more Nursing labs, and space for speakers and cultural events are all in great demand. Facilities are also needed for new or emerging programs such as the Center for Sustainable Energy, the Center for Transportation Technology, Allied Health, Music Therapy, Criminal Justice Protective Services, and Paralegal.

The intent of this *Master Plan Update* is to update the 2005 Master Plan with a data-driven master plan that is aligned with the College's new 10-year Strategic Plan. Taking into consideration the next decade of growth, it will:

- Identify the "gap" between space provided by the New Haven Campus, and current and projected space needs.
- Program current and projected space needs not currently addressed by the New Haven Campus (Automotive Technology, Railroad Technology, Center for Sustainable Energies, and Continuing Education and Workforce Development).
- Develop options to address GCC's near- and long-term space needs, along with order-of-magnitude costs.

1.2.2 Process

In a process parallel to that followed in 2001 and 2005, this *Update* included investigating, reviewing, and analyzing comprehensive data to create the groundwork for a master plan for 2022. The following tasks were performed:

- Collect pertinent data
- Conduct interviews with senior administrators
- Identify enrollment trends and program needs
- Project enrollments from several perspectives
- Conduct an instructional space utilization analysis
- Develop draft space programs for Automotive Technology (AT), Railroad Technology (RRT), and Continuing Education and Workforce Development (CEWD)
- Analyze the space needs "gap" based on enrollment projections and program needs for 2012 and 2022

Data Collection
Several sources of data were gathered and analyzed, including the following:

- Course instructional data – used to conduct the Instructional Space Utilization Analysis
- Enrollment data – used to compute enrollment projections
- Faculty and staffing data – used to project space needs for faculty and staff in AT, RRT, and CCE

Interviews
Interviews were held in the fall and winter of 2010-2011. The primary focus was on the College's senior administrators and the heads of the programs being programmed, AT/RRT and CEWD. Since the remainder of the College is moving to the New Haven Campus, it is assumed that those long-term needs have been accommodated through the last planning period.

Strategic Plans
Understanding an institution's strategic plan is critical to aligning current and projected space needs with that institution's future direction. This information comes from many sources. Senior administrators often have the broadest perspective on institutional directions, but Strategic Plans, Academic Program Reviews, Master Plans, and Accreditation Self-Studies are also important sources of information.

1.2.3 Strategic Drivers and Their Impact on Space Need

There are three major drivers of space needs on academic campuses, and they interact dynamically with each other to determine the overall space need for the near term and the long term.

Enrollment
One major driver of space need is the number of students who use campus facilities. Trend analyses of current and projected student enrollment, based on both FTE production and student headcount enrollment data, quantify relative space needs.

Instructional Space
The Instructional Space Utilization Analysis quantifies the space needs for general-purpose classrooms and specialized instructional spaces through a detailed analysis of:

- actual weekly hours of classroom use,
- actual seat or station occupancy rates, and
- assignable square feet (ASF) per seat or station.

Standard space planning guidelines are then applied to each of these, and the "gap" between existing and projected instructional space need is identified.

Personnel
Another important driver of space need is the number of academic and non-academic staff who work in and use campus facilities. In Gateway's case, it is understood that the majority of space needs for staff and faculty will be accommodated by the New Haven Campus. However, for planning purposes, it has been assumed that 10 future personnel will be factored into the long-term space need projections.

1.3 Recent Trends in Higher Education

This section combines a summary of RA's own experience and research with an abbreviated synopsis of *The College of 2020*, published in 2009 by Chronicle Research Services. This document provides insights into research and data on trends in higher education.

Just as community colleges have continually evolved and adapted over the past 100-plus years, they remain particularly well-positioned to continue their role as student-centered learning colleges able to respond and adapt nimbly to changing student needs, job markets, and economic conditions. Today, according to *The College of 2020: Students*, colleges must adapt to "a new breed of student…who will demand an education on their terms and will be seeking a technology-based customized approach (p.52).

The following emerging or continuing trends are likely to impact Gateway Community College in coming years, accompanied by changes in student expectation in each area:

- Technology
- The cost of college
- Changing demographics, including an increase in 18-24 year olds
- Increase in adult learners
- Changing programs

1.3.1 The Impact of Technology

"Nothing is as likely to change the face of higher education over the next decade as the switch to more online learning." (p.37)

Changing Student Expectations
Today's high-school students, the so-called "New Millennials," fully expect to incorporate into their educations the electronic tools they depend on in every aspect of their lives: smartboards, smartphones, laptops, iPads, and iPods. The Chronicle calls them "a 'Digital Advance Team' illuminating the path for how to leverage emerging technologies effectively for teaching and learning….and a precursor to a coming change in the way higher education is delivered." These expectations cover a range of new learning environments, from micro blogging (using Twitter-styled components with a distance learning platform such as Blackboard), to 24/7 access, to web-based student services.

A few pertinent facts from the Chronicle report:

- More than half of all online students are enrolled by community colleges (per the Sloan Consortium).
- Enrollment in high school online courses is growing even faster than enrollment in college online courses.
- Research by the Hoover Institution at Stanford University predicts that by 2019 half of courses in Grades 9 to 12 will be delivered online.
- The first-year student of 2022 is a first grader today, and is even more technology-savvy than the high school students of 2011.

Online Courses
The number of colleges offering courses online continues to grow, and the resources being devoted to online learning are accelerating. Community colleges have a particularly important role in higher education in offering online courses.

Impact on Faculty
One of the important questions is, how will colleges get faculty members up to speed with technology? The role of faculty is changing to more of a guide to online resources who adds perspective and context, helps students assess the information they find on the Web, and find the best articles and research. The anticipated retirement of the "baby boom" generation of senior faculty and administrators will present both problems and opportunities for colleges as they fill those positions.

Impact on Space
The need for flexible, interactive spaces that students, faculty, and staff can readily adapt will increase with on-going changes in pedagogy. The increasing emphasis on STEM programs and the changes in lab science require that labs be designed for more technology, more equipment, and flexibility to support blended programs such as environmental biology. Labs also need to be adequate to support student research, which is becoming increasingly common at community colleges.

1.3.2 The Cost of College

With the cost of college increasingly unaffordable for much of the US population, "The public view has shifted toward a more utilitarian view of higher education (p.29)," according to Harris N. Miller, president and chief executive of the Career College Association. Parents and students are asking, "What is the return on my investment in a college degree?" They are looking for lower-cost alternatives to attending college in addition to greater convenience, with increasing attention being directed to community colleges as a good value in education.

Changing Student Expectations
Today's students want their colleges to make it easy for them to do *what* they want to do, *when* they want to do it. Colleges must provide flexibility in their programs and be ready to change again as student demands evolve. At the same time, schools must still provide the traditional classroom experience for those who prefer to learn that way. Some examples suggested by the Chronicle:

- Allowing students to attend classes online, study part time, take courses from multiple institutions, and jump in and out of college;
- Providing hybrid class schedules with night and weekend course meetings;
- Offering three-year degree programs for those who want to finish quickly, and four+ year programs for those who want to take their time;
- Starting courses and certificate programs at multiple times throughout the year;
- Providing access to classes from cell phones and other portable computing devices;
- Monitoring class meetings online and attending classes whenever they want;
- Facilitating on-line classroom discussions, faculty office hours, lectures, study groups, and papers.

Some potential weaknesses in typical community colleges include classes perceived as "too large" and an inability to provide enough courses in some subjects to meet student demand. However, in general, community colleges are much better-positioned to respond to and capture the needs of today's students.

1.3.3 Changing Demographics

The demographic profile for community college students will continue to be a broad range of ages, backgrounds, and preparedness. While there has been significant growth in enrollment of the 18 to 24 year old segment in recent years, the number of older students has also increased, as colleges have targeted recruitment of age 50+ students. The community college student population will also continue to include more minorities and immigrants, as well as first-generation college students.

Community colleges have become the primary source for remedial, basic skills, and ESL programs, and this trend will only increase. They have also experienced an increased need for services and activities more traditionally found at four-year institutions, including expanded mental health and wellness programs for their students, as well as a desire for recreational and athletic activities.

It is expected that nationally the total number of high-school graduates will be virtually unchanged from 2010 to 2020. While the Northeast is expected to remain almost level, losing just 1 percent, Connecticut has been recently predicted to lose over 10% in this period. Significant changes are predicted over the next decade in the demographic profiles of students, with increases in enrollments of minority groups and women, and in the average age of students.

Community colleges are capturing much of that demographic now; including first-generation students, as well as adults who need retraining in their present career, for an alternate career, or for a first career.

1.3.4 Increase in Adult Learners

The U.S. Department of Education's National Center for Education Statistics (NCES) indicates that the adult student market will be the fastest growing one in higher education for the foreseeable future. There was a growth rate of more than 20 percent between 1990 and 2007 in the total number of adults who participated in adult-education courses, the latest data available through NCES.

Community colleges can uniquely cater to older students who have no time for a traditional college experience but who want courses that fit their schedules. But community colleges need to create basic services and facilities targeted at adult student needs, such as lounges, places they can store belongings, and evening snack shops. In addition, the Chronicle states that convenience and support will be key to attracting adult students, such as:

- Providing a range of options utilizing technology to take courses in-person, entirely online, or hybrid.
- Developing career-related certificate programs that can be counted toward a degree.
- Providing part-time degree programs and creating year-round, accelerated, and convenient programming.
- Providing a clear understanding or "map" of how courses fit into a degree program.
- Allowing students to start a degree program and register for courses at any time of the year.

1.3.5 Changing Programs

Programmatically, community colleges will need to continue to provide workforce training and basic skills courses. There is pressure for expansion of non-degree programs (credential and certificates), while at the same time a movement centered on community college baccalaureate degrees is finding some support. There is increasing demand for workforce programs to reflect the needs of companies that depend on community colleges to provide skilled employees.

1.4 Summary

The information presented in this *Master Plan Update* should provide Gateway Community College with an objective assessment of its projected space needs when the New Haven Campus opens in 2012, and for the decade after its occupancy. This *Update* presents findings, conclusions, and recommendations to inform the College's ongoing planning process and the next phase of planning for GCC's future.

Chapter 2

Interview Findings

2.0 Interview Findings

2.1 Overview

During the course of the campus *Master Plan Update* for Gateway Community College, interviews were held between November 2010 and February 2011 with senior administrators, faculty, and staff. These interviews provided the basis for the qualitative analysis by:

1. Reviewing the space recommendations developed in 2005 in general terms and identifying any changes that have occurred since then
2. Identifying any general concerns and issues about the current or future campuses
3. Identifying where the "pinch points" are likely to be in the first few years of operation on the New Haven Campus

2.2 General Themes

This section provides a summary of the general themes that emerged during the interview process.

2.2.1 Location

The location of Gateway's operations was, not surprisingly, a main topic of conversation in the interviews. One concern was that the New Haven Campus will be nearing capacity once GCC moves in.

There was a strong consensus preference for the location of any additional space. Contiguous space downtown was by far the strongest preference, followed by the use of Long Wharf for specialized labs like Allied Health. In the opinions of those interviewed, it would be preferable for Allied Health and Continuing Education/Workforce Development to be located downtown.

Options for additional space were discussed and the following priorities were expressed:

1. Tear down the existing Long Wharf building to re-build a new LEED-certified campus with a parking garage.
2. Keep some programs in North Haven.
3. Expand the New Haven Campus by the 70,000 GSF allowed by the structurally reinforced steel columns.

General comments were received about each of the three campuses:

1. New Haven Campus
   - "Convenient access is one definition of excellence" according to one interviewee. Others noted the New Haven Campus was within walking distance for events for many people, while another noted that the downtown location puts the College closer to its service population.
   - There is much interest in New Haven about GCC's move downtown:
     - The city librarian came to visit, and wants to use part of the GCC library for early learning, servicing younger students.
     - The Chamber of Commerce's Executive Leadership Program would like more use of GCC's new campus.
   - There is a perception that all of the large spaces on the new campus will be needed by the College, so rooms will need to be creatively shared with the larger community.

2. North Haven
    - There was concern that GCC will have no large, green outdoor space if it loses the North Haven campus.
    - One perceived problem with North Haven is that there is inadequate public transportation for students, staff and faculty. Students will drive to North Haven, then take a shuttle to the New Haven Campus.
    - North Haven draws more students from Wallingford and parts north.
    - The tall, large-bay lab spaces at North Haven that are required by AT and RRT are the main reason to continue use of this campus.
    - If GCC plans to use North Haven for another 5 years, it should re-evaluate the current renovation strategy of repairing and replacing building systems only as they break down. Instead, it is recommended that a more comprehensive renovation plan and budget be developed for this facility.
    - While North Haven is in marginally better condition than Long Wharf, further major investment in this facility may not be a prudent use of available funds, as the main building systems are 1970-vintage and beyond their recommended useful life.
3. Long Wharf
    - The main advantages at Long Wharf are good parking and an easy shuttle (or walk) to the New Haven Campus.
    - While the large spaces at Long Wharf are not as desirable for events as those at North Haven, it does have parking.
    - Any further investment in the Long Wharf physical plant is not considered a prudent use of available funds, as the main building systems are 1960-vintage and in need of complete replacement.

2.2.2 Parking

There was a fair amount of concern expressed in the interviews about parking and traffic downtown once the New Haven Campus opens. One indicator of this concern was the suggestion that some faculty would prefer to stay at Long Wharf than move to the New Haven Campus because of anticipated problems with access and parking downtown.

One suggestion was to look at how parking and traffic daily cycles downtown will overlay with the course scheduling blocks, to see if there were any advantages to be gained there. Other ideas were to provide more shuttles, and to request that New Haven police direct traffic in the vicinity of the New Haven Campus at rush hour.

2.2.3 Enrollment

One of the most prominent changes at Gateway in the past six years has been its enrollment growth, up 31 percent, or 1,733 headcount enrollment students from 2004 to 2010. One interviewee noted that Gateway's vision was "first about being great, then being big," and suggested that, going forward, this focus should prevail. Some recent enrollment characteristics:

- After steady growth, the number of new students declined 4 percent in 2010-2011.
- There is an increase in students of traditional college age 18-24, who expect more of a traditional college experience (up from 30.5% in 2004 to 34.8% in 2010).
- Entering students who are younger and not as mature, and many are not prepared for college.

- Full-time students are finishing their degrees more quickly.
- 70 percent of community college students need pre-college remediation, a number which is increasing.
- Many GCC students are the first generation in their families to go to college and lack support at home.
- Gateway is not prepared for the rapidly growing number of students with learning and physical disabilities. There are currently 600 LD students now, out of 7,328.
- The number of transfer students is increasing.

The increased number of full-time students brings with it changing expectations that can have an impact on Gateway's budget, as these student expect more face-time with more full-time faculty, a more traditional collegiate experience, and fully worked-out articulation agreements with Connecticut's state universities.

Currently, GCC faculty is reportedly 56 percent adjunct, with a headcount of 348 adjuncts and 109 full-time faculty. The System's goal is to have a maximum of 50 percent adjuncts, although GCC is not likely to meet this goal in the near future due to fiscal constraints. .

A number of interviewees agreed that the student headcount enrollment could easily double in 10 years to 15,000 students, especially given the "new campus effect" experienced recently on other Connecticut community college campuses. This would be acceptable to many, but only as long as the campus had adequate space to accommodate this growth. Other interviewees were more conservative in their enrollment projections. One suggested 30 to 50 percent growth over the next decade to 10,000 to 12,000 students. Yet another indicated that 2 percent per year would be the maximum growth, due to limited financial and human resources, which would bring enrollment to 10,000 students in ten years.

It is believed that a new Enrollment Management position will be needed to assist with increased enrollment. Gateway is currently informally managing enrollment by creative scheduling, but a more directed approach may be needed in the future to meet fiscal requirements.

Some expressed concern that, while enrollment doubled in the past decade, the number of staff and the amount of space remained level. If enrolled doubled yet again in the next 10 years, how much more staff and additional space would be needed, and how much would be available?

2.2.4 Student Services

When asked, "What is most needed at GCC to support enrollment growth?", more student services was an answer given by many. Concern about the lack of growth in Student Services staff for the past several years when enrollment has grown so much was expressed by interviewees across the campus. One immediate need is for counselors, as there are currently just four counselors serving 7,300 students. There is a desire to benchmark Student Services personnel against the FTE student load, to determine the number of staff needed to adequately serve the enrollment as it grows. Financial aid in particular gets a very high level of traffic now. GCC has the largest percentage of financial aid students of all the Connecticut community colleges.

The main Student Services office will be on the New Haven Campus. The components of a satellite office on the North Haven campus should ideally include financial aid, admissions, advising, registration, and ADA. There is a sense that Student Services is more divided now than is ideal, and a concern about what will happen when the New Haven Campus opens. Some questions: Will there be one fully-functioning Student Services in one location? How fully-functional will the "alternate location" be as a campus?

On the New Haven Campus, Student Services' layout will be similar to the current one, but there is a desire to develop the "one-stop-shopping" service model that has been so well-received by students on other campuses. This would include more self-service with kiosks, and staff readily available to assist those students needing help.

There is also a desire to consolidate Career Services and Counseling into a single area.

2.2.5 Scheduling Window

Campuses have standard scheduling windows during which the majority of courses are held. In Fall 2004, Gateway's daytime scheduling window was 30 hours per week. The College's current expanded window of 42.3 hours is the result of the lack of space in which to hold courses, and is exacerbated by inconsistently standardized time blocks. With the opening of the New Haven Campus, the College has the opportunity to redefine its scheduling window. Towards that end, a Scheduling Committee was convened in Spring 2011 to research and recommend the optimal window for Fall 2012. As of this writing, the Scheduling Committee's work is still underway. RA will present 30-and 42-hour daytime windows in the analysis to offer a range for the Committee's consideration. There is also significant evening use, but recommendations are driven by the higher demand of the daytime window.

One schedule option increasingly popular with some students is very early morning courses, as they allow students to attend credit courses before heading to work each day. In Fall 2010, Gateway had four courses scheduled at 6:30 a.m. They were so popular that this was expanded to nine courses in Spring 2011 and to 14 courses in Fall 2011. Some faculty would prefer to see this kind of expanded scheduled implemented only when there are no other choices. The busiest individual scheduling block in Fall 2010 was 5:20 p.m., within the evening window.

A number of other campus services need to open early to support the early course attendees. Gateway's food service opened early at 7 a.m., there were extended Library hours beginning at 6:30 a.m., and extended IT support was provided.

Another successful alternative schedule option is the "Weekend College," which condenses the 14-week semester into six weeks. The target is working adults, who attend General Education classes on Fridays from 6 to 9:30 p.m. and all-day Saturday for six weeks.

2.2.6 Technology

Hybrid and online courses are areas of aggressive growth at Gateway for several reasons. Not only do students request them, but the newer faculty expect technology as a standard part of their teaching toolkits. It was reported that the Connecticut State Board of Education mandates that General Education course requirements include technologically-based courses so that community college students become competent in current technologies.

Another reason that GCC is investing in hybrid and online courses is that the market is enormous, as demonstrated by the success of the for-profit universities such as the University of Phoenix, with 400,000 students taking its online courses. It was noted, however, that quality control is key to the effective delivery of online courses, as is prior skills assessment testing to ensure that students have acquired the skills necessary to learn in a technological environment.

Finally, on a campus squeezed for space, when space can't be found for new programs, it is often more effective and efficient to initiate new programs online.

Five years ago, there were 10 online courses; in Fall 2010, there were approximately 70 sections out of 900 total courses being taught on-line or as hybrids, with 25 faculty teaching fully online. The online courses are reported to fill up most quickly and their success rates are very similar to in-person courses.

Gateway is the second or third fastest growing community college in Connecticut in terms of hybrid courses, where half of the course is delivered in person and the other half is online. GCC also offers technologically-assisted courses that take place in conventional classrooms.

2.2.7 "Pinch Points" on the New Haven Campus

As the College looks ahead to moving to the New Haven Campus in 2012, administrators were asked to think about what the "pinch points" are likely to be in the first few years of occupancy. Their comments were incorporated into RA's projections for space needs in 2012.

- Laboratory sciences are anticipated to be the biggest "pinch point" within the first five years on the New Haven Campus, as they are prerequisites for many other courses. Some even suggested that lab space may be tight from the start.
- Hospitality/Culinary Arts programs are growing and will be showcased at street-level on the New Haven Campus, likely leading to further growth.
- The Nursing program has 600 applications for approximately 100 slots each year, and could grow if there were funding in place. But Nursing (and Allied Health) are labor and capital intensive programs. The state currently funds less than 50 percent of the cost of full-time personnel, with the rest coming from GCC's operating budget, and it is expected that there will be no more state funding for this.
- Functions that serve the general student community such as computer labs, general-purpose classrooms, the cafeteria, the library, and the community room will all need to grow in proportion to enrollments.
- Exercise/Fitness may need more and varied space for its programs, as well as additional new exercise facilities to serve general faculty, staff, and students.
- Community requests to use GCC space now compete with the College's own activities and are likely to continue to do so in the future. Having multiple venues on two campuses may help, but providing staffing and security in multiple places is problematic. Increased hours of use also have implications for increased operational costs of heating, lighting, etc.
- Gateway recently received a four year Pell grant for a full summer session, the first time GCC has been awarded financial aid for summer programs. There will be a summer session starting in 2011, which will be the transition year, with 2012 as the first full summer term. GCC will also be moving to the New Haven Campus that summer.
- GCC sees itself as a student-oriented institution where faculty actively partner with student services to support students. However, the growth in GCC's Student Services has not kept up with enrollment growth and the increased needs for services such as tutoring, counseling, and advising.
- Developmental education needs to expand, as it currently accommodates only three-quarters of entering students who need remedial math and English in their first semester.
- Other areas mentioned as potential "pinch-points" by interviewees:
  - Library
  - gathering space
  - cafeteria
  - sidewalk and vehicular traffic
  - space for religious and spiritual practices, such as the Interfaith course in Spring 2011 or the need for Muslim students to have dedicated prayer space with a sink
  - computer labs and business technology classrooms
  - IT area needs more space and people
  - Finance needs more space for people

2.2.8 New Programs and Initiatives

Gateway would like to establish the College as "the training center of choice" for both New Haven area and Connecticut employers. Some interviewees noted difficulties with this, citing the absence of a clear state-level policy about developing employment/business/industry in Connecticut.

During the interviews, ideas about the expansion of existing programs and the addition of new academic programs or supporting initiatives were mentioned frequently. Not all these programs or initiatives will necessarily come to fruition, but they are mentioned here to provide a flavor of the various discussions. Note that just one program, Engineering Technology, was identified as shrinking.

- Allied Health
- Human Services
- Criminal Justice Protective Services – to create a feeder to the program at University of New Haven
- Paralegal
- Sustainability – perhaps consolidate three programs in one (clean water/treatment plants, solar, sustainable energy)
- Expand the current college transfer program
- Railroad Technologies was designed to expand in future
- "Transportation Center" - become the training center for state rail and transportation system (Alternate Fuels, Railroad, Automotive, Boats/Port Management)
- Music Therapy as a new career track
- Math, Science, Technology are all growing and changing
- Step Forward
- Tutors expanding in Math, Science, English, Reading
- Need more space, privacy, and resources for students with disabilities who have aides in class
- Low retention rates for male students
- A new program is being developed for women coming to college once they are released from prison; a similar program is being considered for men.
- ESL could expand
- Flexible "incubator space" for new programs not yet identified
- Expanded data service network
- Title 4 space

2.2.9 Community Partnerships

Gateway's many business partners will expand with the move to the New Haven Campus:

- The Route 34 development may have a huge impact on GCC's future, with the potential expansion of the campus onto part of that site, if supported.
- The College has and expects to further develop its excellent relationships with Yale University and Yale/New Haven Hospital.
- GCC wants to explore and pursue a partnership with the Omni Hotel and the College's growing Hospitality program.

- Downtown merchants are interested in the revenue stream from 7,000+ students in downtown establishments, and are considering an "open house" to welcome students, as well as offering a student discount card similar to Yale's to GCC students.

2.3 Long-term Growth

Many programs that are candidates for long-term growth that may need space in the future were mentioned during interviews:

- Freshman seminar
- Peer mentoring
- Expand tutorial services
- Expand registration
- Expand advising
- Support more full-time students needs (those who stay all day and need a place to be between classes)
- A testing facility to support developmental education
- Training programs for alternative fuels: fuel cells, turbines, hydrogen, bio fuels, portable generators
- Contract training for the maintenance of local town fleets
- Automotive conversion training
- Organic farming
- Event space for cultural events – speakers, theatre, concerts
- Science labs
- Athletic facilities for intramurals
- Additional custodial and maintenance staff

2.4 Summary

Gateway has an energetic and dedicated faculty and staff who have many creative ideas about how the College can expand and grow to better serve its various constituencies. The many financial pressures faced by the College seem to not diminish their ideas for a better future. The next chapter takes a good look at the nature of those constituencies, and projects the possible future enrollment for the College.

Chapter 3

Planning Context and Assumptions

3.0 Planning Context and Assumptions

3.1 Overview

This chapter addresses the underlying context and assumptions that influence the projection of space needs including projected changes in enrollment and occupational outlook projections. Both of these factors can impact the programs offered by an academic institution, and hence, its enrollments.

Faculty and staff changes necessary to support projected enrollments are also typical factors included in space need projections. However, the space needs of most of Gateway's faculty and staff have been accommodated on the New Haven Campus as part of that planning process. Since future growth in personnel is expected to be small, a placeholder of just 10 additional positions has been included in the calculations.

3.2 Enrollment Metrics

There are a number of standard ways to look at enrollment that can assist an academic institution with future planning and programming. It is important to understand trends such as the headcount to FTE ratio, the full- and part-time student ratio, and the balance of gender and ethnicities on campus.

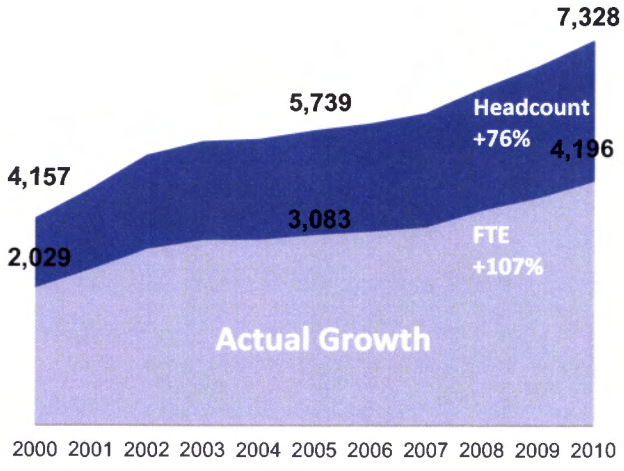
3.2.1 Headcount, FTE, and Conversion Rate

Between Fall 2004 and Fall 2010, the combined fund headcount enrollment at GCC displayed significant but variable growth, increasing by 31.0 percent (1,733 students) in this period. The variability is likely in part due to the national economic crisis that began in 2008.

Gateway's Fall 2010 enrollment headcount was 7,328, or 4,196 FTE. This represents a 7 percent one-year increase in enrollment and a 7.1 percent one-year increase in FTE. These key enrollment figures served as the base for the future enrollment projections in Chapter 5.

Figure 3.1 shows that the proportional increase in headcount enrollment was paralleled by an increase in FTE production. While total headcount enrollment increased 31% during the six-year period beginning in Fall 2004 from 5,595 to 7,328, total FTE production increased by just over 41% during the same period. As was true from 2001 to 2005, this higher rate of FTE production is, to a large extent, a function of the continued increase in the proportion of full-time students, which is described in Figure 3.3.

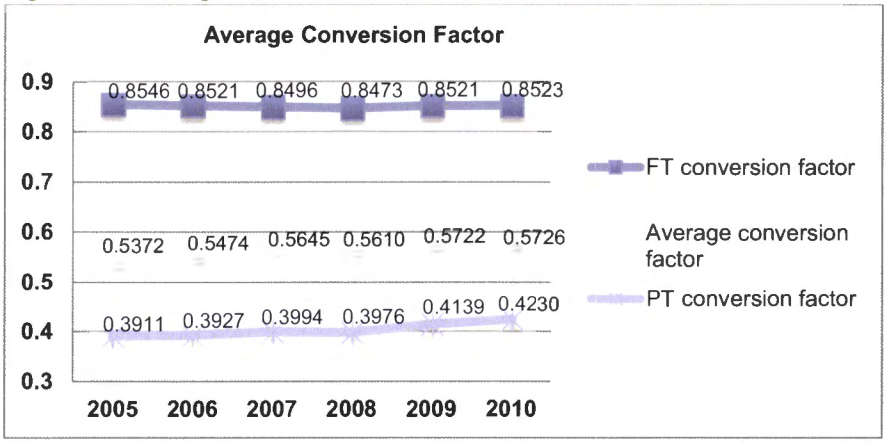
Figure 3.1: Actual Headcount Enrollment and FTE Growth: Fall 2000 to Fall 2010



Data source: Connecticut Community Colleges Office of Planning, Research and Assessment Enrollment Reports

The FTE conversion factor is another important enrollment metric that provides significant trending information to colleges. This factor is obtained by tracking the ratio of headcount enrollment to FTE for full-time, part-time, and total enrollment on a yearly basis. Figure 3.2 shows these trends over the past six years.

