



Takoma Park / Silver Spring Campus



Germantown Campus



Rockville Campus



Workforce Development and Continuing Education



Central Administration

MONTGOMERY COLLEGE

Facilities Master Plan
Update 2006 - 2016

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EXECUTIVE SUMMARY

Introduction

Montgomery College was founded in 1946 and is Maryland's oldest community college. In 1950 Takoma Park became the College's first campus. The Rockville Campus was added in 1965, and the Germantown Campus in 1978. From 1946 to the present over half of a million students have attended classes at Montgomery College. All three campuses have experienced significant increases in enrollment. The Facilities Master Plan Update will quantify campus needs and identify solutions within the guidelines of the State of Maryland.

In order to address new opportunities and challenges, the College undertook a comprehensive update of its College-wide Facilities Master Plan to support its increasing enrollment, define facilities needs, and justify major new facilities initiatives anticipated as a result of this effort. Cho Benn Holback was commissioned in 2006 to prepare this College-wide Facilities Master Plan. The Facilities Master Plan covers the 10-year period from 2006 to 2016 and responds to the dramatic enrollment growth expected at the College and the critical capital need to address this growth.

This comprehensive College-wide effort includes five plans covering the Takoma Park/Silver Spring, Germantown and Rockville Campuses, Workforce Development and Continuing Education (WD&CE), and Central Administration. In addition to the ten-year Facilities Master Plan, the overall planning effort also includes a 20-year land use plan (2016-2026) for the three campuses plus WD&CE to provide broad direction for campus growth. The Plan's purpose is to establish a framework for development of these campuses, as well as the off-campus operations of the College, that is cohesive, integrated, and visionary. Some components of a Master Plan, such as space usage and academic and administrative requirements, are readily quantifiable, while other components may be described as quality of life issues, or qualitative components. Equal attention has been given to quantitative and qualitative components in order to develop a Facilities Master Plan that will truly support the role, mission, and educational plans of Montgomery College. The overall plan satisfies the Maryland Higher Education Commission (MHEC) requirements for a Facilities Master Plan to support the capital planning processes and capital funding requests of the College.

This facilities master planning effort updates the 2002-2012 Facilities Master Plan for the five units (three campuses plus WD&CE and Central Administration). This earlier five-part plan is the framework for the College's subsequent capital requests for funding projects on all three campuses. Since the adoption of the 2002-2012 plan, the Board has approved one amendment (March 2010) that adopted the Germantown Campus Facilities Master Plan (2006-2016) to incorporate current plans for a Science and Technology Park, as well as certain roadways included in Montgomery County's sector plan for the Germantown area.

The Master Planning Process

With new opportunities and challenges facing the College, the College undertook a comprehensive update of its College-wide Facilities Master Plan to support the increasing enrollment growth of the College, define facilities needs, and justify major new facilities initiatives anticipated as a result of this effort. In 2006, the College initiated an update to the master plan with the selection of Cho Been Holback + Associates for this purpose.

Numerous meetings and intensive planning sessions were held throughout the College with the affected constituent groups to discuss needs and program requirements; to refine enrollment, faculty, and staff projections; and review campus development options. This effort included the compilation, analysis, and confirmation of the Maryland Higher Education Commission (MHEC) endorsed 2016 enrollment projections for the College. These projections were further refined by the College into the three campus components

and distributed to discipline and unit levels throughout the College. In addition, the College developed enrollment projections for Workforce Development and Continuing Education, as well as detailed faculty and staff projections for all College units. This data-driven backbone to the master plan allows for a very defensible plan for the future that identifies a significant additional instructional and support space need to provide for the College's growth.

College Enrollment Projections

Using a consistent set of data for the Facilities Master Plan, the College's enrollment growth is significant over the 2006-2016 period. Overall, the College is projected to experience credit Full Time Equivalent (FTE) growth of 15.3% over the 2006 to 2016 period. The distribution of this growth indicates that the Rockville Campus is expected to grow 6.3% while more substantial growth of 24.7% is anticipated at the Takoma Park/Silver Spring Campus and dramatic growth of 32.9% projected for the Germantown Campus. The College's noncredit FTE enrollment in Workforce Development & Continuing Education is also projected to experience dramatic growth of 55% by 2016. Overall, the College is projecting faculty growth of 12% and staff growth of 10%, which is somewhat less than but consistent with student enrollment growth over the ten years. For campus libraries, annual growth of 16% in Physical Bound Volume Equivalents (PBVE) is projected for the Rockville and Takoma Park Campuses. Slightly higher PBVE growth of 19% is projected for the Germantown Campus due to the new biosciences curriculum and upper division science courses being offered on the campus by the University of Maryland.

The MHEC-endorsed data developed for this plan presents a conservative evaluation of the enrollment growth facing Maryland community colleges, particularly given the College's own experience with enrollment growth since 2006. However, each year the Maryland community colleges receive updated 10-year enrollment estimates from the MHEC and with the anticipated higher growth rate at the College, it is expected that a larger space need will support the College's capital program as individual projects proceed to detailed programming prior to a request for design funding.

TABLE 1 - FALL TERM 2006 MONTGOMERY COLLEGE-WIDE HEADCOUNT STATISTICS

	2001	2006	5yr % Chg	Projected 2016	10 yr % Chg
Takoma Park/SS	4,575	5,685	24%	6,708	18%
Germantown	4,871	5,529	12%	6,911	25%
Rockville	14,334	15,275	7%	15,565	2%
TOTAL	23,780	26,489	10%	29,184	9%

TABLE 2 - FALL TERM 2006 MONTGOMERY COLLEGE FTE ENROLLMENT STATISTICS

	2001	2006	5yr % Chg	Projected 2016	10 yr % Chg
Takoma Park/SS	2,367	2,796	18%	3,488	25%
Germantown	2,168	2,600	17%	3,456	33%
Rockville	7,908	8,096	2%	8,509	5%
TOTAL	12,443	13,492	8%	15,453	13%

Existing Building Conditions

In 2006, as part of the assessment process supporting the Facilities Master Plan, the College completed a comprehensive facilities conditions assessment that identified significant building condition deficiencies on all three campuses. An engineering consultant surveyed the College's total building space inventory of 1.5 million gross square feet (gsf), including all campus roadways, parking lots and garages, and underground utility systems. This study identified a total replacement value of \$322,000,000 for the College's physical plant.

Among the critical conclusions of the condition assessment considered during the master planning process is the fact that a significant share (62%) of the College's existing academic buildings are inefficient in size being smaller than 50,000 gsf. Small buildings are more inefficient to operate and constrain opportunities for growth both in terms of the land commitment to the building footprint and an inability to renovate for the larger program needs identified by the College. In addition to a high proportion of small buildings, nearly three-quarters of the buildings have significant systemic deficiencies equivalent to 10.1% of the replacement value or \$32.4-million. This condition is exacerbated by the prevalence of a high proportion of 30-year or older buildings, particularly on the Rockville and Takoma Park Campuses. The critical information provided by the conditions assessment was used during the master planning process to evaluate options for new buildings, renovations, and/or recommendations for building demolition and replacement.

The large deferred maintenance need identified by the conditions assessment is being used to support the College's FY2012 capital request to Montgomery County for increased funding. With the County's support, the College has started to address this deferred maintenance need.

Functional Adequacy

The extensive evaluation effort expended during the master planning process reinforced the anecdotal impression that insufficient space constrains the College's academic programs and services across all campuses and units. The problems range from fragmented support services that reduce department productivity and hinder discipline identity to inflexible teaching environments and physical accessibility issues. To make matters worse, the College's enrollment growth is outstripping the current plan for new buildings on all three campuses. Even with the completion of the final new building (Cultural Arts Center) on the Takoma Park/Silver Spring Campus that was part of the campus expansion, and two planned projects that include both the Rockville Science Center and Germantown Bioscience Education Center, the College will have a significant space deficiency without the construction of additional facilities.

Sustainability Goals

Montgomery College has been actively pursuing sustainability goals over the past twenty years, and continues to do so with a high level of commitment. Refer to the Appendix for a complete listing of "green" initiatives the college has been implementing and will continue to implement as part of the Facilities Master Plan process.

Space Needs Assessment

Based on the State space guidelines, the Facilities Master Plan provides a detailed response that addresses all of the capacity needs of the College. Within the context of growing each campus, the facility planning goals that guide the master plan include retaining the respective campus character as expansion occurs. The intent is to reinforce the College and campuses as community resources while eliminating fragmentation of disciplines, programs, and services. Where appropriate, the plan recommends removal and replacement of inefficient and small campus buildings. Each campus master plan begins with the addition of new facilities to provide relief to crowded conditions before proceeding with building renovations. The College’s on-going investment in building system upgrades supports the overall planning goal of improved campus facilities. And finally, the master plans are developed to support the campus communities with adequate learning, working, recreational and celebratory environments.

Overall, the College faces a significant current space deficit and a future 10-year space deficit that, if not addressed, will continue to be a serious constraint on the College’s ability to respond to the educational and cultural needs of students and the community. In summary, the College’s space deficiencies (net square feet) include:

TABLE 3 - MONTGOMERY COLLEGE NASF SPACE NEEDS

	Deficit 2006	Deficit 2016
Takoma Park/Silver Spring	117,037	99,557
Germantown	134,827	147,580
Rockville	256,425	194,796
TOTAL	508,289	441,933

This table clearly shows a huge deficit in space on campus to meet the State guidelines for facilities. The deficits vary from campus to campus. In Takoma Park/Silver Spring the vast majority of the deficit is due to a lack of class lab space. In addition, a deficit of athletic/recreation and study space is notable. In Germantown the deficit is also in class lab space, but not as great a percentage. There is also a notable deficit of classroom, athletics, study and shop/storage space.

The Rockville campus is much larger and the needs are more diverse, but the principal deficit is in class lab space as well. Other notable deficits are in offices, study, meeting rooms and lounges, athletics, media production, food service, shop/storage and central service. In addition, on all three campuses there is a significant lack of meeting rooms and lounges for students, faculty and staff.

CAMPUS RESPONSES

College-wide

Each campus of Montgomery College has a distinct history and physical setting that requires a unique type of response. The 2006-2016 Facilities Master Plan has tailored the approach to plan for growth on each campus, setting a framework for development.

Table 4 highlights the strategy for growth on each campus, emphasizing renovation of existing spaces and the new construction of buildings and building additions. In addition, the table shows the amount of space

that will be removed due to demolition of obsolete buildings. The Net Growth column displays the amount of proposed growth in facilities proposed in the FMP Update. The last column highlights the percent growth relative to the deficits projected in Table 3.

The proposed building projects do not satisfy the deficit on each campus due to a variety of reasons. College-wide the campus programs do not meet the allowance for Physical Education, Library study space and Food Facilities. Non-science class labs such as Reading and Writing are smaller than the MHEC guidelines. In addition, support spaces such as central storage, shops, data processing, etc. have allowances that are computed for each campus, but the spaces are programmed to Central Administration. The Facilities Master Plan provides a framework to guide the physical development of the Takoma Park/Silver Spring, Rockville and Germantown campuses for the next ten years, as well as identify the Workforce Development and Continuing Education, and Central Administration space needs. The five plans address the need for new buildings, renovations, additions, and site improvements (roads, parking lots, open space improvements, and major utility infrastructure improvements) to accommodate the enrollment increases expected on all three campuses while maintaining and enhancing the unique identity and character of each campus. The specific projects developed as part of this master plan are reconciled with campus identified needs and may not always match the exact amount of the identified space deficit shown in the above table. More detailed facility programs will be developed in the future for each specific project identified in the following discussion.

TABLE 4 - MONTGOMERY COLLEGE 2006-2016 PROPOSED BUILDING PROJECTS (NASF)

	Renovation	New Construction	Demolition	Net Growth	% Growth to Deficit
Takoma Park/Silver Spring	33,243	137,195	(91,506)	45,689	30%
Germantown	159,420	135,060	(1,290)	128,715	78%
Rockville	86,015	272,330	(29,478)	242,852	59%
TOTAL	240,325	542,785	(120,984)	421,801	63%

Takoma Park/Silver Spring has the most constrained campus and the greatest number of obsolete or dysfunctional existing structures. New facilities will mostly be built on the site of existing buildings. This explains the high amount of demolition on the campus and the low net growth. The space that is proposed to be built, mostly new class and science labs and library and study space can not be adequately addressed by the renovation of existing buildings.

The existing buildings at the Germantown campus are newer and afford opportunities for renovation. Most of the existing buildings on the campus are slated for renovation, not just due to their condition, but because principal uses are being transferred to other buildings. The Germantown campus has more available space for the construction of new buildings and the opportunity to attract and accommodate new students than the Takoma Park/Silver Spring campus. This helps to explain the larger amount of net growth on this campus.

The Rockville campus is reaching its capacity to absorb more growth without substantially changing the character of the campus or altering the amount of surface space devoted to the parking of automobiles. The strategy for the next ten years emphasizes both: creating a denser, livelier campus and providing structured parking on campus to accommodate the growth.

An estimate of construction costs for this level of development has been created. Table 5 summarizes the proposed building projects on each campus.

TABLE 5 - MONTGOMERY COLLEGE 2006-2016 CONSTRUCTION COSTS (IN FEB 2009 DOLLARS)

	New Buildings	Renovations	Total
Takoma Park/Silver Spring	129,678,000	56,170,000	185,848,000
Germantown	130,017,000	150,256,000	280,273,000
Rockville	333,155,000	192,296,000	525,451,000
TOTAL	\$ 592,850,000	\$ 398,722,000	\$ 991,572,000

The specific responses on each campus to managing and establishing a framework for growth are highlighted below.

The Takoma Park/Silver Spring Campus

The Takoma Park/Silver Spring campus of Montgomery College was founded in 1950 and was the College’s first campus. The majority of the campus was constructed during the late 1970s and these facilities are aging and in need of renovation. Typically the floor configurations and irregular shapes of the academic buildings are not ideal spaces for learning and instruction. The majority of the original buildings of the campus lie within the City of Takoma Park, but in the last five years the campus has expanded west into Silver Spring.

Over the last five years the College has transformed this campus with two strategies: creating the West Campus and consolidating student services in one building. These strategies have been a success and are essentially complete with the addition of the Health Sciences Building, the Cultural Arts Center, the Cafritz Foundation Arts Center and the Student Services Center.

The Facilities Master Plan for the Takoma Park/Silver Spring Campus is designed to support a 24.7% increase in enrollment through construction of approximately 129,000 nsf (181,000 gsf) of new space, and the renovation and reallocation of additional space in existing campus buildings. The new construction includes two new buildings on the east campus – a Science & Math Center and a Resource Center. Figure 1 shows the 2006-2016 Facilities Master Plan proposed for the Takoma Park/Silver Spring Campus.

The physical goals of the Facilities Master Plan include the creation of a Campus green that extends south from the new Student Services Center between the campus buildings along both Fenton Street to the west and New York Avenue to the east. The development of a Campus green will accentuate the linkage between the north end of the Campus with the Commons and Falcon Hall at the south end, and provide a natural gathering space for students within the collegiate setting. The pedestrian bridge over the METRO/CSX tracks with its connection to the second floor of the Student Services Center links the East Campus through Jesup Blair Park to the West Campus expansion along Georgia Avenue.

As part of this conceptual framework, the Campus Facilities Master Plan continues the successful design developed for the Student Services Center with the new replacement buildings proposed along both Fenton Street and New York Avenue. On Fenton Street, the plan proposes the phased development of a new four-story Science and Math Center that will be phased in to replace the existing Science South and

FIGURE 1 - TAKOMA PARK/SILVER SPRING CAMPUS 2006-2016 FACILITIES MASTER PLAN



- NEW BUILDING
- RENOVATED BUILDING
- EXISTING BUILDING

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Child Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- RC Resource Center
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage

Science North buildings. Similarly, a new Learning Resource Center with a two-story street edge stepping up to three-stories next to the Campus green is proposed to replace the North and Math Pavilions, and the existing Resource Center. The new Learning Resource Center is also anticipated to be phased in so that existing programs can continue to serve the campus.

For the West Campus, the Facilities Master Plan reflects the recent completion of the Cultural Arts Center and the West Parking Garage. The remaining building site on the West Campus provides an opportunity to support future expansion with space for a future academic building.

The remaining campus buildings will be renovated to reposition the facilities to new uses. This includes conversion of Pavilions 1 and 2 to Classroom Pavilions, Pavilion 3 to a Humanities Pavilion, and Pavilion 4 to a Business & Social Sciences Center, plus Child Care Center. These conversions will co-locate programs that are currently distributed on the existing campus.

The Takoma Park/Silver Spring plan also envisions growth in the ten to twenty year timeframe that will include a future building in the northeast quadrant of the former Giant Food bakery site. The future development of this site will again place the Takoma Park/Silver Spring Campus in a position where there are no further land development options without addition property acquisitions. This master plan notes possible property acquisitions north of the East Campus that could support the growth of the Takoma Park/Silver Spring Campus.

During the Master Plan process a series of additional guiding principles was developed to assist in the evaluation of master plan alternatives and to serve as a framework. These include:

1. Rejuvenate the Original Campus
2. Preserve the Existing Character of the Historic Neighborhood Adjacent to the Campus
3. Investigate Opportunities for Sensitive Future Growth
4. Implement the Facilities Master Plan with due regard to the sustainability and resource conservation programs of the College.

The 2006-2016 Facilities Master Plan for the Takoma Park/Silver Spring campus proposes six building projects. These projects seek to provide needed academic space and facilities to meet the ten year growth of the campus. Due to physical constraints not all of the deficit can be accommodated on the campus, but the new projects will create much needed improvements to the sciences and math programs and the library and study needs of the students.

1. Replace Science North and Science South buildings with a new Science and Math Center at 73,555 NASF (134,600 GSF).
2. Create a new 48,780 NASF (84,500 GSF) Student Resource Center and Library to support student study, learning and access to library services.
3. Renovate and build an addition to the dysfunctional Pavilion 4, formerly the Communication Arts Center, to create a new 12,000 NASF (20,000 GSF) Business and Social Sciences Building plus Child Care Center.
4. Renovate Pavilions 1 and 2 (P1 and P2) to provide class labs to support the social sciences and business programs.

5. Renovate Falcon Hall and create an addition of 6,300 GSF will add 3,755 NASF of new fitness, office and activity space.
6. Renovate Pavilion 4 (P4) to include a Child Care Center. The College will vacate the house on the corner of Philadelphia and Takoma Avenues where the existing Child Care Center is located.

The outdoor spaces on the central campus are critical components of the functioning of the adjoining buildings. The plan proposes improving these spaces, with enhanced landscaping, pedestrian paths and amenities. Between the Commons and Falcon Hall a new courtyard will be created by removing the existing tennis courts and handball courts.

No roadway or parking needs are being addressed in this facility master plan. The existing road system is outside of the campus and adequate to support the existing and proposed campus traffic. Parking needs have been satisfied, as well. With the addition of the West Garage in 2009 the campus will have 1,297 parking spaces, meeting the campus demand and providing for public parking for the new Cultural Arts Center.

Overall, the 2006-2016 Facilities Master Plan for the Takoma Park/Silver Spring campus will seek to accommodate as much development as is possible given the limited existing land available for development or redevelopment and the constraints of the existing historic neighborhood.

The Germantown Campus

The Germantown campus of Montgomery College was established in 1978 on 230 wooded acres. The majority of the campus was constructed during the late 1970s and these facilities are aging and in need of renovation. The three original buildings, Humanities and Social Sciences (HS), Science and Applied Studies (SA) and Physical Education (PG) share a common architectural vocabulary.

The Germantown Campus Facilities Master Plan is designed to support a 32.9% increase in enrollment through construction of approximately 197,000 net square feet (nsf) (276,000 gsf) of new space, and the renovation and reallocation of additional space in existing campus buildings. Figures 3.4.4 and 3.4.5 show the 2006-2016 Facilities Master Plan proposed for the Germantown Campus and Figures 3.4.12 and 3.4.13 provides the 2016-2026 Land Use Plan.

The rural character of the Germantown Campus is unique among the College's campuses. The site slopes significantly from north to south, and has beautiful natural resources including a stream and mature forest. The proposed Facilities Master Plan envisions improvements to the Germantown campus that expand facilities, improve access, and provide parking, while providing a framework for development that enhances the natural features of the campus. The master plan accomplishes this by locating facilities in linked quadrangles that organize buildings on the hilltop around open spaces, preserving as much undeveloped land as possible.

The Facilities Master Plan builds on the successful existing campus quadrangle concept and proposes a third quadrangle on the north side of Campus to be anchored by a new Student Resource Center. A new Social Science & Art Building will also be located on the north side of Campus and provide an activating link to the Goldenrod Building to the west. The developing quadrangle on the south side of Campus includes the planned Bioscience Education Center and will also accommodate a future building or expansion of the Biosciences Education Center, in addition to taking advantage of long vistas to the south.

FIGURE 2 - GERMANTOWN CAMPUS 2006-2016 FACILITIES MASTER PLAN



- NEW BUILDING
- RENOVATED BUILDING
- EXISTING BUILDING
- IN DESIGN, UNDER CONSTRUCTION OR UNDER RENOVATION
- FOREST CONSERVATION AREA
- FOREST OUTSIDE EASEMENT
- CAMPUS BOUNDARY
- FOREST CONSERVATION EASEMENT
- SCIENCE AND TECHNOLOGY PARK BOUNDARY

- BE Bioscience Education Center
- GB Goldenrod Building
- HS Humanities and Social Sciences
- HT High Technology and Science Center
- PG Physical Education
- PP Physical Plant
- SA Social Sciences + Art
- WT Water Tower

In addition to these new buildings, the Campus Plan envisions major renovations to the Science & Applied Studies Building and the Humanities & Social Sciences Building, as well as renovations to both the High Technology & Science Center and the Physical Education Building, as well as an addition to the later building.

A key element of the plan is construction of a parking garage so as to preserving campus open space and provide parking on the east side of the Campus. The garage is located east of the High Technology and Science Center. Both the High Technology and Science Center and the future building site will provide a through-building link from the parking garage elevation up to the existing and future campus quadrangles.

Critical to future campus development is the completion of a campus loop road as part of an overall vehicular circulation system. The plan envisions the extension of the Observation Drive into a new loop road that will enclose both the existing quadrangle and the new quadrangle on which the proposed Biosciences Education Center is located. This loop road will cross the existing dam at the Campus pond and close the loop by connecting to existing Observation Drive near the water tower. The loop will provide a new point of access to the Campus from Middlebrook Road to the south.

A major goal of the Germantown Campus plan is to address the planned development of a science and technology park to be located on College property, primarily south of the hill-top location of the academic campus. The proposed Science and Technology Park is located between Middlebrook Road and the hilltop academic campus, as well as an additional area located to the west on the former Kay tract purchased by the College in 2001.

It is anticipated that creation of the science and technology park will provide significant synergies between the College and the bioscience and technology business community by providing an environment that can utilize the educational and technical resources of the College, while allowing students and faculty the opportunities for collaboration and employment with the adjacent businesses.

Various alternatives for this park explored the appropriate physical and aesthetic relationship to the campus. The Master Plan depicts a park that has a unique identity, separate but related to the College campus. This relationship is supported by a vehicular and pedestrian circulation system for the Science and Technology Park extending Goldenrod Lane from the west to the new road linking to Middlebrook Road to the south. This road is connected to the College loop road in the middle of the property.

For planning purposes, the Facilities Master Plan is augmented by a separate document that depicts one million gross square feet of built space within the technology park, including a Montgomery County technology incubator facility, with parking primarily in freestanding above-grade parking garages. Development of this density with associate parking garages will leave little land undeveloped within the technology park and will require extensive tree removal and re-grading. Alternatives include less building area and/or construction of terraced or underground parking. The actual development of the Science and Technology Park will depend largely upon market forces.

The Facilities Master Plan also envisions growth in the ten to twenty year timeframe. Planning for this timeframe is helpful in creating a vision for the ultimate development of the campus, and to ensure that plans for the ten year timeframe do not preclude rational future development. This longer range plan for the Campus includes future College buildings along Observation Drive as it is developed as the Campus loop road. Additional future Campus development includes buildings that will be part of a proposed quadrangle to the east of the Bioscience Education Center.

A series of guiding principles has been developed to assist in the evaluation of master plan alternatives and to serve as a framework. These principles include:

1. Enhance the Hilltop Character of the Campus
2. Concentrate Development on the Campus
3. Consolidate Student Services and Enhance Student Life
4. Extend the Roadway System to Provide Better Access and Safety
5. Provide Appropriate Parking Facilities to Handle Future Parking Demands
6. Encourage Strategies for more Sustainable Development on Campus

Following the guiding principles, the 2016 Facilities Master Plan Update proposes to physically alter the arrival experience to the campus. It sites new buildings to serve as both a gateway to the campus and an extension of the existing pedestrian paths. The proposed Student Resource Center and Library will guide and orient visitors to the campus and will create a connection to the pond to the north of the campus. The proposed Social Sciences and Art Building will span across Observation Drive to break up the large areas of parking and define a clear pedestrian path to the Goldenrod Building (former Goldenrod Building). This building will also serve as a gateway as one approaches from Germantown Road up the winding access road to the campus.

The concentration of departments on the campus that would share facilities is also a goal of the plan. The proposed Physics, Engineering and Math Building will be located adjacent to the Bioscience Education Center (BE) within the former Social Sciences and Applied Studies (SA) building. The renovation will create a new circulation path within the building to allow for a direct access to the new quad from the center of the campus.

The location of the proposed Student Resource Center also concentrates the student services on the campus. It locates in one building most of the student orientation, student life offices, assessment services, the library and the learning centers and is located adjacent to the campus cafeteria and bookstore in the Humanities Building and the fitness activities of the Physical Education Building.

The 2006-2016 Facilities Master Plan for the Germantown campus proposes seven building projects. These projects seek to provide needed academic space and facilities to meet the ten year growth of the campus.

1. Create a new 66,370 NASF (116,235 GSF) Student Resource Center and Library .
2. Renovate the existing Social Studies and Applied Studies Building into the Physics, Engineering and Math Center (36,070 NASF).
3. Create a 21,795 NASF (36,325 GSF) addition to and renovate the Physical Education Building.
4. Create a new 36,105 NASF (65,600 GSF) Social Sciences and Art Building.
5. Renovate the Humanities and Social Sciences Building to infill the space vacated by the Library and the Childcare Center.
6. Alter the High Technology and Science Center.

To retain a compact campus new buildings like the Student Resource Center and the Social Sciences and Art Building are planned to be located close to the heart of the campus. These buildings also reinforce the concentration and grouping of like uses. Together the proposed new buildings, the reallocations, and the renovations of spaces within existing campus buildings, will support the continued growth of the Germantown campus.

The Rockville Campus

Opened in 1965, the Rockville campus has the largest enrollment of the three Montgomery College campuses with over 14,800 credit students in the 2002 fall term. The campus also serves a substantial non-credit student body through programs of Work Force Development and Continuing Education (WD&CE). In addition, tens of thousands of people come to the campus each year for art exhibits, concerts and theatrical events, athletic events, conferences and lectures, and other events open to the public.

The campus is characterized by a fairly dense core of low-rise buildings that were constructed in the 1960s and 70s. They are consistent in character and appearance; most are clad in a sand-colored brick. The spaces between buildings are pleasant in scale although haphazard in appearance and use. The core campus is organized in a loose grid of buildings, with the open spaces between buildings being primarily linear in character. Many of these linear spaces seem “left over” and are haphazardly landscaped and furnished. The ensemble of these core buildings and open spaces projects an image of a campus that is utilitarian and outdated.

The Facilities Master Plan for the Rockville Campus is designed to support a 6.3% increase in enrollment through construction of approximately 330,000 nsf (461,000 gsf) of new space, and the renovation and reallocation of additional space in existing campus buildings. Figure 4.4.4 shows the 2006-2016 Facilities Master Plan proposed for the Rockville Campus and Figure 4.4.16 provides the 2016-2026 Land Use Plan.

The physical goals of the Facilities Master Plan include enhancement of the entrances to the campus, creation of open space to enhance the campus environment, provision of additional space to meet the College's needs, and renovation of existing buildings.

The Facilities Master Plan illustrates the expansion opportunities made possible by constructing buildings on the surface parking lots on the north and south sides of the campus. Prominent new buildings create a new front door to the campus and enhance its image on the north creating an anchor to the new campus mall with the placement of the Student Services Center adjacent to Campus Center. On the south side of Campus, these new buildings include a new Art Building, Library, and future parking garage. The reconfiguration of the Campus entrance on Mannakee Street improves the visibility of the campus, creates a new entrance that serves as a focal point providing links to the Performing Arts Center and a future Campus loop road extension to the east. The eliminated surface parking will be replaced with one or more parking garages in the ten-year period.

The Campus plan creates three significant open spaces, or quadrangles. The first, an open mall linking the proposed site of the future Student Services Center on the north to the new Science Center on the south, which will open up the Campus and provide relief through the central core of the Campus. The second is a more formal entrance plaza that is open to a vehicular and bus drop-off at the southern entrance to the campus. This entrance plaza is proposed to be bounded by three new buildings, the Science Center, Library, and an Arts Addition. The third open space is located between the new Arts Addition and the existing Performing Arts Center and will include a vehicular drop-off for events at the Performing Arts Center. This third open space will be contiguous with the pedestrian Avenue of the Arts that will extend west from the proposed new Arts building, past the existing Theater Arts and Fine Arts buildings and culminate at the Performing Arts Center. This is a concept carried forward from the previous master plan that continues to provide an exciting springboard for open space development.

The Rockville Campus plan shows the current construction of a new Science Center located adjacent to the existing pond, a new Student Services Center that will serve as the entry point on to the Campus from the north and new Art and Library buildings to the south to serve a growing Campus student population. In addition, the occupants of the existing Technical Center will be relocated in the future so that a new 4-story expansion of academic space for the humanities programs could be constructed in its place.

Additionally, additions are proposed for the Physical Education, Parilla Performing Arts Center, and Gudelsky Institute for Technical Education. The continuation of the Campus renovation plan calls for future projects in nearly every campus building. Campus needs will also be supported by a new Physical Plant building and a new and larger Child Care Center.

The Facilities Master Plan incorporates a ten to twenty year plan that provides for additional development. This plan envisions expansion east into the portion of the campus currently devoted to outdoor recreational facilities.

A series of guiding principles was developed to assist in the evaluation of master plan alternatives.

1. Enhance Campus Gateways
2. Create a hierarchy of outdoor space.
3. Concentrate Development on the Campus
4. Concentrate Parking to Allow for Academic Expansion
5. Investigate Opportunities for Sensitive Future Growth off Campus

Following the guiding principles, the 2016 Facilities Master Plan proposes to physically alter the arrival experience to the campus. It sites new buildings to serve as both a gateway to the campus and an extension of the existing pedestrian paths. Given the limited building area available, new development will displace existing parking lots.

Development of academic buildings is proposed to occur in conjunction with development of structured parking. The core campus, currently consisting of mostly low-rise buildings, will slowly become a taller and more dense campus. While the central core buildings will remain fairly low (up to 3 stories typically), new buildings located just outside the core will be taller and larger. This will both maximize the limited building area available and allow for the development of signature buildings in key locations.

In addition to the seven new buildings proposed, nine existing buildings will be renovated, and three will be reallocated to new use. New buildings will be situated around a new pedestrian mall which will become the primary open space on campus. Existing buildings will be renovated to have a direct connection to the mall.

The 2016 Facilities Master Plan proposes the following projects to meet programmatic needs:

1. Renovate Macklin Tower.
2. Construct Garage North, a parking structure with 680 parking spaces.
3. Renovate the Physical Education Center and create a 28,560 NASF (47,600 GSF) addition.
4. Construct a new 72,060 NASF (130,320 GSF) Student Services Center bringing together student and administrative services to support the concept of "one stop" shopping services for students and the College community.
5. Reallocate the South Campus Instructional Building (17,765 NASF) as the headquarters for Workforce Development & Continuing Education (WD&CE).
6. Renovate the Campus Center (44,580 NASF) to enhance substantially the quality of student life on

campus.

7. Renovate the Computer Science building to retain the existing classrooms and class labs, together with a reconfiguration of the Campus administration computer center (12,520 NASF, 20,900 GSF).
8. Alter the Gudelsky Institute for Technical Education (39,895 NASF).
9. Replace the existing Interim Technical Training Center with a new 46,120 NASF (76,900 GSF) facility.
10. Construct the 23,400 NASF (42,500 GSF) Communication Arts Building.
11. Create a 31,175 NASF (56,400 GSF) addition to the Humanities Building.
12. Alter the Humanities Building (47,750 NASF, 73,912 GSF).
13. Replace the Technical Center (40,250 NASF) with a new Humanities and Social Sciences Building (68,645 NASF, 124,800 GSF).
14. Construct a new 40,450 NASF (73,500 GSF) Mixed Arts Building.
15. Create Garage South with 520 new parking spaces.
16. Construct a new 62,300 NASF (111,300 GSF) Library Resource Center.
17. Renovate the Performing Arts Center and create a new addition of 33,795 NASF (69,800 GSF).
18. Create a 3,800 NASF (6,900 GSF) Child Care Center.
19. Construct a new 18,120 NASF (30,100 GSF) Physical Plant facility.

While the existing grid of outdoor spaces is ample in quantity, it is not especially pleasant. Given the quantity of existing and proposed buildings, it is an opportune time to design the outdoor space so that it provides an organizational armature for the campus, focused around the large north-south mall or “spine”. The mall provides clear orientation and an open-space heart for the campus. Other key aspects of the landscape and open space plan include the development of an Arts Walk and crosswalk between the Library, the Student Center and the Physical Education Center.

From a supply perspective, the Facility Master Plan identifies the impact on parking associated with each building and building phase, including the loss of existing surface parking to new construction and the creation of new surface and structured parking facilities. Once the FMP program has been achieved the Rockville campus would have a total stabilized supply of nearly 3,700 spaces.

Overall, the 2006-2016 Facilities Master Plan for the Rockville campus will leave few existing buildings untouched; it is an aggressive plan to transform the campus and accommodate the existing needs and projected growth.

Workforce Development & Continuing Education (WD&CE)

Workforce Development and Continuing Education is spread among the three Montgomery College campuses. In addition to a physical presence on the Takoma Park, Germantown, and Rockville campuses, facilities are also located in leased space in Wheaton, Silver Spring at the Westfield Town Shopping Center, and in Gaithersburg at the Gaithersburg Business Training Center. In addition, WD&CE offerings are distributed throughout the county at many business and municipal locations.

With five current locations, the Workforce Development & Continuing Education Facilities Master Plan is coordinated with campus developments for the planned expansion of the programs and services offered by the unit. The unmet space need of the unit is nearly 4,000 nsf. In addition, the plan anticipates that Workforce Development & Continuing Education will continue to expand at its existing off-campus locations and/or develop new sites within new market locations. The underlying assumption of this plan is that all of the existing space leases serving the unit are continued beyond the 10-year period. The above space need is therefore for new additional space and represents a nearly 30% increase over the current space inventory.

To support the vision for the WD&CE programs and to establish a coherent, logical framework for development of capital projects, the Facilities Master Plan has established goals and priorities. This Master Plan for WD&CE focuses on:

- Consolidating Workforce Development & Continuing Education efforts on the Germantown, Rockville, and Takoma Park/Silver Spring Campuses so that students, visitors, and the College community benefit from the ease, energy, and excitement generated by the synergy of proximity;
- Providing sufficient and adequate space at each location—classrooms, labs, offices, study, and support facilities—based on existing and projected needs;
- Presenting students the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, counselors, and staff;
- Creating a stronger identity for the WD&CE program on each campus and at off-campus locations to enable a broader reach into the community and a clear, welcoming environment for visitors, and new and potential students.

Based on the College's anticipated enrollment growth over the 2006 to 2016 period, and supported by the instructional and other needs identified during the master planning process, the College has identified a number of capital projects for Workforce Development and Continuing Education (WD&CE) over the ensuing 10-year period. These projects include:

1. Reallocation of the Goldenrod Building on the Germantown Campus (12,200 GSF)
2. Reallocation of South Campus Instructional Building to WD&CE at Rockville (13,255 NASF)
3. Alteration of the Gudelsky Institute for Technical Education and Replacement of the Interim Technical Training Center at Rockville
4. Acquisition and Renovation of buildings at Westfield Town Shopping Center (22,500 GSF)
5. Acquisition and Renovation of buildings at Gaithersburg Center (29,600 GSF)
6. Lease of building at new White Oak Center for the East County Science and Technology Center (10,600 GSF)

FIGURE 3 - ROCKVILLE CAMPUS 2006-2016 FACILITIES MASTER PLAN



- | | | | |
|-----|---|------|--|
| # | NUMBER OF STORIES | AR | Paul Peck Art Building |
| ■ | NEW BUILDING | CC | Campus Center |
| ■ | RENOVATED BUILDING | CS | Computer Science |
| ■ | EXISTING BUILDING | GU | Homer S. Gudelsky Institute |
| ■ | IN DESIGN, UNDER CONSTRUCTION OR UNDER RENOVATION | HU | Humanities Building |
| ■ | PEDESTRIAN MALL | MK | Mannakee |
| --- | CAMPUS BOUNDARY | MT | Gordon & Marilyn Macklin Tower |
| | | MU | Music Building |
| | | PA | Robert E. Parilla Performing Arts Center |
| | | PE | Physical Education Center |
| | | SV | Student Services |
| | | TA | Theatre Arts Building |
| | | WDCE | Workforce Development & Continuing Education |

Central Administration

With four primary locations, the Central Administration Facilities Master Plan continues to indicate an unmet space need. The plan assumes that the space lease occupied by the Office of Information Technology will be terminated within the 10-year period and therefore this space is also included in the overall need. While the underlying assumption of this plan is to consolidate the central units when their space needs are addressed, the long-term resolution of central administration space needs are anticipated to be addressed in the context of the lease decision for the Office of Information Technology within the next five years. The unmet space need is split approximately two-thirds to respond to the needs of the Office of Information Technology and one-third to cover the space needs of all other central units.

Implementation

The Facilities Master Plan includes a proposed project-phasing plan that identifies the desired project sequence in response to the College’s needs. The master plan cost estimates for the various projects identified in the planning document total \$1,009,220,000 for the three campuses, Workforce Development and Continuing Education, and Central Administration. In summary, the total project capital costs (planning/design, construction and furniture and equipment) for each of the five components of the 2006-2016 Facilities Master Plan are as follows (Source: Central Facilities Cost Model):

Area	Cost (current dollars)
Germantown	\$280,273,000
Rockville	\$525,451,000
Takoma Park/Silver Spring	\$185,848,000
Workforce Development & Continuing Educa	(included above)
Central Administration	\$17,648,000
Total Cost	\$1,009,220,000



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MONTGOMERY COLLEGE

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1.1 Facilities Master Plan Update Summary

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While these new facilities address some of the space deficiencies identified in the 2002-2012 Facilities Master Plan, they do not fulfill all of the current needs for academic space. Also of concern is the erosion of “quality of life” spaces. Indoor “quality of life” spaces tend to be meeting or breakout areas and lounges and are often the first to be converted into classroom or office use as space deficiencies grow. Outdoor “quality of life” spaces are not just important for social gathering, but they also serve as places where lifelong learning occurs. There is also the need to seek ways to improve pedestrian circulation and college entryways, or gateways. Gateways strengthen the individual identity of each campus and that of the institution as a whole. Other issues identified in the previous Facilities Master Plan were a need to increase building density and to consolidate student service functions. Space deficiencies, identity, and community relations are issues that all institutions of higher education face. Montgomery College has been very proactive in its goal of academic excellence, and the 2006-2016 Facilities Master Plan continues to build upon this momentum.

The goals established for the Facilities Master Planning process were to:

1. Guide planning that articulates and supports the College's institutional vision;
2. Provide a framework for future buildings and development;
3. Continue responsible stewardship of natural and built resources;
4. Build consensus within the campus community, and with its neighbors.

Key objectives of the resulting Facilities Master Plan were to:

1. Identify appropriate sites and provide phasing for potential new buildings, renovation projects, landscape and infrastructure improvements;
2. Strengthen and improve the unique configuration of each campus. That is, rejuvenate the original campus character and courtyards at Takoma Park/Silver Spring, retain and enhance the hilltop character and green space at Germantown, and concentrate development and strengthen the hierarchy of spaces at the Rockville campus;

3. Provide signage and beautification of campus gateways to enhance the identity of Montgomery College and of individual campuses.

1.2 Mission Statement

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- We are in the business of changing lives.
- Students are the center of our universe.
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Enriching our Community

- We are the community's college.
- We are the place for intellectual, cultural, social and political dialogue.
- We serve a global community.

Holding Ourselves Accountable

- We are accountable for key results centered around learning.
- We will be known for academic excellence by every high school student and community member.
- We inspire intellectual development through a commitment to the arts and sciences
- We lead in meeting economic and workforce development needs.

We Will Tend to our Internal Spirit

- We are committed to high academic and performance standards and take pride in our collective achievements.
- We are welcoming, compassionate, and service-oriented to our diverse communities.
- We operate in a creative, innovative, flexible, and responsive manner.
- We practice collaboration, openness, honesty, and widely shared communications.
- Integrity, trust, and respect guide our actions.
- We value and respect academic vitality and excellence.
- Our spirit is renewed through enthusiasm, celebration, a sense of humor, and fun.

1.3 College-wide Goals and Objectives

Montgomery College is committed to “changing lives, enriching our community and holding ourselves accountable,” as the Mission Statement declares. Based on these principles, the College commits itself to meet the educational needs of its diverse community. The College will seek to provide academic programs of the highest quality so that its diverse student body can achieve its educational goals. As one College providing multiple programs and services to students at various stages of their academic careers, the College dedicates itself to the following eight goals to serve students and the community.

Goal 1

The first goal of the College is to ensure student satisfaction and student success through programs and support services. The College will continue to foster student achievement through excellence in curriculum, teaching, learning and services that meet multiple needs. Student-centered programs and support services will identify student goals and individual needs, and will facilitate student retention, completion, and goal achievement.

Objective 1: To use the College’s curriculum and program review processes and the input of advisory committees and community assessment initiatives to revise and develop curricula that are characterized by currency, comprehensiveness, relevance, transferability, and the appropriate use of technology.

Objective 2: To continue to promote effective instruction and instructional support and to develop fresh approaches to instruction and instructional support that foster learning through the Center for Teaching and Learning and other internal and external opportunities.

Objective 3: To develop and implement effective processes and procedures to identify and support students’ educational and career goals, including degree completion, transfer, skill development, credentialing and intellectual exploration, through enhanced support for advising and career and transfer planning.

Objective 4: To develop mandatory orientation processes to meet the transition needs of its diverse student populations.

Objective 5: To develop additional distinct and focused services and programs for the College’s diverse student population, including first-generation college attendees, students with disabilities, students with English as a second language and international students, so that all students’ educational and employment potential is strengthened.

Outcome: Student success will increase as will student satisfaction with services. Student goal achievement, retention, completion, employment and transfer rates will increase. Curricula will be considered current and appropriate by students, employers and transfer institutions.

Goal 2

The second goal of the College is to ensure broad-based education. The College is committed to developing life-long learners who are competent problem-solvers, critical thinkers, effective communicators, ethical citizens and technologically literate contributors to the global community. Students will achieve a broad-based perspective through liberal learning.

Objective 1: To continue to support and promote strong collegiate-level liberal arts and transfer programs.

Objective 2: To further incorporate in curriculum and instruction a commitment to interdisciplinary studies, respect for diversity, critical and information literacy, and appropriate use of technology concepts in the arts, humanities, social sciences, sciences, mathematics, business, economics, technologies, and career programs.

Objective 3: To enrich the College's global learning environment by identifying and mobilizing the cross-cultural experience of its community, faculty, staff and students.

Objective 4: To expand cultural and intellectual activities that highlight and explore social issues for both internal and external audiences.

Outcome: Students will develop critical and information literacy and communication skills, an ability to apply knowledge effectively, a respect for diversity and an appreciation of the value of lifelong learning. The community will recognize and value the College as an intellectual resource and venue for cultural, cross-cultural, and social issue discussions.

Goal 3

The third goal of the College is to meet the demands of a growing high school population. The College will increase its ability and strengthen partnerships to serve more high school students and graduates.

Objective 1: To expand partnership initiatives with the local public and private high schools to increase college readiness and facilitate the transition or access to college programs.

Objective 2: To increase concurrent enrollment of qualified high school students taking appropriate college coursework.

Outcome: The numbers of Montgomery County Public Schools (MCPS) graduates enrolling at Montgomery College will increase, greater numbers of MCPS graduates will enter Montgomery College prepared to do college level work and more high school students will earn college credits through attendance at Montgomery College. As a result, the reputation of the College as an institution of excellence will be enhanced.

Goal 4

The fourth goal of the College is to develop a regional workforce for the Washington Metropolitan area. The College will make workforce and business development and preparedness a primary part of its activities.

Objective 1: To assess the community's needs regularly to ensure that its curricula, policies, schedules and partnerships reflect changing workforce needs and practices. Particular attention will be paid to meeting the community's growing needs for certified teachers.

Objective 2: To ensure that courses and programming are responsive to employers' priorities, needs and quality standards.

Objective 3: To ensure that the organizational structure provides a readily identifiable single point of contact within the College to respond to inquiries relating to workforce development, education, and training.

Objective 4: To implement a marketing strategic plan to increase internal and external awareness of the College's workforce development partnerships and initiatives.

Objective 5: To enhance the role of the industry advisory committees in guiding the development of the College's career programs.

Outcome: Montgomery County employers will turn to Montgomery College as their first choice for employee training and development. Employers will express increased satisfaction with employees hired from its career programs. Montgomery College will rank among the top four continuing education providers in the state for workforce development and training.

Goal 5

The fifth goal is to expand the College's commitment to professional development. The College will create an intellectually stimulating, innovative, and exciting environment that encourages all of its employees to grow professionally and personally, to seek out and implement best practices and to contribute to the College's nurturing and student-centered environment.

Objective 1: To make professional development one of the College's highest institutional priorities and commit sufficient funds to support this priority.

Objective 2: To establish a single entity that coordinates and emphasizes professional development as an expectation of all employees.

Objective 3: To create professional development plans that meet the needs of the individual employee and the institution. These plans will be developed collaboratively by the employee and the supervisor and will become an important component of the performance review process.

Objective 4: To enhance the interchange between full-time and adjunct faculty to take advantage of their respective contributions and meet their differing needs; and to create and support mentoring programs, especially for employees new to their positions.

Outcome: All employees will participate in an expanded professional development program focused on better meeting the needs of students and employees, and the percentage of College resources devoted to professional development will increase.

Goal 6

The sixth goal of the College is to strengthen pedagogy. The College will incorporate innovation and quality in pedagogy that is responsive to the learning needs of its students.

Objective 1: To ensure that all faculty and instructional support staff continually research and develop classroom and instructional strategies that focus on understanding, enhancing, and facilitating the learning process.

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Objective 3: To review, identify and incorporate, as appropriate, in College courses the most effective strategies for ensuring that students acquire communication, computational, and critical and information literacy skills required by employers and transfer institutions.

Outcome: Student outcomes will be improved through incorporation of improvements in teaching and learning by faculty.

Goal 7

The seventh College-wide goal is to maximize resource distribution. The College will enhance its ability to change lives by focusing resources more efficiently and effectively, implementing a more data-driven planning and budgeting process that supports a student-centered focus, investing in a strong collegiate-level program and incorporating increased accountability into evaluation processes.

Objective 1: To include regular review of academic programs and support services in the College's strategic planning process.

Objective 2: To define a process to determine the College's core programs and disciplines in order to guide growth opportunities, funding priorities, student services, and long-term planning.

Objective 3: To develop and regularly update an integrated academic and facilities master plan as an outgrowth of the strategic plan. This academic and facilities plan will identify programmatic, staffing, and facility needs to enable the College to address changing and diverse student populations.

Objective 4: To provide sufficient student-life facilities and improve the quality of student life support on each campus by integrating these needs into the budget and planning process of each campus and the College.

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TAKOMA PARK / SILVER SPRING

2.1 CAMPUS BACKGROUND INFORMATION

2.1.1 Facilities Master Planning Process

Montgomery College began this College-wide Facilities Master Plan Update effort in 2006. The major components of the Master Plan are the Rockville, Germantown and Takoma Park/Silver Spring campuses, Workforce Development/Continuing Education, and Central Administration. The time frame for the Facilities Master Plan is ten years, 2006 to 2016. The overarching goal of the Facilities Master Plan is to establish a framework for the development of capital projects to support the role, mission, and academic vision of Montgomery College.

The Takoma Park Campus of Montgomery College was founded in 1950 and was the College's first campus. The majority of the original buildings of the campus lie within the City of Takoma Park, but growth in the last five years has expanded the campus west within the southern edge of the Silver Spring central business district.

The 1998 Facilities Master Plan for Takoma Park Campus outlined a strategy for the campus that directed growth toward existing commercial development in Silver Spring and away from residential neighborhoods, some of which are located within the Takoma Park Historic District. The intent of this strategy was to allow the College to begin to address its academic space deficiencies while retaining a positive presence within the City of Takoma Park's diverse economic and residential communities.

The western expansion has been successful, with a new pedestrian bridge spanning the WMATA/CSX railway tracks and linking the two sides of the Campus. The challenge outlined in the previous 2002 Facilities Master Plan of defining a coherent identity for the Campus and creating the pedestrian links has been largely satisfied. The second challenge of addressing the poor condition of the existing older buildings has begun.

The majority of the Campus was constructed during the late 1970s and these facilities are aging and in need of renovation. Typically the floor configurations and irregular shapes of the academic buildings are not ideal spaces for learning and instruction. Often floor plates are very small and inefficient. Academic space should be flexible and responsive in order to adapt to rapidly changing technological and pedagogical shifts in education.

To address these and other issues, and to establish a coherent, logical framework for development of capital projects, the Facilities Master Plan has established goals and priorities. This Facilities Master Plan for the Takoma Park/Silver Spring Campus focuses on:

- Supporting the College's goal of establishing and nurturing unique roles and partnerships for the Takoma Park/Silver Spring Campus in meeting the multi-leveled educational, economic, and work force development needs of Montgomery County as they relate to the health sciences and in the arts;
- Providing sufficient and adequate space—classrooms, labs, offices, study, meeting rooms, and support facilities—based on existing and projected needs, so that each and every area can contribute creatively and productively every day to helping students change their lives;
- Co-locating departments and functions rationally so that students, faculty, and staff benefit from the ease, energy, and excitement generated by the synergy of proximity;
- Presenting students the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, librarians, counselors, and staff;

- Affording students opportunities to meet and develop socially through formal programs of leadership, recreation, and athletics, and informally in inviting indoor and outdoor spaces;
- Maximizing the land resources available on the Campus while retaining its unique character, quality, and setting, and yet meeting the needs of the students, faculty, staff, community members, and visitors who are on the campus every day;
- Inviting students, faculty, staff, community members, and visitors to participate in the varied Campus and College activities by organizing the Campus—including buildings, parking, outdoor athletic facilities, and circulation for pedestrians, the disabled and elderly,—to make their experience pleasant and successful;
- Continuing the implementation and enhancement of the sustainability and resource conservation programs; and
- Anticipating the Campus' future development beyond the ten-year planning horizon.

2.1.2 Comparison with 2002-2012 Facilities Master Plan

Enrollment - Headcount enrollment increased 17.9% from Fall 2002 (4,821) to Fall 2006 (5,685) and over this same period the average student credit hour load increased from 7.3 credits to 7.4 credits, with the result that FTE student enrollments increased by 18%. Comparing the 10-year projections, the 2016 headcount projection of 6,708 is a 7.1% decrease over the 2012 projection of 7,224. It is also projected that the average student credit hour load will continue to increase at the Takoma Park/Silver Spring Campus from a 2012 projection of 7.5 credits to 7.8 credits in 2016. The FTE projections will also decrease from 3,635 (2012) to 3,488 (2016) or 4.0%. This is a decrease in the rate of growth between the two periods from 54% (2012) to 25% (2016) reflecting the opening of several new facilities since 2002 and providing new buildings in the future as part of the replacement of existing inadequate facilities.

Faculty and Staff – In 2002, faculty supporting the Takoma Park/Silver Spring Campus totaled 142.25 FTE and in 2006 totaled 195.0, or an increase of 37.1%. The projected faculty FTE will also increase from 201.75 (2012) to 218.0 (2016), or 8.1%. As noted with both the 2012 and the 2016 projections, the College seeks to reduce and/or equalize the credit hour loads of faculty, therefore the faculty growth rate continues to slightly exceed the enrollment growth rate.

In 2002, staff supporting the Takoma Park/Silver Spring Campus totaled 153.5 FTE and in 2006 totaled 271.75 FTE, or an increase of 77%. The projected staff FTE will also increase from 202.0 (2012) to 283.5 (2016), or 40.3%. The largest growth in positions is planned across all instructional areas.

Academic Programs – The breadth of the degree programs continues to grow on the Campus from 28 different degree programs in 2002 to 51 in 2006. Due to the College's substantial investment in its classroom environment to incorporate smart instructional technology and to provide and support technology-based learning centers, students are helped to learn effectively and efficiently. Apart from technology, the College is also addressing other changes in pedagogy, including increased and earlier instructional use of specialized learning environments and a continued emphasis on collaborative learning. These instructional delivery changes, together with the increase projected for enrollment, can be expected to have an impact on the Campus' contact hour productions. It is anticipated that the ratio of contact hours (WSCH) to credit hours (SCH), which shows the extent to which time scheduled in class is greater than the credit hours earned, decreased somewhat at Takoma Park/Silver Spring from 1.24 in 2002 to 1.18 in 2006. It is anticipated that this trend will reverse with the greater use of labs in the pedagogy of writing and mathematics disciplines.

Plan Comparison

Needs Assessment – The ten-year space deficit for the Takoma Park/Silver Spring Campus has grown from a deficit of 126,665 net square feet in 2012 to a deficit of 152,967 in 2016, or 20.8%, based on State of Maryland space guidelines. The increase in the Campus deficit is after accounting for the addition of two new buildings in the Campus space inventory: Science & Math Center and Student Resource Center & Library. With these additions, the Campus inventory is expected to grow from 169,790 (2002) to 412,224 (2016), or 142.8%, and still result in the need for additional new space on Campus.

Proposed Facilities Program – Both the 2002-2012 and 2006-2016 Facilities Master plans proposed net projects on the Takoma Park/Silver Spring Campus, adding to the Campus net assignable square foot space inventory and responding to the 10-year space deficiencies of each plan. The near term projects are essentially the same in both plans with new buildings – Science & Math Center and Student Resource Center & Library - and renovations – Pavilions 1 through 4. However, the 2006-2016 Facilities Master Plan shifts the focus of Campus development from its expansion on the West Campus to its renovation and replacement of facilities on the East Campus.

2.1.3 Institutional Characteristics

At the northern edge of Washington, D.C., in the midst of tree-lined streets and Victorian houses and near the Metro rail system, lies the Takoma Park/Silver Spring Campus. Opened in 1950, it is the oldest of Montgomery College's three campuses. The relatively small size and compactness of the Campus enhances the quality of its academic life and promotes a cohesiveness and sense of identity difficult to match on most college campuses. The educational offerings of the Takoma Park/Silver Spring Campus are organized into three instructional divisions:

- Arts, Humanities, and Social Sciences (AHSS), comprised of three departments: one comprised of English, Reading, Foreign Languages, Philosophy, and the American English Language Program; a second with the Social Sciences; and the third comprised of Visual, Performing, and Communication Arts;
- Health Sciences (HS), comprised of programs related to nursing, allied health, and physical education, including diagnostic medical sonography, emergency medical technician, fire science and emergency services, health information technology, physical therapist assistant, radiologic technology, and surgical technology; and
- Natural and Applied Sciences, Business, Management, and Information Science (NASBMIS), comprised of the departments of Biology, Physical Sciences, Mathematics, Business, Management, and Information Sciences.

The three instructional divisions are extended and supported by the Student Development Division with the Office of the Vice President and Provost providing campus leadership and management

The Campus' intercollegiate athletic program sponsors teams in men's and women's basketball and coed tennis. Campus-based central administration services include the library, information technology support, admissions and registration, financial aid, cashiering, physical plant, and auxiliary services, the latter including the Child Care Center, book store, and food services. The Campus is also dedicated to sustainability and resource conservation and has integrated many of these principals into its daily activities and academic programs. The rooftop solar arrays on two of the newer buildings are a visible example of the College's commitment to renewable energy and sustainability.

The Takoma Park/Silver Spring Campus, apart from its unique physical setting, distinguishes itself as being the College's focus for programs related to the health sciences. The Health Sciences Center, opened in January 2004, supports the Health Sciences Division, except for the physical education program, the Health Sciences Institute of Workforce Development and Continuing Education, and the College's partnership with Holy Cross Hospital. The building includes a functioning health clinic, allowing students to work in the clinic as part of their rotations, thereby gaining much needed practical experience. Holy Cross Hospital personnel will serve as clinical adjunct faculty, working with faculty in supervising and evaluating students. Concomitantly, faculty will, as part of their assignments, spend time in the clinic, thus maintaining currency in their respective disciplines and staying abreast of current clinical practices.

The Campus has also expanded its program offerings in the Visual, Performing, and Communication Arts through the offering of the Associate of Fine Arts degree and the program expansions associated with the Cafritz Foundation Arts Center and the newly completed Cultural Arts Center.

This Campus also is home to the College's only planetarium, offering astronomical and planetarium shows to College and community constituencies. The 42-seat planetarium shows 1,834 naked-eye stars, the Milky Way, and 5 naked-eye planets—Mercury, Venus, Mars, Jupiter, and Saturn—under a 24-foot dome.

Two new high performance hot water and chilled water central plants have been located in the basements of the Student Services Center (East) and the Cafritz Arts Center (West) buildings. These plants efficiently provide heating and cooling to the campus buildings using ice thermal storage and cogeneration. Central plant and IT distribution systems have been installed and will be extended to new and renovated buildings. A new College-wide Information Technology Operations Center (ITOC) has been installed in the Cafritz Arts Center.

2.1.4 Academic Programs

Montgomery College is authorized by the Maryland Higher Education Commission to offer five degrees: the Associate of Arts (A.A.), the Associate of Science (A.S.), the Associate of Arts in Teaching (A.A.T.), the Associate of Fine Arts (A.F.A.) for students wanting to transfer to baccalaureate programs and the Associate of Applied Science (A.A.S.) for those seeking immediate employment. The College also awards certificates (Cert) that focus on the development of technical skills, as well as letters of recognition (L of R) for non-degree seeking students who satisfactorily complete certain courses that teach focused skills and competencies.

In addition to General Education, student development, honors, cooperative education, and women's studies courses, the Takoma Park/Silver Spring Campus offers fifty-one (51) different degree programs, fourteen (14) certificate programs, and three (3) letter of recognition programs. Academic programs uniquely offered at the Takoma Park/Silver Spring Campus are related to the A.F.A. degree including Graphic Design and Studio Art and programs in the health sciences including the A.A.S degree and certificate in Diagnostic Medical Sonography, the A.A.S degree and certificate in Health Information Technology, the A.A.S. degree in Mental Health, the A.S degree in Nursing, the A.A.S. degree in Physical Therapy Assistant, the A.A.S. degree in Radiologic Technology, and the A.A.S. degree and certificate in Surgical Technology. In addition, the A.F.A. degree programs in Graphic Design and Studio Art and the A.A.S. degree and certificate programs in Diagnostic Medical Sonography are approved as State-wide programs.

These State-wide programs are available to students from other geographic areas where the local community college does not offer the same program. All of the health programs have also been identified as health manpower shortage programs and have been offered to all Maryland residents at in-county tuition rates. The College's Cooperative Education Program also finds its home on the Takoma Park/Silver Spring Campus. Serving all Montgomery College students and the County and area's business community, this program

matches meaningful work and career experiences with student academic interests and goals. Not included here are the programs offered by Workforce Development and Continuing Education.

These programs at the Campus are expected to generate 52,322 student credit hours (SCH) in 2016, an increase of 25% over fall 2006 and with 78% being taught during the day. Delivery of all these programs is expected to change substantially over the coming decade. Distance learning alternatives will be more available as options, including both entire and partial course and service delivery. The percentage of SCH taught entirely on-line through the Campus is projected to remain at 7% of the total SCH in 2016, its level in 2006. The College has also made significant and substantial investments in its classroom environments to incorporate smart instructional technology and to provide and support technology-based learning centers that help students learn effectively and efficiently. Apart from technology, the College must also prepare to address other changes in pedagogy, including increased and earlier instructional use of specialized learning environments and a continued emphasis on collaborative learning.

These instructional delivery changes, together with the increases projected for enrollment, can be expected to have impact on the Campus' contact hour productions. The ratio of contact hours (WSCH) to credit hours (SCH), which shows the extent to which time scheduled in class is greater than the credit hours earned, is expected to increase at the Campus from 1.18 in 2006 to 1.35 in 2016, primarily because of increased availability of labs and lab courses, especially in the health sciences. Finally, the relative percentage of contact hours in lab environments is projected to increase from 35% in 2006 to 51% in 2016, reflecting increased availability of lab environments and changes in pedagogy in disciplines such as writing and mathematics.