Figure 3.2: Average FTE Conversion Factor: Fall 2004 to Fall 2010



Data source: Connecticut Community Colleges Office of Planning, Research and Assessment Enrollment Reports

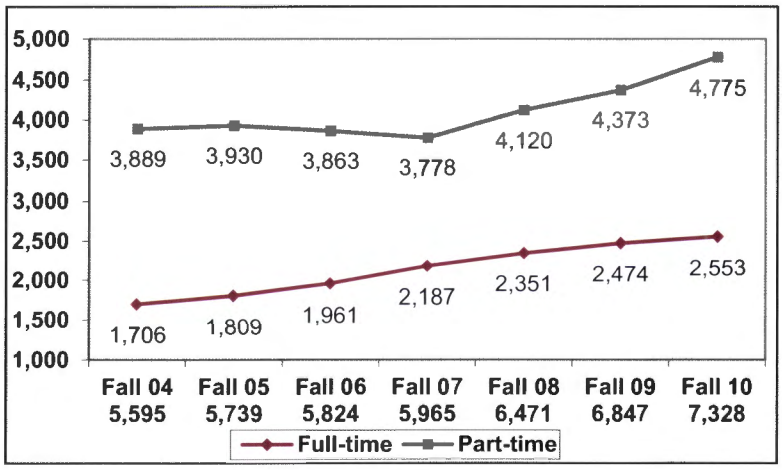
3.2.2 Full- and Part-time Students

Full-time students comprised 30.5 percent of the College's total enrollment in 2004 (1,706 out of 5,595), but increased to 34.8 percent by 2010 (2,553 out of 7,328).

In Fall 2004, part-time students represented 69.5 percent of total headcount enrollment (3,889 out of 5,595), but decreased to 65.2 percent by Fall 2010 (4,775 out of 7,328).

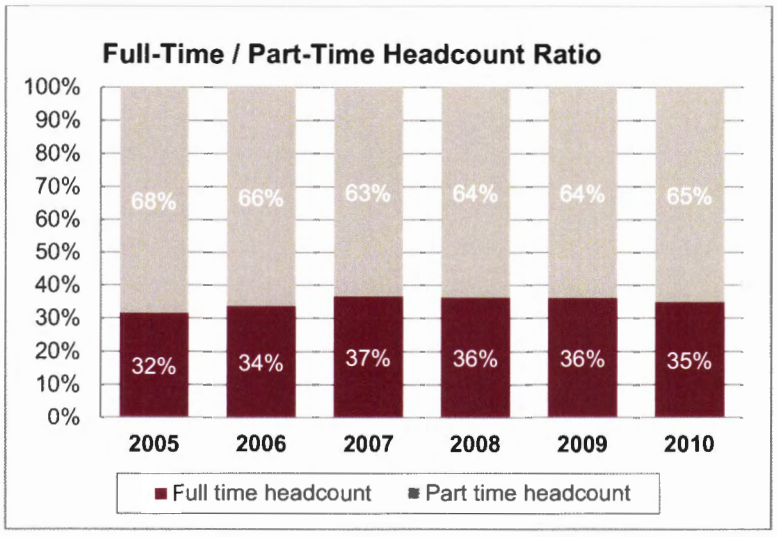
Figure 3.3 shows that from 2004 to 2010 Gateway's growth in full-time students (+4.3%) was offset by an equal percentage decrease in part-time students (-4.3%). The bar chart in Figure 3.4 shows full- and part-time enrollments as a percentage of the total.

Figure 3.3: Full- and Part-time Headcount Enrollment: Fall 2004 to Fall 2010



Data source: Connecticut Community Colleges Office of Planning, Research and Assessment Enrollment Reports

Figure 3.4: Full- and Part-time Headcount as a Percent of the Total



Data source: Connecticut Community Colleges Office of Planning, Research and Assessment Enrollment Reports

3.2.3 Gender and Ethnicity

From 2004 to 2010, the number of female students grew from 3,556 to 4,397 (23.7 percent), substantially less than the growth in the number of male students from 2,039 to 2931 (43.7 percent) during the same period. However, the ratio of female to male students was relatively constant from 2004 to 2010 (63.5 and 60.0 percent respectively).

In Fall 2010, Gateway had 3,210 White students (43.8 percent), an increase of 282 (8.8 percent) since 2004. African American students continue to be the second largest group of students at 21.2 percent, with an increase of 213 students, or 15.9 percent since 2004. Hispanic students had a dramatic growth rate of 62.3 percent with 453 more students between Fall 2004 and Fall 2010, increasing to 16.1 percent of the total student population. Other students were 18.8 percent of the total, with a growth of 768 students, or 126 percent since Fall 2004.

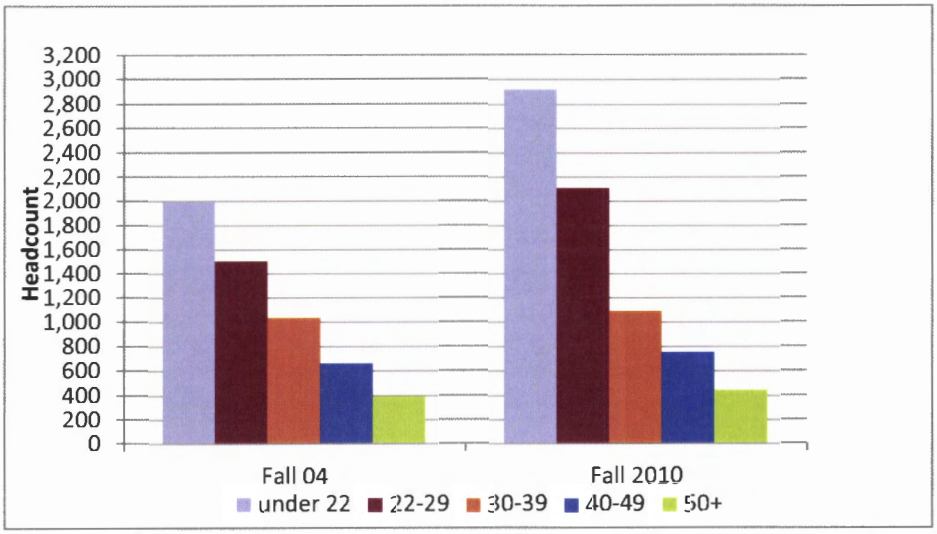
3.2.4 Age Group

Figure 3.5 reflects changes in enrollment by age group between Fall 2004 and Fall 2010.

The largest percent increase in enrollment was in the under 22 group, with a total headcount increase of 46.5 percent since 2004. The largest headcount increase was also in the under 22 age group with 928 more students in Fall 2010 than in Fall 2004, followed by the 22 to 29 age group with 604 more students.

All other age groups showed slightly increasing headcount enrollment between Fall 2004 and Fall 2010, with no age group declining in that period.

Figure 3.5: Headcount Enrollment By Age Group: Fall 2004 vs. Fall 2010



Data source: Connecticut Community Colleges Office of Planning, Research and Assessment Enrollment Reports

3.2.5 Source of Students by Service Region

Gateway's service region is a twelve-town cluster, with the largest number of students originating in New Haven. The "capture" rate, or the percentage of the total population in a particular town that attends Gateway, ranges from a low of 0.40 percent from Madison to a high of 1.86 percent from West Haven.

The overall capture rate from Gateway's service region is 1.31 percent based on Fall 2010 enrollment. The 2010 average capture rate for the Connecticut Community College system is 1.57% of the service region population, up from 1.2 percent in 2004.

In 2010, GCC captured 1.31 percent of its service area's 2010 actual census population of 411,239, below the system average. However, this is a marked increase from Fall 2004, when GCC captured 0.9 percent of the service region's estimated population of 405,351. Another way to say this is that while the service region population increased slightly by 1.5 percent, GCC's capture rate increased by 45.6 percent.

Two towns in the service area meet or exceed the state system average capture rate: East Haven at 1.62 percent and West Haven at 1.79 percent.

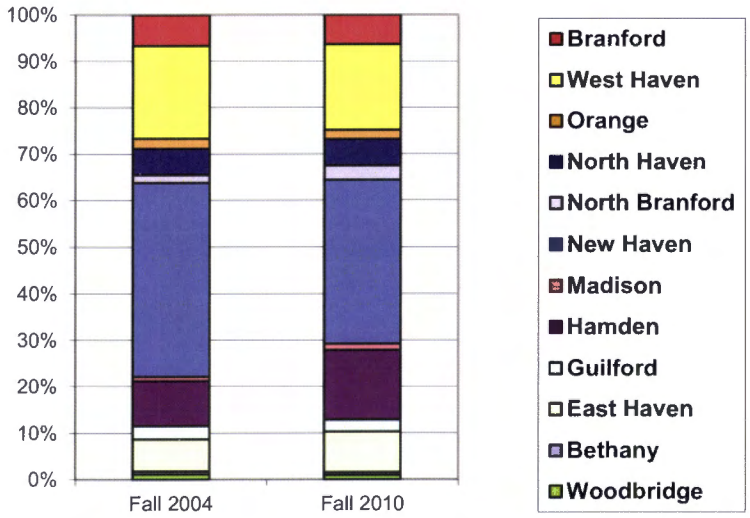
Figure 3.6: Capture Rate by Town – Based on Actual Populations (Census 2010)

Town	2010 Enrollment	Census 2010	Capture Rate	% Delta from 2000
Service Region				
Bethany	34	5,563	0.61%	10.14%
Branford	343	28,026	1.22%	-1.98%
East Haven	473	29,257	1.62%	2.26%
Guilford	136	22,375	0.61%	4.58%
Hamden	808	60,960	1.33%	7.10%
Madison	74	18,269	0.41%	2.89%
New Haven	1,895	129,779	1.46%	5.00%
North Branford/ Northford	170	14,407	1.18%	4.75%
North Haven	308	24,093	1.28%	-1.74%
Orange	106	13,956	0.76%	5.19%
West Haven	996	55,564	1.79%	6.10%
Woodbridge	49	8,990	0.55%	0.32%
Totals	**5,392**	**411,239**	**1.31%**	**4.77%**
Out of Service Region				
Milford	337	52,759	0.64%	0.87%
Wallingford	347	45,135	0.77%	5.57%
Other CT Towns	1,235	378,801	0.33%	4.32%
Out-of-State	17			
Totals	**1,936**	**476,695**	**0.41%**	**7.27%**
GRAND TOTAL	**7,328**	**887,934**	**0.83%**	**6.09%**

While almost three-quarters of GCC's enrollment (73.6%) came from its service region, the balance originates from other Connecticut towns plus a handful of out of state students. The two out-of-service region towns responsible for the largest number of students are Milford with 337 and Wallingford with 347.

Figure 3.7 shows the percentage of students from each town in the College's service area in Fall 2004 and in Fall 2010.

Figure 3.7: Actual Headcount Enrollment by Town: Fall 2004 to Fall 2010



3.3 Enrollment Projections

3.3.1 Overview

Projecting the future enrollment of an academic institution is part science and part art, as multiple factors go into projecting how many students will enroll over a given period of years. The economy, the job market, population fluctuations, regional changes, new academic programs, and new facilities on campus are just a few of the factors that can impact enrollment. Future enrollment projections are critical to any long-range planning, since enrollment ultimately determines how much space will be needed to support future students, faculty, and staff.

One traditional method of projecting future enrollments is based on the U.S. Census' future population projections for the service area towns from which an academic institution draws its students. After a new census is completed, the U.S. Census takes the actual population of each town or city and applies its own complex set of calculations to project their population growth for the coming decade.

Since the most recent Census was conducted in 2010, it was hoped that the population projections for the year 2020 would be available in 2011, in time for this *Master Plan Update*. While the Census 2010 *actual* populations are available now, RA discovered that the U.S. Census will not provide its 2020 *population projections* until sometime in 2013. It is strongly suggested that GCC update its enrollment projections when those figures become available from the Census.

The only Census future population projections currently available from the U.S. Census are based on Census 2000 data. Since there is little statistical validity in using Census 2000 data to project populations to 2020, RA developed other approaches to project GCC's enrollment in the decade after the New Haven Campus opens. Each approach employed different variables to create a valid average projection. These approaches are explained in detail in this section.

3.3.2 Enrollment Projection 1: Maintain current enrollment growth rate

RA developed an enrollment projection model that applied GCC's historic growth rates to the Fall 2010 headcount enrollment. Typically, one-, three-, and five-year average growth rates are projected, but in this case where the Census data was not available, RA took a more conservative approach and projected each rate of growth from 1999 forward to 2010. Figure 3.8 shows the effect of extending historic rates of growth in headcount enrollment to 2022.

- Applying the one-year growth rate of 7.02 percent (2009 to 2010) produces a headcount enrollment of 16,479 students when projected in a straight-line progression to 2022.
- The cumulative impact of the College's three-year annual average growth rate of 7.6 percent produces an increase in total headcount enrollment to 17,650 by 2022.
- The rate of increase in headcount enrollment for the past five years at GCC has averaged 5.54% per year. Extending this rate of increase produces a headcount of 13,996 by 2022.
- The average headcount enrollment estimated for 2012 when the New Haven Campus opens is 8,304.
- The 2022 projected headcount ranges from a low of 13,403 to a high of 17,650 students, with an average of 15,607, an increase of 113 percent over Fall 2010.

Figure 3.8: Headcount Enrollment Projections: Fall 2010 to Fall 2022

Years	Historic Growth		2010 Actual Head-count	2011	2012 New Haven Campus opens	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Period	Average Growth													
11	1999-2010	6.93%	7,328	7,836	8,379	8,960	9,580	10,244	10,954	11,713	12,525	13,393	14,321	15,314	16,375
6	2004-2010	5.16%	7,328	7,706	8,104	8,522	8,962	9,424	9,910	10,422	10,959	11,525	12,120	12,745	13,403
5	2005-2010	5.54%	7,328	7,734	8,162	8,615	9,092	9,596	10,127	10,688	11,280	11,905	12,565	13,261	13,996
4	2006-2010	6.46%	7,328	7,801	8,305	8,842	9,413	10,021	10,669	11,358	12,091	12,873	13,704	14,589	15,532
3	2007-2010	7.60%	7,328	7,885	8,484	9,129	9,823	10,569	11,373	12,237	13,167	14,168	15,244	16,403	17,650
2	2008-2010	6.62%	7,328	7,813	8,330	8,882	9,470	10,097	10,765	11,478	12,238	13,048	13,911	14,832	15,814
1	2009-2010	7.02%	7,328	7,813	8,362	8,949	9,577	10,249	10,969	11,739	12,563	13,444	14,388	15,398	16,479
				Avg	8,304									Avg	15,607

3.3.3 Enrollment Projection 2: Modest growth with "new building impact"

As mentioned above, many factors are considered when projecting enrollment. The state economy, the job market, and new facilities on campus are just a few factors that can impact enrollment, often in unpredictable ways.

While it is generally understood that the opening of new campus facilities has a positive impact on enrollments, this factor is difficult to quantify. Three community colleges in the Connecticut system - Housatonic, Three Rivers, and Tunxis - all recently opened major new facilities, which provided RA with a rare opportunity to quantify this "new building impact."

As shown in Figure 3.9, the enrollment increases of these three colleges ranged from 10.4 percent to 13.5 percent for the first year of operation of the new facility, and from 3.8 percent to 13.2 percent in the years immediately after that. This is a substantial impact on enrollment, as previous levels of headcount enrollment growth at these schools were between -5.9 percent and 4.7 percent.

Figure 3.9 : "New Building Impact" on Headcount Enrollment

Community College	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010
Housatonic	4,701	4,471	4,431	4,475	5,081	5,609	6,197
Opened Fall 08		-4.9%	-0.9%	1.0%	**13.5%**	**10.4%**	**10.5%**
Three Rivers	3,764	3,660	3,793	3,858	4,132	4,561	5,161
Opened Fall 08 & 09		-2.8%	3.6%	1.7%	7.1%	**10.4%**	**13.2%**
Tunxis	3,942	3,894	3,663	3,836	4,328	4,496	4,666
Opened Fall 08		-1.2%	-5.9%	4.7%	**12.8%**	**3.9%**	**3.8%**

Data Source: Connecticut Community Colleges Office of Planning, Research and Assessment Enrollment Reports

Once the new building impact on enrollment was quantified, RA proposed four different models of growth for Gateway's review (see the Appendix for the four models). After much discussion, the "Modest Growth with New Building Impact" model was selected as the base enrollment for the next planning cycle, resulting in a headcount of 14,548 by 2022.

The four-year average annual growth rate from 2000 to 2005 from the 2005 Master Plan was selected as the conservative base growth rate of 4.6 percent going forward. The high levels of growth in recent years, averaging about 7 percent, may well be due to the poor economy and may not be sustained as the economy improves.

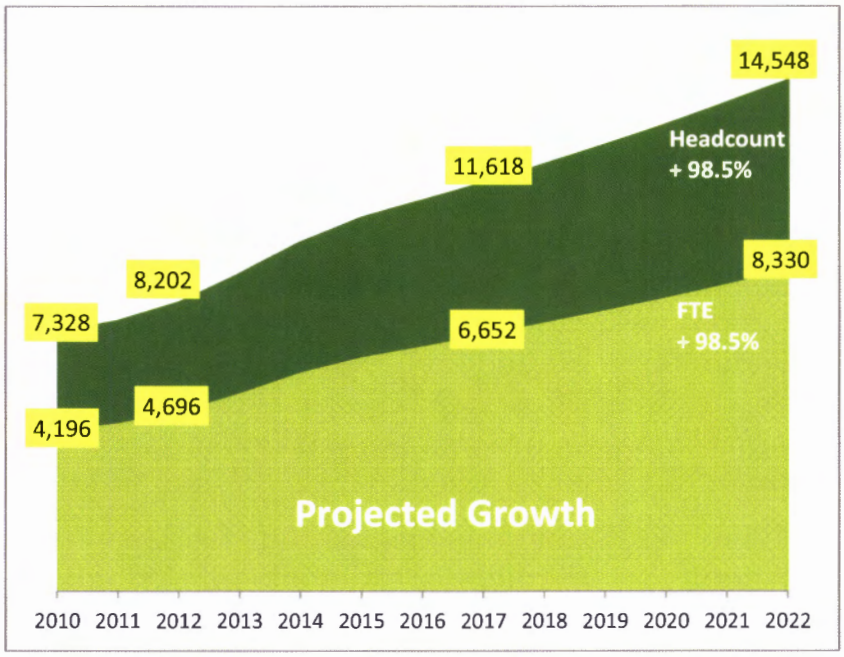
The new building impact was then factored into the years from 2012 to 2015, starting with the year the New Haven Campus opens and continuing for the following three years. As can be seen in Figure 3.10, a more modest level of growth from 7%-10% was assumed in those years than was actually the case at the three other community colleges, again to be on the conservative side.

Figure 3.10a: Modest Growth with New Building Impact: Fall 2011-2022

	Actual Fall 2010	2011	2012 New Haven Campus opens	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Growth Rate	7.02%	4.6%	7.00%	10.00%	10.00%	7.00%	4.60%	4.60%	4.60%	4.60%	4.60%	4.60%	4.60%
Headcount	7,328	7,665	**8,202**	9,022	9,924	10,619	11,107	11,618	12,152	12,712	13,296	13,908	**14,548**
Average FTE *	4,196	4,389	4,696	5,166	5,682	6,080	6,360	6,652	6,959	7,279	7,613	7,964	**8,330**

*Based on 2010 conversion factor = 0.5726

Figure 3.10b: Projected Headcount Enrollment and FTE Growth: 2010-2022



When GCC moves into the New Haven Campus in 2012, the modest growth scenario projects a headcount enrollment of 8,202 students, compared to 7,328 in 2010, an increase of over 12 percent.

It should be noted that history suggests that this kind of modest growth projection can be exceeded, depending on the interplay of the many factors impacting enrollment. In 2005, headcount enrollment was conservatively projected at 6,000 (3,500 FTE) by 2014. However, it was cautioned at that time that as many as 7,000 students (4,100 FTE) were possible by then and that the capacity of the New Haven Campus could be reached shortly after opening. In fact, enrollment reached 7,328 students (4,196 FTE) in 2010, two years before the New Haven Campus opens.

In 2014, two years after the New Haven Campus opens, a headcount enrollment of 9,924 is projected at GCC. This is almost 42 percent higher than the maximum headcount enrollment of 7,000 projected for 2014 back in 2005.

3.3.4 Summary

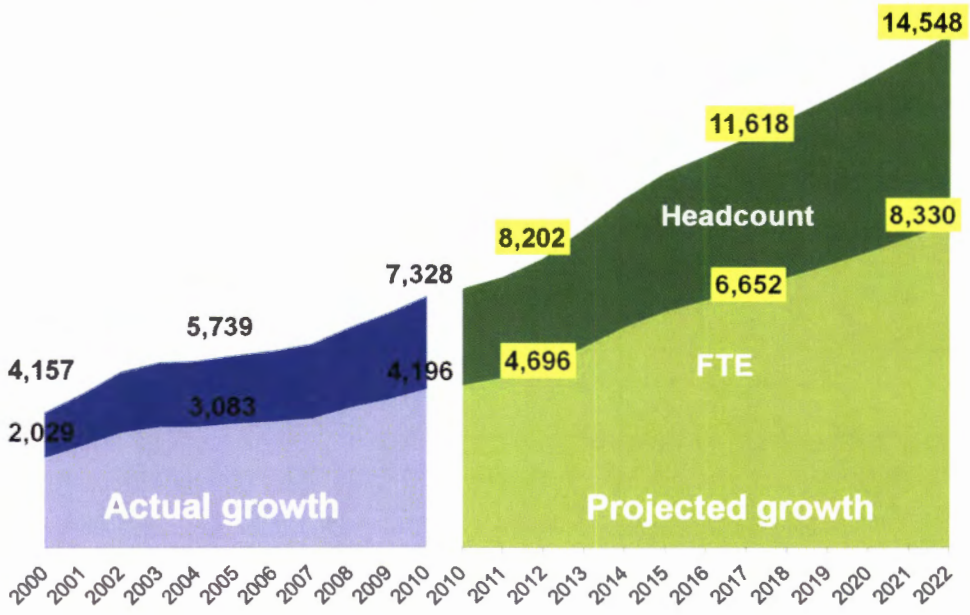
Figure 3.11 summarizes the two enrollment projection scenarios that were calculated for Gateway for 2022. Since the two projection methods produce enrollments that are quite close in range, there can be reasonable confidence in using them for long-term planning purposes. Based on discussions with Gateway's senior administration, the modest growth scenario was chosen for planning purposes, with a total of 14,548 headcount or 8,330 FTE in 2022. This nearly doubles the headcount from the 7,328 students, or 4,196 FTE, enrolled in Fall 2010.

Figure 3.11: Projected Headcount Enrollment Scenarios: Fall 2022

Projection Scenario	Projected 2022 Headcount Enrollment	Total Increase from 2010	% Change from 2010
1. Maintain average enrollment growth	15,607	+8,279	+113.0%
2. Modest growth with new campus impact	14,548	+7,220	+98.5%

Figure 3.12 puts together Figures 3.1 and 3.10b to show graphically the overall trend of actual and projected enrollments at GCC, using the modest growth scenario for the projections to 2022.

Figure 3.12: Actual and Projected Headcount Enrollment and FTE Growth: 2000 to 2022



3.4 Occupational Outlook Review

3.4.1 National Trends and Current Economic Conditions

The Connecticut Department of Labor's Office of Research, in the November 2010 publication "Labor Situation," reports that the state's unemployment rate has decreased to 9 percent, almost a full percentage below the national rate of 9.8 percent. According to the report, the largest gains in employment were in the educational and health sectors, followed by professional and business services, and manufacturing. The largest number of lost jobs occurred in the trade, transportation and utilities sector, followed by government, and leisure and hospitality.

The Workforce Alliance, the state's coordinating agency for the South Central Workforce Development Area, highlighted various national trend data in its 2009 "State of the Workforce" report. The report points out that, other than Connecticut, no other state in the U.S. had fewer private sector jobs in 2009 than it did in 1989.

Another interesting conclusion in the economic and labor picture in the Workforce Alliance report was statistics on the growth in the proportion of Americans 55 and older who have stayed in the workforce. The percent of workers aged 65-69 still working had grown from 19.2 percent in 1986 to 29 percent by 2006. For workers aged 70 to 74, the proportion in 1986 was 10.3 percent, but increased to 17 percent by 2006. There was even an increase in the proportion of workers over the age of 75, from 4 percent to 6.4 percent. These statistics may reflect not only the effects of "baby boomers" reaching retirement age, but also the insufficiency of Social Security as a sole source of retirement income.

For the South Central Workforce Investment Area (WIA), the September 2010 "Quarterly Update" report prepared by Workforce Alliance indicated that four municipalities in the South Central WIA had unemployment rates over 10 percent. These municipalities were New Haven, Meriden, East Haven, and West Haven.

Major job gains in the South Central WIA were in Construction (+600) and Leisure and Hospitality (+300) sectors. Job losses for the South Central WIA were in Business and Professional Services (-800) and Education and Health Services (-300). These data stand in contrast to the state gains and losses, which are almost exactly the reverse.

3.4.2 Comparison of Programs to Occupational Projections

The mission of community colleges with regard to supporting community needs for workforce development and college preparation establishes a strong link between a college's curriculum and its mission.

The following table shows the academic and career programs offered at Gateway as described in the on-line Catalog published for Fall 2010. In addition to the various training and workforce development-related programs offered through the Department of Corporate and Continuing Education, Gateway also provides academic programs that transfer to bachelor degree-granting institutions. Where there are direct occupational links, these programs were reviewed. The same criterion was used for certain certificate programs. The programs were analyzed for their content and compared to employment projections for the corresponding occupation.

Figure 3.12: Comparison of GCC Programs and Occupational Projections (2006 to 2016)

Programs	South Central WIA Occupational Projections 2006-2016	Degree or Training Required
Allied Health		
Pre-Dental Hygiene (transfer)	Dental Hygienists: 19.9% Dental Laboratory Technicians: 12.8%	Associates degree Long-term OJT
Exercise Science and Wellness (transfer)	Health Educators: 16.9%	Bachelors degree
Fitness Specialist	Fitness Trainers and Aerobics Instructors: 15.8%	Post-secondary vocational training
Nursing	RN: 18.1%	Associates degree

Programs	South Central WIA Occupational Projections 2006-2016	Degree or Training Required
Nutrition and Fitness	Dietitians and Nutritionists: 1.2%	Bachelors degree
Dietetic Technology	Dietetic Technicians: 10.8%	Post-secondary vocational training
Radiologic Technology	Radiologic Technologists and Technicians: 15.2%	Associates degree
Diagnostic Medical Sonography	Diagnostic Medical Sonographers: 20.5%	Associates degree
Nuclear Medicine Technology	Nuclear Medicine Technologists: 14.4%	Associates degree
Radiation Therapy	Radiation Therapy: 33.1%	Associates degree
Radiography	Radiologic Technologists and Technicians: 15.2%	Associates degree
Art		
Studio Art/Graphic Design	Graphic Designers: 6.8%	Bachelors degree
Automotive		
Alternative Energy Transportation Technology	Automotive Service Technicians and Mechanics: 8.9%	
Alternative Fuel Vehicle		
Automotive Technology	Automotive Service Technicians and Mechanics: 8.9% Automotive Body and Related Repairers: 5.1%	Post-secondary vocational training Long-term OJT
Aviation		
Aviation Maintenance Technology	Aircraft Mechanics and Service Technicians: 15.7%	Post-secondary vocational training
Business		
Business Administration/ Management	General and Operations Managers: -2.1% Managers, All Other: 7.3%	Bachelors degree Work Experience
Accounting	Accountants and Auditors: 12.0% Accounting Clerks: -1.4%	Bachelors degree Moderate-term OJT
Bookkeeping	Bookkeeping, Accounting, and Auditing Clerks: 9.3%	Moderate-term OJT
Marketing	Marketing Managers: 5.2%	Bachelor's degree
Business Office Technology		
Administrative Assistant	Office Clerks, General: 7.6% Office and Administrative Support Workers, All Other: -12.7%	Short-term OJT Short-term OJT
Customer Service Technology	Customer Service Representatives: 17.2%	Moderate-term OJT
Legal Administrative Assistant	Paralegal/Legal Assistant: 13.5%	Associates degree
Medical Administrative Assistant	Medical Records and Health Information Technicians: 12.3%	Associates degree
Word Processing	Word Processors and Typists: - 9.6%	Moderate-term OJT
Computer Science		
Computer Science	Computer Programmers: -10.7% Computer Support Specialist: 7.4%	Bachelors degree Associates degree
Computer Science Networking	Network and Computer Systems Analysts: 39.1.% Network and Computer Systems Administrators: 15.1%	Bachelors degree Bachelors degree
Drug and Alcohol Rehabilitation		
Drug and Alcohol Rehabilitation Counselor	Substance Abuse and Behavioral Disorder Counselors: 37.1% Rehabilitation Councilors: 21.4%	Bachelors degree Masters degree

Programs	South Central WIA Occupational Projections 2006-2016	Degree or Training Required
Early Childhood Education		
Early Childhood Education Career	Preschool teachers: 12.4% Kindergarten teachers: 12.4% Elementary teachers: 10.8% Childcare workers:13.3%	Post-secondary vocational Bachelors degree Bachelors degree Short-term OJT
Early Childhood Special Education		
Early Childhood Special Education	Special education teachers, preschool, kindergarten, elementary: 15.9%	Bachelors degree
Engineering Technology		
Biomedical Engineering Technology	Biomedical Technicians: 16.4% Environmental Science and Protection Technicians, including Health: 15.1%	Bachelors degree Associates degree
Computer Engineering Technology	Software Engineering, Applications: 27.7% Systems Software Engineering: 12.3% Computer Hardware Engineers: -1.8%	Bachelors degree Bachelors degree Bachelors degree
Electrical Engineering Technology	Electrical and Electronic Engineering Technicians: -0.8%	Associates degree
General Engineering Technology	Engineering Technicians, Except Drafters, All other: 2.1%	Associates degree
Manufacturing Engineering Technology	Industrial Engineering Technicians: 10.7%	Associates degree
Mechanical Engineering Technology	Mechanical Engineering Technicians: 1.7%	Associates degree
Railroad Engineering Technology	Locomotive Engineers: 24.5% Railroad Conductors and Yardmasters: 25.6% Rail Transportation Workers, All Other: -20.8%	Moderate-term OJT Moderate-term OJT Moderate-term OJT
Hospitality Management		
Food Service Management Culinary Arts	Chefs and Head Cooks: 6.3% First-line Supervisors/ Managers of Food Preparation and Serving Workers: 13.1% Food Preparation Workers: 16.0%	Work Experience Work Experience Short-term OJT
Hotel/Motel Management	Hotel/Motel/Resort desk clerks: 19.7% Events Managers: Meeting and Convention Planners: 17.5%	Short-term OJT Bachelors degree
Human Services		
Human Services Career	Social and Human Services Assistants: 20.2%	Moderate-term OJT
Human Services: Gerontology	Medical and Public Health Social Workers: 20.0% Personal and Home Care Aides: 34.7%	Bachelors degree Short-term OJT
Retail Management		
Retail Management/ Fashion Merchandising	First-line supervisors/managers of retail sales workers: 6.7%	Work Experience
Technology		
Wastewater Management	Water and Liquid Waste Treatment Plan and System Operators: 11.9%	Long-term OJT
Fire Technology and Administration	Firefighters:8.6% First-line Supervisors/Managers of Fire Fighting and Prevention Workers: 8.4%	Long-term OJT Work Experience
Electronic Publishing and Web Design	Desktop Publishers: -4.9%	Post-secondary Vocational

There are other methods for evaluating the "fit" between the College's academic program array and projected workforce needs. Projection of the occupations which will have the highest rate of growth is also a factor in identifying demand. The ten fastest growing occupations in the South Central WIA by percent increase in annual openings, as identified by the Office of Research of the Connecticut Department of Labor, are:

Figure 3.13: Ten Fastest Growing Occupations by Percent Increase in Number Employed 2006-2016

Job Title	Percent Increase by 2016	Requires Associates Degree or more
Network Systems and data communications analysts	39.1%	Yes
Veterinary Technologists and Technicians	37.5%	Yes
Substance Abuse and Behavioral Disorder Counselors	37.1%	Yes
Personal and Home Care Aides	34.7%	No
Radiation Therapists	33.1%	Yes
Vocational Education Teachers, Postsecondary	32.8%	Yes
Interpreters and Translators	31.0%	No
Medical Assistants	30.2%	No
Medical Health Counselors	28.3%	Yes
Physicists	28.0%	Yes

From the list above it is clear that the growth in employment opportunities for several of the GCC programs remains very good. It is also clear that there are opportunities for GCC to build on its current programming, especially in Allied Health and Human Services.

Although the recent economic downturn has had a significant impact on the occupational outlook of Gateway's service area, both the Connecticut Department of Labor and the Workforce Alliance for the South Central Workforce Investment Area have concluded there is recent improvement in employment conditions. In conjunction with this modest recovery, Gateway seems to be well positioned to support continued workforce development and college transfer programs to meet the educational and training needs of the area. In particular, there is still a close alignment between program offerings and employment opportunities.

3.5 Summary

This chapter presented the planning context and assumptions for projecting future enrollment at Gateway through 2022. The near-term enrollment projections call for 8,304 headcount students as Gateway occupies the New Haven Campus in 2012. This is 18.6 percent more than the high estimate of 7,000 students projected for 2014 in the 2005 Master Plan Update, when the growth potential for the College was still largely untested and concerns about State funding were paramount.

The projections foresee Gateway potentially growing to a headcount of nearly 15,000 students by 2022, substantial growth that has many implications for campus facilities as well as staffing in coming years. One aspect of that growth that can be quantified is the number and type of classrooms that will be needed at various stages of growth. This is addressed in the next chapter.

Chapter 4

Instructional Space Utilization Analysis

RA's methodology for the Instructional Space Utilization Analysis is widely used and accepted in the realm of higher education. The process includes:

- reviewing quantitative course scheduling and other relevant data,
- determining applicable planning guidelines,
- defining assumptions on which the analysis is based, and
- reviewing qualitative issues that affect the assignment and use of instructional spaces on the campus.

All general-purpose classrooms and specialized instructional spaces are reviewed for the three key target measures of instructional space utilization:

- seat or "station" size,
- weekly room hour utilization rate, and
- seat occupancy rates.

Applicable planning guidelines are then applied to identify current and projected instructional space "gaps" and future needs. The findings from this analysis will inform the recommendations by proposing an array of general-purpose classrooms and specialized instructional spaces, along with their assignable square feet. Application of the guidelines for these three target measures provides credible and defensible findings to support the planning and prioritization of future capital projects.

It should be noted that the multipliers and rates applied in this study are not rigid standards or prescriptive design requirements, but rather suggested planning guidelines that can be applied to help shape an institution's instructional space needs.

4.3 Guiding Principles

RA has developed a set of guiding principles for projecting instructional space needs. They tend to fall into two categories: 1. the nature of instructional spaces, and 2. the administrative aspects of scheduling.

1. All instructional spaces should be equally desirable in terms of a variety of measures critical to learning and teaching and should be:
    - Of sufficient quality to ensure adequate and equitable use.
    - Sized based on the appropriate ASF/station for the type of furniture or use in each space.
    - Be equipped with an adequate and standardized set of teaching technology.
    - Environmentally comfortable, with appropriate lighting, heating, cooling, accessibility, and acoustics.
    - Distributed throughout the campus and equally available to all users to optimize their use.
2. The administrative aspects of course scheduling should employ current scheduling tools and should include:
    - A reasonable effort to use standardized scheduling blocks within the agreed upon scheduling window.
    - A reasonable distribution of courses during each day of the week to optimize use of instructional space, i.e., courses should not be clustered on particular days or within certain time blocks.
    - A reasonable effort to match course size with room capacity.

4.0 Instructional Space Utilization Analysis

4.1 Overview

The goal of the Instructional Space Utilization Analysis is to better understand changes in how Gateway has used its existing instructional space since the 2005 *Master Plan*, and to ascertain what type and quantity of instructional space will be needed after the New Haven Campus is occupied in 2012. It also defines the type and quantity of instructional spaces that will be needed on the North Haven campus for the programs that are not relocating to the New Haven Campus. The outcome of this detailed analysis of instructional spaces is intended to enable Gateway to provide the right type of space in the right quantity and amount for both the near-term (2012-2015) and the long-term (2022).

Rickes Associate's first step was to update the 2005 Instructional Space Utilization Analysis by analyzing GCC's current inventory of 81 instructional spaces: 40 general-purpose classrooms and 41 specialized instructional (SI) spaces, based on Fall 2010 data. It should be noted that two major SI spaces, the Nursing Patient Labs in NH 228 and 229, were not shown as scheduled by the Registrar in Fall 2010. They are therefore not included in the totals, although they are clearly an important resource for the College.

The second step was to compare the findings of this study with the New Haven Campus classroom inventory and to identify any "gaps" between the new inventory and the space actually needed in 2012 and 2022, based on the enrollment projections in Chapter 3.

This section will review the methodology and process applied to the analysis and present the findings based on Fall 2010 course data. A brief update and commentary on the changes from 2005 is included and recommendations are made for addressing any shortages of classrooms in 2012 and 2022.

4.2 Methodology

The U.S. Department of Education's National Center for Education Statistics (NCES) publication, *Postsecondary Education Facilities Inventory and Classification Manual (FICM): 2006 Edition,* defines two kinds of instructional spaces: general-purpose classroom (GPCR) and specialized instructional (SI) space.

General-purpose classroom (NCES 100) is described as:

> *A room used for courses that are not tied to a specific subject or discipline by equipment in the room or the configuration of the room. . . . [These rooms are] generally used for scheduled instruction that require no special, restrictive equipment or configuration. A classroom may be furnished with special equipment (e.g., globes, pianos, maps...) appropriate to a specific area of study, if this equipment does not render the space unsuitable for use by classes in other areas of study.*

Specialized instructional space (NCES 200) is defined as:

> *A space used primarily for formally or regularly scheduled instruction (including associated mandatory, but non-credit-earning laboratories) that require special purpose equipment or a specific room configuration for student participation, experimentation, observations, or practice in an academic discipline. . . . A class laboratory is designed for or furnished with equipment to serve the needs of a particular discipline for group instruction in formally or regularly scheduled classes. This special equipment normally limits or precludes the space's use by other disciplines.*

It should be noted that "specialized instructional space" includes a variety of spaces such as life science labs, computer labs, painting and drawing studios, engineering labs, and nursing labs. Although NCES formally refers to these spaces collectively as "laboratory facilities," the more descriptive term of "specialized instructional space" is employed here for clarity.

4.4 Target Measures for Utilization Analysis

4.4.1 Station Size

Station size refers to the average amount of assignable square footage (ASF) available per student seat, or station, in a given instructional space. Different standards are used for GPCR and SI spaces.

General-Purpose Classrooms (GPCR)
An average of 20 to 25 ASF per seat is recommended in a typical flat floor classroom. This figure can be lower or higher depending upon the total number of seats, as rooms with a higher number of seats generally have lower ASF/seat allowances. The technology and type of furniture to be accommodated are also factors, as more space is needed when a program calls for furniture to be reconfigurable. Large lecture halls generally have 12 to 18 ASF/seat.

Specialized Instructional (SI) Spaces
The total space needs for SI spaces are calculated by applying a multiplier derived from the relative space needs of the particular discipline taught in that space. The ASF/station guideline for SI spaces varies from 30 ASF/station in computer labs to upwards of 100 ASF/station in specialized engineering spaces. The multipliers include an additional 30 percent factor for associated support space, such as prep areas and equipment storage.

4.4.2 Weekly Room Hour Utilization Rate

The **weekly room hour utilization rate** refers to the proportion of time that instructional spaces are actually scheduled and used. It has a direct and critical relationship to the "scheduling window" of time that those spaces are technically available for use and within which it is possible to schedule all or most courses.

The scheduling window is defined by day and evening use, and by course start and end times. Once the day and evening scheduling windows are defined, a brief analysis is conducted to determine whether day or evening room use will be the "driver" of classroom space needs. At GCC, as on most campuses, day use is the driver, even though GCC schedules many evening courses. Based on course scheduling data obtained from the College, GCC's scheduling day window is 42.3 hours per week, up from 30 hour scheduling window applied for the 2004 analysis.

General-Purpose Classrooms
The recommended schedule planning guideline for GPCR is to schedule 67 percent of available hours within the scheduling window. This would be 28.3 hours of the current 42.3-hour week, or 20.1 hours of a more standard 30-hour week. Since classroom sizes, amenities, and course sizes all vary, the College needs this flexibility to optimize potential matches between course needs and available classrooms.

There are also other reasons that the 67 percent utilization rate is considered standard in academic planning:

- The additional capacity provides critical flexibility for the College at the start of the semester, when the most number of course changes occur.
- Special and extracurricular events (as well as Continuing Education) are able to schedule and use classroom space after all credit-bearing courses have been assigned.
- Students are able to use classrooms for group work in between scheduled classes.
- Faculty may obtain more of their preferred teaching spaces.
- Classrooms are available for cleaning or general maintenance.

Specialized Instructional Spaces
The target weekly room hour utilization rate is *lower* for SI spaces than for GPCR to allow adequate time for course set-up and break-down, as well as to provide open times for students to do self-directed study or research in these spaces.

SI spaces are typically scheduled 50 percent of the scheduling window, or 21.1 hours of the current 42.3 weekly day hours. In the case of some individual SI spaces – and at campuses with smaller enrollments – the 50 percent rate may be unattainable for every course taught in an SI space, as there may be not be enough students who need to take these specialized courses.

4.4.3 Station Occupancy Rate

The **station occupancy rate** is the proportion of seats or stations that are occupied during the time an instructional space is scheduled, relative to the total number of seats or stations in the space. As with the other target measures, these station occupancy rates reflect planning guidelines in consistent use through-out higher education.

General-Purpose Classrooms
When GPCR are occupied, it is recommended that 67 percent of the available seats be filled. This is an average, so lower and higher occupancy rates will exist on a room-by-room basis.

For lecture halls, higher occupancy rates are acceptable. Like SI spaces, these rooms are more costly to run, particularly for low enrollment courses.

Specialized Instructional Spaces
The comparable station occupancy guideline for SI spaces is 80 percent. Because these spaces cost more to build than GPCR, a more intensive use of these spaces is desirable. Also, these course sizes tend to be more predictable and controllable than courses held in general-purpose classrooms because a closer match is possible between the space, the subject matter taught, and the number of students enrolled.

4.4.4 Additional Issues for Consideration

Qualitative issues that vary with each campus also affect instructional space use, though their impact cannot be directly integrated into the quantitative analysis. Each of these issues has an impact on scheduling and utilization of space on campus, and should be taken into consideration as decisions regarding instructional space needs are made. Some of these are general campus issues identified across multiple studies and may not specifically apply to Gateway. They are provided for informational purposes.

Contractual Issues: The faculty contract may limit either credit-hour contact or the number of students by course or discipline that faculty may teach. This can affect room capacity and square footage.

Geographical Issues: If an instructor teaches two back-to-back courses, he/she may request that the assigned instructional spaces be proximately located. Faculty requests to schedule courses in proximity to their offices can also influence the demand for rooms that are close to faculty offices.

Quality Issues: Physical quality is frequently a factor in the degree of utilization of a space. Poor or inadequate heating, cooling, acoustics, lighting, location, sightlines and/or accessibility all can impact the desirability of a classroom. Another reason for low utilization is the lack of appropriate teaching technology.

Capacity Issues: The selective overriding of course capacity is standard at most institutions. The 67 percent seat occupancy rate allows for overages in enrollment in a room, assuming the course is assigned to an appropriately sized space. Of concern, however, is the extent to which course capacity is being overwritten. When overriding becomes the norm, it is important to identify the point at which it is time to add course sections to meet the demand.

Pedagogical Issues: The understanding of how students learn and how the brain works is changing rapidly. Today's students have a predilection to socialize, study, and work in groups. Group-based learning models are increasing the need for different kinds of interaction spaces where students and faculty may gather informally. Spaces are also needed where students may work in small groups or independently.

Scheduling Issues: The type of faculty and student mix influences scheduling. Part-time/adjunct faculty are often only available to teach when it fits into their other scheduled duties, while part-time students must schedule their courses around family and work needs. In contrast, a campus with a higher proportion of full-time faculty and full-time students promotes a more even distribution of scheduled courses. Reliance on adjuncts also has a direct impact on creating an atypical and expanded scheduling window.

4.5 Creation of the Data Set

Pertinent course scheduling data was collected from the College for Fall 2010 after add/drop was completed and the schedule was "frozen." This data included course names, meeting days and times, course locations, and the number of students enrolled in the course. Information about ASF and space type (GPCR or SI space) was also gathered from the College.

To ensure a credible data set for subsequent analysis, RA worked closely with GCC to understand the campus culture and its scheduling idiosyncrasies before adjusting any of the data elements. The data was "scrubbed" via questions, issues, and caveats during the analysis in discussions with the College. Some courses were "eliminated" to avoid double-counting, while other courses were "merged" to avoid under-reporting individual course enrollments. These kinds of issues typically come to light during an instructional space utilization study, although the resolution varies by institution.

4.6 Utilization Findings: General-Purpose Classrooms

The utilization analysis is based on daytime GPCR utilization, since use during the day is higher than in evenings or on weekends. As with most community colleges, Gateway does have significant evening and weekend use. However, if there is instructional space planned for the highest use (i.e. during the daytime), there will be adequate space for lower rates of use on weekends and evenings.

4.6.1 Seat Size and Capacity by Campus

Most campuses have different kinds of large instructional spaces. For the purpose of this analysis, instructional spaces have been segmented into two groups: those with 74 or fewer seats are considered General-Purpose Classrooms, and those with 75 seats or more are considered Lecture Halls. This distinction is made so that the utilization analysis is not skewed by the use of large capacity rooms for non-course-related functions, an important function they play on most campuses. Gateway's current instructional space inventory shows that all existing spaces fall below the Lecture Hall seat capacity threshold, although there will be two 100-seat Lecture Halls on the New Haven Campus.

Figure 4.1 shows the distribution by campus of the 40 GPCR spaces, which encompass 32,226 ASF and 1,484 student seats, for an average of 21.7 ASF per seat.

Figure 4.1: General-Purpose Classrooms by Campus

Campus	# GPCR	# Seats	ASF	ASF/Seat
Long Wharf	21	840	18,930	20.2
North Haven	19	644	15,296	23.8
Totals	**40**	**1,484**	**32,226**	**21.7**

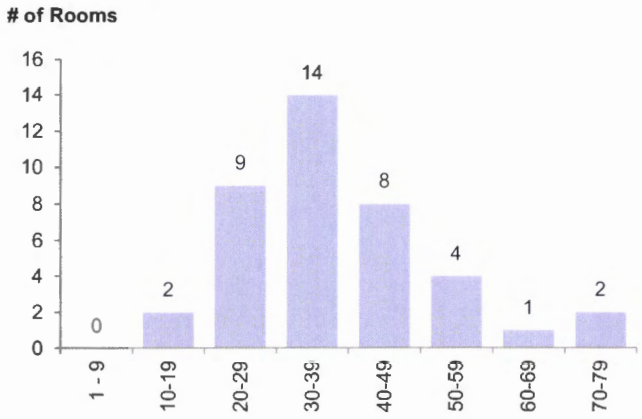
It should be noted that the 40 GPCR are an increase from the 31 in Fall 2004. The 2005 Master Plan recommended 52 GPCR with a total of 66,475 ASF, more than twice the current ASF, for 2014.

Figures 4.2 and 4.3 show the distribution of GPCR by room capacity ranges across both campuses. The average number of seats per GPCR is 37 seats, with an average 21.7 ASF/seat.

Figure 4.2: General-Purpose Classrooms by Seat Capacity

Capacity Ranges	# GPCR	# Seats	Total ASF
10-19	2	35	1,707
20-29	9	209	6,192
30-39	14	474	9,676
40-49	8	361	7,247
50-59	4	205	3,727
60	1	60	1,515
70	2	140	2,162
Totals	40	1,484	32,226

Figure 4.3: General-Purpose Classrooms by Seat Capacity



4.6.2 Weekly Room Hour Utilization Rates

Space planning guidelines recommend that GPCR should be scheduled 67 percent or two-thirds of the time available in the scheduling window. In Fall 2010, a total of 983.78 weekly day hours of instruction were offered in 359 day courses in GPCR. Forty classrooms x 42.3 weekly hours equals 1693.2 available weekly classroom hours, divided by 983.78 instructional hours for an average weekly room hour utilization rate of 58 percent.

The low 58 percent utilization rate in Fall 2010 seems surprising at first glance, given the crowded conditions frequently reported at Gateway. However, this is an average of two campuses that are not equally utilized: Long Wharf's utilization rate is a high 75 percent, and North Haven is a low 40 percent utilization with the 42.3-hour window.

If the Fall 2010 window were a more typical 30 hours, Gateway's average weekly room hour utilization rate would be a high 82 percent, a slight increase from 2004's 78 percent utilization rate with the same window. However, Long Wharf would be an overflowing 105 percent at 30 hours, up from a tight 93 percent in 2004. North Haven would be a low 56 percent, down from 62 percent in 2004.

4.6.3 Seat Occupancy Rate

The planning guideline for seat occupancy is that 67 percent or two-thirds of the seats should be filled when an instructional space is scheduled. Gateway fills an average of 64 percent of all available seats in its GPCR, with

Long Wharf slightly above that average and North Haven slightly below. As described in the next section, this occupancy rate allows other important uses of the classrooms. Figure 4.7 summarizes the findings by campus.

Figure 4.4: General-Purpose Classrooms Seat Occupancy Rates by Campus

Campus	GPCR	Average Seats Occupied
Long Wharf	21	62%
North Haven	19	69%
Totals	40	64%

4.6.4 Scheduling Time Blocks

Most campuses have standard scheduling time blocks for courses, such as 50 minutes on Monday/Wednesday/Friday, or 75 minutes on Tuesday/Thursday. Gateway has been moving in the direction of implementing standard time blocks, a key strategy to ensure optimal classroom use, to allow maximum choice of classes for students, and to enhance the Registrar's ability to satisfy faculty classroom requests. Some non-standard blocks are acceptable and expected; for example, Nursing has lengthy clinical rotations, and Art has three-hour-long studio periods.

GCC's current scheduling time blocks are still somewhat informally defined, but based on the Fall 2010 course schedule, they appear to be as shown in Figure 4.5.

Figure 4.5: GCC Existing Scheduling Time Blocks (Day only)

Start	End	Hrs/ Mins	# of Days	Window in Hrs	Days
8:00 AM	5:05 PM	9.08	4	36.3	M-R
8:00 AM	2:00 PM	6.00	1	6.0	F
				42.3	

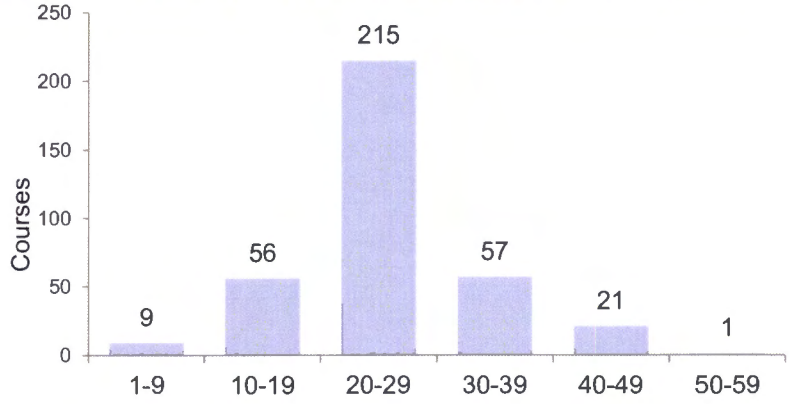
The lack of consistently applied standard scheduling time blocks results in fractured blocks that make scheduling quite challenging every term. In addition, the use of non-standard time blocks results in substantial under-utilization of each classroom. Non-standard time blocks allow fewer classes within the same time period than standard blocks allow. When multiplied over the entire classroom inventory, non-standard blocks can dramatically decrease the College's overall utilization rate. RA recommends that Gateway's Scheduling Committee include standard time blocks in its recommendations for 2012.

4.6.5 Course Enrollment

There are 359 unique courses scheduled in Gateway's 40 GPCR. A "unique course" is assigned an individual course number and includes only a single section of a single course. Figure 4.4 graphs the number of unique courses held in the 40 GPCR by enrollment ranges corresponding to the room capacity ranges in Figure 4.2.

- Course enrollments in GPCR range from 3 students in Exercise Program & Design in INH 230, with a capacity of 36 stations, to 53 students in NSG Care Indiv-Fam I in INH 207, a room with 60 seats.
- The mean (or average) enrollment for courses held in GPCR is 25.5 students; the modal (or number appearing most frequently) enrollment is 26 students.

Figure 4.6: Number of Unique Courses by Course Enrollment (n=359)



4.6.6 Course Distribution by Day and Time

Figure 4.7a displays the percent of daytime course *meetings* scheduled on a given day (or multiple times per week on a combination of days). Figure 4.7b reflects the distribution of all *course meetings* on a given day as a percent of the total number of meetings per week. These figures are based on the total number of daytime courses scheduled.

Theoretically, if all courses were distributed evenly across five days, 20 percent of all course meetings would occur each day. Scheduling flexibility decreases as course offerings increase on any given day.

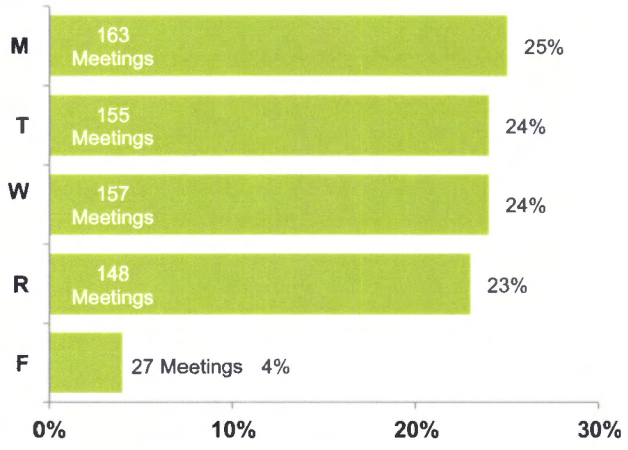
Many campuses have a tendency toward scheduling fewer courses on Friday afternoons. Gateway's Fall 2010 course data revealed that Friday followed this trend of lower use with just 27 course meetings on Fridays, or 4 percent of the weekly courses. This provides an opportunity for the College to schedule courses on Fridays, another topic for review by the Scheduling Committee.

Figure 4.7a: Classroom Day Courses by Day of the Week

Meeting Day	Percent of Courses
Monday (M)	6%
Tuesday (T)	5%
Wednesday (W)	5%
Thursday (R)	3%
Friday (F)	7%
MW	36%
MR	1%
MT	<1%
TR	36%
TW	<1%
WF	<1%
Total	100%

May not total 100% because of rounding

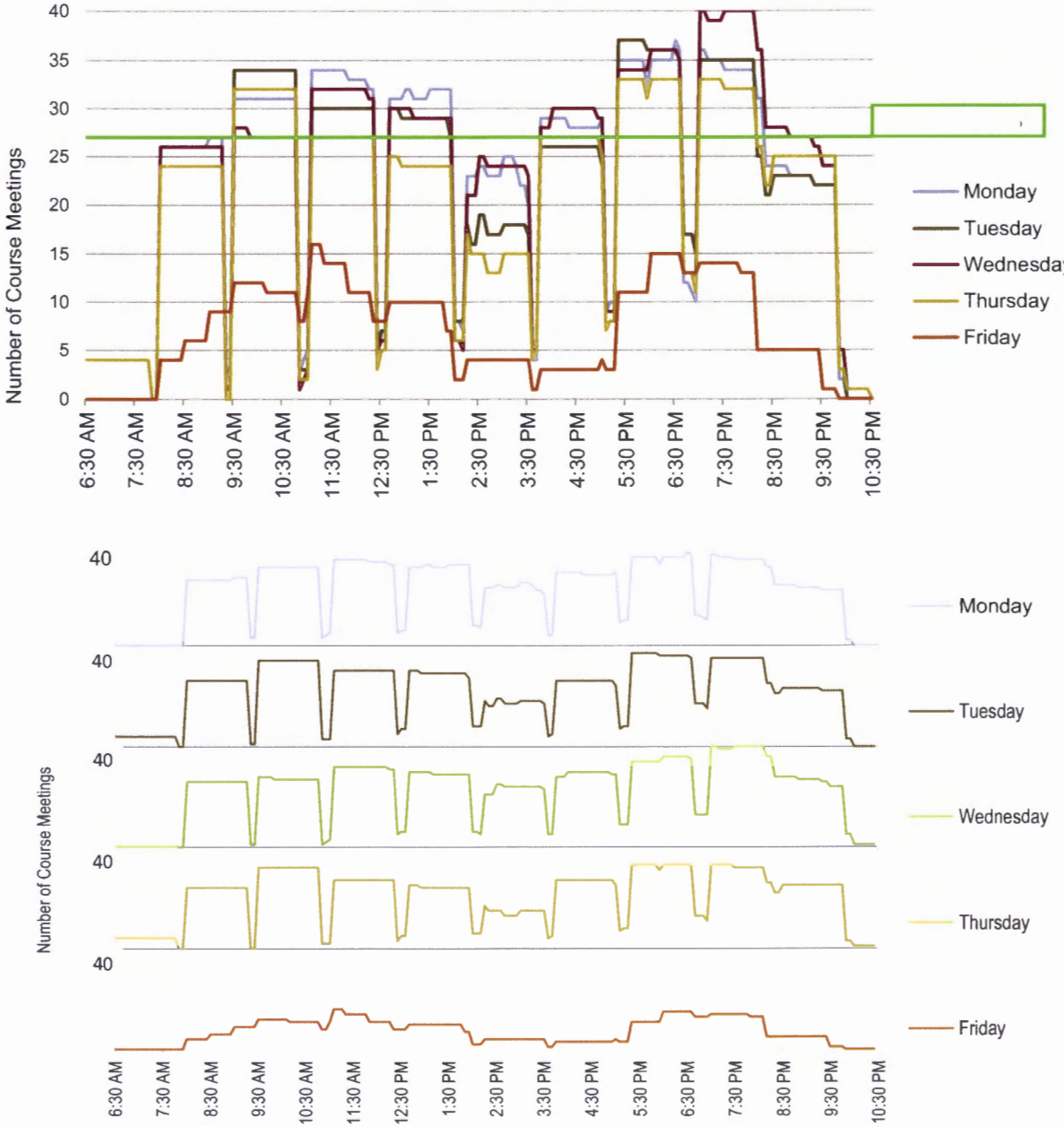
Figure 4.7b: Classroom Course Meetings by Day of the Week



- Almost 72 percent of all courses are scheduled on a MW or TR two-day pattern.
- There are 650 individual course meetings per week on campus, of which 163 or 25 percent are on Mondays. (These include courses that met only on Mondays, as well as courses that met on a combination of weekdays such as MW, MR or MT.)