TABLE 2.1.1
2006-07 ACADEMIC PROGRAMS AT THE TAKOMA PARK/SILVER SPRING CAMPUS

Program Area	AA	AS	AAT	AFA	AAS	Cert	L of R
American Sign Language					1GRT	1GRT	
Art	1 GT			2 GTR		2 GRT	
Business	2 GRT						
Computer Application					1 GRT	2 GRT	
Computer Gaming & Simulation	1 GRT						
Computer Science & Technologies	2 GRT					4 GRT	
Education			6 GRT				
Engineering Science					10 GRT		
Emergency Medical Technician							1 GRT
General Studies	1 GRT						
Health Sciences					7 T	2 T	
Liberal Arts	3 GRT						
Management						1 GRT	1 GRT
Network & Wireless Technologies					1 GRT		
Paralegal Studies					1 GT	1 GT	1 GT
Pre-Professional (Medical Related)	6 GRT						
Science		5 GRT					
Transfer Studies						1 GRT	
Web Careers					1 GRT	1 T	

Degrees, Certificates, and Letters of Recognition: AA-Associates of Arts; AS-Associate of Science; AAS-Associates of Applied Science; AAT-Associates of Arts in Teaching; AFA-Associate of Fine Arts; Cert-Certificate; and L of R- Letter of Recognition.

Campus : T-Takoma Park/Silver Spring Campus; R-Rockville Campus; and G-Germantown Campus.

Source: Montgomery College 2006-07 Catalog

To support academic programs, changes in the Takoma Park/Silver Spring Campus' library collection are also planned, which is supported in two locations—the Campus' Resource Center and Cafritz Foundation Arts Center where the art collection is housed. In addition, the Campus also houses a Health Sciences Virtual Library in the Health Sciences Center, but no collection materials are supported at this location. Overall, in terms of Physically Bound Volume Equivalents (PBVE), the library's collections are expected to grow by 16%, from 72,223 PBVE to 83,780 PBVE. This increase is comparable to that at Rockville Campus, however, is still below that usually expected for higher education institutions, where rates of increase for collections are typically planned at 2% to 3% per year.

TABLE 2.1.2
2006 AND 2016 CREDIT AND CONTACT HOURS AT THE TP/SS CAMPUS

Day, On-Line, and Total Credit Hours

	2006 Day SCH	2006 On-Line SCH	2006 Total SCH	2006 % Day SCH	2006 % On-Line SCH	2016 Day SCH	10 yr % Chg	2016 On-Line SCH	10 yr % Chg	2016 Total SCH	10 yr % Chg	2016 % Day SCH	2016 % On-Line SCH
TP/SS	32,685	2,728	41,940	78%	7%	40,811	25%	3,900	43%	52,322	25%	78%	7%
College	157,755	8,521	202,380	78%	4%	179,997	14%	11,588	36%	231,788	15%	78%	5%

Day Contact Hour (WSCH) to Day Credit Hour (SCH) Ratio

	2006 WSCH	2006 SCH	2006 WSCH/ SCH	2016 WSCH	10 yr % Chg	2016 SCH	10 yr % Chg	2016 WSCH/ SCH	10 yr % Chg
TP/SS	38574	32,685	1.18		37%	40,811	34%	1.35	3%
College	184,758	157,755	1.17	221,110	20%	179,997	14%	1.23	5%

Day Lecture and Lab Contact Hour

	2006 Day Lecture WSCH	2006 Day Lab WSCH	2006 Day Total WSCH	2006 Day % Lab WSCH	2016 Day Lecture WSCH	10 yr % Chg	2016 Day Lab WSCH	10 yr % Chg	2016 Day Total WSCH	10 yr % Chg	2016 Day % Lab WSCH
TP/SS	25,123	13,451	38,758	35%	26,952	7%	28,143	109%	55,095	43%	51%
College	122,984	61,774	184,758	33%	114,977	-7%	106,133	72%	221,110	20%	48%

2.1.5 Enrollment

Over the past five-year period, headcount enrollment has increased 24%, from 4,575 students in 2001 to 5,685 in 2006. Over this same period, however, the average student credit hour load has decreased from 7.8 credits to 7.4 credits, with the result that FTE student enrollments have only increased by 18%. The College 2006 average credit hour load was 8.8 credits, and the expectation is that the average credit hour load at Takoma Park/Silver Spring Campus will increase by 2016 to 7.8 credits, still below the projected College average credit load of 9.5 credits, but above the 2006 level. As a result, the projected 6,708 headcount students are expected to equate to 3,488 FTE students, an increase of 25% over 2006 FTE enrollments.

Overall, a 25% growth in credit hours (SCH) is expected at the Campus. While credit hours in Student Development and Honors/Women’s Studies will increase at comparable rates of growth (24% and 25%, respectively), these areas are not where the majority of credit hours will be generated. Credit hours in the AHSS Division are anticipated to grow by 20% to 25,686 SCH, while those in the Health Sciences and NASBMMIS Divisions are expected to increase above this average by 34% to 6,533 SCH and by 29% to 19,017 SCH, respectively. These projected growth rates recognize the impact of shortages in the health professions, coupled with excellent programs, effective partnerships, and new proposed facilities in the sciences.

TABLE 2.1.3
FALL TERM TAKOMA PARK/SILVER SPRING CAMPUS ENROLLMENT STATISTICS

	2001	2002	2003	2004	2005	2006	5yr % Chg	2016	10 yr % Chg
Headcount	4,575	4,821	4,873	5,154	5,641	5,685	24%	6,708	18%
Credit Load	7.8	7.3	7.5	7.6	7.4	7.4	-5%	7.8	6%
FTE Students	2,367	2,358	2,424	2,599	2,798	2,796	18%	3,488	25%

TABLE 2.1.4
FALL TERM CREDIT HOURS BY DIVISION AT THE TAKOMA PARK/SILVER SPRING CAMPUS

	2001	2002	2003	2004	2005	2006	5yr % Chg	2016	10 yr % Chg
Student Dev	265	347	384	494	552	659	149%	818	24%
Honors/Other	0	174	161	244	204	216	n/a	268	25%
AHSS	17,838	17,276	17,940	20,112	20,836	21,446	20%	25,686	20%
Health Sciences	3,269	3,682	4,014	4,520	5,012	4,883	49%	6,533	34%
NASBMIS	14,139	13,888	13,868	13,612	15,366	14,737	4%	19,017	29%
TP/SS	35,511	35,367	36,367	38,982	41,970	41,940	18%	62,322	25%

2.1.6 Faculty and Staff

The College projects that its overall number of FTE faculty will increase at a rate slightly lower than its overall increase in enrollment, from 784.00 to 876.75, an increase of 92.75 FTE faculty, or 12%, and faculty supporting the Takoma Park/Silver Spring Campus will also increase by 12%, from 195.00 FTE faculty to 218.00 FTE faculty. The number of full-time faculty will increase by 17 positions, from 141 to 158, or 12%, while the number of part-time faculty will increase by 24 positions from 216 to 240, or 11%. Campus and division projections of faculty seek to reduce and/or equalize the credit hour loads of faculty and therefore do not necessarily parallel enrollment growth rates. Thus, the 12% growth rate for faculty at Takoma Park/Silver Spring is less than the 25% growth rate in FTE students.

While the College expects its overall numbers of full-time, part-time, and FTE staff to increase about 10% from fall 2006 to fall 2016, less than its overall projected 15% increase in fall term FTE enrollment, the Takoma Park/Silver Spring Campus is anticipating a modest 4% increase in staff, reflecting the recent investments the College has made in its human resources on this campus. Overall, the number of Campus staff is expected to increase by 11.75 FTE positions, with 9 additional full-time staff and 11 additional part-time staff.

The largest growth in positions is planned for the Office of the Vice President and Provost which will align office staffing with staffing on the other campuses. Modest growth is also projected for the instructional and student development areas of the campus. The largest increase is the planned addition of a Center for Teaching and Learning on the campus. Finally, maintenance of the number of campus-based Central Administration is based on College-wide ratios of students to staff and faculty to staff to ensure reasonable comparability across campuses, as well as the overall goal of the College to build on economies of scale in projecting the needs for such functional support.

TABLE 2.1.5
2006 AND 2016 TAKOMA PARK/SILVER SPRING FACULTY POSITIONS BY DIVISION

	2006	2006	2006	2016	10 Yr	2016	10 Yr	2016	10 Yr
	FT	PT	FTE	FT	#	PT	#	FTE	#
					% Chg		% Chg		% Chg
Student Dev	16	11	18.75	18	2	12	1	21.00	2.25
	(13%)				(13%)		(9%)		(12%)
AHSS	52	98	76.50	56	2	109	11	83.25	6.75
	(8%)				(8%)		(11%)		(9%)
Health Sciences	41	48	53.00	47	6	53	5	60.25	7.25
	(15%)				(15%)		(10%)		(14%)
NASBMIS	32	59	46.75	36	4	66	7	52.50	5.75
	(13%)				(13%)		(12%)		(12%)
CLT/Distance	0	0	0	1	1	0	0	1.00	1.00
Learning	(n/a)				(n/a)		(0%)		(n/a)
TP/SS	141	216	195.00	158	17	240	24	218.00	23.00
					(12%)		(11%)		(12%)

TABLE 2.1.6
2006 AND 2016 TAKOMA PARK/SILVER SPRING STAFF POSITIONS BY DIVISION

	2006	2006	2006	2016	10 Yr	2016	10 Yr	2016	10 Yr
	FT	PT	FTE	FT	#	PT	#	FTE	#
					% Chg		% Chg		% Chg
VP/Provost	4	0	4.00	6	2	1	1	6.25	2.25
					(50%)		(n/a)		(56%)
Student Dev	14	18	18.50	14	0	23	5	19.75	1.25
					(0%)		(28%)		(31%)
AHSS	24	35	32.75	24	0	38	3	33.50	0.75
					(0%)		(300%)		(2%)
Health Sciences	15	1	15.25	16	1	4	3	17.00	1.75
					(7%)		(150%)		(11%)
NASBMIS	13	2	13.50	14	1	5	3	15.25	1.75
					(8%)		(150%)		(13%)
CLT/Distance	0	0	0.00	4	4	0	0	4.00	4.00
Learning					(n/a)		(0%)		(n/a)
Central Admin	182	23	187.75	183	1	19	-4	187.75	00.00
TP/SS	252	79	271.75	261	9	90	11	283.50	11.75
					(4%)		(14%)		(4%)

2.2 EXISTING CONDITIONS

2.2.1 Location and Adjacent Land Uses

The Takoma Park/Silver Spring Campus is located in the southeastern corner of Montgomery County. It is on the edge of the Washington DC streetcar suburb of Takoma Park and the quickly urbanizing Georgia Avenue corridor, south of downtown Silver Spring. The campus straddles both sides of the WMATA/CSX tracks and is located between two Metro stations, Silver Spring and Takoma Park. Of all the Montgomery College campuses, Takoma Park/Silver Spring is the most compact and urban in character.

The original campus location was between Fenton and Philadelphia Streets and dates to the 1960s. Most of the buildings within the area of the original campus, with the exception of Science South, were built in the late 1970s. Several buildings are located across New York Avenue within an existing residential neighborhood of early twentieth century homes.

The last ten years has seen an expansion of the campus to the north and west of the WMATA/CSX tracks, within the Silver Spring commercial corridor. These campus buildings adjacent to Georgia Avenue are surrounded by a rapidly changing landscape, from car-oriented uses to more dense and urban mid-rise development. (See Figure 2.2.1 Campus Setting).

2.2.2 Campus Character and Image

The character created by the small scale of the original buildings surrounded by mature trees is now complemented with a more dynamic and urban campus on Georgia Avenue. As the campus evolves it has taken on the character of two distinct areas: the east campus with a focus on natural sciences, humanities and student services, and the west campus with a focus on health sciences and the visual and performing arts.

The east campus is further characterized by the original campus, between Fenton Street to the west and New York Avenue to the east, and the portion of campus between New York and Philadelphia Avenues. The original campus consists of the Math Pavilion, Science North and South buildings, the Resource Center, the Commons, Falcon Hall, and the new Student Services Center. These structures are grouped around several linked courtyards. Except for the Science North and South buildings and the new Student Services Center, this part of campus is comprised of small-scale, two-story buildings or pavilions.

East of New York Avenue, several academic pavilions are sited on dispersed parcels. Typically these are small pavilions with dominant metal roofs. The Communication Arts Center is two to three stories, yet very compact in size and scale. The buildings east of New York Avenue are located adjacent to houses on wooded lots.

The west campus consists of much larger and newer structures and includes the Health Sciences Center and the new Cafritz Arts Center. This area is bordered by Burlington Avenue to the north, Georgia Avenue to the west and the Jesup Blair Park to the south. The new Cultural Arts Center and West Parking Garage opened in January 2010. A pedestrian bridge links the east and west campuses crossing over Fenton Street and the WMATA/CSX tracks. The west campus is characterized by the larger size of its buildings and a lack of mature trees and landscaping.

An older East Parking Garage is located on Fenton Street to the north of the east campus on a parcel non-contiguous with the campus. Four-story commercial buildings currently used for storage surround it.

Jesup Blair Park provides a transition area between the east and west campuses with its beautiful and majestic oak trees and an historic homestead and soccer field. The park lends the Campus an air of being much more open and wooded. (See Figure 2.2.2 Campus Character).

FIGURE 2.2.1
CAMPUS SETTING



Image Not to Scale

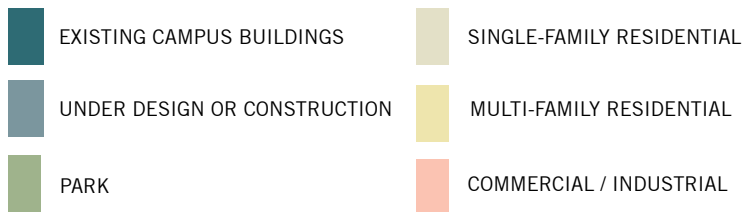


FIGURE 2.2.2
CAMPUS CHARACTER



- Open Pavilions**
 - Built in late 1975-1978
 - Typically one story with mansard roofs and few windows
 - Materials include: steel frame and cementitious panels
- 2 to 3 Story Buildings set back from the street edge**
 - Built in 1978-1980, except SS (1968)
 - Materials include: brick or concrete panels and stucco

- 3-4 Story Buildings with urban character**
 - Built from 2004-2009, except East Garage (1980)
 - Materials include: buff and red brick, grey block and blue metal panels, dark glass

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Day Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage

2.2.3 Campus Entrance Experience

Visibility and Identity

Traditionally the Campus has had little visibility with the oldest portion being the east campus located on the edge of a residential neighborhood, away from major thoroughfares. The buildings were low key and generally were oriented away from the street. Campus signage was small and limited in keeping with the neighborhood.

The newer buildings have created a new gateway experience increasing visibility and invoking a new level of change and energy on the Campus. The new Student Services Center with its circular corner plaza and cylindrical corner element has a strong presence on Fenton Street. Additionally, the new Cultural Arts Center will be the gateway from both directions of Georgia Avenue giving the campus additional presence within Silver Spring and Washington, DC.

There are other opportunities to address approaches to the Campus. Signage adjacent to the existing Communication Arts Building greets pedestrians that arrive by bus along Philadelphia Avenue, but is not memorable. New signage at this location would help identify the Campus from this direction. The southern approach to the campus also lacks significant buildings or appropriately scaled signage. (See Figure 2.2.3 Gateways and Views).

2.2.4 Campus Organization and Open Space

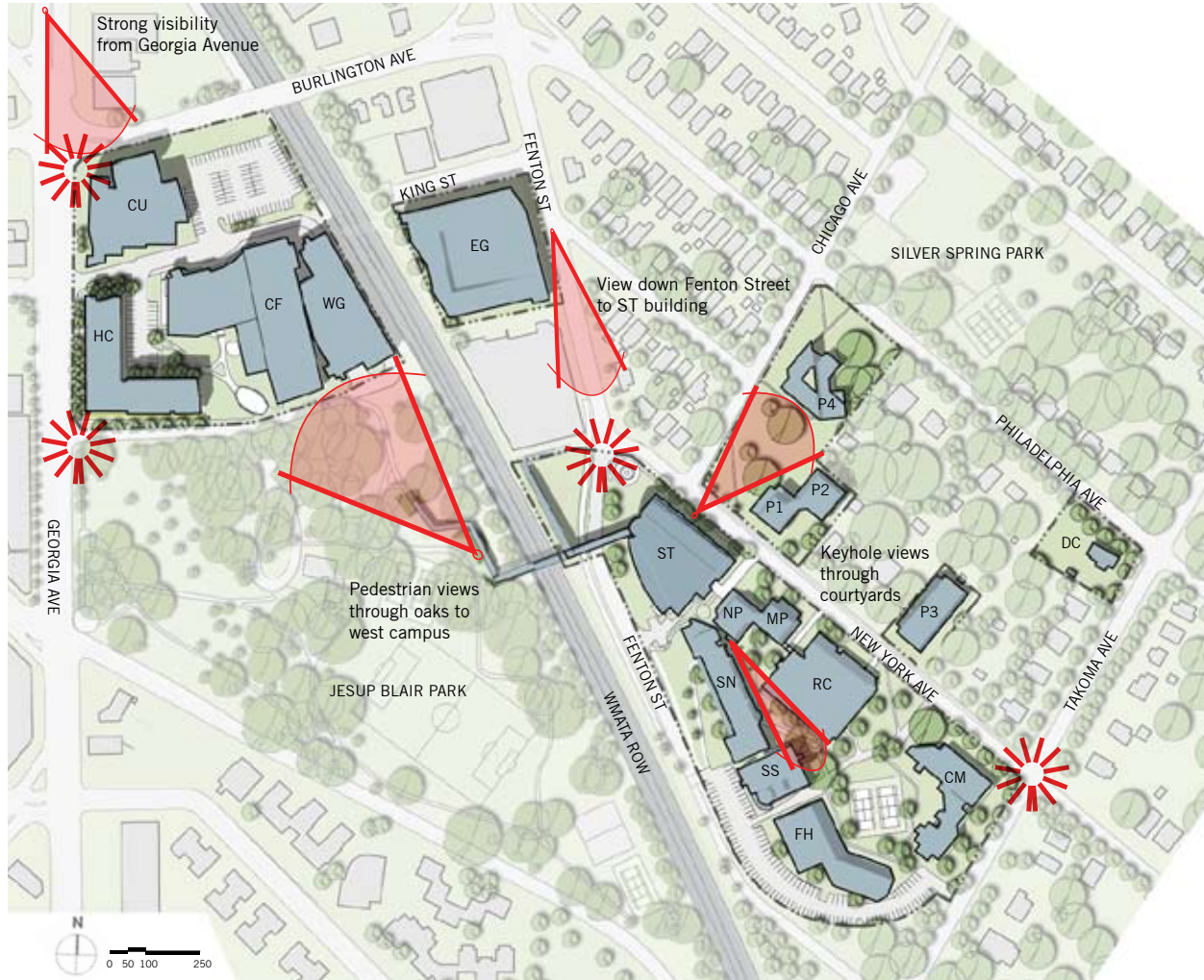
The original campus was organized around a series of small and irregular courtyards that stepped down with the topography from the north end of Campus to the south end. Entrances to buildings were typically off these courtyards. This organization allowed for the small campus to create outdoor spaces for mingling of students, to connect buildings with indirect relationships to each other, and to reduce the impact of student traffic on the adjacent residential neighborhood. The concrete walls and fence of the tennis courts have reduced the visual connection to the southernmost courtyard. The Miller Memorial Garden occupies a small space in the middle of the Campus and is a key part of the historical memory of the College.

The properties along New York and Chicago Avenues allow for larger open space, retaining many large, mature hardwood trees.

The recent campus expansion toward Georgia Avenue has a very different organization and relationship of buildings. Due to their large size and specialization, the buildings are not linked around courtyards as on the original campus and are typically entered right off the street. The buildings cover most of their lots, with the exception of the open space between the Cafritz Foundation Arts Center and the Health Sciences Center.

With the construction of the pedestrian bridge linking the new Student Services Center to the west campus over the WMATA/CSX tracks, students now interact with Jesup Blair Park, walking through a corner of it under an oak tree canopy. This allows the park to play an active role in providing open space to the Campus and helps to activate the park as well. (See Figure 2.2.4 Open Space and Streetscape).

FIGURE 2.2.3
GATEWAYS AND VIEWS



EXISTING CAMPUS BUILDINGS

CAMPUS GATEWAYS

CAMPUS VIEWS

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Day Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage

FIGURE 2.2.4
OPEN SPACE AND STREETScape



ACTIVATED OPEN SPACE WITH SEATING AND PEDESTRIAN AMENITIES

RESIDUAL OPEN SPACE CREATED BY BUILDING SET-BACKS

STREETSCAPES WITH PLEASANT RESIDENTIAL AND PEDESTRIAN CHARACTER

EXISTING CAMPUS BUILDINGS

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Day Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage

FIGURE 2.2.5
BUILDING USAGE



- ACADEMIC
- STUDENT SERVICES
- ADMINISTRATIVE
- PHYSICAL EDUCATION

- PARKING
- MIXED USE WITH STUDENT SERVICES
- MIXED USE WITH ADMINISTRATIVE AND ACADEMIC
- ⊙ WDCE DEDICATED SPACE

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Day Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage

2.2.5 Building Usage / Functional Adequacy of Facilities

General Campus-wide

The existing 1970s era buildings have functional problems that are inherent in their small size and informal organization. The buildings typically have small floor plates (less than 2,500 net assignable square feet), small bay sizes and irregular shapes. These characteristics constrain the use of the space.

The buildings were designed with outdoor corridors and stairs, and elevators shared between buildings that result in a sacrifice of comfort and energy efficiency, and are ill-suited to hot or cold weather. In addition, the circulation network into and through buildings does not adequately address the accessibility challenges of some students and faculty and are not compliant with basic regulations of the Americans with Disabilities Act (ADA). Most HVAC and building automation control systems are beyond their useful life and should be replaced.

The newer buildings have addressed many of these issues. Still, the College finds itself deficient in both the size and quantity of office and instructional space, study and meeting rooms, and support spaces. Below is a list of the buildings on campus and an assessment of the adequacy of the facilities to support the programs and functions presented. (See Figure 2.2.5 Building Usage). The functional adequacy assessments are based on visual inspections and a more comprehensive study of campus assets conducted by Vanderweil Facility Advisors (VFA) in 2006.

East Campus

Charlene R. Nunley Student Services Center (ST) (110,504 GSF) a three-level building completed in 2007, providing for the successful consolidation of student services and activities. Services include spaces for financial aid, testing and registrar, a student bookstore and café, the campus cafeteria, as well as spaces for student activities and clubs, including the campus radio station and college newspaper. The College refers to this building as the ‘one stop shop’ for student services. In addition, the facility houses IT’s point-of-presence for the Campus and a high performance central heating and cooling plant and distribution system for the East Campus.



Resource Center (RC) (44,906 GSF) a two-story structure constructed in 1978 housing the campus library collection, study and support space, Reading/Writing Language Center, Student Development Services, Information Technology Center, a 90 seat lecture room, several classrooms and some faculty offices.



There is insufficient stack, study (especially group study rooms), and support space for the campus collection. Circulation throughout the building is indirect and confusing. In addition, access to the Resource Center by individuals who require an elevator is extremely difficult.

The Commons (CM) (25,070 GSF) a two-story structure constructed in 1978, the Commons was renovated and reopened in 2010 with the building now housing administrative offices, the Social Sciences Computer Center and technology classrooms.



Falcon Hall (FH) (39,063 GSF) a two-story structure built in 1978 houses the Physical Education Department and includes a gymnasium, a pool, locker rooms, a classroom and racquetball courts. Additionally, two tennis courts are adjacent outside the building.

The classroom is not acoustically separated from the gym. The gym is not air-conditioned, the fitness center is undersized and the gym floor needs to be replaced. The tennis courts see little use by students and faculty and better facilities are located nearby in Jesup Blair Park.



Science North (SN) (39,950 GSF) a two-story structure constructed in 1978, houses science laboratories for biology, chemistry and physics, two lecture halls, a Math-Science Lab and associated offices for the science department. Additionally, it houses shops and storage space for facilities operations and maintenance of the campus.

There is a shortage of laboratory and support space, access to elevators is not easy for service to all floors, classrooms are under-sized, and there is insufficient storage space and shop space for facilities operations and maintenance.



Science South (SS) (23,757 GSF) a three-story structure with a partial lower level and attached planetarium, built in 1962. It houses the biology and physical science departments and laboratories, associated offices, the planetarium, and a greenhouse.

There is a shortage of lab space, elevators do not service all floors, classrooms are under-sized and there is insufficient storage space.



North Pavilion (NP) (6,942 GSF) a two-story structure built in 1975, housing offices for faculty and staff and a general-purpose classroom.

The classroom sizes and number are insufficient for the proposed programs. Currently the building is serving as project management space for the construction of new buildings.



Math Pavilion (MP) (6,942 GSF) a two-story structure built in 1975, housing offices for Math faculty and the Mathematics Center and Honors Program.

The building lacks an internal stair linking the two levels. The spaces are irregular and difficult to program.



East Garage (EG) (224,310 GSF) located on Fenton Street and built in 1980, it has 665 parking spaces for faculty, staff and students.

Pavilion 3 (formerly the Pavilion of Fine Arts) (P3) (15,013 GSF) a two-story structure constructed in 1975, was recently renovated from art studios to general-purpose classrooms supporting the Humanities program. The upper floor offices have windows that only look into the classroom spaces below.



Pavilion 1 (formerly the Information Sciences Pavilion) (P1) (7,385 GSF) a two-story structure constructed in 1975 currently houses the Business, Management and Information Sciences Department, including computer teaching laboratories.

There is an insufficiency of space resulting from small sizes of both teaching and open laboratories.

Pavilion 2 (formerly the Student Services Pavilion) (P2) (7,385 GSF) a two-story structure constructed in 1975 and housing the Physical Plant offices.



Pavilion 4 (formerly Communication Arts Center) (P4) (15,873 GSF) a three-story structure constructed in 1980, includes general-purpose classrooms, a black box theater and faculty offices.

Most classrooms are accessed directly from the courtyard or outdoor hallways. The classrooms are all irregular in shape and very small and inefficient. The black box theatre is currently being used to support student programs.

Child Care Center (DC) (3, 310 GSF) is a two-story former residence, built in 1924 and renovated in 1994.



West Campus (west of WMATA/CSX tracks)

Health Sciences Center (HC) (98,038 GSF) a four-story building completed in 2004 housing the Health Sciences and Nursing programs. The facility includes classrooms and laboratories and offices for faculty and the Dean of Health Sciences. In 2011, 8,545 square feet of program space for Work Force Development will be transferred to a new location within the Cafritz Foundation Arts Center. The Health Sciences program will expand to fill the space in the Health Sciences Center.



The Morris and Gwendolyn Cafritz Foundation Arts Center (CF) (134,748 GSF) a three-story former industrial building that was renovated in 2007. The home of the College's arts program, now including the School of Art + Design at Montgomery College. The building houses ceramic, sculpture, printmaking, drawing, painting, and photography laboratories, general-purpose classrooms, and computer labs. The facility also includes a public gallery, lecture hall and a catering kitchen for receptions.

In addition, the facility houses the College's central computer operations, referred to as the Network Operating Center (NOC), and a high-performance central heating and cooling plant and distribution system

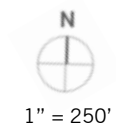




FIGURE 2.2.6
2006 FACILITIES PLAN

- EXISTING BUILDING
- IN DESIGN, UNDER CONSTRUCTION OR UNDER RENOVATION
- CAMPUS BOUNDARY
- MILLER MEMORIAL GARDEN

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Child Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- RC Resource Center
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage



for the west campus. As of 2011 it will also house the campus-based operations of WDCE on the second level.

Cultural Arts Center (CU) (57,243 GSF) a performing arts building that was opened in 2010. It houses a 500 seat performing arts space, supported by a scene shop, changing rooms, rehearsal space and classrooms. In addition, the facility houses a 125 seat studio theater, classrooms and a dance studio.



West Garage (WG) (151,490 GSF) a parking garage for 357 vehicles on four levels adjacent to the Arts Center. The structure was opened in 2010.

2.2.6 Building Conditions

In 2007, the College updated the facilities condition assessment for each of its three campuses, including buildings and site infrastructure components such as electrical utilities, storm sewer, sanitary sewer, parking lots, etc. The primary focus of this effort was to:

- Provide a baseline condition assessment of the College's facilities to include infrastructure components and building systems.
- Provide the College with budget estimates for funding required safety improvements and reducing the deterioration of campus buildings and infrastructure components.
- Assist the College with building code and accessibility compliance and to ensure that the facilities are operated as required.
- Utilize the assessment in the implementation of an ongoing process of the identification and prioritization of maintenance and capital repair projects.
- Provide decision support capabilities with the assessment's facility management software solutions.

The facilities analyses include the following:

- Current Condition Analyses – existing facility deficiencies including deferred maintenance, deferred renewal, near-term anticipated renewal, recommended discretionary improvements, and code non-compliance issues.
- Anticipated capital renewal analyses – projections of ongoing degradation of facilities' components and costs associated with renewal or replacement of these components as they reach the end of their useful life.
- Capital funding analyses – scenario comparisons showing various funding levels and the effect of each on the condition and value of the building.

Assessment Methodology

The deficiencies were classified in several different ways. In addition to detailed specific descriptions, each deficiency was assigned a category, priority, and primary system association. This parallel differentiation

allows for multiple queries of the database, facilitating analysis of the data. It is possible, for instance, to query the database for all Priority 1 deficiencies in the electrical systems or all Priority 5 accessibility code issues. The criteria used to determine the priorities, categories, primary systems, and cost estimating are as follows:

Priority Definitions:

Priority 1: Currently Critical - Projects requiring immediate action to:

- Return a facility to normal operation
- Stop accelerated deterioration
- Correct a cited safety hazard

Priority 2: Potentially Critical - Situations that, if not corrected expeditiously, will become critical within a year, including:

- Intermittent interruptions
- Rapid deterioration
- Potential safety hazards

Priority 3: Necessary – Not Yet Critical - Conditions requiring appropriate attention to preclude predictable deterioration or potential down time and the associated damage or higher costs if deferred further.

Priority 4: Recommended - Items that represent a sensible improvement to the existing conditions. These items are not required for the most basic function of a facility; however, Priority 4 projects will improve overall usability and/or reduce long-term maintenance.

Priority 5: Does Not Meet Current Codes/Standards - Items that do not conform to existing codes, but are grandfathered in their existing condition. No immediate action is required, although the items will need to be addressed if any significant work is performed on the building. The amount of work that triggers code compliance is typically 50% of the value of the structure but is also somewhat at the discretion of the local building official.

Facility Condition Index (FCI)

An automated standard process for assessing the relative condition of buildings and site infrastructure components, facilitating comparison both within and among the campuses was established. For each building or site component, the Facility Condition Index (FCI) was developed which measures the relative amount of current deficiencies in the building including recommended improvements and grandfathered issues. The total value of recommended corrections is divided by current replacement value for the building or site component resulting in the FCI. The higher the FCI, the poorer the condition of the facility or system component. The FCI ranges for the standard of services for each building or site component are:

Good:	.00 to .05
Fair:	.05 to .10
Poor:	Greater than .10

FCI is a standard measure used throughout the country; it is recommended by both the National Association of College Business Officers (NACUBO) and the Association of Higher Education Facility Officers (APPA). In the attached tables, this is represented by a Deficiency %, which takes the FCI and converts it to a percentage of replacement. For example, an FCI of .10 translates into a Deficiency Percentage (FDC) of 10%. Figure 2.2.7 General Building Conditions illustrates the FDC of the buildings on the campus.

TABLE 2.2.1
TOTAL REPLACEMENT VALUE AND CURRENT DEFICIENCY COST FOR ACADEMIC BUILDINGS AT THE
TAKOMA PARK/SILVER SPRING CAMPUS

Name	Use	Year Built	Size	RV (\$1,000)	FCI cost (\$1,000)	FCI
Pavilion 4	Classroom - Theater	1980	15,873	2,520	946	0.38
Cafritz Foundation Arts Center	Classroom - Studios	2007	139,320	27,659	0	0
The Commons	Classroom, Office	1978	25,070	3,692	665	0.18
Child Care	Child Care	1924	3,310	384	209	0.54
Cultural Arts Center	Theater - Dance - Class	2009	57,243	27,822	0	0
Falcon Hall	Athletics - Recreation	1978	39,063	5,316	2,466	0.46
Health Sciences	Classroom	2004	98,038	19,468	0	0
Math Pavilion	Offices	1975	6,942	1,192	637	0.53
North Pavilion	Offices	1975	6,942	1,235	484	0.39
Pavilion 1	Classroom - Student Services	1975	7,386	1,235	657	0.53
Pavilion 2	Offices	1975	7,385	1,290	714	0.55
Pavilion 3	Classrooms	1975	15,013	2,250	1,058	0.47
Resource Center	Library - Offices	1978	44,906	5,686	2,810	0.49
Student Services Center	Student Services	2007	110,504	21,867	0	0
Science North	Classrooms	1978	39,950	6,936	3,579	0.52
Science South	Classrooms	1962	23,757	4,122	2,927	0.71

Source: 2006 VFA Report and Montgomery College Facilities Office (August 2010)

TABLE 2.2.2
 TOTAL REPLACEMENT VALUE AND CURRENT DEFICIENCY COST FOR BUILDINGS AT THE TAKOMA PARK/SILVER SPRING CAMPUS (FROM 2006 VFA REPORT)

There are currently seventeen structures on campus including the Cultural Arts Center and the East Garage (224,310 GSF) totaling 818,368 GSF. This study excludes both the East and West Parking Garages. It includes the fourteen existing major buildings (578,748 GSF) and a Child Care Center (3,310 GSF).

Priority One - Five	Replacement Value	Deficiency	Deficiency as % of Replacement*
Building Systems	\$120,546,103	\$21,368,307	18%
Infrastructure	\$9,574,168	\$2,213,344	23%
CAMPUS TOTAL	\$130,120,271	\$23,581,651	18%
Priority One-Three Only			
Building Systems	\$120,546,103	\$16,750,793	14%
Infrastructure	\$9,574,168	\$835,964	9%
CAMPUS TOTAL	\$130,120,271	\$17,586,757	14%

TABLE 2.2.3
 BUILDING DEFICIENCY CATEGORY AMOUNT (1-5) AND % OF REPLACEMENT (FROM 2006 VFA REPORT) Excludes Parking Structure.

Less than 25% deficiency (3 building)	\$0	0%
26% to 50% deficiency (4 buildings)	\$6,182,272	32%
51% or greater Deficiency (8 buildings)	\$13,249,442	68%
TOTAL	\$19,431,714	100%

NOTE: The Parking Structure adds \$581,961 to 2.2 Building Deficiency in the Less than 25% category, bringing the Total Building (System) Deficiency to \$20,013,675.

FIGURE 2.2.7
GENERAL BUILDING CONDITIONS



FCI rating less than .10
- Meets Academic Needs and Life Safety Codes

FCI rating above .35
- spaces not appropriate to the academic requirements due to size, shape or condition of facility
- outdated or deficient mechanical, electrical and life safety systems
- facilities that do not meet basic ADA accessibility requirements
- shortage of student and administrative support spaces
- wall panels with possible asbestos containing materials

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Day Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage

2.2.7 Utility and Information Technology Infrastructure

The existing utility and information technology infrastructure is a critical underpinning that supports the Campus' built environment. The College has undertaken a series of separate planning activities compiled in a Utility Master Plan to identify these utility and information technology resources. The Appendix includes an overview of the existing Campus utility and information technology infrastructure.

2.2.8 Site and Environmental Issues

Stormwater Management

The Campus occupies 19.5 acres consisting of an urban landscape environment around a built environment that is largely impervious and consisting of buildings, roads, sidewalks, and parking lots. Approximately 70% of the total Campus area is an impervious built environment.

On the east campus, the on-site drainage flows from the Student Services Center connects into the storm drainage system located in Fenton Street where it flows south and connects to a storm drainage system located at the intersection of Fenton Street, New York Avenue and Juniper Street. With the exception of the college buildings located east of New York Avenue, all of the college buildings outfall into a series of on-site storm drainage system including leaching or infiltration trenches. All of the on-site storm drain systems flow to the south where they combine into a single municipal system just south of the Commons Building. This combined system flows to the east where it connects to the municipal storm drainage system located in New York Avenue.

Based on the 2006 Utilities Master Plan, the existing leaching fields are failing. The exact cause for the failing leaching fields is not known. Typically, the capacity of the leaching or infiltration trench could diminish over time due to sediment and debris accumulation. Additionally, the infiltration rates and groundwater characteristics may have changed over time. In the short-term, investigation should be conducted and remediation measures development to resolve the failing leaching field situation.

On the west campus, the Health Science Center, Cafritz Arts Center, West Garage, Jesup Blair Drive, and the parking lot located north of the West Garage drain through a series of storm drain pipes and flow to the east where they ultimately connect into an existing storm drainage system located within the CSX Right-of-way. The Cultural Arts Center drains to the north and connects into a storm drainage system located in Georgia Avenue and Burlington Avenue.

All of the development that occurred on the west campus has been considered redevelopment. Additionally, the west campus is located within the Silver Spring Central Business District, therefore, a waiver for Channel Protection Volume was requested in accordance with Montgomery County Water Resources Technical Policy for Redevelopment, dated September 18, 2003 which waives Channel Protection Volume for sites within the Central Business District when there is less than a 10% increase in impervious area and the site is 2 acres or less.

Stormwater Management Water Quality Volume for all buildings with the exception of the Cafritz Arts Center has been treated using underground proprietary filtering device(s) such as StormFilters and Baysavers. The Cafritz Arts Center project removed a sufficient amount of pavement to meet its Water Quality Requirements.

FIGURE 2.2.8
MAJOR SITE UTILITIES



CHILLED AND HOT WATER SUPPLY AND RETURN
 8"-12" WATER LINE

SANITARY LINE
 CENTRAL PLANT

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Day Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage

Forest Conservation

The original eastern portion of the campus has maintained a shady feel by the planting and maintenance of trees along the street edge and in the courtyards. The buildings in the eastern portion of the campus are nestled among mature hardwoods, allowing them to successfully knit into the residential neighborhood. The City of Takoma Park has a stringent tree preservation and reforestation program which the Campus complies with.

The forest conservation requirements for the west campus are currently being met by approved Forest Conservation Plans # MR-04105-M-1 (Approved February 24, 2005), # MR-05106-M-1 (Approved March 23, 2006), and the Final Forest Conservation Plan Amendment #MR2008108-M-1 (Approved September 16, 2009). Under the approved plans, 1.33 acres of afforestation were required and 1.37 acres of afforestation were provided, leaving a surplus of 0.04 acres.

A comprehensive forest conservation plan does not exist for the east campus. No forest exists on the approximately 11 acre east campus. The recent renovation work on the Commons building was exempt from MNCPPC forest conservation requirements, but tree protection measures were still required. In addition, the City of Takoma Park Arborist had jurisdiction over tree removal on the east campus and did require replacement tree planting for the trees removed during construction.

2.2.9 Circulation and Parking

Vehicular Circulation and Traffic Impacts

Regional and local access to the campus is provided by Georgia Avenue and Philadelphia Avenue. Other roadways providing local access include Fenton Street as well as Chicago, New York and Takoma Avenues. Figure 2.2.10 illustrates the existing campus access and circulation situation. This figure also shows the key locations of off-street parking and public transportation facilities within the campus area.

Campus traffic is well distributed on the regional street network, minimizing the impact of the campus on the adjacent roadway network. The campus vehicle trip distribution pattern is as follows:

Roadway Approach Distribution from the North on Fenton St.	50%
From the West on Philadelphia Ave.	10%
From the South on Georgia Ave.	5%
From the South on Takoma Ave.	20%
From the North on Takoma Ave and Chicago Ave, and East on Philadelphia Ave.	15%

Parking

The current parking capacity on the campus is 829 spaces of which 692 are located in the East Garage. This inventory includes 46 spaces in an underground facility beneath Cafritz Arts Center. Note that this inventory does not include on-street spaces within the area as these spaces are not owned/operated by the College, but are available to College and non-College patrons.

Montgomery College completed its annual survey of parking occupancy on September 25, 2007 and identified a 99% usage at the peak period of 11am.

The opening of the West Parking Garage in January 2010, adjacent to the Cafritz Arts Center, provides an additional 357 spaces. This structure is accessed from Jesup Blair Drive. The West Parking Garage project

also provided an additional 97 spaces in a newly resurfaced parking lot east of the Cultural Arts Center. With these two facilities completed, the total number of available parking spaces, independent of on-street parking, will be 1,333 spaces. This increase of 440 parking spaces is exclusive to the western sector of the campus. As such, any impacts associated with future increases in parking demand and vehicular traffic generation will be focused there. (See Figure 2.2.10 Parking and Vehicular Circulation).

Transit

The campus is well served by public transportation. WMATA and Montgomery County operate a Ride-On bus service that links the campus with two Metro stations along the red line. Figure 2.2.9 illustrates the various stations and routes that serve the campus.

While the vast majority of Takoma Park/Silver Spring students are concentrated within a 10-mile radius (see Figure 2.2.11), and therefore are within reasonable proximity to public transit alternatives, faculty and staff are distributed over a broader geographic area. Nearly 50% of students but only 15% of faculty and staff arrive to the campus via bus, light rail, walk or bike. As a consequence, it is unlikely that transportation demand management strategies will have much effect on reducing the demand for faculty and staff parking. Nonetheless, given this campus' urban environs and the strength of the public transit infrastructure that serves the student population, incentives to public transit and disincentives to single occupant vehicle travel will have a greater impact on this campus than the other more suburban campuses.

FIGURE 2.2.9
BUS ROUTES SERVING THE TPSS CAMPUS

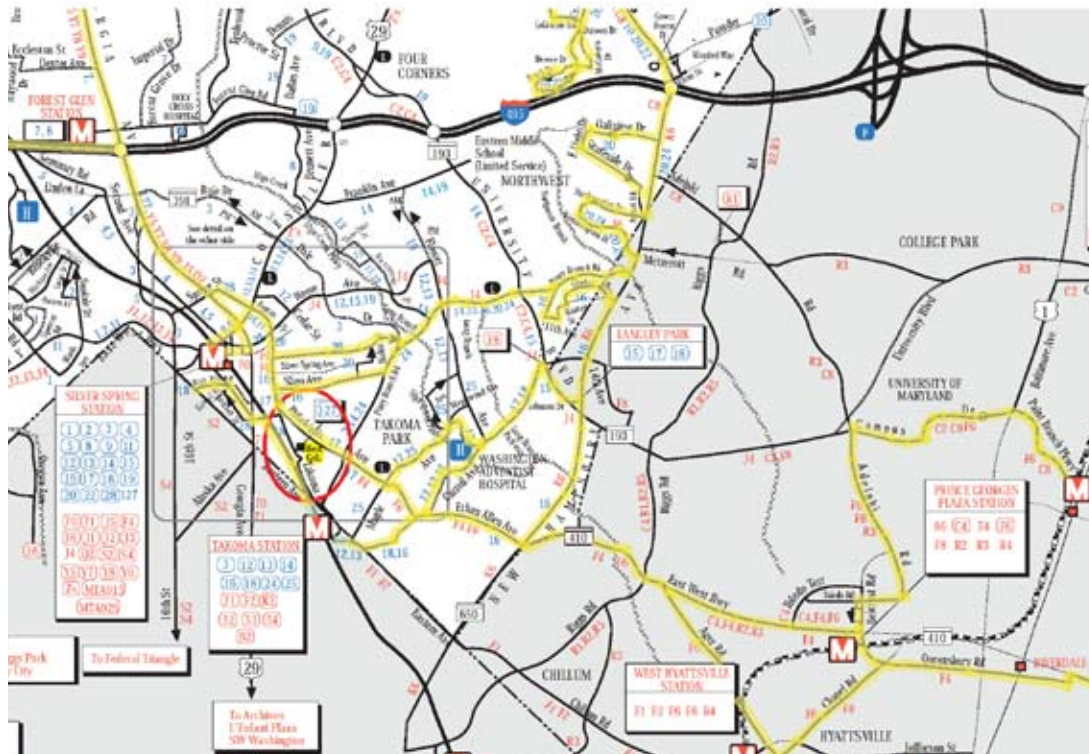
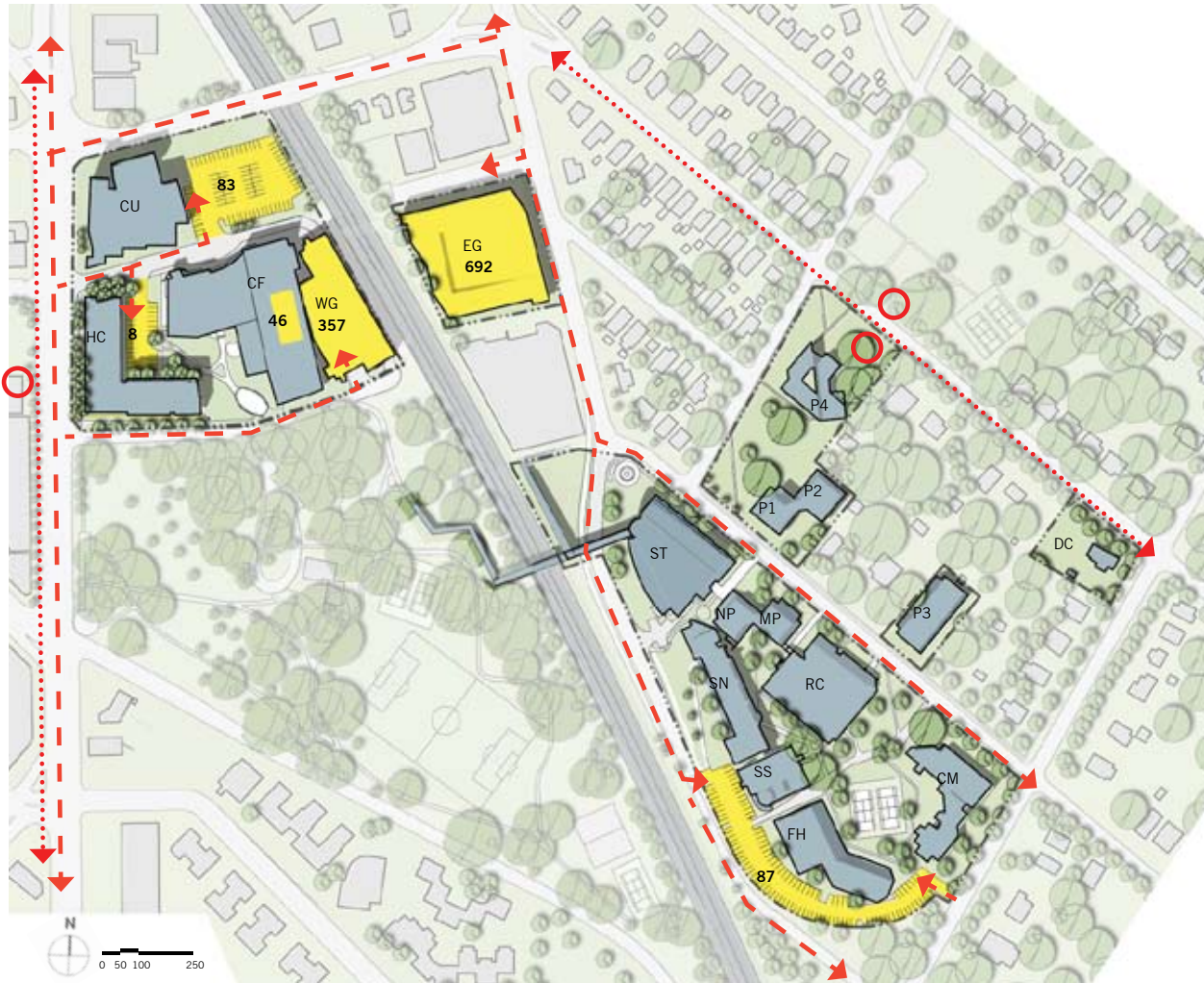


FIGURE 2.2.10
PARKING AND VEHICULAR CIRCULATION



EXISTING BUILDINGS
PARKING FACILITIES

VEHICULAR CIRCULATION

BUS TRANSIT CORRIDOR

BUS STOP

01 # PARKING SPACES

CF Cafritz Foundation Arts Center
 CM The Commons
 CU Cultural Arts Center
 DC Day Care
 EG East Garage
 FH Falcon Hall (Physical Education)
 HC Health Sciences Center
 MP Mathematics Pavilion
 NP North Pavilion
 P1 Pavilion 1
 P2 Pavilion 2
 P3 Pavilion 3
 P4 Pavilion 4
 ST Student Services Center
 SN Science North
 SS Science South
 WG West Garage

Pedestrian

The campus is compact enough to encourage walking from one end to the other. Most pedestrian circulation does not occur along neighborhood streets, with the exception of Fenton Street south of the East Parking Garage.

The WMATA/CSX railroad tracks splits the campus creating a significant barrier to cross-campus pedestrian circulation. The pedestrian bridge spanning the tracks from the Student Services Center to the Jesup Blair Park creates the all important link between the east and west sides of the campus.

Pedestrian circulation along Burlington Avenue also occurs over the WMATA/CSX tracks. A future pedestrian bridge linking the Campus' two garages and both sides of King Street would facilitate connections between the two sides of the Campus.

Pedestrian/Vehicular conflicts are limited and are focused at the intersections of both Fenton Street and Chicago Avenue with New York Avenue. Additionally conflicts can occur at Georgia Avenue intersections and unsignalized crossing at King Street and Jesup Blair Street. The desirability of providing a traffic signal on Georgia Avenue at either of these intersections will be studied in the future.

Figure 2.2.13, highlights the pedestrian routes on the campus and the building entries. The plan also references 1/8 and 1/4 mile walking radii from the lobby of the Student Services Center corresponding to walking times of roughly 5 and 10 minutes.

FIGURE 2.2.11
RESIDENCES OF STUDENTS BY ZIP CODE

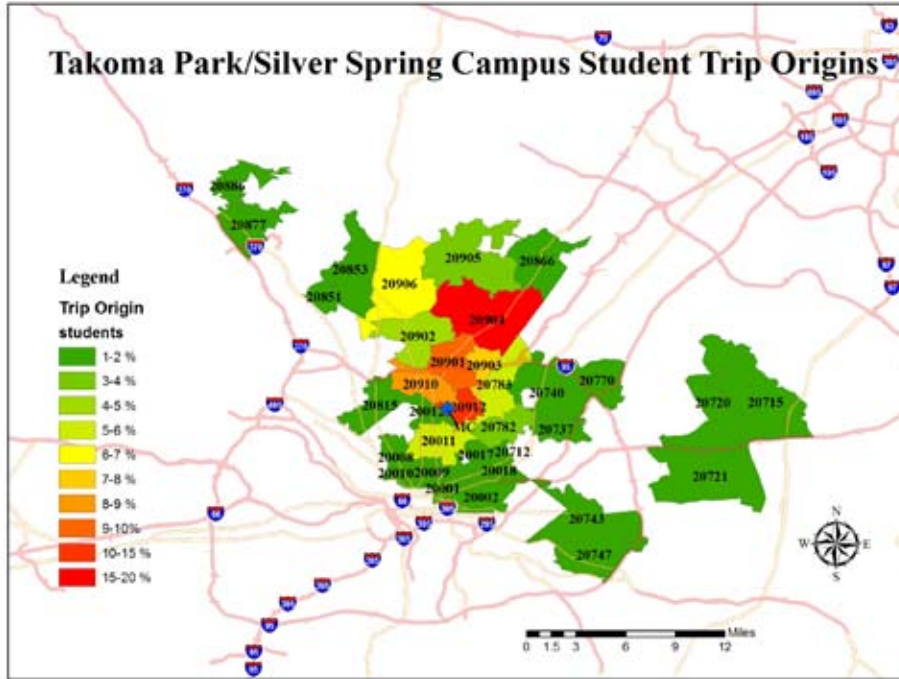


FIGURE 2.2.12
RESIDENCES OF FACULTY/STAFF BY ZIP CODE

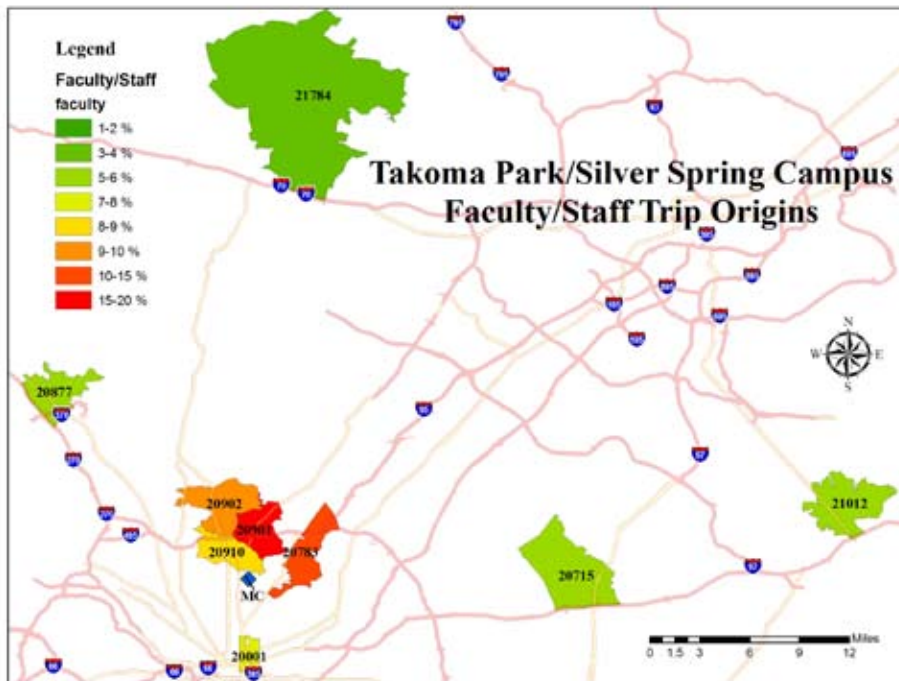


FIGURE 2.2.13
PEDESTRIAN CIRCULATION



— STUDENT WALKING ROUTES
 - - - STUDENT WALKING RADIUS

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Day Care
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2.3 FACILITIES PROGRAM

2.3.1 Needs Assessment

Assessments of the current and projected facilities needs at the Takoma Park/Silver Spring Campus are generated by applying current and projected planning data related to enrollment, instructional delivery, library collections, faculty, and staff to the State of Maryland guidelines for facilities at community colleges. The data referenced in Table 2.3.1 shows a projected head count increase of 18% through 2016, while FTE and FTDE reflect a growth of 25%.

Current and projected space needs are then computed for each type of space in the Campus inventory for which a guideline is available. Comparisons with the Campus' current inventory and the one planned for 10 years later, given approved capital projects, are made, and surpluses or deficiencies relative to the respective space categories are identified. Table 2.3.2 shows this analysis and breakdown by Room Use category.

TABLE 2.3.1
NEEDS ASSESSMENT PLANNING DATA

	Actual Fall 2006	2006 FMP Projected Fall 2016	% Change Fall 2006
FTDE	2,179	2,721	25%
FTDE (inc on line)	2,255	2,830	25%
Day SCH	32,685	40,811	25%
Day WSCH-Lec	25,123	26,952	7%
Day WSCH-Lab	13,451	28,143	109%
Day WSCH	38,574	55,095	43%
FTE	2,796	3,488	25%
Credit Hours (SCH)	41,940	52,322	25%
Bound Volume Equivalents	72,223	83,780	16%
FTEF	195.00	218.00	12%
FT fac	141	158	12%
PT fac	216	240	11%
FTES	271.75	283.50	4%
FT staff	252	261	4%
PT staff	79	90	14%
Planning Head Count	1,351	1,655	22%
Headcount Student (HCS)	5,685	6,708	18%

TABLE 2.3.2
COMPUTATION OF SPACE NEEDS FOR THE TAKOMA PARK/SILVER SPRING CAMPUS
(the current inventory includes the Commons and P3 renovations and the completion of the Cultural Arts Center)

HEGIS CODE	ROOM USE CATEGORY	Need 2016	Projected Inventory *	Surplus/ (Deficit)
100	CLASSROOM	40,428	50,291	9,863
200	LABORATORY	208,887	86,387	(122,500)
210	Class Laboratory	197,001	68,848	(128,153)
220	Open Laboratory	11,886	17,539	5,653
300	OFFICE	82,799	76,614	(6,185)
310 /350	Office/ Conf. Room	80,634	70,692	(9,942)
320	Testing/Tutoring	2,165	5,922	3,757
400	STUDY	29,417	18,936	(10,481)
410	Study	17,688	11,708	(5,980)
420-30	Stack/Study	8,378	6,210	(2,168)
440-55	Processing/Service	3,351	1,018	(2,333)
500	SPECIAL USE	50,964	29,262	(21,702)
520-23	Athletic	47,300	25,302	(21,998)
530	Media Production	2,664	3,243	579
580	Greenhouse	1,000	717	(283)
600	GENERAL USE	48,392	52,253	3,861
610	Assembly	14,660	11,741	(2,919)
620	Exhibition	2,165	5,407	3,242
630	Food Facility	16,876	12,673	(4,203)
640	Childcare	1,463	1,463	0
650	Lounge	4,964	12,282	7,319
660	Merchandising	2,265	4,991	2,726
670	Recreation Space	0	0	0
680	Meeting Room	6,000	3,696	(2,304)
700	SUPPORT	25,601	20,544	(5,057)
710	Data Processing	2,500	4,314	1,814
720-740	Shop/ Storage	18,726	13,628	(5,098)
750	Central Service	4,000	2,452	(1,548)
760	Chemical Storage	375	150	(225)
800	HEALTH CARE	766	0	(766)
900	RESIDENTIAL	0	0	0
050-090	ALTERATIONS/IND USE	31,693	31,693	0
	Total NASF:	518,947	365,980	(152,967)

Note: * Projected Inventory includes existing space in 2006 plus approved development projects, including those in design or construction - the Commons and P3 renovations, completion of unfinished spaces in the Cafritz Foundation Arts Center and the Student Services Center, vacating of space in the Health Sciences Center, and the completion of the Cultural Arts Center.

In 2006 the Takoma Park/Silver Spring Campus, excluding Central Administration and Workforce Development & Continuing Education, showed an overall deficiency of 111,248 NASF, a significant amount of space representing nearly 32% of the Campus' current inventory. By fall 2007 the 71,297 NASF Cafritz Foundation Arts Center had opened and by spring 2010 the new Cultural Arts Center (27,625 NASF), and the renovated Commons Building (16,580 NASF) also opened and added significant resources to the campus. In addition, Montgomery College has one approved facility project on this Campus that is about to begin construction - moving of 6,950 NASF of space for WDCE from the Health Sciences Building (HC) to the Cafritz Foundation Arts Center, releasing 8,165 NASF for use by the health sciences programs. Another project under consideration is the relocation of offices, shops and storage supporting the physical plant functions of the Campus to unfinished space in the Student Services Center (8,545 NASF).

Despite the construction of several new buildings on the campus in the last eight years and these planned projects, the Campus continues to be deficient in available space, as show by the State's space planning guidelines—152,967 NASF or 42% of the 2016 projected inventory. Importantly, this assessment of space deficiency is based on planning guidelines for a small campus. The Takoma Park/Silver Spring Campus, with a projected 2,830 FTDE including on-line FTE, is approaching the upper enrollment limit of 3,000 FTDE that defines a small campus. Campuses with FTDE enrollments over 3,000 are categorized as large campuses, and different space factors apply which would have an impact on classroom, class lab, media production, food facility, and meeting room allowances.

If the Takoma Park/Silver Spring Campus was assessed using the large campus factors, the overall deficiency would be 108,399 NASF, or 29% of the Campus' projected inventory. While the Campus may appear to have a substantial amount of space remaining as alteration space and independent organization space, 31% of this 33,213 NASF is associated with dedicated facilities in the Health Sciences Center for Holy Cross Hospital (5,700 NASF) and in the Cafritz Foundation Arts Center for community art studios (4,528 NASF). The greatest deficiencies are in library stacks and study area, athletic/physical education facilities, and in class laboratory space, and a substantial excess of classroom space is shown which increases even more to +20,374 NASF under the large campus guidelines. The class lab deficiency is very significant, representing the transition from classroom to class lab environments, utilizing technology more in instructional delivery, although the large campus guidelines reduces the deficiency to -95,226 NASF. Both Humanities and Math departments face challenges to create appropriate spaces for this transition of teaching methodology.