Figure 4.8 shows the number of course meetings occurring during each thirty-minute time block for each day of the week. Each line in this graph depicts how many of the classrooms are scheduled during each time block on each day. In order to provide a complete picture, all 40 spaces are included in this graph, both day and evening.

Figure 4.8: Distribution of Courses by Day of the Week and Hour of the Day (n=40 classrooms)



- Classes begin on Monday, Tuesday, Wednesday, and Thursday at 8:00 a.m. with 30 courses/spaces in use.
- On Tuesday and Thursday, four courses begin at 6:30 a.m. *It should be noted that this is an extremely popular time-slot that could readily expand in the future. There were 4 courses at 6:30 a.m. in Fall 2010, 9 in Spring 2011, and 14 are planned in Fall 2011. Most of these early morning courses are core curriculum.
- Courses are pretty evenly distributed across the week, with fewer courses scheduled each day between 2:00 p.m. and 3:30 p.m., and the highest number of courses on Wednesdays from 7:00 p.m. to 8:30 p.m.
- The most number of rooms scheduled on a Friday is 15 between 11:00 a.m. and 12:30 p.m., and from 6:00 p.m. to 8:00 p.m. Classrooms decline in use during Friday to fewer than 5 from 2:00 p.m. to 5:00 p.m.

The Appendix provides room-by-room details of the overall classroom utilization patterns (for day-time use only).

4.6.7 Other Use of Instructional Spaces

General-purpose classrooms (GPCR) are used for more than just instruction. They are valuable community resources for all kinds of events and special functions, as well as for informal student study/work groups, student organization meetings, non-credit courses, and partnership programs. These special uses are generally scheduled only after credit-bearing courses are accommodated. Part of the rationale for setting a 67 percent utilization rate goal is to provide for these other, important community-building uses of classrooms.

Classroom needs may also be impacted by new or emerging teaching styles that often call for flexible room arrangements and different types of furniture. There is no "standard" classroom that will work for every discipline or instructor. In addition, some departments have courses that do not and should not fit into the standard scheduling blocks, such as Nursing and Automotive Technologies.

4.7 Recommendations: General-Purpose Classrooms

4.7.1 Distribution of General-Purpose Classrooms

Figure 4.9 compares the distribution of existing classrooms in 2010 to that of the optimal current need at both the current 42.3-hour window and the more standard 30-hour window. Again, it should be noted that Gateway has had to increase the scheduling window from 30 hours in 2004 to 42.3 hours in 2010 due to the lack of space in which to hold courses.

Figure 4.9: General-Purpose Classrooms, Optimal Current Need for Fall 2010: 4,196 FTE, 7,238 Headcount

	Existing Utilization			Optimal Current Need 42.3-hour window			Optimal Current Need 30-hour window		
Capacity	**GPCR**	**Seats**	**ASF**	**GPCR**	**Seats**	**ASF**	**GPCR**	**Seats**	**ASF**
10-19	2	35	1,707	0	0	0	0	0	0
20-29	9	209	6,192	3	60	1,320	5	100	2,200
30-39	14	474	9,676	8	240	5,280	11	330	7,260
40-49	8	361	7,247	16	640	14,080	23	920	20,240
50-59	4	205	3,727	3	150	3,300	4	200	4,400
60-69	1	60	1,515	3	180	3,960	4	240	5,280
70-75	2	140	2,162	2	150	2,700	2	150	2,700
Totals	40	1,484	32,226	35	1420	30,640	49	1,940	42,080

- Based on the Fall 2010 enrollment and the 42.3-hour scheduling window, GCC needs five fewer classrooms, slightly less square footage (-1,586), and a shift in the distribution of rooms in terms of size/capacity.
- However, with a more typical 30-hour window, the College would need nine additional classrooms and almost 10,000 ASF more.
- The recommended mix of classrooms for the 30-hour window has shifted towards more classrooms in the 30-49 station range, none in the 10-19 range, and fewer in the 20-29 range.

4.7.2 New Haven Campus Instructional Space

As is standard practice in the design and planning industry, the 2005 instructional space program was carefully vetted during the design process for the New Haven Campus. Decisions were made with the College and the architects to slightly alter the mix and size of general-purpose classrooms.

Figure 4.10 shows the 55 GPCR that will be available in Fall 2012 on the New Haven Campus with a standard 30-hour scheduling window. Based on the Fall 2010 headcount enrollment of 7,328, Gateway will need 49 GPCR. This means that Gateway will have six additional GPCR totaling 6,791 ASF, exceeding the optimal current need in the early years of occupancy of the New Haven Campus. In addition, GCC can choose to increase the scheduling window beyond 30 hours to provide even more growth capacity in those years.

Figure 4.10: New Haven Campus: 30-Hour Window - Fall 2010 Actual Headcount 7,328

New Haven Campus 2012 GPCR Inventory				Optimal Current Need 30-hour Window Fall 2010 7,328 Headcount				Delta: Inventory vs. Current Need		
Capacity	GPCR	Seats	ASF	Capacity	GPCR	Seats	ASF	GPCR	Seats	ASF
10	2	20	677	10				2	20	677
25	9	225	5,676	20	5	100	2,200	4	125	3,476
30	21	630	16,376	30	11	330	7,260	10	300	9,116
40	17	680	16,170	40	23	920	20,240	-6	-240	-4,070
50	4	200	5,458	50	4	200	4,400	0	0	1,058
60				60	4	240	5,280	-4	-240	-5,280
75				75	2	150	2,700	0	50	1,814
100	2	200	4,514	100				2	200	4,514
Totals	55	1,955	48,871		49	1,940	42,080	6	15	6,791

Figure 4.11 shows the 55 GPCR that will be available in Fall 2012 on the New Haven Campus if the current 42.3-hour scheduling window is implemented with the Fall 2010 headcount of 7,328. While this window would not be recommended as the starting point for scheduling in 2012, looking at it comparatively is instructive. Based on the Fall 2010 enrollment, the optimal current need would be 35 GPCR, 20 fewer GPCR than will exist on the New Haven Campus. These "extra" GPCR total 18,231 ASF, or 37 percent of the GPCR available on the New Haven Campus. These are not actually "extra" classrooms, but rather a substantial amount of additional scheduling capacity for GCC.

Figure 4.11: New Haven Campus: 42.3-Hour Window - Fall 2010 Actual Headcount 7,328

New Haven Campus 2012 GPCR Inventory				Optimal Current Need 42.3-hour Window Fall 2010 7,328 Headcount				Delta: Inventory vs. Current Need		
Capacity	GPCR	Seats	ASF	Capacity	GPCR	Seats	ASF	GPCR	Seats	ASF
10	2	20	677	10				2	20	677
25	9	225	5,676	20	3	60	1,320	6	165	4,356
30	21	630	16,376	30	8	240	5,280	13	390	11,096
40	17	680	16,170	40	16	640	14,080	1	40	2,090
50	4	200	5,458	50	3	150	3,300	1	50	2,158
60				60	3	180	3,960	-3	-180	-3,960
75				75	2	150	2,700	-2	-150	-2,700
100	2	200	4,514	100				2	200	4,514
Totals	55	1,955	48,871		35	1,420	30,640	20	535	18,231

GPCR shown in Figure 4.12, with a 30-hour window and the 8,200 headcount enrollment projected for 2012, Gateway would need all of the 55 GPCR that the New Haven Campus will provide. The new facilities will also have larger GPCR, providing another means of accommodating growth.

Figure 4.12: New Haven Campus: 30-Hour Window - Fall 2012 Projected Headcount ~8,200

New Haven Campus 2012 GPCR Inventory				Optimal Current Need 30-hour Window Fall 2012 ~8,200 Headcount				Delta: Inventory vs. Current Need		
Capacity	GPCR	Seats	ASF	Capacity	GPCR	Seats	ASF	GPCR	Seats	ASF
10	2	20	677	10				-2	-20	-677
25	9	225	5,676	20	5	100	2,200	-4	-125	-3,476
30	21	630	16,376	30	13	390	8,580	-8	-240	-7,876
40	17	680	16,170	40	25	1,000	22,000	8	320	5,830
50	4	200	5,458	50	5	250	5,500	1	50	42
60				60	4	240	5,280	4	240	5,280
75				75	3	225	4,050	3	225	4,050
100	2	200	4,514	100				-2	-200	-4,514
Totals	55	1,955	48,871		55	2,205	47,610	0	250	1,261

Figure 4.13 shows the GPCR needed with the same 8,200 headcount enrollment but with the current 42.3-hour scheduling window. It is a dramatically different picture from the 30-hour window that illustrates the impact of the scheduling window. In this analysis, Gateway will need only 39 of the 55 new GPCR at the New Haven Campus, leaving an expansion opportunity of 16 classrooms, 405 seats, and over 15,000 ASF for the future.

Using the instructional space analysis and the modest growth scenario in Chapter 3, it is possible to estimate when Gateway could reach full utilization of the 55 GPCR on the New Haven Campus. The key take-away here is that while full utilization could be reached with a 30-hour window when enrollment hits ~8,200 headcount in approximately 2012, with a 42.3-hour window full utilization would be at ~11,600 headcount in approximately 2017. The College will not have too many "extra" classrooms for very long, depending on how quickly enrollment grows. Chapter 6 discusses the implications of the full utilization date in greater detail.

Figure 4.13: New Haven Campus: 42.3-Hour Window - Fall 2012 Projected Headcount ~8,200

New Haven Campus 2012 GPCR Inventory				Optimal Current Need 42.3-hour Window Fall 2012 ~8,200 Headcount				Delta: Inventory vs. Current Need		
Capacity	GPCR	Seats	ASF	Capacity	GPCR	Seats	ASF	GPCR	Seats	ASF
10	2	20	677	10				-2	-20	-677
25	9	225	5,676	20	4	80	1,760	-5	-145	-3,916
30	21	630	16,376	30	9	270	5,940	-12	-360	-10,436
40	17	680	16,170	40	18	720	15,840	1	-40	-330
50	4	200	5,458	50	3	150	3,300	-1	-50	-2,158
60				60	3	180	3,960	3	180	3,960
75				75	2	150	2,700	2	150	2,700
100	2	200	4,514	100				-2	-200	-4,571
Totals	55	1,955	48,871		39	1,550	33,500	16	405	15,371

4.7.3 Accommodating Growth to ~15,000 Headcount in 2022

Looking ahead to 2022 when a projected headcount of nearly 15,000 students could be enrolled at Gateway, it is clear that additional space will be needed. The amount of additional space needed eventually will depend on a number of factors, including the scheduling window that is selected and implemented, and the enrollment growth rate in the coming decade. A shorter 30-hour standard window utilizes more space, but it provides better teaching facilities, a greater sense of ease and comfort on campus, and potentially an enhanced sense of community. A larger window, such as the current 42.3-hour window, requires less additional space but will likely include a greater sense of crowdedness, potentially less community space, and less flexible assignment of teaching facilities.

While some of these factors are qualitative, it is both possible and necessary to quantify certain aspects of the decisions the College will be making in the near future. Figures 4.14 and 4.15 look at the space implications of 30- and 42.3-hour windows respectively as the College grows to the headcount enrollment projected for 2022.

Figure 4.14: Growth to ~15,000 Headcount with 30-Hour Window

New Haven Campus 2012 GPCR Inventory				Projected Need 30-Hour Window Fall 2022 ~15,000 Headcount ~8,000 FTE				Delta: Inventory vs Projected Need		
Capacity	GPCR	Seats	ASF	Capacity	GPCR	Seats	ASF	GPCR	Seats	ASF
10	2	20	677	10				2	20	677
25	9	225	5,676	20	10	200	4,400	-1	25	1,276
30	21	630	16,376	30	23	690	15,180	-2	-60	1,196
40	17	680	16,170	40	45	1,800	39,600	-28	-1,120	-23,430
50	4	200	5,458	50	9	450	9,900	-5	-250	-4,442
60				60	8	480	10,580	-8	-480	-10,580
75				75	5	375	6,750	-3	-175	-2,236
100	2	200	4,514	100				2	200	4,514
Totals	55	1,955	48,871		100	3,995	86,410	-45	-2,040	-37,539

While the 55 GPCR on the New Haven Campus will satisfy Gateway's needs for several years, Figure 4.14 shows that by 2022 when headcount may approach 15,000 students, the College will need an additional 45 GPCR in 37,539 ASF more space, for a total of 100 classrooms and 86,420 ASF.

Figure 4.15 shows that if Gateway were to return to its current 42.3-hour scheduling window in 2022, only 16 additional GPCR would be needed in 12,189 ASF more space. While this means having to build less new space, as previously noted, it could create less-than-ideal teaching conditions.

Figure 4.15: Growth to ~15,000 Headcount with 42.3-Hour Window

New Haven Campus 2012 GPCR Inventory				Projected Need 42.3-Hour Window Fall 2022 ~15,000 Headcount ~8,000 FTE				Delta: Inventory vs. Projected Need		
Capacity	GPCR	Seats	ASF	Capacity	GPCR	Seats	ASF	GPCR	Seats	ASF
10	2	20	677	10				2	20	677
25	9	225	5,676	20	7	140	3,080	2	85	2,596
30	21	630	16,376	30	17	510	11,220	4	120	5,156
40	17	680	16,170	40	32	1,280	28,160	-15	-600	-11,990
50	4	200	5,458	50	6	300	6,600	-2	-100	-1,142
60				60	5	300	6,600	-5	-300	-6,600
75				75	4	300	5,400	-4	-300	-5,400
100	2	200	4,514	100				2	200	4,514
Totals	55	1,955	48,871		71	2,830	61,060	-16	-875	-12,189

Based on the previous figures, Figure 4.16 summarizes the relationship between headcount, scheduling window and the number of GPCR needed. It compares the actual GPCR facilities that will be provided on the New Haven Campus in 2012, with the actual enrollment headcount in 2010 and the projected headcounts in 2012 and 2022.

Figure 4.16: Summary: Headcount, Scheduling Windows, and GPCR Needed

	Head-count	Window	# of GPCR	# of Seats	ASF
			Actual	Actual	Actual
New Haven Campus	TBD	TBD	55	1,955	48,871
			Needed	Needed	Needed
Actual 2010	7,328	30-hr	49	1,940	42,080
		42.3-hr	35	1,420	30,640
Projected 2012	8,200	30-hr	55	2,205	47,610
		42.3-hr	39	1,550	33,500
Projected 2022	15,000	30-hr	100	3,995	86,410
		42.3-hr	71	2,830	61,060

4.8 Utilization Findings: Specialized Instructional Spaces

4.8.1 Overview

The utilization analysis of the 41 existing Specialized Instructional (SI) spaces at Gateway includes the capacity and size of existing SI spaces, weekly hours of use, and station occupancy rates. A change in any one of these variables has an effect on one or both of the other two variables.

Future need for SI space is dependent not only on anticipated institutional enrollments, but also on planned program offerings that may have a domino effect on other programs that are affiliated with them. For example, if there is a strategic direction to increase enrollment in a program such as Nursing, this will require additional sections in Biology, A&P, and Chemistry courses.

The current need for SI space was calculated based on the number of hours scheduled by program or discipline. The gap between existing ASF and current ASF needs was identified, based on the application of discipline-specific station size guidelines. As with GPCR, day utilization was identified as the driver of SI space needs. The following assumptions were used in the process to calculate the projected need for SI space:

- The rooms were defined according to discipline of the space using information provided by the campus.
- The enrollment of the courses and the capacity of the room were reviewed. The number of room hours of instruction provided the base to calculate the number of individual rooms required for that space based on hours. GCC's 42.3-hour week was maintained, allowing for a 50% window of 21.16 hours for SI spaces.

4.8.2 Station Size and Capacity by Campus

Gateway has a total of 41 SI spaces in 48,590 total ASF with 904 stations. Station sizes range from 22.0 ASF/station in Long Wharf Room 164 used for a Sculpture I course to 193.5 ASF/station in North Haven Rooms 013N and 013S, automotive labs. The space guidelines for SI space cannot be generalized in the way that GPCR space is, however, as SI spaces house specialized uses. The goal is not to attain a single target ASF for *all* SI space, but rather to determine a target ASF that is appropriate to the special use or discipline taught in each SI space.

Figure 4.17: SI Spaces by Campus – Fall 2010

Campus	SI Spaces	Stations	ASF	Average ASF/Station
Long Wharf	15	387	15,127	39.1
New Haven	26	517	33,463	64.7
Totals	41	904	48,590	53.8

4.8.3 Weekly Room Hour Utilization Rates

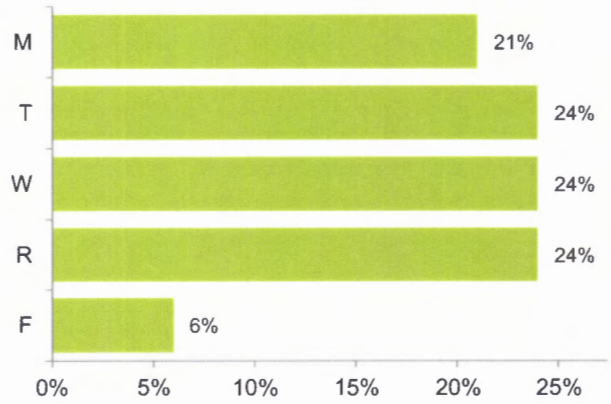
Space planning guidelines recommend that SI spaces should be scheduled 50 percent of the available time within the scheduling window. This is lower than the 67 percent rate for GPCR, as there is the need for set-up and breakdown time required in SI spaces as well as time for open/independent use by students outside of class time. In Fall 2010, a total of 646.00 weekly hours of instruction were offered across 169 courses. GCC has 37 percent of its SI space in use during the day, based on a 42.3-hour week. For a 30-hour week the utilization rate would increase to 53 percent.

Figure 4.18a: Day Courses by Day of the Week

Meeting Day	Percent of Courses
Monday (M)	11%
Tuesday (T)	15%
Wednesday (W)	15%
Thursday (R)	14%
Friday (F)	8%
MW	18%
TR	19%
WF	<1%
Totals	100%

May not total 100% because of rounding

Figure 4.18b: Course Meetings by Day of the Week



As with GPCR, there is very low utilization on Fridays, leaving room for additional course scheduling. If SI course offerings were distributed uniformly across a five-day schedule, one would expect that 20 percent of all course meetings would occur on any given day.

4.8.4 Station Occupancy Rate

The planning guideline for the station occupancy rate is that 80 percent of the stations should be filled when an SI space is scheduled. This rate is higher than the 67 percent target rate for GPCR because of the higher capital investment required to build SI spaces. SI spaces also typically involve smaller class sizes for pedagogical reasons, and due to the specialized and often technical nature of the subjects taught in them.

Overall, GCC is right on target with 80 percent of all available stations filled when an SI space is in use. Individual courses may equal or exceed 100 percent station occupancy even though the overall average station occupancy for the room as a whole is acceptable.

The Appendix summarizes SI space utilization patterns on a room-by-room basis (for day-time use only).

4.8.5 Computer Labs

One subset of SI space whose demand has grown and will likely continue to grow exponentially is computer labs. The New Haven Campus will have 6 more computer labs than exist in 2010 on the Long Wharf and North Haven campuses. The new labs will have 7,168 ASF more space and 280 additional student workstations. The new spaces will also have a more efficient layout, as they were designed for this use, so the ASF/seat will be lower than in 2010. It should be noted, however, that the increase in departmentally-controlled computer labs in 2012 may limit their use by the general student population.

Figure 4.14: Computer Labs - Fall 2010 to Fall 2012

Period	# Rooms	Total ASF	Total # Seats	ASF/ Seat
Fall 2010	11	9,853	229	43.0
Fall 2012	17	17,021	509	33.4
Net	+6	+7,168	+280	-9.6

4.8.6 Recommendations: SI Space Needs

The College has identified specific areas for growth in the next decade that will require SI space, although quantifying that need at this point is difficult. For more detail, see the Appendix.

- Significant growth is anticipated in Graphic Design, and a placeholder of 4,000 ASF for three or four additional graphics labs is recommended.
- Culinary will be located at street level in the New Haven Campus, and expects to need a second dining room and one studio or commercial kitchen by 2022.
- Additional Computer Labs will be needed as enrollment grows, although the rapid advances in technology may mitigate some of that need.
- Finally, if the rapid expansion of the sciences as a major field of study continues as expected, additional Science Labs may be needed in the next decade.

RA recommends that the College examine in detail its actual utilization of the SI space on the New Haven Campus once the campus has been occupied for a year, and revisit the projection of its future SI space needs at that time to more accurately define them.

4.9 Summary: Instructional Space Needs in 2012 and 2022

Figure 4.19: Summary of Instructional Space Needs

	2010 Actual	2010 Current Need		2012 Projected Need		2022 Projected Need	
Headcount	7,328	7,328		~8,200		~15,000	
Window	42.3-hr	30-hr	42.3-hr	30-hr	42.3-hr	30-hr	42.3-hr
GPCR	40	49	35	55	39	100	71
SI Space	41	Not computed	40	74 actual	74 actual	TBD	TBD
Totals	**81**		**75**	**129**	**113**	**TBD**	**TBD**

The intent of this Instructional Space Utilization Analysis is to provide GCC with an understanding of impacts of projected enrollment growth on instructional space in 2012 and 2022. This analysis was a snapshot in time. As GCC continues to grow, the need for SI spaces will need to be re-considered. As with GPCR, it is not simply a matter of having a sufficient *quantity* of instructional spaces, but they must be of an acceptable *quality* if they are to be well utilized.

Ultimately, this will provide Gateway Community College with appropriate instructional spaces, both now and in the future.

Chapter 5

Projected Space Needs: 2012 and 2022

5.0 Projecting Space Needs

Overview

This chapter reviews the history of space planning at Gateway, defines the College's space needs in 2012 and 2022, and develops options to address both near- and long-term space needs.

5.1 Overall Needs

5.1.1 History

In Fall 2004, Gateway was operating in a total of approximately 204,000 assignable square feet (ASF): 101,000 ASF at the Long Wharf campus and 103,000 ASF at North Haven. With 3,091 full-time equivalent students (FTE), this yielded an average of 66 ASF/FTE, meeting about 70 percent of the Connecticut Community Colleges' (CCC) guideline of 95 ASF/FTE.

The New Haven Campus' space program of 273,340 ASF was planned to provide the existing 3,083 FTE students of 2005 with 89 ASF/FTE and the projected 2014 enrollment of 3,500 FTE students with 78 ASF/FTE. Both of these measures were considered to be acceptably within the range of CCC's 95 ASF/FTE planning guideline.

The 2005 Master Plan noted that by 2014, enrollments could be as high as 7,000 headcount students (4,100 FTE), meaning that "the capacity of the planned facilities may be reached shortly after opening." This more optimistic growth scenario would have yielded a low 67 ASF/FTE on the New Haven Campus, little improvement above the 66 ASF/FTE in 2004.

5.1.2 Current Space Needs

Much to the credit of Gateway's administrative leadership and faculty, the College has been substantially more successful in attracting new students than was anticipated in 2005. The College grew even more rapidly than the Master Plan's most optimistic projections of 3,500 FTE for 2014. The Fall 2010 headcount enrollment of 4,196 FTE exceeded the 2005 projections for 2014 of 3,500 FTE by almost 20 percent.

The lack of growth in existing campus facilities between 2004 and 2010, coupled with the increase in FTE, resulted in an unfavorably low 49 ASF/FTE by Fall 2010. The Long Wharf campus in particular is not surprisingly described by many today as "bursting at the seams." The opening of the New Haven Campus in 2012 will alleviate much of this space crunch, although it will not eliminate it entirely.

In 2005, the New Haven Campus plus the "alternative location" (recently identified as a portion of the North Haven Campus) were expected to total 273,340 ASF. Based on the Fall 2010 enrollment of 4,196 FTE, the College would have 65 ASF/FTE when the New Haven Campus opens.

Currently at 49 ASF/FTE, Gateway's lack of space is the primary constraint in offering additional new programs that could serve the community even more effectively than current programs do. More science labs, a health and fitness area, an "incubator" space for developing new programs, more Nursing lab space, spaces for speakers and cultural events are all in great demand. Facilities are also needed for new or emerging programs such as the Center for Sustainable Energy, the Center for Transportation Technology, Allied Health, Music Therapy, Criminal Justice Protective Services, and Paralegal.

5.1.3 Methodology

Rickes Associates projected Gateway's overall space needs in 2012 and 2022 by applying the CCC space planning guideline of 95 ASF/FTE to the approved modest growth scenario in Chapter 3. Comparing the total space needed to meet state guidelines with the space provided on the New Haven Campus yields the overall additional "order of magnitude" space needed.

Rickes Associates also looked at a number of groups, departments, and future programs whose space needs in 2012 and 2022 could be determined at this point in time:

1. Instructional space: GPCR and SIS
2. Specific space programs: AT, RRT, and CEWD
3. Current programs needing additional space
4. Additional faculty and staff

Once the New Haven Campus has been occupied for a year or two, it is recommended that Gateway complete a detailed program analysis based on the actual use of the new facility and the North Haven Campus to project all detailed space needs for 2022.

5.2 Order-of-Magnitude Space Needs

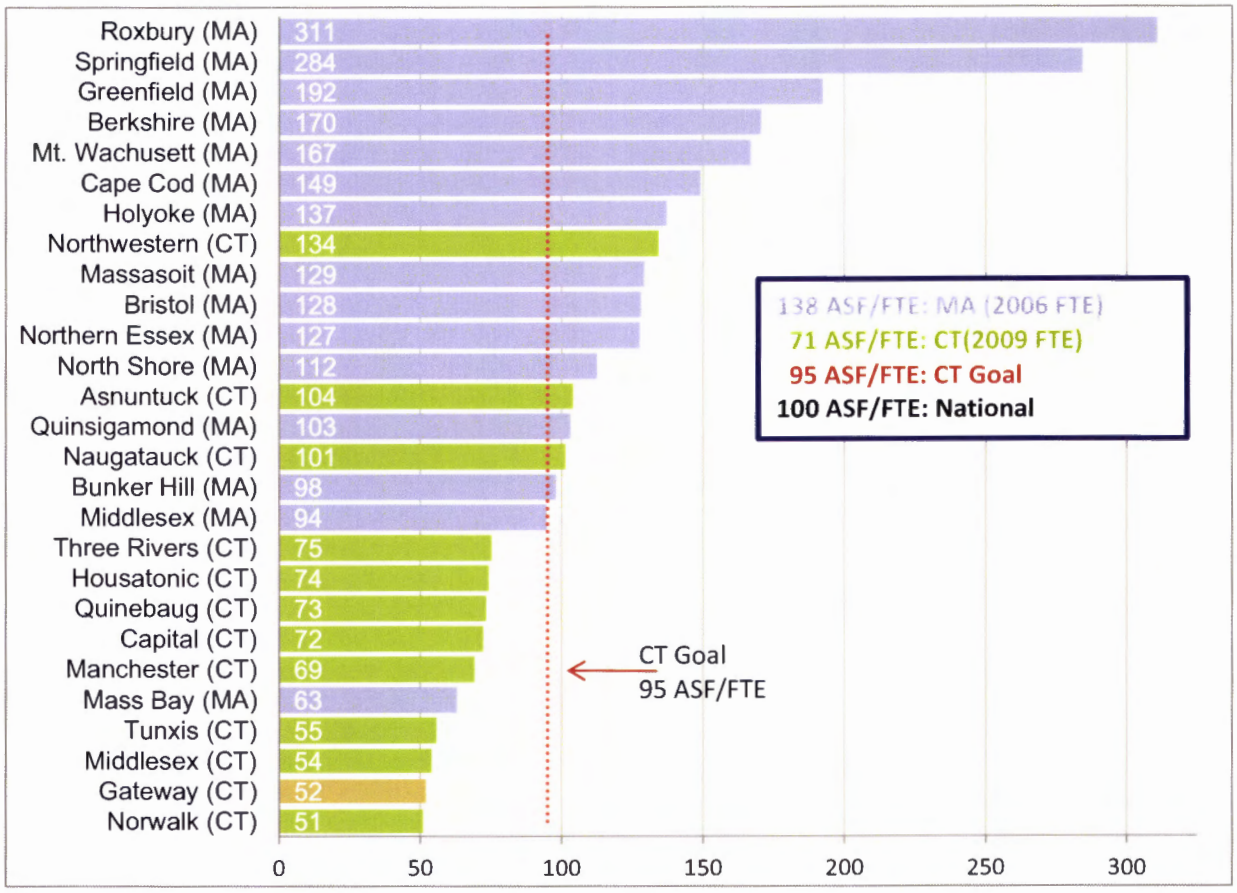
5.2.1 Overview

One method of estimating an institution's order-of-magnitude of space needs is based on how much space a campus has per student, or the ratio of ASF/FTE students. This is a major measure used in academic space planning to evaluate the adequacy of an institution's space and to compare it to its peers. By using assignable square feet, the focus is on "occupied" space as opposed to gross square feet (GSF) that includes building infrastructure. The latter can be significantly influenced by the age of an institution and the number and nature of its facilities.