2.3.2 Proposed Facilities Programs

As shown in the following set of projects, the 2016 Facilities Master Plan for the Takoma Park/Silver Spring Campus adds 46,244 NASF to the Campus inventory beyond those already planned or under construction. These additions represent 30% of the overall net 2016 small campus space deficiency, or 43% of the large campus deficiency. As indicated previously, the projected needs of the Campus must be considered in light of the anticipated transition of this Campus from a small to large campus in the State's planning framework, and planning for the proposed projects has taken into account this campus transition. In addition, the space guidelines do not distinguish between class labs like computer, writing, and math labs which require a smaller station size and less support than science and health sciences labs, so that class lab needs may be overstated. Further the excess of classroom space would translate into about 24,000 NASF of writing and math class labs.

The College has also decided not to meet the State's standards for athletic space, preferring instead to renovate and make only a modest expansion of Falcon Hall, and to not proceed with further expansion of nursing and allied health space beyond that which is already planned. Given the limited building sites on campus, any expansion will require a renovation and/or replacement of existing buildings. The proposed

facilities program shows several renovations to existing buildings, in addition to the Commons Building renovation.

Most projects require the demolition of existing obsolete structures. Due to the configuration of the existing buildings and their condition, it was determined that replacement would be more economical and better suited to the campus development than renovation of the existing structures. These include the existing Science North and Science South buildings, as well as the existing Resource Center. The demolition of these structures will make way for a new Science and Math Center and a new Library and Resource Center. Further, the proposed facilities program shows several renovations to existing buildings, including the renovation of Falcon Hall, the renovation of Pavilion 4, formerly the Communications Arts Center for business and the social sciences, and a new Child Care Center, and the renovation of Pavilion One (P1) and Pavilion Two (P2) for class labs supporting the humanities, social sciences, and business.

A description of the programs located within these projects follows. The physical aspects of these projects will be discussed in Section 2.4, 2006-2016 Facilities Master Plan.

1. A new Science and Math Center is proposed that will have math and science labs, classrooms, faculty offices, a greenhouse, a planetarium and a small animal facility in addition to support space. The Center will also contain a Math/Science Learning Center. The total facility will be 73,555 NASF (134,600 GSF).
2. A new Student Resource Center and Library will support student study, learning and access to library services. The Library provides 400 patron stations in a wide variety of study seating options accommodating 17% of the 2016 FTDE students for the campus. The facility also includes stack and library processing and service space, a Computer Training Center and both a Social Sciences Learning Center and a Reading and Writing Learning Center, as well as a Media Resources Facility, offices and support space. The Student Resource Center will be 48,780 NASF (84,500 GSF).
3. A new Business and Social Sciences Building, created through a renovation of Pavilion 4, formerly the Communications Arts Center, will house business and social sciences offices, a Lecture Hall with 200 seats, and additional support space, as well as a new Child Care Center. The total anticipated development will be 12,000 NASF and 20,000 GSF.
4. Pavilion One (P1) will be renovated to provide 4,285 NASF of class labs to support the humanities, social sciences and business programs, complimenting other class labs provided in the Commons, the Student Services Center, and the Humanities Pavilion.
5. Falcon Hall will be renovated to upgrade the facility, allow for more user-sensitive and safer control of the facility, and create an atmosphere that invites students and faculty to participate. The interior space will be reconfigured to improve access and security, removing the last remaining racquetball court. An addition of 6,300 GSF will add 3,755 NASF of new fitness, office and activity space.
6. The existing Child Care Center will vacate its existing home on the corner of Philadelphia and Takoma Avenues and be brought closer to the center of the campus. This new facility of 4,285 NASF will provide academic space and offices for early childhood education as well as the childcare space. The center will require a parking area and a secure play yard. The Child Care Center may be located within Pavilion 4, the former Communications Arts Center, or may require a new purpose-built structure.

TABLE 2.3.3
EXISTING AND PROPOSED FACILITIES

	Existing NASF 2006*	Master Plan 2016	NASF Change
1 Science and Math			
SS Science South	14,653	0	-14,653
SN Science North	26,757	0	-26,757
MP Math Pavilion	4,332	0	-4,332
new Science and Math Building Phase 1 and 2	0	73,555	73,555
2 Health Sciences			
HC Health Sciences Building	61,015	59,071	-1,944
3 Humanities and Social Sciences			
P4 Pavilion 4	8,996	0	-8,996
CA Business and Social Sciences Building	0	12,000	12,000
P1 Pavilion 1	4,605	4,344	-261
P2 Pavilion 2	4,654	0	-4,654
P3 Pavilion 3 (Humanities)	10,596	10,596	0
NP North Pavilion	4,167	0	-4,167
CM Commons	17,266	21,375	4,109
CF Cafritz Foundation Arts Center	71,297	56,619	-14,678
CU Cultural Arts Center (2009)	27,625	27,625	0
4 Physical Education			
FH Falcon Hall	28,618	28,618	0
FH New Falcon Hall Addition	0	3,755	3,755
5 Student Services and Administration			
RC Resource Center	33,639	0	-33,639
new Resource Center and Library	0	48,780	48,780
ST Student Services Building**	61,601	53,056	-8,545
DC Childcare	1,863	0	-1,863
new Childcare Facility in P4	0	4,285	4,285
6 Service and Maintenance			
ST Physical Plant Offices in Student Services	8,545	8,545	0
Total	390,229	412,224	21,995

Notes"

* The "existing NASF 2006" data is from cC Table 2 Fall 2006 data, which was submitted to MHEC on July 1, 2007.

** 8,545 NASF is to be built-out for campus facilities plant shop and office space.

2.4 2006-2016 FACILITIES MASTER PLAN

2.4.1 Campus Master Plan Guiding Principles

A series of guiding principles were developed to assist in the preparation of the Facilities Master Plan.

1. Rejuvenate the Original Campus

- Retain an appropriate scale of development adjacent to residences along New York Avenue of two stories (with a third floor set back to reduce apparent height). Employ massing that is in keeping with the small scale of the residential neighborhood.
- Renovate the existing buildings along Takoma Avenue - Falcon Hall and The Commons; the latter is complete.
- Replace obsolete buildings – replace the Resource Center, the North and Math Pavilions and Science North and Science South.
- Site a majority of the limited new growth in this area to development along Fenton Street.
- Provide for the consolidation of academic departments and allied programs to meet academic requirements and allow for stronger student support and management efficiencies.
- Enhance the character and landscaping of the courtyards within the original campus. Provide high quality, linked open space and accommodate the memorial garden that is currently located in the campus courtyards. Encourage pedestrian circulation through the interior courtyards and buildings of the East Campus to minimize impact on the surrounding neighborhood.

2. Preserve the Existing Character of the Historic Neighborhood Adjacent to the Campus

- Retain and renovate the three existing pavilion buildings. These pavilions are needed to respond to the Campus' overall space need and for academic swing space during construction of new buildings on campus. Landscape the sites and paint the buildings so that they respect the historic character of the community.
- Once a replacement location is developed, vacate the existing Child Care facility at the corner of Pennsylvania Avenue and Takoma Street.
- Renovate the existing obsolete three-story Pavilion 4, formerly the Communication Arts Center, with a new academic building that respects the existing setbacks and general massing of the existing structure. The design of the renovated building should be in keeping with the scale and quality of the adjacent historic neighborhood.

3. Investigate Opportunities for Future Campus Growth

- Look for opportunities to acquire and develop adjacent properties on Burlington Avenue and Fenton Street.
- Develop a pedestrian connection between the East and West Parking Garages so that sharing these parking resources is seamless between the two sides of the Campus.

The long-term future development of the Campus should respond to the fact that the Campus straddles the WMATA/CSX tracks and is sandwiched between a historic residential neighborhood in the City of Takoma Park (East Campus) and the high-density commercial area of the Silver Spring Central Business District (West Campus). The small parcels and the proximity of the residential neighborhood is a constraint on the intensity of development to the east. The presence of Georgia Avenue as a barrier and Jesup Blair Park limit expansion of the Campus to the west. A possible scenario for future Campus growth is for growth to occur along Fenton Street adjacent to the existing East Parking Garage. Acquisition and development of these parcels would allow for higher intensity development adjacent in a location between the two sides of the Campus. The opportunity to acquire available parcels should be considered in the future to support the long-range growth and development of the Campus. The growth of the Campus anticipated within the 2006-2016 period is planned to be accommodated within the projects discussed in this Facilities Master Plan. The Campus currently has one parcel available to it for future development. This parcel is the existing surface parking lot located immediately east of the Cultural Arts Center. This property is currently owned by the Montgomery College Foundation, a non-profit organization which supports the College, but is not controlled by the College. While the future of the parcel's redevelopment is not identified with a programmed use at this time, the College anticipates that this site provides the Campus with a unique opportunity for future growth and expansion.

4. Implement the Facilities Master Plan with due regard to the sustainability and resource conservation programs of the College.

Extend the existing high performance central plant distribution system to new and renovated buildings on the Campus. Building designs for new and renovated facilities should be undertaken in an environmentally sensitive manner that responds to the sustainability and resource conservation programs for the College. Building designs for new and renovated facilities should be seek Leadership in Energy and Environmental Design (LEED) Silver Certification as the means of responding to this desired outcome.

2.4.2 Proposed Campus Structure and Character

Development over the last ten years on the Takoma Park/Silver Spring Campus, with the exception of the Student Services Center, has been on the West Campus. This area bounded by Georgia Avenue and the WMATA/CSX tracks has seen a transformation during this time, accommodating a doubling of academic space on the campus. It is anticipated that the next phase of Campus renewal will focus on the East Campus.

The majority of new development to accommodate planned growth will occur on the East campus, between Fenton Street and New York Avenue. Obsolete buildings for the sciences and the library will be replaced with new structures. The goal is to develop a higher density core along Fenton Street, while maintaining the scale of the existing structures along the edge of the residential community.

2.4.3 Proposed Building Projects

The 2006-2016 Facilities Master Plan is displayed in Figure 2.4.1. It shows the location, footprints and heights of the proposed new buildings on campus. Following that is a Proposed Demolition Plan. A phasing plan for achieving the goals of the Master Plan is included in Section 2.4.8 Implementation of the Master Plan. Below is a summary of the building projects as envisioned in this plan.

Science and Math Center

This project proposes the construction of a new academic building supporting the science programs within the Division of Health Sciences (Biology) and the Division of Natural and Applied Sciences, Business, Management, & Information Sciences (Chemistry, Physics and Mathematics). The project will include a Math and Science Learning Center.

The Science and Math Center will be completed in two phases, beginning with the demolition and replacement of Science South. In this phase the majority of the science laboratories will be accommodated to allow for continuity in these programs once the laboratories in Science North are demolished. The second phase will replace Science North with a new building wing.

The replacement of Science South and Science North allows the campus to capitalize on the site's capacity for a larger building given the extremely limited availability of building sites. The proposed demolition of these two buildings is supported by the functional and ADA inadequacies of the buildings combined with their exceedingly poor condition as reflected in their low FCI ratings.

Resource Center and Library

This project replaces the existing Resource Center and Library with a new facility, co-locating student study and resource facilities. The proposed Library is increased in size to provide 350 patron stations in a wide variety of study seating options. The amount of stack space also reflects the need projected for the College's collection, incorporating any School of Art + Design collections beyond those accommodated at the Cafritz Foundation Arts Center. A patron lounge outside of the Library proper, but within the facility, to facilitate concentrated use of the Library is being planned for.

In addition to the study functions, the Resource Center and Library houses several of the Campus' learning centers - the Writing Learning Center and the Social Science Learning Center - and its media and academic computing functions. Classrooms supporting Business, Humanities, and Social Sciences will also be added, as well as Humanities Class Labs.

This project will require the demolition of the North and Math Pavilions, as well as the existing Resource Center. The proposed demolition of the two pavilions and the existing Resource Center is supported by their functional inadequacy and the poor condition of the buildings as reflected in their low FCI ratings. Taken together, demolition and replacement is appropriate given the need to also provide for additional space to support program growth.

Careful planning of this project will be required to ensure that the existing Campus facilities are minimally disrupted during the construction process. Functional requirements will require that a single access point to the Library is provided for appropriate management of the collection, and that building support functions are appropriately aligned with Library processing and collection management functions.

The Resource Center and Library should be designed to minimize its apparent size. Design strategies that will be employed in the design of the building include stepping back the third floor along New York Avenue to reduce its height from the street, dividing the building into smaller pavilions with glassy walkways or lobbies to allow for a transparency to the inside courtyards, and articulating the building mass in keeping with the small scale of the adjoining residential neighborhood. There is a possibility, because of the existing topography to step the Student Resource Center down with the slope or to partially bury one floor on the North side to help reduce the scale of the building.

Upon the completion of the Resource Center and Library the outdoor areas that served as staging areas for the construction of this building and the Science and Math Center can be developed and landscaped.

The design and quality of the outdoor spaces in the central core of the campus will be critical to the functioning of these buildings and the image of the campus.

Business and Social Sciences Building

Pavilion 4, formerly the Communications Arts Center, will be completely renovated for the Business and Social Sciences program. The interior courtyard space will be infilled to create additional usable square footage. A number of the uses within the existing building are scheduled to be transferred to the Cultural Arts Center when that building is completed. The project will also include relocating the Child Care Center from its current location on New York Avenue. The new facility should accommodate forty (40) children and appropriate support spaces. The site can accommodate an enclosed play area that is also required under State of Maryland regulations. A small drop-off area will need to be provided off Chicago Avenue. The design process will assess the adequacy of the existing structure to accommodate this new use.

Pavilion P1 & Pavilion P2 (new Classroom Pavilion)

This renovation project converts the pavilion for use as a general classroom building supporting the Social Sciences Department. The overall efficiency of this building can be expected to be reduced to provide proper internal circulation, elevator access, and other requirements.

Falcon Hall

This project renovates and adds to Falcon Hall, the only recreational facility on the Campus. The renovation and addition can accommodate an improved fitness center for student and faculty use, improved changing rooms and interior circulation. Through the renovation, the configuration and amount of locker room space is converted to other uses. Changes in the building usage flow will allow for better and safer control of facility use, including better accessibility for older and/or handicapped individuals. The renovation will allow for the redesign of the office suite to allow for better traffic flow, more direct access to instructor and coaches' offices, and better location of equipment and other storage. Overall the project should create an atmosphere that invites people to participate in healthy lifestyle activities.

While the campus is significantly limited in outdoor athletic facilities, nearby public parks provide space for athletic facilities, including tennis courts and ball fields. The College will coordinate with the appropriate public agencies for use of nearby public park athletic facilities for soccer, softball and tennis.

2.4.4 Proposed Landscape and Open Space

Landscape and open space projects fall under two categories: courtyard spaces and streetscapes.

Courtyards

The outdoor spaces on the East Campus are critical components of the functioning of the adjoining buildings. Most buildings in the original campus currently open onto these landscaped spaces. The courtyards provide the little on-campus open space available to students.

Within the original campus the existing landscaped courtyards should be restored and retained. The

plan proposes improving these spaces, with enhanced landscaping, pedestrian paths and amenities. The landscaping should reinforce the building entrances and pedestrian paths between them, while creating pockets of shady areas for study and congregation of students.

Between The Commons and Falcon Hall a new courtyard will be created by removing the existing tennis courts and handball courts. This space should be visually interconnected with the other courtyards. The redevelopment of this space should be phased with the renovation of Falcon Hall. An existing memorial garden will be displaced during construction and replaced in a prominent location and integrated into the design and construction of the new courtyard.

It is critical that pedestrian amenities, like benches, lighting and trash receptacles be well located and coordinated with one another to relieve congestion and clutter of competing elements. The pedestrian amenities should be secondary to the character of the landscaping and buildings.

The paths through the courtyards on Chicago Avenue and to the south of the Student Services Center should allow for strong visual and physical connections across New York Avenue.

Streetscapes

Street trees are both an amenity to the Campus and serve to reinforce the existing character of the historic neighborhoods of Takoma Park. Trees should line all of the streets along the edges of the campus. The design of the streetscape, the courtyards and the buildings along the west side of New York Avenue should allow for a transition from the residential character across the street and afford views into the courtyards of the original campus.

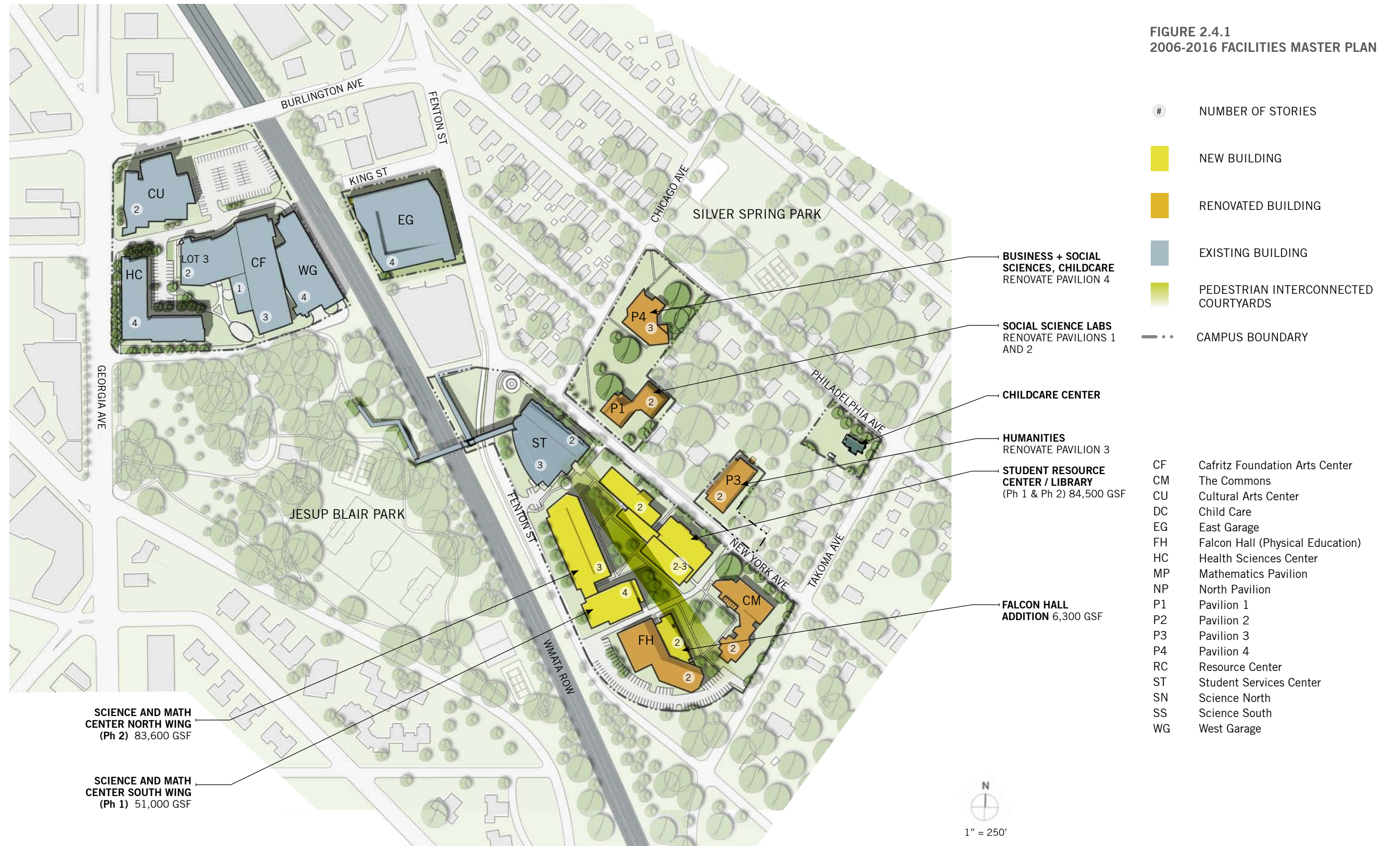
Retain the landscaped setback and mature trees along Philadelphia Avenue when renovating the existing Communications Arts Center as the new Business and Social Sciences Building.

Ensure that all loading, mechanical equipment and service areas are screened from the street and pedestrian paths.

2.4.5 Proposed Utility and Information Technology Infrastructure

Master planning for utility and information technology infrastructure is an integral part of the successful campus planning process. The College's Utility Master Plan was prepared to optimize the use of utility resources while minimizing potential disruptions, as well as costs. As part of this planning process, the 2006 Utilities Master Plan for the Takoma Park/Silver Spring Campus was reviewed to determine the adequacy of existing systems and to ascertain the potential for future expansion. As the current Facilities Master Plan is implemented there will be a series of on-going evaluations and analyses undertaken to determine a more complete picture of the utility and information technology infrastructure impacts. The Appendix includes a brief overview of the planned Campus utility and information technology infrastructure.

FIGURE 2.4.1
2006-2016 FACILITIES MASTER PLAN





**FIGURE 2.4.2
DEMOLITION PLAN**

- # PHASE
- ▤ BUILDING TO BE DEMOLISHED
- EXISTING BUILDING
- ▨ IN DESIGN, UNDER CONSTRUCTION OR UNDER RENOVATION
- · - CAMPUS BOUNDARY

- CF Cafritz Foundation Arts Center
- CM The Commons
- CU Cultural Arts Center
- DC Child Care
- EG East Garage
- FH Falcon Hall (Physical Education)
- HC Health Sciences Center
- MP Mathematics Pavilion
- NP North Pavilion
- P1 Pavilion 1
- P2 Pavilion 2
- P3 Pavilion 3
- P4 Pavilion 4
- RC Resource Center
- ST Student Services Center
- SN Science North
- SS Science South
- WG West Garage

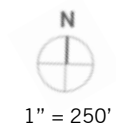
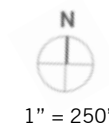




FIGURE 2.4.3
LANDSCAPE + OPEN SPACE PLAN

- NEW COURTYARDS AND KEY AREA
 - EXISTING KEY AREA
 - SECONDARY CAMPUS CIRCULATION AXIS
 - CAMPUS BOUNDARY
 - MAJOR BUILDING ENTRANCE
 - MILLER MEMORIAL GARDEN
- 1 Create interconnected, landscaped courtyards that:
 - reinforce the building entrances and pedestrian paths between them;
 - create shady areas for study and congregation;
 - provide vistas and transparency from New York Avenue.
 - 2 Create a new landscaped courtyard in between the Commons and Falcon Hall.
 - 3 Enhance the street trees along the edge of all streets.
 - 4 Retain the mature trees along Philadelphia Avenue.
 - 5 Create visual and physical links across New York Avenue between courtyard spaces.



2.4.6 Proposed Site Environmental and Sustainability Issues

Stormwater Management

Stormwater Management is governed by the State of Maryland Stormwater Management Act of 2007, requires the development of a stormwater management plan that implements Environmental Site Design (ESD) to the “maximum extent practicable” and ensuring that structural best management practices are only used where absolutely necessary.

ESD is defined as using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic run-off characteristics and minimize the impact of land development on water resources. ESD includes conserving natural resources (drainage patterns, soil and vegetation; minimizing impervious surfaces (roads, walks, roofs) and to increase infiltration and evapotranspiration; and using other non structural practices and innovative technologies.

Forest Conservation

Due to the compilation of all of the previous forest conservation plans, all existing and future development for the West Campus will fall under one forest conservation plan. Although amendments may need to be made to the plan, all five parcels of the West Campus can be developed under the currently approved plan.

If the entire East Campus area were to be “disturbed” during future construction operations, the required afforestation would be approximately 1.65 acres. It is anticipated that actual afforestation requirements will be less. City of Takoma Park tree replacement requirements will be addressed on a project by project basis depending on which trees are removed. Coordination efforts between M-NCPPC and the City of Takoma Park Arborist for forest conservation, tree protection and tree replacement requirements must be taken into account with future development of the East Campus.

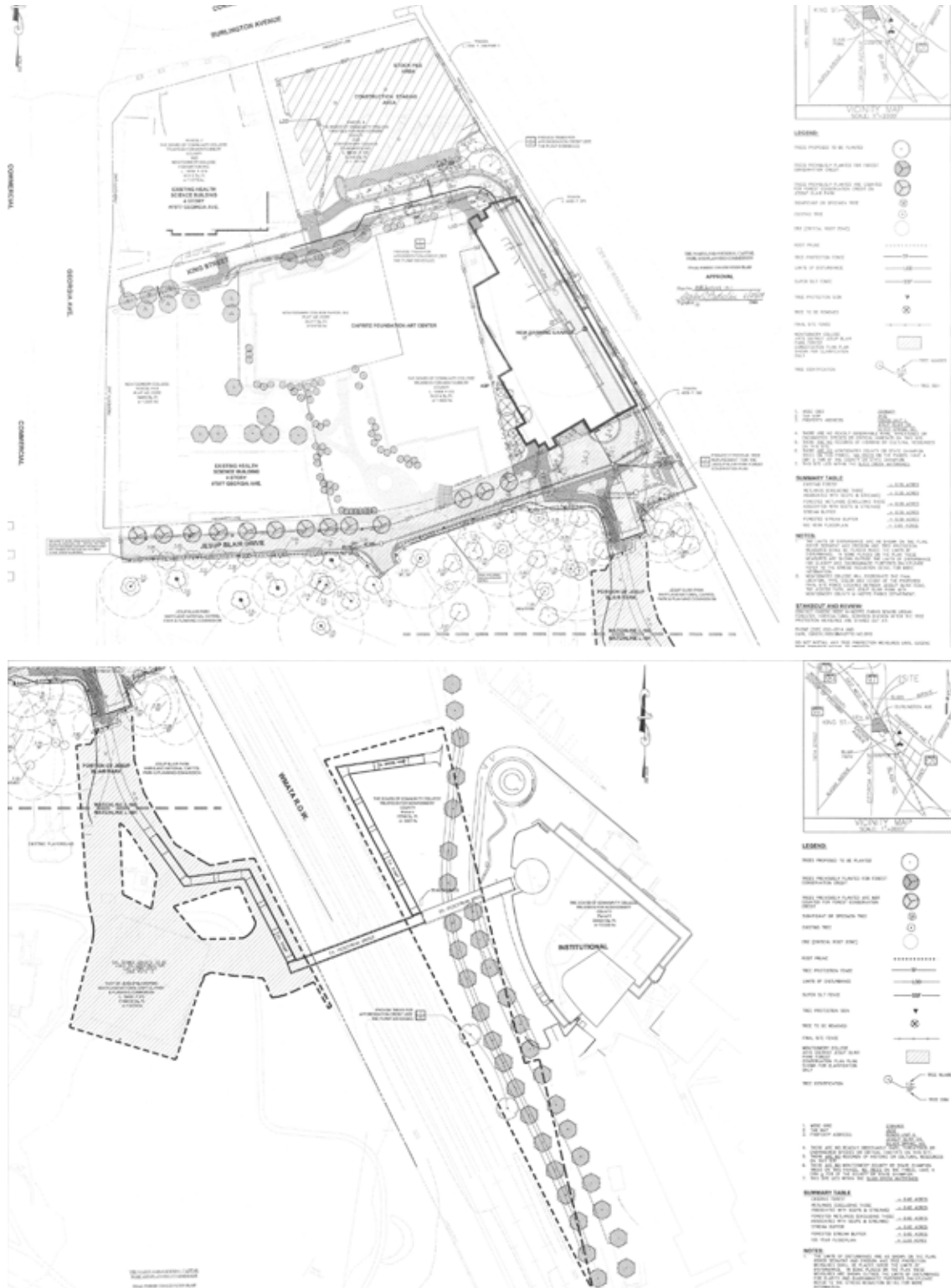
Sustainability and Smart Growth

The Facilities Master Plan for the Campus evokes Smart Growth philosophies of renovation of existing structures and, when not possible, intensification of development on existing parcels. The Campus remains compact and intensely developed. Parking is primarily located in two centralized garages and walkability is emphasized in the design of all buildings.

In addition, all new structures will strive to meet the LEED silver rating for new construction and renovations. Strategies for increasing the sustainability of the new facilities include:

- Incorporating innovative waste water technologies;
- Reducing building water use through high-efficiency fixtures and collection / reuse of stormwater;
- Optimizing energy performance of buildings through cost effective energy efficient measures including on-site renewable energy, high-efficiency lighting and HVAC systems;
- Connecting to existing high performance central plants for energy efficiency, demand management and economies of scale;
- Incorporating sustainable construction waste management;
- Building with materials with recycled content, manufactured regionally, and/or manufactured using renewable resources;

TABLE 2.4.4
WEST AND EAST CAMPUS FOREST CONSERVATION PLANS



- Maintaining healthy environments through increased ventilation, thermal comfort and clean air; and
- Providing interior spaces with daylight.

Site based strategies for increasing the sustainability of the new facilities include:

- Creating density of structures leaving land for open space;
- Selection of appropriate native or adapted plant materials requiring minimal or no irrigation;
- Creating and maintaining habitats that promote biodiversity;
- Managing stormwater quality and quantity through green roof systems and rain gardens;
- Reducing the heat island effect by providing trees for shading paved surfaces and by using open grid or light-reflective material for hardscape;
- Creating cool roofs by using high-reflective roofing materials in conjunction with green roof systems; and
- Limiting light pollution with dark sky fixtures.

Currently, a majority of students arrive to the campus by mass transit or ride sharing. The College is committed to continuing to encourage alternative modes of transportation to the Campus, coordinating with County bus services, providing transit facilities on Campus, and providing students with education and incentives to reduce automobile usage.

2.4.7 Proposed Circulation and Parking

This section presents a generalized assessment of the Facilities Master Plan from a transportation perspective. The plan proposes several land use initiatives for the 2016 horizon period. The key proposals and potential transportation impacts and needs associated with those changes are discussed and evaluated below. Note that vehicular and pedestrian circulation, which includes both the volume and distribution of traffic, is dictated to a significant degree by the location, capacity and management of parking facilities. As such, the analysis of future parking demand, and the supply that will be available to meet that demand, is presented first.

Parking

As noted previously, the campus is currently provided with 879 off-street spaces. The peak daytime occupancy per the September 2007 survey was 866, or approximately 99 percent.

The Facilities Master Plan includes 440 new parking spaces provided in the new West Parking Garage and adjacent surface parking lot. With these new spaces, the total on-campus parking supply is 1,297 spaces.

A study of parking utilization on the Takoma Park/Silver Spring Campus identified a demand for 181 faculty/staff, 645 student, and 40 other spaces during the peak period (11 AM). The projections suggest that campus populations, and therefore peak period parking demand, would grow by 11.7% for faculty/staff

and others and 21.6% for students by the year 2016. That results in an increase in peak parking demand to 200 faculty/staff spaces, 780 student spaces, and 45 other spaces for a total of 1,025. Accounting for the need to provide surplus capacity for safe and efficient turnover and utilization (95% practical capacity) would suggest that a supply of approximately 1,080 spaces is required to meet year 2016 demand. In comparison to the current supply of spaces it appears that a surplus of 217 spaces above the recommended practical capacity figure exists.

This analysis focuses solely on academic activities associated with classrooms, labs, offices and other administrative space. The Cultural Arts Center, a facility that would host numerous cultural activities in the evenings would require additional parking, especially in the evenings. The Facilities Master Plan presents considerable opportunities for shared parking usage during the daytime and especially the evening academic and cultural parking demand. Parking usage surveys conducted annually by the College indicate that approximately 50 percent of the campus parking is available in the evening. Parking analyses conducted for the Cultural Arts Center indicate that this use would generate a peak nighttime parking demand of approximately 240 spaces. This demand would be accommodated adequately and conveniently by the adjacent off-street Campus parking spaces of the West Garage and the adjacent surface parking lot.

Vehicular Access

The Facilities Master Plan indicates that over 440 parking spaces are provided on the West Campus to serve the adjacent Health Sciences Center, Cultural Arts Center, and the Cafritz Foundation Art Center. This parking is accessed off Georgia Avenue via King Street and Jesup Blair Drive. Both access points are currently unsignalized. The King Street access point, which would be utilized by a greater proportion of the trips, provides access to commercial developments and public parking located along this roadway to the west of Georgia Avenue. Jesup Blair Drive also provides primary vehicular access to the adjacent Jesup Blair Park. Based on these considerations, signalization, geometric and pedestrian crossing improvements should be considered at these intersections with Georgia Avenue.

Vehicle Trip Generation Impacts

The impact associated with the Facilities Master Plan is driven by the location and capacity of Campus parking facilities. As the East Campus program does not include any new parking spaces, trip distribution and traffic impacts are focused on the West Campus. To this end, a 2005 traffic study completed by Wells & Associates that assessed the impact of full build-out of the West Campus was revisited.

The number of vehicle trips that will be generated by full development of the West Campus were based on currently planned and projected building square feet, current/projected student enrollment, and the capacity of additional on-site parking (440 spaces in a structure and surface parking lot). Present activity on the West Campus per the 2005 traffic surveys recorded a total of 144 inbound and outbound AM peak hour vehicle trips and 206 PM peak hour inbound/outbound trips. At full build-out and with the additional parking capacity it is estimated that the West Campus will generate an additional 154 AM peak hour vehicle trips (inbound and outbound) and 92 net additional PM peak hour trips.

Future peak hour critical lane volumes were also estimated at the key intersections around the East Campus. The analysis indicates that all key intersections will continue to operate well within congestion standards for both the Silver Spring CBD and Silver Spring/Takoma Park Policy Areas. As such, no road improvements are recommended.

Pedestrian Circulation

Pedestrian desire lines on the Takoma Park/Silver Spring Campus are very clear, due to the concentration of parking and the limited crossings of the railroad tracks linking the east and west sides of campus. The Student Services Center is a meeting point where the pedestrian desire lines connect. One guiding principal of the Facilities Master Plan is to reinforce and enhance the pedestrian connections on campus.

The plan retains and enhances the existing courtyards of the central core of the Campus, providing clear paths between the entrances of new and existing buildings. It creates new courtyards where existing pedestrian movements are difficult, like between the Commons Building and Falcon Hall and across New York Avenue to the south of the Student Services Center.

In addition, the Facilities Master Plan seeks to enhance pedestrian movement between the two portions of the Campus by proposing a linking of the two parking garages with an additional pedestrian bridge spanning the rail tracks. The West Garage has been designed to accommodate this future bridge into the east stair tower.

The existing pedestrian bridge ramps down into Jesup Blair Park south of the West Garage. Improved landscaping, wayfinding signage and paving would enhance this connection between campuses.

With the completion of the Cultural Arts Center at the corner of Georgia and Burlington Avenues, and the continuation of the urbanization of the Georgia Avenue corridor an increase in pedestrian traffic will be seen at this pedestrian crossing. Improved facilities for safely crossing Georgia Avenue are seen as important elements in the connection of the west campus into the urban fabric of Silver Spring.

2.4.8 Implementation of the Facilities Master Plan

Below is a list of the three phases for the completion of the elements in the 2016 Facilities Master Plan, beginning with projects currently under design or construction in 2010.

IN PROCESS (currently under design or construction, or completed by 2010)

- Construction of the Cultural Arts Center (completed);
- Renovation of The Commons Building into general purpose classrooms and offices (completed);
- Construction of the West Garage (completed);
- Workforce Development & Continuing Education move from the Health Sciences Center (HS) to the Cafritz Foundation Arts Center, and expansion of the Nursing Program within HS (in design).

PHASING PLAN FOR THE 2006-2016 FACILITIES MASTER PLAN

PHASE 1

- Construction of the Science and Math Center Phase 1, (51,000 GSF) (demolition of Science South).;
- Construction of the Science and Math Center Phase 2, (83,600 GSF) (demolition of Science North and the North Pavilion) includes Science and Math Learning Center - includes development of landscaped courtyard;

PHASE 2

- Construction of the Student Resource Center and Library (84,500 GSF) Phase 1 – includes a Reading/Writing Learning Center (demolish the Math Pavilion); and
- Construction of the Student Resource Center and Library Phase 2 - includes development of landscaped courtyard (demolish Resource Center);

PHASE 3

- Renovation of Pavilion 4, formerly the Communication Arts Center, for Business and Social Sciences Building, and Child Care. This facility will require a parking area and secure play yard (20,000 GSF);
- Renovation of P1 and P2 into Social Science Labs;
- Falcon Hall renovation and addition of 6,300 GSF - includes development of landscaped courtyards and streetscapes around The Commons and Falcon Hal (remove tennis courts).

2.4.9 Projected Costs

An estimate of project costs for the design, construction and furnishing of the various projects included in the 2006-2016 Facilities Master Plan was prepared by DMS International and the College's Office of Facilities. These project estimates are based on a mini-program which cumulatively respond to the academic and support needs reflected in this master plan. The mini-program for each project is in turn based on the enrollment and staffing requirements of that project as supported by the data analysis which is again presented in this master plan. These project costs are tabulated in Table 2.4.1 for the Takoma Park/Silver Spring Campus. The project construction cost estimates were prepared in May 2010 by DMS International and extended and compiled by the Office of Facilities for design, supplemental construction and construction administration, furniture, instructional equipment, and information technology equipment costs in September 2010. The intent of this effort is to prepare a total project budget that allows for the opening of a complete, fully functioning building. A supplemental document prepared by the Office of Facilities provides additional detail and assumptions related to each project cost estimate.

2.4.10 2016 to 2026

This Facilities Master Plan proposes some strategies for managing growth on this campus beyond 2016. By the time the building projects represented on this plan have been completed, most, if not all of the developable parcels owned by the College will be developed with new buildings or substantially renovated. If the College is to grow either in student body or facilities, new off-campus sites will need to be acquired.

There remains one developable parcel in the West Campus, adjacent to the Cultural Arts Center on Burlington Avenue. This site could be developed in the future and would make an ideal location for an academic building associated with the Arts or with Health Sciences. There are no vacant parcels owned by the College available for development on the East Campus.

To knit the West and East Campuses together, development of existing properties along Fenton Street and Burlington Avenue should be pursued. These sites include two self-storage facilities, an automobile repair shop and several former residential properties now used as car dealerships. Future campus uses for these sites would range from expansion of the East Garage to a four or five story academic building. Development

of these properties may allow for opportunities to span across the WMATA/CSX tracks with pedestrian bridges and/or academic structures. (See Figure 2.4.9 2016 to 2026 Facilities Master Plan).

TABLE 2.4.1
CAPITAL PROJECTS FOR THE TAKOMA PARK / SILVER SPRING CAMPUS

Project	Cost Estimate (Current Dollars - 09/10)
Science & Math Building (Phase 1 & 2)	\$75,243,000
Student Resource Center & Library (Phase 1 & 2)	\$54,435,000
P4 Renovation	\$18,519,000
Falcon Hall Renovation & Addition	\$19,155,000
P3 Renovation	\$8,161,000
P1 & P2 Renovations	\$10,335,000
Campus Total	\$185,848,000

FIGURE 2.4.5
IN PROCESS, UNDER CONSTRUCTION OR IN DESIGN

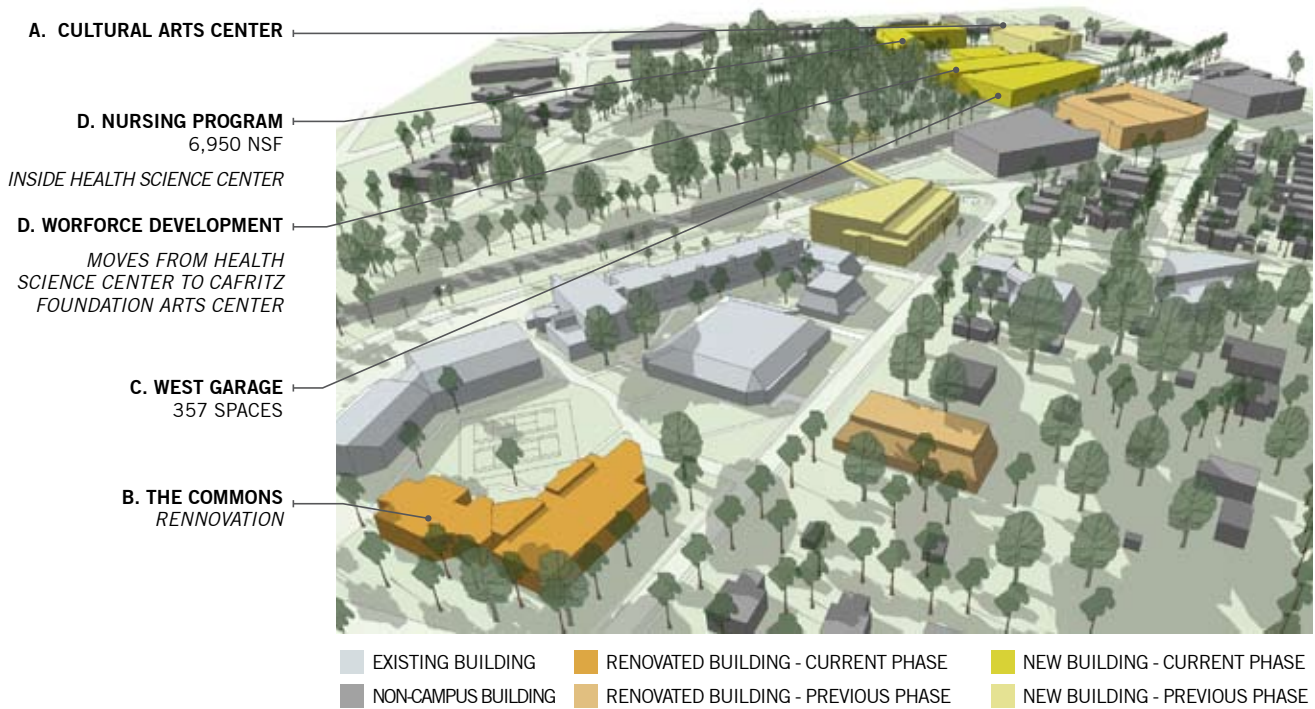


FIGURE 2.4.6
IMPLEMENTATION PLAN PHASE 1

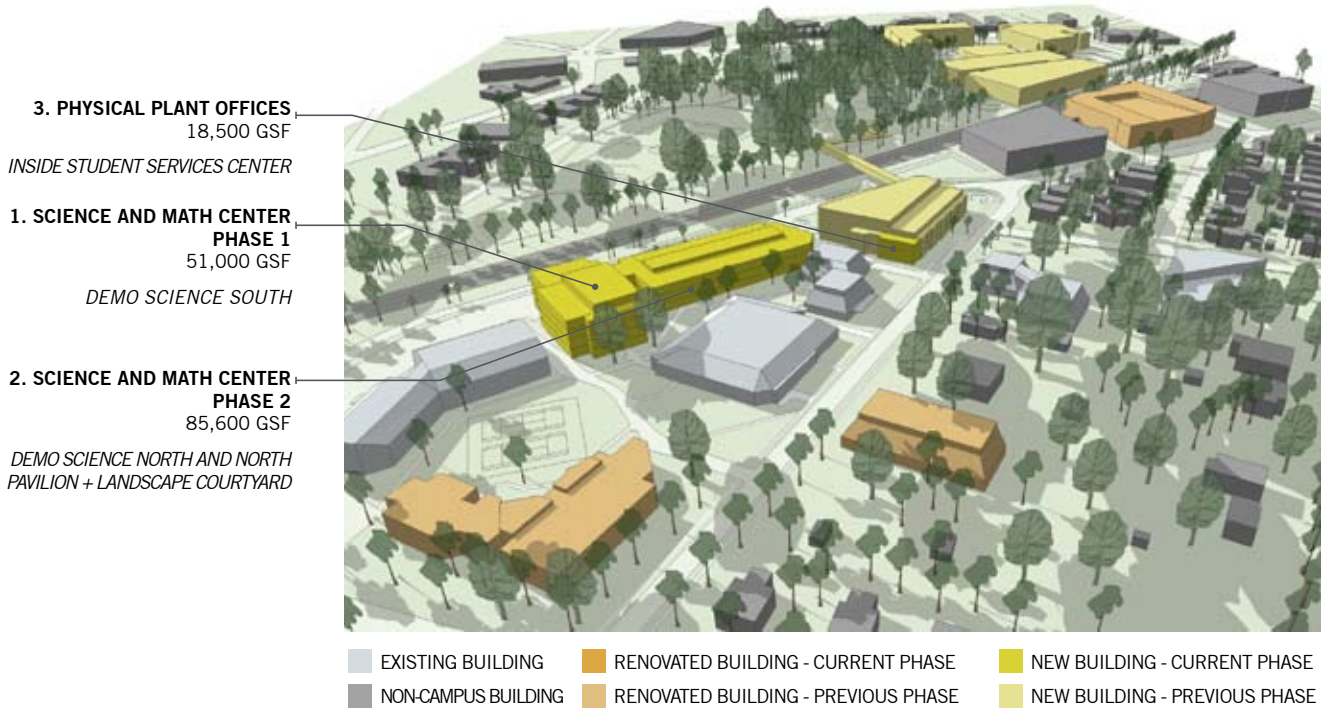


FIGURE 2.4.7
IMPLEMENTATION PLAN PHASE 2

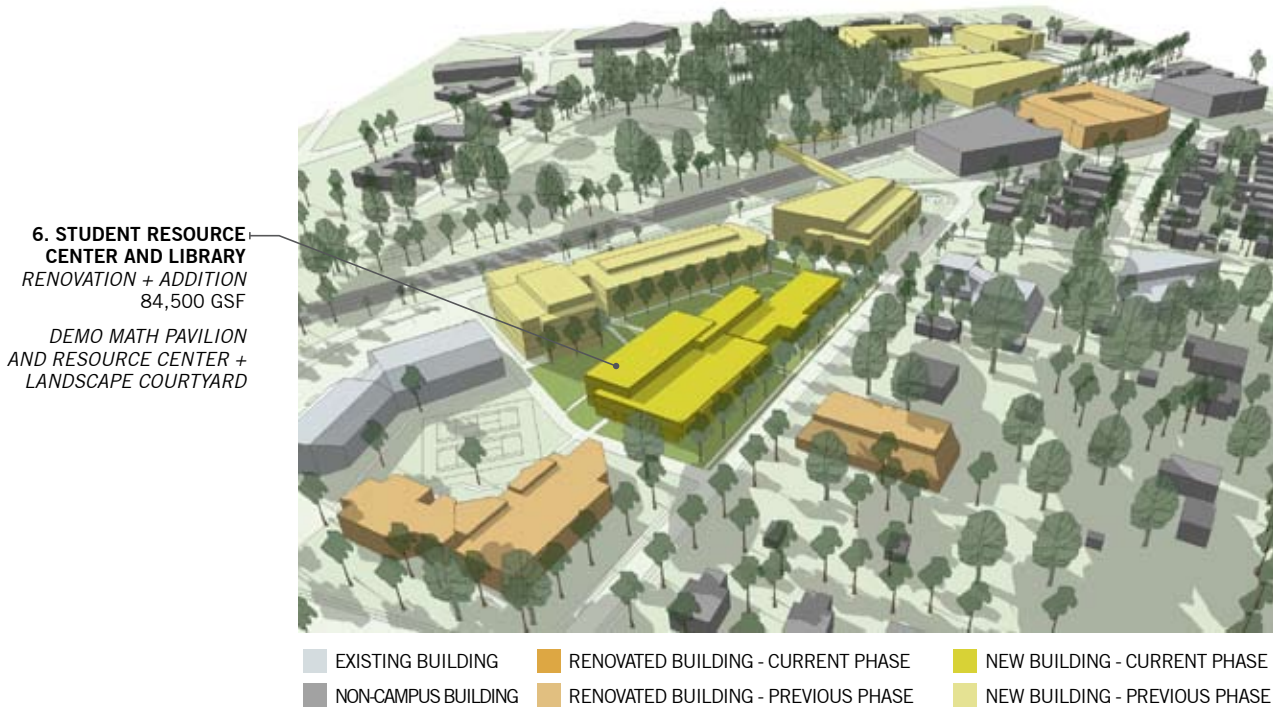


FIGURE 2.4.8
IMPLEMENTATION PLAN PHASE 3

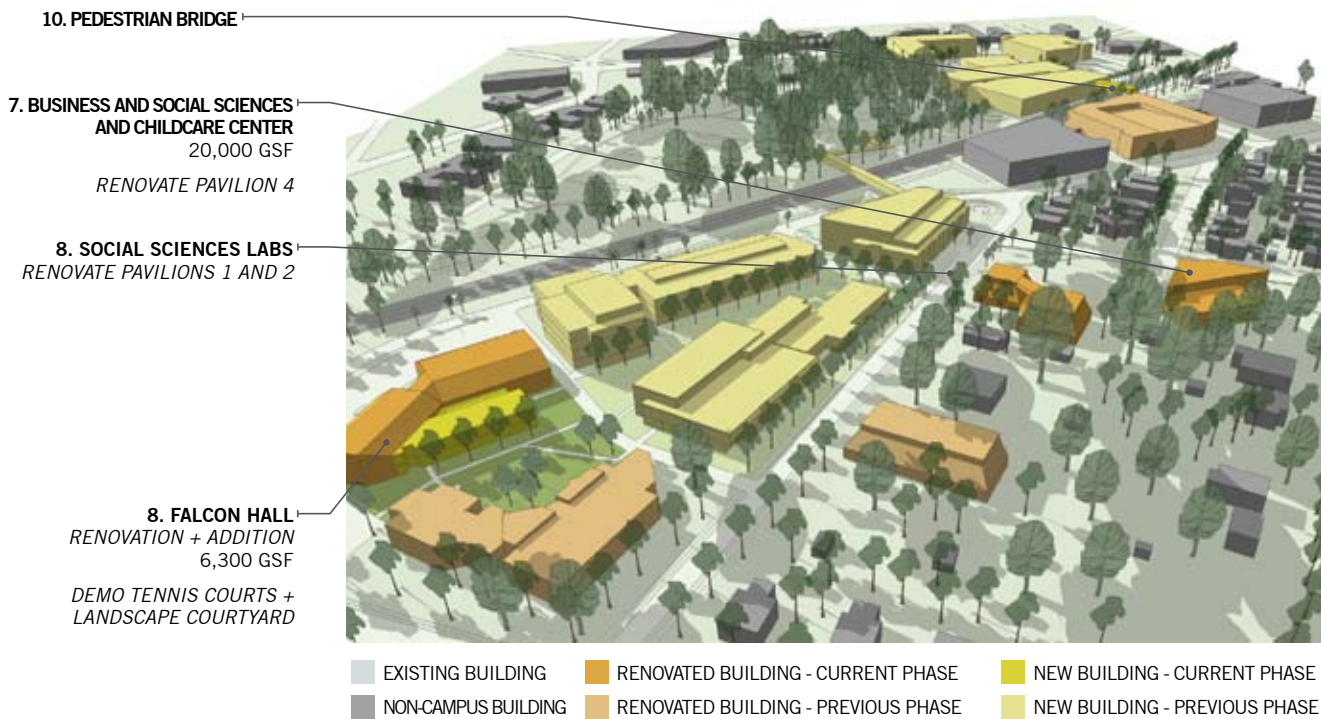




FIGURE 2.4.10
2016-2026 LAND USE SCHEMATIC





GERMANTOWN

3.1 CAMPUS BACKGROUND INFORMATION

3.1.1 Campus Goals and Priorities

The Germantown Campus was opened in 1978 and is the College's newest campus. The Campus is situated on 228.7 acres with five principal academic and administrative buildings. Beginning with the 1974 Facilities Master Plan, the strategy for the Germantown Campus has focused on providing cohesion and consolidation in the Campus' physical development. In addition to conserving existing natural resources, the 1974 Facilities Master Plan also encouraged retaining a pedestrian-oriented campus.

The time frame for this Facilities Master Plan is ten years, 2006 to 2016, and the time frame for the twenty-year Land Use Plan extends out to 2026. The over-arching goal of the Facilities Master Plan is to establish a framework for the development of capital projects to support the role, mission, and academic vision of Montgomery College.

One of the major challenges for the College in the next ten-year planning period will be to retain the Campus' strong academic identity and unique features. The Campus sits on a hilltop with a large academic quadrangle, expansive open space, and several scenic vistas. One of the goals of this Facilities Master Plan is to develop a plan that preserves and improves the campus community's experience of this park-like setting.

Another challenge for the College will be the development of the Science & Technology Park with the Montgomery County Department of Economic Development. This venture is to form a synergy that benefits students, faculty, the County, and the businesses that locate within the Science & Technology Park.

To address these and other challenges, and to establish a coherent, logical framework for development of capital projects, the Facilities Master Plan has established goals and priorities as follows:

- Supporting the College's goal of establishing and nurturing a unique role for the Germantown Campus in meeting the multi-leveled biotechnology educational, economic, and work force development needs of Montgomery County;
- Providing sufficient and adequate space — classrooms, labs, offices, study, meeting rooms, and support facilities — based on existing and projected needs, so that each and every area can contribute creatively and productively every day to helping students change their lives;
- Co-locating departments and functions rationally so that students, visitors, and the College community itself benefit from the ease, energy, and excitement generated by the synergy of proximity;
- Presenting students the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, librarians, counselors, and staff, and tenants of the Science & Technology Park;
- Affording students opportunities to meet and develop socially through formal programs of leadership, recreation, and athletics, and informally in inviting indoor and outdoor spaces;
- Maximizing the land resources available on the campus while retaining its unique character, quality, and setting, and yet meeting the needs of the students, faculty, staff, community members, and visitors who come to the campus every day;

- Inviting students, faculty, staff, community members, and visitors to participate in the varied campus and College activities by organizing the campus—including buildings, parking, outdoor athletic facilities, and circulation for pedestrians, the disabled and elderly,—to make their experience pleasant and successful;
- Continue the implementation and enhancement of the sustainability and resource conservation programs;
- Anticipating the Campus' future development beyond the ten-year planning horizon; and
- Supporting the development of the Science & Technology Park.

3.1.2 Comparison with 2002-2012 Facilities Master Plan

Background

Enrollment – Headcount enrollment increased 10.8% from Fall 2002 (4,989) to Fall 2006 (5,529) and over this same period the average student credit hour load increased from 6.7 credits to 7.1 credits, with the result that Full Time Equivalent (FTE) student enrollments increased by 14.5%. Comparing the 10-year projections, the 2016 headcount projection of 6,911 is an 7.4% increase over the 2012 projection of 6,432. It is also projected that the average student credit hour load will continue to increase at the Germantown Campus from a 2012 projection of 7.0 credits to 7.5 credits in 2016. The FTE projections will also increase from 3,010 (2012) to 3,456 (2016) or 14.8%. This is a slight decrease in the rate of growth between the two periods from 35% (2012) to 33% (2016).

Faculty and Staff – In 2002, faculty supporting the Germantown Campus totaled 111.75 FTE and in 2006 totaled 135.75, or an increase of 21.5%. The projected faculty FTE will also increase from 153.75 (2012) to 181.75 (2016), or 18.2%. As noted with both the 2012 and the 2016 projections, the College seeks to reduce and/or equalize the credit hours loads of faculty, therefore the faculty growth rate continues to slightly exceed the enrollment growth rate.

In 2002, staff supporting the Germantown Campus totaled 150.0 FTE and in 2006 totaled 165.0 FTE, or an increase of 10%. The projected staff FTE will also increase from 198.0 (2012) to 228.0 (2016), or 15.2%. The largest growth in positions is planned for the instructional areas; particularly with the anticipated creation of a third instructional dean separating the sciences and mathematics from business and technology once the new Bioscience Education Center opens.

Academic Programs – The breadth of the degree programs continues to grow on the Campus from 37 different degree programs in 2002 to 44 in 2006. Due to the College's substantial investment in its classroom environment to incorporate smart instructional technology and to provide and support technology-based learning centers, students are helped to learn effectively and efficiently. Apart from technology, the College is also addressing other changes in pedagogy, including increased and earlier instructional use of specialized learning environments and a continued emphasis on collaborative learning. This is particularly reflected in the plans for the new Bioscience Education Center that is anticipated to open in 2012 with new science laboratories and recitation rooms that will greatly impact instruction. These instructional delivery changes, together with the increases projected for enrollment, can be expected to have an impact on Germantown's contact hour productions. It is anticipated that the ratio of weekly scheduled contact hours (WSCH) to scheduled credit hours (SCH), which shows the extent to which time

scheduled in class is greater than the credit hours earned, continues to increase at Germantown from 1.11 in 2002 to 1.17 in 2006, primarily because of increased availability of labs and lab courses. This trend will continue reflecting increased availability of lab environments in the sciences with the opening of the new Bioscience Education Center, and greater use of labs in the pedagogy of writing and mathematics disciplines.

Science & Technology Park – The 2002-2012 Facilities Master Plan indicated that an approximately 40-acre bioscience and technology business park was planned for the Germantown Campus and anticipated to be located on the western edge of the Campus. The continuation of the joint initiative of the College and Montgomery County since that time to develop such a park supports the anticipated growth of the Campus' academic programs and the County's economic development goals for the biotechnology and high technology industries within the I-270 corridor. As part of this continued cooperative effort, the College and the County opened a joint classroom and technology incubator building adjacent to the Campus in 2008. This building is anticipated to be purchased by the College Foundation in 2011. In comparison to the 2002-2012 Facilities Master Plan, the updated 2006-2016 Facilities Master Plan calls for more compact campus development as part of the shift in new buildings to the northern edge of the Campus. This approach will preserve portions of the Campus to the south and west for long-term development opportunities, which may include future athletic fields and outdoor facilities. Overall the 2006-2016 Facilities Master Plan takes into account Montgomery County's plan for supporting the development of the Science & Technology Park, providing for the extension of Observation Drive along and through the western side of the Campus providing new campus entrances to the north and south, and ensuring the preservation of a significant forest conservation area that includes both the Gunners Branch stream valley and the forest stand on the west side of the Campus. In addition, the 2006-2016 Facilities Master Plan provides for compliance with the new State regulations for storm water management with the provision of a pond to be located at the southern end of the Campus that can also serve the Science & Technology Park.

Montgomery County Planning Activities – In 2006, the Maryland-National Capital Park & Planning Commission (M-NCPPC) initiated an update of the 1989 Germantown Master Plan for a large area of the northern portion of Montgomery County, including the area surrounding the Germantown Campus. The final plan has been approved by the Montgomery County Council. The County plan will preserve approximately 40 acres of existing forest on the west side of the Germantown Campus. The Science & Technology Park will be located at the southern edge of campus; this is a change from the location proposed in the 2002-12 Facilities Master Plan. In addition, the County plan calls for a private/public road alignment through the Campus which will be located to avoid the majority of the existing forest.

Plan Comparison

Needs Assessment – The ten-year space deficit for the Germantown Campus has grown from a deficit of 155,919 net square feet in 2012 to a deficit of 165,863 in 2016, or 6.4%, based on State of Maryland space guidelines. The increase in the Campus deficit is after accounting for the addition of three new buildings in the Campus space inventory: Child Care Center and Goldenrod Building in 2011 and the Bioscience Education Center in 2012. With these additions the Campus inventory is expected to grow from 164,538 (2002) to 262,594 (2016), or 59.6%, and still result in the need for additional new space on the Campus.

Proposed Facilities Program – Both the 2002-2012 and 2006-2016 Facilities Master Plans proposed new projects on the Germantown Campus, adding to the Campus net assignable square foot space inventory and responding to the 10-year space deficiencies of each plan. The near term projects are essentially the same in both plans with new buildings – Bioscience Education Center and Student

Services Center – and renovations – Physical Education, Science & Applied Studies, Humanities & Social Sciences, High Technology & Science Center. However, the 2006-2016 Facilities Master Plan shifts the focus of campus development from the south in the 2002-2012 Facilities Master Plan to the north with the relocation of the future Student Services Center to a site alongside the new northern entrance of the Campus. The 2006-2016 Facilities Master Plan also adds two new building on the Campus, the Goldenrod Building located on an adjacent parcel to be purchased by the College in 2011, and a future Art & Humanities Building to be located along the north edge of the Campus. The Goldenrod Building also houses Montgomery County's Technology Incubator, which supports the College's plans for developing the Germantown Innovation Center.

3.1.3 Institutional Characteristics

The College began offering classes in the up-county in September 1975, initially holding them in high school classrooms. Three years later, the Germantown Campus opened in its present location in the newly constructed Science & Applied Studies, and Humanities & Social Sciences buildings. The educational offerings of the Germantown Campus are organized into two instructional divisions:

- Humanities, Social Sciences, and Education (HSSE), comprised of the departments of Art, Communications, English, Health and Physical Education, Psychology, and Social Science, and
- Business, Science, Mathematics, and Technology (BSMAT), comprised of the departments of Accounting, Business Administration, Paralegal, Management, Computer Applications, Computer Sciences, Microcomputer Repair Technology, Natural Sciences, and Mathematics and Engineering Technology.

The two instructional divisions are extended and supported by the Student Development Division with the Office of the Vice President and Provost providing campus leadership and management. College-wide management of distance learning and the Center for Teaching & Learning is also located on the Germantown Campus, as is the College's student employment program.

The Campus' intercollegiate athletic program sponsors teams in men's basketball, baseball, and men's and women's tennis. Campus-based central administration services include the library, information technology support, admissions and registration, financial aid, cashiering, physical plant, and auxiliary services, the latter including the Child Care Center, book store, and food services. The Campus is dedicated to sustainability and resource conservation and has integrated many of these principals into its daily activities and academic programs. The rooftop solar arrays on the two oldest buildings remain a highly visible example of the College's commitment to renewable energy and sustainability.

The Germantown Campus has always made a special commitment to community use of its library, swimming pool, and other College facilities for club, association, or civic activities. This commitment is taking on a new and dynamic perspective as the campus envisions having a "world class" biotechnology program attracting students, faculty, sponsors, and corporate partners from around the world and serving the needs of the biotechnology industry in Montgomery County. Part of this vision entails providing a "one-stop" shop for industry looking for employee training and for students seeking an excellent education or training in specific biotechnology skills. Both non-credit and credit programs through the baccalaureate degree and beyond are expected to be offered by the College. The Department of Natural Sciences, except for the physical sciences, is to be housed in the new Bioscience Education Center. This new facility will support not only the College's instructional and workforce development programs when it opens in 2012 but will also serve the College's upper-level academic partners and occupants of the Science & Technology

Park.

The Campus is also dedicated to sustainability and resource conservation and has integrated many of the principles into the operation of facilities and the academic programs. The rooftop solar arrays on the two oldest buildings are a highly visible example of the college's commitment.

3.1.4 Academic Programs

Montgomery College is authorized by the Maryland Higher Education Commission to offer five degrees: the Associate of Arts (A.A.), the Associate of Science (A.S.), the Associate of Arts in Teaching (A.A.T.), the Associate of Fine Arts (A.F.A.) for students wanting to transfer to baccalaureate programs and the Associate of Applied Science (A.A.S.) for those seeking immediate employment. The College also awards certificates (Cert) that focus on the development of technical skills, as well as letters of recognition (L of R) for non-degree seeking students who satisfactorily complete certain courses that teach focused skills and competencies.

In addition to general education, student development, and honors courses, the Germantown Campus offers forty-four (44) different degree programs, nineteen (19) certificate programs, and three (3) letter of recognition programs. Table 3.1.1 illustrates the academic programs on the campus. Academic programs uniquely offered at the Germantown Campus include the A.A.S degree and certificate in Biotechnology, the certificate in Technical Writing, the A.A.S degree and certificate in Landscape Technology, three (3) certificates in Networking and Wireless Technology, and two (2) certificates in Web Careers. In addition, the A.A.S. degree program in Biotechnology and the certificate program in Technical Writing are approved as State-wide programs. These State-wide programs are available to students from other geographic areas where the local community college does not offer the same program. The non-credit programs offered on the Germantown Campus by Workforce Development & Continuing Education are not included in these counts.

These programs at Germantown are expected to generate 51,833 student credit hours (SCH) in 2016, an increase of 33% over fall 2006 and with 74% being taught during the day. Delivery of all of the Campus programs is expected to change substantially over the coming decade. Distance learning alternatives will be more available as options, including both entire and partial course and service delivery. The percentage of SCH taught entirely on-line at Germantown is projected to increase from 5% in 2006 to 6% of the total SCH in 2016. The College has also made significant and substantial investments in its classroom environments to incorporate smart instructional technology and to provide and support technology-based learning centers that help students learn effectively and efficiently. Apart from technology, the College must also prepare to address other changes in pedagogy, including increased and earlier instructional use of specialized learning environments and a continued emphasis on collaborative learning.

These instructional delivery changes, together with the increases projected for enrollment, can be expected to have impact on Germantown's contact hour productions. The ratio of contact hours (WSCH) to credit hours (SCH), which shows the extent to which time scheduled in class is greater than the credit hours earned, is expected to increase at Germantown from 1.17 in 2006 to 1.20 in 2016, primarily because of increased availability of labs and lab courses. Finally, the relative percentage of contact hours in lab environments is projected to increase from 40% in 2006 to 51% in 2016, reflecting increased availability of lab environments and changes in pedagogy in disciplines such as writing and mathematics.

TABLE 3.1.1
2006-07 ACADEMIC PROGRAMS AT THE GERMANTOWN CAMPUS

Program Area	AA	AS	AAT	AFA	AAS	Cert	L of R
Accounting					1 GR	1 GR	
American Sign Language					1GRT	1GRT	
Art	1 GT/3 R			2 GTR		2 GRT	
Biotechnology					1 G	1 G	
Business	2 GRT						
Computer Application					1 GRT	2 GRT	
Computer Gaming & Simulation	1 GRT						
Computer Science & Technologies	2 GRT					4 GRT	
Education			6 GRT				
Engineering Science					10 GRT		
Emergency Medical Technician							1 GRT
General Studies	1 GRT						
Landscape Technology					1 G	1 G	
Liberal Arts	3 GRT						
Management						1 GRT	1 GRT
Network & Wireless Technologies					1 GRT	3 G	
Paralegal Studies					1 GT	1 GT	1 GT
Pre-Professional (Medical Related)	6 GRT						
Science		5 GRT					
Technical Writing						1 G	
Transfer Studies						1 GRT	
Web Careers					1 GRT	2 G/ 4 R/1 T	

Degrees, Certificates, and Letters of Recognition: AA-Associates of Arts; AS-Associate of Science; AAS-Associates of Applied Science; AAT-Associates of Arts in Teaching; AFA-Associate of Fine Arts; Cert-Certificate; and L of R- Letter of Recognition.

Campus : T-Takoma Park/Silver Spring Campus; R-Rockville Campus; and G-Germantown Campus.

Source: Montgomery College 2006-07 Catalog

TABLE 3.1.2
2006 AND 2016 CREDIT AND CONTACT HOURS AT THE GERMANTOWN CAMPUS

Day, On-Line, and Total Credit Hours

	2006 Day SCH	2006 On-Line SCH	2006 Total SCH	2006 % Day SCH	2006 % On-Line SCH	2016 Day SCH	10 yr % Chg	2016 On-Line SCH	10 yr % Chg	2016 Total SCH	10 yr % Chg	2016 % Day SCH	2016 % On-Line SCH
Germantown	28,725	2,078	39,000	74%	5%	38,356	34%	3,286	58%	51,833	33%	74%	6%
College-wide	157,755	8,521	202,380	78%	4%	179,997	14%	11,588	36%	231,788	15%	78%	5%

Day Contact Hour (WSCH) to Day Credit Hour (SCH) Ratio

	2006 WSCH	2006 SCH	2006 WSCH/ SCH	2016 WSCH	10 yr % Chg	2016 SCH	10 yr % Chg	2016 WSCH/ SCH	10 yr % Chg
Germantown	33,573	28,275	1.17	46,027	37%	38,356	34%	1.20	3%
College-wide	184,758	157,755	1.17	221,110	20%	179,997	14%	1.23	1%

Day Lecture and Lab Contact Hour

	2006 Day Lecture WSCH	2006 Day Lab WSCH	2006 Day Total WSCH	2006 Day % Lab WSCH	2016 Day Lecture WSCH	10 yr % Chg	2016 Day Lab WSCH	10 yr % Chg	2016 Day Total WSCH	10 yr % Chg	2016 Day % Lab WSCH
Germantown	20,050	13,523	33,573	40%	22,517	12%	23,510	74%	46,027	37%	51%
College-wide	122,984	61,774	184,758	33%	114,977	-7%	106,133	72%	221,110	20%	48%

The Germantown Campus, augmented by the Science & Technology Park and the County’s Business Innovation Center at the Campus, is poised to play a critical role in addressing workforce shortages in Science, Technology, Engineering and Mathematics (STEM) and health care fields as well as the statewide need for teachers in related subject areas, while simultaneously providing students unique and vital opportunities that link academics to application. These additions to the Germantown Campus will also provide expansion opportunities for existing and new academic programs at the College. Based on student interest, enrollment trends, existing and projected County and State workforce needs, and the teaching and learning strategies suggested in the current literature, including the final report of The Governor’s STEM Task Force, Investing in STEM to Secure Maryland’s Future, the augmented Germantown Campus will be well positioned to meet the needs of its students and the region.

From its inception, the Science & Technology Park has been seen as a way to ensure that the supply

of well trained and educated workers in STEM fields meets the growing demand for these skills in the county. The proximity of the Science & Technology Park to the academic campus will facilitate the alignment of academic programs with workforce needs. Industry, viewed as an extension of the academic program, becomes a true partner, defining competencies, articulating standards, and providing relevance to the curriculum. The College's Biotechnology Program is based on this model and has received various accolades from the County's biotechnology industry.

The mutual benefits of aligning academic programs with the requirements of the industry for which course work and programs are preparing students have been cited for the past decade. The rapid pace at which technological advances occur within industry challenges academic curricula to stay current with the best workplace practices; only after a practice is refined does it become part of the curriculum. By integrating academics and the workplace, faculty stay current and the curriculum relevant; students have the opportunity for real, experiential learning, often with industry mentors; members of industry may teach, guest-lecture or otherwise actively participate in development and evaluation of curricula; clear career pathways are established for students and competent, trained workers are career ready. Due to the demand for qualified workers in STEM fields and health care, the urgency of academic/industry collaboration is mounting.

The Governor's August 2009 STEM Task Force Report was a call to action, setting high academic expectations, including the expansion of the degree-seeking and degree-completing pipeline and the development of strategies that link education, workforce creation, research, and economic development. The Germantown Campus will be poised to respond to several of the Task Force recommendations:

- Provide STEM internships, co-ops or lab experiences for all interested college students to jump-start their successful transition to the workplace;
- Triple the number of teachers in STEM shortage areas who are prepared in Maryland programs;
- Ensure that all P-20 mathematics and science teachers have the knowledge and skills to help all students successfully complete the college- and career-ready curriculum;
- Align P-12 STEM curricula with college requirements and workplace expectations in order to prepare all students for post-secondary success;
- Increase the number of STEM college graduates by 40% by 2015; and
- Create Maryland's STEM Innovation Network to make STEM resources available to all.

In addition, over the next two decades, the population of the county is expected to increase by 175,000, with the percentage of the population 65 and older doubling. The ability to meet the increased demand for health care workers must be addressed today with state-of-the-art teaching facilities and outstanding pedagogy.

Additional compelling motivation for linking the academic institution to industry (Science & Technology Park) can be found in the September 2009 report, Maryland's Emerging Workforce: Opportunities for Youth Success. Included in their findings:

- Maryland needs to expand and create programs and services that provide real options that engage students in learning and effectively re-engage disconnected youth, helping them achieve academic and industry-recognized credentials, and enter work within a career pathway with good prospects for the future.

- The State should support the creation of a paid internship program that includes business and other sponsors.

Furthermore, the health of these professions facing workforce shortages is predicated on our ability to produce more and better trained teachers P - 12. The number of physics, chemistry, and math teachers graduated each year does not meet the demand. The National Task Force on Teacher Education in Physics Report and the Governor's Task Force Report are among the growing body of literature addressing this issue.

Enrollment Trends

The enrollment growth at the Germantown Campus has created the demand for courses and programs which were not offered as recently as five years ago due to insufficient enrollment. Although general education requirements and some prerequisite courses may be taken at Germantown, students majoring in one of the health sciences or engineering must take their major's course requirements at the Takoma Park/Silver Spring or Rockville Campus. Efforts are being made to meet the student demand and extend these programs by offering advising, pre-clinical courses for health sciences, and an expanded engineering program at the Germantown Campus. Enrollment increases suggest that a critical mass has been reached; courses offered in these areas now fill.

The 2006-2016 Facilities Master Plan predicts a 33% increase in student credit hours between 2006 and 2016 from 39,000 to 51,833. Three years into this cycle, student credit hours for Fall 2009 have already reached 43,446, an 11.4% increase over 2006. Growth in academic courses and programs that dovetail with the recommendations above include biology, mathematics, biotechnology, engineering, and education. The table below shows the growth in student credit hours in each of these areas during the last four academic years. In these areas combined the 33% increase expected by 2016 has already occurred.

TABLE 3.1.3
STUDENT CREDIT HOURS AT GERMANTOWN AY0607 – AY0910

Discipline	AY0607	AY0708	AY0809	AY0910	% Increase AY0607 – AY0910
BI (Biology)	5,899	6,291	6,453	8,022	36.0
BT (Biotechnology)	539	494	570	762	41.4
ED (Education)	818	1,000	1,186	1,331	62.7
ES (Engineering)	192	210	222	348	81.3
MA (Mathematics)	11,958	13,519	14,699	15,510	29.7
Totals	19,406	21,514	23,130	25,973	33.8

AY = Academic Year

In the last five years, enrollment for preclinical health sciences majors at Germantown has increased significantly as well.

TABLE 3.1.4 HOURS OF ENROLLMENT FOR PRE-CLINICAL HEALTH SCIENCES MAJORS AT GERMANTOWN Fall 06 - Fall 09

Pre-Clinical Program of Study	Fall 2006	Fall 2007	Fall 2008	Fall 2009	%Growth F06-F09
Gen Ed /Pre Clinic Phys Thrpst	147	195	105	136	-7.50%
Gen Ed Pre Clinical Mental Hlt	68	75	70	40	-41.20%
Gen Ed/ Pre Clinical Diag Sona	93	162	121	189	103.20%
Gen Ed/ Pre Clinical Nursing	1705	1815	1893	2550	49.60%
Gen Ed/ Pre Clinical Rad Tech	217	197	202	303	39.60%
Gen Ed/ Pre Health Info Tech	10	6	28	47	370.00%
Pre-Clinical Totals	2240	2450	2419	3265	45.80%

This will help support the goal of increasing graduates from the Takoma Park/Silver Spring Campus' health sciences program, particularly nursing.

Student Interest

Enrollment increases reflect student interest in the academic areas where there is workforce demand. According to Montgomery County WIA 2006-2016 Occupational Projections, registered nurses are the top growth occupation for those holding an associate's degree. The Governor's STEM Task Force reports that Maryland has openings for approximately 6,000 STEM workers per year, yet produces only 4,000 STEM graduates. The numbers of students enrolled in Fall 2009 on the Germantown Campus in these critical fields is a strong indication of student interest:

- 1,001 students (15.4%) are declared STEM majors.
- 476 students (7.2%) are Preclinical Health Science majors, a 70.6% increase in 5 years.
- 70 students are enrolled in the Biotechnology Program.
- 82 students are declared Education majors, a 530% increase in 5 years.
- A certificate program in Biomanufacturing was offered for the first time during the 2009-2010 academic year.

Nationwide, the data indicate that many students who enter college intending to major in fields with academically rigorous programs do not complete these programs. For example, despite strict screening for admission to engineering programs, only 56% of undergraduate students admitted into engineering disciplines graduate. Academic difficulty is not the primary cause of poor retention. Failure to engage students and make academic rigor relevant is the primary cause for their exodus. To keep capable and interested students, programs that link theory to practice prove successful.

Experiential Learning Opportunities

Based on student interest and regional workforce needs, the Campus will accordingly expand its existing programs and offerings, making them entirely available at the Germantown Campus. Industry collaboration generates internships, research opportunities, clinical rotations, co-op experiences, and volunteer opportunities for students these programs. Virtual and simulation labs provide increasing flexibility for teaching science courses. The planned physical expansion will permit academic program development that incorporates, from the outset, best practices in teaching and learning. For example, the Bioscience Education Center will offer students the opportunity to learn in a biomanufacturing suite that closely models those found in the biotechnology industry. A School of Engineering proposal is under consideration, and Engineering offerings have already been enhanced at the campus. Further additions in the area of Bioengineering and Biomedical Engineering may be considered.

The Campus' vision is to provide students with experiential learning opportunities, including undergraduate research and internship experiences that are critical and often required in STEM education. The connection between the classroom and the workplace is forged through internships, co-op programs, and student research. The benefits of experiential learning and internships are many:

- Students gain valuable practical work experience and exposure to the workplace.
- Independent, critical thinking is learned.
- Written and oral communication skills are developed.
- Curriculum is reinforced and seen as relevant and applicable.
- Employers have access to motivated and knowledgeable student workers.
- Students clarify their interests and goals.
- Internships are often a pathway to a job.

In addition, the Science & Technology Park will provide required and recommended experiential learning opportunities for students who are taking core classes in their major area at other campuses. For example, health science students, a large number of whom are taking their preclinical classes at the Germantown Campus, go to hospitals throughout the metropolitan area for their clinical rotations. The number of clinical rotation seats has reached capacity. A hospital in the Science & Technology Park can provide an additional 64 clinical rotation seats in nursing and other health care areas. This will provide an opportunity to increase much needed capacity in the health sciences programs at the College and ultimately provide more health care workers in the region.

The College considers the Science & Technology Park integral to our academic mission, particularly in providing students with skills to compete in the emerging global, knowledge-based economy. Potential tenants will be selected on the basis of their ability to provide experiential learning opportunities for our students in the areas discussed above or to act as a catalyst in bringing other tenants who could provide these opportunities.

To support academic programs and the outreach to the biotechnology industry, changes in the Germantown library collection are also planned. Overall, in terms of Physically Bound Volume Equivalents ("PBVE"), the library's collection is expected to grow by 19%, from 91,577 PBVE to 108,979 PBVE. This increase

is slightly higher than on the other two campuses because of the planned upper division program offerings and the anticipated needs of the upper level program and occupants of the Science & Technology Park. This rate, however, is still below that usually expected for higher education institutions, where rates of increase for collections are typically planned at 2% to 3% per year.

College academic and workforce development programs have also integrated environmental and sustainability concepts into their curricula and both credit and non-credit sustainability courses are offered. For this reason, the College has become a resource for the community in providing educational opportunities for those wanting to transition to the “green collar” economy. The College is also partnering with other state and county agencies and is the educator for “green business” certification programs and other environmental initiatives. Volunteer activities such as faculty and staff participation in professional societies and the College’s Speakers Bureau also extend the College’s influence into the community.

Academic offerings, high performance buildings and central plants, recycling and other environmental programs also become a “living laboratory” and serve as examples of best environmental practices and invite participation from students, faculty, staff and the public. Dedicated educational displays are being provided in all new buildings to enhance the sustainability experience.

3.1.5 Enrollment

Over the past five-year period, headcount enrollment has increased 12%, from 4,871 students in 2001 to 5,529 in 2006. Over this same period, however, the average student credit hour load has increased from 6.7 credits to 7.1 credits, with the result that FTE student enrollments have increased by 17%. The College 2006 average credit hour load was 8.8 credits, and the expectation is that the average credit hour load at Germantown will increase by 2016 to 7.5 credits, still below the projected College average credit load of 9.5 credits, but above the 2006 level for the Campus. As a result, the projected 6,911 headcount students are expected to equate to 3,456 FTE students, an increase of 33% over 2006 FTE enrollments.

While credit hours in Student Development and Honors will increase at somewhat higher rates of growth (52% and 39%, respectively), these areas are not where the majority of credit hours (SCH) will be generated. Credit hours in the HSSE Division are anticipated to grow by 25% to 26,607 SCH, while those in the BSMT Division are expected to increase by 41% to 23,981 SCH.

TABLE 3.1.5

FALL TERM GERMANTOWN CAMPUS ENROLLMENT STATISTICS

	2001	2002	2003	2004	2005	2006	5yr % Chg	2016	10 yr % Chg
Headcount	4,871	4,948	5,000	5,326	5,273	5,529	12%	6,911	25%
Credit Load	6.7	6.7	7.0	6.9	7.0	7.1	5%	7.5	6%
FTE Students	2,168	2,224	2,318	2,440	2,454	2,600	17%	3,456	33%

TABLE 3.1.6

FALL TERM CREDIT HOURS BY DIVISION AT THE GERMANTOWN CAMPUS

	2001	2002	2003	2004	2005	2006	5yr % Chg	2016	10 yr % Chg
Student Dev	211	353	285	537	577	682	223%	1038	52%
Honors	0	2	0	0	48	149	n/a	207	39%
BSMT	16,412	15,911	16,613	16,812	16,218	16,968	3%	23,981	41%
HSSE	15,890	17,090	17,869	19,250	19,968	21,201	33%	26,607	25%
Germantown	32,513	33,356	34,767	36,599	36,811	39,000	20%	51,833	33%

3.1.6 Faculty and Staff

While the College projects that its overall number of FTE faculty will increase at a rate slightly lower than its overall increase in enrollment, from 784.00 to 876.75, an increase of 92.75 FTE faculty, or 12%, faculty supporting the Germantown Campus will increase by 34%, from 135.75 FTE faculty to 181.75 FTE faculty. The number of full-time faculty will increase by 32 positions, from 91 to 123, or 35%, while the number of part-time faculty will increase by 58 positions from 179 to 235, or 31%. Campus and division projections of faculty seek to reduce and/or equalize the credit hours loads of faculty and therefore do not necessarily parallel enrollment growth rates. Thus, the 34% growth rate for faculty at Germantown exceeds slightly the 33% growth rate in FTE students.

While the College expects its overall numbers of full-time, part-time, and FTE staff to increase about 10% from fall 2006 to fall 2016, less than its overall projected 15% increase in fall term FTE enrollment, the Germantown campus is anticipating a 32% increase in staff, reflecting the projected enrollment growth and expanded outreach, particularly in biotechnology and the sciences at Germantown. Overall, the number of Germantown staff is expected to increase by 53.00 FTE positions, with 49 additional full-time staff and 16 additional part-time staff.

The largest growth in positions, not unexpectedly, is planned for the instructional and student development divisions. The increase in staff within the Office of the Vice President and Provost will align office staffing with staffing on the other campuses. The campus also anticipates the creation of a third instructional deanship, separating the sciences and mathematics from business and technology. Finally, growth in campus-based Central Administration is based on college-wide ratios of students to staff and faculty to staff to ensure reasonable comparability across campuses, as well as the overall goal of the College to build on economies of scale in projecting the needs for such functional support.

TABLE 3.1.7
2006 AND 2016 GERMANTOWN FACULTY POSITIONS BY DIVISION

	2006			2016	10 Yr		2016		
	FT	PT	FTE		FT	% Chg	PT	% Chg	FTE
Student Dev	13	4	14.00	17	4 (31%)	8	4 (100%)	19.00	5.00 (36%)
BSMT	40	74	58.50	54	14 (35%)	97	23 (31%)	78.25	19.75 (34%)
HSSE	38	101	63.25	51	13 (34%)	130	29 (29%)	83.50	20.25 (32%)
CLT/Distance Learning	0	0	0.00	1	1 (100%)	0	0 (0%)	1.00	1.00 (100%)
Germantown	91	179	135.75	123	32 (35%)	235	56 (31%)	181.75	46.00 (34%)

TABLE 3.1.8
2006 AND 2016 GERMANTOWN STAFF POSITIONS BY DIVISION

	2006			2016	10 Yr		2016		
	FT	PT	FTE		FT	% Chg	PT	% Chg	FTE
VP/Provost	5	0	5.00	6	1 (20%)	1	1 (n/a)	16.25	1.25 (25%)
Student Dev	17	13	20.25	22	5 (29%)	18	5 (38%)	26.50	6.25 (31%)
BSMT	20	8	22.00	26	5 (30%)	11	3 (38%)	28.75	16.75 (31%)
HSSE	14	11	16.75	17	3 (21%)	14	3 (27%)	20.50	3.75 (22%)
CLT/Distance Learning	0	0	0.00	4	4 (n/a)	0	0 (0%)	4.00	4.00 (n/a)
Central Admin	96	20	101.00	126	30 (31%)	24	4 (20%)	132.00	31.00 (31%)
Germantown	91	179	135.75	123	32 (35%)	235	56 (31%)	181.75	46.00 (34%)

3.2 EXISTING CONDITIONS

3.2.1 Location and Adjacent Land Uses

The Germantown Campus was established in 1978 on 208 wooded acres. The property is bounded by MD-118 (Germantown Road) to the north, I-270 to the west, and Middlebrook Road to the south. Multi-family residential properties bound the Campus to the east with MD-355 (Frederick Road) to their east and connecting to MD-118 and Middlebrook Road to the north and south, respectively. In addition, three existing commercial buildings and a hotel are located to the west of the Campus and a corporate research facility (Hughes Network) to the southwest.

Along the eastern edge of the Campus there is a stream and a narrow wooded buffer to the multi-family residential development. The south and southwest of the parcel consists of sloping fields and wooded areas, and the site of the Science & Technology Park. This planned site for the Science & Technology Park to the south is adjacent to shopping, restaurants, and housing.

3.2.2 Campus Character and Image

The Germantown Campus is characterized by the combination of a relatively compact composition of academic buildings organized around a quadrangle, the sloping wooded topography, and sweeping vistas to the southeast. The topography of the campus is generally in the range of 10% or greater. The ground drops nearly 200 feet from the highest point of the site (existing academic quadrangle) to the lowest point along Middlebrook Road to the south. This sharp drop helps to define the character and afford views, but also creates a challenge to maintaining strong connectivity between buildings as the campus expands.

The three original buildings, Humanities & Social Sciences (HS), Science and Applied Sciences (SA) and Physical Education (PG) share a common architectural vocabulary. All three buildings are one to two stories in height, with strong horizontal elements of ribbon windows or crisp, white concrete planes. The buildings are oriented toward the quadrangle, where scale giving elements like rooflines and entries are found.

The High Technology & Science Center (HT), built in 1996, shares some of the horizontal elements of the original buildings, while adding architectural elements like towers to mark the entries, articulation of the facades and the warmth and scale of buff colored brick. The building is also four stories in height on an otherwise low-scale campus.

The College has leased with an option to purchase, a two-story building on Goldenrod Lane that was originally designed as an office building. The building has been renovated to serve the College and the County's business incubator, the Germantown Innovation Center. It is both physically separated from the rest of the Campus by the main parking lots and is oriented with its service areas toward the Campus. (See Figure 3.2.2 Building Massing and Materials).

3.2.3 Campus Entrance Experience

Visibility and Identity

Arrival on the Campus is from the north after turning off of MD-118 (Germantown Road) and heading south on Observation Drive. Germantown Road connects to MD-355 (Frederick Road) to the east and

FIGURE 3.2.1
CAMPUS SETTING

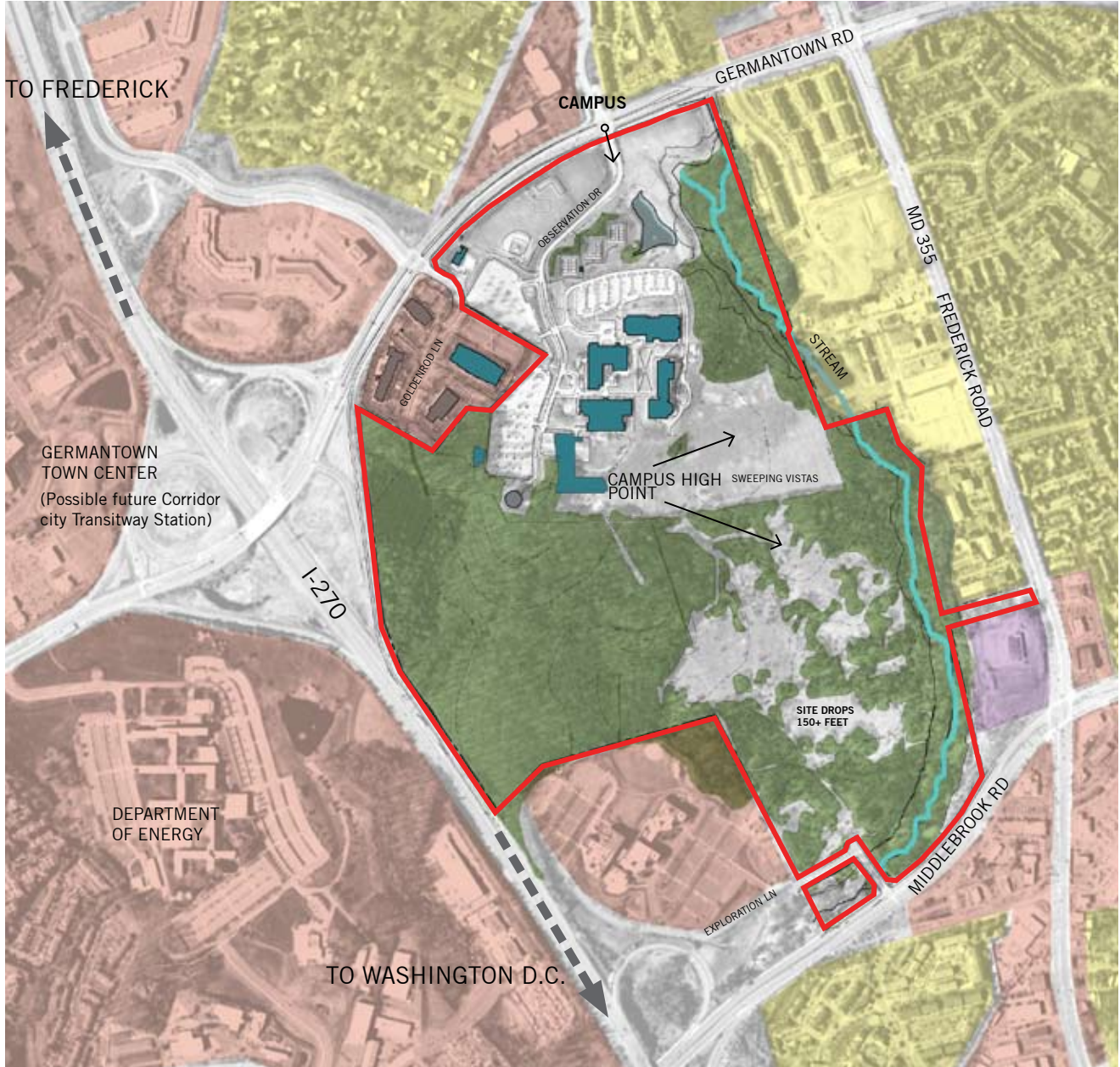


Image Not to Scale

- FOREST
- RESIDENTIAL

- COMMERCIAL



FIGURE 3.2.2
BUILDING MASSING AND MATERIALS



Image Not to Scale

Modern Vocabulary

- Built in late 1970s- early 1980s
- One - three stories. Horizontal lines, ribbon windows, and solar collectors on the roofs.
- Typically white painted concrete and dark windows

Renovated Office Building

- Physically removed from the campus
- Flat roofs, red brick and dark ribbon windows

Neo-Traditional Vocabulary

- Built in 1995
- Sloping roofs, vertical tower element and punched windows
- Buff and light red brick exterior

In Design, Under Construction or Under Renovation

Surrounding Non-Campus Buildings

- BE Bioscience Education Center
- CG Child Care (future)
- GB Goldenrod Building
- GN Greenhouse
- GS Ground Storage Building
- HS Humanities and Social Sciences
- HT High Technology and
- PG Physical Education
- SA Science and Applied Studies
- WT Water Tower



I-270 and the Germantown Town Center to the west. Little of this entry sequence creates a sense of arrival on to a collegiate campus. Signage and landscaping does little to reinforce the identity of the Campus along this entrance road.

The approach road eventually climbs a slight rise where the Campus views are of the Campus buildings, a storm water management pond, and parking lots. Once on the Campus the general architectural consistency of the buildings, the spherical water tower, and the views of the adjacent woods and stream valley provide the basis for creating and reinforcing the sense of place unique to the Germantown Campus. (See Figure 3.2.3 Gateways and Views).

Access

Upon arriving on the Campus, Observation Drive provides access to parking areas and a view of the spherical water tower with its planet earth graphic. Observation Drive separates the majority of the parking from the academic buildings, creating several points of potential conflict for pedestrians crossing the roadway on their way to the buildings.

A secondary road currently wraps around the four Campus buildings to the east terminating in a traffic circle and providing a lower-level entrance into the High Technology & Science Center. This road is anticipated to eventually become connected in a loop to the other side of Campus between the Science & Applied Studies Building and adjacent parking.

The College intends to develop a second point of access onto Campus to improve connections and to be better prepared to address emergency situations that might necessitate campus evacuation. It is envisioned that Observation Drive will be extended to Middlebrook Road as part of the Bioscience Education Center project. This road extension will be combined with a new road linking Middlebrook Road north to an extension of Goldenrod Lane. The College is currently coordinating the planning for this road network with local County agencies and the development of the Science & Technology Park.

In addition to a second means of access onto the Campus from the south, the College plans to develop a forty-acre parcel to the southeast of the Campus into the Science & Technology Park. The connections required by this commercial development, as well as other development to the north of the College, will allow for additional vehicular and pedestrian connections to be made over time at the Campus.

3.2.4 Campus Organization and Open Space

The Campus is organized around a large, L-shaped quadrangle. The entrances of the four existing academic buildings on the campus are organized around this quadrangle. This creates strong pedestrian connections between buildings and provides for an organizational cohesiveness.

With the focus of building entrances onto the space within this quadrangle there is a challenge in how to expand the campus beyond the quadrangle. The Campus plans to develop a new building entrance onto the new quadrangle with the Bioscience Education Center. An emphasis on improved pedestrian paths to the south and a change to the interior circulation of the Science & Applied Studies Building allowing access from the south will begin this expanded connection to the Bioscience Education Center and the new Campus entrance.

In general, the main existing quadrangle is overly large given the scale of the surrounding buildings and could benefit from a stronger landscape master plan. Even though trees have been recently planted they are scattered and lack the definition of mature trees.

FIGURE 3.2.3
GATEWAYS AND VIEWS



- ACTIVATED OPEN SPACE WITH SEATING AND PEDESTRIAN AMENITIES
- ATHLETIC FIELDS AND OPEN SPACE
- FOREST
- EXISTING CAMPUS BUILDINGS
- IN DESIGN, UNDER CONSTRUCTION, OR UNDER RENOVATION

- CAMPUS GATEWAYS
- CAMPUS VIEWS

- BE Bioscience Education Center
- CG Child Care (future)
- GB Goldenrod Building
- GN Greenhouse
- GS Ground Storage Building
- HS Humanities and Social Sciences
- HT High Technology and
- PG Physical Education
- SA Science and Applied Studies
- WT Water Tower



3.2.5 Building Usage / Functional Adequacy of Facilities

The Campus is comprised of four academic buildings which are grouped around a large quadrangle. The following discusses the uses currently located in each building, as well as comments on the facility's functional adequacy.

Buildings on the Campus generally fall into one or more of the following categories: academic, administrative, service (student, faculty, and staff focused), recreational, and facilities operations. While some buildings have mixed-use functions, categorizing facilities in this manner assists with recognizing zones of use that occur on the Campus. Figure 3.2.4 illustrates the building usage categories.

The four main buildings on the Campus are all primarily academic in nature. In addition, the adjacent Goldenrod Building is currently leased by the College but it is anticipated that the property will be purchased by the College in 2011. Two future buildings (Bioscience Education Center and Child Care Center) are also included in the analysis as it is anticipated construction will start on both during 2010 and be completed before 2016.

The **Science & Applied Studies Building (SA)** (40,291 NASF, 65,146 GSF), a two-story structure constructed in 1978 with partial renovations in the late 1990s, contains general classrooms, computer-equipped classrooms, lecture halls, a large interdisciplinary science laboratory and related support functions, and the Science Learning Center. In addition, the Campus Safety and Security Office (open 24 hours a day) is housed on a portion of the upper floor, while part of the lower level houses the Admissions and Records Office, the Assessment Center, the Counseling and Advising Office, the Financial Aid Office, the International and Multicultural Student Center, the Student Employment Services Office, the Student Life Office, and the Student Success Center, with faculty and administrative offices located throughout the building.



The **Humanities & Social Sciences Building (HS)** (51,406 NASF, 75,700 GSF), a two-story building constructed in 1978, contains general classrooms, computer-equipped classrooms, the Writing Center and Foreign Language Lab, the library, MC Books & More (the bookstore), the cafeteria, the Child Care Center, and faculty offices. The library houses a variety of resources that support the curricula and programs of the College, including circulation stacks, group study areas, and computers for general access.

The **Physical Education Center (PG)** (29,370 NASF, 36,770 GSF), a one story building with partial basement constructed in 1983, contains two general purpose classrooms, a gymnasium, a swimming pool, a weight room, locker rooms, and faculty offices for the Health and Physical Education Department. The Center to the south of the quadrangle is the first step in creating a new face for the Campus oriented toward the new Campus entrance road from the south. In the future, the renovated facilities will be shared with the community and local schools, especially the swimming pool.



The **High Technology & Science Center (HT)** (41,779 NASF, 75,542 GSF), a four story structure constructed in 1995, contains general classrooms, computer-equipped classrooms, specialized technology labs, a Technology Center, a Math and Accounting Learning Center, a teleconferencing room, the Globe Hall auditorium with seating for 517, and faculty offices.



Especially compared to the older buildings on the campus, the HT is in good condition, though some existing labs and classrooms within the building will be transferred to the Bioscience Education Center when that building is complete. The high performance central chilled water plant is located in the basement of this building and distributes chilled water to the rest of the campus buildings except the Goldenrod Building. The plant was designed to be expanded to increase capacity and to serve other buildings on campus.



To accommodate growing enrollments, the College recently leased an existing commercial building adjacent to the campus. This building, the **Goldenrod Building (GB)**, adds 20,317 square feet of net assignable space on the first floor to the Campus inventory and has been renovated for additional general classrooms, faculty offices, Campus administration offices, and Campus operations and maintenance offices. The second floor of the building is subleased by Montgomery County and is a business incubator (Germantown Innovation Center – Montgomery County Department of Economic Development). This building is located 500 feet to the west of the Humanities & Social Sciences Building.

The **Grounds Storage Building (GS)** (1,623 NASF, 4,295 GSF), two single story structures constructed in 1980. One section is the automotive shop, with repair parts storage; small engines repair area and a staff workstation. The other structure houses a carpentry materials storage area and a grounds equipment storage area.



To the south of the Science & Applied Studies Building will be located a new **Bioscience Education Center (BE)** (72,960 NASF, 126,900 GSF) that will be under construction in early 2011. This building will form part of a second quadrangle and will house the Biology, Biotechnology and Chemistry Departments and the office of the Dean of Business, Science, Math and Technology. A high performance satellite central hot water and chilled water central plant will be located in the basement of this building. The plant will serve the BE building and a direct buried piping distribution system will send hot water and chilled water to the SA building and proposed future buildings on the south. The chilled water distribution system will also connect to the existing campus chilled water distribution system forming a redundant network for campus cooling.

The **Child Care Center (CG)** is planned to comprise a series of two small building structures grouped around a common secure outdoor space. The first phase, a 6,900 GSF structure, is planned to begin construction in late 2010.

The **Greenhouse (GN)** (2,075 GSF), constructed in 1993, supports the Landscape Technology program. It is used to support classroom and lab instruction and with a plant material storage building and the nursery

raises plants for campus landscape improvements. The location of the greenhouse is within the planned construction zone for the Bioscience Education Center. The existing structure will be removed and a new Greenhouse, together with related facilities, will be constructed east of the High Technology & Science Center.

There are a number of other buildings that provide support to campus activities and programs, including a Baseball Storage Shed, two baseball Dugouts, Dugout Storage, and a Press Box that supports the baseball program, as well as storage sheds for Landscape Storage, Greenhouse Storage, Tennis and Child Care Center.

3.2.6 Building Condition Assessment

In 2007, the College updated the facilities condition analysis for each of its three campuses, including buildings and site infrastructure components such as electric, natural gas, water, sanitary sewer, storm sewer, hardscape (sidewalks and plazas), and roadways and parking lots. The primary focus of this effort was to:

- Provide a baseline condition assessment of the College's facilities to include infrastructure components and building systems;
- Provide the College with budget estimates for funding required safety improvements and reducing the deterioration of campus buildings and infrastructure components;
- Assist the College with building code and accessibility compliance and to ensure that the facilities are operated as required;
- Utilize the assessment in the implementation of an ongoing process of the identification and prioritization of maintenance and capital repair projects; and
- Provide decision support capabilities with the assessment's facility management software solutions.

The facilities analyses include the following:

- Current Condition Analyses – existing facility deficiencies including deferred maintenance, deferred renewal, near-term anticipated renewal, recommended discretionary improvements, and non-compliance items related to the building code.
- Anticipated capital renewal analyses – projections of ongoing degradation of facilities' components and costs associated with renewal or replacement of these components as they reach the end of their useful life.
- Capital funding analyses – scenario comparisons showing various funding levels and the effect of each on the condition and value of the building.

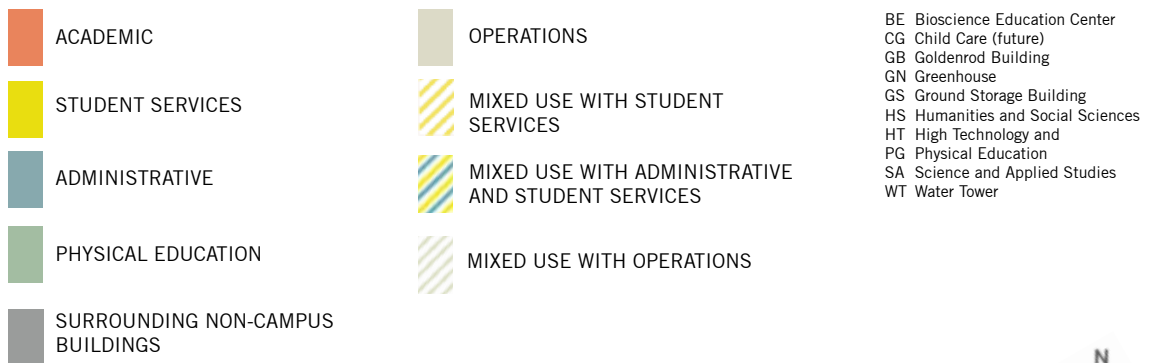
Assessment Methodology

The deficiencies were classified in several different ways. In addition to detailed specific descriptions, each deficiency was assigned a category, priority, and primary system association. This parallel differentiation allows for multiple queries of the database, facilitating analysis of the data. It is possible,

FIGURE 3.2.4
BUILDING USAGE



Image Not to Scale



for instance, to query the database for all Priority 1 deficiencies in the electrical systems or all Priority 5 accessibility code issues. The criteria used to determine the priorities, categories, primary systems, and cost estimating are as follows:

Priority Definitions:

Priority 1: Currently Critical - Projects requiring immediate action to:

- Return a facility to normal operation
- Stop accelerated deterioration
- Correct a cited safety hazard

Priority 2: Potentially Critical - Situations that, if not corrected expeditiously, will become critical within a year, including:

- Intermittent interruptions
- Rapid deterioration
- Potential safety hazards

Priority 3: Necessary – Not Yet Critical - Conditions requiring appropriate attention to preclude predictable deterioration or potential down time and the associated damage or higher costs if deferred further.

Priority 4: Recommended - Items that represent a sensible improvement to the existing conditions. These items are not required for the most basic function of a facility; however, Priority 4 projects will improve overall usability and/or reduce long-term maintenance.

Priority 5: Does Not Meet Current Codes/Standards - Items that do not conform to existing codes, but are grandfathered in their existing condition. No immediate action is required, although the items will need to be addressed if any significant work is performed on the building. The amount of work that triggers code compliance is typically 50% of the value of the structure but is also somewhat at the discretion of the local building official.

Facility Condition Index (FCI)

An automated standard process for assessing the relative condition of buildings and site infrastructure components, facilitating comparison both within and among the campuses was established. For each building or site component, the Facility Condition Index (FCI) was developed which measures the relative amount of current deficiencies in the building including recommended improvements and grandfathered issues. The total value of recommended corrections is divided by current replacement value for the building or site component resulting in the FCI. The higher the FCI, the poorer is the condition of the facility or system component.

The FCI ranges for the standard of services for each building or site component are:

- Good: .00 to .05
- Fair: .05 to .10
- Poor: Greater than .10

FCI is a standard measure used throughout the country; it is recommended by both the National Association of College Business Officers (NACUBO) and the Association of Higher Education Facility



**FIGURE 3.2.5
2006 FACILITIES PLAN**

- EXISTING BUILDING
- IN DESIGN, UNDER CONSTRUCTION OR UNDER RENOVATION
- CAMPUS BOUNDARY

- BE Bioscience Education Center
- CG Child Care
- CP Central Plant
- EG East Garage
- GB Goldenrod Building
- GN Greenhouse
- HS Humanities and Social Sciences
- HT High Technology and Science Center
- PG Physical Education
- PP Physical Plant
- SA Social Sciences and Art
- WT Water Tower

N
1" = 250'

Officers (APPA). In the attached tables, this is represented by a Deficiency %, which takes the FCI and converts it to a percentage of replacement. For example, an FCI of .10 translates into a Deficiency percentage of 10%.

The academic buildings completed in the late 1970s and early 1980s all need to undergo a major systems upgrade in the future. With the exception of the High Technology & Science Center, all of the buildings built in the 1970s and 1980s have a FCI rating of at least .33. The Humanities & Social Sciences Building has an FCI rating of .38, indicating deficiencies of 38% of the replacement value. (See Table 3.2.1). In addition, Table 3.2.4 highlights that the vast majority of buildings on Campus, constituting 89% of the FCI deficiency cost, have FCI ratings within the range of 25% and 50%.

Changes to program space, especially the transfer of science classrooms, offices and labs to the Bioscience Education Center, will require a reallocation of spaces and uses within existing buildings. The academic spaces within the Science & Applied Studies Building will be most affected by the completion of the Bioscience Education Center resulting in a major renovation and reallocation of space within the building.

The following Tables reflect information from the 2007 condition assessment reports.

TABLE 3.2.1
TOTAL REPLACEMENT VALUE AND FACILITY CONDITION INDEX FOR MAJOR EXISTING BUILDINGS

Name	Use	Age	Size	RV (\$1,000)	FCI cost	FCI
Biosciences Education	Classroom - Conf. Cntr.	0	126,900	*		
Child Care Center	Day Care	0	4,200	*		
High Technology and Science Center	Classroom, Office	11	75,542	11,062	937	0.08
Humanities and Social Sciences	Classroom - Library - Cafeteria	28	75,700	9,547	3,605	0.38
Goldenrod Building (leased)	Classroom - Office	NA	33,684	**		
Physical Education	Athletics - Recreation	23	36,770	4,995	1,627	0.33
Science and Applied Studies	Classroom - Student Services	28	65,146	10,984	3,791	0.35
Grounds Storage Bldg	Storage - Vehicles	26	4,295	379	131	0.35

* in design or construction (replacement value not established)

** leased space (replacement value not established)

TABLE 3.2.2
 TOTAL REPLACEMENT VALUE AND CURRENT DEFICIENCY COST (2006 VFA REPORT)
 (does not include the Bioscience Education Center, Goldenrod Building and Childcare Center)

Sixteen structures (263,157 GSF) which include: 4 major buildings (253,158 GSF) and 12 support facilities (9,999 GSF), central plant, 6 sheds, press box, automotive/storage, greenhouse, 2 dugouts.

	Replacement Value	Current Deficiency	Deficiency as % of Replacement*
Priority One - Five			
Building Systems	\$39,759,853	\$9,905,620	24.9%
Infrastructure	\$15,243,885	\$3,252,560	21.3%
CAMPUS TOTAL	\$55,003,738	\$13,158,180	23.9%
Priority One-Three Only			
Building Systems	\$39,759,853	\$7,079,797	17.8%
Infrastructure	\$15,243,885	\$31,880	.2%
CAMPUS TOTAL	\$55,003,738	\$7,111,677	12.9%

TABLE 3.2.3
 AGE OF BUILDINGS BY DECADE, GROSS AREA AND % OF TOTAL

1970s (SA and HS)	142,766 GSF	36%
1980s (PG and GS)	41,065 GSF	10%
1990s (HT plus 10 minor buildings)	79,326 GSF	20%
2000s (BE and CG)	133,800 GSF	34%

TABLE 3.2.4
 BUILDING DEFICIENCY FOR CATEGORY AMOUNT 1 THROUGH 5 (2006 VFA REPORT)
 (does not include the Bioscience Education Center, Goldenrod Building and Childcare Center)

Deficiency	FCI Cost	Percent of FCI Cost
Less than 25% deficiency (3 buildings)	\$1,002,010	10%
26% to 50% deficiency (9 buildings)	\$8,846,690	89%
51% or greater Deficiency (4 buildings)	\$56,920	1%
TOTAL	\$9,905,620	100%

3.2.7 Utility and Information Technology Infrastructure

The existing utility and information technology infrastructure is a critical underpinning that supports the Campus' built environment. The College has undertaken a series of separate planning activities compiled in a Utility Master Plan to identify these utility and information technology resources. The Appendix includes a brief discussion of the existing Campus utility and information technology infrastructure.

3.2.8 Site Environmental Issues

Stormwater Management

The Campus occupies 228.7 acres consisting of woodlands, meadows, and a built environment that is largely impervious and consisting of buildings, roads, sidewalks, and parking lots. Approximately seven percent of the total Campus area is an impervious built environment.

The Campus property is divided into six major drainage areas. The high point of the college is located at the WSSC water tower. In general, all of the existing Campus development to the north of the water tower (approximately 37 acres), plus the Goldenrod Building site, drains to the existing stormwater management pond located at the northeast portion of the Campus. This pond also provides treatment for approximately 32 acres of off-site area to the north – storm drainage MD-118 (Germantown Road) and the residential and business properties located to the north of the Campus. The remaining 192 acres of the Campus discharge to various tributaries. All of the run-off from the built-up portions of the Campus drainage areas combine in the Gunners Branch stream valley prior to flowing west underneath I-270.

The commercial properties along Goldenrod Lane drain into a stormwater management “dry” pond located to the east of the parking lot associated with the Goldenrod Building. This existing pond provides water quality control as well as quantity control for its respective drainage area. The discharge from this “dry” pond is into the Campus storm drain system which ultimately discharges into the existing storm water management pond located in the northeast portion of the Campus.

The existing storm water management pond provides water quality and 2-yr, 10-yr and 100-yr quantity control for its respective drainage area. The pond was designed to the storm water management regulations in use in 1993. The stormwater management regulations in 1993 required water quality treatment for a half-inch of run-off over the impervious area. The wet pool in the pond provides this required water quality treatment. The pond was enlarged in 1995 to provide compensating water quantity control for the approximately 3 acres associated with the High Technology & Science Center itself. As part of this pond retrofit, an enlarged embankment was provided to accommodate a future roadway. The existing road and site improvements east of the High Technology & Science Center are the only portion of the Campus not managed by the existing pond. A surface sand filter provides the water quality control for the approximately 3 acres associated with the High Technology & Science Center.

The undeveloped portion of the campus located south of the Science & Applied Studies Building drains to the south via three drainage areas. The first drainage area is located to the southwest of the water tower and collects at a drainage system where it crosses under I-270. The second drainage area is located north of the adjacent Hughes Network property. The run-off from this area collects into a storm drain system that conveys the run-off through the Hughes Network property. The third drainage area flows to the east, southeast and south and outfalls into Gunners Branch.

In October 2000, the Maryland Department of the Environment adopted the 2000 Maryland Storm Water Management Design Manual (Volumes One and Two), which updated the treatment requirements for both

water quality and quantity control. For water quality, the Design Manual required the treatment of 1" of rainfall over the drainage area. For quantity control, the Design Manual required control of the Channel Protection Volume (1-yr, 24-hour storm event). Control of the 2-year peak discharge is not required and control of the 10-year peak discharge is optional depending on if downstream flooding problems exists or conveyance is inadequate. The existing pond does not meet these requirements, nor the more recent State of Maryland requirements adopted in 2009 requiring more rigorous management of storm drainage within the anticipated limits of disturbance of a particular project. Stormwater Management is governed by the State of Maryland Stormwater Management Act of 2007, requires the development of a stormwater management plan that implements Environmental Site Design (ESD) to the "maximum extent practicable" and ensuring that structural best management practices are only used where absolutely necessary.

ESD is defined as using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic run-off characteristics and minimize the impact of land development on water resources. ESD includes conserving natural resources (drainage patterns, soil and vegetation; minimizing impervious surfaces (roads, walks, roofs) and increasing infiltration and evapotranspiration; and using other non structural practices and innovative technologies.

Storm water management water quality control for the Bioscience Education Center, including the new campus loop road, new parking lot and the new extension of Observation Drive to Middlebrook Road, will be provided through a series of storm water management practices. The rooftop run-off will be treated via three "planter box" bioretention areas located adjacent to the building; run-off from the parking lot will be treated via grass swales located between the parking bays; run-off from the loop road and Observation Drive will be provide via surface sandfilters. The surface sandfilter has been sized to accommodate future upland development.

Storm water management quality control treatment for the Bioscience Education Center, loop road, new parking lot and Observation Drive will be provided by a new wet extended-detention pond located at the southern end of the campus near the intersection of Observation Drive and Middlebrook Road. This new pond will be sized to accommodate the future site development. The design of the wet pond is for aesthetic purposes only; the wet pool will not account for quality control treatment. The Montgomery County Department of Permitting Services is the stormwater management review authority for the Germantown Campus.

Forest Conservation

A Natural Resource Inventory and Forest Stand Delineation plan was prepared by Ecotone for the Foulger Pratt Companies and Montgomery College and is shown in Figure 3.2.8 Natural Systems. A Forest Conservation Plan covering the entire Campus was approved in June 2010 by the Maryland-National Capital Park & Planning Commission and includes the implementation of a forest conservation area of approximately 71 acres in conformance with the State of Maryland Forest Conservation Act. Approximately 25 acres of the protected forest lies within the Gunners Branch stream buffer and wetland areas along the eastern and southern edge of the Campus. The remaining 46 acres lie to the south of the water tower and preserve an existing Priority 1 forest within the forest conservation easement.

3.2.9 Circulation and Parking

The Campus is bounded generally by Germantown Road (MD 118) to the north, Interstate 270 to the west, Middlebrook Road to the south and Frederick Road (MD 355) to the east. Regional access is provided by

I-270 and Frederick Road. The Germantown Road and Observation Drive intersection is signalized and serves as the only external access point for the Campus. The Campus access and circulation situation is illustrated in Figure 3.2.9. This figure also shows the parking and public transportation facilities currently serving the Campus.

Traffic turning movement counts were conducted at the Germantown Road/Observation Drive intersection to determine its operational efficiency as well as the distribution of trips accessing the Campus. The counts recorded 674 inbound and 206 outbound vehicles during the AM peak hour (8:30-9:30 AM) and 425 inbound/236 outbound vehicles during the PM peak hour (6:00-7:00 PM). Analysis of the data obtained indicates that this intersection currently operates within the acceptable level-of-service planning standards.

The data also indicates the following campus trip distribution:

Roadway Approach	Distribution
From the north on Observation Drive	10%
From the east on Germantown Road (MD-355)	40%
From the west on Germantown Road (I-270)	50%

Observation Drive is the “roadway spine” of the campus. This roadway consists of a long “throat” extending between the Germantown Road intersection and the entrances to the Physical Education Building and Parking Lot A. This segment consists of two (2) horizontal curves, and is provided with speed signage and pedestrian crosswalks, which all serve as “traffic calming” measures. On-campus vehicle access and circulation are also provided by minor roadways that connect Observation Drive with the parking lots and loading areas. Given that vehicles must funnel through a singular access point significant vehicular and pedestrian operational and safety problems exist, including:

- Speeding (both ways) along Observation Drive between the two sharp turns as you enter the campus from Rt.118;
- Speeding from drivers heading north from the 4-way stop towards the sharp turn at the corner of the athletic field;
- Poor line of sight at each of these sharp turns, reducing the driver's awareness of pedestrians; and
- Lack of sidewalks along the entire Observation Drive.

Additionally, and based on the discussions held with the Montgomery County Department of Transportation Traffic Planning Department, the fact that the Campus is served by a single access point is not acceptable from the perspectives of daily campus trip generation (which significantly exceeds the County’s standard of 1,000 trips per day), as well as emergency egress requirements.

Parking

The Campus is provided with 1,096 spaces distributed among six surface lots. The principal lots, Lots A and B, are to the west of Observation Drive. Another large parking area, Lot C, is located to the north of the campus and three small parking areas provide the remaining space count. With the leasing of the Goldenrod Building, an additional 223 spaces have been added to the parking inventory, creating a total of 1,319 spaces.

The peak parking utilization for non-leased facilities reached 92% in fall 2006. This number is calculated without the addition of the 223 space associated with the Goldenrod Building. This indicates that a practical parking deficit existed in 2006; requiring potential parkers to search to find an available space, thereby increasing potential vehicle to vehicle and vehicle to pedestrian conflicts. The addition of the 223 spaces has mitigated the parking need to a limited extent. The average walking distance between the parking areas and the center of the Campus is 500 feet, which is quite acceptable based on national standards for educational campuses, and the maximum distance is 1,000 feet.

Transit

Three Montgomery County Ride-On bus routes serve the Campus. These buses collectively connect the Germantown and Rockville campuses, as well as provide bus service to the Shady Grove and Rockville Metro stations. The existing bus stop is located on Campus in Lot A close to the entrance from MD-118. The Campus is also served by several Washington Metropolitan Transit Authority (WMTA) buses (see Figure 3.2.12), namely Bus Route 55 from MD 355 Frederick Rd. and Bus Routes 61 and 74 from Germantown/MD 117 Clopper Road. Another public transportation facility that will serve the campus in the long term is the proposed Corridor Cities Transitway (CCT), the Red-Line Extension that connects the Shady Grove Metro Station to Clarksburg. The closest CCT stop to the Campus will be located within the Germantown Town Center on the west side of I-270.

Though the Campus is located within a rural to suburban transition zone and though the public transit services appear relatively limited, those transit routes and Maryland Transportation Authority's (MTA) MARC Rail station in the Germantown Town Center are well positioned to meet current and future needs. The positive impact of public transit service is due to the fact that the Campus' population base is remarkably concentrated within a 12 mile radius. Based on ridership surveys completed in the fall of 2007, between 30-40% of faculty/staff (see Figure 3.2.10) and 45-50% of students (see Figure 3.2.11) live within an even more concentrated 5 mile radius.

However, at present only 15% of faculty and staff and 20% of students arrive to the Germantown Campus via bus, shuttle, walking or biking. This suggests that there is significant potential to reduce single-occupant automobile travel by implementing such Transportation Demand Management (TDM) techniques as a parking-transit incentive program and/or a parking disincentive program.

Pedestrian Circulation

The main pedestrian spine runs east-west between the Humanities & Social Sciences Building and Science & Applied Studies building. The spine links the parking lots across Observation Drive and the High Technology & Science Center. A north-south path borders the main quadrangle.

When the Bioscience Education Center is built the pedestrian circulation patterns will be greatly altered. Stronger pedestrian connections will need to be developed from the existing quadrangle south to the new outdoor space defined to the west and south by the new building. In addition, the future creation of a new entrance on the south side of the Bioscience Education Center would connect the existing and new Campus quadrangles and buildings. (Refer to Figure 3.2.13 Pedestrian Circulation).

A goal of this Plan is to develop connections with the planned Science & Technology Park to the south. In addition to programmatic connections, the development of the Science & Technology Park is anticipated to provide clear pedestrian links to the Campus and the Bioscience Education Center.