The ASF/FTE ratio ranges widely based on the type of institution (community college, four-year college, university) and the nature of its governance (public or private). Large private research universities and private liberal arts colleges often have the highest ASF/FTEs, while community colleges tend to have among the lowest since they typically do not have athletic facilities, conference centers, and other large spaces that drive up the ASF/FTE.

Figure 5.1 on the next page shows that the Connecticut Community Colleges had an average in 2008 of 78 ASF/FTE, while those in Massachusetts had an average 138 ASF/FTE in 2006. In contrast to Connecticut community colleges, a number of Massachusetts community colleges contain multiple buildings and have additional amenities.

Figure 5.1: ASF/FTE Comparison: Connecticut and Massachusetts Community Colleges



5.2.2 Process

Figures 5.2, 5.3 and 5.4 describe the approach to projecting space needs based on ASF/FTE. Gateway's ASF and GSF needs are projected for when the New Haven Campus opens in 2012 and at the end of the current planning cycle in 2022.

The first step in the process is to calculate the total ASF needed, starting with the projected headcounts and multiplying them by the 2010 conversion rate of 0.5726, which generates the projected FTEs in 2012 and 2022. The FTEs are then multiplied by CCC's goal of 95 ASF per FTE student to arrive at the total 446,164 ASF needed in 2012 and 791,368 in 2022.

Figure 5.2: Total ASF Needed

Planning Period	Projected Headcount	2010 FTE Conversion Rate	Projected FTE	CCC Goal ASF/FTE	Total Needed ASF
2012-2015 Near-Term	8,202	0.5726	4,696	95	**446,120**
2022 Long-Term	14,548		8,330		**791,350**

The next step is to determine how much additional space will be needed in both years by subtracting the actual space available from the total needed. This yields 214,496 ASF additional needed in 2012 and 559,726 needed in 2022 if enrollment projections hold true.

Figure 5.3: *Additional* ASF Needed

Time Period	Total Needed ASF	New Haven Campus Actual ASF	Total Additional Needed ASF
2012-2015 Near-Term	446,120	231,624	**214,496**
2022 Long-Term	791,350		**559,726**

ASF Deleted 2005	Additional ASF Due to Enrollment Growth
40,330	174,166
	519,396

It is worth remembering that 40,330 ASF was deleted from the New Haven Campus program in 2005, with the intention that "lost" program area would be included in future long-range planning. Therefore, the net additional space is actually 174,166 ASF in 2012 and 519,396 ASF in 2022.

It is important to note that GCC's long-term space needs are large due to two major factors that have changed considerably since the 2005 Master Plan. First, as previously noted, GCC's enrollments over the past 6 to 10 years have grown well beyond expectations. Second, CCC has increased its commitment to the guideline of 95 ASF/FTE. Applying that guideline to GCC's rapidly growing enrollment results in the need for much more space than was previously projected. *Should either of these two variables change in the future, then GCC's projected space needs would change as well.*

5.3 Detailed Space Needs Program

Another approach to defining long-term space needs is to detail the space needs of specific programs. With current utilization on the existing campuses in a holding pattern due to the upcoming move to the New Haven Campus, however, only a partial detailed program projection is meaningful at this time. As noted above, it is recommended that GCC analyze its first-year utilization of the New Haven Campus in 2013 to create a detailed program picture of the College's long-term needs. This section is therefore intended as a sort of "heads-up" to the College for needs that may need to be addressed in coming years.

The following categories of specific need have been identified and where possible quantified.

1. Additional instructional space needs (General-purpose Classrooms and Specialized Instructional Spaces) are detailed in Chapter 4 and summarized here;
2. Programs planned in 2005 for the North Haven Campus: Automotive Technologies (AT), Railroad Technologies (RRT), and Continuing Education and Workforce Development (CEWD);
3. A placeholder to add 10 more faculty/staff in coming years, including staff for Student Services.

5.3.1 Instructional Space: GPCR and SI

Figures 5.4 and 5.5 summarize data about instructional space needs that was developed in *Chapter 4, Instructional Space Utilization.* They describe the total space need for GPCR and SI space as planned in 2005 and as projected for 2012 and 2022, compared to the New Haven Campus's actual 55 GPCR and 48,871 ASF.

Figure 5.4: GPCR Needs in 2012 and 2022

	2010 Fall Actual	2012 -2015 Near-Term Need		2022 Long-term Need	
	42.3-hr	30-hr	42.3-hr	30-hr	42.3-hr
GPCR	40	49	35	100	71
ASF	32,226	42,080	30,640	86,410	61,060

The New Haven Campus GPCR inventory will be sufficient for the College's growth until approximately 2017, depending on the scheduling window adopted on the new campus and the rate of enrollment growth.

Figure 5.5: SI Space Needs in 2022

	2010 Fall Actual	2012 New Haven Campus	2022 Long-term Need
SI Spaces	41	74	TBD
ASF	48,590	74,674	TBD

The majority of Gateway's SI space needs will be accommodated on the New Haven Campus in the 74 new spaces and 74,674 ASF planned there. As noted in Chapter 4, the College anticipates that more SI spaces may be needed by 2022, although the long-term need for SI space is much less easily projected than for GPCRs, as SI spaces are by nature tailored to the needs of specific programs as they develop.

Rickes Associates recommends that the College explore its actual utilization of the New Haven Campus SI space in detail once the campus has been occupied for an entire academic year. Revisiting the projection of SI space needs based on those findings will better define actual future SI space needs in these areas.

5.3.2 Specific Program Space Needs

5.3.2.1 Automotive Technologies

Automotive Technologies (AT) is a division of the Engineering and Applied Technologies Department under the Dean of Academic Affairs. AT currently has about 350 headcount students and expects to grow by another 350 to 400 by 2022.

AT is moving towards a professionally-oriented approach that is both more commercial and more competitive in the marketplace. Since the 2005 Master Plan program, there has been a major shift in thinking about AT's pedagogy which impacts its space needs. The increasingly technological nature of today's vehicles has dramatically changed the type of auto technician needed in the workplace. In addition, over the past five years the automotive industry has begun to actively respond to the energy crisis and to global warming by dramatically increasing the number of hybrids and alternative fuel vehicles on the market. This trend only shows signs of increasing in the future. These two factors have changed the methods of teaching required by the evolving technologies of the new vehicles, and changed the type of space needed.

Two types of specialized instructional (SI) space are required that are based on those used today by the automotive industry to train automotive technicians:

1. A combined SI classroom/lab with classroom seating for 20 students, drive-in space for two vehicles including one on a lift, lab bench workspace for 20 students, equipment storage, and vehicular access to exterior secure vehicle storage space, at 3,000 ASF.

   This classroom/lab arrangement allows instructors or students to demonstrate on actual vehicles in front of the entire class. Students then move directly to the lab benches to practice the demonstrated techniques in small groups or individually on automotive components.

2. A large SI automotive lab with six or 12 vehicle lifts, each with its own computer workstation, extra space between lifts for student safety, and vehicular access to exterior secure vehicle storage space, at 4,000 ASF to 8,000 ASF.

   After working on components in the class/lab, the auto lab provides students with a "real-life" set-up in which to work directly on a vehicle. Students in this lab work independently in small groups or individually solving technical problems as directed by instructors.

In the long-term, a total of eight SI classroom/labs are needed for the eight Automotive Service Education (ASE) subject areas in which Gateway must be reaccredited every five years by the National Automotive Technicians Education Foundation (NATEF). NATEF does not currently require programs to have separate labs for each ASE subject area, however, having the eight dedicated classroom/labs with the right equipment, parts, and tools to support the specific subject area for that discipline provides multiple advantages for GCC and the AT program.

- AT will have the ability to run multiple sections on the same subject during the semester without impacting other subject area course.
- AT will be able to share the labs between multiple automotive programs that require courses in each of the eight ASE subject areas, such as the General Automotive degree/certification, the General Motors degree, the Honda degree, and other future manufacturer's programs.
- The right kind, size and type of automotive class/labs eliminates the need for dedicated classroom space, as is currently the case, resulting in more efficient use of those resources. The current 5,003 ASF of dedicated classroom space is reduced to 1,975 ASF in 2022 with the 8 classroom/labs.
- This kind of state-of-the-art automotive training facility will allow for growth in course and program enrollment, as well as expansion of automotive programs, automotive equipment, and aftermarket parts manufacturer sponsors.
- GCC will have the ability to contract the use of the facility to automotive, equipment, and aftermarket parts manufacturers to conduct product training to their employees/technicians and customers, such as the current Snap-On product update training for non-Snap-On technicians.
- Finally, and most importantly, this will further position GCC as the premiere automotive training institution within the state.

The eight NATEF ASE subject labs are:

- Engines
- Electrical
- Suspension
- Brakes
- Engine performance
- Heat and AC
- Manual transmissions
- Automatic transmissions

It should be noted that, due to the large size and heavy weight of the specialized equipment, parts, and tools used to teach each of the eight ASE subject areas, sharing classroom/lab space between two subject areas is difficult operationally. Sharing space would also limit growth in scheduled class sections, preventing multiple ASE subjects being scheduled in the same semester.

A summary of AT's space needs:

- One General Automotive Technology lab with 12 lifts at 8,000 ASF, and a second for Alternative Fuels at 4,000 ASF.
- One flexible larger-vehicle lab at 4,000 ASF that can be adapted to respond to emerging trends in automotive technologies.
- Ample storage for both types of SI labs to hold engine bodies and parts, equipment carts, manuals, etc., as well as oil storage space.
- Two general-purpose classrooms for 20 students each.

- One computer lab for 30 students can be shared by AT and RRT for online courses offered by various automotive manufacturers.
- Six faculty offices in 2012, growing to 10 by 2022.
- Two offices for the Program Coordinators.
- One shared office for 4 Part-Time Lab Assistants, and another 5 Adjuncts.
- One office/reception area for a shared AT / RRT Secretary and Office Assistant.

Figure 5.5 describes the recommended total space by space type as it was planned in 2005 for AT, and as it may be needed in 2012 and 2022. For AT's detailed program, see the Appendix.

Figure 5.5: Summary: AT Space Needs

Space Type	2010 Existing ASF	2005 Master Plan ASF	2012-2015 Near-term Need ASF	2022 Projected Need ASF
Office	1,124	680	1,740	2,240
GPCR	5,003	6,000	1,975	1,975
Classroom/Labs	11,803	22,125	27,475	45,950
TOTAL	**17,930**	**28,805**	**31,190**	**50,165**

AT's current enrollment of 350 students is expected to double in the next 10 years, as it is a popular program leading to paying jobs. While AT's current space could handle this kind of growth – at least on paper – in reality the types, sizes, and conditions of AT's space are inadequate for even its current enrollment. The three main auto labs are in a former middle school gymnasium that does not comply with current automobile training safety regulations and codes. The auto lab configuration does not support current pedagogy: with only two to five lifts in each space, it is impossible to fit an entire class of 20 students in a single space. Finally, the five existing classroom/labs are each one-third of the size that is necessary for the kind of hands-on teaching and learning required in today's automotive teaching labs.

The near-term need for 2012-2015 calls for modernized, appropriately sized, and safety/code-compliant spaces totaling 31,190 ASF. These spaces will support approximately 600 students in the near-term, by doubling up the disciplines in each class/lab temporarily. While this may seem simple to do, the operational challenge of moving an entire car chassis or transmission between classes is not insignificant. To become a true state-of-the-art automotive training facility, additional class/labs will be needed so that each of the eight training disciplines has a dedicated space for its equipment. The program could then grow to over 1,000 students.

5.3.2.2 Railroad Technologies (RRT)

Railroad Technologies is a division within the Engineering and Applied Technologies Department under the Dean of Academic Affairs.

GCC started up the RRT program in January 2011 in direct response to the needs of the local commuter railroad system, which recognized a need to train new technicians to replace 5,000 employees who will be retiring in the next five years. RRT currently has 15 to 20 students and expects to grow to 40 students by 2013, when an update report is due to the Board. If RRT meets its enrollment targets by then, it will be allowed to request dedicated faculty and space for the future.

At present, the RRT program is utilizing existing faculty and facilities, but the significant growth expected over the next five years to meet the job market demand will require dedicated faculty and facilities. The start-up program is a single course in Signaling and Communications using Applied Technology faculty and space.

As the only program of its kind in the northeast United States, RRT expects to develop five additional program areas in the next 5 to 10 years. Ultimately, Gateway would like to become a full-fledged Transportation Center, "*THE* training center" for the state's rail and transportation systems in Alternate Fuels, RRT, AT, and Boating/Port Management.

RRT's future main SI space is a classroom/lab similar to AT's with teaching space for 20 students, space for the chassis of a railroad car and track switching gear, lab benches for 20, and storage. There are currently no spaces like this available on campus, but it is anticipated that two will be needed in five years, and four in 10 years as additional programs are developed.

While there are currently no dedicated RRT faculty, it is expected that RRT will require offices for three full-time faculty in five years, and for five full-time faculty by 2022. A shared office space for adjuncts will be needed, possibly shared with a Lab Assistant. The secretary office/reception will be shared with AT.

Figure 5.6 describes the total space need by space type as it may be needed in 2012 and 2022. For RRT's detailed program, see the Appendix.

Figure 5.6: Summary: RRT Space Needs

Space Type	2010 Existing ASF	2012 Current Need ASF	2022 Projected Need ASF
Offices	0	520	1,150
Classroom/Labs	0	3,575	7,150
TOTAL	**Currently all space is shared**	**4,095**	**8,300**

5.3.2.3 Continuing Education and Workforce Development

Continuing Education and Workforce Development (CEWD) is a program in the midst of major change and development. Once a mainstay of CEWD, Corporate Education programs decreased by two-thirds in 2010 as many typical client companies reduced their training programs due to the recession. Along with new leadership in 2010-2011, CEWD has seen a shift to the demand for more job training and direct service programs.

As part of the Master Plan process, GCC decided to relocate all of CEWD to the New Haven Campus. CEWD expects to continue to move in the direction of job training and direct service programs, and has many plans and ideas to serve the greater New Haven community in different and expanded ways.

Current and developing CEWD programs requiring SI space:

Step Forward is a "workplace readiness" program that serves students aged 17 to 21 with 70+ IQs. It is funded through participating area high schools. There are 11 students now in the first year, with a second year career track program starting in September 2011. Step Forward will expand in 2011 to include an Asperger's pre-college prep program with four or five high-functioning students. A cap of 20 students is expected in the first year program, with 10 in the second year, and 12 in the Asperger's program.

Specialized instructional spaces are needed for these programs. These SI spaces should be separately programmed in detail once these programs go forward, and all should be fully accessible:

- One large, dedicated lab with six flexible workstations that can replicate various work-skill areas. The space configuration of this lab will vary from year-to-year based on the needs of the current students.
- One computer lab with 10 to 15 wheelchair accessible workstations.
- One classroom for 15 students, plus space for 8 peer tutors and 2 instructors.

- One conference/small group workspace for 6 to 8.
- One private personal care/feeding space with toilet and sink.
- Storage for the Hoyer lift and extra wheelchairs.
- Two dedicated SI spaces for the Asperger's program.

The Motorcycle License Training Program is a successful program that trains 800 aspiring motorcycle operators per year, as required by state law. There are 80 sections, each three or four days long, on weekends from April through October. It will remain in the North Haven Campus, where it will continue to have storage for 15 motorcycles (currently housed in a box container in the parking lot), use of the parking lot for the driver training course, and the use of a small classroom.

The **EMT program** could expand to meet the demand created by the state requirement for all fire fighters and police officers to be certified EMTs. Space needs include one dedicated oversized SI space for 40 students, with movable tables and chairs for demonstrations, a 200 ASF storage closet, a small meeting room for six, and an office for the Director.

Phlebotomy needs one non-dedicated lab/classroom for 25 students and a large storage space for equipment carts.

Business and Industry has evolved from Corporate Training into job training within Workforce Development. A large, multi-purpose flexible space is needed to respond to emerging programs such as HazMat and "brown-fields" training for the City of New Haven, and training for "maintainers" for the New Haven Housing Authority. Currently this space is on the North Haven Campus.

CEWD near-term program needs:

- Administrative areas include private office spaces, a reception/open office area, an area for adjunct faculty, and a copy/work room and storage space.
- The Dean of CEWD has been assigned space for the departmental headquarters on the New Haven Campus, including offices for the Dean and Evening Administrator, a secretary/reception area, an office workroom, a computer lab and two dedicated GPCR. A satellite office is needed for the Director at the North Haven Campus.
- CEWD will have 2 dedicated GPCR on the New Haven Campus. The program expects to need as many as 6 to 8 GPCR in 2012, and as many as 12 to 14 GPCR by 2022. The long-term need is difficult to predict however since, unlike GCC's academic programs, CEWD's non-credit program growth is dependent on the financial viability of individual courses.
- Ideally, CEWD's GPCR should include one cluster of three 30-seat classrooms that could be combined to form one large 90 to 100 seat classroom. Alternatively, CEWD will have the use of several large classrooms on the New Haven Campus.
- A large, multi-purpose space to be used for various programs that need to set up equipment, or have large areas of workspace.
- CEWD will have 2 dedicated computer labs on the New Haven Campus, and access to many more general-use computer labs. CEWD offers free computer training to senior and under-served populations in the area.
- A conference room/small classroom for 15.
- Small storage areas for the classrooms.
- A dedicated storage space for Phlebotomy to house equipment workcarts in between classes.

- A 20-seat call center to replace the inadequate existing call center at Long Wharf is on the wish-list.

Future programs:
CEWD foresees growth in the next 5 to 10 years in the area of personal health care training and would like to create a new center for this on the New Haven Campus, utilizing Allied Health's new patient-care labs and other health care teaching facilities. CEWD would like to offer a Phlebotomy Certificate, a Paramedic Certificate, and a Nurse Assistant Certificate, which is one module of Yale-New Haven Hospital's Patient Care Associate training cycle.

Figure 5.7 describes CEWD's total space need as it was planned in 2005, and as it may be needed in 2012. With its growth depending on the profitability of its programs, it is not possible at this time to project CEWD's long-term (2022) space needs. It is therefore recommended that GCC review these needs in detail in 2013, when the College reviews its overall space needs after occupying the New Haven Campus for a year. CEWD's detailed program is located in the Appendix.

Figure 5.7: CEWD Space Needs

Space Type	2010 Existing ASF	2005 Master Plan ASF	2012-2015 Near-Term Need ASF
GPCR	1,584	4,100	4,100
SI Space, Computer Labs	3,918	4,850	6,500
Offices	1,546	2,200	2,000
TOTAL	7,048	11,150	12,600

The near-term projection does not include specific SI space needs for Step Forward's expanding programs. Once these programs are approved to move ahead, it is recommended that the College develop detailed SI space programs for each one.

CEWD's ideal need is for 12,600 ASF in the near-term, or 79 percent more space than it has now. Currently, CEWD has minimal dedicated space and must "stand in line" behind the for-credit courses for access to GPCR space on the North Haven Campus for its courses. This will change dramatically after CEWD moves to the New Haven Campus. The anticipated utilization rates in the early years of GPCR occupancy will provide the opportunity to assign an appropriate mix and quantity of space to CEWD. This will give CEWD a new ability to plan proactively, rather than making do with whatever space happens to be available in a given semester, will provide many opportunities for program growth.

5.3.2.4 Center for Sustainable Energies (CSE)

The Center for Sustainable Energies (CSE) is a developing program that requires general-purpose classrooms, outdoor space for installations such as solar panels, and indoor testing space for other "green"equipment. It currently occupies 594 ASF in a former darkroom, 264 ASF in Room 103H, and a 400 ASF lab in a trailer that was recently acquired for its use, totaling 1,258 ASF.

The College expects that this new space will accommodate most CSE program needs in the near-term on the North Haven Campus. Additional classroom and office space would be available there if needed.

5.3.2.5 North Haven Campus: Total ASF

The North Haven Campus will need to accommodate Automotive Technologies (AT), Railroad Technologies (RRT), and the Center for Sustainable Energies (CSE) likely through 2015. The total near-term and long-term space need for these programs is described in Figure 5.8.

Figure 5.8: North Haven Campus: Proposed Total ASF

Program	2005 Master Plan ASF	2010 Current ASF	2012-2015 Near-Term Need ASF	2022 Projected Need ASF
AT	28,805	17,930	31,190	50,165
RRT	0	0	4,095	8,300
CSE	0	1,258	1,258	TBD
TOTAL	28,805	19,188	36,543	58,465+

Unless large, open-bay space can be found elsewhere, it is likely that GCC will need space for AT, RRT, and CSE on the North Haven Campus at least until 2015. A detailed program for CSE should be developed to determine its specific space needs.

As the College gets closer to moving to the New Haven Campus, it should look at the short- and near-term needs of the programs remaining on the North Haven Campus to be sure that they are adequately addressed and that the space is used efficiently.

5.3.3 Additional Faculty and Staff

While there are no plans to add personnel in the near future, it is recommended that GCC use a placeholder of 10 personnel at 150 ASF/person (an allowance for office and support space) for a total of 1,500 ASF in the next decade. This could be applied as needed, including increasing the Student Services staff to support the growing enrollment.

5.3.4 Summary: Space Needs

Figure 5.9 describes those of GCC's additional space needs for 2012-2015 and 2022 that are able to be projected at this time, and notes some needs that are to be determined.

Figure 5.9: Summary - Additional Space Needed

Use	2010 Current Space	2012-2015 Near-term *Additional* Space Need	2012-2015 Near-term Total Space Need	2022 Long-term *Additional* Space Need
GPCR	48,871 ASF	Met by New Haven Campus	0	60 GPCR 38,800 ASF
SI Space	48,590 ASF	Met by New Haven Campus	0	Graphic Design 4,000 ASF Culinary, Science, Other TBD
AT	17,930 ASF	13,260 ASF	31,190 ASF	18,975 ASF
RRT	0	4,095 ASF	4,095 ASF	4,205 ASF
CSE	1,258 ASF	0	1,258 ASF	TBD
Additional personnel		Met by New Haven Campus	0	1,500 ASF
TOTAL	116,649	17,355	36,543	67,480+

In addition to these currently quantifiable needs, certain programs and services will grow proportionately with enrollment. The size of these facilities, however, is dependent on their location: if they are simple additions to their main service location, they can be smaller; if they are remote from their main service locations and must be more self-sufficient, they must be larger. Therefore, their size cannot be estimated until locations are determined. These include:

- Student Life
- Facilities
- Health Services
- Cafeteria
- Community room
- IT and computer labs
- Student Services: Tutorial Services, Registration, Advising

Programs have also been identified by GCC for future development that may require space by 2022, although their size and location is unknown at this time. In addition to flexible "incubator space" for new programs not yet identified, these include:

- Freshman seminar
- Peer mentoring
- A testing facility for the increase in on-going testing
- Automotive conversion training
- Expansion of the developmental education program
- Athletic and/or fitness facilities
- Nursing and Allied Health
- Human Services
- Criminal Justice Protective Services
- Paralegal
- Transfer program expansion
- Music Therapy
- Post-prison education program

Chapter 6

Addressing Space Needs

6.0 Addressing Space Needs

6.1 Overview

In order to meet CCC's space planning guideline of 95 ASF/FTE, Gateway would need additional space in both the near- and long-term. This chapter includes an overview of those needs and an analysis of the College's most "mission-critical" space, its general-purpose classrooms.

This chapter also identifies options to address near- and long-term needs along with their advantages and disadvantages. A preferred option is identified, but it should be noted that it is based on what appears to be most viable from the perspective of this moment in time, given the large number of variables currently in play.

Finally, very rough "order-of-magnitude" cost estimates for each option are provided to aid in discussing the relative merits of each option. Before any thought of funding comes up, it is important that a detailed cost estimate should be done after the selected option is developed.

6.2 Near-term Needs

The modest growth scenario in Chapter 3 projects that GCC will have 8,202 headcount or 4,696 FTE students by 2012 who will occupy 231,624 ASF on the New Haven Campus plus some portion of the North Haven Campus. Based on the space needs of Automotive Technologies, Railroad Technologies, and the Center for Sustainable Energies, approximately 25,000 to 30,000 ASF of the North Haven Campus will be needed in the near-term.

As shown in Figure 6.1, this yields a maximum of 261,624 ASF which results in 55.7 ASF/FTE, well below the state guideline of 95 ASF/FTE. To meet the state's space planning guideline in 2012, Gateway would technically need up to 184,496 ASF more space.

6.3 Long-term Needs

Assuming North Haven is no longer in service by 2022, Gateway will need even more space to meet the educational needs of the projected 15,000 headcount/8,330 FTE students and the state's space planning guideline. Figure 6.1 shows that Gateway may need a second building as large as 559,726 ASF, more than twice the size of the New Haven Campus.

Figure 6.1: ASF Needed to Meet 95 ASF/FTE : Modest Growth Scenario

	Fall 2012 Near-term	Fall 2022 Long-term
"Modest Growth" Projected FTE	4,696	8,330
Total ASF needed @ 95 ASF/FTE	446,120	791,350
Total New Haven Campus ASF	231,624	231,624
North Haven – AT, RRT, CSE ASF	25-30,000	0
Total ASF available	Up to 261,624	231,624
Additional ASF needed	Up to 184,496	559,726

6.4 GPCR: Mission-critical Space

6.4.1 The Big Questions

While the application of standards such as CCC's 95 ASF/FTE is extremely important in long-range planning, another way to think about the fit between GCC's space and its needs is to look at the most "mission-critical" space on any college campus, the general-purpose classrooms. The answers to two key questions can provide some perspective on space needs:

1. Will there be enough general-purpose classrooms (GPCR) on the New Haven Campus?
2. At what point in time will GCC reach optimal utilization and need additional GPCR?

Figure 6.2 answers these questions with the good news that, depending on the scheduling window that GCC selects, the College will have more than adequate GPCR for some time beyond the near-term planning period of 2012-2015.

- If the Fall 2010 headcount enrollment utilized the 55 GPCR on the New Haven Campus, with a 30-hour window there would be 6 so-called "extra" GPCR. (These are in fact not "extra" GPCR, but simply represent additional scheduling capacity within the facility.)
- With the projected headcount of 8,200 students in 2012 and the current window of 42.3 hours, there would be 16 "extra" GPCR. If GCC reverted to a 30-hour window, then it would utilize all 55 GPCR and be at technical capacity.
- The headcount enrollment is projected to approach 15,000 students by 2022. By that point, with either a 42.3-hour window or a 30-hour window, GCC will need 16 and 45 more GPCR, respectively, than the New Haven Campus provides.

Figure 6.2: GPCR Needed by Scheduling Window and Year

Year	2010		2012		2017		2022	
Headcount	7,328		~8,200		~11,600		~15,000	
Scheduling Window	GPCR Needed	"Extra" GPCR	GPCR Needed	"Extra" GPCR	GPCR Needed	"Extra" GPCR	GPCR Needed	"Extra" GPCR
30-hour	49	6	**55 optimal**	0	72	(17)	100	(45)
42.3-hour	35	20	39	16	**55 optimal**	0	71	(16)

The very good news is that, with a 42.3-hour window, the College won't begin to reach optimal utilization of all 55 GPCR on the New Haven Campus until the headcount approaches 11,600 students, which is 58% greater than the headcount in Fall 2010. The modest growth scenario in Chapter 3 projects enrollment will reach that level in approximately 2017, although when this actually happens depends entirely on the rate of enrollment growth.