FIGURE 3.2.6
GENERAL BUILDING CONDITIONS



Buildings built in 1995
- Meets Academic Needs and Life Safety Codes

Office building renovated in 2007 for academic use

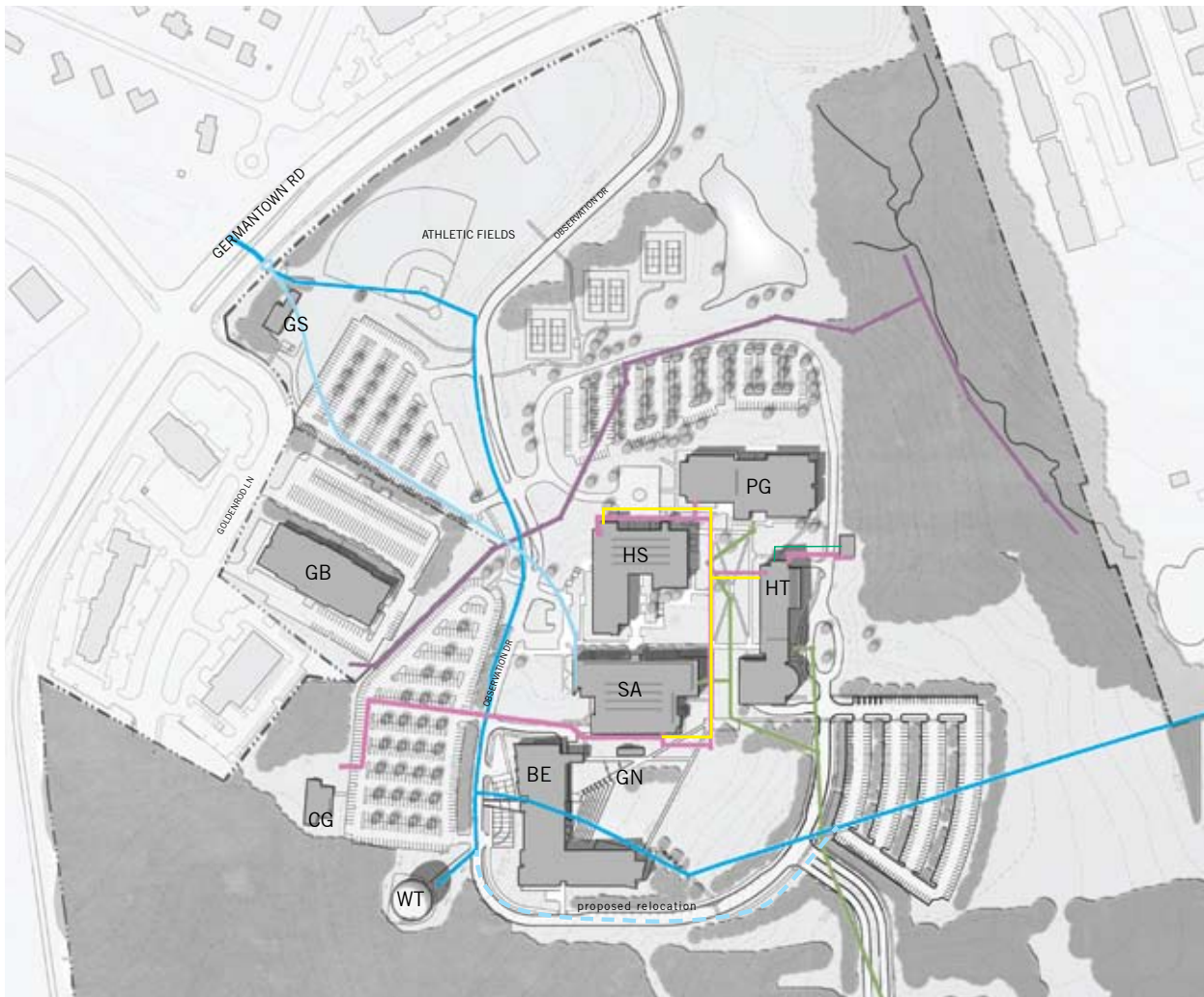
Building to be built or renovated in 2010-2013

FCI ratings of .33-.38
- one to three story buildings
- outdated or deficient mechanical, electrical, and life-safety systems
- facilities that do not meet basic ADA accessibility requirements
- shortage of student and administrative support spaces

BE Bioscience Education Center
CG Child Care (future)
GB Goldenrod Building
GN Greenhouse
GS Ground Storage Building
HS Humanities and Social Sciences
HT High Technology and
PG Physical Education
SA Science and Applied Studies
WT Water Tower



FIGURE 3.2.7
MAJOR SITE UTILITIES



CHILLED AND HOT WATER SUPPLY AND RETURN

24" WATER TRUNK LINE

12" WATER LINE

12" GLYCOL LINE

8" SANITARY LINE

8"-12" STORM SEWER

4" GAS LINE

- BE Bioscience Education Center
- CG Child Care (future)
- GB Goldenrod Building
- GN Greenhouse
- GS Ground Storage Building
- HS Humanities and Social Sciences
- HT High Technology and
- PG Physical Education
- SA Science and Applied Studies
- WT Water Tower



3.2.10. Science & Technology Park

Description

The College continually reviews its academic programs to ensure consistency with four-year transfer programs and workforce development needs. In particular, the College has worked closely with Montgomery County government to integrate Science, Technology, Engineering, and Mathematics (STEM) programs with the workforce needs of Montgomery County and to support expanded experiential learning opportunities. See Section 3.1.4. This effort has driven the College and the County to seek maximum synergy between academic programs, training opportunities, and business needs.

The College is pursuing the establishment of a Science & Technology Park on the Campus similar to the very successful Science & Technology Parks at the University of Maryland-College Park, the University of Maryland-Baltimore County, and the Shady Grove Life Sciences Center in Montgomery County. Like the Shady Grove Life Sciences Center, which includes Shady Grove Adventist Hospital, the Science & Technology Park on the Campus will include a hospital as the anchor tenant. The Shady Grove Life Sciences Center is a prime example of how a health care facility can be the impetus to creating academic-business partnerships and spawning economic growth. Indeed, health care facilities across the country have been successful magnets for co-location of other STEM industry businesses, especially biotechnology according to the Association of University Research Parks.

The Science & Technology Park is one of a three-part program initiative to support STEM programs on campus. The other two are the Germantown Innovation Center, (a high-technology business incubator operated by Montgomery County government) located on the second floor of the College's Goldenrod Building, and the planned Bioscience Education Center. See Section 3.2.5. The underlying premise of this triad is to bring together the academic excellence of the College with the creative energy generated by the Germantown Innovation Center and integrate them with STEM business opportunities for the mutual benefit of all parties — the Campus's students in particular. Positive synergy will result from students having on-campus internship and employment opportunities. STEM professors will have research and consulting opportunities, thus improving their knowledge and skills. Cutting-edge entrepreneurs and researchers from the Germantown Innovation Center and senior executives and managers from firms in the Science & Technology Park will be available for adjunct teaching opportunities. Further, as part of lease agreements with tenants in the Science & Technology Park, the College will negotiate memoranda of understandings that will ensure a close working relationship with tenants, including opportunities for internships and externships, adjunct teaching, and financial support for the College's educational programs. A Memorandum of Understanding has been agreed to with the Science & Technology Park's first tenant - Holy Cross Hospital.

The Germantown Innovation Center was opened in the fall of 2008 and is presently 90% occupied. The new Bioscience Education Center, scheduled to be open to students in 2012, will offer state-of-the-art academic facilities for science and provide space for the 3rd and 4th year programs for a bachelor's degree in Life Sciences from UMCP. These projects have been cited in the Governor's BioMaryland 2020 Strategic Plan and the County's recently issued Bioscience Strategy Report as critical elements of success.

When this vision is fully implemented, on-campus students will be able to achieve an academic foundation through the associate's degree from the College, move on to complete a bachelor's degree from UMCP, be inspired by the cutting-edge science at the incubator, and, at the same time, benefit from part-time employment or internships as students and possibly employment careers in the firms and facilities located in the Science & Technology Park. The successful implementation of this project will achieve the College's long-held goals and, moreover, support President Obama's and Governor O'Malley's education and business initiatives that seek to better prepare students to compete in the knowledge-based global economy.

FIGURE 3.2.8
NATURAL SYSTEMS



Image Not to Scale

- | | |
|---|--|
|  FOREST |  STREAM |
|  100 FOOT STREAM VALLEY BUFFER |  CAMPUS BUILDINGS |
|  WETLANDS |  CHAMPION TREE |

History

The history of this project began in May 2001. At that time, Montgomery County Department of Economic Development approached the College and asked that 50-acres of the Germantown Campus be set aside for bioscience development to help ensure the future growth of the bioscience industry along the I-270 Corridor, often described as the nation's "DNA Alley." In responding and citing concern for its own ability to grow, the College agreed to set aside 20 acres of the Campus for the Science & Technology Park on the condition that an additional 20 acres of available private land adjacent to the Campus would be purchased with funding by the County. The County agreed, and the College acquired a 20-acre parcel of land in November 2002, with \$6 million in funds provided by the County and the State, and a \$2 million gift from the seller.

In June 2003, the College Board of Trustees endorsed a concept of the "Germantown Development Project," which included the co-location of a Science & Technology Park, a high-technology business incubator, and the proposed Bioscience Education Center to create more real-life experiences and rigorous academic opportunities for students. Additionally, by leasing land as a Science & Technology Park, the College would be able to use land that would not be required for educational purposes to generate revenue to support its academic programs and to build required infrastructure.

In January 2004, College issued a public "Request for Proposals" for a private developer to lease approximately 40-acres of the Campus on which to plan, design, construct, and manage a "life sciences and technology business park." Several competitive responses were received. Following an in-depth evaluation of the responses to the "Request for Proposals" by College and County officials and representatives of the Montgomery College Foundation and the private sector, Foulger-Pratt Development, Inc. of Rockville was selected in July 2004 to develop the Science & Technology Park project in cooperation with the College.

During the 18 months following, extensive data was collected by Foulger-Pratt Development leading to the development of a preliminary master plan for the Science & Technology Park on the west-central portion of the campus. An extension of Goldenrod Lane from the north to Middlebrook Road on the southern end of the campus would provide access for the development parcels as well as a much needed second access point for the College.

In May 2006, Foulger-Pratt began lease negotiations with a major healthcare provider, Kaiser Permanente. The College also discussed possibilities for the Science & Technology Park with Adventist HealthCare in August 2007. Yet it was when Holy Cross Hospital -- which had been searching for property in northern Montgomery County for a new hospital -- approached the College in late spring 2008, that the Science & Technology Park had the first viable prospect of a lead anchor and one that presented a truly unique and innovative concept of co-locating a community hospital on a community college campus. If this comes to fruition it would be the first such dynamic integration of a hospital with a community college in the United States, although a hospital is a proven anchor and foundation for successful technology parks.

During this same time period, the College continued to seek financial support for the infrastructure development of the Science & Technology Park. In August 2007, the State of Maryland provided the College with a \$1 million grant to support the construction of necessary infrastructure for the Science & Technology Park, and in January 2008 the College received \$1.78 million in federal funding for same.

During this period, the Montgomery County Planning Board (MCPB) of the Maryland-National Capital Park and Planning Commission initiated an update of the community master plan for Germantown, known as the Sector Plan (Sector Plan) for the Germantown Employment Area. In March 2008, the MCPB released a draft of the Sector Plan and over the objections of the College, proposed both a permanent open space

FIGURE 3.2.9
PARKING AND VEHICULAR CIRCULATION



FIGURE 3.2.10
FACULTY/STAFF RESIDENCES BY ZIP CODE

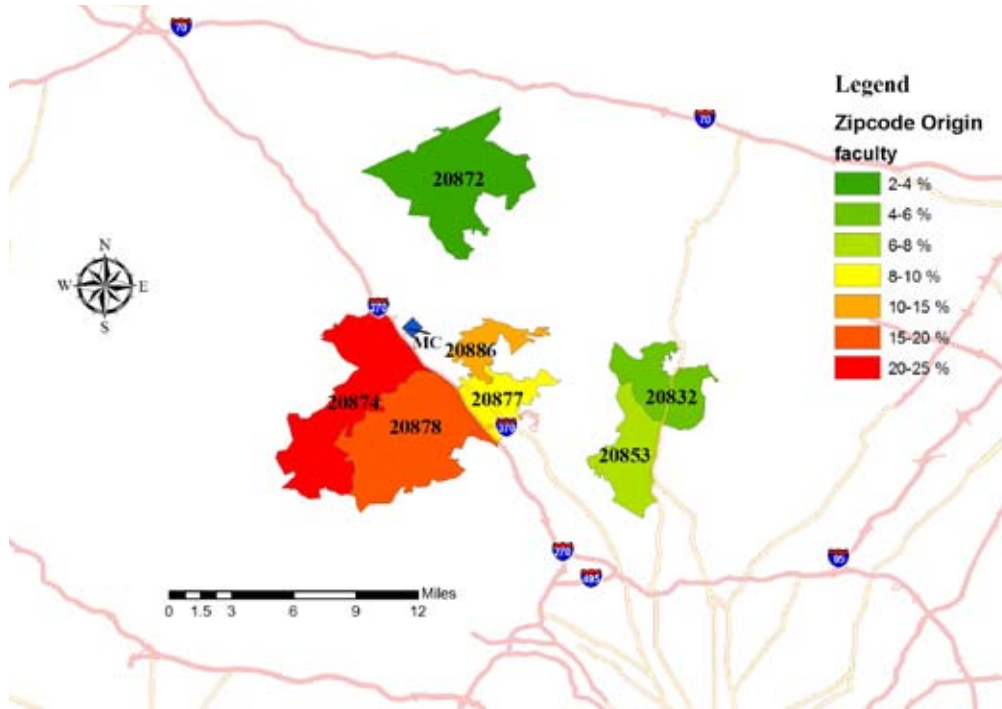


FIGURE 3.2.11
STUDENT RESIDENCES BY ZIP CODE

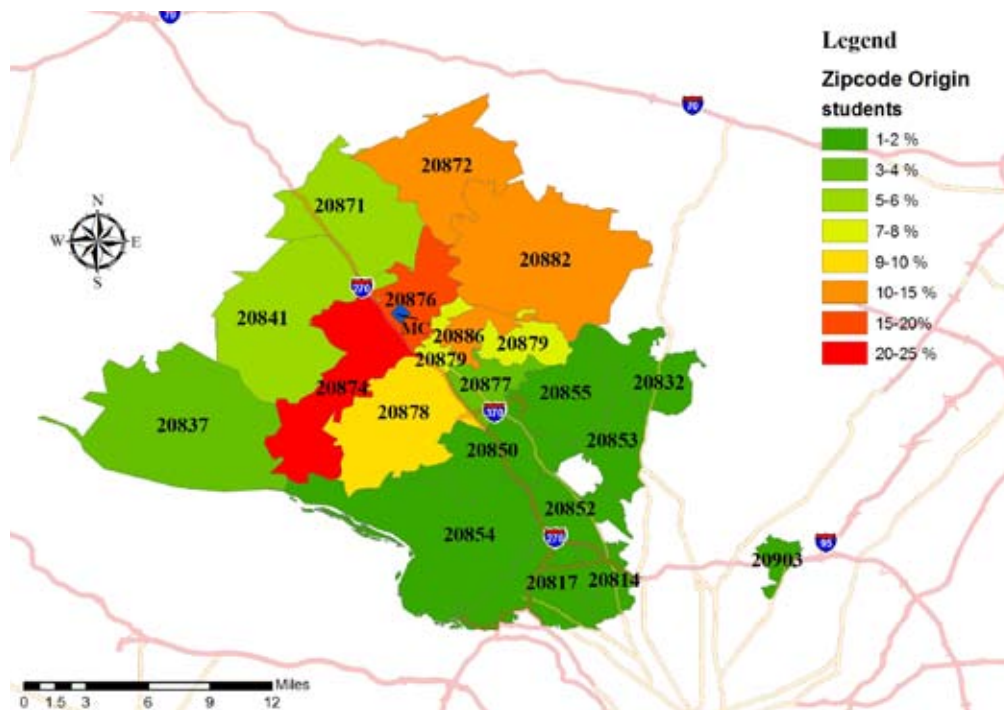
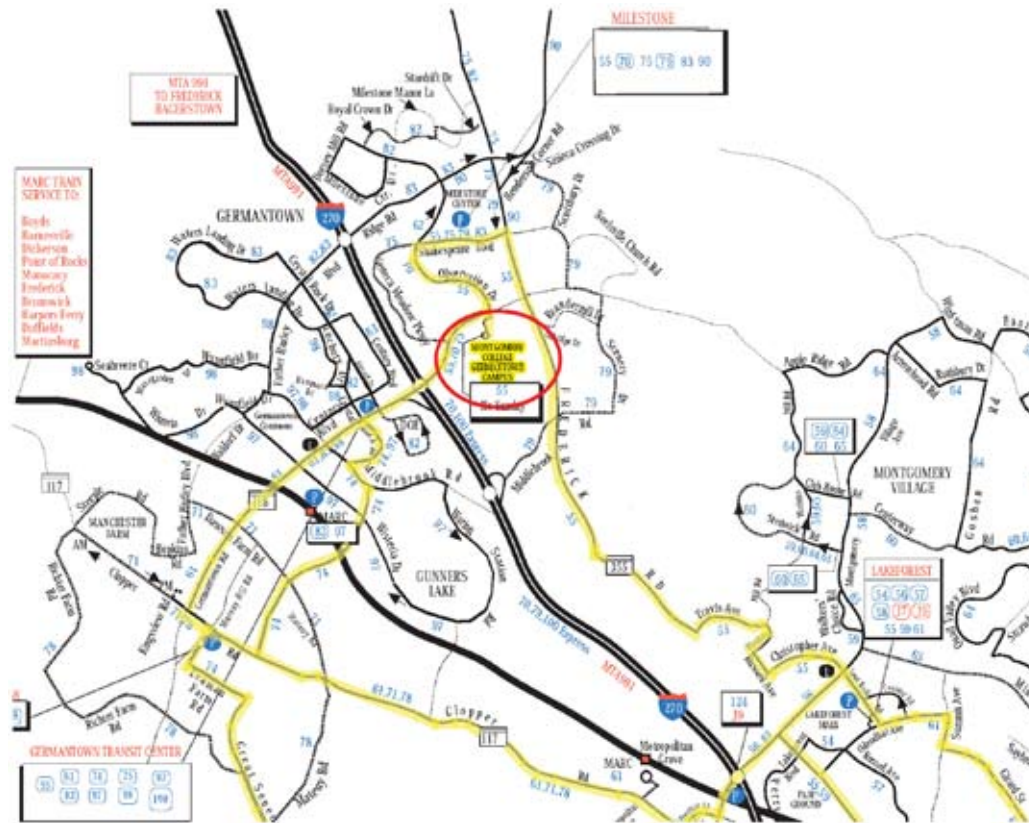


FIGURE 3.2.12
BUS ROUTES SERVING THE GERMANTOWN CAMPUS



preservation of 50 acres of campus forest, including almost the entire footprint of the proposed Science & Technology Park, and a major four-lane commuter road through the middle of the campus. The Sector Plan also recommended relocation of the majority of the Science & Technology Park to the southeastern portion of the campus.

As noted above, after a lengthy period of negotiation, Foulger-Pratt Development was unable to reach an agreement with Kaiser Permanente, and the College was not able to generate interest from Adventist HealthCare. In August 2008, Foulger-Pratt Development and Holy Cross Hospital commenced the process of developing a formal sub-lease agreement that included a requirement for integration with the College’s academic programs. This agreement was subject to review and acceptance by the College. The outline of the lease was presented to the Board of Trustees in December 2008 along with a Memorandum of Understanding between the College and Holy Cross Hospital. The Board of Trustees authorized the negotiation of a formal lease between the College and Foulger-Pratt Development and a sub-lease between Foulger-Pratt and Holy Cross Hospital. Throughout 2009, the Montgomery County Council and Montgomery County Planning Board continued to refine the Sector Plan and in September 2009, after extensive negotiations with the College, the County Council, in a compromise, determined that approximately 46 acres of the aforementioned forest would be preserved on the west side of the Campus, necessitating moving most of the Science & Technology Park to the southeastern portion of the Campus. The County Council also decided that the commuter road would provide access for the Science

& Technology Park. The County Council also urged that the academic campus be consolidated in the northern portion of the Campus.

This Facility Plan provides for all foreseeable major growth for the academic campus to be consolidated in the northern portion of the Campus with four new academic buildings planned, plus reservation for five future building sites. Following the County Council decisions, the College, working with Foulger-Pratt Development, redesigned the Science & Technology Park site plan so as to create three development sites on approximately 40 acres in the southeastern portion of the Campus. A potential fourth development parcel was identified in the northwestern portion of the campus. This plan preserves approximately 94 acres for academic use, which is sufficient space for 100 years of academic growth at the Germantown Campus.

In September 2009, the College's Board of Trustees approved these changes and passed an amended resolution to authorize the execution of a ground lease agreement that allowed for Foulger-Pratt to lease a portion of the Science & Technology Park to Holy Cross Hospital to construct a hospital, subject to a Certificate of Need approval from the state. The lease was signed in October 2009. The Memorandum of Understanding (MOU) between the College and Holy Cross Hospital that was executed in December 2008 remained unchanged. In summary, the College and the hospital committed to doubling the number of nursing graduates from the College over five years. To help achieve this goal, Holy Cross Hospital made the following commitments:

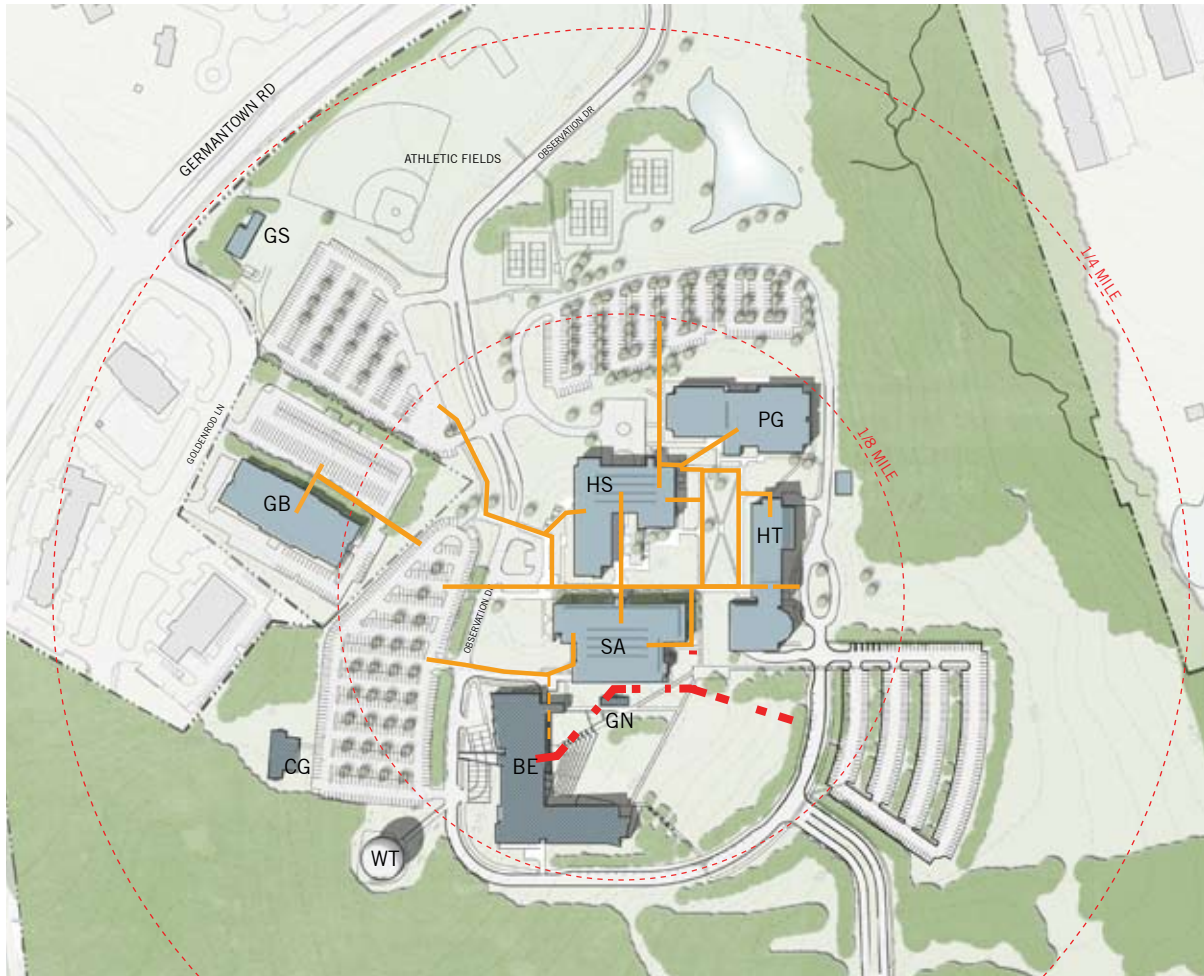
- Make the maximum allowed pledge (\$250,000) to the College pursuant to the Maryland Hospital Association's "Who Will Care" campaign; (Note: these contributions are in addition to the lease payment.)
- Spend an additional \$150,000 over the next three years to support educational programs at the College, with an ongoing pledge of \$100,000 per year, beginning in the fourth year; (Note: These contributions are in addition to the lease payment.)
- Offer at least 64 clinical rotations per semester to nursing and other allied health students at the College when the Germantown hospital opens;
- Give release time with full pay and benefits to at least one FTE a year to teach at the College;
- Encourage hospital employees to assist and support the instructional programs at the College through guest lecturing, student mentoring, and other activities;
- Provide instructional space for the College at the hospital or on its campus; and
- Explore the option of offering the College's nursing and other allied health programs as a part of staff development for hospital employees.

Importantly, this Memorandum of Understanding builds on the existing relationship between the College and Holy Cross Hospital. The hospital already provides clinical rotations for students at its Takoma Park/Silver Spring Campus. And since February 2004, Holy Cross Hospital has operated a primary care clinic for the uninsured in the Health Sciences Building at the Takoma Park/Silver Spring Campus. The clinic provides instructional opportunities for the students and they, in turn, have an opportunity to interface with a patient population that, in addition to having had health care access challenges, often confront language, cultural, and socioeconomic barriers.

It is also important to note that almost eight-hundred pre-clinical and clinical nursing students taking classes at the College live in the greater Gaithersburg and Germantown areas. The availability of the teaching resources at the new Holy Cross Hospital-Germantown would be more efficient for students, many of whom work at jobs in addition to carrying a full academic load.

For a milestone history of the project, see the Appendix.

FIGURE 3.2.13
PEDESTRIAN CIRCULATION



- STUDENT WALKING ROUTES
- - STUDENT WALKING RADIUS
- ← BLDG ENTRANCES WITH LOBBIES

- EXISTING CAMPUS BUILDINGS
- IN DESIGN, UNDER CONSTRUCTION, OR UNDER RENOVATION

- BE Bioscience Education Center
- CG Child Care (future)
- GB Goldenrod Building
- GN Greenhouse
- GS Ground Storage Building
- HS Humanities and Social Sciences
- HT High Technology and r
- PG Physical Education
- SA Science and Applied Studies
- WT Water Tower



3.3 FACILITIES PROGRAM

3.3.1 Needs Assessment

The current and projected facilities needs assessment at the Germantown Campus is generated by applying current and projected planning data related to enrollment, instructional delivery, library collections, faculty, and staff to the State of Maryland Guidelines for facilities at community colleges. The data referenced in Table 3.3.1 shows a projected head count increase of 25% from 2006 through 2016, a growth in FTDE of 34% and FTE of 33%.

TABLE 3.3.1
NEEDS ASSESSMENT PLANNING DATA FOR THE GERMANTOWN CAMPUS

	Actual Fall 2006	2006 FMP Projected Fall 2016	% Change from Fall 2006
FTDE	1,915	2,557	34%
FTDE (inc on line)	1,973	2,649	34%
Day SCH	28,725	38,356	34%
Day WSCH-Lec	20,050	22,517	12%
Day WSCH-Lab	13,523	23,510	74%
Day WSCH	33,573	46,027	37%
FTE	2,600	3,456	33%
Credit Hours (SCH)	39,000	51,833	33%
On line FTE	139	219	58%
On line SCH	2,078	3,286	58%
Bound Volume Equivalents	91,577	108,979	19%
FTEF	135.75	181.75	34%
FT fac	91	123	35%
PT fac	179	235	31%
FTES	165.00	218.00	32%
FT staff	152	201	32%
PT staff	52	68	131%
Planning Head Count	1,171	1,579	35%
Headcount Student (HCS)	5,529	6,911	25%

Current and projected space needs are then computed for each type of space in the campus inventory for which a guideline is available. Comparisons with the Campus' current inventory and the one planned for 10 years later, given approved capital projects, are made, and surpluses or deficiencies relative to the respective space categories are identified. Table 3.3.2 shows this analysis and breakdown by ROOM USE category.

TABLE 3.3.2
 COMPUTATION OF SPACE NEEDS FOR THE GERMANTOWN CAMPUS
 (the current inventory includes the Bioscience Education Center and the Childcare Center)

HEGIS CODE	ROOM USE CATEGORY	Need 2016	Projected Inventory *	Surplus/ (Deficit)
100	CLASSROOM	33,776	30,590	(3,186)
200	LABORATORY	175,696	85,184	(90,512)
210	Class Laboratory	164,570	73,014	(91,556)
220	Open Laboratory	11,126	12,170	1,044
300	OFFICE	66,731	50,980	(15,751)
310 /350	Office/ Conf. Room	64,657	49,059	(15,598)
320	Testing/Tutoring	2,075	1,921	(154)
400	STUDY	31,813	17,639	(14,174)
410	Study	16,556	6,190	(10,366)
420-30	Stack/Study	10,898	10,647	(251)
440-55	Processing/Service	4,359	802	(3,557)
500	SPECIAL USE	49,309	31,193	(18,116)
520-23	Athletic	45,490	27,348	(18,142)
530	Media Production	2,519	2,257	(262)
560	Animal Facility	300	300	0
580	Greenhouse	1,000	1,288	288
600	GENERAL USE	47,107	33,090	(14,017)
610	Assembly	14,298	9,931	(4,367)
620	Exhibition	2,075	0	(2,075)
630	Food Facility	15,462	6,062	(9,400)
640	Childcare	2,550	2,550	0
650	Lounge	4,548	2,494	(2,054)
660	Merchandising	2,175	1,553	(622)
670	Recreation Space	0	0	0
680	Meeting Room	6,000	10,500	4,500
700	SUPPORT	23,296	12,437	(10,859)
710	Data Processing	2,500	600	(1,900)
720-740	Shop/ Storage	16,466	10,302	(6,164)
750	Central Service	4,000	1,130	(2,870)
760	Chemical Storage	329	405	76
800	HEALTH CARE	730	0	(730)
900	RESIDENTIAL	0	0	0
050-090	ALTERATIONS/ IND USE	0	1,481	1,481
Total NASF:		428,457	262,594	(165,863)

* Projected Inventory includes existing space in 2006 plus approved development projects, including those in desing or construction, as well as the planned acquisition of the Goldenrod Building.

Currently the Campus, excluding Workforce Development & Continuing Education, shows an overall deficiency of 139,289 NASF, a significant amount of space representing over 80% of the Campus' current inventory.

The College has two approved capital projects on this Campus that are currently under construction or in design. The chart above includes these planned facilities. The projects include:

- The new 126,900 GSF (72,960 NASF) Bioscience Education Center, currently in design, and
- The new 6,900 GSF Child Care Center (3,800 NASF), currently in design.

The Bioscience Education Center project will also relocate the existing greenhouse currently sited to the south of the Science & Applied Studies Building. These two projects will help to both create a new science-oriented facility housing needed laboratory, classroom, and meeting space, as well as remove the Child Care Center from its temporary location in the Humanities & Social Sciences Building. The Campus has seen very little new construction over the last ten years, even though the Campus student population has been expanding rapidly. The College is currently leasing the Goldenrod Building, where the upper floor is leased to the County and the lower floor is retained for College uses supporting the Campus' instructional needs with additional classroom and faculty office space, as well as support space for Campus operations and maintenance, and information technology offices.

As Table 3.3.2 illustrates, even with these two projects substantial deficiencies remain on the Campus across almost every use category — 165,863 NASF or 63% of the 2016 projected inventory. Importantly, this assessment of space deficiency is based on planning guidelines for a small campus. The Campus, with a projected 2,649 FTDE including on-line FTE, is approaching the upper enrollment limit of 3,000 FTDE that defines a small campus. Campuses with FTDE enrollments over 3,000 are categorized as large campuses, and different space factors apply which would have an impact on classroom, class lab, media production, food facility, and meeting room allowances. If the Campus were assessed using the large campus factors, the overall deficiency would be 128,771 NASF, or 49% of the Campus' projected inventory. The greatest deficiencies are in class laboratory space, office, study spaces, and physical education facilities. The class lab deficiency is very significant, representing the transitioning from a classroom to a class lab environment, utilizing more technology and collaboration in instructional delivery. This is the pedagogical trend for nearly all instruction from mathematics and engineering to the humanities. While the new Bioscience Education Center will create badly needed science lab space, both the humanities and mathematics departments face challenges to create appropriate spaces for this transition of teaching methodology.

3.3.2 Proposed Facilities Programs

As shown in the following set of projects, the 2006-2016 Facilities Master Plan for the Campus adds 128,715 NASF to the campus inventory beyond the space already in design or under construction. These additions represent an increase in 76% of the existing net assignable space on campus. In addition this growth represents 78% of the overall net 2016 space deficiency, but is consistent with the needs assessment under the large institution guidelines.

Even though the Campus has a great deal of open space for new development the 2006-2016 Facilities Master Plan emphasizes renovation of existing buildings, like the Humanities & Social Sciences Building and the Science & Applied Studies Building. Uses within these structures will be relocated to new buildings on campus, especially the Bioscience Education Center and the new Student Services Center. This relocation of uses will allow for concentrating student services that are currently spread throughout the Campus into a one-stop shop.

To retain a compact campus, new buildings such as the Student Services Center and the Social Sciences & Art Building are planned to be located close to the heart of the Campus. These buildings also reinforce

the concentration and grouping of like uses. Together the proposed new buildings, the reallocations, and the renovations of spaces within existing buildings, will support the continued growth of the Campus.

A description of the programs located within these projects follows. The physical aspects of these projects are discussed in Section 3.4 of this document.

1. The new Bioscience Education Center is planned to provide up-to-date biotechnology and science laboratories in a modern facility that complies with current requirements. This new building is part of an overall plan to provide a campus instructional focus in support of the biotechnology industry. In addition to housing the biology, chemistry, and biotechnology programs, the new building will house a meeting center providing the College and outside groups with a location which supports scientific education. The Bioscience Education Center will be 72,960 NASF (126,900 GSF).
2. A new Student Services Center to support a Computer Training Center, an Assessment Center and a Reading and Writing Learning Center in open lab space, cafeteria, student services and student development, and Campus and Student Services support space. This building will incorporate the campus bookstore and the Provost office suite. The Student Services Center will be 68,325 NASF (116,235 GSF).
3. A Physics, Engineering & Math Center (37,160 NASF) containing open class labs, classrooms, offices and support space within the envelope of the existing Social Studies and Applied Studies Building. As the building functions are reshaped and brought into code compliance, available assignable space can be expected to be reduced, and planning for the renovation takes this into account. This building will house the Math Learning Center.
4. A renovation of the Humanities & Social Sciences Building will upgrade building systems, renovate and enlarge the Library. During design, an evaluation of the existing open library space will determine if additional space can be created within this building by creating a new mezzanine and infilling the atrium.
5. Alteration of the High Technology & Science Center will provide more computer applications and networking class labs and space for the accounting and business departments. Globe Hall and the existing meeting room space will be retained.
6. A new Social Sciences & Art Building with classrooms, art studios and labs, social science labs, faculty offices, a Center for Teaching and Learning instructional suite, art exhibit space and support spaces. The proposed building will have a total of 35,050 square feet of assignable space (65,600 GSF).
7. Renovation of the existing Physical Education Building (29,280 NASF), together with an addition of 21,810 NASF (36,500 GSF), will support both the Campus's and community's health and physical education needs.
8. A new Greenhouse to serve as the outdoor lab for the landscape technology program will be constructed to replace the existing greenhouse that will be demolished to accommodate the construction of the Bioscience Education Center project.

The Goldenrod Building is currently a leased facility; however, the College anticipates completing the purchase of this building in 2011. The building currently houses classrooms and faculty offices, as well as the Center of Teaching and Learning, the Provost office suite, an office suite for the management of the Science & Technology Park, the Campus operations and maintenance offices, and information technology support space. Ultimately, this facility will be used for overflow classrooms and class labs and to support campus functions and Work Force Development & Continuing Education.

3.4 2006-2016 FACILITIES MASTER PLAN

3.4.1 Campus Master Plan Guiding Principles

As part of the master plan process, a series of guiding principles were developed to assist in the preparation of the Facilities Master Plan. These guiding principles are presented below, and are reflected in the 2006-2016 Facilities Master Plan.

1. Enhance the Hilltop Character of the Campus

- Site buildings carefully to preserve distant views.
- Preserve and enhance the fingers of green space, views, and pedestrian connections that radiate out from the center of the Campus.
- Site the new Student Services Center to serve as a new gateway facility when entering the Campus from the north.

2. Concentrate Development on the Campus

- Concentrate new Campus development and locate entrances to ensure walkability and accessibility for all students and faculty.
- Site new buildings and renovate existing buildings to encourage proximity of departments and programs. Create proximity of the Science, Engineering and Math departments, cluster the Humanities, Social Sciences & Arts programs, and consolidate the Student Services functions.

3. Consolidate Student Services and Enhance Student Life

- Combine Student Services including the Resource Center in one distinctive building.
- Develop new outdoor spaces and student connections between the Physical Education Building, the Humanities & Social Sciences Building and the new Student Services Center.
- Encourage pedestrian access to the existing storm water management pond located in the northern portion of the Campus and develop appropriate amenities to enhance this asset.

4. Extend the Roadway System to Provide Better Access and Safety

- Continue the development of the Campus Loop Road with parallel parking on one side, sidewalks, street trees and pedestrian-scaled lighting.
- Extend Observation Drive to Middlebrook Road to provide improved vehicular access to the south of the Campus.
- Roadways should not become a barrier to campus development. They should be designed with pedestrian crossings and circulation in consideration. Appropriate traffic calming measures should be employed to slow all campus traffic and discourage through-traffic.
- Allow for the future connection of Observation Drive to Goldenrod Lane.

5. Provide Appropriate Parking Facilities to Handle Future Parking Demands

- Incorporate planted swales that become a landscape amenity into the design of new surface parking lots.
- Encourage transit and carpool use with coordinated programs, shuttles, and improved facilities to reduce the dependence on the automobile and the need for more parking. Enhance the pedestrian facilities around the transit hub.

6. Strengthen Pedestrian Connections

- Develop pedestrian connections through existing buildings. Both the High Technology & Science Center and the future Physics, Engineering & Mathematics Center should have clear student circulation paths that accommodate the change in levels.
- Encourage pedestrian paths as part of a radiating system of green fingers leading from the Campus' central quadrangle.
- Site the Social Sciences & Art Building to reinforce the pedestrian connection to the Goldenrod Building.
- Outdoor green and hardscape space should be enhanced in a purposeful way, with shade trees, seating and other amenities coordinated with each other.

7. Enhance the Natural Systems of the Site

- Utilize semi-pervious pavers and grassy swales where possible to reduce storm water impacts. Combine grass-lined swales with wooded buffers to treat run-off in an attractive and coordinated manner.
- Enhance views, increase buffers and support the existing natural systems of the site through reforestation. Treat the environmental constraints on the site as an opportunity to create a better Campus and learning environment.

8. Incorporate Sustainable Building and Site Strategies

- Achieve the LEED silver rating for new construction and renovations on Campus.
- Incorporate building strategies that incorporate use of recycled and local materials, green roofs to mitigate heat gain and control storm water run-off, and more efficient and intelligent lighting systems and HVAC systems.
- Incorporate strategies that include installing dark sky light fixtures, landscaping with native plants and incorporating rain gardens and landscaped swales to aid in storm water quality control.

3.4.2 Proposed Campus Structure and Character

The original design for the Campus focused the buildings inward, toward a grassy quadrangle, which helped to lend the small campus a sense of unity and interconnectivity. The Bioscience Education Center will be the first building planned to be located beyond the original quadrangle. The entrances to the

building will require extending a loop road to the south, together with a new parking lot and sidewalk connections. The size of the new Bioscience Education Center, and the sloping site on which it will be situated, creates a large open space to the south of the existing Campus. The location of the building is oriented as much to the new southern entrance to the Campus as to the existing Campus buildings. The buildings proposed in the 2006-2016 Facilities Master Plan have been located to reinforce pedestrian and visual connectivity on the core campus.

Following the guiding principles listed in Section 3.4.1, the 2006-2016 Facilities Master Plan proposes to physically alter the arrival experience to the Campus. It sites new buildings to serve as both a gateway to the Campus and an extension of the existing pedestrian paths. The proposed Student Services Center will guide and orient visitors to the Campus and will help create a connection to the pond to the north of the existing development. The proposed Social Sciences & Art Building located on the west side of Observation Drive will break up the large areas of parking and define a clear pedestrian path to the Goldenrod Building. This building will also serve as part of the northern gateway to the Campus, together with the Student Services Center, as one approaches from Germantown Road up the winding access road to the Campus.

The proposed Physics, Engineering & Mathematics Center will be located adjacent to the Bioscience Education Center (BE) within the former Social Science & Applied Studies (SA) building. The renovation will create a new circulation path within the building to allow for a direct access to the quadrangle created by the Bioscience Education Center.

3.4.3 Proposed Building Projects

The 2006-2016 Facilities Master Plan is displayed in Figure 3.4.4, which shows the location, footprints and heights of the proposed new buildings on Campus. Following that is Figure 3.4.6, the Landscape and Open Space Plan.

A phasing plan for achieving the goals of the Facilities Master Plan is included in Section 3.4.9 Implementation of the Master Plan. Below is a summary of the building projects envisioned in this plan. It is anticipated that additional work outlined in the following sections on landscape and open space, utility and information technology infrastructure, environmental and sustainability, and circulation and parking would be included in the capital projects that are developed to implement this Plan.

The existing Greenhouse on the south side of the Science & Applied Studies Building will be demolished to make way for the new Bioscience Education Center. The Facilities Master Plan proposes to relocate this structure and its related facilities east beyond the High Technology & Science Center. The location has excellent solar exposure and adjacent land can allow for a horticulture garden.

Physics, Engineering & Mathematics Center (Renovation of the former Science & Applied Studies Bldg)

The Physics, Engineering & Mathematics Center will be located within the former Science & Applied Studies Building. As most of the existing second floor uses within the building are being relocated to the Bioscience Education Center and the first floor uses will be relocated to the Student Services Center, the building will be renovated and reconfigured in two phases to allow for new academic uses. The proximity to the Bioscience Education Center will allow for shared use of facilities within both buildings, such as the Mathematics and Accounting Learning Center in the Physics, Engineering & Mathematics Center and the Science Learning Center in the Bioscience Education Center.

The building is currently entered from the lower floor of the north side. There currently is no access on the south side of the building. To facilitate access to the Bioscience Education Center and the new quadrangle to the south, the circulation pattern will need to be reconfigured to provide for a new entrance from the second floor with egress to the south. This new southern entrance could also have a student lounge or similar use to help activate the new quadrangle.

Reallocation of Space with the High Technology & Science Center

This building, built in the 1990s, requires minor renovation and reallocation of space as the existing biotechnology lab and related uses will be relocated to the new Bioscience Education Center once it opens. The relocation of functions from this building will allow its reuse to focus on the Information Technology and Business departments.

New Student Services Center

The Student Services Center will consolidate student support functions and resources, as well as student activities, which have traditionally been spread about the Campus. It will relocate the Admissions, Registration and Records; and Student Development and Student Life offices from the Social Science & Applied Studies Building and create much more space for study and student interaction to support a growing Campus. In addition, the building will house the Reading and Writing Learning Center, the Social Science Learning Center and its media and academic computing functions. Classrooms supporting Business, Humanities, and Social Sciences will also be included in this new building.

The Student Services Center has been strategically sited to create a new gateway into the Campus. The building will be visible from north as part of the Campus entrance from Germantown Road, affording an instantaneous orientation for visitors. The building will be located adjacent to the Physical Education Center which will have a new fitness addition in the future. Across a new outdoor plaza will be located the Humanities & Social Sciences Building. This outdoor space linking the building to the main campus quadrangle will create a much needed congregation space on campus.

Renovation of the Humanities & Social Studies Building

The library within the Humanities & Social Studies Building will be renovated and expanded. This space will be converted to classroom and laboratory space for the Humanities and English departments. The cafeteria, currently undersized, will be expanded and relocated to the new Student Services Center. Once the Social Sciences & Art Building is constructed the remainder of the building can undergo a systemic renovation and reallocation of space.

New Social Sciences & Art Building

The Social Sciences & Art Building will define a new gateway to the Campus as it will be located on Observation Drive and frame the west side of the road as it enters the Campus from the north. This new building will help connect the Campus to the Goldenrod Building due to its location between the main Campus and the latter facility. The building will provide new classrooms to support Campus growth and also allow the Campus to develop an expanded art program.

Addition to and Renovation of the Physical Education Complex

FIGURE 3.4.1
MASTER PLAN GUIDING PRINCIPLES -
ENHANCE THE HILLTOP CHARACTER OF THE CAMPUS



This project will renovate all of the existing Physical Education facility and add an addition to the building. The addition will be located on the north side of the existing building. It will provide an entrance to the new fitness and recreation spaces from the west.

Physical Plant Building

The College is in the process of evaluating new sites to accommodate the offices of the physical plant and facilities departments, the shops, vehicle maintenance facilities and storage areas. Within ten years, these uses will relocate to space in the Bioscience Education Center. After ten years, these uses will be accommodated in a new structure, possibly associated with another use.

3.4.4 Proposed Campus Landscape and Open Space

TABLE 3.3.3
EXISTING AND PROPOSED FACILITIES

		Existing NASF 2006*	Master Plan 2016	NASF Change
SA	Science and Applied Studies Building	40,219	0	(40,219)
new	Physics/Engineering/Math Building (former SA)	0	37,160	37,160
	Greenhouse	2,144	1,290	(854)
HT	High Technology and Science Center	45,420	45,420	0
BE	Bioscience Education Center	72,960	71,620	(1,340)
HS	Humanities and Social Sciences Building	51,590	0	(51,590)
	Renovation of HS (Library and Childcare move out)	0	47,560	47,560
GB	Goldenrod Building	19,795	12,775	(7,020)
new	Social Sciences and Art Building	0	35,050	35,050
PG	Physical Education Building	29,370	29,280	(90)
	Addition to Physical Education Building	0	21,810	21,810
new	Student Services Center	0	68,325	68,325
	Childcare Facility	3,360	3,800	440
GS	Storage Grounds and Vehicle Maintenance	4,053	2,865	(1,188)
Total		268,911	376,955	108,044

* The existing NASF 2006 data is taken from CC-Table 1, Fall 2006 data which was submitted to MHEC on 07-01-07.

** Space allocated to WDCE

The outdoor spaces on the Germantown Campus are critical components of the functioning of the adjoining buildings. Most buildings in a campus setting open onto these landscaped spaces. Following is a list of landscape projects envisioned for the Germantown campus. Reference Figure 3.4.6.

1. Line Observation Drive with street trees, pedestrian scaled lighting and sidewalks. In addition it will have one lane of parallel parking. The extension of the road for the Bioscience Education Center will set a landscape standard for the whole loop road.
2. Modify the current vehicular drop-off to allow for a more spacious pedestrian entry into the Campus. Landscape the area of the outdoor play yard vacated by the relocation of the Child Care Center.
3. Enhance the main quadrangle with groupings of trees to help define its edges, reinforce pedestrian walking paths and create more shade and amenities.
4. Reinforce the east-west pedestrian axis from the east of the High Technology & Science Center to the Goldenrod Building.
5. Link the existing Campus pond, a natural amenity, to the center of the Campus with a landscaped path.
6. Create a new Student Resource courtyard, relocating cafeteria service to the north. This space should be a link between the Student Services Center, the cafeteria, and the new fitness center.
7. Retain the forested buffers to the east of campus, extending ribbons of green up into the Campus with appropriate landscaping.
8. Protect critical views out from the center of Campus, especially to the south and east. Define locations for future buildings to ensure that these view corridors will be respected and protected.
9. Retain and enhance a forest buffer between the south Campus buildings and future commercial development to the south.

3.4.5 Proposed Utility and Information Technology Infrastructure

Master planning for utility and information technology infrastructure is an integral part of a successful campus planning process. The College's Utilities Master Plan was prepared to optimize the use of utility resources while minimizing potential disrupts, as well as costs. As part of this planning process, the 2006 Utilities Master Plan for the Germantown Campus was reviewed to determine the adequacy of existing systems and to ascertain the potential for future expansion. As the current Facilities Master Plan is implemented there will be a series of on-going evaluations and analyses undertaken to determine a more complete picture of the utility and information technology infrastructure impacts. The Appendix includes a synopsis of the planned Campus utility and information technology infrastructure.

3.4.6 Proposed Site Environmental and Sustainability Issues

Stormwater Management

Stormwater management activities are governed by the State of Maryland Stormwater Management Act of 2007, which requires the development of a stormwater management plan that implements Environmental Site Design (ESD) features to the "maximum extent practicable" that ensure that structural best management practices are only used where absolutely necessary.

FIGURE 3.4.2
MASTER PLAN GUIDING PRINCIPLES -
CONCENTRATE DEVELOPMENT ON THE CAMPUS



- STUDENT SERVICES,
PHYSICAL EDUCATION
- HUMANITIES, SOCIAL
SERVICES, ART, WD&CE
- SCIENCE, MATH,
ENGINEERING



ESD is defined as using small-scale stormwater management practices, nonstructural techniques, and appropriate site planning to mimic natural hydrologic run-off characteristics and minimize the impact of land development on water resources. ESD includes conserving natural resources (drainage patterns, soil and vegetation), minimizing impervious surfaces (roads, walks, roofs) to increase infiltration and evapotranspiration, and using other non-structural practices and innovative technologies prior to consideration of structural stormwater management solutions.

In general, utilizing green roofs on future buildings and locating bioretention areas adjacent to buildings will minimize the impact on any undeveloped open space of future Campus development. Consistent with this approach, future roadway development on the Campus should utilize open section roadways with grass swales. New parking lots should be designed to incorporate bioretention facilities and retrofitting existing parking lots may also be considered. Sidewalks should be designed to allow run-off to sheet flow over grass to utilize the disconnection of non-rooftop run-off. Any future development within the Campus may also require the existing stormwater management pond be upgraded to meet current regulations.

Forestation Update

The College is currently preparing a Campus Forest Conservation Plan (FCP) consistent with State of Maryland forest conservation requirements as locally implemented by the Maryland-National Capital Park & Planning Commission. The College's future development of the Campus will be undertaken consistent with the approved FCP and the long-term protection arrangements implemented as part of the Plan. The Final Forest Conservation Plan (FFCP) was approved June 24, 2010.

Sustainability and Smart Growth

The Facilities Master Plan evokes Smart Growth philosophies of renovation of existing structures and when not possible, intensification of development on existing parcels. The Campus remains compact and intensely developed, and walkability is emphasized in the design of all buildings.

In addition, all new structures will strive to achieve the LEED silver rating for new construction and renovations. Strategies for increasing the sustainability of the new facilities include:

- Incorporating innovative waste water technologies;
- Reducing building water use through high-efficiency fixtures and collection / reuse of stormwater;
- Optimizing energy performance of buildings, through cost effective energy efficient measures including on-site renewable energy, high-efficiency lighting and HVAC systems;
- Connections to existing high performance central plants for energy efficiency, demand management and economies of scale;
- Incorporating sustainable construction waste management;
- Building with materials with recycled content, manufactured regionally, and/or manufactured using renewable resources;
- Maintaining healthy environments through increased ventilation, thermal comfort and clean air; and
- Providing interior spaces with daylight.

FIGURE 3.4.3
MASTER PLAN GUIDING PRINCIPLES -
STRENGTHEN PEDESTRIAN CONNECTIONS



Site-based strategies for increasing the sustainability of the new facilities include:

- Creating density of structures leaving land for open space;
- Selecting appropriate native or adapted plant materials requiring minimal or no irrigation;
- Creating and maintaining habitats that promote biodiversity;
- Managing stormwater quality and quantity through green roof systems and rain gardens;
- Reducing the heat island effect by providing trees for shading paved surfaces and by using open grid or light-reflective material for hardscape;
- Creating cool roofs by using high-reflective roofing materials in conjunction with green roofs; and
- Limiting light pollution with dark sky fixtures.

Although a majority of students arrive to the campus by private automobile, the College is committed to encouraging alternative modes of transportation to the campus, coordinating with County bus services, providing transit facilities on Campus, and educating students, faculty and staff on ways to reduce automobile usage.

3.4.7 Proposed Circulation and Parking

This section presents a generalized assessment of the Facilities Master Plan from a transportation perspective. The key proposals and potential transportation impacts and needs associated with those changes are discussed and evaluated below.

Vehicular Access

The Campus is currently provided with a single access point. This access is located along Germantown Road (MD 118) at its intersection with Observation Drive, the main campus roadway. The Facilities Master Plan proposes several significant changes.

- A second access point for the campus, from the south. The current design envisions a new four lane road connecting Goldenrod Lane south to Middlebrook Road. A campus access road, two lanes wide, would come off of this roadway and become a new approach and gateway.
- Observation Drive would be extended around the Bioscience Education Center as a new Campus loop road. The road from the High Technology & Science Center would also be extended to link with this road to complete the “loop” road. The new portions of this road would have a consistent profile: one lane each direction with parallel parking off the inner lane.
- The Facilities Master Plan also proposes an additional change to the roadway system that would have positive effects on the regional circulation patterns. With the new roadway connection to the south, Middlebrook Road would be connected to Observation Drive north of Germantown Road.

These roadway changes would enhance external and internal access and circulation, as well as satisfy the emergency access requirements of the Montgomery County Department of Transportation.

Vehicle Trip Generation Impacts

Campus growth is likely to cause an increase in parking demand as well as an increase in the volume of vehicular traffic if the College is not successful in implementing significant Transportation Demand Management innovations that are accepted by students, faculty and staff. The demand for parking is anticipated to increase by 27.5% over the planning period. Based on existing traffic counts, future traffic flows can be estimated. This analysis for the 2006 and 2016 periods indicate that AM peak hour inbound traffic would grow from 674 to 859, AM outbound traffic would grow from 206 to 263 vehicles, PM inbound traffic would grow from 425 to 541 vehicles, and PM outbound traffic would grow from 236 to 300 vehicles.

The existing Campus entrance at the Germantown Road/Observation Drive intersection currently operates efficiently with significant reserve capacity. If the planned southern entrance to the Campus is implemented the Campus would have a more favorable distribution of trips which would further enhance the operational efficiency of the main access point off Germantown Road. Based on those factors, the incremental trip generation is anticipated to have a minimal impact on the local area roadway network.

Parking

The Campus currently has 1,319 surface parking spaces in eight parking areas/lots, including the leased spaces in Lot D associated with the Goldenrod Building. When the Bioscience Education Center is constructed an additional lot, Lot E with 379 spaces, will also be built and thereby increase the Campus parking inventory to 1,698 spaces.

Based on a survey of existing parking lots and analysis of parking utilization rates, it is expected that parking will grow through 2016 for students by 26.1% (over 2006) and faculty/staff and visitors by 34.4%. These factors were applied to the estimates of current peak demand to determine future parking demand and space requirements. It was determined that the growth in parking demand for 2016 would show a need for 1,440 spaces. Accounting for the need to provide 5% surplus parking to address practical capacity limits it is recommended that the Germantown campus would require 1,515 spaces to meet its peak 2016 need.

The 2006-2016 Facilities Master Plan shows modifications to a number of existing lots to accommodate building growth. These changes are highlighted in Table 3.4.1 Proposed Parking Facilities. Lot C will be impacted by the development of the Student Services Center & Library could lose approximately 186 spaces. Lot B will be impacted in a minor way by the Social Sciences & Art Building. In addition, a new drop-off and pedestrian entry sequence could impact the parking area to the west of the Humanities & Social Sciences Building. Building projects will cause a reduction of 233 spaces on the Campus.

This negative is off-set by the construction of roughly 419 new spaces concurrent with the Bioscience Education Center project, which includes new parallel parking developed along the extension of the loop road to the east of the High Technology & Science Center (roughly 40 spaces added) and a new parking lot, Lot E (379 spaces). In total, the Campus is anticipated to have 1,519 parking spaces by 2016, which meets the practical capacity recommendation of 1,515 spaces. The introduction curbside parking along the loop road has the added benefit of acting as traffic calming measure, reducing the speed of traffic along those sections of the loop road and, in the future with the construction of a new southern entrance to the Campus on Middlebrook Road, discouraging non-College traffic from using the campus road system as a convenient cut-through from Germantown Road to Middlebrook Road.





FIGURE 3.4.6
LANDSCAPE + OPEN SPACE PLAN

- NEW COURTYARDS AND KEY AREA
 - EXISTING KEY AREA
 - SECONDARY CAMPUS CIRCULATION AXIS
 - MAJOR BUILDING ENTRANCE
 - CAMPUS BOUNDARY
- 1** Line Observation Drive with street trees.
 - 2** Modify drop-off and fill building setbacks with landscaping.
 - 3** Enhance the main quad with trees.
 - 4** Reinforce the East-West axis with landscaping, lighting and paving from the Goldenrod Building to the High Technology + Science Center.
 - 5** Link campus pond to center of campus with a landscaped path.
 - 6** Create a new student center courtyard. Push service and parking west into a paved court.
 - 7** Create a science quad with terraced seating and shade trees.
 - 8** Retain forested buffer and extend up into campus.
 - 9** Extend forest up into campus. Create swales to handle stormwater.
 - 10** Retain forested buffer between campus and future development.

Pedestrian Circulation

The Facilities Master Plan proposes the extension of the existing pedestrian network to connect with the new Bioscience Education Center, the Student Services Center, and the Goldenrod Building to the existing Campus facilities and parking lots. These pedestrian pathways are the arteries for student circulation and are critical to the functioning of the campus. The 2016-2026 Land Use Plan addresses many of these new connections.

In addition, important connections within buildings should be maintained or strengthened to allow for circulation through these buildings. The renovation of the Humanities & Social Sciences Building and the Physics, Engineering & Mathematics Center (former Science & Applied Studies Building) should create strong north-south circulation paths with new entrances, hallways and stairs.

3.4.8 Planned Science & Technology Park

The Science & Technology Park on the Germantown Campus is located on approximately 40 acres in the southeastern part of the campus. This acreage may vary depending on further regulatory requirements for roads, storm water, and other necessary infrastructure.

Initial Science & Technology Park Anchor Tenant: Holy Cross Hospital-Germantown. Subject to State approvals, Holy Cross Hospital has leased 24.5 acres of the Science & Technology Park. Holy Cross Hospital plans to build a hospital and supporting facilities, with enough capacity for future expansion. The College anticipates that this will be the first of several leases in support of the College's educational mission. See Section: 3.2.10. Both the College and Foulger-Pratt Development agree that an anchor or "lead" tenant is necessary to bring critical mass to the Science & Technology Park and to support the park's initial infrastructure development. The requirement that tenants of the Science & Technology Park be supportive of the educational programs of the College is a critical strategy in bringing real-time learning opportunities for students. Furthermore, the Science & Technology Park supports the economic development goals of Montgomery County and is a conduit to bring jobs to the upcounty region, which for so long has been out-of-balance between the number of residents and available jobs.

Location of Holy Cross Hospital-Germantown: The Science & Technology Park site reserved for the hospital is in the southeastern corner of the campus adjacent to the Fox Chapel neighborhood, which is a major mixed-use area with numerous retail establishments, restaurants, and thousands of households served with a high level of public bus transit.

Future Science & Technology Park Tenants: Marketing of the Science & Technology Park will continue to concentrate on the bioscience industry, and special efforts will be made to recruit firms that were seeded in the Germantown Innovation Center, the on-campus incubator operated by Montgomery County government.

3.4.9 Implementation of the Facilities Master Plan

Implementation of the 2006-2016 Facilities Master Plan for the Campus is anticipated to occur in four main phases as outlined below.

PHASING PLAN FOR 2006-2016 Facilities Master Plan

PHASE 1

- Construction of the Bioscience Education Center (126,900 GSF);

- Removal of existing Greenhouse (2,400 GSF) and reconstruction to the east of the High Technology & Science Center;
- Extension of Observation Drive to Middlebrook Road to serve as a second entrance to the Campus;
- Completion of the Observation Drive loop around the Campus core and construction of new parking lot (Lot E); and
- Construction of the Child Care Center (6,900 GSF).

PHASE 2

- Alterations of the High Technology & Science Center, and Renovations (including circulation change) of second floor of the Science & Applied Studies Building for Physics, Engineering and Geology.

PHASE 3

- Construction of the Student Services Center.

PHASE 4

- Renovation of the Humanities & Social Sciences Building in space vacated by the cafeteria, and of the first floor of the Science & Applied Studies Building.

PHASE 5

- Construction of the Social Sciences & Art Building.

PHASE 6

- Renovation of Humanities & Social Sciences Building second floor.

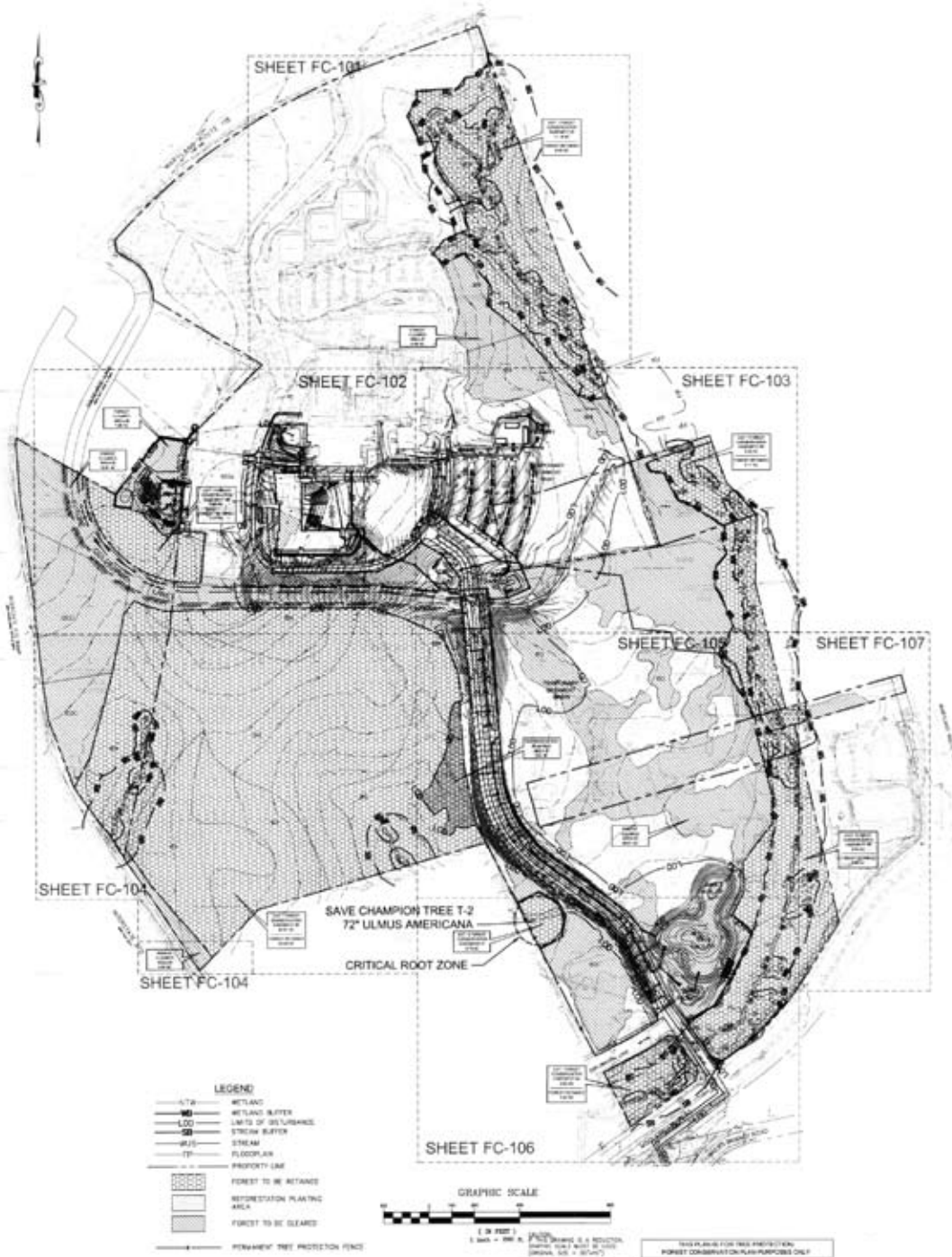
PHASE 7

- Renovation of the Goldenrod Building and reallocation to accommodate WD&CE classroom and lab space; and
- Renovation and addition to the Physical Education Center (41,732 GSF addition).

3.4.10 Projected Costs

An estimate of project costs for the design, construction and furnishing of the various projects included in the 2006-2016 Facilities Master Plan was prepared by DMS International and the College's Office of Facilities. These project estimates are based on a mini-program which cumulatively respond to the academic and support needs reflected in this master plan. The mini-program for each project is in turn based on the enrollment and staffing requirements of that project as supported by the data analysis which is again presented in this master plan. These project costs are tabulated in Table 3.4.2 for the Germantown Campus. The project construction cost estimates were prepared in May 2010 by DMS International and extended and compiled by the Office of Facilities for design; supplemental construction and construction administration; and furniture, instructional equipment, and information technology equipment costs in September 2010. The intent of this effort is to prepare a total project budget that allows for the opening of a complete, fully functioning building. A supplemental document prepared by the Office of Facilities provides additional detail and assumptions related to each project cost estimate.

FIGURE 3.4.7
FOREST CONSERVATION PLAN



3.4.11 2016-2026 Land Use Plan

This Facilities Master Plan also evaluates the period from 2016 through 2026 and proposes some strategies for managing future growth on this campus (see Figures 3.4.12 and 3.4.13.) Several key strategies are proposed:

- Site new structures along the west campus loop drive and the western parking lots. This will serve several purposes, including: maintaining and strengthening the north entry to campus, strengthening the connection to the Goldenrod Building, and increasing density of the core campus.
- Complete the Bioscience Education Center quadrangle by locating a new building on the southeast corner of the quadrangle.
- Consider constructing a new building on the east side of the Campus, possibly incorporating parking as part of the building structure.
- With the eventual extension of Observation Drive to link with Goldenrod Lane across the Campus' Lot A in accordance with the County's Germantown Sector Plan, construct a new Campus entrance and evaluate requirements for relocating/reconstructing the athletic fields and the physical plant building.

TABLE 3.4.1

EXISTING AND PROPOSED PARKING FACILITIES

	In Design and Existing Spaces	Proposed 2016 Master Plan	Change in Spaces 2008-2016
Lot A (Northwest Lot)	306	306	0
Lot B (West Lot)	467	430	-37
Lot C (North Lot)	298	112	-186
Lot (Bioscience Lot)	0	9	9
Lot (parallel parking on loop road)	6	51	45
Lot (Humanities Lot)	9	9	0
Lot (Main Campus Drop-off)	10	0	-10
Lot D (Goldenrod Building Lot)	*223	223	0
Lot E (Southeast Lot)	379	379	0
Totals	1,698	1,519	(179)

* spaces leased to Montgomery College as part of the Goldenrod Building property

FIGURE 3.4.8
PROJECTS CURRENTLY UNDER CONSTRUCTION OR DESIGN



FIGURE 3.4.9
IMPLEMENTATION PLAN - PHASE ONE



FIGURE 3.4.10
IMPLEMENTATION PLAN - PHASE TWO



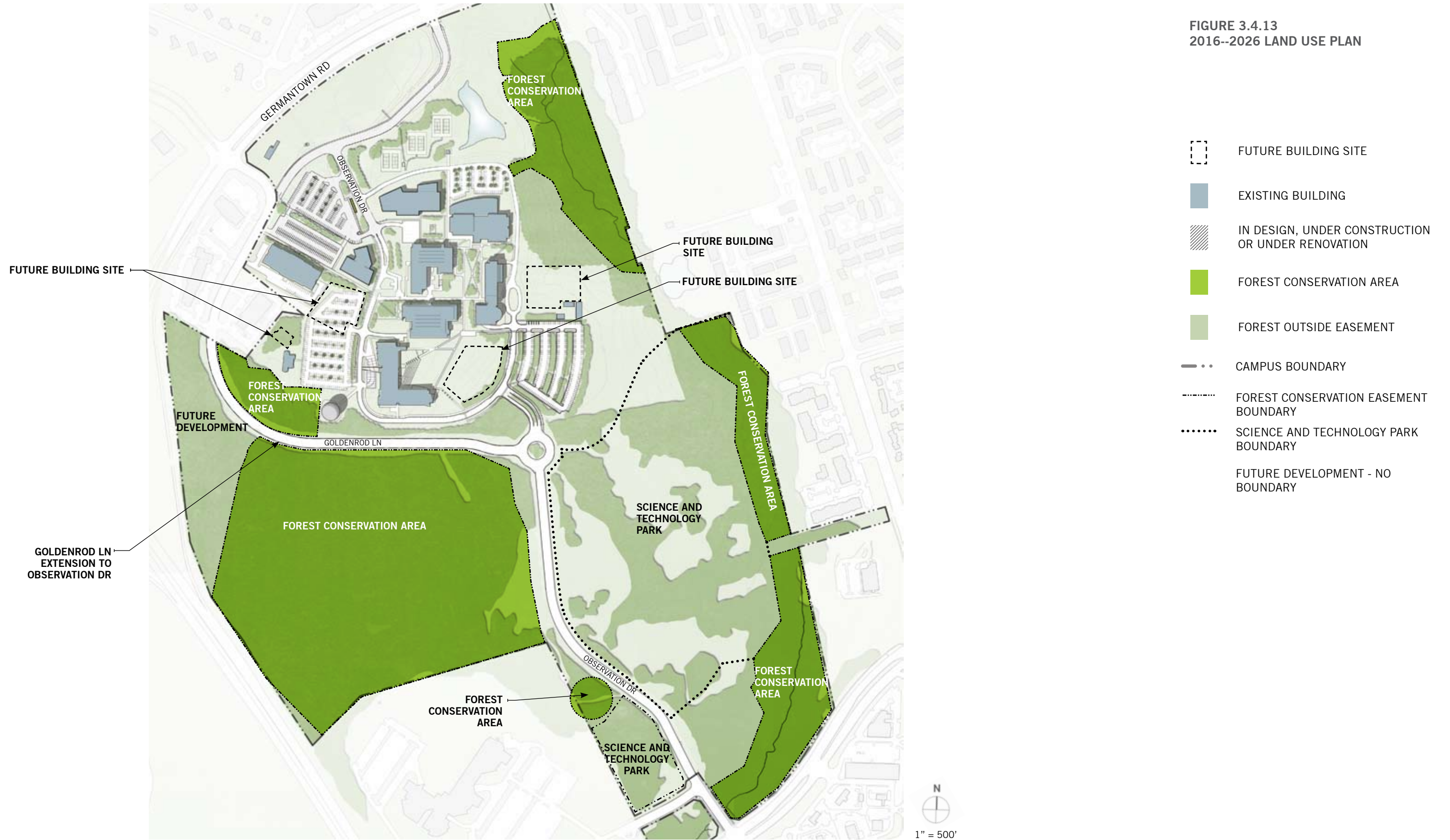
FIGURE 3.4.11
IMPLEMENTATION PLAN - PHASE THREE

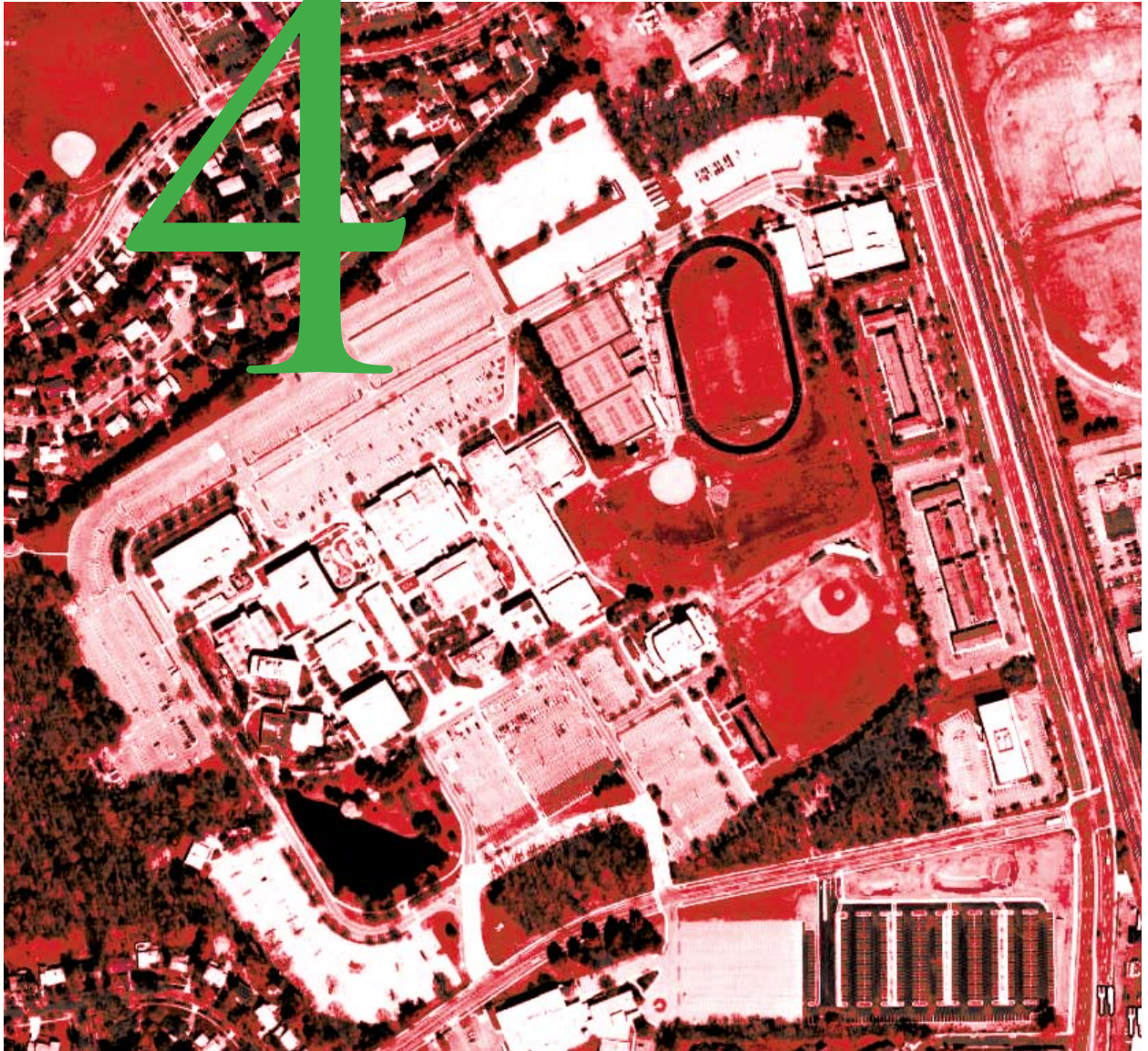


TABLE 3.4.2
PROJECTED COSTS TO COMPLETE THE 2016 FACILITIES MASTER PLAN (FEB 2009 DOLLARS)

Project	Cost Estimate (Current Dollars - 09/10)
Science & Applied Studies Renovation – Phase 1	\$20,329,000
Science & Applied Studies Renovation – Phase 2	\$12,289,000
High Technology & Science Center Alterations – Phase 1	\$963,000
Student Services Center	\$88,604,000
Humanities & Social Sciences Renovation	\$34,667,000
High Technology & Science Center Renovation – Phase 2	\$43,251,000
Social Sciences & Art Building	\$41,413,000
Physical Education Complex Renovation & Addition	\$38,757,000
Campus Total	\$280,273,000







ROCKVILLE

4.1 CAMPUS BACKGROUND INFORMATION

4.1.1 Facilities Master Planning Process

This section of the Montgomery College Facilities Master Plan Update addresses the Rockville Campus. The time frame for this Master Plan is ten years, 2006 to 2016, and the time frame for the twenty-year Land Use Plan extends out to 2026. The over-arching goal of the Facilities Master Plan is to establish a framework for the development of capital projects to support the role, mission, and academic vision of Montgomery College. The Rockville Campus was founded in 1965 and was the College's second campus. The main campus is situated on approximately 82 acres with 19 academic and administrative buildings.

The 2002-2012 Facilities Master Plan for the Rockville Campus outlined a strategy that would establish a physical framework for growth. This framework worked toward the provision of a hierarchy of open and built space, the design of quality of life space on campus, and consolidation and expansion of student service functions.

One of the major challenges for the College in the next ten-year planning period will be to correct deficiencies in the amount of, and the quality of, its academic spaces. Almost half of today's campus was constructed in the mid-to-late 1960s and while these facilities have been maintained at a high level, some buildings have ceased to be functionally adequate. Largely for this reason, the Student Services and Counseling & Advising buildings have been identified for demolition in this current plan.

The Rockville Campus has critical shortages in quality of life spaces. As demands for academic and administrative space have increased, spaces such as meeting rooms, break-out areas, outdoor gathering areas, student lounges, and group study areas have been reduced or converted to teaching spaces. While classrooms are valuable academic spaces, the experience of learning and teaching is not limited to the classroom. Students and faculty require spaces that allow informal educational experiences and these areas are ideal places to learn collaboration and communicate skills and opportunities. To address these and other challenges, and to establish a coherent, logical framework for development of capital projects, the Facilities Master Plan has established goals and priorities. This Facilities Master Plan for the Rockville Campus focuses on:

- Providing sufficient and adequate space—classrooms, labs, offices, study, meeting rooms, and support facilities—based on existing and projected needs, so that each and every area can contribute creatively and productively every day to helping students change their lives;
- Co-locating departments and functions rationally so that students, visitors, and the College community itself benefit from the ease, energy, and excitement generated by the synergy of proximity;
- Presenting students the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, librarians, counselors, and staff;
- Affording students opportunities to meet and develop socially through formal programs of leadership, recreation, and athletics, and informally in inviting indoor and outdoor spaces;
- Maximizing the land resources available on the campus while retaining its unique character, quality, and setting, and yet meeting the needs of the large numbers of students, faculty, staff, community members, and visitors who come to the campus every day;

- Inviting students, faculty, staff, community members, and visitors to participate in the varied Campus and College activities by organizing the Campus—including buildings, parking, outdoor athletic facilities, and circulation for pedestrians, the disabled and elderly, cars, and trucks—to make their experience pleasant and successful;
- Continuing the implementation and enhancement of the sustainability and resource conservation programs; and
- Anticipating the campus' future development beyond the ten-year planning horizon.

4.1.2 Comparison with 2002-2012 Facilities Master Plan

Enrollment - Headcount enrollment increased 3.1% from Fall 2002 (14,817) to Fall 2006 (15,275) and over this same period the average student credit hour load decreased slightly from 8.1 credits to 8.0 credits, with the result that FTE student enrollments increased only slightly by 0.6%. Comparing the 10-year projections, the 2016 headcount projection of 15,565 is an 1.5% decrease over the 2012 projection of 15,793. It is also projected that the average student credit hour load will remain constant at the Rockville Campus from a 2012 projection of 8.2 credits to the same projection in 2016. The FTE projections will decrease slightly from 8,599 (2012) to 8,509 (2016) or 1.0%. This is a slight decrease in the rate of growth between the two periods from 7% (2012) to 5% (2016).

Faculty and Staff – In 2002, faculty supporting the Rockville Campus totaled 418.5 FTE and in 2006 totaled 449.0, or an increase of 7.3%. The projected faculty FTE will also increase from 452.25 (2012) to 472.75 (2016), or 4.5%. As noted with both the 2012 and the 2016 projections, the College seeks to reduce and/or equalize the credit hour loads of faculty, therefore the faculty growth rate continues to slightly exceed the enrollment growth rate.

In 2002, staff supporting the Rockville Campus totaled 378.75 FTE and in 2006 totaled 519.0 FTE, or an increase of 37.0%. The projected staff FTE will also increase from 455.75 (2012) to 543.5 (2016), or 19.3%. The largest growth in positions is planned for the facilities area (14) with the opening of several new buildings on the campus and modest growth in instructional areas (10) as staff levels respond to enrollment growth.

Academic Programs – The breadth of the degree programs continues to grow on the Campus from 62 different degree programs in 2002 to 68 in 2006. Due to the College's substantial investment in its classroom environment to incorporate smart instructional technology and to provide and support technology-based learning centers, students are helped to learn effectively and efficiently. Apart from technology, the College is also addressing other changes in pedagogy, including increased and earlier instructional use of specialized learning environments and a continued emphasis on collaborative learning. This is particularly reflected in the plans for the new Science Center and renovations of Science East and Science West for mathematics instruction. These instructional delivery changes, together with the increased projected for enrollment, can be expected to have an impact on the Campus' contact hour productions. It is anticipated that the ratio of contact hours (WSCH) to credit hours (SCH), which shows the extent to which time scheduled in class is greater than the credit hours earned, continues to increase at Rockville from 1.17 in 2002 to 1.17 in 2006, primarily because of increased availability of labs and lab courses. This trend will continue reflecting increased availability of lab environments in the sciences with the opening of the Science Center and greater use of labs in the pedagogy of writing and mathematics disciplines.

Plan Comparison

Needs Assessment – The ten-year space deficit for the Rockville Campus has grown from a deficit of 325,586 net square feet in 2012 to a deficit of 414,121 in 2016, or 27.2%, based on State of Maryland space guidelines. The increase in the Campus deficit is after accounting for the addition of six new buildings in the Campus space inventory: Student Services, Humanities & Social Sciences, Art (2), Library, and Tech Training. With these additions, the Campus inventory is expected to grow from 488,593 (2002) to 576,241 (2016), or 17.9%, and still result in the need for additional new space on Campus.

Proposed Facilities Program – Both the 2002-2012 and 2006-2016 Facilities Master plans proposed net projects on the Rockville Campus, adding to the Campus net assignable square foot space inventory and responding to the 10-year space deficiencies of each plan. The near term projects are essentially the same in both plans with the same new and renovated buildings. However, the 2006-2016 Facilities Master Plan shifts the location of the Student Services Center to the north and calls for the consolidation of humanities programs in a new facility that replaces the Technical Center. In comparison to the 2002-2012 Facilities Master Plan, the updated 2006-2016 Facilities Master Plan also calls for a stronger emphasis on outdoor space with a central green mall and proposes larger parking structures in two locations, north and south of the Campus core.

4.1.3 Institutional Characteristics

Opened in 1965 with an enrollment of 2,489, the Rockville Campus is the largest in terms of enrollment of the three Montgomery College campuses. With over 15,275 credit students in the 2006 fall term, the campus also serves a substantial non-credit student body through programs of Work Force Development and Continuing Education (WDCE). Tens of thousands of people come to the campus each year for art exhibits, concerts and theatrical events, athletic events, conferences and lectures, and other events open to the public. The educational offerings of the Rockville campus are organized into six instructional divisions of:

- Business, Management, and Information Science (BMIS), comprised of the departments of Business, Management, Computer Applications, and Computer Science;
- Fine and Performing Arts (FPA), comprised of the departments of Art; Music; Speech, Dance and Theatre; and Communications Arts Technology;
- Humanities (Hum), comprised of the departments of Reading, English as a Foreign Language, Foreign Languages, Philosophy and English;
- Science, Engineering, and Math (SEM) comprised of the departments of Biology; Chemistry; Mathematics; and Physics, Engineering, and Geosciences;
- Social Sciences, Education, History, and Health and Physical Education (SEHHPE), comprised of the departments of History and Political Science, Health and Physical Education, Psychology, Education, and Anthropology, Criminal Justice, and Sociology; and
- Gudelsky Institute for Technical Education (GITE), offering credit instructional programs in three primary areas: Automotive Technology, Building and Construction Technology, and Computer Publishing and Printing Management.

The instructional divisions are extended and supported by the Student Development Division, with the Office of the Vice President and Provost providing campus leadership and management. In addition to these units, the Rockville Campus is home to the Paul Peck Humanities Institute, the Gordon and Marilyn Macklin Business Institute, and the Arts Institute, each with special programs for the College and outreach to the community. The Robert E. Parilla Performing Arts Center not only supports the College's academic theatre and dance programs but also serves as a community resource for professional productions by local and national arts organizations. The Campus' intercollegiate athletic program sponsors teams in men's baseball, golf, and lacrosse; men's and women's basketball, cross country, indoor and outdoor track, soccer, and tennis, and women's softball and volleyball. Campus-based central administration services include the library, information technology support, admissions and registration, financial aid, cashiering, physical plant, and auxiliary services, including child care, book store, and food services.

A high performance hot water and chilled water central plant is located in the basement of the Humanities Building. This plant efficiently providing heating and cooling to the campus buildings using ice thermal storage and cogeneration. Central plant and IT distribution systems have been installed and will be extended to new and renovated buildings.

4.1.4 Academic Programs

Montgomery College is authorized by the Maryland Higher Education Commission to offer five degrees: the Associate of Arts (A.A.), the Associate of Science (A.S.), the Associate of Arts in Teaching (A.A.T.), the Associate of Fine Arts (A.F.A.) for students wanting to transfer to baccalaureate programs and the Associate of Applied Science (A.A.S.) for those seeking immediate employment. The College also awards certificates (Cert) that focus on the development of technical skills, as well as letters of recognition (L of R) for non-degree seeking students who satisfactorily complete certain courses that teach focused skills and competencies.

In addition to General Education, student development, and honors courses, the Rockville Campus offers 68 different degree programs, 42 certificate programs, and 9 letter of recognition programs. The Rockville Campus offers the highest number of academic programs offered at the College. Academic programs uniquely offered at the Rockville Campus are related to the fine and performing arts, with two A.A.S degrees and two certificates in Graphic Design, the A.A. degree in Dance, the A.A. degree and certificate in Music, the A.A.S. degree and 5 certificates in Photography, two A.A. degrees in Theatre, and two A.A.S. degrees and four certificates in Communication and Broadcasting Technology; technical education, including two A.A.S. degrees and two certificates in Architecture and Construction Technology, the A.A.S degrees and four certificates in Automotive Technology, the A.A.S. degree, two certificate, and 4 letter of recognition programs in Building Trades Technology, the A.A.S. degree and certificate in Fire Science, the A.A. and A.A.S. degrees and 2 certificates in Interior Design, and the A.A.S. degree and two certificates in Computer Publishing and Printing Management; and management, including the A.A.S. degree in Hospitality Management, 3 certificate, 3 letter of recognition programs. Other programs only offered at the Rockville campus include the A.A.S. degree in Criminal Justice, the A.A.S. degree and two certificates in Applied Geography, and the four A.A. degrees and certificate in Health and Physical Education. In addition, the A.A.S. degree in Fire Science and Fire Service Management and the certificate program in Fire and Arson Investigation are approved as State-wide programs. These State-wide programs are available to students from other geographic areas where the local community college does not offer the same program. The College's Center for Teaching and Learning also finds its primary home on the Rockville Campus. Not included here are the programs offered by WDCE.

These programs at the Rockville Campus are expected to generate 127,633 student credit hours (SCH) in

2016, an increase of 5% over fall 2006 and with 79% being taught during the day. Delivery of all these programs is expected to change substantially over the coming decade. Distance learning alternatives will be more available as options, including both entire and partial course and service delivery, although on the Rockville Campus this instructional delivery will continue to account for 3% of the total SCH. The College has also made significant and substantial investments in its classroom environments to incorporate smart instructional technology and to provide and support technology-based learning centers that help students learn effectively and efficiently. Apart from technology, the College must also prepare to address other changes in pedagogy, including increased and earlier instructional use of specialized learning environments and a continued emphasis on collaborative learning.

These instructional delivery changes, together with the increases projected for enrollment, can be expected to have an impact on Rockville's contact hour productions. The ratio of contact hours (WSCH) to credit hours (SCH), which shows the extent to which time scheduled in class is greater than the credit hours earned, is expected to increase at the Rockville Campus from 1.17 in 2006 to 1.19 in 2016, primarily because of increased availability of labs and lab courses. Finally, the relative percentage of contact hours in lab environments is projected to increase from 31% in 2006 to 45% in 2016, reflecting increased availability of lab environments and changes in pedagogy in disciplines such as writing and mathematics.

TABLE 4.1.1
2006-07 ACADEMIC PROGRAMS AT THE ROCKVILLE CAMPUS

Program Area	AA	AS	AAT	AFA	AAS	Cert	L of R
Accounting					1 GR	1 GR	
Advertising Art					1R	1R	
American Sign Language					1 GRT	1 GRT	
Applied Geography					1R	2R	
Architectural & Construction Technology					2R	2R	
Art	1 GT; 3 R			2 GTR		2 GRT	
Automotive Technology					1R	4R	
Business	2 GRT						
Building Trades Technology					1R	2R	4R
Communication Arts Technologies					2R	4R	
Computer Application					1 GRT	2 GRT	
Computer Gaming & Simulation	1 GRT						
Computer Publishing & Printing Mgmt					1R	2R	
Computer Science & Technologies	2 GRT					4 GRT	
Criminal Justice					1R		
Education			6 GRT		1R	1R	
Engineering Science					10 GRT		
Emergency Medical Technician							1 GRT
Fire Science Fire Service Management					1R	1R	
General Studies	1 GRT						
Health Enhancement, Exercise Science & Physical Education	4R					1R	
Hospitality Management					1R	3R	2R
Interior Design	1R				1R	3R	1R
Landscape Technology					1G	1G	
Liberal Arts	3 GRT						
Management						1 GRT	1 GRT
Music	1R					1R	
Network & Wireless Technologies					1 GRT	3G	
Photography					1R	5R	
Pre-Professional (Medical-Related)	5 GRT						
Science		5 GRT					
Theatre	3R					1 G	
Transfer Studies						1 GRT	
Web Careers					1 GRT	2 G; 4R; 1T	

Degrees, Certificates, and Letters of Recognition: AA-Associates of Arts; AS-Associate of Science; AAS-Associates of Applied Science; AAT-Associates of Arts in Teaching; AFA-Associate of Fine Arts; Certificate; and L of R- Letter of Recognition.

Campus : T-Takoma Park/Silver Spring Campus; R-Rockville Campus; and G-Germantown Campus.

Source: Montgomery College 2006-07 Catalog

TABLE 4.1.2
2006 AND 2016 CREDIT AND CONTACT HOURS AT THE ROCKVILLE CAMPUS

Day, On-Line, and Total Credit Hours

	2006 Day SCH	2006 On-Line SCH	2006 Total SCH	2006 % Day SCH	2006 % On-Line SCH	2016 Day SCH	10 yr % Chg	2016 On-Line SCH	10 yr % Chg	2016 Total SCH	10 yr % Chg	2016 % Day SCH	2016 % On-Line SCH
RV	96,345	3,715	121,440	79%	3%	100,830	5%	4,402	18%	127,633	5%	79%	3%
MC	157,755	8,521	202,380	78%	4%	179,997	14%	11,588	36%	231,788	15%	78%	5%

LEGEND: RV: Rockville; MC: Montgomery College

Day Contact Hour (WSCH) to Day Credit Hour (SCH) Ratio

	2006 WSCH	2006 SCH	2006 WSCH/ SCH	2016 WSCH	10 yr % Chg	2016 SCH	10 yr % Chg	2016 WSCH/ SCH	10 yr % Chg
Rockville	112,611	96,345	1.17	119,988	7%	100,830	5%	1.19	2%
College	184,758	157,755	1.17	221,110	20%	179,997	14%	1.23	1%

Day Lecture and Lab Contact Hour

	2006 Day Lecture WSCH	2006 Day Lab WSCH	2006 Day Total WSCH	2006 % Lab WSCH	2016 Day Lecture WSCH	10 yr % Chg	2016 Day Lab WSCH	10 yr % Chg	2016 Day Total WSCH	10 yr % Chg	2016 % Lab WSCH
Rockville	77,811	34,800	112,611	31%	65,508	-16%	54,480	57%	119,988	7%	45%
College	122,984	61,774	184,758	33%	114,977	-7%	106,133	72%	221,110	20%	48%

To support academic programs and the community, changes in the Rockville Campus library collection are also planned. Overall, in terms of Physically Bound Volume Equivalents (PBVE), the library's collection is expected to grow by 16%, from 164,469 PBVE to 190,784 PBVE. This rate is below that usually expected for higher education institutions, where rates of increase for collections are typically planned at 2% to 3% per year.

4.1.5 Enrollment

Over the past five-year period, headcount enrollment has increased 7%, from 14,334 students in 2001 to

15,275 in 2006. Over this same period, however, the average student credit hour load has decreased slightly from 8.3 credits to 8.0 credits, with the result that FTE student enrollments have only increased by 2%. The College 2006 average credit hour load was 8.8 credits, and the expectation is that the average credit hour load at the Rockville Campus will increase by 2016 to 8.2 credits, still below the projected College average credit load of 9.5 credits, but above the 2006 level. As a result, the projected 15,565 headcount students are expected to equate to 8,609 FTE students, an increase of 5% over 2006 FTE enrollments.

TABLE 4.1.3
FALL TERM ROCKVILLE CAMPUS ENROLLMENT STATISTICS

	2001	2002	2003	2004	2005	2006	5yr % Chg	2016	10 yr % Chg
Headcount	14,334	14,817	14,765	14,953	14,726	15,275	7%	15,565	2%
Credit Load	8.3	8.1	8.1	8.0	8.2	8.0	-2%	8.2	3%
FTE Students	7,908	8,050	7,935	7,977	8,023	8,096	2%	8,509	5%

While credit hours in Student Development and Honors will increase at somewhat higher rates of growth (52% and 39%, respectively), these areas are not where the majority of credit hours (SCH) will be generated. Credit hours in the HSSE Division are anticipated to grow by 25% to 26,607 SCH, while those in the BSMT Division are expected to increase by 41% to 23,981 SCH.

TABLE 4.1.4
FALL TERM CREDIT HOURS BY DIVISION AT THE ROCKVILLE CAMPUS

	2001	2002	2003	2004	2005	2006	5yr % Chg	2016	10 yr % Chg
Student Dev	867	872	866	1,114	1,047	1,372	58%	1,448	6%
Honors	0	155	267	342	260	342	n/a	358	3%
BMIS	20,362	18,367	16,786	15,553	14,306	13,642	-33%	14,355	5%
FPA	16,644	16,803	16,316	15,643	16,190	16,132	-3%	16,950	5%
H	31,936	33,836	32,667	33,397	34,097	35,457	11%	37,263	5%
SEM	26,874	28,130	28,032	28,335	28,819	28,942	8%	30,430	5%
SHHPE	18,059	18,199	19,197	19,881	19,916	19,843	10%	20,857	5%
GITE	3,880	4,396	4,891	5,395	5,707	5,706	47%	6,992	5%
Rockville	118,622	120,748	119,022	119,660	120,342	121,440	2%	127,633	5%

4.1.6 Faculty and Staff

While the College projects that its overall number of FTE faculty will increase at a rate slightly lower than its overall increase in enrollment, from 784.00 to 876.75, an increase of 92.75 FTE faculty, or 12%, faculty supporting the Rockville campus will increase by 5%, from 449.00 FTE faculty to 472.75 FTE faculty. The number of full-time faculty will increase by 27 positions, from 323 to 350, or 8%, while the number of part-time faculty will decrease by 13 positions from 504 to 491, or -3%. Campus and division projections of faculty seek to reduce and/or equalize the credit hours loads of faculty and therefore do not necessarily

parallel enrollment growth rates, although the 5% growth rate for FTE faculty at Rockville matches the 5% growth rate in FTE students projected at Rockville.

TABLE 4.1.5
2006 AND 2016 ROCKVILLE FACULTY POSITIONS BY DIVISION

	2006		2006		2016		2016		2016	
	FT	PT	FTE	FT	# (%)	PT	# (%)	FTE	# (%)	
Student Dev	31	2	31.50	33	2 (6%)	2	0 (0%)	33.50	2 (6%)	
BMIS	42	48	53.50	46	4 (10%)	43	-3 (-7%)	56.75	3.25 (6%)	
FPA	46	95	69.75	49	3 (7%)	92	-3 (-3%)	72.00	2.25 (3%)	
H	79	141	114.25	83	4 (5%)	140	-1 (-1%)	118.00	3.75 (3%)	
SEM	65	95	88.75	72	7 (11%)	94	-1 (-1%)	95.50	6.75 (8%)	
SHHPE	42	91	64.75	47	5 (12%)	88	-3 (-3%)	69.00	4.25 (7%)	
GITE	18	33	26.25	19	1 (6%)	32	-1 (-3%)	27.00	0.75 (3%)	
CLT/ Distance Learning	0	0	0.00	1	1 (100%)	0	0 (0%)	1.00	1.00 (100%)	
Rockville	91	179	135.75	123	27 (8%)	491	-13 (-3%)	472.75	23.75 (5%)	

While the College expects its overall numbers of full-time, part-time, and FTE staff to increase about 10% from fall 2006 to fall 2016, less than its overall projected 15% increase in fall term FTE enrollment, the Rockville Campus is anticipating only a 5% increase in staff, reflecting the projected enrollment growth. Overall, the number of Rockville staff is expected to increase by 24.50 FTE positions, with 21 additional full-time staff and 14 additional part-time staff.

The largest growth in positions, not unexpectedly, is planned for the instructional and student development divisions. The decrease in staff within the Office of the Vice President and Provost will align office staffing with staffing on the other campuses and reflects a decrease in the number of full-time temporary positions. Finally, growth in campus-based Central Administration is based on College-wide ratios of students to staff and faculty to staff to ensure reasonable comparability across campuses, as well as the overall goal of the College to build on economies of scale in projecting the needs for such functional support.

TABLE 4.1.6
2006 AND 2016 ROCKVILLE STAFF POSITIONS BY DIVISION

	2006	2006	2006	2016	10 Yr	2016	10 Yr	2016	10 Yr
	FT	PT	FTE	FT	#	PT	#	FTE	#
					% Chg		% Chg		% Chg
VP/Provost	7	1	7.25	6	-1 (-14%)	1	0 (0%)	6.25	1.00 (-14%)
Student Dev	53	43	63.75	55	2 (4%)	47	4 (9%)	66.75	3.00 (5%)
BMIS	13	5	14.25	13	0 (0%)	5	0 (0%)	14.25	0.00 (0%)
FPA	26	31	33.75	26	0 (0%)	31	0 (0%)	33.75	0.00 (0%)
H	19	9	21.25	19	0 (0%)	10	1 (1%)	21.50	0.25 (1%)
SEM	24	7	25.75	25	1 (4%)	8	1 (14%)	27.00	1.25 (5%)
SHHPE	8	8	10.00	9	1 (13%)	8	0 (0%)	11.00	1.00 (10%)
GITE	8	2	8.50	9	1 (13%)	2	0 (0%)	9.50	1.00 (12%)
CLT/Distance Learning	0	0	0	4	4 (n/a)	0	0 (0%)	4.00	4.00 (n/a)
Special Programs	13	2	13.50	13	0 (0%)	6	4 (200%)	14.50	1.00 (7%)
Central Admin	308	52	321.00	321	13 (4%)	56	4 (8%)	335.00	14.00 (4%)
Rockville	479	160	519.00	500	21 (4%)	174	14 (9%)	543.50	24.50 (5%)

4.2 EXISTING CONDITIONS

4.2.1 Location and Adjacent Land Uses

The Rockville Campus is the largest and most centrally located of the three Montgomery College campuses. It is located in a suburban setting north of the city center of Rockville, between the Rockville and Shady Grove Metro stations.

Although situated just off and accessed from MD 355/Hungerford Drive, the campus has little frontage on this major thoroughfare. Along its southern edge, across Mannakee Street, the campus faces a large property owned by the Montgomery County Public School system, the Carver Educational Services Center (CESC) which offers potential future expansion space for the campus. Further west along Mannakee Street is the residential neighborhood of Anderson Park, primarily consisting of single-family homes. Directly north of campus is the College Gardens apartment complex. The eastern edge of campus is bordered by residential scale office buildings fronting MD 355. The Williams Companies owns the property adjacent to the northeast corner of the campus, with utilities easements running across the northern side of the campus. (See Figure 4.2.1 Campus Setting).

4.2.2 Campus Character and Image

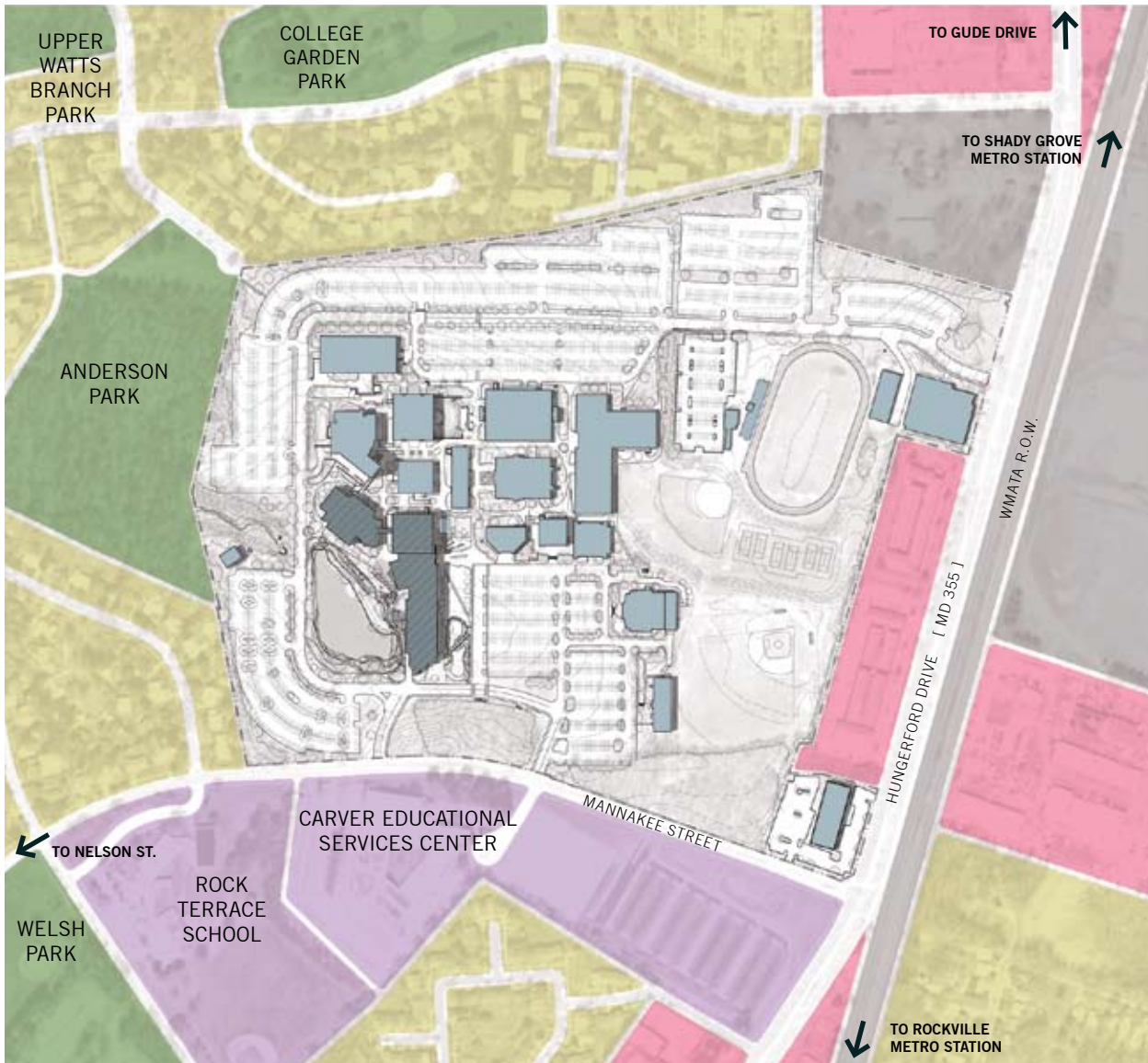
The campus is characterized by a fairly dense core of low-rise buildings that were constructed in the 1960s and 70s. They are consistent in character and appearance; most are clad in a sand-colored brick. The spaces between buildings are pleasant in scale although haphazard in appearance and use. Signage is minimal and not well coordinated. These core buildings and open spaces project an image of a campus that is utilitarian and outdated. (See Figure 4.2.2)

A few buildings are located just outside the campus core – including the Performing Arts Center and the South Campus Instructional Building. Further east along MD 355 are the Gudelsky Institute for Technical Education and the Interim Technical Training Center. These latter two buildings also have a somewhat different character.

Large parking lots surround the campus core on three sides, with minimal landscape screening. The plethora of parking lots lends the campus an image of a commuter environment.



FIGURE 4.2.1
CAMPUS SETTING



- COMMERCIAL
- EDUCATIONAL / INSTITUTIONAL
- INDUSTRIAL

- PARKS & OPEN SPACE
- RESIDENTIAL

- CAMPUS BOUNDARY
- EXISTING CAMPUS BUILDINGS
- IN DESIGN OR CONSTRUCTION

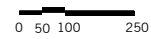


FIGURE 4.2.2
BUILDING MASSING AND MATERIALS



- 1-3 STORY BUILDINGS
- 4+ STORY BUILDINGS

- NON-CAMPUS BUILDINGS
- CAMPUS BOUNDARY
- # # STORIES

- AR Paul Peck Art Building
- CB Counseling & Advising
- CC Campus Center
- CH Child Care Center
- CS Computer Science Building
- GU Homer S. Gudelsky Institute
- HU Humanities Building
- MU Music Building
- MT Gordon & Marilyn Macklin Tower
- PA Robert E. Parilla Performing Arts Center
- PE Physical Education Center
- SB South Campus Instructional Building
- SC Future Science Center
- SE Science East Building
- SV Student Services Building
- SW Science West Building
- TA Theatre Arts
- TC Technical Center
- TT Interim Technical Training Center

NOT TO SCALE



4.2.3 Campus Entrance Experience

Visibility and Identity

The immediate entrance experience is characterized by parking lots. For arrival by car, the campus is entered from MD 355 (Hungerford Drive) or Mannakee Street, but there is no visibility of the campus from either of these streets, since most buildings are set back from the street edges. Upon entering the campus by car, the user immediately searches for parking, presumably close to their initial destination on campus. Leaving the parking lot to enter campus, it is difficult to identify when one has “entered” the campus, as there is no “gateway” experience or identifiable campus entry.

Even arriving by foot or public transit, one must traverse a wide parking lot in order to reach the campus core. Minimal signage identifies the campus, which further alienates those visiting the campus for the first time.

At the south edge of campus, a grove of trees furnished with picnic benches acts as a funnel into the central area of the core campus. At the north edge of campus, the amphitheater and its adjoining sheds and deck serves to disorient the visitor rather than to orient them to the campus. (See Figure 4.2.3 Open Space, Gateways and Views).

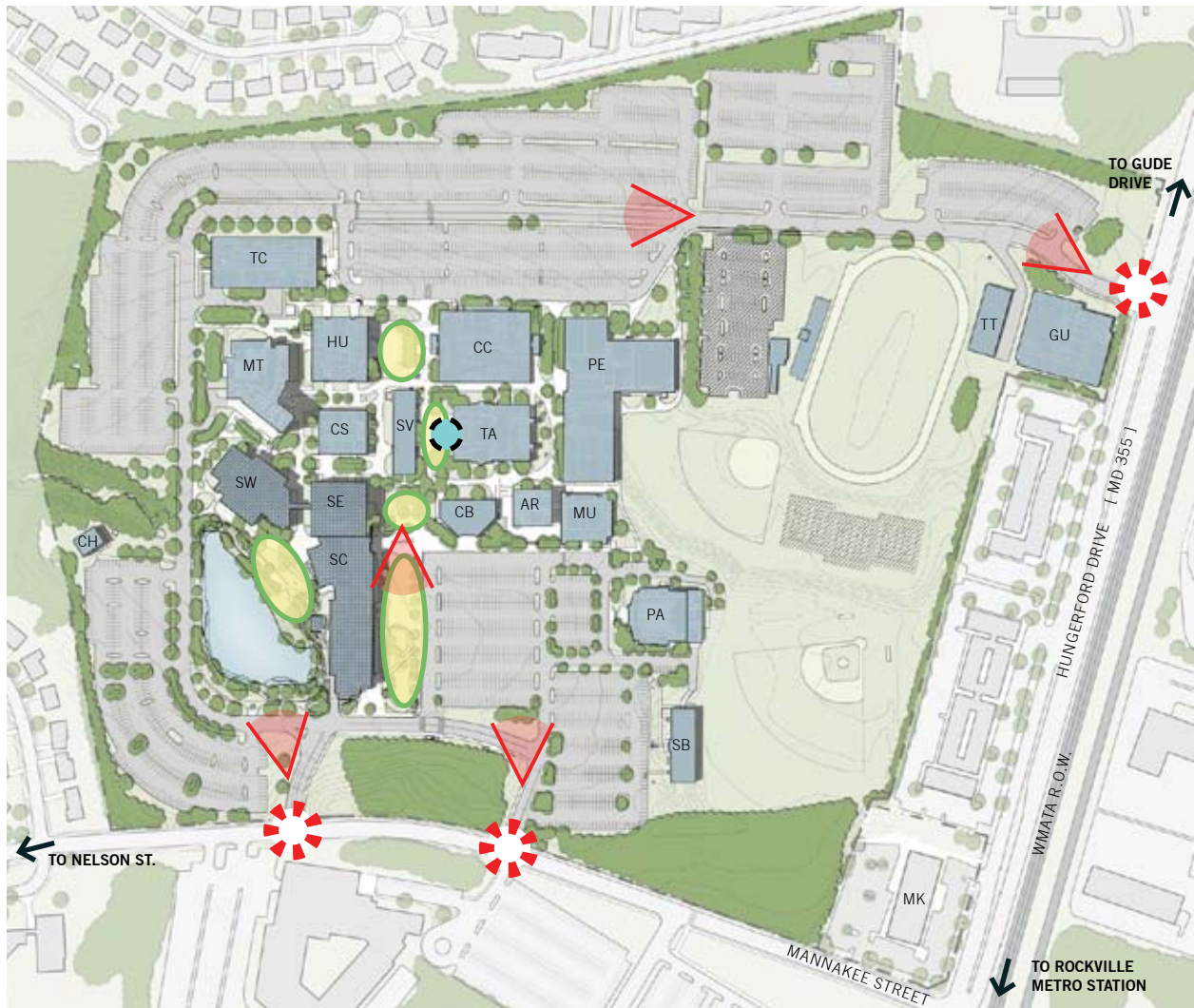
4.2.4 Campus Organization and Open Space

The core campus is organized in a loose grid of buildings, with the open spaces between buildings being primarily linear in character. Many of these linear spaces seem “left over” and are haphazardly landscaped and furnished. There is a sort of primary north-south axis which begins at the south grove of trees and continues past the amphitheater through to the north parking lot, although this axis is interrupted by the Student Services Building. Midway along this path is a small landscaped plaza surrounding a small fountain between the Theater Arts and Student Services buildings. This small-scale space is pleasant and ought to be reinforced.

While the campus slopes gradually upward from south to north, there are significant grade changes in some locations such that accessibility between some buildings on the west side of campus is achieved via exterior bridges, with interior vertical circulation.

In addition to the grove of trees at the south end of campus, there are parcels of wooded areas along the southern edge and at the area of the stormwater pond. Plans for the new Science Center, scheduled to start construction in early 2009, will further activate the area surrounding the pond with an outdoor classroom and by orienting access in that direction. There are also groupings of mature oak trees surrounding Macklin Tower on the west end of campus. (See Figure 4.2.3 Open Space, Gateways and Views)

FIGURE 4.2.3
OPEN SPACE, GATEWAYS AND VIEWS



	TREES		CAMPUS GATEWAYS	AR Paul Peck Art Building
	RESIDUAL OPEN SPACE		CAMPUS VIEWS	CB Counseling & Advising
	PLAYING FIELD		ACTIVATED SPACE	CC Campus Center
	EXISTING CAMPUS BUILDINGS		WATER FEATURE	CH Child Care Center
	IN DESIGN OR CONSTRUCTION		CAMPUS BOUNDARY	CS Computer Science Building
				GU Homer S. Gudelsky Institute
				HU Humanities Building
				MU Music Building
				MK Manakee
				MT Gordon & Marilyn Macklin Tower
				PA Robert E. Parilla Performing Arts Center
				PE Physical Education Center
				SB South Campus Instructional Building
				SC Future Science Center
				SE Science East Building
				SV Student Services Building
				SW Science West Building
				TA Theatre Arts
				TC Technical Center
				TT Interim Technical Training Center

FIGURE 4.2.4
BUILDING USAGE



- | | | |
|---|--|--|
| <ul style="list-style-type: none"> ACADEMIC STUDENT SERVICES OPERATIONS ADMINISTRATIVE PHYSICAL EDUCATION COMMUNITY | <ul style="list-style-type: none"> NON-CAMPUS BUILDINGS CAMPUS BOUNDARY # # STORIES ◎ WORK FORCE DEVELOPMENT DEDICATED SPACE | <ul style="list-style-type: none"> AR Paul Peck Art Building CB Counseling & Advising CC Campus Center CH Child Care Center CS Computer Science Building GU Homer S. Gudelsky Institute HU Humanities Building MU Music Building MT Gordon & Marilyn Macklin Tower PA Robert E. Parilla Performing Arts Center PE Physical Education Center SB South Campus Instructional Building SC Future Science Center SE Science East Building SV Student Services Building SW Science West Building TA Theatre Arts TC Technical Center TT Interim Technical Training Center |
|---|--|--|

NOT TO SCALE



4.2.5 Building Usage / Functional Adequacy of Facilities

General Campus-wide

Buildings on the campus generally fall into six categories of use: Academic, Student Services, Administrative, Operations, Recreational/Physical Education, and Community. (See Figure 4.2.4 Building Usage)

ACADEMIC

Science West (SW: 27,855 NASF; 41,988 GSF) a two-story structure including a ground floor constructed in 1971 houses Biology and Chemistry Labs, seven general purpose classrooms, a 79-seat lecture hall, offices for Biology, Mathematics and Chemistry, as well as the English and Reading Departments. In addition, the building contains the administrative offices of Operations and Maintenance.



Current deficiencies include undersized laboratories and classrooms, insufficient support spaces, lack of technology for instruction, absence of a general purpose open laboratory, and undersized and inadequate number of offices for faculty and staff. Currently, Mathematics faculty also has offices in Macklin Tower.

The construction of the new Science Center (currently underway - August 2010) along with proposed renovation of Science East, scheduled for 2011, will relocate these functions as follows: Science East and West will be renovated to house the Mathematics Department. The new Science Center will house the science departments. English and Reading Departments will relocate to the Humanities Building and Operations and Maintenance storage will relocate off site.

Science East (SE: 39,069 NASF 53,737 GSF) a three-story building plus a ground floor constructed in 1966 houses Biology and Chemistry Laboratories, seven general purpose classrooms, a large lecture hall and offices for Biology, Mathematics and Physics. In addition, the building contains shops and storage for Operations and Maintenance.



Current deficiencies include undersized laboratories and classrooms, insufficient support spaces, lack of technology for instruction, absence of a general purpose open laboratory, and undersized and inadequate number of offices for faculty and staff.

See Science West description above for proposed renovations.

Science Center (84,690 NASF; 140,700 GSF) a four-story structure soon to start construction in early 2009. The Science Center will house the Biology, Chemistry, and Physics, Engineering, and Geosciences programs that will be relocated from their current homes in Science East and Science West. The Science Center will also include an Observatory to be relocated from Macklin Tower. Included in the project are the class laboratories, greenhouse, and most of the classrooms required to support science instruction.



Paul Peck Arts Building (AR: 14,414 NASF; 25,594 GSF) constructed in 1971 and renovated in 2000, this four-story structure includes two general purpose classrooms and Art studios (sculpture, drawing, ceramics, jewelry, printmaking, and painting), support spaces (plaster room, kiln room, acid room, welding room, solvent room, and storage), a slide library, gallery, faculty offices and open computer laboratory.

Insufficient space is available for ceramics, sculpture, jewelry, printmaking, locker rooms for students, lobby and lounge space. In addition, there is a need for an Art student study area and additional faculty offices.

Music (MU: 10,221 NASF; 20,499 GSF) a two-story structure constructed in 1971 and renovated in 2002, includes a recital hall for 118, a rehearsal hall for 110, teaching studios and laboratories, faculty and staff offices, and three general purpose classrooms for use by the Music department.

As the scope of the 2002 project was limited to renovation of the existing structure, there are still some existing deficiencies in the size and capacities of the teaching laboratories and in future flexibility to accommodate additional full-time staff and support.

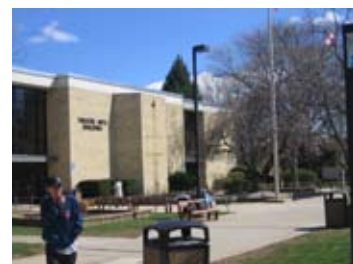
Computer Science (CS: 12,520 NASF; 20,900 GSF) a two story building constructed in 1966 houses two general purpose classrooms, three teaching computer laboratories and four open computer laboratories, the campus-based Instructional Technology staff offices, and the College's central computer center.

The existing two-story facility has been partially renovated to provide teaching, open laboratories, and will continue to house the Campus' main administration computer center.

Theater Arts (TA: 20,118 NASF; 35,032 GSF) a two story structure with an inaccessible partial basement that was constructed in 1966 and renovated in the mid 1990s. It houses five general purpose classrooms, a 60-seat lecture hall, class laboratories, offices for Speech, Dance and Theater staff and faculty, and a 500-seat arena and stage with support facilities. Classes in speech, dance and theater are taught primarily in this building.

Functional issues include insufficient public space for performances, lack of storage space, questionable accessibility at the first and second floor levels, undersized and inadequate number of offices, and minimal back-of-house space (scene shop, costume construction, workspace and storage.)

Macklin Tower (MT: 81,800 NASF; 117,282 GSF) constructed in 1971 as a four story base plate and an additional three story office tower above, accommodates the Mathematics and Science Center, the Computer Writing and Language Laboratory, the Provost's offices, Dean's offices, the television studio,



the campus library (stack space, study space, and offices/support space) and offices and support spaces for the Departments of Computer Applications, Computer Sciences, English, Humanities Institute, Information Technology, Psychology, Reading, English as a Second Language (ESL), Foreign Languages, and Philosophy.



There is inadequate library study space including group study rooms and lounge space. Departmental collections, for example, the Education Department collection, need to be centralized. There is insufficient space to consolidate, either in this building location or other campus locations, departmental administrative and faculty offices, resulting in departmental location fragmentation. Further, there is a need to add additional vertical (ADA) accessibility.

Humanities (HU: 47,750 NASF; 73,910 GSF) constructed in 1966 with a ground floor and an additional three floors above ground, and renovated in the 1990s, houses a majority of the general purpose classrooms on the campus; computer teaching laboratories and open computer laboratories, Development Math Laboratory, Writing and Reading Center, and faculty and staff offices for the Departments of Anthropology, Criminal Justice, Sociology, Business Administration and Economics, Computer Applications, History and Political Science, and the Macklin Business Institute and Center for Teaching and Learning. In addition, the campus' Central Plant, and central telecommunications and mail facility are located in this building.



Although the Humanities Building was recently renovated, the social sciences departments are still fragmented. In addition, there is insufficient space to accommodate the consolidation of the English and Reading Departments and the Writing Center which is split between this building and the Macklin Tower.

Parilla Performing Arts Center (PA: 14,760 NASF; 28,000 GSF) a two-story structure with a partial basement constructed in 1984 has a 500 seat theater and is the site for both campus academic productions and community performances. Campus student productions are presented here as are events in the College's professional theater series. This facility is also used extensively by the public. Support spaces include stage, orchestra pit, scene shop, storage, green rooms, dressing rooms, box office and storage. Current needs include a campus meeting room suite, expansion of performance support spaces (storage of portable tables and chairs, audio-visual storage, scene shop and property storage, costume storage/fitting/repair/laundry, lighting shop/storage, tool/paint rooms), provision of a catering kitchen, additional restrooms, an improved loading dock, and additional offices to support the functions of the Performing Arts Center. There is an additional desire to expand the seating in the center to attract a broader range of performance venues to serve the Montgomery County community.



South Campus Instructional Building (SB: 17,765 NASF; 29,900 GSF) a two story structure plus a ground floor constructed in 1996, was developed to provide flexible space for classrooms, laboratories and faculty offices during renovations of other campus structures. It is a modular building and was not originally intended to serve as a permanent academic structure. This facility has served the original intent despite pressures to utilize



this facility for permanent occupancy due to significant space deficiencies throughout the campus.

Technical Center (TC: 40,250 NASF; 55,908 GSF) a two-story structure built in 1966 houses eight general purpose classrooms, a 72-seat lecture hall, career oriented programs, laboratories, support spaces, and office under the Departments of Communications Arts Technologies and Applied Technology (such as graphic arts, professional photography, radio/television, applied geography (GIS), architectural technology, interior design, construction management, fire science, and computer-aided design and graphics.) In addition, the building includes a small gallery and faculty and staff offices for the Department of Management.



Current deficiencies include undersized laboratories and classrooms, insufficient support spaces, lack of technology for instruction, inadequate lounge space and undersized and inadequate number of offices for faculty and staff.

Homer S. Gudelsky Institute (GU: 49,895 NASF: 64,000 GSF) a two story structure constructed in 1992 is a state-of-the-art technical training facility offering instructional programs in four primary areas: automotive, building and construction, manufacturing and fabrications, and printing management. The facility provides 18 instructional laboratories and support facilities, eight classrooms, (three of which serve as a conference center) and faculty and staff offices. In addition, Central Administration's Response Center and Workforce Development and Continuing Education occupy space in this building.



In addition to the need to relocate the CA and WDCE functions from the building and acknowledging that on-going space modifications are necessary to meet changes in market technical training opportunities/requirements, the current need is for storage.

Interim Technical Training Center (TT: 6,025 NASF; 9,360 GSF) constructed in 1988 houses two corporate classrooms, Building Trades and Sheet metal and Plumbing Laboratories, four vehicle storage bays, a corporate laboratory, storage, a machine shop and staff/corporate offices. This pre-engineered one story structure does not fulfill the space needs and functions of the Gudelsky Institute for Technology Education.



STUDENT SERVICES

Campus Center (CC: 44,580 NASF; 74,300 GSF) a two-story structure with a ground floor constructed in 1966 and recently renovated accommodates the bookstore, the MC Café, MC Copies (graphics and copy shop), dining rooms for students, faculty and staff, student lounge, MC Munchies (candy and snack shop), and a recreation center. The Campus Center also houses Workforce Development and Continuing Education classrooms and offices,



English Department faculty offices, the Trio and Project Success programs, the Department of Management's Hospitality Management food laboratory and support facilities, the Office of Student Life, the Assessment Center, Central Administration's Auxiliary staff offices, and Central Receiving and Warehousing.