6.4.2 Full Utilization Defined

It is important to note that reaching optimal technical utilization of the 55 classrooms in 2017 does *not* mean the College has reached the point where it must immediately build additional classrooms, but it does mean that planning and budgeting for GCC's next new facility should be well along by then. Full utilization is a *technical milestone* where the average weekly utilization rates and seat occupancy rates of all 55 GPCR exceed the threshold of the 67% planning guidelines. It will be some time before the New Haven Campus reaches the current conditions at Long Wharf, where the 75% weekly utilization rate with a 42.3-hour window greatly contribute to the perception of over-crowding. Other factors such as the greater quantity of community space, the much-larger library, and the extensive computer facilities on the New Haven Campus will all mediate against the sense of crowding from which Long Wharf suffers.

It should also be noted that the estimated date GCC reaches optimal technical utilization applies only to the general-purpose classrooms. It does not apply to the myriad of other space types on campus such as offices, community spaces, dining facilities, and library/computer space. These are space types that must grow proportionately with enrollments in order to adequately serve a greater number of students. The projection of growth in those space types will best be done in the year or so after GCC occupies its new campus, after it has gathered data about the actual use of those spaces and hence can more accurately project future needs.

6.4.3 Extending GPCR Utilization

There are a number of ways to further optimize the utilization of GCC's classrooms before additional GPCR space will be required. One way is to further expand the daytime or evening scheduling windows that are implemented on the New Haven Campus. This can include offering classes for more hours each day, holding classes very late in the evening, or offering classes on Sundays. For example, expanding from the current 42.3- hour window to a 48-hour window would allow GCC to serve 13,000 students, an enrollment that is projected to occur in 2019-2020.

It can also include expanding the number and type of early-morning courses that are offered. Given Gateway's well-received trial of 6:30 a.m. courses in the Fall and Spring of 2010, and given the number of students who wanted to take these courses but were turned away, this option should definitely be explored fully in the near future and once the College moves to its new campus.

If the scheduling window has not been defined and applied consistently by the time full utilization has been reached, another way to get the maximally efficient utilization of the 55 GPCR would be to implement a consistent, well-defined window for scheduling all courses.

Increasing the number of on-line and/or hybrid courses that GCC offers would also extend the utilization of the GPCR. A typical hybrid course balances class-time with on-line time, so for the growing number of recent high school graduates at GCC – who are presumably less academically mature than their older counterparts - hybrid courses may be a better option than fully on-line courses. Hybrid courses effectively double the utilization of a given classroom since two courses can be taught each week within one traditional time block. However, this is not to negate the importance of developing a robust on-line course selection for more mature students in order to remain competitive in the educational marketplace.

6.5 Options for Near- and Long-Term Space Needs

Five options were developed to accommodate GCC's space needs for the near-term (2012-2015) and the long-term (2022):

Near-term	Option A: New Haven Campus plus some portion of North Haven.
	Option B: New Haven Campus plus some portion of Long Wharf.
Long-term	Option 1: New Haven Campus plus a New Building on the Route 34 Site.
	Option 2: New Haven Campus plus a New Building on the Long Wharf Site.
	Option 3: New Haven Campus plus an additional 70,000 GSF on the North Site.

6.5.1 Options for Near-term (2012-2015) Space Needs

Near-term Option A: New Haven Campus plus some portion of North Haven

Discussion

A main **advantage** of this option is that the site is already owned by GCC. In addition, if enrollment growth begins to put pressure on the New Haven Campus, additional space beyond the 25,000 to 30,000 ASF – up to 103,000 ASF – is available for expansion at North Haven.

Another major advantage is that remaining on the North Haven Campus in the near-term will maintain continuity for the AT, RRT, and CSE programs, thus stabilizing those programs operationally during a period of much change as the College moves into and adjusts to the New Haven Campus.

A **disadvantage** of this option is that the distance from the New Haven Campus contradicts the College's strategic goal of consolidation on one site and is currently described as very inconvenient for faculty, staff, and students. There is a perceived risk that AT, RRT, and CSE students may feel they are no longer part of the College.

In addition, the existing building, built in 1968, needs some degree of financial investment to be functional for even near-term use.

Finally, regardless of the number of students at North Haven, the College will still incur some operational costs as GCC must still provide maintenance, security,etc.

Recommendation

Because GCC will have adequate capacity on the New Haven Campus, it will need to occupy only a small portion of the North Haven Campus in the near-term. The College should consolidate operations and close down as much of that campus as possible. It will be important to create a clearly-defined portion of the campus that is efficient to operate, but that will still be perceived as attractive to students.

Despite the disadvantages, keeping North Haven open through 2015 appears at this time to be the most viable and manageable near-term option. It is recommended that GCC do a facilities condition audit to identify the renovations that need to be done to increase the comfort of those who will study and work there.

One suggestion is that GCC look into finding a landlord who might renovate the entire building and allow the College to use part of it in the near-term. The North Haven ACES program is one possibility, as they have already expressed interest in acquiring the property.

Project Facts

	ASF	GSF	A/G	2012 FTE	ASF/FTE
Total Space Need 2012 @ 95 ASF/FTE	446,120	708,127	0.63	4,696	95
New Campus 2012	-231,624	-367,000	0.63		
Additional Space Need	214,496	341,127			
North Haven (partial)	-30,000	-42,253			
Total Additional Space Need	**261,624**	298,559			

Near-term Option B: New Haven Campus plus some portion of Long Wharf

Discussion

The main **advantage** of this option is its proximity to the New Haven Campus. Consolidating GCC's operations two campuses onto one "extended site" would provide a greater sense of campus contiguity and is consistent with GCC's Strategic Plan. GCC's enrollment history is proof of the site's popularity with students, likely due to its excellent access to I-95, I-91, Route 34, and public transportation. Another advantage is that the site is already owned by GCC, so no additional procurement of land is needed.

The major **disadvantage** of this option is that it depends on the construction of a new addition for Automotive and Railroad Technologies, which require large-bay specialized lab spaces that are not currently available at the Long Wharf facility. Construction of these new labs is unlikely to be approved, funded, and built by 2015. If these spaces are not built for AT and RRT, these programs must remain on the North Haven Campus, or cease to exist.Another challenge with this option is that the existing building, built in 1975, needs substantial investment to be fully functional beyond 2015. It is widely considered inadequate for classroom instruction as it is now.

Recommendation

Continuing to occupy a portion of the Long Wharf facility is not a viable near-term option. Its best use in the near-term is for parking for the New Haven Campus, which will be a minimal cost to supervise and secure, and for storage, which should be relatively inexpensive to maintain.

Project Facts

	ASF	GSF	A/G	2012 FTE	ASF/FTE
Total Space Need 2012 @ 95 ASF/FTE	446,120	708,127	0.63	4,696	95
New Campus 2012	-231,624	-367,000	0.63		
Additional Space Need	214,496	341,127			
Long Wharf (partial)	-30,000	-42,253			
Total Additional Space Need	**184,496**	298,559			

6.5.2 Options for Long-Term (2022) Space Needs

Long-term Option 1: New Haven Campus and New Building on Route 34 Site

Discussion

The main **advantage** of this option is that it satisfies both the College's long-term space needs and its strategic goals. The site is fully contiguous with the New Haven Campus and shares all of the advantages of that location:

- allowing the College to participate in the dynamic activity of the city center;
- excellent vehicular access to I-95, I-91, Route 34, and excellent pedestrian access to public transportation;
- increased opportunities for student/program interaction and collaboration with downtown medical centers, universities, and businesses;
- bringing additional student, staff, and faculty patrons to downtown businesses and cultural amenities; and
- providing ease of access to GCC programs and functions by city and regional residents.

Another important advantage is that the new construction could be completed in one phase. Since the two sites are independent of each other, relocation costs would be minimized and operational disruption to GCC would be eliminated.

In addition, depending on the size of the parcel and the sub-surface conditions, it is possible that GCC's parking needs may be satisfied on-site.

Finally, the development team's current thinking is that development of Parcel D could start in 2016, which may be excellent timing for GCC.

This option's major **disadvantage** is the sheer complexity of bringing this project to completion. The site acquisition and development may take considerable time to accomplish complex negotiations with multiple stakeholders (the developer, Yale University, the City of New Haven, the State Highway Department, etc.).

Since the size and location of the Route 34 site have not been determined yet by the development team, it cannot be tested for a fit between GCC's space program, parking needs, and the site's opportunities or constraints. This is a major unknown.

Several other disadvantages include: the development of this site may increase vehicular traffic congestion during peak commuting periods; the building foundations will be expensive due to the high water table; underground construction may be restricted; and construction costs will be higher due to the restricted access to the site and a limited staging area.

Recommendations

While a new building on the Route 34 site is the preferred option for many operational and strategic reasons, it may not be as likely to happen within GCC's time frame as the Long Wharf option. Therefore, it is recommended that the College actively pursue the Long Wharf option, while still holding the Route 34 option as a possibility.

Long-term Option 2: New Haven Campus and New Building on Long Wharf Site

Discussion

The main **advantage** of this option is its proximity to the New Haven Campus. Consolidating GCC's operations from two campuses onto one extended site would provide a greater sense of campus contiguity and is consistent with GCC's Strategic Plan. GCC's enrollment history is proof of the site's popularity with students, likely due in part to its ease of access to I-95, I-91, Route 34, and public transportation.

Other advantages: the site is already owned by GCC, so no additional procurement of land is needed; there would be excellent views of New Haven harbor from above the second floor of this brand-new facility; the proposed new access drive would improve vehicular circulation and reduce traffic congestion; and GCC's parking needs can be satisfied on-site.

The main **disadvantage** of this option is the relatively small size of the Long Wharf site, which will not accommodate all of GCC's long-term space needs. Even if both the Long Wharf site and the 70,000 ASF downtown site were fully built out, GCC would still require additional space in another location by 2022.

There are a number of additional costs associated with the development of this site. The new construction must be protected due to its location in 100-year coastal flood zone. The foundations are likely to be expensive due to the high water table and poor soil bearing capacity. This may limit any below-grade construction. There would also be additional cost to demolish the existing building.

Recommendation

While a new building on the Long Wharf site does not fully accommodate all of the College's long-term growth needs, it is judged to be a viable option with a high likelihood of being implemented. There are viable alternatives to address the remainder of the College's space needs, such as increasing the number of online courses, expanding the scheduling window, offering courses in a local charter school in the evenings, or sharing space with other downtown partners.

Therefore, from today's perspective, it is recommended that GCC pursue this option, while at the same time remaining engaged in the Route 34 development process.

However, it is important to note that evaluating the best use of any future available funds can only happen after 2013, when the New Haven Campus has gone through its "shake-down" first year, the Master Plan has been updated again, the Census projections for 2020 are available, and hopefully the Connecticut and national economies have stabilized.

Long-term Option 3: New Haven Campus plus Additional 70,000 GSF on North Site

Discussion

The major **advantage** of this option is that the location of the new space on the North Site of the new facility could not be better in terms of the College's strategic goal of consolidation, as it would be fully contiguous with the New Haven Campus. It would share all of the advantages of the new campus, such as access, transportation, life in the city center, visibility, etc. It would also be brand-new space. Since the site is already owned by GCC, no acquisition process would be necessary.

The major **disadvantage** of this option is that it only accommodates GCC's near-term space needs. Since this option would build out all of the remaining site development capacity downtown in the near-term, it would leave no room for additional future growth downtown. Given that the 70,000 ASF is located on upper floors in the center of the campus, the space cannot provide Automotive and Railroad Technologies with large-bay, ground-floor labs. These programs would need to remain on the North Haven Campus or another location to be determined.

Since the 70,000 ASF space is located in the center of the new campus, there would be substantial impact on College operations during construction. This option would also be very expensive in terms of cost per square foot, since it would be constructed within an occupied building. Ideally, this decision would be made immediately in order to avoid both the disruption and the additional costs.

Recommendation

This option is very expensive and potentially disruptive of operations. It cannot provide space for three programs nor does it solve the College's long-term space needs. It is therefore recommended that GCC "bank" this option for a future time when the College requires space on the New Haven Campus for programs whose needs are better served by this space.

6.6 Conclusion

6.6.1 Summary of Options

Figure 6.3 summarizes the College's near- and long-term options and provides an order-of-magnitude cost for each to help decision-makers weigh the relative value of each option. *These costs are not intended as budget numbers.* More detailed cost estimates must be done for the final selected option(s) in order to develop accurate budgets for future funding requests.

The ASF for each option has been converted to gross square feet (GSF) for the purpose of calculating the order-of-magnitude costs for each option, using the actual ASF/GSF ratio of the New Haven Campus and a rough project unit cost of $500/GSF in 2011 dollars.

Figure 6.3: Summary of Options

Options		New Campus GSF	Additional GSF Provided by Option	Order-of-Magnitude Cost * of Option Only
Near-term				
Option A	New Haven Campus plus some portion of North Haven	367,000	57,568	$ 35 million
Option B	New Haven Campus plus some portion of Long Wharf		53,814	$ 32 million
Long-term				
Option 1	New Haven Campus plus New Building on Route 34 Site	367,000	884,459	$ 531 million
Option 2	New Haven Campus plus New Building at Long Wharf		346,652	$ 208 million
Option 3	New Haven Campus plus 70,000 GSF		70,000	$ 42 million

6.6.2 Recommendations

The Master Plan Update: 2012-2022 is intended to support the future vision of growth for Gateway in the decade after occupancy of the New Haven Campus in 2012. It is based on a review of Gateway's space needs and on the application of commonly accepted space guidelines.

The bottom line is that Gateway's enormous success in attracting new students, coupled with the state's space planning guideline of 95 ASF/FTE, may result in the need for a second new building of approximately 560,000 ASF/ 885,000 GSF by 2022 with a very rough ballpark cost of over $500 million in 2011 dollars.

While it is conceivable that some portion of the additional 560,000 ASF could be provided by continuing to occupy the North Haven and Long Wharf campuses after the New Haven Campus opens, it is not feasible, functional, or economically viable for GCC to operate three campuses. Without substantial renovation and capital investment, the value of those existing facilities will only continue to decrease and their condition to deteriorate to the point where they cease to be functional and/or safe.

As this iteration of the Master Plan Update is completed, the consensus recommendation going forward includes two components.

The first recommendation is for the near-term, 2012-2015. To be efficient with its space and cost-effective with its operating budget, Gateway should maintain 25,000 to 30,000 ASF on the North Haven Campus for

AT, RRT, and CSE potentially through 2015. GCC should at the same time continue to explore relocating these programs to less costly and ideally more modern quarters that are closer to the new campus.

The second recommendation is for Gateway to more accurately assess its long-term growth needs after the 2012-2013 "shake-down" year on the New Haven Campus. The Master Plan Update process revealed that the many data points needed to make a definitive and prudent recommendation for Gateway's long-term future are simply not available at this time.

- While good long-range planning always looks ahead to what will be needed next, it is difficult to imagine asking for more space before the New Haven Campus has even opened. In fact, GCC will need time to adapt to this incredible new campus and to seek out the new efficiencies, synergies, and opportunities it will offer. While some of this can be anticipated, it cannot be fully understood until sometime after the College has occupied the campus.
- Gateway's move downtown will provide innumerable exciting opportunities for new partnerships with local educational institutions and businesses. The nature of these partnerships cannot be predicted in advance, but will likely include Gateway developing new academic and training programs in response to the needs of its new partners, and potentially reducing some of GCC's future need for space if the College teaches in a partner's downtown facility. The College will fully and aggressively explore these opportunities, but it needs time develop them and allow the possibilities to unfold.
- The external realities – the fiscal challenges of the next few years – are enormous and significant unknowns at this point in time. These challenges need to play out and make their implications known for managing enrollments and for what will be available to meet the needs of students. It will then take time for GCC to work out how best to meet these challenges.
- Enrollment growth has everything to do with the College's long-term space needs, and as this Update goes to print, it is one of the most significant unknowns in the planning equation. Recent experience at Tunxis and Three Rivers Community Colleges demonstrates that enrollments can increase by as much as 14% annually after new campus facilities open. Other predictions suggest that Connecticut's high school population, a primary source of community college students, will decrease by more than 10% in the next decade. In addition, Connecticut's new strategy of managed enrollment for GCC and its peer institutions is still being developed. GCC's future space needs cannot be determined until these enrollment issues have been resolved.
- Census 2010 expects to release new ten-year population projections for every town and city in the U.S. through 2020 sometime in 2013. Since enrollment projections are in part based on population projections for the city of New Haven and the other towns in the College's service region, forecasting future enrollments needs to include this data.
- Finally, it is critical that a detailed cost estimate is done for the long-term option(s) that are considered most viable from the perspective of a year's occupancy of the new campus.

From today's vantage point, any future capital funds that become available should be invested to continue helping Gateway achieve its long-range strategic goals, including consolidation of its operations on one campus. In an ideal world, the highest and best use of these funds would be to build Gateway's next new facility on the site adjacent to the New Haven Campus over the Route 34 connector.

However, it is recognized that the complexities and timing of the Route 34 development may not work to Gateway's advantage. A more prudent goal might be to demolish the existing structure on Long Wharf and build a new, modern facility there with a parking garage, even if it does not accommodate all of Gateway's projected long-term space needs. As previously described, those needs are dependent on many variables that will begin to resolve in the next few years, and the outcome is by no means certain.

With the move to the New Haven Campus and the next iteration of the Master Plan Update, Gateway will have what it needs to evaluate the highest and best use of the funds available to support its future growth and mission. Depending on the timing and funds available, Gateway's future students would be well-served by either the Route 34 or the Long Wharf option.

Appendices

Appendix A: Detailed Program – Automotive Technologies and Railroad Technologies

Appendix B: Specialized Instructional Space Utilization Analysis - Automotive Technologies

Appendix C: Meeting Notes - Automotive Technologies Program

Appendix D: Detailed Program – Continuing Education and Workforce Development

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Appendix F: Course List Fall 2010 - General-purpose Classroom

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Appendix H: Specialized Instructional Space – 2010 vs 2012

Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

Detailed Programs - Automotive Technologies and Railroad Technologies

Space Description	Existing Program March 2011						Rickes Program Dec. 2005						Near-term Needs Fall 2012-2015						Projected Needs Fall 2022						Notes
	Headcount FT	Headcount PT	Total Number of Seats	ASF per Space	Quantity of Space	Total ASF	Headcount FT	Headcount PT	Total Number of Seats	ASF per Space	Quantity of Space	Total ASF	Headcount FT	Headcount PT	Total Number of Seats	ASF per Space or Seat	Quantity of Space	Total ASF	Headcount FT	Headcount PT	Total Number of Seats	ASF per Space or Seat	Quantity of Space	Total ASF	
Dean of Academic Affairs *Engineering and Applied Technologies*																									
Automotive Technology																									All offices consistent with New Haven Campus space standards
Office: Program Director	1				1	386							1			150	1	150	1			150	1	150	Moving to New Haven Campus, satellite office at North Haven.
Office: Program Coordinator	2				1	176	1			180	1	180	2			100	2	200	3			100	3	300	
Office: Program Facilitator	1				1	176							1			100	1	100	1			100	1	100	
Office: Division Assist.		1			1	193								1		90	1	90	1			90	1	90	
Reception Area					1	193	1			200	1	200				200	1	200	1			200	1	200	
Office: FT Faculty													6			100	6	600	10			100	10	1,000	
Office: Adjunct Faculty "bullpen"		3								300	1	300		5		60	5	300		5		60	1	300	
Office: PT Lab Assistants		3												4		100	1	100		4		100	1	100	
Sub-total: Office	**4**	**7**			**5**	**1,124**	**2**			**680**	**3**	**680**	**10**	**10**	**0**	**900**	**18**	**1,740**	**17**	**9**	**0**	**900**	**19**	**2,240**	
General Purpose Classrooms			100	1,000	5	5,003				750	8	6,000			40	40	2	1,600			40	40	2	1,600	Large room with moveable divider.
Seminar Room															15	25	1	375			15	25	1	375	
Sub-total: GPCR					**5**	**5,003**				**750**	**8**	**6,000**			**55**	**65**	**3**	**1,975**			**55**	**65**	**3**	**1,975**	
Laboratory: Automotive Technology			60	3,700	3	11,428				7,000	2	14,000			24	8,000	1	8,000			24	8,000	1	8,000	75 x 108 with 12 lifts, based on Manchester CC lab
Laboratory: Storage																1,000	1	1,000				1,000	1	1,000	1000 sf storage for large lab
Laboratory: CAD Computer (shared with RR)				375	1	375				375	1	375			15	375	1	375			30	750	1	750	1/2 of 750 ASF computer lab
NATEF Specialized Lab/Classrooms															80	3,000	4	12,000			160	3,000	8	24,000	NATEF classroom/lab size based on Manchester CC
NATEF Lab/Classroom Storage																400	4	1,600				400	8	3,200	
Lecture/Laboratory: GM										1,000	1	1,000													
Lecture/Laboratory: Toyota										1,000	1	1,000													
Laboratory: Auto Body										3,500	1	3,500									12	4,000	1	4,000	Flexible Lab space for developing programs
Laboratory: Alternative Fuels															12	4,000	1	4,000			12	4,000	1	4,000	75 x 54 6 lifts; may temporarily use one NATEF lab for Alt Fuels
Laboratory: Storage																500	1	500				500	2	1,000	500 sf storage for small lab
Laboratory: Marine Technology										1,000	1	1,000													
Laboratory: Electronics										1,250	1	1,250													
Sub-total: Classroom/Labs					**4**	**11,803**					**8**	**22,125**			**131**		**13**	**27,475**			**238**		**23**	**45,950**	
Total: Automotive Technology	**4**	**7**			**14**	**17,930**	**2**				**19**	**28,805**	**10**	**10**	**186**		**34**	**31,190**	**17**	**9**	**293**		**45**	**50,165**	
Railroad Technology																									All offices consistent with New Haven Campus space standards
Office: FT Faculty													3			100	3	300	6			100	6	600	
Office: Adjuncts														2		60	2	120		6		60	6	360	
Office: Assistant																		0		1		90	1	90	
Office: Lab Assistant													1			100	1	100	2			100	1	100	
Sub-total: Office													**4**	**2**	**0**		**6**	**520**	**8**	**7**	**0**		**14**	**1,150**	
Computer Lab															15	375	1	375			30	750	1	750	
Storage																200	1	200				200	2	400	
Specialized Lab/Classroom															20	3,000	1	3,000			40	3,000	2	6,000	
Sub-total: Lab/Classroooms															**35**		**3**	**3,575**			**70**		**5**	**7,150**	
Total: Railroad Technology													**4**	**2**	**35**		**9**	**4,095**	**8**	**7**	**70**		**19**	**8,300**	
TOTAL AT & RRT	**4**	**8 to 9**	**0**	**0**	**14**	**17,930**	**2**				**19**	**28,805**	**14**	**12**	**221**		**43**	**35,285**	**25**	**16**	**363**		**64**	**58,465**	
Exterior secure vehicle storage	13,000 SF to park 55 vehicles single or 70+ double												20,000 SF to park 80 vehicles single						25,000 SF to park 100 vehicles single						9 x 18 parking spaces

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Appendix H: Specialized Instructional Space – 2010 vs 2012

Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

Automotive Technology
Specialized Instructional Space Utilization

Utilization of existing SI space - Fall 2010

Room	ASF	% seats	% hours used	# classes per wk	total hours per wk	unused weekly hours
NH 007	740	95%	15%	3	9	12.15
NH 008	957	76%	33%	4	12	9.15
NH 010	988	65%	13%	2	6	15.15
NH 011	1,142	48%	20%	4	12	9.15
NH 012	1,176	102%	34%	6	18	3.15
NH 013 N	3,869	101%	20%	4	12	9.15
NH 013 S	3,869	94%	31%	4	12	9.15
NH 014	3,690	73%	17%	3	9	12.15
	16,431	82%	23%	30	90	79
	Target	80%	50%			Unused hours = 26 more classes per week

Maximum utilization - Existing SI space - 42.3-hr window

Room	ASF	# seats	80% seat fill	50 % hours used	total hours per wk	# of 3-hr classes per wk	students taught per
NH 007	740	20	16	50%	21	7	112
NH 008	957	20	16	50%	21	7	112
NH 010	988	20	16	50%	21	7	112
NH 011	1,142	20	16	50%	21	7	112
NH 012	1,176	20	16	50%	21	7	112
NH 013 N	3,869	20	16	50%	21	7	112
NH 013 S	3,869	20	16	50%	21	7	112
NH 014	3,690	20	16	50%	21	7	112
	16,431	160	128		168	56	896
							Students that could be taught per week

Maximum utilization - Full build-out of new SI space - 2022 - 42.3-hr window

Room	ASF	# seats	80% seat fill	50% hours used	total hours per wk	3-hr classes per wk	students taught per wk	
NATEF 1	3,000	20	16	50%	21	7	112	NATEF = Manchester-type class/lab: 1 auto lift, 1 auto bay, 20 lab benches, 20 seat classroom
NATEF 2	3,000	20	16	50%	21	7	112	
NATEF 3	3,000	20	16	50%	21	7	112	
NATEF 4	3,000	20	16	50%	21	7	112	
NATEF 5	3,000	20	16	50%	21	7	112	
NATEF 6	3,000	20	16	50%	21	7	112	
NATEF 7	3,000	20	16	50%	21	7	112	
NATEF 8	3,000	20	16	50%	21	7	112	
AT Lab	8,000	24	19	50%	21	7	133	Large open lab, 12 auto lifts
Alt Fuels	4,000	10	8	50%	21	7	56	1/2 size Lab, 6 auto lifts
Flex lab	4,000	10	8	50%	21	7	56	Large vehicle flexible lab
	40,000	204	163		231	77	1,141	Students that could be taught per week

Maximum utilization - Recommended Interim SI space - 2012-2015 - 42.3-hr window

Room	ASF	# seats	80% seat fill	50 % hours used	total hours per wk	3-hr classes per wk	students taught per wk	
NATEF 1	3,000	20	16	50%	21	7	112	Manchester-type class/lab: 1 auto lift, 1 auto bay, 20 lab benches, 20 seat classroom
NATEF 2	3,000	20	16	50%	21	7	112	
NATEF 3	3,000	20	16	50%	21	7	112	
NATEF 4	3,000	20	16	50%	21	7	112	
AT Lab	8,000	24	19	50%	21	7	133	Large open lab with 12 auto lifts
Alt Fuels	4,000	10	8	50%	21	7	56	1/2 size of AT Lab with 6 auto lifts
	24,000	114	91		126	42	637	Students that could be taught per week

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Appendix H: Specialized Instructional Space – 2010 vs 2012

Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

Date:	November 30, 2010
Location:	Automotive Technology
Interviewees:	Paul Silberquit, Director, Engineering and Applied Technologies Division Wayne Demske, Coordinator, Assoc. Professor, Automotive Technology
Department:	Engineering and Applied Technologies Division: Automotive Technology and Railroad Technology
Interviewers:	Lou D'Antonio GCC Lenell Kittlitz CCC Persis Rickes RA Susanne Personette RA

I. Space Needs

a. Dedicated combined lab/classrooms - 8 at 30'x 32' (960 ASF each)
   i. GWCC must get reaccredited every year by NATEF in Automotive Service Excellence's (ASE) 8 subject areas
      1. Engines, electrical, suspension, brakes, engine performance, heat and AC, manual transmission, automatic transmission
   ii. Seating for 20 students in classroom area
   iii. 1 automotive lift
   iv. Space for 2nd vehicle
   v. Instruction space
   vi. Tool shelves
   vii. Garage doors to outside

b. Storage – 4 @ 12'x 30' (360 ASF each)
   i. also need supply storage for oil

c. Automotive labs - high-bay spaces, 20' ceilings, garage doors to outside
   i. 1 general automotive lab at 9,000 ASF
   ii. 1 alternative fuels (natural gas, electric, hybrid) lab at 4,000 ASF
   iii. 1 basic collision and autobody repair at 1000 ASF

d. No student locker needs

e. Offices
   i. Faculty and Program Coordinator each have private office
   ii. PT Lab Assistants share 1 office
   iii. Adjuncts share 1 office

f. Computer lab for 20 students – shared with Railroad
   i. for on-line courses

g. Marine Technology not in program
   i. did not get grant
   ii. boat manufacturers unwilling to donate boats to work on

h. Outdoor vehicle storage for 70-90 vehicles
   i. Fenced-in, secure, well-lit – required by donors
   ii. Access to inside via garage doors

II. Staff

a. FT faculty – 5 now – same in 5 years – 7 in 10 years
b. Program Coordinator - 1 now – no change in future
c. PT Lab Assistants – 3 now – same in 5 years – 4 in 10 years
d. Adjuncts – 3-5 now – varies year to year
e. Secretary – 1 now – no change in future
f. Office Assistant – 1 now - shared

III. Adjacencies

a. Railroad program
b. Not near programs requiring quiet

IV. Programs

a. 350 students now, expects to grow by another 350-400
b. Classes 5 days Monday-Friday
    i. M-Th 8am-10pm
    ii. F 8am-5 pm
    iii. Could offer Friday pm class