Campus Center is the only building which serves student life on campus and severely lacks adequate lobby and lounge space for this purpose. There is a need to substantially enhance the quality of life on campus for commuting students with recreation activities and with facilities to support their total development. There is also a need to substantially enhance the quality of life for the entire campus community with a wider range of services and merchandising venues. This will require relocation of non-campus student related functions as well as Central Administration functions which currently occupy approximately 42% of the available building NASF.

Student Services (SV: 6,810 NASF; 10,448 GSF) constructed in 1966, this one-story building houses the campus offices of Admissions, Records and Registration, Student Financial Aid, Cashier and Veteran Affairs. The building also contains the College Central Administration Offices of the Director of Admissions, Records and Administration and Student Financial Aid.



There is insufficient space to accommodate the campus functions currently in the building. In addition, it is the goal of each of the College's campuses to bring together student and administrative services to support the concept of "one stop" shopping services for students and the College community relative to both the front door operations and full departmental services (Admissions and Registration, Financial Aid, Cashier, Dean of Student Development, Career Transfer Center, Assessment, Counseling, Disable Student Services, and Trio program along with support services such as a training facility, storage, resource library and specialized waiting area.

Counseling and Advising Building (CB: 10,271 NASF; 17,6976 GSF) a two-story structure built in 1969 that houses Disability Support Services including the Learning Center, Counseling, Student Employment Services, Career/Transfer Center, Dean of Student Development, and the Safety and Security Office.



Functionally, there are inadequate and undersized spaces for the Career Center, Learning Center, Assessment Center, and Student Employment Center, absence of a central exhibit/display and student kiosk/computer access terminals, and undersized and inadequate number of offices of the Student Services functions. As noted under Student Services, it is the goal of each of the College's campuses to bring together student and administrative services to support the concept of "one stop" shopping services for students and the College community relative to both the front door operations and full departmental services.

Child Care Center (CH: 2,344 NASF; 2,498 GSF) constructed in 1986, is licensed to enroll up to 40 children. The pre-engineered, one story structure includes a staff office, two play areas, a kitchen, storage area and toilets.



The current facility is inadequate as it relates to square footage of play space

per student, storage, preparation and office space, and meeting space with parents. In addition, the current arrangement does not provide a medium for parents and teachers to observe classroom and social behaviors of children so that appropriate intervention strategies can be planned and implemented.

RECREATIONAL

Physical Education Center (PE: 58,767 NASF; 84,949 GSF) a two-story structure constructed in 1966 includes a swimming pool with a separate diving area, two all-purpose gymnasiums, a fitness center, a weight room, multi-purpose room, two dance studios, a Body Density Laboratory, faculty, staff, and student and team locker and shower facilities, training room, nine general purpose classrooms, and faculty and staff offices for the Department of Health and Exercise Science, and Physical Education and Athletics.



Current deficiencies in support of the Health Enhancement, Exercise Science and Physical Education Department include the need for Health Assessment, Health Education and Movement assessment laboratories, expanded Fitness Center, Weight room, Multi-purpose Room, Sports Medicine Facility and Aerobics/Combatant Arts Room, redistribution of locker and shower facilities to accommodate students and changes in athletic programs, and “right-sizing” of offices of both faculty and staff.

OPERATIONS

Maintenance Shop (4,028 NASF; 4,720 GSF) a “temporary” wood structure housing equipment and supplies to support maintenance of the campus buildings. The building has inadequate storage capacity and insufficient space for offices and equipment.

In addition, there are a few out buildings that do not contribute to the NASF of the campus, but provide valuable support. These include:

Canoe Trailer Shed (420 GSF, constructed in 1990)

Concession Stand/Toilet (240 GSF, constructed in 1994)

Tennis/Football Shed (600 GSF, constructed in 1997)

4.2.6 Building Conditions

In 2007, the College updated the facilities condition assessment for each of its three campuses and site infrastructure components such as electrical utilities, storm sewer, sanitary sewer, parking lots, etc. The primary focus of this effort was to:

- Provide a baseline condition assessment of the College’s facilities to include infrastructure components and building systems.
- Provide the College with budget estimates for funding required safety improvements and reducing the deterioration of campus buildings and infrastructure components.

- Assist the College with building code and accessibility compliance and to ensure that the facilities are operated as required.
- Utilize the assessment in the implementation of an ongoing process of the identification and prioritization of maintenance and capital repair projects.
- Provide decision support capabilities with VFA's facility management software solutions.

The facilities analyses include the following:

- Current Condition Analyses – existing facility deficiencies including deferred maintenance, deferred renewal, near-term anticipated renewal, recommended discretionary improvements, and code non-compliance issues.
- Anticipated capital renewal analyses – projections of ongoing degradation of facilities' components and costs associated with renewal or replacement of these components as they reach the end of their useful life.

Even if a building system is not currently deficient or projected to be deficient in the next five (5) years (current condition analysis above), it has a finite lifetime after which expenditures will be necessary to renew the system. Based on industry standards, actual experience of the facility management staff and the experience of the assessment team, each major building system is assigned a lifetime. Based on field observations and the presumption that the requirements identified for each building system will be corrected, a % used (or years remaining) is established to estimate where the system is currently in its lifetime cycle. Capital funding analyses – scenario comparisons show various funding levels and the effect of each on the condition and value of the building.

Assessment Methodology

The deficiencies were classified in several different ways. In addition to detailed specific descriptions, each deficiency was assigned a category, priority, and primary system association. This parallel differentiation allows for multiple queries of the database, facilitating analysis of the data. It is possible, for instance, to query the database for all Priority 1 deficiencies in the electrical systems or all Priority 5 accessibility code issues. The criteria used to determine the priorities, categories, primary systems, and cost estimating are as follows:

Priority 1: Currently Critical - Projects requiring immediate action to return a facility to normal operation, stop accelerated deterioration and correct a cited safety hazard

Priority 2: Potentially Critical - Situations that, if not corrected expeditiously, will become critical within a year, including intermittent interruptions, rapid deterioration and potential safety hazards

Priority 3: Necessary – Not Yet Critical - Conditions requiring appropriate attention to preclude predictable deterioration or potential down time and the associated damage or higher costs if deferred further.

Priority 4: Recommended - Items that represent a sensible improvement to the existing conditions. These items are not required for the most basic function of a facility; however, Priority 4 projects will improve overall usability and/or reduce long-term maintenance.

Priority 5: Does Not Meet Current Codes/Standards - Items that do not conform to existing codes, but are grandfathered in their existing condition. No immediate action is required, although the items will need to be addressed if any significant work is performed on the building. The amount of work that triggers code compliance is typically at least partially at the discretion of the local building official.

Facility Condition Index (FCI)

An automated standard process for assessing the relative condition of buildings and site infrastructure components, facilitating comparison both within and among the campuses was established. For each building or site component, the Facility Condition Index (FCI) was developed which measures the relative amount of current deficiencies in the building including recommended improvements and grandfathered issues. The total value of recommended corrections is divided by current replacement value for the building or site component resulting in the FCI. The higher the FCI, the poorer the condition of the facility or system component. The FCI ranges for the standard of services for each building or site component are:

Good: .00 to .05

Fair: .05 to .10

Poor: Greater than .10

FCI is a standard measure used throughout the country; it is recommended by both the National Association of College Business Officers (NACUBO) and the Association of Higher Education Facility Officers (APPA). In the attached tables, this is represented by a Deficiency %, which takes the FCI and converts it to a percentage of replacement. For example, an FCI of .10 translates into a Deficiency percentage of 10%.

From the tables below, there are five buildings on the Rockville campus where the cost to repair infrastructure or building system deficiencies exceeds 30% of their replacement value. These include Child Care, Computer Science, Counseling and Advising, Performing Arts Center, Physical Education Center, and the Student Services Building. These buildings should be considered for demolition.

4.2.7 Utility and Information Technology Infrastructure

The existing utility and information technology infrastructure is a critical underpinning that supports the Campus' built environment. The College has undertaken a series of separate planning activities compiled in a Utility Master Plan that identifies these various resources. The Appendix includes an overview of the existing Campus utility and information technology infrastructure.

4.2.8 Site and Environmental Issues

Stormwater Management

The Campus site is approximately 85 acres, and consists of grass, woods, and impervious area, with a total site imperviousness of approximately 50%. A series of existing storm drain systems is located throughout the campus. The majority of the storm drainage systems outfall into the existing stormwater management pond with the exception of the parking lots L10, L9, L8, L7, L6, L5, L2 and L1. Parking lot L10 drains to a storm drain system that outfalls on the south side stormwater management (SWM) pond outfall channel. Parking Lot L9 drains to a storm drain system that outfalls on the north side of the SWM pond outfall channel.

TABLE 4.2.1
ASSET SUMMARY (BASED ON 2006 VFA SURVEY)

Name	Use	Age/Yr Built	Size	RV	FCI cost	FCI
Campus Center	Multi-use	40/1966	74,302	9,963	2,062	0.21
Child Care	Day Care	20/1986	2,498	360	120	0.33
Computer Science	Classroom, Office	40/1966	20,862	3,840	1,891	0.49
Counseling and Advising	Office	37/1969	17,696	2,868	974	0.34
Gudelsky	Classroom/ Training	14/1992	64,000	8,347	664	0.08
Humanities	Classroom	40/1966	73,912	10,925	1,172	0.11
Interim Tech Training Ctr	Classroom	18/1988	9,360	1,558	455	0.14
Macklin Tower	Multi-use	35/1971	117,282	16,645	2,339	0.14
Music Building	Classroom	35/1971	20,499	2,961	7	0
Parilla Perf Arts Center	Auditorium	22/1984	28,000	4,143	1,751	0.42
Paul Peck Arts Building	Classroom	35/1971	25,594	3,880	356	0.09
Physical Education Center	Athletic	40/1966	84,949	11,728	4,572	0.39
So Campus Instruct Bldg	Classroom	10/1996	29,900	4,330	377	0.09
Student Services Building	Student Center	40/1966	10,448	1,927	805	0.42
Technical Center	Classroom	40/1966	55,908	6,875	1,150	0.17
Theater Arts Building	Multi-use	40/1966	35,032	5,021	791	0.16

TABLE 4.2.2
TOTAL REPLACEMENT VALUE AND CURRENT DEFICIENCY COST FOR BUILDINGS AT THE ROCKVILLE CAMPUS

Twenty-three structures (776,647 GSF) excluding Mannakee (42,102 GSF) which include: 20 major buildings (775,387 GSF) and 3 support facilities (1,260 GSF) Canoe Trailer Shed, Concession Stand, and Tennis Football Shed.

	Replacement Value	Current Deficiency	Deficiency as % of Replacement*
Priority One - Five			
Building Systems	\$121,933,207	\$24,640,456	20%
Infrastructure	\$14,536,323	\$6,554,366	45%
CAMPUS TOTAL	\$136,469,530	\$31,194,822	23%
Priority One-Three Only			
Building Systems	\$121,933,207	\$16,983,017	14%
Infrastructure	\$14,536,323	\$1,160,920	8%
CAMPUS TOTAL	\$136,469,530	\$18,143,937	13%

TABLE 4.2.3
BUILDING DEFICIENCY CATEGORY AMOUNT (1-5) AND (% OF REPLACEMENT)

Less than 25% deficiency (11 buildings)	\$11,575,621	47.0%
26% to 50% (9 buildings)	\$12,992,823	52.7%
51% or greater Deficiency (3 buildings)	\$72,012	.3%
TOTAL	\$24,640,456	100%

FIGURE 4.2.5
GENERAL BUILDING CONDITIONS



FACILITIES CONDITION INDEX:

- 0.30 +
- 0.10 – 0.30
- 0.05 – 0.10
- 0.00 – 0.05

- IN DESIGN OR CONSTRUCTION
- NON-CAMPUS BUILDINGS
- CAMPUS BOUNDARY

- AR Paul Peck Art Building
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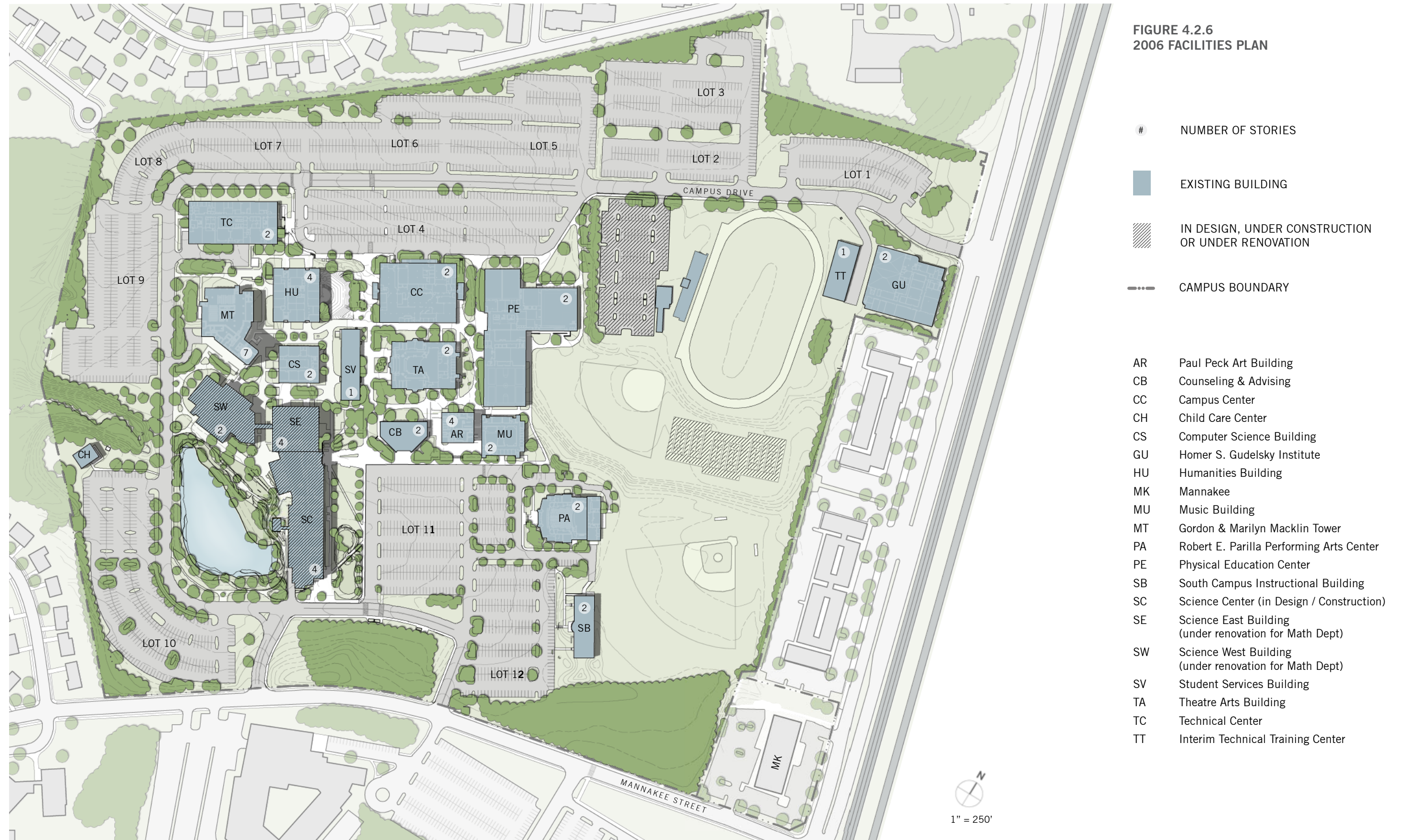
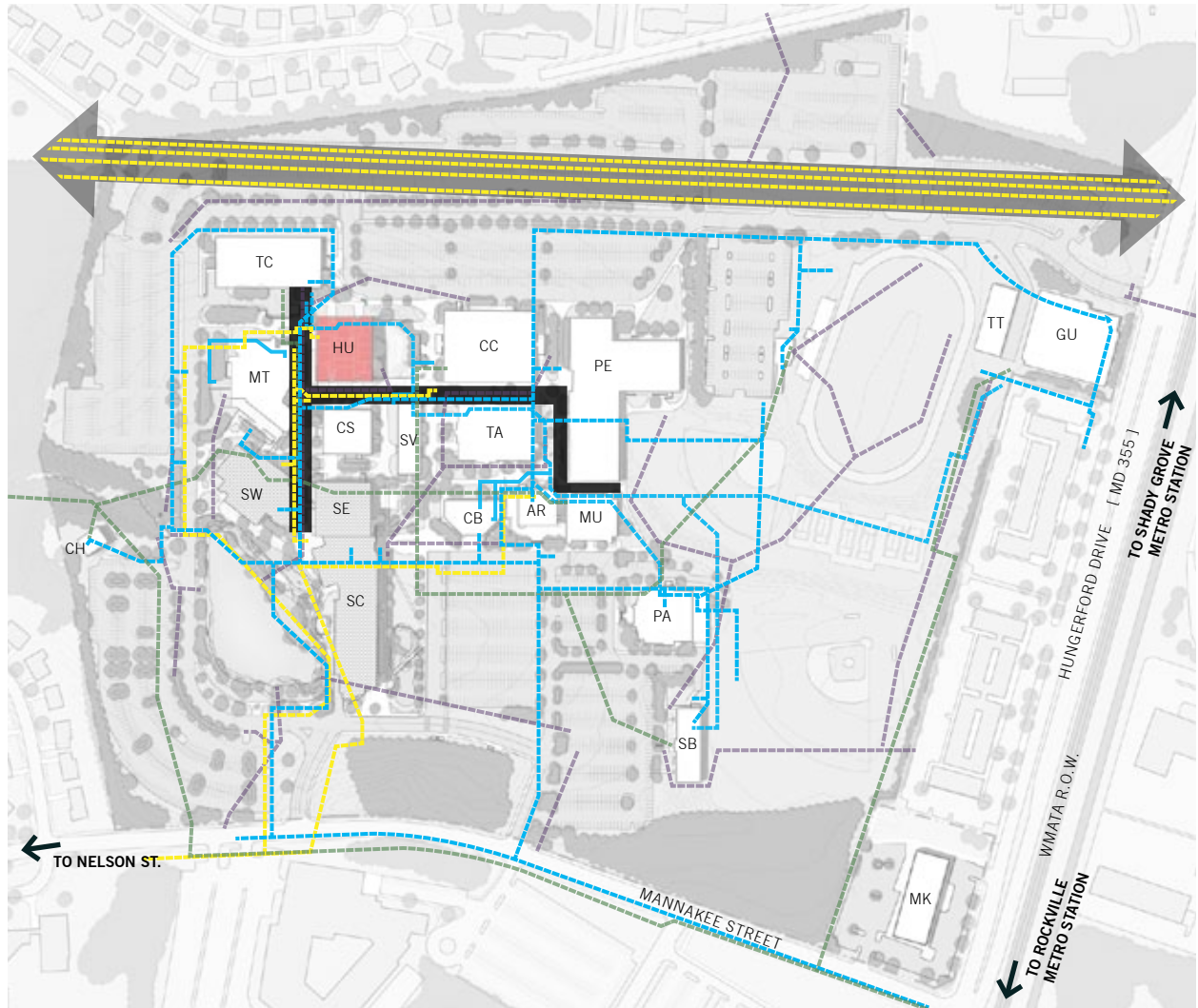













FIGURE 4.2.7
MAJOR SITE UTILITIES



 MAJOR CAMPUS UTILITY SPINE	 CENTRAL PLANT
 WATER LINE (TRUNK SUPPLY + RETURN)	 EXISTING CAMPUS BUILDINGS
 UG NG GAS LINE (NATURAL RIGHT-OF-WAY)	 IN DESIGN OR CONSTRUCTION
 SANITARY LINE	 UTILITY RIGHT OF WAY
 STORM SEWER	 CAMPUS BOUNDARY

0 50 100 250



- AR Paul Peck Art Building
- CB Counseling & Advising
- CC Campus Center
- CH Child Care Center
- CS Computer Science Building
- GU Homer S. Gudelsky Institute
- HU Humanities Building
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Parking Lots L8, L7, L6 and L5 drain to a storm drain system that outfalls into the wooded area to the west of Lot L9. Parking Lot L2 and a portion of L1 drain to a storm drain system that outfalls into a public storm drainage system located on the north side of Lot 2. The remaining area of Lot 1 and a portion of North Campus Drive drain into a separate storm drain system that drains across MD 355.

The College also receives drainage from off-site storm drain systems that enter the campus at two points along Mannakee Street. The first location is just east of the eastern access point onto the college from Mannakee Street. This off-site storm drainage system collects run-off from the parking lot located on the south side of Mannakee Street and the Ivy League town home community.

The Campus is serviced by a major stormwater management pond located adjacent to Science East and Science West. The pond was constructed in the mid 1960s and provides for both quantity and quality control for all existing buildings, parking and access roads within its drainage area. The campus area draining into the stormwater pond is approximately 60 acres, with about 35 acres of impervious area. The pond was retrofitted and enlarged in 1992 to provide water quantity control for the Gudelsky Institute of Technology Education (GITE) project site. In addition to the GITE building site, stormwater management was provided for the seven future projects anticipated at that time. As part of the retrofit, a channel was added on the downstream side of Campus Drive to provide a 100-year overland flood path. The pond will again be upgraded as part of the construction of the new Science Center beginning in 2009. The 2009 pond retrofit will upgrade the pond to meet current State and City of Rockville stormwater management requirements which include Water Quality Control, Channel Protection Volume and the Overbank Flood Control Volume. The pond will be sized to provide 100% treatment for the college area that currently drains to it. Further detailed information regarding the analysis and design of the pond is located in the Stormwater Management Final Report, Montgomery College Rockville Science Center, SWM 2007-00025.

As part of the new Science Center SWM Concept approval with the City of Rockville, a SWM "Banking" system is being coordinated and developed. At the time of this writing, the "Banking" system was not yet finalized with the City of Rockville. The basic approach for the "Banking" system will be such that as new development occurs within the pond's draining area, the cumulative SWM requirements will be tracked until the point at which the treatment capacity of the pond is met.

For development within the college parcel, stormwater management only needs to be provided for the project specific disturbed area as long as the cumulative disturbed area is less than 50% (42.5 acres) of the total college parcel area of approximately 85 acres. However, once 50% cumulative disturbed area threshold is achieved, stormwater management will be required for the entire college parcel. The new Science Center project and the Tennis Court Relocation project (underway in 2008) will disturb a cumulative area of approximately 10.6 acres or 12.6% of the total college parcel area. A total of approximately 31 acres can be disturbed before the 50% threshold is reached. Table 4.2.4 is an example of how all future projects should be tracked.

Forest Conservation

The Campus is intensively developed, with a core of buildings surrounded on three sides - south, west and north - by parking lots. East of these core buildings are athletic fields that lie between the campus and the commercial strip along MD 355. As shown on the NRI/FSD plan, narrow strips of trees, most of which are white pines, provide screening between parts of the campus and adjacent uses. Some of these areas are candidates for additional tree planting to meet future forest conservation and significant tree replacement requirements.

Below the stormwater management pond in the southwestern part of the Campus, between West Campus Drive and the western edge of campus, a stream flows through a small parcel of forest, 38,500 sf in size. This riparian forest is contiguous with the forest in Pollinger Park. It is moderately well stratified, dominated by tulip poplar, oaks and maples, and has a mixed understory of small trees, shrubs and herbaceous cover. Invasive species (e.g. honeysuckle, grape, briars, poison ivy) are common in some areas and the intensity of surrounding development has adversely affected the overall condition of the forest. Since it lies within the stream buffer and is part of the headwaters of Watts Branch, the forest is a high priority for retention.

There are two other areas of tree cover on the southern side of the campus. One is located south of the athletic fields and adjacent to the commercial strip along MD 355. It is approximately 125,835 sf in size. The understory has been cleared occasionally. The understory remnants include many low-quality invasive species such as Japanese honeysuckle. Another stand of trees approximately 63,015 sf in size is to the west of the first stand. It is a somewhat smaller island of trees surrounded by Mannakee Street, Campus Drive, and two vehicular entrances to the campus. This area is the main arrival point of the campus and has a high level of traffic from private vehicles, trucks, buses and pedestrians. The understory of this stand of trees is mowed periodically. It has been maintained to provide visibility and a sense of safety to people who frequent the campus.

The remainder of the Campus has an urban character, with trees situated in planting areas adjacent to buildings and roads, plazas, parking lot islands, etc. The area around the stormwater pond is park-like, with scattered trees and other ornamental plantings in a continuous lawn to the water's edge. As a whole this variety of plantings enhances the aesthetics of the campus and provides other benefits typical of urban trees. (See Figure 4.2.8 Natural Systems)

TABLE 4.2.4
ROCKVILLE SWM TRACKING SUMMARY

Project Name	SWM #	Disturbed Area	Cumulative Disturbed Area	Cumulative Percent Disturbed	New Impervious Area	Water Quality Volume Required
New Science Center	2007-00025	6.37 acres	6.37 acres	7.52%	1.75 acres	0.14 ac-ft
Tennis Courts & Parking Lot	2008-00011	4.27 acres	10.64 acres	12.57%	2.71 acres	0.21 ac-ft
Area of College Parcel is 84.61 acres				TOTAL	4.46 acres	0.35 ac-ft
					Water Quality Provided in Pond	4.75 ac-ft
		Maximum Allowable College Impervious Area to the Pond				35.70 acres
		Maximum Allowable Impervious Area to the Pond				78.20 acres

FIGURE 4.2.8
NATURAL SYSTEMS



- TREES
- TREE STAND
- STORMWATER POND

- EXISTING CAMPUS BUILDINGS
- IN DESIGN OR CONSTRUCTION
- CAMPUS BOUNDARY

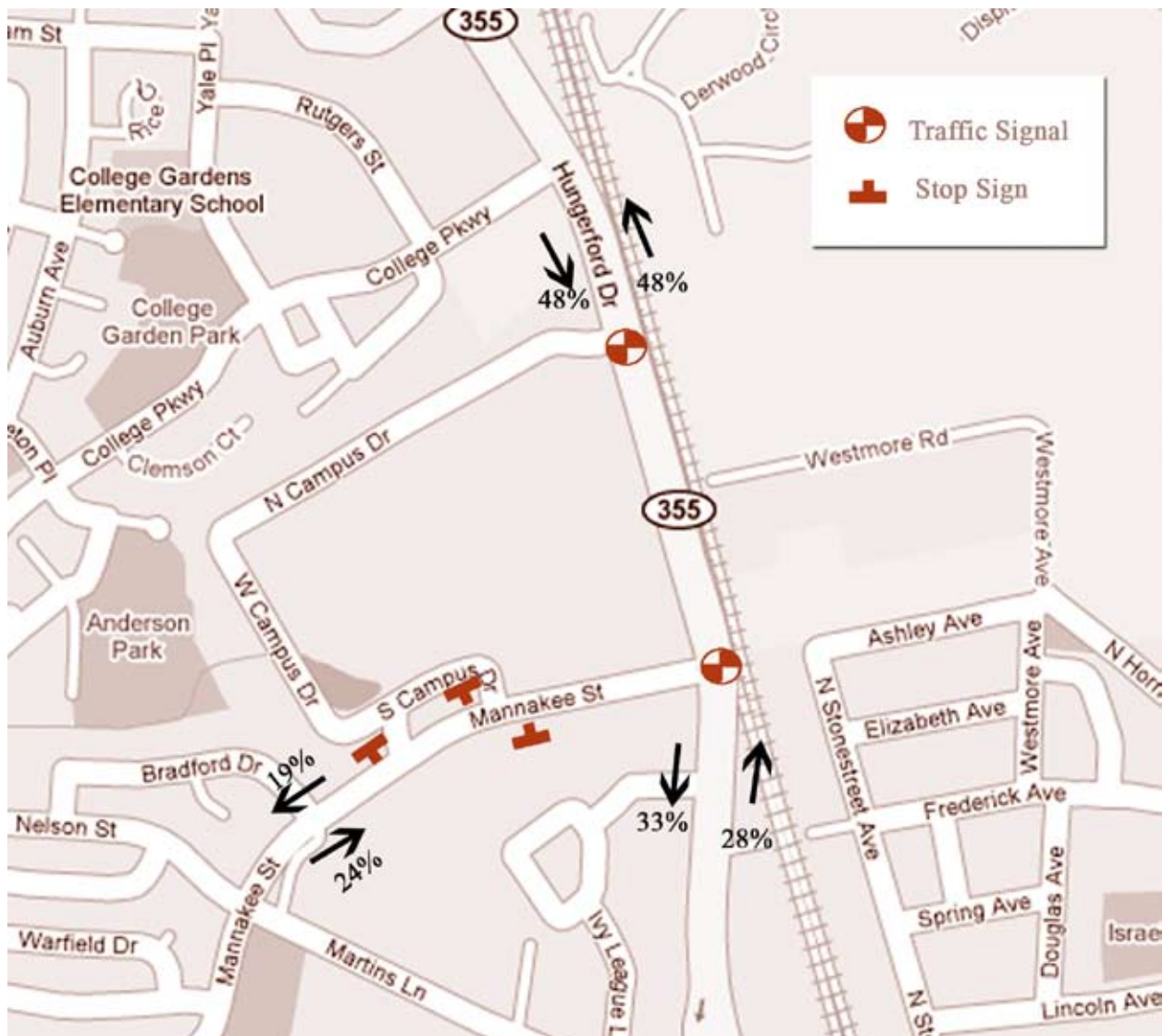
- AR Paul Peck Art Building
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4.2.9 Circulation and Parking

The Rockville Campus is bounded by a major arterial, MD 355 (Hungerford Drive) to the east, and a “primary” residential street, Mannakee Street, to the south. Direct access to the campus is provided via a signalized entranceway intersection along Hungerford Drive at North Campus Drive and two unsignalized entranceway intersections along Mannakee Street at South Campus Drive.

Survey data collected in October 2005 identified the entranceway traffic volumes and trip distribution percentages for campus vehicle trips are shown in Figure 4.2.9.

FIGURE 4.2.9
DISTRIBUTION PERCENTAGES FOR VEHICLES BOUND FOR ROCKVILLE CAMPUS



The significant percentage indicated in the figure above for Mannakee Street (from the west) is primarily due to this roadway’s connection to the I-270/MD 28 Interchange to the southwest, via Nelson Street. This percentage is part of the two-way “cut-through” traffic along Mannakee Street that has been identified as a key concern in the City of Rockville’s Comprehensive Plan (January 2002), as well as a concern of local residents.

Traffic counts conducted in 2005 and illustrated on Table 4.2.5 show that the largest volume of AM and PM peak hour traffic enters and exits the campus from MD 355 at its intersection with Campus Drive (north). During the peak AM hour a total of 1,570 vehicles enter the campus while the peak outbound period (midday) surveyed some 945 vehicle trips. Traffic studies have also shown that the two major intersections along MD 355 which are used to funnel drivers onto campus are still operating efficiently, despite the perception by some that the wait times at these intersections are too long.

TABLE 4.2.5
INBOUND AND OUTBOUND PEAK HOUR TRAFFIC VOLUMES

Intersection	AM		Midday		PM	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
MD 355/North Campus Drive	745	110	320	390	210	450
Mannakee St/South Campus Drive (East)	335	90	165	210	180	215
Mannakee St/South Campus Drive (West)	490	95	275	345	260	240
Total	1,570	295	760	945	650	905

Inside the campus is a U-shaped ring road, Campus Drive, which serves the main parking lots on the north, west and south sides of campus. Minor internal vehicular circulation deficiencies include over-long wait times to exit campus from North Campus Drive onto MD 355/Hungerford Drive in the afternoons and circulation of vehicles “searching” for more convenient parking space increases traffic volumes along Campus Drive and within surface lots. (See Figure 4.2.10 Parking and Vehicular Circulation)

Parking

The current parking capacity on the campus is 2,747 spaces on 12 surface lots, plus a 407-space leased overflow lot across Mannakee Street. Additionally, the college has leased 183 spaces at the nearby community pool on an as-needed basis. As of this writing, the college is building a new parking lot, Lot 3, at the location of the tennis courts which will provide 173 parking spaces. Excluding the possible leased spaces, the total parking capacity is 3,327 spaces.

Based on Montgomery College’s annual September survey of parking activity, parking utilization peaked at 94% at 11 AM in September 2007. Excluding off-campus parking utilization, the peak period occupancy rate for on-campus spaces equaled 97%. This level of parking utilization is a major issue, as it does not allow for efficient vehicle access, circulation and overall quality of service, whereby a parker is not required to search for the last available space. Sound planning and design practice suggests that a operational surplus of 5-10% above peak utilization is required for efficiency and safety circulation and turnover. Supplying adequate parking for commuting students, faculty and staff is a major concern for the Rockville campus, and one which may restrict future growth.

FIGURE 4.2.10
PARKING AND VEHICULAR CIRCULATION



	3 LANES EACH DIRECTION		TRAFFIC STACKING
	1 LANE EACH DIRECTION	01	# PARKING SPACES
	CAMPUS ROADWAY		EXISTING CAMPUS BUILDINGS
	CAMPUS ENTRANCE		IN DESIGN OR CONSTRUCTION
	BUS STOP		CAMPUS BOUNDARY

0 50 100 250

- AR Paul Peck Art Building
- CB Counseling & Advising
- CC Campus Center
- CH Child Care Center
- CS Computer Science Building
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- TC Technical Center
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Public Transit

The campus is served by public transportation both on and off-campus. These services include a Washington Metropolitan Area Transit Authority (WMATA) Metrobus route and two Montgomery County Ride-On bus routes that provide connections to two rail stations on the WMATA Red Line. Bus stops and shelters are provided on campus for these transit systems.

FIGURE 4.2.11
RESIDENTIAL ZIP CODE PATTERNS FOR SURVEYED ROCKVILLE CAMPUS FACULTY/STAFF

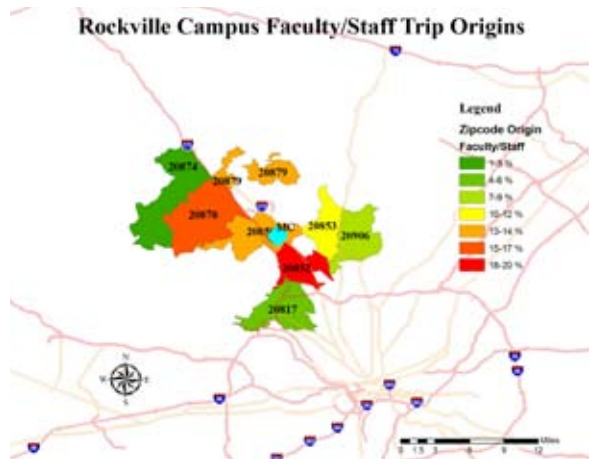
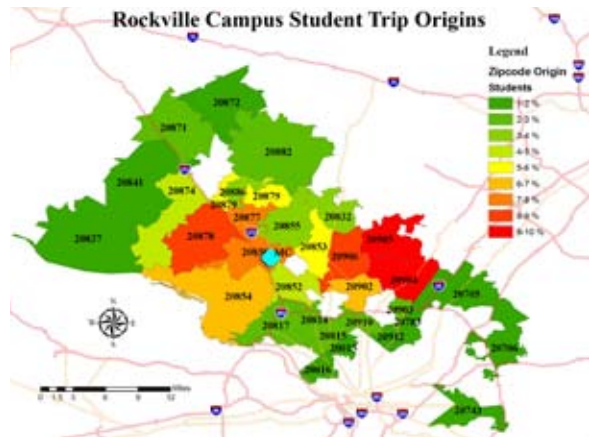
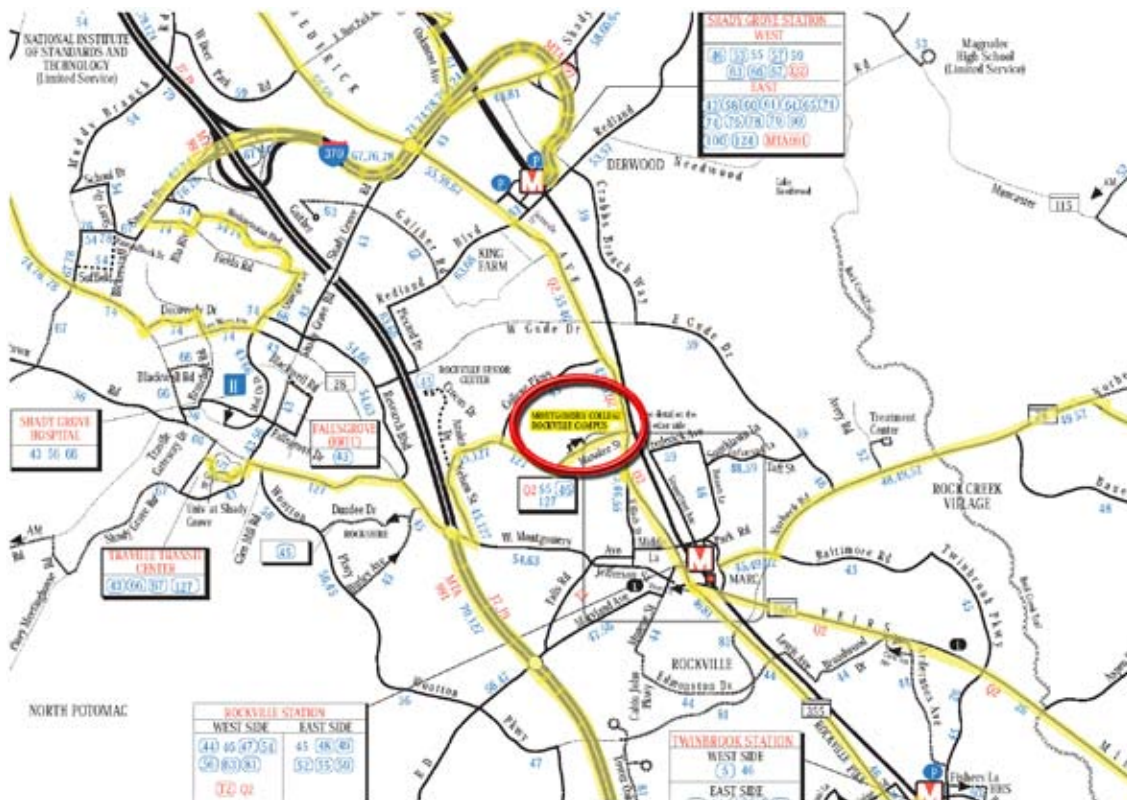


FIGURE 4.2.12
RESIDENTIAL ZIP CODE PATTERNS FOR SURVEYED ROCKVILLE CAMPUS STUDENTS



A survey of travel mode characteristics for the campus suggests there is significant potential to increase public transit utilization as auto utilization is relatively high and faculty, staff, and students' trip origins are quite concentrated. At present, only 33% of students, 25% of staff, and 11% of faculty either drive and park a vehicle on campus or arrive via the automobile as a passenger. Figures 4.2.11 and 4.2.12 illustrate the results of an origin and destination survey that was completed in the Fall of 2007, noting the residential zip code of faculty/staff and student respondents respectively. This concentration of residential origins presents an opportunity for the College and local transit agencies to "target market" alternative public transit incentives and/or single auto occupant disincentives. Though the campus is not located close enough to a Metro station that a student could walk, the campus shuttle and Metro bus routes and service are well positioned to meet both Metro rail and other public transportation ridership needs. Figure 4.2.13 identifies the route number and routes that currently serve the Rockville campus.

FIGURE 4.2.13
PUBLIC TRANSIT ROUTES SERVING THE ROCKVILLE CAMPUS



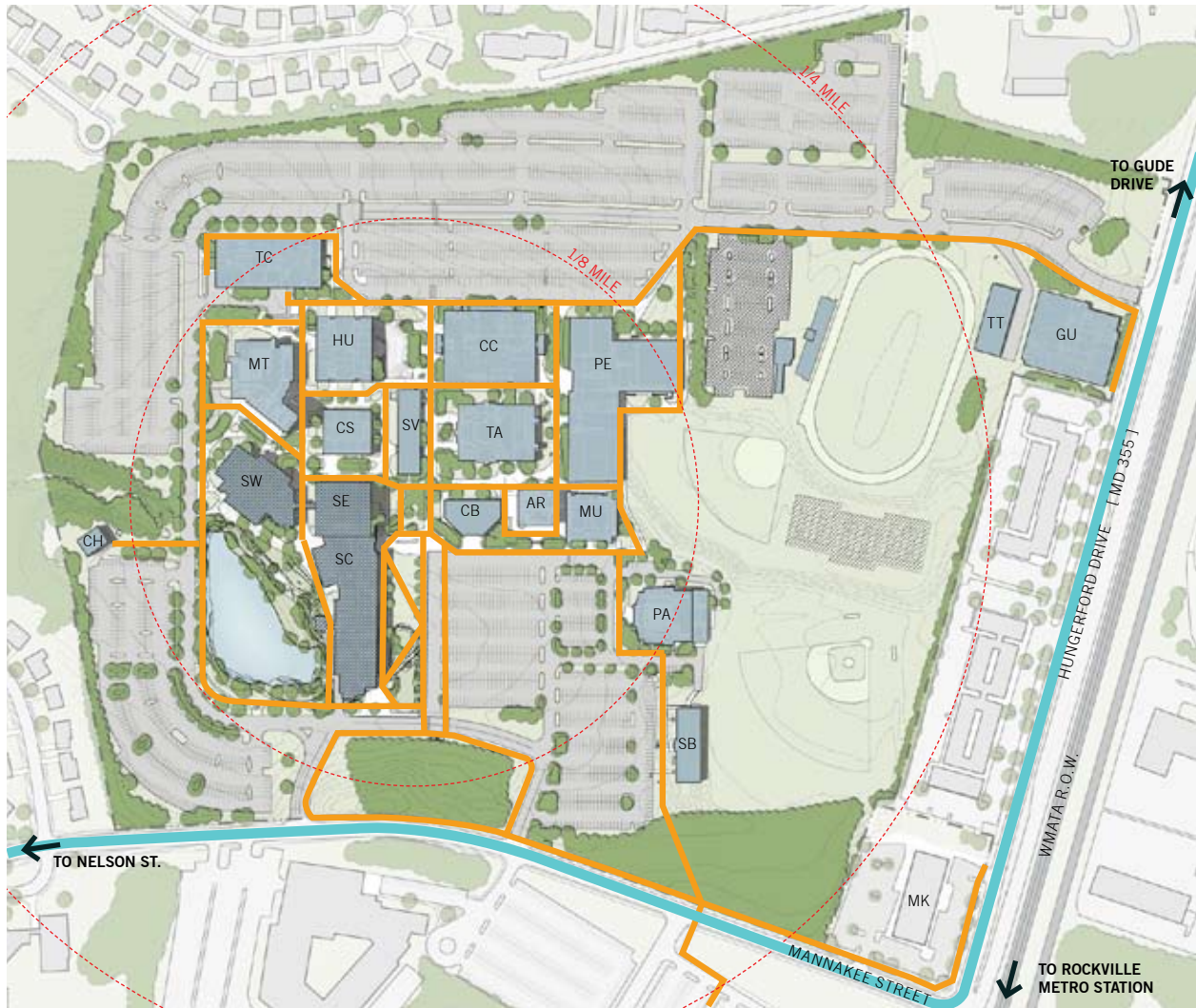
Pedestrian and Bicycle Circulation

The Rockville campus is a very walkable campus. Most buildings are within a ¼ mile radius walking circle, or about a 10-minute walk, which is considered walkable by most people. Two areas of campus fall outside the ¼ -mile radius - the Gudelsky Institute (GU) and the adjacent Interim Technical Training Center (TT), and the Mannakee Building.

Pedestrian/Vehicular conflicts are focused in areas where pedestrians are crossing from parking lots outside the Campus Drive loop into campus. Of particular concern is pedestrian safety related to crossing Mannakee Street to and from Parking Lot 13, where peak period parking lot occupancy is approximately 69%. (See Figure 4.2.14 Pedestrian and Bicycle Circulation). The College and the City of Rockville have recently addressed this issue by installing a stop sign and a clearly signed pedestrian crosswalk.

The Rockville Campus is situated along the City of Rockville's bikeway path along Mannakee Street. Campus bicycle circulation is provided on both the Campus roads and sidewalks. However, due to the high level of vehicular traffic on the Campus and significant amount of pedestrian activity, the potential of conflict among the various modes of movement is high and limited space constrains the Campus' opportunity for providing dedicated pathways. As part of its goal to increase sustainability on campus, the College encourages bicycle transportation by providing bicycle racks at several locations on Campus.

FIGURE 4.2.14
PEDESTRIAN AND BICYCLE CIRCULATION



- PEDESTRIAN WALKING ROUTES
- - - PEDESTRIAN WALKING RADIUS
- PROPOSED SHARED-USE BIKEWAY
- EXISTING CAMPUS BUILDINGS
- IN DESIGN OR CONSTRUCTION
- CAMPUS BOUNDARY

- AR Paul Peck Art Building
- CB Counseling & Advising
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4.3 FACILITIES PROGRAM

4.3.1 Needs Assessment

Assessments of the current and projected facilities needs at the Rockville Campus are generated by applying current and projected planning data related to enrollment, instructional delivery, library collections, faculty, and staff to the State of Maryland Guidelines for facilities at community colleges. The data referenced in Table 4.3.1 shows a projected head count increase of 2% through 2016, and a full time equivalent increase of 5%, indicating that the average credit hour load per headcount student is expected to regain its historic level of 8.2 credit hours, an increase from 8.0 credit hours in fall, 2006.

TABLE 4.3.1
NEEDS ASSESSMENT PLANNING DATA FOR THE ROCKVILLE CAMPUS

	Actual Fall 2006	2006 FMP Projected Fall 2016	% Change Fall 2006
FTDE	6,423	6,722	5%
FTDE (inc on line)	6,527	6,845	5%
Day WSCH-Lec	77,811	65,508	-16%
Day WSCH-Lab	34,800	54,480	57%
FTE	8,096	8,509	5%
Credit Hours (SCH)	121,440	127,633	5%
On line SCH	3,715	4,402	18%
Bound Volume Equivalents	164,469	190,784	16%
FTEF	449.00	472.75	5%
FT fac	323	350	8%
PT fac	504	491	-3%
FTES	519.00	543.50	5%
FT staff	479	500	4%
PT staff	160	174	9%
Planning Head Count	3,728	3,909	5%
Headcount Student (HCS)	15,275	15,565	2%

Current and projected space needs are then computed for each type of space in the campus inventory for which a guideline is available. Comparisons with the campus' current inventory and the one planned for 10 years later, given approved capital projects, are made, and surpluses or deficiencies relative to the respective space categories are identified. Table 4.3.2 shows this analysis and breakdown by ROOM USE category.

TABLE 4.3.2
COMPUTATION OF SPACE NEEDS FOR THE ROCKVILLE CAMPUS

HEGIS CODE	ROOM USE CATEGORY	Need Current	Inventory Current	Surplus (Deficit)	Need 10 years	Inventory 10 years	Surplus/ (Deficit)
100	CLASSROOM	86,370	74,854	(11,516)	72,714	67,415	(5,299)
200	LABORATORY	230,297	139,194	(91,103)	410,661	204,167	(206,494)
210	Class Laboratory	202,884	110,586	(92,298)	381,912	167,003	(214,909)
220	Open Laboratory	27,413	28,608	1,195	28,749	37,164	8,415
300	OFFICE	159,182	94,576	(64,606)	166,769	103,060	(63,709)
310	Office/ Conf. Room	155,168	89,820	(65,348)	162,597	98,479	(64,118)
320	Testing/Tutoring	4,014	4,756	743	4,173	4,581	409
400	STUDY	63,819	42,746	(21,073)	69,491	42,594	(26,897)
410	Study	40,794	11,845	(28,949)	42,781	11,693	(31,088)
420-30	Stack/Study	16,447	27,575	11,128	19,078	27,575	8,497
440-55	Processing/Service	6,579	3,326	(3,253)	7,631	3,326	(4,305)
500	SPECIAL USE	96,924	59,582	(37,342)	100,740	58,358	(42,382)
520-23	Athletic	84,270	50,277	(33,993)	87,450	50,277	(37,173)
530	Media Production	11,654	7,387	(4,267)	12,290	6,861	(5,429)
580	Greenhouse	1,000	1,918	918	1,000	1,220	220
600	GENERAL USE	82,940	55,572	(27,368)	85,961	57,740	(28,221)
610	Assembly	22,054	26,559	4,505	22,690	26,559	3,869
620	Exhibition	4,014	2,013	(2,001)	4,173	2,013	(2,160)
630	Food Facility	31,311	11,491	(19,820)	32,835	12,059	(20,776)
640	Child Care	2,265	2,265	0	2,265	2,265	0
650	Lounge	11,183	2,274	(8,909)	11,727	3,874	(7,853)
660	Merchandising	4,114	9,393	5,280	4,273	9,393	5,121
670	Recreation	0	0	0	0	0	0
680	Meeting Room	8,000	1,577	(6,423)	8,000	1,577	(6,423)
700	SUPPORT	40,786	10,481	(30,305)	48,990	9,439	(39,551)
710	Data Processing	4,395	296	(4,099)	4,634	588	(4,046)
720-740	Shop/ Storage	29,278	9,814	(19,464)	36,775	7,932	(28,843)
750	Central Service	6,527	190	(6,337)	6,845	566	(6,279)
760	Hazmat Storage	586	181	(405)	736	353	(383)
800	HEALTH CARE	1,505	0	(1,505)	1,569	0	(1,569)
900	RESIDENTIAL	0	0	0	0	0	0
050--070	INACTIVE/ALT	0	0	0	33,468	33,468	0
090	INDEPENDENT ORG	0	0	0	0	0	0
	Total NASF:	761,824	477,005	(284,819)	990,362	576,241	(414,121)

* Projected Inventory includes existing space in 2006 plus approved development projects, including those in design or construction.

Currently the Rockville Campus, excluding space supporting Central Administration and Workforce Development & Continuing Education, shows an overall deficiency of 284,726 NASF, a significant amount of space representing over 60% of the campus' current inventory.

Montgomery College has three approved facility projects on this campus that are currently under construction or in design. The chart above includes these planned facilities. The projects include:

- the new 140,700 GSF (81,020 NASF) Science Center, currently completing design; and
- renovations of Science East and Science West as facilities supporting instruction in mathematics and the Math and Science Learning Center.

The Rockville Campus has seen very little new construction over the last ten years, and because of the limited campus space, efforts have been directed toward slowing growth. Despite these efforts, FTDE enrollment over the past 5 years has grown by 8%. The College is currently leasing a temporary building to support overflow office needs. Since 2006, the College has also moved Central Administration's computer center to the Takoma Park/Silver Spring Cafritz Foundation Arts Center where space was available. The vacated space in the Computer Science Building has been transformed into needed classrooms. The renovation projects of Science East and Science West will also vacate 5,633 NASF of space in Macklin Tower to be reallocated for building uses.

As Table 4.3.2 illustrates, even with these projects substantial deficiencies remain on the campus across almost every use category—408,614 NASF or 70% of the 2016 projected inventory. The greatest deficiencies are in class laboratory space, office, study spaces, athletic/physical education facilities, food facilities, and shop/storage. The class lab deficiency is very significant, representing the transition from classroom to a class lab environment, utilizing more technology and collaboration in instructional delivery. While the new Science Center and the renovations of Science East and Science West will create badly needed science and mathematics lab space, the humanities and social science departments face challenges to create appropriate spaces for this transition of teaching methodology.

4.3.2 Proposed Facilities Programs

As shown in the following set of projects, the Facilities Master Plan for the Rockville Campus adds 257,647 NASF to the campus inventory beyond those currently under design or construction. These changes represent 63% of the overall net 2016 space deficiency. While the guidelines show a significant class lab deficiency (206,494 NASF), the proposed plans do address the class lab needs of the campus' disciplines. The guidelines assume that instruction in lab environments require substantial amounts of lab preparation time. This assumption does not hold for the disciplines undergoing the transition from classroom to class lab, most notably math, writing, reading, and accounting. As such the guidelines overestimate the amount of space needed; the proposed programs have taken into account these discipline needs, but have estimated facility needs based on station sizes appropriate for these types of labs and reflective of room and station utilization rates consistent with classrooms which are more efficient in instructional delivery.

Given the limited empty building sites on campus, any expansion will require a renovation and/or replacement of existing buildings. Together with the new construction, reallocations, and renovations of spaces within existing campus buildings, the new facilities will support the continued growth and development of the Rockville Campus. A description of the programs located within these projects follows. The physical aspects of these projects will be discussed in Section 4.4, 2006-2016 Facilities Master Plan.

Projects currently under design or construction include:

1. A new Science Center (81,020 NASF, 140,700 GSF) adjacent to the stormwater pond. This project, which is under development, provides a new academic building supporting all of the sciences—Biology, Chemistry, Physics, and Engineering. It also includes a new Observatory.
2. Renovations of Science East and Science West into the Math Center: Given the construction of the new Science Center, these renovation projects reconfigure and reconstruct the Science East and Science West as a complex for facilities originally proposed but not accommodated in the Science Center, including classrooms, the Mathematics Department with math class labs and offices, and the Math and Science Learning Center. The greenhouse is to be demolished. The large tiered lecture hall is removed, and a second floor is constructed. The resulting facilities are expected to reduce the existing overall efficiencies of the buildings to about 57%, resulting in an estimated 53,900 NASF available for use. Finally to provide accessibility, an addition will be constructed to accommodate an elevator, lobby, and needed mechanical and circulation space. This addition will add 1,500 NASF, 3,500 GSF to Science East.

The 2016 Facilities Master Plan also proposes the following projects to meet programmatic needs:

1. Renovation of Macklin Tower: With the construction of a new Library and the Science Center, the renovation of Macklin Tower can be completed. Certain existing units will remain, including the Office of the Provost, the Deans' Suite, and the media production facilities. One goal of this Facilities Master Plan is to align units physically consistent with organizational and functional relationships and synergies, thereby reducing the significant fragmentation that has occurred over time. As a result, Macklin Tower will support the division of Business, Management, and Information Science, including classrooms and class labs, relocating individuals from the Technical Center, the Humanities Building, Macklin Tower, the Computer Science Building, and the South Campus Instructional Building. The Macklin Business Institute will be housed here, as well. The Food Lab Suite, however, will remain in the Campus Center. The Center for Teaching and Learning will be relocated to this building in proximity to the media production facilities. Its new facilities will include various studios supporting teaching and learning, such as a design/development studio, a presentation studio, and a product planning studio, as well as office space. The Writing Center will be relocated to the Humanities Building addition. In addition, an elevator tower will be added to the building to support accessibility, with 5,500 GSF of mechanical and circulation space. The existing overall building efficiency is expected to be reduced from 70% to 60% following renovation, taking the space from 81,800 NASF to 70,370 NASF.
2. Construction of a new Student Services Center (72,060 NASF, 130,320 GSF); This construction project brings together student and administrative services to support the concept of "one stop shopping" services for students and the College community relative to both front door operations and full departmental services. Specifically, it will include the following campus related functions and activities: Admissions and Registration, Financial Aid, Cashier, Dean of Student Development, Career Transfer Center, Assessment, Counseling, Disabled Student Services (DSS), and Trio program plus support services such as a training facility, storage, resource library, and specialized waiting areas. In addition, this building will provide approximately 17,000 NASF of instructional space to partially address the Campus' teaching space deficit.
3. Renovation of and Addition to the Physical Education Center and Outdoor Facilities (28,560 NASF, 47,600 GSF for the Addition); This project renovates the Physical Education Center to capitalize on the recent decision to eliminate football from the intercollegiate athletics program and to provide appropriate

and needed support for the Health Enhancement, Exercise Science, and Physical Education Department and its programs. Changes in the building usage flow are created to allow for better, more user sensitive, and safer control of facility use, including better accessibility for older and/or handicapped individuals to the facilities. Included in this renovation is a redesign of the office suite to allow for better traffic flow and more direct access to instructor and coaches' offices and better location of equipment and other storage. Overall the project should create an atmosphere that invites people to participate, whether as a player or a spectator. Social spaces are also important, as well. The addition to the Physical Education Center as presented here provides a Fitness Center, Weight Room, academic labs, and the intercollegiate athletic team facilities to support teams in:

Men's Teams: Soccer, Cross Country, Indoor Track, Outdoor Track, Basketball, Tennis, Baseball, Lacrosse

Women's Teams: Soccer, Cross Country, Indoor Track, Outdoor Track, Basketball, Tennis, Softball, Volleyball

4. Reallocation of South Campus Instructional Building (17,765 NASF, 29,900 GSF) to WDCE; The South Campus Instructional Building will be reallocated for use by Workforce Development & Continuing Education activities at the Rockville campus that currently are housed at the Campus Center. Any residual space available in this building could be used for any campus or College activity.
5. Renovation of the Campus Center (44,580 NASF, 74,300 GSF); One goal of this Facilities Master Plan is to relocate Auxiliary Services to the proposed Central Administration Administrative Services Building, Workforce Development classrooms, laboratories and offices to another location, Student Development Assessment and the Trio and Project Success programs to a new Student Services Center on campus, and relocation of the general purpose classrooms. Central Receiving and Warehousing has already relocated to leased space. These programs and functions currently occupy about 42% of the building. The proposed renovation and space reallocation of the Campus Center would enhance substantially the quality of student life on campus for commuting students with facilities to support their total development and recreational activities and for the entire campus community with a wide range of service and merchandising venues. It also includes administrative offices associated with student life. The existing building efficiency of 70% is expected to be reduced to at least 60%
6. Renovation of the Computer Science building (12,520 NASF, 20,900 GSF) to retain the existing classrooms and class labs, together with a reconfiguration of the Campus administration computer center. Overall building efficiency is expected to be reduced from 67% to 60% as more circulation space is added and the building is brought into code compliance.
7. Replacement of the Interim Technical Training Center (46,120 NASF, 76,900 GSF); The Interim Technical Training Center (ITTC) will be replaced with a facility that is better integrated with the needs and functions of the Institute, especially the automotive program. The spaces will support four automotive corporations and four dealerships (high bay). The plan is also to relocate the Applied Technology Department from the Technical Center so that facility can be dedicated to the social sciences. In addition to meeting these needs, those Workforce Development & Continuing Education needs of the Rockville campus that are aligned with the program offered here are also addressed. The existing classrooms available in GU and the previous testing/tutoring space should be able to accommodate the demands for credit and WDCE instruction and support. Replacement is provided, however, for the Corporate classrooms provided in ITTC. Should additional corporate classrooms or labs be required, additional space will have to be provided. The general storage provided in the replacement facility also supplies storage for GU, which currently has none.

8. Alteration of Gudelsky Institute for Technical Education (39,895 NASF, 64,000 GSF); With the relocation of the central administration functions from the Gudelsky Institute for Technical Education (GU), the vacated space and that associated with the already vacated photography lab space should be renovated for classroom and class lab needs of the Institute, including related Workforce Development & Continuing Education programs.
9. Construction of the Communication Arts Building North (23,400 NASF, 42,500 GSF) as an addition to the existing Art Building supports the development of the Arts Walk, moves the Communication Arts Technology Department from the existing Technical Center into a new facility, and addresses the expanded class lab and office space needs of the Art, Music, and Speech, Dance, and Theatre Departments. The Communications Arts Building addition provides classrooms and class labs supporting the Communication Arts Technology Department, as well as an Art Study and exhibit space. The Mixed Art Building (Art South) provides additional music labs, and decisions regarding the types of art and communication arts technology labs to be provided in the facility will result from the project's programming effort and planning of the Communication Arts Technology Building. In general, the new building should relocate and expand art studios like the ceramic, sculpture, jewelry, and printmaking studios, while retaining and expanding the color, drawing, and painting studios in the existing building. Offices for faculty or staff not accommodated in the existing buildings are included. Chemical storage and waste transfer should be provided.
10. Alteration of the Humanities Building (47,750 NASF, 73,910 GSF). To achieve the goal of co-locating the humanities departments, several projects will be required—the alteration of the Humanities Building, the renovation of the Computer Science Building as the Humanities Annex, and the construction of the Humanities Addition. Recognizing that the Humanities Building was recently renovated, this reallocation and very modest alteration project (approximately 4,775 NASF to be altered) allows the alignment of the social sciences departments physically consistent with organizational and functional relationships and synergies, thereby reducing the significant fragmentation that has occurred over time. The Humanities Institute is relocated to space of the current Writing/Reading Center, while the Center for Teaching and Learning relocates to Macklin Tower to be co-located with the Media Center.
11. Construction of a new Mixed Arts Building South (40,450 NASF, 73,500 GSF); see description for Art North above.
12. Replacement of the Technical Center (40,250 NASF; 55,910 GSF) with the Humanities and Social Sciences Building (68,645 NASF, 124,800 GSF); relocation of the current programs housed in the Technical Center (Communication Arts Technology with the Fine and Performing Arts Division and Applied Technology with GITE) allows the demolition of the Technical Center and the construction of a new facility that supports the social sciences at the Rockville campus, including History and Political Science, Psychology, Education, and Sociology, Anthropology, and Criminal Justice, as well as needs of the humanities disciplines that cannot be accommodated in either the Humanities Building or the Humanities Annex. This building will provide general classrooms for these social science and humanities disciplines, as well as having class and open labs and offices. The Writing Center now located in Macklin Tower will be relocated here.
13. Construction of a new Library Resource Center (62,300 NASF, 111,300 GSF); This project provides a new library for the campus, removing it from Macklin Tower. It provides 1,000 patron stations in a wide variety of study seating options. This level of seating accommodates approximately 6% of the 2016 headcount students for Rockville. The guideline for the Rockville campus based on 25% of the FDTE would provide 1,711 patron seats. It further assumes that study spaces are provided elsewhere: Art (15 stations), Applied Technology (15 stations), the Career Center (65 stations), and GITE (45 stations). The needed collection of curriculum materials to support the Education program will be managed by the Library rather than the Department, so no

facility has been provided in the Department. This facility also provides a patron lounge outside of the Library proper, but within the facility, to facilitate concentrated use of the Library. This building will also support a campus central plant facility.