V. Other

a. Other model facilities to research
    i. Central Piedmont CC, Charlotte, NC, on the Levine Campus
        1. State of the art facility for alternative fuels
    ii. Harrisburg CC in PA
    iii. GM Training Facility, Ardsley, NY
    iv. Mass Bay CC

VI. Railroad Program

a. Starting Jan. 2011 with existing faculty and facilities
b. Staff
    i. FT faculty – 0 to start – 3 in 5 years – 5 in 10 years
    ii. Adjuncts will vary
    iii. Lab Assistant – 0 to start – 1 in 5 years – no change in 10 years
    iv. Secretary – will share with Automotive Technology
c. Space
    i. Dedicated combined lab/classroom with chassis of RR car and track switching gear – 0 now – 2 in 5 years – 4 in 10 years
d. Courses
    i. Sections per semester – 5 hours/week each of contact hours
    ii. 0 now – 4-5 in 5 years – 8-10 in 10 years, plus maybe 5 additional program areas within RR

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Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

Detailed Program - Continuing Education and Workforce Development

Space Description	Existing Space Fall 2010						Rickes Program Fall 2005						Near-Term Needs Fall 2012-2015						
	Headcount Full-Time	Headcount Part-Time	Number of Seats	ASF per Space	Quantity of Space	Total ASF	Headcount Full-Time	Headcount Part-Time	Total Number of Seats	ASF per Space	Quantity of Space	Total ASF	Headcount Full-Time	Headcount Part-Time	Number of Seats	ASF per Space	Quantity of Space	Total ASF	
Dean of Continuing Education and Workforce Development (CEWD)																			
Office: Director	1			304	1	304	1			180	1	180							
Office: Satellite for Director													1			100	1	100	Offices are sized to be consistent with space standards on the New Haven Campus.
Office: Coordinator of Workforce Development	1			115	1	115	1			180	1	180	1			100	1	100	
Office: Director, Business & Industry	1			182	1	182	1			240	1	240	1			100	1	100	
Office: Coordinator, Step Forward		1		115	1	115							1			100	1	100	
Office: Director, EMT													1			100	1	100	
Reception/Open Office Area		1		323	1	323		2		300	1	300		2		300	1	300	
Open Workspace - WFDI area				392	1	392				500	1	500				500	1	500	
Storage/File Room										200	1	200				200	1	200	
Office: Adjunct Faculty		varies		115	1	115			5	300	1	300			5	200	1	200	
Copy/Workroom										200	1	200				200	1	200	
Storage										100	1	100				100	1	100	
Subtotal: Office	3	2			7	1,546	3	2			9	2,200	5	2			11	2,000	
PC, CNC Computer Lab			30	769	3	2,306			75	750	3	2,250			75	750	3	2,250	
Mac Lab			20	527	1	527			25	750	1	750			25	750	1	750	
Computer Servicing			25	1,085	1	1,085			25	750	1	750			25	1,000	1	1,000	
Phlebotomy Storage										1,000	1	1,000				1,000	1	1,000	
Patient Care Labs															8 beds	700	2	1,400	
B&I Network Server										100	1	100				100	1	100	
Subtotal: SI space			75		5	3,918					7	4,850					9	6,500	
Conference Room/Small Classroom									15	300	1	300			15	300	1	300	
Dedicated GPCR			80	792	2	1,584			180	600	6	3,600			180	600	6	3,600	
Classroom Storage										100	2	200				100	2	200	
Subtotal: GPCR			80		2	1,584					9	4,100					9	4,100	
TOTAL CEWD	3	2	155		14	7,048	3	2			25	11,150	5	2			29	12,600	

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Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

Date: March 2, 2011
Location: North Haven Campus

Interviewees: Vicky Bozzuto, Dean, Continuing Education and Workforce Development

Department: Continuing Education and Workforce Development

Interviewers: Susanne Personette Rickes Associates

I. Overview

a. Expect to serve the community differently after the New Campus is occupied in 2012 – CEWD will have its own space and identity
b. expect twice as many CE courses in 2012 as in 2010, could need 6-8 general purpose classrooms – by 2022, could need 12-14
c. Dean of CEWD office will be on New Campus; expect to develop Executive Leadership Program as a resource for NH business community; will need satellite office at LW or NH
d. No dedicated space for CEWD currently a problem – trying to fit in where there is no space
e. Corporate Ed decreased by 2/3 in this economy – CEWD focused on direct service this year to maintain programs

II. Current Program Space Needs

a. Step Forward
   i. Started 4-5 years ago for ages 18-21, IQ 70+ for "workplace readiness" after high school - funded thru high schools
   ii. Other similar programs: UConn, UMass School of Ed, Southern Conn St Univ
   iii. 11 students now in 1st year; 2nd year career track program starting Sept. 2011
   iv. Asberger's pre-college for Sept. 2011? 4 or 5 high-functioning students
   v. Expect cap of 20 students in 1st year Step Forward, 10 in 2nd year, 12 in Asberger's
   vi. Program needs- all spaces need to be fully accessible
      a) 1 dedicated workspace lab with 6 flexible workstations to replicate work skill areas – custom design for each student's needs – accommodate large wheelchairs – vary from year to year
      b) 1 dedicated computer lab with 10-15 workstations
      c) 1 classroom for 15, plus space for 8 peer tutors and 2 teachers
      d) 1 conference/small group workspace for 6-8
      e) 1 private space for feeding and personal care with aides – acoustically separate, with toilet and sink
      f) Storage for Hoyer lift and extra wheelchairs
      g) Asberger's program needs 2 dedicated classrooms for Sept. 2011

b. Motorcycle License Training Program
   i. Required by new state law Jan. 1, 2011
   ii. Through DOT - requires certain size course – use parking lot
   iii. 800 students/years – not growing
   iv. 80 sections – 3 or 4 days each –Sat./ Sun. from April thru October
   v. Space needs
      a) Storage for 15 motorcycles and course paraphernalia -currently a box container in parking lot
      b) 1 classroom for 24 students (max # by law) – not dedicated

e. EMT

i. could "grow in a minute" –very high demand – required for all firemen and police
ii. Space needs
a) 1 dedicated oversized classroom for 40 (similar to Nursing 207) – with moveable tables and chairs, so can push them out of way to do demos
b) Large storage closet (200 SF)
c) 1 small meeting room for 6
d) 1 Director

f. CPR lab

g. Phlebotomy
i. 1 lab/classroom for 25 with tables and chairs
ii. Large storage room for equipment carts

h. Work Force Development Institute
i. Pharmacy Tech
ii. Medical Transcription
iii. Cooking – non-credit
iv. Languages – Spanish is flourishing

h. Business and Industry
i. Corporate Training has evolved into job training within Workforce Development (which is funded, unlike Corporate training); expect reorganization
ii. Manufacturing – very little in CT
iii. Covey training for the state (limited)
iv. NH Housing Authority contract to train and test Housing Authority maintenance staff – all trades – levels I, II, III
v. Hazardous materials remediation and "brownfields" training for City of New Haven – set up a lab at North Haven for Jan. 2011

i. Ultra-sound
i. Has its own suite 111 with faculty office, lab, and classroom – works very well

j. Pharmacy Tech
i. General purpose classroom

III. Other Space Needs

a. Dedicated CCE computer lab space - free computer training offered to senior and under-served population
i. 1 Mac lab and 2 PC labs at Long Wharf to be replaced
ii. 1 PC lab on New Haven Campus for 24 students
iii. 1 dedicated Computer Maintenance room
b. Call center for 24 max (current space at LW very poor – pack in 20 students)
c. Multi-purpose flexible space for various programs – easily dividable into two spaces
i. responsive to vendor needs – similar to room 160 – moveable furniture, no carpeting
ii. programs that could use this kind of space: NH Housing Authority training and testing; Brownfields Remediation Program in Jan. 2011
d. Dividable classroom space to enable larger class sizes – 3 rooms for 30 each = 1 room for 90-100 – for a business training center (but only if move to Long Wharf)
e. Have a teaching kitchen for 8-15 students in North Haven (not possible – chefs have declined to teach there because of set=up)

i. New Haven Campus has 2 kitchens where restauranteur (TBD) will teach and sell food through the Culinary program (for credit)

f. CEWD moving towards "personal care" training – CCs replacing hospitals as place for health care training
   i. would like to move into space vacated at LW by other programs and create a new center there
   ii. Phlebotomy Certificate
   iii. Certified Nurse Assistant – one module of Yale New Haven Hospital Patient Care Associate training cycle – 20-24 students max
   iv. Could use 228 and 229 – 4 patient beds and workstations in each – plus a classroom

b. Other new programs
   a. Paramedic Certificate – in 3-4 years – for credit - use Nursing labs
   b. Non-credit certificate courses - state Workforce Board pays for individuals to be trained within 12 months

II. **Staff**
   a. 6 FT faculty/staff in 2010 – 10+ Dean in 2022 – can grow as program makes $
   b. 1 PT in 2010
   c. 10 Educational Assistants (EAs) in 2010
   d. Need a FT CE evening administrator now

III. ADA
   a. GCC (entire college) has largest population of hearing impaired students, highest % of students with special needs among all CT CCs

IV. Adjacencies
   a. Ground floor near entry and parking
   b. Windows and visibility for security

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Appendix H: Specialized Instructional Space – 2010 vs 2012

Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	110	940	45	20.9	58%		Fndmtls of Human Communication
ILW	110				51%		American Literature II
ILW	110				56%		Fndmtls of Human Communication
ILW	110				60%		Fndmtls of Human Communication
ILW	110				60%		Fndmtls of Human Communication
ILW	110				67%		Elem Algebra Foundations
ILW	110				36%		Early Western Literature
ILW	110				51%		Fndmtls of Human Communication
ILW	110				60%		Fund. of Human Communication
ILW	110				64%		Fndmtls of Human Communication
ILW	110				40%		Acting I
ILW	110				60%		Film and Literature
	110 Total	**940**	**45**	**20.9**	**55%**	**79%**	
ILW	153	1,063	45	23.6	58%		Composition
ILW	153				60%		Writing: Intro to the Essay
ILW	153				53%		Literature & Composition
ILW	153				62%		Fndmtls of Human Communication
ILW	153				62%		Literature & Composition
ILW	153				58%		Literature & Composition
ILW	153				53%		Composition
ILW	153				58%		Composition
ILW	153				49%		Composition
ILW	153				67%		Intermediate Algebra
ILW	153				64%		Intermediate Algebra
ILW	153				89%		Intro to Cultural Anthro
ILW	153				82%		African-American History I
ILW	153				69%		Composition
ILW	153				60%		Fndmtls of Human Communication
	153 Total	**1,063**	**45**	**23.6**	**63%**	**95%**	
ILW	155	1,065	45	23.7	82%		General Psychology I
ILW	155				51%		Writing: Paragraph to Essay
ILW	155				58%		Literature & Composition
ILW	155				56%		Academic Reading (LC 1)
ILW	155				20%		College Newspaper Workshop
ILW	155				64%		Prealgebra - Nmbr Sense, Geom
ILW	155				67%		Elem Algebra Foundations
ILW	155				82%		Abnormal Psychology
ILW	155				58%		Literature & Composition
ILW	155				76%		Fndmtls of Human Communication
ILW	155				62%		Fndmtls of Human Communication
ILW	155				56%		Writing: Paragraph to Essay
ILW	155				49%		Elementary Italian I
	155 Total	**1,065**	**45**	**23.7**	**60%**	**82%**	

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	201	1,068	50	21.4	48%		Writing: Paragraph to Essay
ILW	201				90%		Principles of Sociology
ILW	201				86%		Principles of Sociology
ILW	201				80%		U.S. History I
ILW	201				98%		Western Civilization I
ILW	201				54%		Composition
ILW	201				80%		U.S. History I
ILW	201				76%		Western Civilization I
ILW	201				76%		General Psychology I
ILW	201				70%		Caribbean Culture & Society
ILW	201				78%		Western Civilization I
ILW	201				78%		Western Civilization I
ILW	201				82%		American Government
ILW	201				86%		Western Civilization I
ILW	201				82%		Principles of Sociology
ILW	201				86%		Principles of Sociology
	201 Total	**1,068**	**50**	**21.4**	**78%**	**106%**	
ILW	203	1,081	50	21.6	52%		Intermediate Algebra
ILW	203				78%		Art History I
ILW	203				70%		Intro to Business
ILW	203				76%		Business Law I
ILW	203				84%		U.S. History I
ILW	203				62%		Intermediate Algebra
ILW	203				50%		Composition
ILW	203				24%		General Psychology I
ILW	203				80%		Principles of Sociology
ILW	203				52%		Composition
ILW	203				68%		History of Rock & Roll
ILW	203				76%		Art History I
ILW	203				58%		Elem Algebra Foundations
	203 Total	**1,081**	**50**	**21.6**	**64%**	**82%**	
ILW	205	573	19	30.2	105%		Intro to Excpt Chldrn Semnr I
ILW	205				100%		Child Growth & Development
ILW	205				100%		Pronunciation III
ILW	205				95%		Using Computers in ECE
	205 Total	**573**	**19**	**30.2**	**100%**	**23%**	
ILW	207B				46%		Textiles
ILW	207B	560	24	23.3	108%		Principles of Marketing
ILW	207B				113%		Entrepreneurship
	207B Total	**560**	**24**	**23.3**	**89%**	**19%**	
ILW	209	852	32	26.6	22%		Art History III
ILW	209				34%		Elementary Italian II
ILW	209				31%		Intermediate Italian I
ILW	209				81%		Advanced Composition
ILW	209				91%		Principles of Managerial Acctg
ILW	209				91%		Principles of Financial Acctg
ILW	209				81%		Elem Algebra Found w/PreAlgebr
ILW	209				69%		Elementary Spanish I
ILW	209				63%		Princpls of Financial Acctg II
ILW	209				78%		Principles of Financial Acctg

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	209				84%		Composition
ILW	209				34%		Drama
ILW	209				75%		Principles of Microeconomics
	209 Total	**852**	**32**	**26.6**	**64%**	**87%**	
ILW	211	935	55	17.0	45%		Composition
ILW	211				49%		Composition
ILW	211				49%		Composition
ILW	211				42%		Business Law II
ILW	211				49%		Composition
ILW	211				56%		Intermediate Algebra
ILW	211				45%		Intermediate Algebra
ILW	211				60%		Music His & Appreciation I
ILW	211				45%		Advanced Composition
ILW	211				49%		Composition
ILW	211				49%		Fndmtls of Human Communication
ILW	211				49%		Academic Reading
ILW	211				42%		Academic Reading II
	211 Total	**935**	**55**	**17.0**	**49%**	**83%**	
ILW	214	1,081	70	15.4	57%		Principles of Sociology
ILW	214				29%		Field Work Seminar I
ILW	214				57%		General Psychology I
ILW	214				57%		General Psychology I
ILW	214				37%		Fndmtls of Human Communication
ILW	214				59%		General Psychology I
ILW	214				31%		Advanced Composition
ILW	214				59%		General Psychology I
ILW	214				63%		General Psychology I
ILW	214				43%		Intermediate Algebra
ILW	214				50%		Principles of Management
ILW	214				54%		General Psychology I
ILW	214				53%		U.S. History I
ILW	214				53%		Intro To Geography
	214 Total	**1,081**	**70**	**15.4**	**50%**	**90%**	
ILW	215	689	35	19.7	46%		Dance: Mind, Body, Sprit
ILW	215				69%		Academic Reading II
ILW	215				77%		Advanced Composition
ILW	215				69%		Integrated Skills VI
ILW	215				80%		Writing:Intro to Essay
ILW	215				63%		Writing: Paragraph to Essay
ILW	215				91%		Intermediate Algebra
ILW	215				63%		Reading V

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	215				54%		Pronunciation III
ILW	215				49%		Integrated Skills VI
ILW	215				77%		Writing:Intro to the Essay
ILW	215				71%		Integrated Skills V
ILW	215				66%		Math for the Liberal Arts
	215 Total	**689**	**35**	**19.7**	**67%**	**80%**	
ILW	216	1,081	70	15.4	53%		Ethics
ILW	216				37%		Writing: Intro to the Essay
ILW	216				56%		Principles of Sociology
ILW	216				41%		Composition
ILW	216				44%		Principles of Microeconomics
ILW	216				43%		Intermediate Algebra
ILW	216				49%		Principles of the Human Body
ILW	216				47%		Business Law I
ILW	216				50%		Intro to Business
ILW	216				37%		Composition
ILW	216				37%		College Algebra
ILW	216				54%		General Psychology I
ILW	216				47%		Intro to the Hospitality Indus
	216 Total	**1,081**	**70**	**15.4**	**46%**	**83%**	
ILW	217				22%		Elementary Statistics
ILW	217				67%		Elem Algebra Foundations
ILW	217				33%		Quantitative Literacy
ILW	217				89%		General Psychology I
ILW	217				60%		Advanced Composition
ILW	217				56%		Literature & Composition
ILW	217				69%		General Psychology I
ILW	217				71%		General Psychology I
ILW	217				53%		Writing: Paragraph to Essay
ILW	217				58%		Writing: Paragraph to Essay
ILW	217				60%		Elem Algebra Found w/PreAlgebr
ILW	217				69%		Elem Algebra Foundations
ILW	217	678	45	15.1	0%		Non-Scheduled DAY
	217 Total	**678**	**45**	**15.1**	**54%**	**69%**	
ILW	219	1,312	22	59.6	86%		Network +
ILW	219				91%		Intro to Software Applications
ILW	219				91%		Prealgebra-NmbrSenseGeom
ILW	219				95%		Elem Algebra Foundations (CAI)
ILW	219				86%		Prealgebra-NmbSenseGeom (CAI)
ILW	219				105%		Journalism I
ILW	219				77%		Writing: Paragraph to Essay
ILW	219				82%		Prealgebra-NmbrSenseGeom
ILW	219				123%		Writing: Intro to the Essay
ILW	219				91%		Prealg.-Nmbr Sense, Geom (CAI)
ILW	219				95%		Elem Algebra Found. (ALC1)
	219 Total	**1,312**	**22**	**59.6**	**93%**	**70%**	
ILW	220	472	30	15.7	77%		Academic Reading II
ILW	220				93%		Academic Reading
ILW	220				80%		African American Literature
ILW	220				97%		Prealgebra - Nmbr Sense, Geom

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	220				63%		Academic Reading II (ALC 1)
ILW	220				40%		Academic Reading II
ILW	220				77%		Academic Reading II
ILW	220				87%		Prealgebra - Nmbr Sense, Geom
ILW	220				87%		Prealg-Nmbr Sense, Geom (LC 1)
ILW	220				63%		Critical Thinking (ALC 1)
ILW	220				83%		Writing: Paragraph to Essay
ILW	220				83%		Critical Thinking
ILW	220				83%		Writing: Paragraph to Essay
	220 Total	**472**	**30**	**15.7**	**78%**	**82%**	
ILW	221				45%		Strategies for Academ Success
ILW	221				105%		Writing V
ILW	221				100%		Elementary Spanish I
ILW	221				105%		Writing VI
ILW	221				70%		Intermediate Spanish I
ILW	221				85%		Advanced Composition
ILW	221				115%		Elem Algebra Foundations
ILW	221				105%		Writing VI
ILW	221				95%		Elementary Spanish I
ILW	221				80%		Advanced Reading and Writing
ILW	221	658	20	32.9	0%		Non-Scheduled DAY
	221 Total	**658**	**20**	**32.9**	**82%**	**61%**	
ILW	234	628	28	22.4	93%		Fndmtls of Human Communication
ILW	234				121%		Basic Biology
ILW	234				86%		Writing: Paragraph to Essay
ILW	234				93%		Writing: Paragraph to Essay
ILW	234				89%		Composition
ILW	234				100%		College Algebra & Trig
ILW	234				89%		Prealgebra - Nmbr Sense, Geom
ILW	234				36%		Literature & Composition
ILW	234				129%		Principles of the Human Body
ILW	234				50%		Federal Taxes I
ILW	234				86%		Academic Reading II
ILW	234				100%		Academic Reading
ILW	234				75%		Literature & Composition
	234 Total	**628**	**28**	**22.4**	**88%**	**82%**	
ILW	239	643	50	12.9	60%		Elem Algebra Foundations
ILW	239				54%		Elem Algebra Foundations
ILW	239				40%		Anatomy & Physiology I
ILW	239				52%		Fndmtls of Human Communication
ILW	239				52%		Composition
ILW	239				60%		Intermediate Algebra
ILW	239				56%		Math for the Natural Sciences
ILW	239				58%		Elem Algebra Foundations
ILW	239				56%		Elem Algebra Foundations
ILW	239				58%		Academic Reading
ILW	239				52%		Writing: Paragraph to Essay
ILW	239				44%		Anatomy & Physiology II
ILW	239				52%		Prealgebra - Nmbr Sense, Geom
ILW	239				52%		Prealgebra - Nmbr Sense, Geom

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
	239 Total	**643**	**50**	**12.9**	**53%**	**89%**	
ILW	249	541	40	13.5	68%		Writing: Intro to the Essay
ILW	249				68%		Prealgebra - Nmbr Sense, Geom
ILW	249				75%		College Algebra
ILW	249				30%		Math for Elem Ed: Alg/Nmbr Sys
ILW	249				65%		Precalculus
ILW	249				53%		Math for Science and Tech
ILW	249				25%		Elementary Statistics
ILW	249				73%		Academic Reading
ILW	249				45%		Creative Writing
ILW	249				50%		Literature & Composition
ILW	249				65%		Elem Algebra Found w/PreAlgebr
ILW	249				68%		Writing: Intro to the Essay
	249 Total	**541**	**40**	**13.5**	**57%**	**82%**	
ILW	250	402	35	11.5	31%		Precalculus
ILW	250				71%		Writing: Para. to Essay (LC 1)
ILW	250				54%		Writing:Intro to Essay (ALC 1)
ILW	250				89%		Elem Algebra Foundations
ILW	250				60%		Basic Spanish
ILW	250				74%		Writing: Intro to the Essay
ILW	250				74%		Academic Reading
ILW	250				86%		Elem Algebra Foundations
ILW	250				71%		Academic Success Skills-LC 1
ILW	250				40%		Integrated Skills IV
ILW	250				60%		Photography I
ILW	250				31%		Precalculus
	250 Total	**402**	**35**	**11.5**	**62%**	**71%**	
ILW	263	608	30	20.3	80%		Literature & Composition
ILW	263				87%		Composition
ILW	263				73%		Elementary Spanish II
ILW	263				87%		Composition
ILW	263				80%		Composition
ILW	263				87%		Elem Algebra Foundations
ILW	263				47%		Child Growth & Development
ILW	263				83%		Principles of Dining Service
ILW	263				87%		Composition

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	263				97%		Composition
ILW	263				80%		American Literature I
ILW	263				97%		Prealgebra - Nmbr Sense, Geom
ILW	263				83%		Writing: Intro to the Essay
	263 Total	**608**	**30**	**20.3**	**82%**	**81%**	
ILW Total		**16,930**	**840**	**20.2**	**62%**	**75%**	
INH	113A	450	25	18.0	0%		Non-Scheduled DAY
	113A Total	**450**	**25**	**18.0**	**0%**	**0%**	
INH	113B	1,282	48	26.7	25%		Intro to Radiation Therapy
INH	113B				100%		Intro to NSG Practice
INH	113B				100%		Intro to NSG Practice
INH	113B				100%		Intro to NSG Practice
	113B Total	**1,282**	**48**	**26.7**	**81%**	**56%**	
INH	113C				96%		Family Health NSG
INH	113C				50%		Writing: Paragraph to Essay
INH	113C				42%		Radiographic Anato & Proc I
INH	113C				42%		Intro To Radiography
INH	113C				100%		Intro to NSG Practice
INH	113C				42%		Radiogr Anatomy&Procedures III
INH	113C				96%		Family Health NSG
INH	113C				100%		Intro to NSG Practice
INH	113C				100%		Intro to NSG Practice
INH	113C	976	48	20.3	0%		Non-Scheduled DAY
	113C Total	**976**	**48**	**20.3**	**67%**	**120%**	
INH	122	702	20	35.1	100%		Intro to Software Applications
INH	122				95%		Intro to Software Applications
INH	122				95%		Computer Logic & Problem Solvg
INH	122				100%		Computr Applicatns for Tech
INH	122				100%		Intro to Software Applications
INH	122				100%		Composition
INH	122				95%		Intro to Software Applications
INH	122				100%		Intro to Software Applications
INH	122				105%		Intro to Software Applications
INH	122				95%		Intro to Software Applications
INH	122				130%		Composition
INH	122				110%		Intro to Web Page & Design
	122 Total	**702**	**20**	**35.1**	**102%**	**73%**	
INH	125	702	20	35.1	0%		Non-Scheduled DAY
	125 Total	**702**	**20**	**35.1**	**0%**	**0%**	
INH	134	729	36	20.3	83%		Pblc Hlth Issues Abuse & Addct
INH	134				72%		Addiction Counseling I
INH	134				67%		Addiction Counseling II
INH	134				36%		Prealgebra - Nmbr Sense, Geom
INH	134				69%		Interpersonal Communication
INH	134				75%		Intermediate Algebra

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
INH	134				39%		Counseling Internship I
INH	134				47%		Intro to Family Systems
INH	134				67%		Pblc Hlth Issues Abuse & Addct
	134 Total	**729**	**36**	**20.3**	**62%**	**59%**	
INH	135				69%		Academic Reading
INH	135				61%		Academic Reading II
INH	135				58%		Composition
INH	135				81%		Intermediate Algebra
INH	135				97%		General Psychology I
INH	135				64%		Literature & Composition
INH	135	729	36	20.3	0%		Non-Scheduled DAY
	135 Total	**729**	**36**	**20.3**	**62%**	**38%**	
INH	205	1,134	16	70.9	69%		Biomedical Instrumentation
INH	205				100%		Biomedical Technology
INH	205				125%		Methds of Lrng Clinical Curric
INH	205				100%		Microprocessors
INH	205				69%		Biomedical Instrumentation
	205 Total	**1,134**	**16**	**70.9**	**93%**	**29%**	
INH	207	1,515	60	25.3	88%		NSG Care Indiv-Fam I
INH	207				88%		NSG Care Indiv-Fam I
INH	207				88%		NSG Care Indiv-Fam I
INH	207				88%		NSG Care Indiv-Fam I
INH	207				80%		Intro to NSG Practice
INH	207				80%		Intro to NSG Practice
	207 Total	**1,515**	**60**	**25.3**	**86%**	**89%**	
INH	211	590	25	23.6	76%		Intro to Dental Hygiene I
INH	211				88%		Elem Algebra Found w/PreAlgebr
INH	211				96%		Intro. Exerc. Sci. & Wellness
INH	211				72%		Math for Science and Tech
INH	211				88%		Fndmtls of Human Communication
	211 Total	**590**	**25**	**23.6**	**84%**	**35%**	
INH	212				80%		Precalculus Mathematics
INH	212				87%		College Algebra & Trig
INH	212	934	30	31.1	97%		Intermediate Algebra
INH	212				77%		Writing: Paragraph to Essay
	212 Total	**934**	**30**	**31.1**	**85%**	**27%**	
INH	213	590	25	23.6	80%		Elementary Spanish II
	213 Total	**590**	**25**	**23.6**	**80%**	**6%**	
INH	214	756	30	25.2	47%		Prealgebra - Nmbr Sense, Geom
INH	214				23%		Electronics I
INH	214				80%		Writing: Paragraph to Essay
INH	214				50%		Prealgebra - Nmbr Sense, Geom
INH	214				93%		Elem Algebra Foundations
INH	214				50%		Electric Circuits I
INH	214				87%		Prealgebra - Nmbr Sense, Geom
	214 Total	**756**	**30**	**25.2**	**61%**	**45%**	
INH	222	702	36	19.5	69%		Intro to Dietetics
INH	222				25%		Nutrition Field Experience II
INH	222				61%		Anatomy & Physiology I
INH	222				61%		Anatomy & Physiology I

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
INH	222				25%		General Psychology II
INH	222				58%		Seminar in Dietetic II
INH	222				106%		General Psychology I
INH	222				75%		Academic Reading
INH	222				72%		Nutrition I: Prin of Nutrition
	222 Total	**702**	**36**	**19.5**	**61%**	**51%**	
INH	223	702	36	19.5	72%		Composition
INH	223				28%		Nuclear Medicine Procedures I
INH	223				56%		Anatomy & Physiology II
INH	223				72%		Composition
INH	223				75%		College Algebra & Trig
INH	223				19%		Nuclear Med Procedures II
INH	223				19%		Radiopharmacy
INH	223				78%		Writing: Intro to the Essay
INH	223				75%		Music His & Appreciation I
INH	223				72%		Music His & Appreciation I
INH	223				56%		Precalculus
INH	223				28%		Intro to Nuclear Medicine
	223 Total	**702**	**36**	**19.5**	**54%**	**81%**	
INH	224	702	36	19.5	83%		Elem Algebra Foundations
INH	224				75%		Introd. to Environ. Science
INH	224				72%		Intermediate Algebra
INH	224				64%		Principles of Statistics
INH	224				75%		Fndmtls of Human Communication
INH	224				69%		Academic Reading
INH	224				67%		Composition
INH	224				72%		Composition
INH	224				75%		Elem Algebra Foundations
	224 Total	**702**	**36**	**19.5**	**73%**	**58%**	
INH	225				38%		Prealgebra - Nmbr Sense, Geom
INH	225				64%		Intermediate Algebra
INH	225				53%		Math for Science and Tech
INH	225				58%		Elem Algebra Foundations
INH	225				82%		Principles of Sociology
INH	225				80%		General Psychology I
INH	225				62%		Calculus I
INH	225	702	45	15.6	62%		Composition
INH	225				24%		Math for Science and Tech
INH	225				42%		Calculus II
	225 Total	**702**	**45**	**15.6**	**57%**	**68%**	

General-purpose Classrooms - Course Schedule

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
INH	226				94%		Principles of Sociology
INH	226				72%		Prealgebra - Nmbr Sense, Geom
INH	226	702	36	19.5	94%		General Psychology I
INH	226				72%		Writing: Intro to the Essay
INH	226				50%		College Algebra
INH	226				100%		Art History I
INH	226				67%		Writing: Paragraph to Essay
INH	226				83%		Elem Algebra Foundations
INH	226				56%		Academic Reading
	226 Total	**702**	**36**	**19.5**	**77%**	**57%**	
INH	230	697	36	19.4	8%		Exercise Program. & Design
INH	230				58%		Physics for Today
INH	230				53%		Physics for Life Sciences
INH	230				56%		Physics for Life Sciences
INH	230				81%		Elem Algebra Foundations
	230 Total	**697**	**36**	**19.4**	**51%**	**32%**	
INH Total		**15,296**	**644**	**23.8**	**69%**	**40%**	

Appendices

Appendix A: Detailed Program – Automotive Technologies and Railroad Technologies

Appendix B: Specialized Instructional Space Utilization Analysis-Automotive Technologies

Appendix C: Meeting Notes - Automotive Technologies Program

Appendix D: Detailed Program – Continuing Education and Workforce Development

Appendix E: Meeting Notes - Continuing Education and Workforce Development

Appendix F: Course List Fall 2010 - General-purpose Classroom

Appendix G: Course List Fall 2010 - Specialized Instructional Space

Appendix H: Specialized Instructional Space – 2010 vs 2012

Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

Specialized Instructional Space - Course List

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	106	1,341	20	67.1	90%		Principles of Food Prep
ILW	106				90%		Principles of Food Prep
ILW	106				75%		Quantity Food Production
ILW	106				75%		Quantity Food Production
ILW	106				90%		Basic Baking & Pastry Arts
ILW	106				90%		Basic Baking & Pastry Arts
ILW	106				70%		Basic Baking & Pastry Arts
ILW	106				70%		Basic Baking & Pastry Arts
	106 Total	**1,341**	**20**	**67.1**	**81%**	**39%**	
ILW	147	874	25	35.0	88%		Intro to Software Applications
ILW	147				76%		Intro to Software Appls. (s)
ILW	147				96%		Intro to Software Applications
ILW	147				112%		Elem Algebra Foundations
ILW	147				96%		Intro to Software Applications
ILW	147				100%		Intro to Software Applications
ILW	147				96%		Intro to Computers
ILW	147				68%		Culinary Nutrition
ILW	147				56%		Advanced Visual Basic
ILW	147				92%		Intro to Software Applications
ILW	147				96%		Intro to Software Applications
ILW	147				108%		Elem Algebra Found.
ILW	147				96%		Intro to Software Applications
	147 Total	**874**	**25**	**35.0**	**91%**	**79%**	
ILW	163	1,148	25	45.9	60%		Three-Dimensional Design
ILW	163				72%		Painting I
ILW	163				84%		Drawing I
ILW	163				80%		Color Theory
ILW	163				80%		Two-Dimensional Design
ILW	163				40%		Figure Drawing I
	163 Total	**1,148**	**25**	**45.9**	**69%**	**83%**	
ILW	164	550	25	22.0	80%		Sculpture I
	164 Total	**550**	**25**	**22.0**	**80%**	**14%**	
ILW	165	443	16	27.7	131%		Photography I
	165 Total	**443**	**16**	**27.7**	**131%**	**8%**	
ILW	233	1,045	40	26.1	53%		Concepts of Chemistry
ILW	233				53%		Concepts of Chemistry
ILW	233				50%		Anatomy & Physiology I
ILW	233				55%		General Chemistry I
ILW	233				75%		Introductory Chemistry
ILW	233				55%		General Chemistry I
	233 Total	**1,045**	**40**	**26.1**	**57%**	**39%**	
ILW	237	1,016	30	33.9	73%		Microbiology
ILW	237				67%		Intro to Biology
ILW	237				63%		Intro to Biology
ILW	237				67%		Intro to Biology
ILW	237				73%		Microbiology
ILW	237				67%		Intro to Biology
ILW	237				73%		Microbiology
ILW	237				63%		Intro to Biology
ILW	237				67%		Intro to Biology
	237 Total	**1,016**	**30**	**33.9**	**68%**	**61%**	

Specialized Instructional Space - Course List

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	240	1,014	31	32.7	61%		Physics for Life Sciences
ILW	240				87%		Intermediate Algebra
ILW	240				97%		Prealgebra - Nmbr Sense, Geom
ILW	240				90%		Intermediate Algebra
ILW	240				71%		Physics for Today
ILW	240				90%		Elem Algebra Foundations
ILW	240				103%		Intro to Human Services
ILW	240				71%		Anatomy & Physiology I
ILW	240				90%		Prealgebra - Nmbr Sense, Geom
ILW	240				90%		Elem Algebra Foundations
	240 Total	**1,014**	**31**	**32.7**	**85%**	**64%**	
ILW	244	830	25	33.2	80%		Anatomy & Physiology II
ILW	244				76%		Intro to Biology
ILW	244				80%		Anatomy & Physiology I
ILW	244				68%		Intro to Biology
ILW	244				76%		General Biology I
ILW	244				76%		General Biology I
ILW	244				80%		Anatomy & Physiology I
ILW	244				76%		Intro to Biology
	244 Total	**830**	**25**	**33.2**	**77%**	**54%**	
ILW	248	1,333	30	44.4	73%		Anatomy & Physiology I
ILW	248				73%		Anatomy & Physiology I
ILW	248				73%		Anatomy & Physiology I
ILW	248				73%		Anatomy & Physiology I
ILW	248				73%		Anatomy & Physiology I
ILW	248				73%		Anatomy & Physiology I
ILW	248				73%		Anatomy & Physiology I
ILW	248				73%		Anatomy & Physiology II
ILW	248				73%		Anatomy & Physiology I
ILW	248				73%		Anatomy & Physiology I
	248 Total	**1,333**	**30**	**44.4**	**73%**	**67%**	
ILW	253	916	25	36.6	100%		Music His & Appreciation I
ILW	253				76%		Class Piano I
ILW	253				76%		Class Piano I
ILW	253				100%		Music His & Appreciation I
ILW	253				100%		Music His & Appreciation I
ILW	253				80%		Class Piano I (S)
ILW	253				100%		Music His & Appreciation I
ILW	253				96%		Music Theory I
	253 Total	**916**	**25**	**36.6**	**91%**	**52%**	

Specialized Instructional Space - Course List

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
ILW	261	1,265	35	36.1	86%		Life Span Development
ILW	261				43%		Music & Movement for Childrn
ILW	261				46%		Student Teaching
ILW	261				80%		Intro to ECE
ILW	261				74%		Science & Math for Children
ILW	261				74%		Intro to ECE
ILW	261				77%		Child,Family,School & Comm.
ILW	261				60%		Early Lang & Literacy Devlpmnt
ILW	261				86%		Life Span Development
ILW	261				49%		Advanced Composition
ILW	261				57%		Child Growth & Development
ILW	261				83%		Sanitation & Safety
ILW	261				69%		Child Growth & Development
ILW	261				86%		Life Span Development
	261 Total	**1,265**	**35**	**36.1**	**69%**	**95%**	
ILW	271	1,170	20	58.5	100%		Intro to Software Applications
ILW	271				95%		Acct Computer Applications I
ILW	271				60%		Small Business Office Acctg
ILW	271				85%		Spreadsheet Applications
ILW	271				100%		Intro to Software Applications
ILW	271				95%		Database Applications
ILW	271				80%		Word Processing Applcatns II
ILW	271				75%		Computerized Communication
	271 Total	**1,170**	**20**	**58.5**	**86%**	**51%**	
ILW	272				70%		Spreadsheet Applications
ILW	272				95%		Keyboarding for Info Pro I
ILW	272				100%		Writing: Paragraph to Essay
ILW	272				125%		Principles of Macroeconomics
ILW	272				100%		Spreadsheet Applications
ILW	272				100%		Principles of Financial Acctg
ILW	272				115%		Principles of Macroeconomics
ILW	272	1,216	20	60.8	0%		Non-Scheduled - DAY
	272 Total	**1,216**	**20**	**60.8**	**88%**	**44%**	
ILW	273	966	20	48.3	85%		Word Processing Applications
ILW	273				100%		Keyboarding for Info Pro II
ILW	273				100%		Business Communication
ILW	273				100%		Keyboarding for Info Pro I
ILW	273				100%		Keyboarding for Info Pro I
ILW	273				95%		Elementary Spanish II
ILW	273				100%		Spreadsheet Applications
	273 Total	**966**	**20**	**48.3**	**97%**	**44%**	
ILW Total		**15,127**	**387**	**39.1**	**78%**	**53%**	
INH	001	1,040	20	52.0	100%		Concepts of Chemistry
INH	001				100%		General Chemistry I
INH	001				90%		Concepts of Chemistry
INH	001				100%		Concepts of Chemistry
INH	001				90%		Concepts of Chemistry
INH	001				95%		General Chemistry I
INH	001				100%		General Chemistry I
INH	001				100%		Concepts of Chemistry
	001 Total	**1,040**	**20**	**52.0**	**97%**	**60%**	

Specialized Instructional Space - Course List

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
INH	003	1,063	20	53.2	100%		Concepts of Chemistry
INH	003				100%		Concepts of Chemistry
INH	003				100%		Physics for Life Sciences
INH	003				100%		General Physics I
INH	003				100%		Concepts of Chemistry
INH	003				100%		Physics for Life Sciences
INH	003				100%		General Physics I
	003 Total	**1,063**	**20**	**53.2**	**100%**	**48%**	
INH	005	858	20	42.9	100%		Physics for Life Sciences
INH	005				95%		Physics for Life Sciences
INH	005				95%		Physics for Life Sciences
	005 Total	**858**	**20**	**42.9**	**97%**	**20%**	
INH	007	740	20	37.0	95%		Manual Transmission&Transaxles
INH	007				95%		Automotive Specifications
INH	007				95%		Manual Transmission&Transaxles
	007 Total	**740**	**20**	**37.0**	**95%**	**15%**	
INH	008	957	20	47.9	30%		Auto Transmissions&Tranaxles
INH	008				100%		Auto Transmissions&Tranaxles
INH	008				75%		Fuel Systems
INH	008				100%		Auto Transmissions&Tranaxles
	008 Total	**957**	**20**	**47.9**	**76%**	**33%**	
INH	010	988	20	49.4	100%		Heating & Air Conditioning
INH	010				30%		Auto Transmissions&Tranaxles
	010 Total	**988**	**20**	**49.4**	**65%**	**13%**	
INH	011	1,142	20	57.1	35%		Intro. to Clean Energy Transp.
INH	011				100%		Automotive Specifications
INH	011				35%		Intro. to Clean Energy Transp.
INH	011				20%		CNG Diagnosis & Repair
	011 Total	**1,142**	**20**	**57.1**	**48%**	**20%**	
INH	012	1,176	20	58.8	100%		GM Suspension & Steering
INH	012				100%		GM Specifications
INH	012				100%		Electrical Systems
INH	012				105%		Frames & Suspension
INH	012				105%		Brakes
INH	012				100%		GM Brakes
	012 Total	**1,176**	**20**	**58.8**	**102%**	**34%**	
INH	013N	3,869	20	193.5	105%		Frames & Suspension
INH	013N				105%		Brakes
INH	013N				95%		Automotive Specifications
INH	013N				100%		Automotive Specifications
	013N Tota	**3,869**	**20**	**193.5**	**101%**	**20%**	
INH	013S	3,869	20	193.5	100%		GM Brakes
INH	013S				75%		Fuel Systems
INH	013S				100%		GM Suspension & Steering
INH	013S				100%		Heating & Air Conditioning
	013S Tota	**3,869**	**20**	**193.5**	**94%**	**31%**	
INH	014	3,690	20	184.5	20%		CNG Diagnosis & Repair
INH	014				100%		Electrical Systems
INH	014				100%		GM Specifications
	014 Total	**3,690**	**20**	**184.5**	**73%**	**17%**	
INH	105	1,134	20	56.7	0%		Non-Scheduled - DAY

Specialized Instructional Space - Course List

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
	105 Total	**1,134**	**20**	**56.7**	**0%**	**0%**	
INH	107	1,291	20	64.6	80%		Manufacturing Processes
	107 Total	**1,291**	**20**	**64.6**	**80%**	**7%**	
INH	110	1,374	18	76.3	56%		Dig. Page Design I-Quark/INDes
INH	110				106%		Graphic Design I
INH	110				78%		Graphic Design I
INH	110				61%		Computer Graphics-Illustrator
INH	110				67%		Digital Imaging (Photoshop)
	110 Total	**1,374**	**18**	**76.3**	**73%**	**68%**	
INH	111	938	20	46.9	55%		Intro: OB/GYN Sonography
INH	111				55%		Int:Abdom/Small Pts Sonography
INH	111				45%		Advanced Sonographic Appl.
INH	111				45%		Sono Physics & Instrument II
	111 Total	**938**	**20**	**46.9**	**50%**	**25%**	
INH	127	702	20	35.1	100%		Computr Applicatns for Tech
INH	127				85%		CAD Introduction
INH	127				85%		Elem Algebra Found w/PreAlgebr
INH	127				95%		Computr Applicatns for Tech
INH	127				95%		Computr Applicatns for Tech
INH	127				95%		Computr Applicatns for Tech
INH	127				95%		Computr Applicatns for Tech
	127 Total	**702**	**20**	**35.1**	**93%**	**47%**	
INH	137	729	20	36.5	90%		Intro to Software Applications
INH	137				100%		Visual Basic I
INH	137				100%		Computer Logic & Problem Solvg
INH	137				100%		Computr Applicatns for Tech
	137 Total	**729**	**20**	**36.5**	**98%**	**20%**	
INH	201	1,134	16	70.9	81%		Technical Drafting
INH	201				94%		Technical Drafting
	201 Total	**1,134**	**16**	**70.9**	**88%**	**17%**	
INH	203	1,134	16	70.9	88%		Electric Circuits I
INH	203				94%		Electric Circuits I
INH	203				88%		Electric Circuits I
	203 Total	**1,134**	**16**	**70.9**	**90%**	**20%**	
INH	206	1,134	25	45.4	64%		Electric Circuits II
	206 Total	**1,134**	**25**	**45.4**	**64%**	**13%**	
INH	210	756	18	42.0	56%		Electronics Graphics CAD
INH	210				89%		Computer Servicing
INH	210				78%		Computer Systems Software
INH	210				78%		Computer Systems Software
INH	210				89%		Electronics Graphics CAD
	210 Total	**756**	**18**	**42.0**	**78%**	**31%**	
INH	215	648	16	40.5	100%		Computer Servicing
	215 Total	**648**	**16**	**40.5**	**100%**	**4%**	
INH	216	977	16	61.1	75%		Digital Electronics
INH	216				100%		Microprocessors
INH	216				44%		Electronics I
INH	216				75%		Digital Electronics
	216 Total	**977**	**16**	**61.1**	**73%**	**27%**	
INH	220	702	20	35.1	80%		Manufacturing Processes
	220 Total	**702**	**20**	**35.1**	**80%**	**4%**	

Specialized Instructional Space - Course List

Building	Room	Room ASF	# Seats	SF per Station	% Seats	% Hours	Title
INH	231				77%		Clinical Practicum I
INH	231				77%		Radiogr Anatomy&Procedures III
INH	231				92%		Intro to NSG Practice
INH	231				62%		Community Nutrition Ed
INH	231				27%		Radiopharmacy
INH	231	721	26	27.7	27%		Nuclear Med Instrumentation
INH	231				81%		Seminar in Dietetic II
INH	231				100%		NSG Care Indiv-Fam I
INH	231				100%		NSG Care Indiv-Fam I
INH	231				38%		Intro to Nuclear Medicine
INH	231				38%		Intro to Nuclear Medicine
	231 Total	**721**	**26**	**27.7**	**65%**	**58%**	
INH	232	697	26	26.8	35%		Nutrition Field Experience II
INH	232				92%		Intro to NSG Practice
INH	232				77%		Radiogr Anatomy&Procedures III
INH	232				104%		NSG Care Indiv-Fam I
INH	232				92%		Intro to NSG Practice
INH	232				77%		Radiogr Anatomy&Procedures III
INH	232				81%		Clinical Pathology
INH	232				77%		Princ of Radiographic Expos
INH	232				104%		NSG Care Indiv-Fam I
INH	232				100%		Nutrition I: Prin of Nutrition
INH	232				92%		Intro to NSG Practice
	232 Total	**697**	**26**	**26.8**	**85%**	**80%**	
INH Total		**33,463**	**517**	**64.7**	**82%**	**28%**	
Grand Total		**48,590**	**904**	**53.8**	**80%**	**37%**	

Appendices

Appendix A: Detailed Program – Automotive Technologies and Railroad Technologies

Appendix B: Specialized Instructional Space Utilization Analysis-Automotive Technologies

Appendix C: Meeting Notes - Automotive Technologies Program

Appendix D: Detailed Program – Continuing Education and Workforce Development

Appendix E: Meeting Notes - Continuing Education and Workforce Development

Appendix F: Course List Fall 2010 - General-purpose Classroom

Appendix G: Course List Fall 2010 - Specialized Instructional Space

Appendix H: Specialized Instructional Space – 2010 vs 2012

Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

Specialized Instructional Space - Fall 2010 vs. 2012

			Fall 2010 Actual (42.3-hr window)						Fall 2010 Current Need with 42.3-hr window	
Discipline	Group	Existing Campus and Room #	# Rooms	Total ASF	Total # Seats	ASF/ Seat	# rooms - day	# rooms - evening	# Rooms	Total # Seats
Allied Health	Sonography	NH 111	1	938	20	46.9	0.50	0.71	1	15
	Total		**1**	**938**	**20**	**46.9**			**1**	**15**
Automotive Technologies	AT	NH 008,011,012,013N, 013S, 014	6	14,703	120	122.5	3.10	1.24	3	60
	Tranmissions	NH 007, 010	2	1,728	40	43.2	0.56	0.79	1	25
	Total		**8**	**16,431**	**160**	**102.7**			**4**	**85**
Art	Photography	LW 165	1	443	16		0.16		1	25
	Sculpture/Ceramics	LW 164	1	550	25		0.28		1	25
	Studio/Painting	LW 163	1	1,148	25		1.66	1.01	2	50
	Total		**3**	**2,141**	**66**	**32.4**			**4**	**100**
Business Department										
			0	**0**	**0**					
CAM/CIM	CAM/CIM Lab	NH 220	1	702	20	35.1	0.09		1	20
	Total		**1**	**702**	**20**	**35.1**			**1**	**20**
Computer Labs	PC	LW 147	1	874	25	35.0				
	PC	NH 127	1	702	20	35.1				
	PC	NH 137	1	729	20	36.5				
	PC	NH 210	1	756	18	42.0				
	PC - Allied Health	NH 231, 232	2	1,418	52	27.3				
	PC - Business Dept	LW 271	1	1,170	20	58.5				
	PC - Business Dept	LW 272	1	1,216	20	60.8				
	PC - Business Dept	LW 273	1	966	20	48.3				
	PC - Computer Servicing	NH 215	1	648	16	40.5				
	PC - Graphic Design Lab	NH 110	1	1,374	18	76.3				
	Total		**11**	**9,853**	**229**	**43.0**	**10.53**	**8.34**	**11**	**275**
Culinary	Culinary/Dining	LW 106	1	1,341	20	67.1	0.79	0.99	1	20
	Total		**1**	**1,341**	**20**	**67.1**			**1**	**20**

Fall 2012 New Haven and North Haven Campuses					Fall 2022 Projected Needs
Group	# Rooms	Total ASF	Total # Seats	ASF/ Seat	
Diagnostic Medical Sonography	1	827	15	55.1	None
Computer/Lecture	2	1,514	50	30.3	
Radiation Therapy	1	790	12	65.8	
Nutrition	2	1,321	25	52.8	
Total	**6**	**4,452**	**102**	**43.6**	
AT	*6*	*14,703*	*120*	*122.5*	2012 program numbers are placeholders. See separate program for this division. Will remain in North Haven.
Tranmissions	*2*	*1,728*	*40*	*43.2*	
Total	***8***	***16,431***	***160***	***102.7***	
Photography	4	802	10	80.2	Significant growth is anticipated in Graphic Design in the next ten years. Explore actual utilization and future needs after New Haven Campus has been occupied. Placeholder of 4,000 ASF for 3-4 additional graphcs labs.
Sculpture/Ceramics	1	894	25	35.8	
Studio/Painting	1	1,480	25	59.2	
Graphic Design Lab	1	825	25	33.0	
Mac Lab	1	974	25	39.0	
Total	**8**	**4,975**	**110**	**45.2**	
BOT/Comp Sci Computer Lab	4	5,768	175	33.0	Additional computer labs may be needed as enrollment grows, depending on changes in technology. Explore actual utilization and future needs after New Haven Campus has been occupied.
Networking Lab	1	1,184	20	59.2	
	5	**6,952**	**195**	**92.2**	
					None planned in future.
Total	**0**				
General Use - 25 seats	2	1,476	50	29.5	Additional computer labs may be needed as enrollment grows, depending on changes in technology. Explore actual utilization and future needs after New Haven Campus has been occupied.
General Use - 50 seats	2	2,183	100	21.8	
Total	**4**	**3,659**	**150**	**24.4**	
Main Kitchen	1	1,240			Expect to need second Dining Room and one Studio or Commercial Kitchen. Note: Existing Dining Room not included here as it is coded as Dining, not SI space.
Bake Shop	1	1,108			
Hospitality Classroom/Bar	1	580	20	29.0	
Demo Kitchen	1	1,868	10	186.8	
Total	**4**	**4,796**	**30**	**159.9**	

Specialized Instructional Space - Fall 2010 vs. 2012

Discipline	Group	Existing Campus and Room #	Fall 2010 Actual (42.3-hr window) # Rooms	Total ASF	Total # Seats	ASF/ Seat	# rooms - day	# rooms - evening	Fall 2010 Current Need with 42.3-hr window # Rooms	Total # Seats
Early Childhood Education	Early Childhood Education	LW 261	1	1,265	35	36.1	1.91	1.01	2	70
	Total		**1**	**1,265**	**35**	**36.1**			**2**	**70**
ESL Lab										
	Total		**0**							
Engineering & Applied Technologies	Electronics	NH 203, 206, 216	3	3,245	57		1.20	1.13	2	36
	Manufacturing	NH 107	1	1,291	20		0.13	0.19	1	20
	Mechanical	NH 105	1	1,134	20			0.24	1	20
	Drafting	NH 201	1	1,134	16		0.35		1	16
	Total		**6**	**6,804**	**113**	**60.2**			**5**	**92**
Instructional Design & Educ. Technologies	**Total**									
Music	Classroom	LW 253	1	916	25	36.6	1.04	0.76	1	30
	Total		**1**	**916**	**25**	**36.6**			**1**	**30**
Nursing	Simulation Room	In NH 107 Nursing GPCR								
	Control Room	In NH 107 Nursing GPCR								
	Patient Skills Labs*	NH 228, 229	2	1,442	40	36.1				
			*Scheduling data not reported to Registrar in Fall 2010, so not included in totals							
			0							
Science Science labs include prep and storage space for each lab.	Biology Lab	All use LW 237,244,248								
	Microbiology Lab		3	3,179	85	37.4	3.63	4.21	4	30
	Anatomy & Physiology Lab									
	Chemistry Lab	LW 233, NH 001, NH 003	3	3,148	80	39.4	2.94	3.59	4	30
	Physics Lab	LW 240, NH 005	2	1,872	51	36.7	1.68	2.21	2	30
	Total		**8**	**8,199**	**216**	**38.0**			**10**	**90**
		Grand Totals	**41**	**48,590**	**904**	**53.8**			**40**	**797**
		With Nursing Patient Labs	**43**	50,032	944	53.0				

Fall 2012 New Haven and North Haven Campuses Group	# Rooms	Total ASF	Total # Seats	ASF/ Seat	Fall 2022 Projected Needs
Child Development Classroom	3	2,216	90	24.6	None.
Computer Lab	1	575	20	28.8	
Child Development Play Area	1	349	23	15.2	
Counselling Classroom	1	708	25	28.3	
Total	**6**	**3,848**	**158**	**24.4**	
Language/ESL lab	2	1,790	25	71.6	None.
Total	**2**	**1,790**	**26**	**68.8**	
Elect. Machinery/Microprocessor	1	771	16	48.2	None.
Manuf. Engineering/CNC Lab	1	902	20	45.1	
Mechanical Engineering	1	1,125	20	56.3	
Biomedical Engineering	1	685	16	42.8	
CAD Lab	1	1,020	20	51.0	
Computer Servicing	2	1,502	24	62.6	
Total	**4**	**3,483**	**72**	**48.4**	
TV/Radio Studio/Lab and Editing	2	1,248			None.
Total	**2**	**1,248**			
Classroom/Recital	1	1,069	25	42.8	None.
Practice Rooms	4	422			
Total	**5**	**1,491**	**25**	**59.6**	
Simulation Room	2	232	4		None.
Control Room	1	126	1		
6-bed Skills Lab/Stor	1	604	6		
7-bed Skills Lab/Stor	2	1,655	14		
Resource Room	1	400	24		
Total	**7**	**3,017**	**49**	**61.6**	
Biology Lab	2	2,972	50	59.4	Additional science labs may be needed as enrollment grows. Explore actual utilization and future needs after New Haven Campus has been occupied.
Microbiology Lab	1	1,681	25	67.2	
Anatomy & Physiology Lab	3	4,266	75	56.9	
Chemistry Lab	3	4,411	75	58.8	
Physics Lab	2	2,367	50	47.3	
Earth Sciences Lab	1	1,754	25	70.2	
Science Tutorial	1	1,081	30	36.0	
Total	**13**	**18,532**	**330**	**56.2**	
	74	**74,674**	**1,407**	**53**	

Appendices

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Appendix F: Course List Fall 2010 - General-purpose Classroom

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Appendix H: Specialized Instructional Space – 2010 vs 2012

Appendix I: Long Wharf Order-of-Magnitude Cost Estimate

Long Wharf Order-of-Magnitude Cost Estimate

Item	ASF	GSF	$/GSF	Budget	Bonding for Pre-Construction	Bonding for Construction
Construction ("hard" costs)						
New Construction, Group C	218,872	346,652	$ 350	121,328,200		
Inflation thru 2015 3.5%/year				17,898,700		
Construction total				**139,226,900**		139,226,900
Soft costs						
Contingency 10%				13,922,690		13,922,690
Bldg comm 1.5%				2,088,404		2,088,404
Haz-Mat (Asbestos/Lead Rem)				25,000		25,000
Testing Laboratory				85,000		85,000
Special Inspections				76,800		76,800
Telecommunications 5%				6,961,345		6,961,345
Equipment 10%				13,922,690		13,922,690
Agency Relocation				50,000		50,000
Educational Planner				75,000	75,000	0
A/E Fee 10.5%				14,618,825	10,964,118	3,654,706
A/E Fee Specialty Subs 1%				1,392,269	1,392,269	
A/E Additional Const Admin 1%				1,392,269		1,392,269
Telecom design fee 8.5% of 30% Telecom				177,514	177,514	
FFE design fee .085% of A/E				1,242,600	1,242,600	
Survey				35,000	35,000	
Geotechnical Engineer				40,000	40,000	
Site Borings				20,000	20,000	
Permits .005				69,613	69,613	
3rd Party Structural Review				90,000	90,000	
Environmental Study				50,000	50,000	
CA/CM Fee 5%				6,961,345	1,740,336	5,221,009
Art 1%				1,392,269	171,152	1,221,117
DPW Fee 6%				8,353,614	4,176,807	4,176,807
Soft costs total				**73,042,247**	20,244,411	52,797,836
Construction and soft costs total				**212,269,147**	20,244,411	192,024,736
Additional Costs						
Demo existing building	101,000	150,000	$ 7.40	1,110,000		
Parking Structure 1,200 cars		per car	$ 23,500	28,200,000		
Additional costs total				**29,310,000**		
Total Project Cost				**241,579,147**		

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