14. Renovation of and Additions to the Performing Arts Center (33,795 NASF, 69,800 GSF); This project renovates the Performing Arts Center following a study to examine the feasibility of expanding seating in the Center to the goal of 1,000 seats. This level of seating would allow the PA to attract a broader range of performance venues to serve the Montgomery County community. Expanded lobby and ancillary spaces would be included as well as much needed back of house support spaces, including expanded scene shop and property storage, lighting shop and storage, costume shop and storage, tool and paint rooms, and 4 small individual dressing rooms. A second expansion project for the PA would add offices eliminated from the main house supporting the PA's operations and provide a campus meeting room suite, accommodating groups up to 160, to support College and County activities. These expansion projects recognize that PA is a year-round functioning performance venue for many groups and organizations beyond those associated with the College. The Meeting Suite provides a large meeting room, break-out rooms, support facilities, including a catering kitchen to support not only events in the Meeting Suite but also smaller events held in the PA lobby. The PA project should also attempt to provide an improved loading dock situation for the entire building.
15. Construction of a new Physical Plant facility (18,120 NASF, 30,100 GSF) and demolition of the Maintenance Shop; Construction of a facility to locate the Facilities Department administrative offices and shops/storage. This project will free up space in buildings that are not suitable for continued use (the Maintenance Shop) or are inappropriately mixed (Science East and Science West) and co-locate functions and programs that can readily coexist, whether on the Rockville campus or an off-campus site. This plan will retain the maintenance and operations facilities currently located in the Humanities Building that are associated with the campus central plant.

TABLE 4.3.3
EXISTING AND PROPOSED FACILITIES

		Existing 2006 NASF	Master Plan 2016	NASF Change
1 Business, Management and Information Science (BMIS)				
CS	Computer Science (renovate & reallocate to Hum)	12,520	0	(12,520)
MT	Macklin Tower (reallocated)	81,800	70,370	(11,430)
2 Fine and Performing Arts (FPA)				
AR	Paul Peck Arts Building	14,414	14,414	0
New	Art Building (Communication Arts + Mixed Arts)	0	63,850	63,850
MU	Music	10,221	10,221	0
TA	Theater Arts	20,118	20,118	0
PA	Parilla Performing Arts Center	14,760	14,760	0
PA	Renovation and Addition	0	20,615	20,615
TC	Technical Center Demolition	40,120	0	(40,120)
3 Humanities (HUM)				
HU	Humanities	47,750	47,750	0
	Humanities Annex (Reallocation and Renovation of Computer Science)		12,520	12,520
4 Science, Engineering and Math (SEM)				
SW	Science West renovate to Math Center	27,855	27,855	0
SE	Science East renovate to Math Center	39,069	39,069	0
	Math Center Demo Greenhouse	2,400	0	(2,400)
	Math Center Add Elevator	0	1,500	1,500
SC	Science Center	81,020	81,020	0
5 Social Sciences, Education, History and Health and Physical Education (SEHHPE)				
New	Humanities and Social Sciences Building	0	68,645	68,645
New	Humanities/Social Sciences Building [see above under Humanities]			0
PE	Physical Education Center	58,767	58,767	0
PE	Physical Education Center Addition	0	28,560	28,560

TABLE 4.3.3 CONTINUED

		Existing 2006 NASF	Master Plan 2016 NASF	Change NASF
6 Technical Education				
GU	Homer S. Gudelsky Institute	40,296	39,895	(401)
TT	Interim Technical Training Center	7,293	0	(7,293)
New	Technical Training Center (includes AT)	0	46,120	46,120
7 General Classroom				
SB	So Campus Instruct Bldg (reallocate to WDCE)	17,704	0	(17,704)
8 Student Services				
SV	Student Services	6,840	0	(6,840)
New	Student Services Center	0	39,625	39,625
CB	Counseling and Advising Building	9,830	0	(9,830)
CC	Campus Center	52,352	44,580	(7,772)
CH	Child Care Center	2,344	0	(2,344)
New	Child Care Center	0	3,800	3,800
New	Library Resource Center	0	62,300	62,300
9 Workforce Development				
CC	Move out of Campus Center	13,255	0	(13,255)
SB	South Campus Instruction Building (reallocated)		17,765	17,765
10 Service and Maintenance				
MS	Maintenance Shop	4,028	0	(4,028)
New	Physical Plant Facility (ROM only)	0	18,120	18,120
Totals		604,756	859,072	259,271

4.4 2006-2016 FACILITIES MASTER PLAN

4.4.1 Campus Master Plan Guiding Principles

A series of guiding principles was developed to assist in the evaluation of master plan alternatives.

1. Enhance Campus Gateways (See Figure 4.4.1)

- Enhance the experience of entering a campus environment when approaching from the north and south via automobile;
- Enhance pedestrian experience in the core campus and through parking areas;
- Site new academic buildings to further the campus gateway principle;
- Design the new Student Services building as a tall building and locate it along the north edge of campus;
- Design and locate the new Library so it has a major presence at the south edge of campus;
- Design and site the new Technical Training Center so it acts as a beacon at the north vehicular entrance to campus;
- Screen new parking structures from immediate view with new buildings and landscape elements.

2. Create a hierarchical armature of outdoor space. This is described further in section 4.4.4 Landscape and Open Space

3. Concentrate Development on the Campus (See Figure 4.4.2)

- Co-locate academic programs which are currently scattered throughout campus
- Site new buildings and renovate existing buildings to encourage proximity of departments and programs. Group the six main instructional areas on campus (Business, Management and Information Science – BMIS, Fine and Performing Arts – FPA, Humanities – HUM, Science, Engineering and Math - SEM, Social Sciences, Education, History and Health and Physical Education – SEHHPE) and Workforce Development Continuing Education (WDCE) in the same general areas;
- Split the two main programs in Technical Center (Applied Technologies, AT and Communication Arts Technology, CAT) so that AT is co-located with the Technical Training Center programs, and CAT is co-located with the Fine Arts programs;
- Consolidate Student Services and Student Life by siting the new Student Services building on the north side of campus, adjacent to Campus Center and creating new outdoor spaces and connections between these two buildings;
- Renovate Campus Center to accommodate more generous and comfortable student activity and meeting spaces, in particular lobby and lounge spaces;

FIGURE 4.4.1
 MASTER PLAN GUIDING PRINCIPLES -
 ENHANCE CAMPUS GATEWAYS

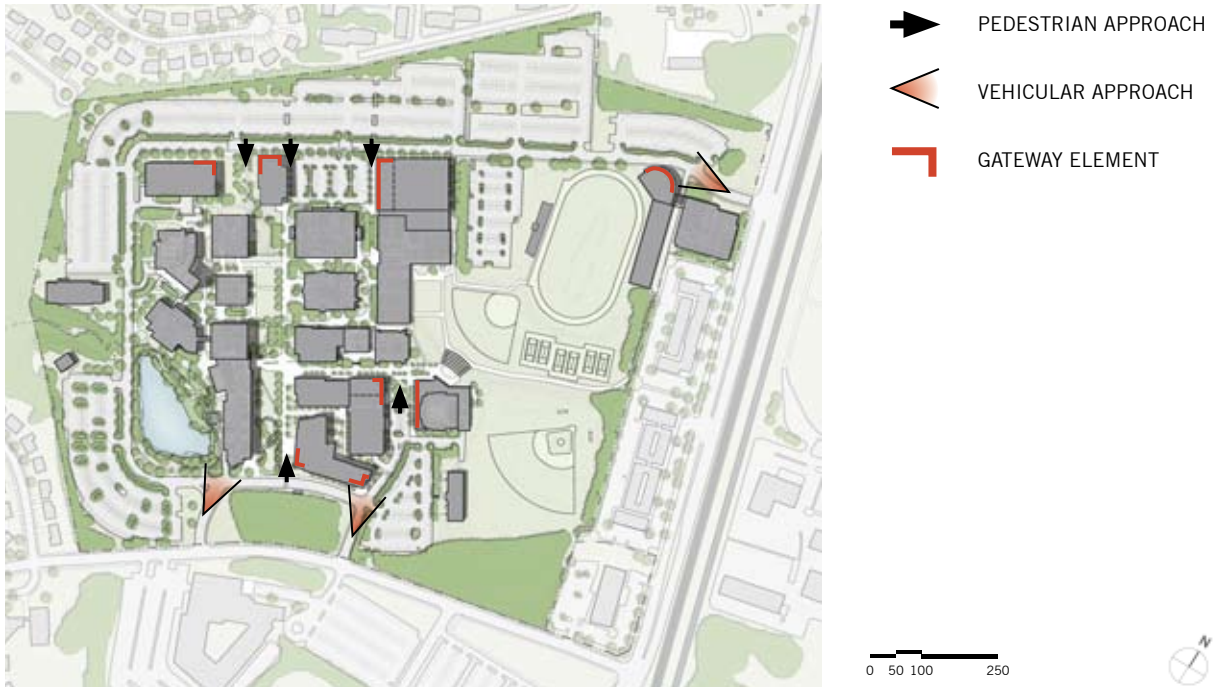


FIGURE 4.4.2
 MASTER PLAN GUIDING PRINCIPLES -
 CONCENTRATE DEVELOPMENT ON THE CAMPUS

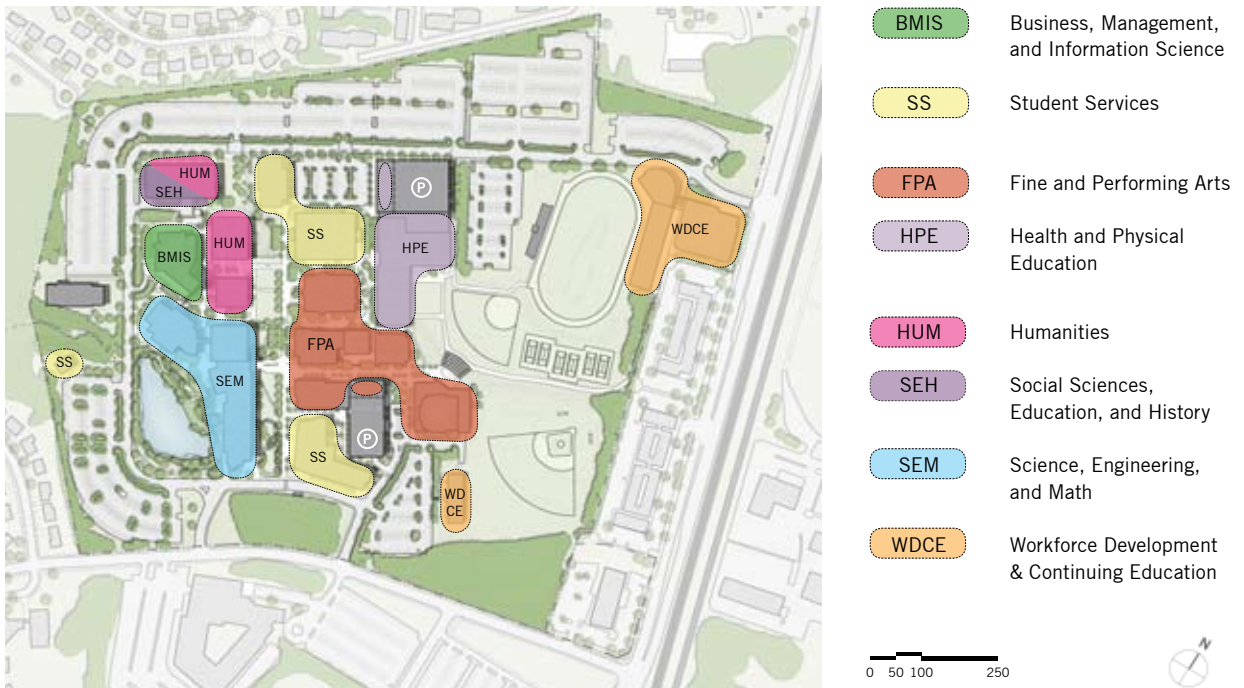
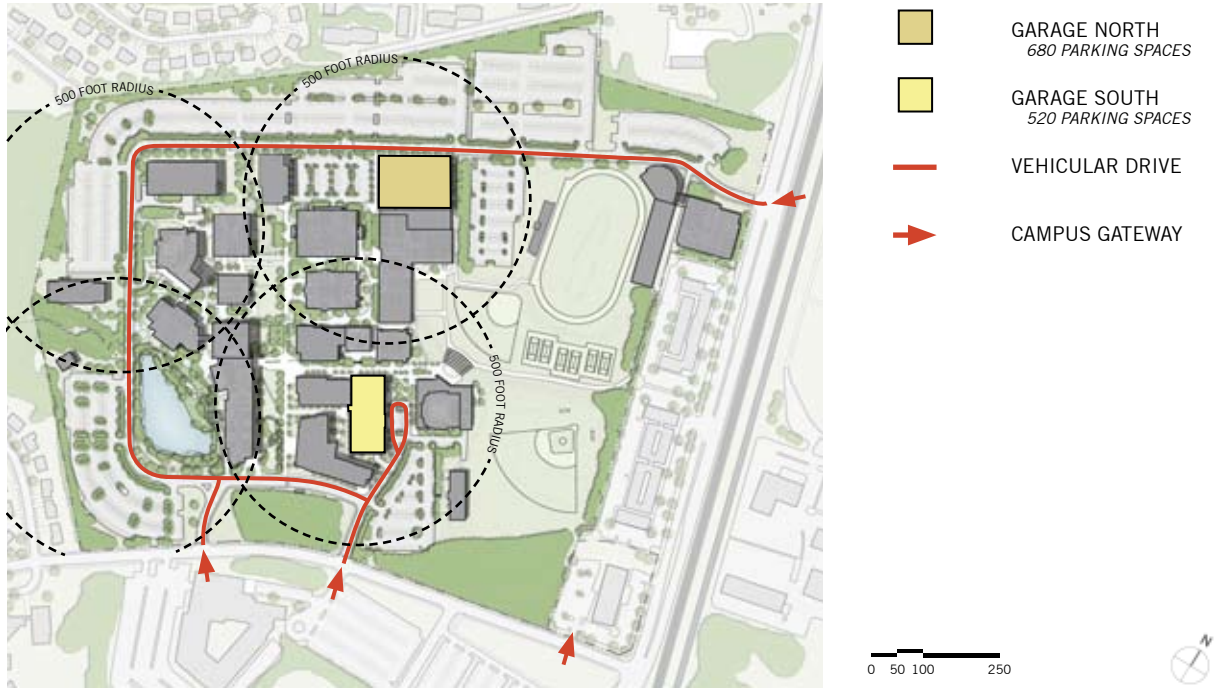


FIGURE 4.4.3
MASTER PLAN GUIDING PRINCIPLES -
CONCENTRATE PARKING TO ALLOW FOR ACADEMIC DEVELOPMENT



- Provide enhanced and expanded gathering and “lounge” space for students, and common work space for faculty and staff in all renovation and new construction projects.
4. Concentrate Parking to Allow for Academic Expansion (See Figure 4.4.3)
- Construct parking structures in lieu of parking lots in order to maximize land area for academic buildings;
 - Locate and build parking structures so as to reduce their apparent size and bulk;
 - Activate parking garages along major walks with at least ground level program space;
 - Locate parking structures at the edges of campus, ideally spread around along the north, south and possibly the west sides of campus;
 - Sandwich parking structures between or behind buildings, or screen from campus by use of landscape planting and/or screens along their facades;
 - Take into consideration adjoining neighbors' and property owners' concerns about parking structure location;
 - Manage parking operations so that the most transient parkers are directed toward the parking structures on the north and south sides of campus, closest to the campus entries/exits;
 - Retain the general campus vehicular circulation loop.
5. Investigate Opportunities for Sensitive Future Growth off Campus
- Develop the south side of campus to accommodate future acquisition of the Carver Educational Services Center (MCPS BOE) site.
6. Implement the facilities master plan with due regard to the sustainability and resource conservation programs of the College.
- Extend the existing high performance central plant distribution system to new and renovated buildings on the Campus. Building designs for new and renovated facilities should be undertaken in an environmentally sensitive manner that responds to the sustainability and resource conservation programs for the College. Building designs for new and renovated facilities must be seek Leadership in Energy and Environmental Design (LEED) Silver Certification as the means of responding to this desired outcome.

In addition, there are various pressures that need to be discussed to fully comprehend the proposed Facilities Master Plan.

Property owners in the adjacent residential developments have consistently expressed their concern over potential increased vehicular traffic, both along adjacent MD 355 intersections and along Mannakee Street. Additionally, there is concern from these same neighbors about building any structures along the west and north edges of campus, particularly parking structures. The campus has indicated they will attempt to minimize future development along the campus north and west edges.

The City of Rockville is the agency having authority over forest conservation and stormwater management. The City has a bikeways master plan. The City has also recently amended its Zoning Code to allow a building height up to 75 feet for an institution of higher learning in the R-200 Zone, which will be the new zoning district for the Rockville campus, but the building heights are subject to the layback slope requirement of 30 degrees from the common property line.

Montgomery County Public Schools, the owner of the adjacent Carver Educational Services Center (CESC) property to the south of campus, has expressed interest in divesting itself of this property, provided they are able to secure alternative accommodations. Once the CESC property is available, the College has agreed to pursue acquiring it and plan for future development at that location. The property would not only add land for future buildings, but could accommodate additional parking as well.

4.4.2 Proposed Campus Structure and Character

Given the limited building area available, new development will likely displace existing parking lots. Development of academic buildings is proposed to occur in conjunction with development of structured parking. The core campus, currently consisting of mostly low-rise buildings, will slowly become a taller and more dense campus. While the central core buildings will remain fairly low (up to 3 stories typically), new buildings located just outside the core will be taller and larger. This will both maximize the limited building area available and allow for the development of signature buildings in key locations.

In addition to the seven new buildings proposed, nine existing buildings will be renovated, and three will be reallocated to new use.

New buildings will be situated around a new pedestrian mall which will become the primary open space on campus. The character of the mall is discussed further in section 4.4.4 below. Existing buildings will be renovated to have a direct connection to the mall.

4.4.3 Proposed Building Projects

The 2016 Building and Land Use Plan is displayed in Figures 4.4.4 and 4.4.5. It shows the location, footprints and heights of the proposed new buildings on campus. Following that is a Proposed Demolition Plan, Figure 4.4.6. A phasing plan for achieving the goals of the Master Plan is included in Section 4.4.8 Implementation of the Master Plan. Below is a summary of the building projects as envisioned in this plan. The programmatic aspects of these projects is discussed in Section 4.3.

Throughout this section the term “new construction” is used to describe a completely new facility, while the term “renovation” is used to describe a complete interior and exterior reconstruction of an existing facility. An “alteration” is used to describe a lesser level of effort than a renovation that does not anticipate extensive program modifications to a facility.

1. Student Services Center

This project replaces the current undersized Student Services building and Counseling and Advising Building with a new tall “signature” building located at the north end of the proposed mall, and adjacent to Campus Center. The building is proposed at 6 stories in height. This building, located adjacent to the Campus Center which houses student life activities, is proposed as a “one stop shop” for current and potential students and visitors. Locating the building at the north end has the potential to shift the apparent campus “front door”

toward the north end of campus. In addition, a basement level could open to the existing amphitheater for better access and use of both spaces.

2. Campus Center

Campus Center will be fully renovated, with a focus on the expansion of student life functions into the space vacated by WDCE. Highly active student type spaces such as the bookstore and/or cafeteria, plus lobby and lounge space will be expanded and located so as to engage the pedestrian Mall on the west side of the building.

3. Macklin Tower Renovation

This project will proceed in two phases. The first phase and reallocates ground floor space vacated by the Math/Science Center. The second phase will shift programs into the vacated three floors of Library space.

4. Garage North

Prior to construction of the Student Services Center, this parking structure will provide 680 new parking spaces, replacing 120, for a net gain of 560 spaces. The structure is proposed at 5 levels, located north of the Physical Education building. The exposed north and west walls will be screened with plantings or architectural elements, while the south side will be adjacent to the PE addition. Ground floor student service type spaces, active PE use like an exercise room or campus retail is proposed for the ground floor level of the west elevation. Rockville Operations and Maintenance will also occupy a portion of the Garage.

5. Physical Education Center and Outdoor Facilities

This project consists of both a renovation of existing spaces as well as an addition to house a fitness center, weight rooms, academic labs and support spaces for intercollegiate teams. The addition will infill between the existing building and the new adjoining Garage North, and if designed to contain a major circulation element, has the potential to create a successful and energized link between the garage and recreation spaces on campus. Outdoor facilities will be reconfigured, including relocating the tennis courts (currently underway), and possibly shifting the baseball field to accommodate future building projects.

6. Mall Phase 2 (preceded by demolition of the current Student Services building)

This project continues development of the central campus spine that is started with the construction in front of the new Science Center.

7. South Campus Instructional Building

This building will be reallocated as the headquarters for Workforce Development and Continuing Education (WDCE), which will move out of Campus Center.

8. Computer Science Building

This building will be fully renovated. Classrooms and offices will be reconfigured to accommodate the new program. The main entry will be located on the east side of the building so as to connect to the new Mall.

9. Technical Training Center

This project replaces and expands on the current Interim Technical Training Center, and also serves to consolidate the Technical Training programs and Applied Technology programs currently housed in Technical Center. The building is proposed as a low 2-story mass housing the high bay automotive classrooms/labs, with a 6-story tower fronting toward North Campus Drive, and marking the north vehicular entry to campus. The 2-story building will be situated parallel to the track, and could possibly incorporate bleacher seating.

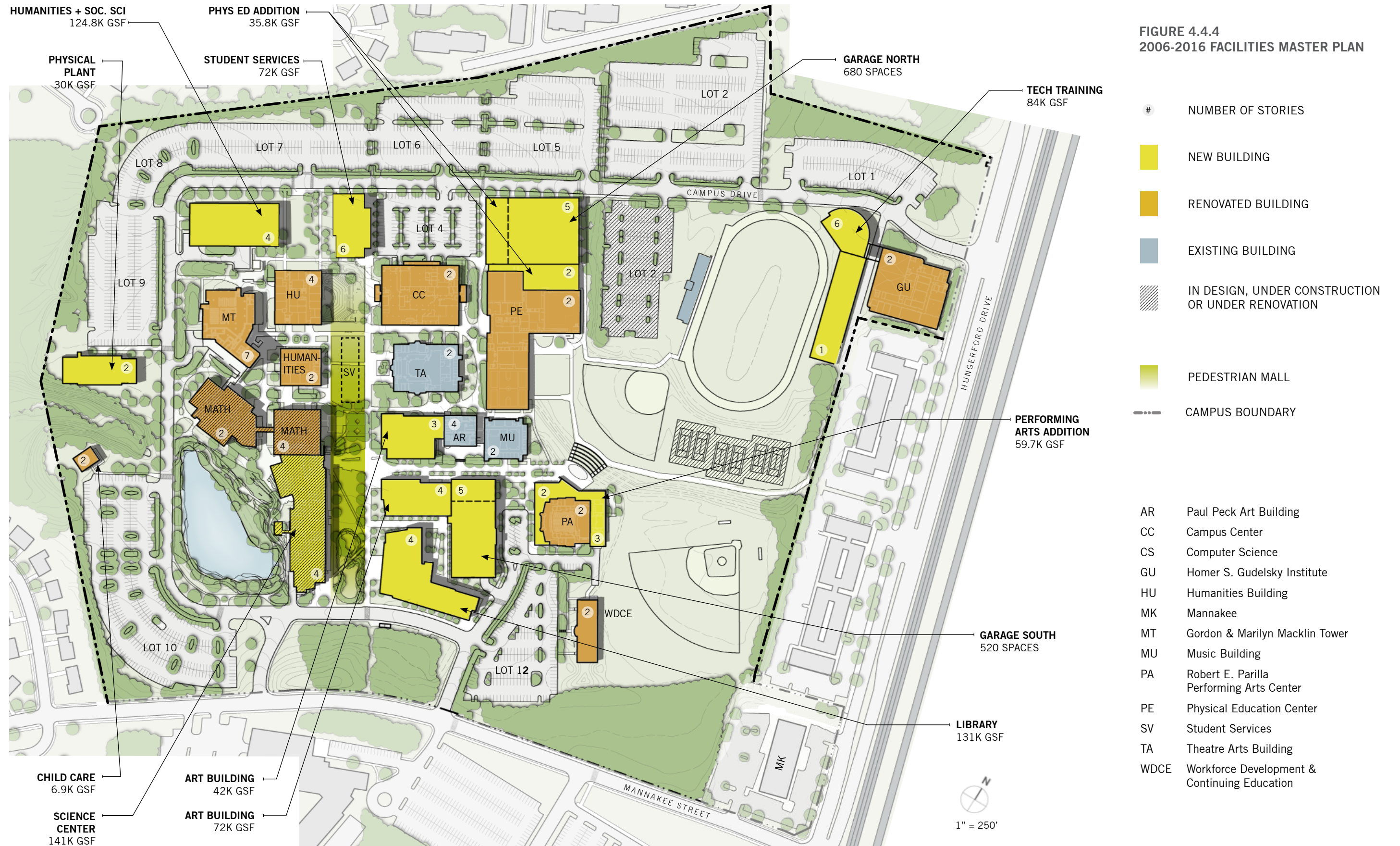


FIGURE 4.4.5
2006-2016 FACILITIES MASTER PLAN
SCHEMATIC



10. Gudelsky Institute for Technical Education

The Gudelsky Institute will be renovated to provide additional storage space and update existing classrooms to remain technologically current. Central Administration will move out, while WDCE will remain.

11. Art Building Addition - includes Art North (Communication Arts) and Art South (Mixed Arts) (preceded by demolition of the Counseling and Advising Building)

This building expands the current Art program and consolidates the Fine Arts and Communication Arts programs along the proposed Arts Walk at the (now) southern end of campus. The building may be built in two phases, on either side of the Arts Walk, while slipping under the future Garage South. Galleries and other public spaces will be located at the ground floor along the Arts Walk, and major entries will be situated along the Mall side of the building. The building is proposed at 4 stories for the south wing, and 3 stories for the north wing, and will include spaces for music class labs, art class labs, a dance studio and offices.

12. Garage South

This parking structure will provide 520 new parking spaces. The structure is proposed at 5 levels, located across from the Performing Arts Center and adjacent to the Art Building Addition. The exposed east, south and west walls will be screened with plantings or architectural elements; the north elevation will span over the lower floors of the Art Building Addition facing the Arts Walk.

13. Humanities and Social Science Building

This new building will be built on the approximate footprint of the demolished Technical Center, and will accommodate both the Humanities and Social Science programs. The building will front onto green space forming a quad of sorts between the existing Humanities Building and the new Student Services Center.

14. Humanities Building

Completion of the Humanities and Social Science Building will allow for alteration of the existing Humanities Building. Alterations will include accessibility and life safety improvements. Core circulation will be shifted to accommodate the Humanities and Social Science Building.

15. Library Resource Center

This project proposes the construction of a new 4-story Library to replace the inadequate facility currently located on three floors in Macklin Tower. The building will be located at the southern end of campus, opposite the new Science Center. The building will be configured around what will eventually become an open court, surrounded by the future Art Building Addition and Garage South. The west side of the building will be designed to engage the new Mall and create an anchor at the south side of campus.

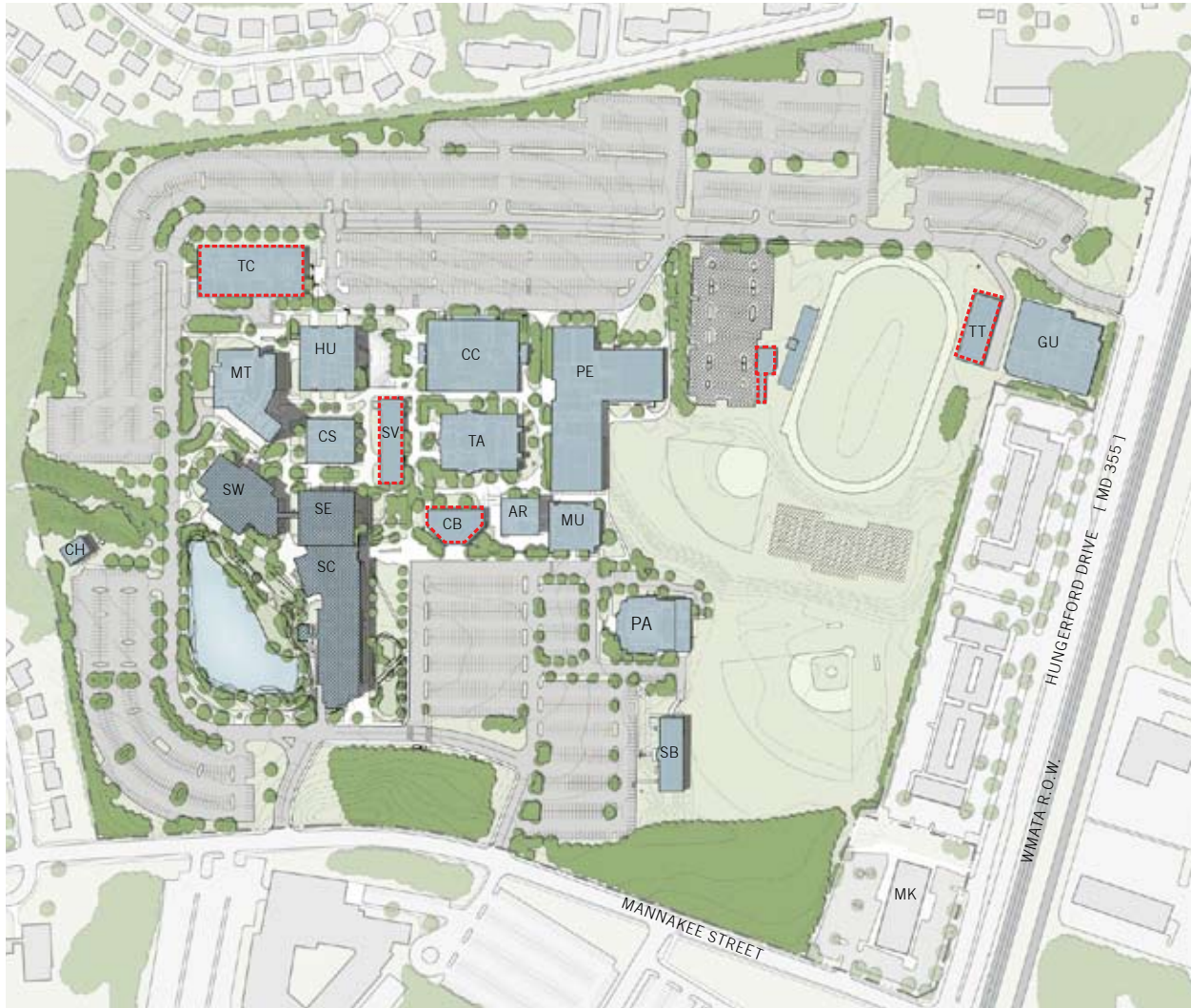
16. Performing Arts Center

This building has a strong presence in the Montgomery County community, and will undergo a two-part renovation to maximize and improve its appeal to that constituency. The renovation consists of an expansion of the auditorium and back-of-house spaces, life safety and accessibility improvements, and additions at the front, rear and sides to accommodate needed program space. The auditorium will be expanded from 500 seats up to 1,000 seats, with the addition of a balcony, upper level lobby and ancillary spaces. The dressing rooms, loading dock and storage spaces will be renovated, and an addition will be built to house meeting rooms, conference center and catering kitchen.

17. Child Care Center

A new, larger Child Care Center is proposed to be located near the current Child Care Center, with associated outdoor playground space.

FIGURE 4.4.6
DEMOLITION PLAN

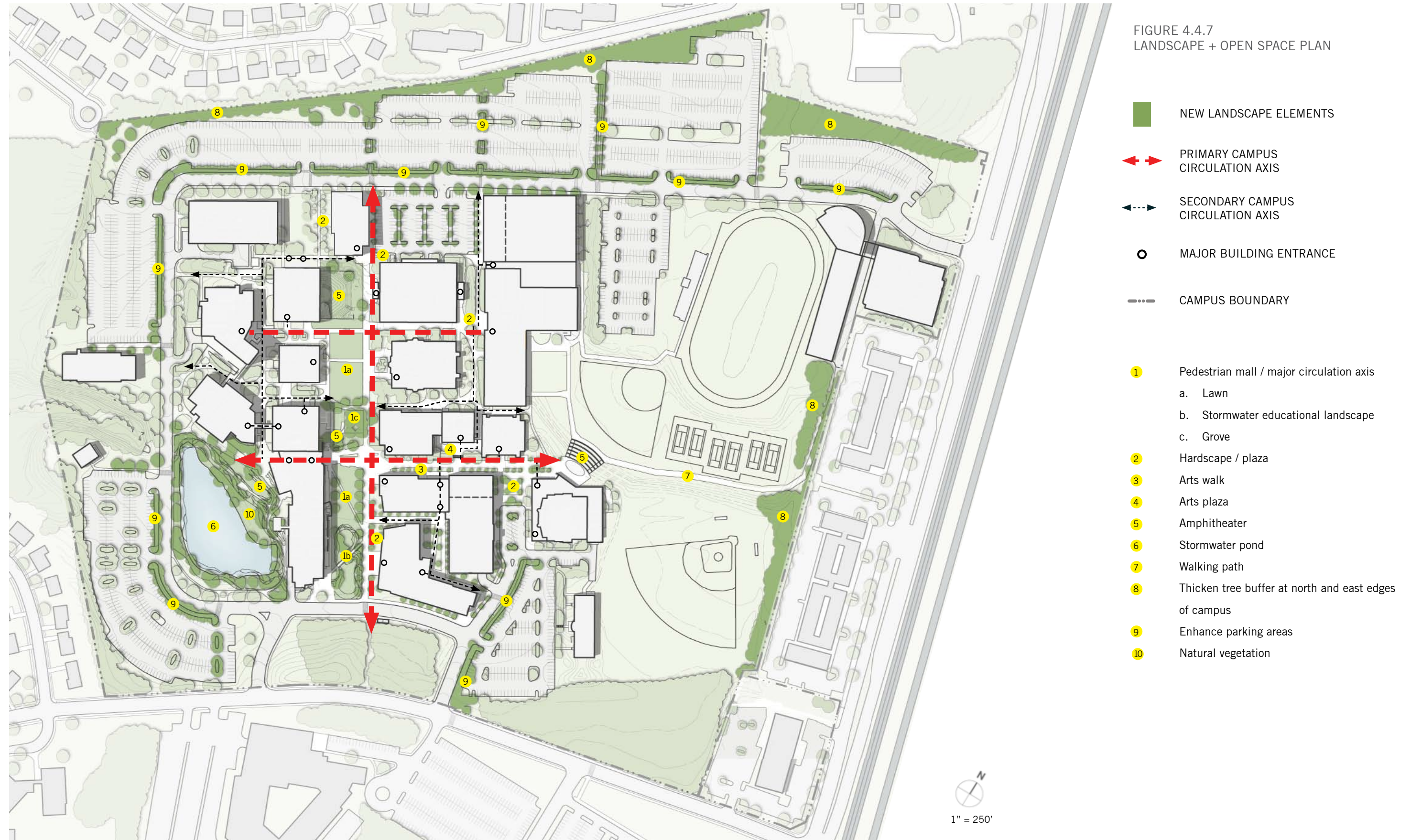


- EXISTING CAMPUS BUILDING
- IN DESIGN OR CONSTRUCTION
- BUILDING TO BE DEMOLISHED
- CAMPUS BOUNDARY

0 50 100 250



- AR Paul Peck Art Building
- CB Counseling & Advising
- CC Campus Center
- CH Child Care Center
- CS Computer Science Building
- GU Homer S. Gudelsky Institute
- HU Humanities Building
- MK Mannakee
- MU Music Building
- MT Gordon & Marilyn Macklin Tower
- PA Robert E. Parilla Performing Arts Center
- PE Physical Education Center
- SB South Campus Instructional Building
- SC Future Science Center
- SE Science East Building
- SV Student Services Building
- SW Science West Building
- TA Theatre Arts
- TC Technical Center
- TT Interim Technical Training Center



18. Physical Plant

A new Physical Plant building providing room for service vehicles as well as office staff is proposed to be located along the west edge of campus, adjacent to the stream ravine. The college should consider possibly incorporating this building into a future west parking garage.

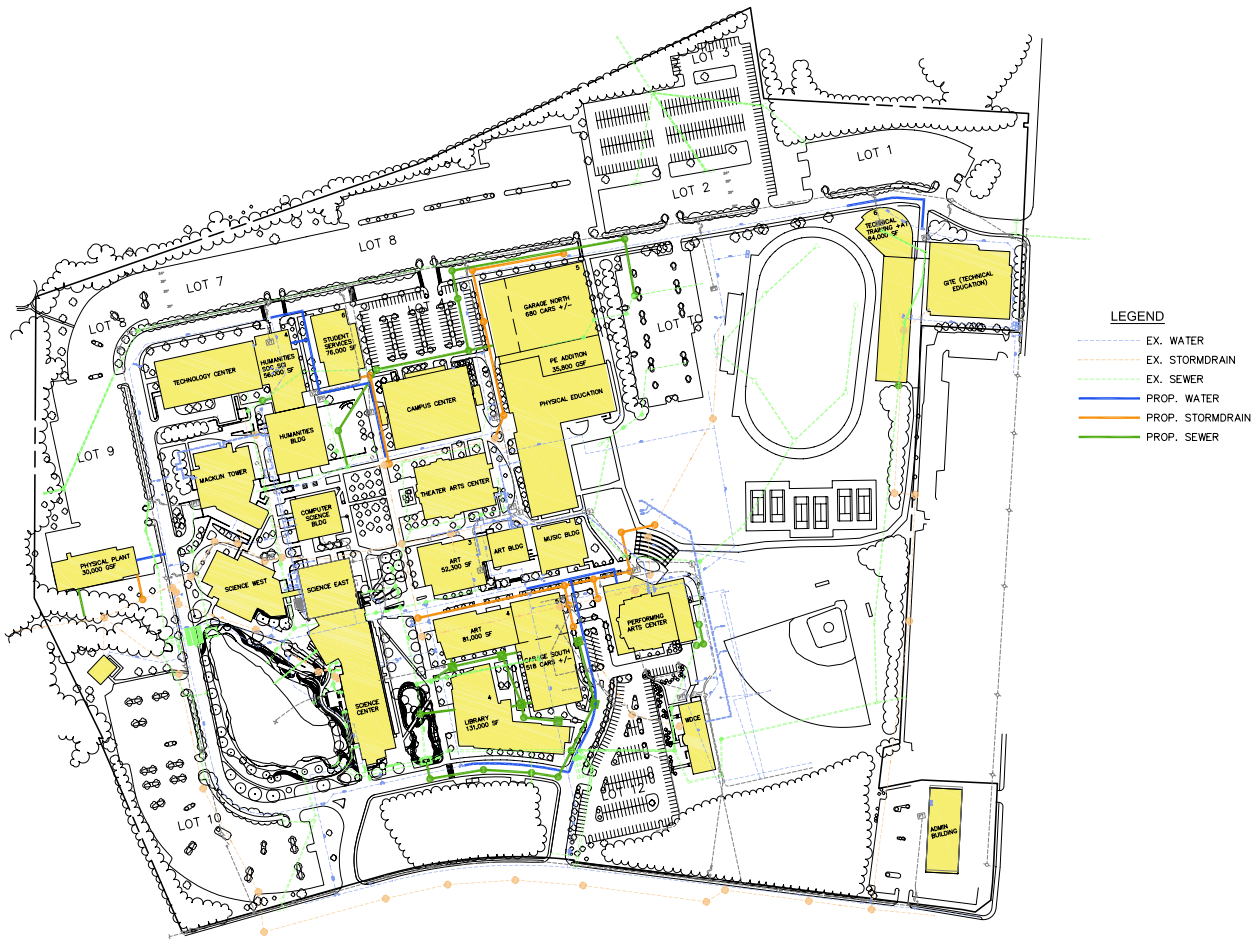
4.4.4 Proposed Landscape and Open Space

While the existing grid of outdoor spaces is ample in quantity, it is not especially pleasant and does not offer much beyond “the space between buildings.” Given the quantity of existing and proposed buildings, it is an opportune time to design the outdoor space so that it provides an organizational armature for the campus, focused around the large north-south mall or “spine.” The mall creates a hierarchy of spaces and provides orientation and an open-space heart for the campus. While key aspects of the landscape and open space plan are listed below, a more detailed landscape master plan is required to develop these concepts into a comprehensive plan. See Figure 4.4.7.

Goals include:

- Creating a main north-south axis through campus, or “mall,” with minor green axes in the east/west directions;
- Developing the Arts Walk proposed in the previous Master Plan as a key secondary axis, and improving other cross-axes, in particular the one between the Physical Education Building and Macklin Tower;
- Enhancing the design and use of the existing amphitheater space;
- Creating a smaller amphitheater space marking the east end of the Arts Walk, oriented toward the film-projection wall that will be part of the Performing Arts Center addition;
- Reinforce inside/outside spaces in both new and renovated buildings, particularly at major entry lobbies, and at the mall-side of buildings;
- Allowing and encouraging views into and out of the mall from the minor axes;
- Including a variety of open/lawn type areas mixed with large shade trees, as well as more intimate outdoor spaces;
- Improving and thickening existing landscape buffers around the edges of campus so as to lessen the porosity of campus edges and to screen the campus from adjacent properties;
- Utilizing landscape elements to reinforce pedestrian access through parking areas and to screen parking lots from campus;
- Simplifying site furniture throughout the campus. There are currently too many types of benches, hand-rails, cans, etc. fragmenting the open spaces. The campus should utilize simple, well designed furnishings and light fixtures located at key nodes. Site walls could also be utilized for seating. Neutral-color furnishings and fixtures should be selected; black is preferred as it becomes a background color.

FIGURE 4.4.8
UTILITY PLAN



4.4.5 Proposed Utilities

Master planning for utility and information technology infrastructure is an integral part of the successful campus planning process. The College's Utility Master Plan was prepared to optimize the use of utility resources while minimizing potential disruptions, as well as costs. As part of this planning process, the 2006 Utilities Master Plan for the Rockville Campus was reviewed to determine the adequacy of existing systems and to ascertain the potential for future expansion. As the current Facilities Master Plan is implemented there will be a series of ongoing evaluations and analyses undertaken to determine a more complete picture of the utility and information technology infrastructure impacts. The Appendix includes a brief overview of the planned Campus utility and information technology infrastructure.

4.4.6 Proposed Site Environmental and Sustainability Issues

Stormwater Management

The existing stormwater pond will be upgraded as part of the Science Center project beginning in 2010. The upgraded pond is adequate to serve the quality and quantity needs of the Campus for all projects proposed in the 2006 to 2016 period that are located within the pond's drainage area. For projects outside of the pond's drainage area, stormwater management requirements will need to be reviewed and coordinated with the City of Rockville. For the proposed Student Services Center, the building is located in the low spot of Parking Lot L4. Under existing conditions, a storm drain that currently drains the existing parking lot L4, Campus Center and the existing tennis court area is located between the existing Technical Center and the existing Humanities Building. The construction of the proposed Humanities and Social Science Building and the Student Services Center will divide the existing storm drain system. The design of the Humanities & Social Science Building and the Student Services Center should include a design for the stormwater run-off so that it maintains its current drainage pattern to the existing pond. All existing storm drain systems should be analyzed to determine if any of the storm drain systems will need to be upsized to accommodate drainage pattern modifications. In addition to the storm drain medications, the overflow path for the 100-year storm event will need to be reviewed to ensure that positive flow away from the building is provided allowing for 1' of freeboard between the 100-year ponding limits and the building's first floor elevation.

For the proposed PE Addition, the building will be constructed over an existing drain system that drains Parking Lot 3. The existing storm drain system will need to be modified to route the existing storm drain system around the proposed PE Addition. All existing storm drain systems should be analyzed to determine if any of the storm drain systems will need to be upsized to accommodate drainage pattern modifications.

For the proposed Tech Training Building, the building will be constructed over an existing storm drain system that will need to be modified to accommodate the proposed building. The existing drainage pattern that drains to the existing SWM pond should be maintained. Otherwise, project specific stormwater management may be required.

For the proposed Library and Parking Garage South, a new storm drainage system will be required to convey the flow from the proposed develop to the storm drainage system that will be constructed on the east side of the proposed Science Center building.

The Performing Arts Addition will not affect any existing storm drainage systems.

For the proposed Physical Plant, a new storm drainage system will be required to convey stormwater run-off around the building since the building is situated at the low spot of the Parking Lot L 9. Any disturbance within the stream buffer should be avoided or kept to a minimum.

The development of the Physical Plant at the western side of the campus is the only proposed development area outside of the pond’s drainage boundary. If the City of Rockville requires project specific facilities, possible SWM Water Quality Facilities may include bio-retention areas, pervious pavement, green roofs and underground facilities. If quantity control storage is required, the use of underground detention would more than likely be the preferred method. While underground storage is typically more expensive than at-grade facilities, the use of underground storage allows for at grade development such as parking lots and sidewalks. Further detailed information regarding stormwater management for the college campus is provided in Montgomery College Rockville Campus, Stormwater Management Study, dated August 26, 2006.

Forest Conservation

Future development of the campus will require addressing forest conservation requirements of the City of Rockville. As future projects cause land disturbance totaling 25% of the acreage of the campus (approximately 21.64 acres), a forest conservation plan must be completed for the entirety of the 86.58 acre campus. Until that threshold is crossed, forest conservation requirements will be addressed by each individual project. Approximately 12.22 acres of planting will be required (11.68 acres of afforestation and 0.54 acres of reforestation). A portion of this requirement will be addressed with the development of the proposed Science Center and Tennis Court/Parking Lot projects. Approximately 30,900 square feet of forest will be protected below the stormwater management facility outfall on the western edge of the campus. An additional 35,409 square feet of critical root zone credit will be provided by the tree stand located in the northeast corner of the campus.

Additional critical root zone credit can be provided by the tree stands on the southeastern portion of the campus. The exact amount of available critical root zone credit in these areas is unknown at present, but could be quantified by a field survey of each stand. Critical root zone credit may also be taken for individual trees in the landscape.

In addition to forest conservation requirements, significant tree replacement requirements will need to be addressed for each individual project. The exact number of required replacement trees will be different for each project, however the replacement requirements are as follows (example calculations for the central portion of the campus are shown in parenthesis):

<u>Size of Significant Tree Removed</u>	<u>Minimum 2-1/2” Caliper Tree Replacement</u>
12-18” d.b.h.	1 tree (90 trees removed = 90 replacements req.)
greater than 18-24” d.b.h.	2 trees (50 trees removed = 100 replacements req.)
greater than 24” d.b.h.	3 trees (10 trees removed = 30 replacements req.)
Replacement of a specimen or champion tree	6 trees

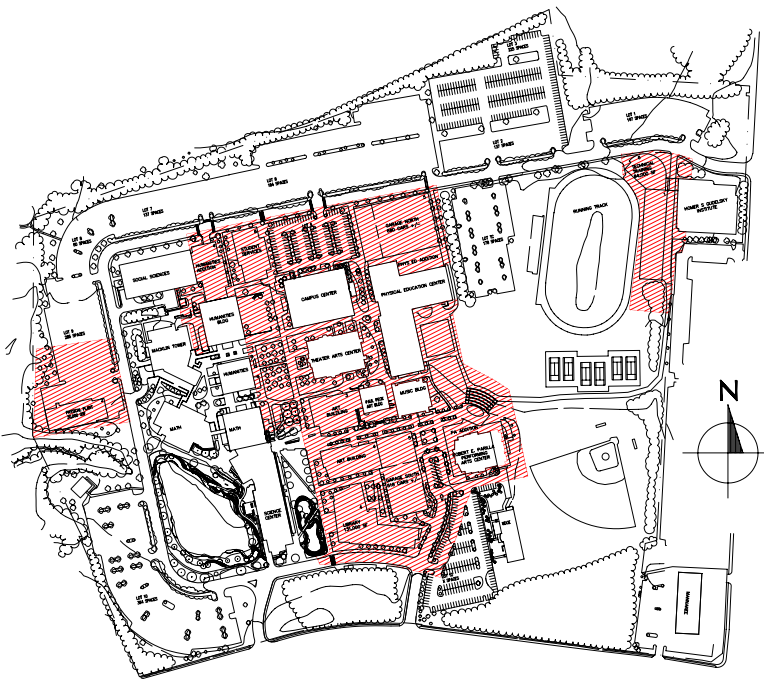
Sustainability and Smart Growth

The Facilities Master Plan for the campus evokes Smart Growth philosophies of renovation of existing structures and when not possible, intensification of development on existing parcels. The campus remains compact and intensely developed, and walkability is emphasized in the design of all buildings.

In addition, all new structures will strive to meet the LEED silver rating for new construction and renovations. Strategies for increasing the sustainability of the new facilities include:

- Incorporating innovative waste water technologies;
- Reducing building water use through high-efficiency fixtures and collection / reuse of stormwater;
- Optimizing energy performance of buildings, through cost effective energy efficient measures including on-site renewable energy, high-efficiency lighting and HVAC systems;
- Connecting to existing high performance central plants for energy efficiency, demand management, and economies of scale;
- Incorporating sustainable construction waste management;
- Building with materials with recycled content, manufactured regionally, and/or manufactured using renewable resources;
- Maintaining healthy environments through increased ventilation, thermal comfort and clean air; and
- Providing interior spaces with daylight.

FIGURE 4.4.9
DISTURBED AREA PLAN



Site based strategies for increasing the sustainability of the new facilities include:

- Creating density of structures leaving land for open space;
 - Including selection of appropriate native or adapted plant materials requiring minimal or no irrigation;
 - Creating and maintaining habitats that promote biodiversity;
 - Managing stormwater quality and quantity through green roof systems and rain gardens;
 - Reducing the heat island effect by providing trees for shading paved surfaces and by using open grid or light-reflective material for hardscape;
 - Creating cool roofs by using high-reflective roofing materials in conjunction with green roof systems;
 - and, Limiting light pollution with dark sky fixtures.

While currently a majority of students arrive to the Campus by private automobile, the College is committed to continuing to encourage alternative modes of transportation to the Campus, coordinating with County bus services, providing transit facilities on Campus, and providing students with education and incentives to reduce automobile usage.

4.4.7 Proposed Circulation and Parking

This section presents a generalized assessment of the campus master plan from a parking and access perspective. As noted in earlier sections, the plan proposes several land use initiatives for the 2016 horizon period. The key proposals and potential transportation impacts and needs associated with those changes are discussed and evaluated below. The provision of and modification to the Campus' parking infrastructure will determine both the volume of vehicular traffic and the relative effectiveness of alternative modes of travel. In short, the location and number of new parking spaces will determine the volume and distribution of vehicular and pedestrian traffic. As such, an initial evaluation of parking supply and demand is required.

From a demand perspective, a study of parking utilization on the Rockville Campus identified 459 faculty/staff, 2,468 student, and 91 other occupied spaces during the peak period (11 AM). Facilities Master Plan projections suggested that campus populations, and therefore peak period parking demand, would grow by 3.2% for faculty/staff and others and 2.2% for students by the year 2016. That results in an increase in peak parking demand to 470 faculty/staff spaces, 2,520 student spaces, and 90 other spaces for a total of 3,080. Accounting for the need to provide surplus capacity for safe and efficient turnover and utilization (95% practical capacity) would suggest that a supply of approximately 3,240 spaces is required to meet year 2016 demand.

From a supply perspective, the Facility Master Plan identifies the impact on parking associated with each building and building phase. That impact includes the loss of existing surface parking to new construction and the creation of new surface and structured parking facilities. Table 4.4.1 illustrates how the total parking supply, which currently stands at 3,337 spaces, would be impacted. The supply of spaces on campus would reach a low of 3,268 spaces during construction staging for Garage North. Once the FMP program has been achieved the Rockville Campus would have a total stabilized supply of 3,704 spaces. Compared to the FMP projected need for 3,240 parking spaces this suggests that the campus would have a surplus of 464 spaces.

However, it should be noted that previous studies of parking demand on the Rockville Campus that were based on the Campus' historic growth in parking utilization suggests that the peak demand would be higher than anticipated by the FMP. Parking surveys compiled by the College between 2000 and 2006 suggest that the utilization on the Rockville campus grows by an average of 2.6% per year. That would equate to a year 2016 demand estimate of 3,840 spaces, The practical capacity required to effectively meet this demand would be 4,040. Compared to the stabilized supply of spaces anticipated under the FMP, this implies a parking deficit of 336 spaces. Given this contrast in demand projections it is recommended that the College reconsider the capacity of the second parking structure, i.e., Garage South.

TABLE 4.4.1

PARKING TRIGGERS

Phase	Action	Impacted Lot or Garage	Existing Spaces	Change in Spaces	Campus Total	Overall Net Change
	Current 2006				3,337	
In Design/Constr	Build Tennis Courts Lot	LTC	0	173	3,510	173
In Design/Constr	Build Science Center	L11	426	-165	3,345	8
1	Lease Swimming Pool Lot	na	0	183	3,528	191
2	Build Student Services	L4	335	-110	3,418	81
3a	Staging for Garage North	L4	335	-150	3,268	(69)
3b	Build Garage North & PE Addition	L4	0	680	3,948	611
4	Build Humanities/Soc Sci	L4	335	-100	3,848	511
5	Build Library	L11, L12	735	-150	3,698	361
6	Art Building Addition	L11	426	-130	3,568	231
7	Build Technical Training Center	na	0	0	3,568	231
8	Physical Plant	L9	285	-70	3,498	161
9a	Staging for Garage South	L11	261	-131	3,367	30
9b	Build Garage South	L11	0	520	3,887	550
10	Relinquish Swimming Pool Lot	na	0	-183	3,704	367
11	Performing Arts Addition & Reno	na	0	0	3,704	367

Vehicular Access

As the peak demand for parking on the Rockville Campus under the Facilities Master Plan will only grow by 62 spaces (3,018 vs. 3,080) then very little additional vehicular or pedestrian traffic should be anticipated. Therefore, no significant change in the existing vehicular access infrastructure is required. Furthermore, the loss of existing parking and the development of new parking is evenly distributed to the north and south sides of the Campus. This suggests that the current distribution of traffic volumes will also remain unchanged.

However, if more aggressive growth in parking demand is experienced as anticipated by the analysis of historic parking use, it is recommended that right-turn lanes be created for westbound traffic on Mannakee St. at the intersections of Mannakee St./Campus Dr. West and Mannakee St./Campus Dr. East. This may require the widening of Mannakee St. between MD 355 and the western end of the Campus.

Sustainability & Parking Demand Management

Though the Rockville Campus' enrollment and staffing projections do not anticipate a significant increase in parking demand, the construction of new academic and cultural buildings will displace a large number of existing surface spaces, thereby triggering the need for two costly parking structures. The College realizes that parking demand will continue to grow as buildings are constructed on available parking lots. Encouraging

greater use of public transit is a strong desire on the part of the College. There have been recent discussions about adding a metro stop between the Rockville and Shady Grove metro stops, to better serve the Campus. Further, the Rockville Campus can encourage greater use of the City of Rockville bike paths that abut the Campus. In addition to encouraging increased use of public transit and bicycling, the College is looking at ways to reduce parking demand.

4.4.8 Implementation of the Facilities Master Plan

Below is a list of the six phases for the completion of the elements in the 2016 Facilities Master Plan, beginning with projects currently under design or construction in 2009.

IN PROCESS, UNDER CONSTRUCTION OR IN DESIGN

- Science Center (140,700 GSF) adjacent to the stormwater pond and first phase of the Mall;
- Tennis Court Relocation and Parking Lot 3;
- Renovation of Science East and Science West into the Math Center (95,725 GSF).

PHASE 1

- Macklin Tower Ground Floor back-fill (Science/Math Center for ITV, Intech Media, TBD);
- Renovation of Macklin Tower Library (117,282 GSF);
- Construction of the North Garage and Addition to the Physical Education Center (35,800 GSF);
- Construction of Student Services Center (74,000 GSF), demolition of old SV and construction of the second phase of the Mall;
- Counseling and Advising Backfill (interim).

PHASE 2

- Reallocation of South Campus Instructional Building (29,900 GSF) to WDCE;
- Renovation of the Campus Center (74,302 GSF);
- Renovation of the Computer Science Building (20,862 GSF).

PHASE 3

- Replacement of the Interim Technical Training Center, includes the AT program (84,000 GSF) and Alteration of the Gudelsky Institute for Technical Education (64,000 GSF);
- Construction Art North (Communication Arts) (42,000 GSF) preceded by demolition of the Counseling and Advising Building;
- Construction of the Humanities/Social Science Building (112,000 GSF) preceded by demolition of the Technical Center;

IN PROCESS, UNDER CONSTRUCTION OR IN DESIGN cont'd

- Renovation of the existing Humanities Building (73,912 GSF).

PHASE 4

- Construction of Art South (Mixed Arts) (72,000 GSF) and Construction of the South Garage.

PHASE 5

- Construction of the Library Resource Center (131,600 GSF);
- Macklin Tower backfill;
- Renovation of and Addition to the Performing Arts Center (69,800 GSF);
- Renovation of Physical Education Center and Athletic Fields (84,949 GSF);
- Construction of Child Care Center Units (6,900 GSF);
- Construction of the Physical Plant facility (30,100 GSF) (preceded by demolition of the Maintenance Shop).

FIGURE 4.4.10
IN PROCESS, UNDER CONSTRUCTION OR IN DESIGN

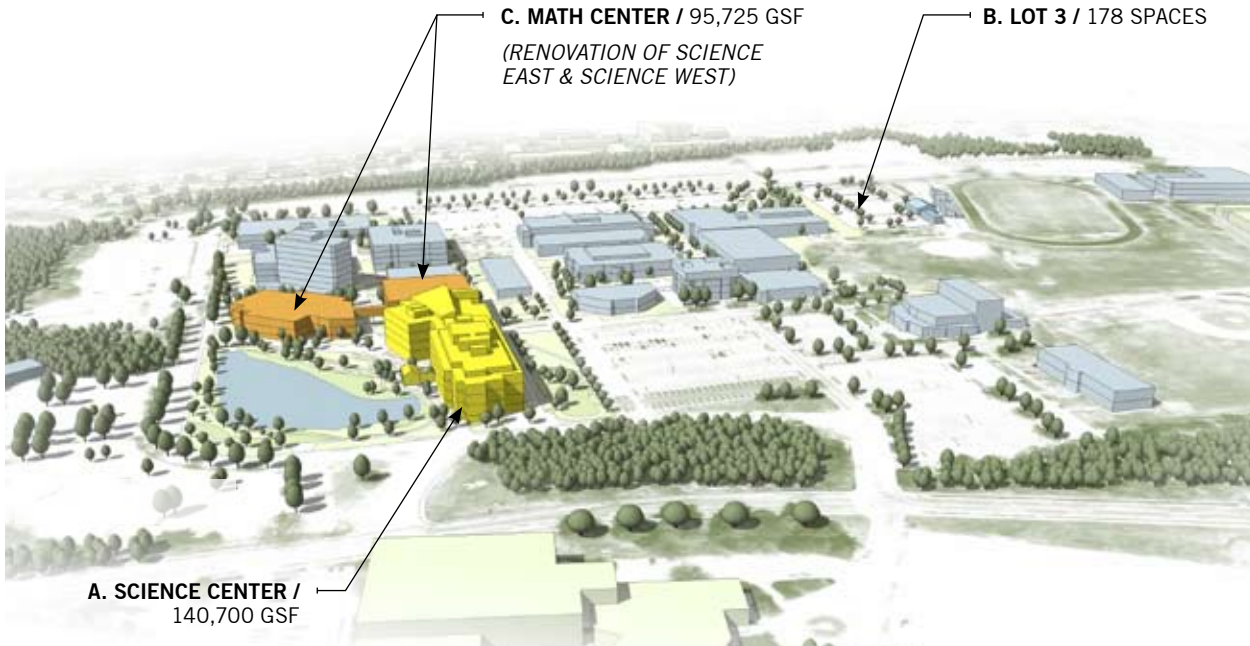


FIGURE 4.4.11
IMPLEMENTATION PLAN PHASE 1

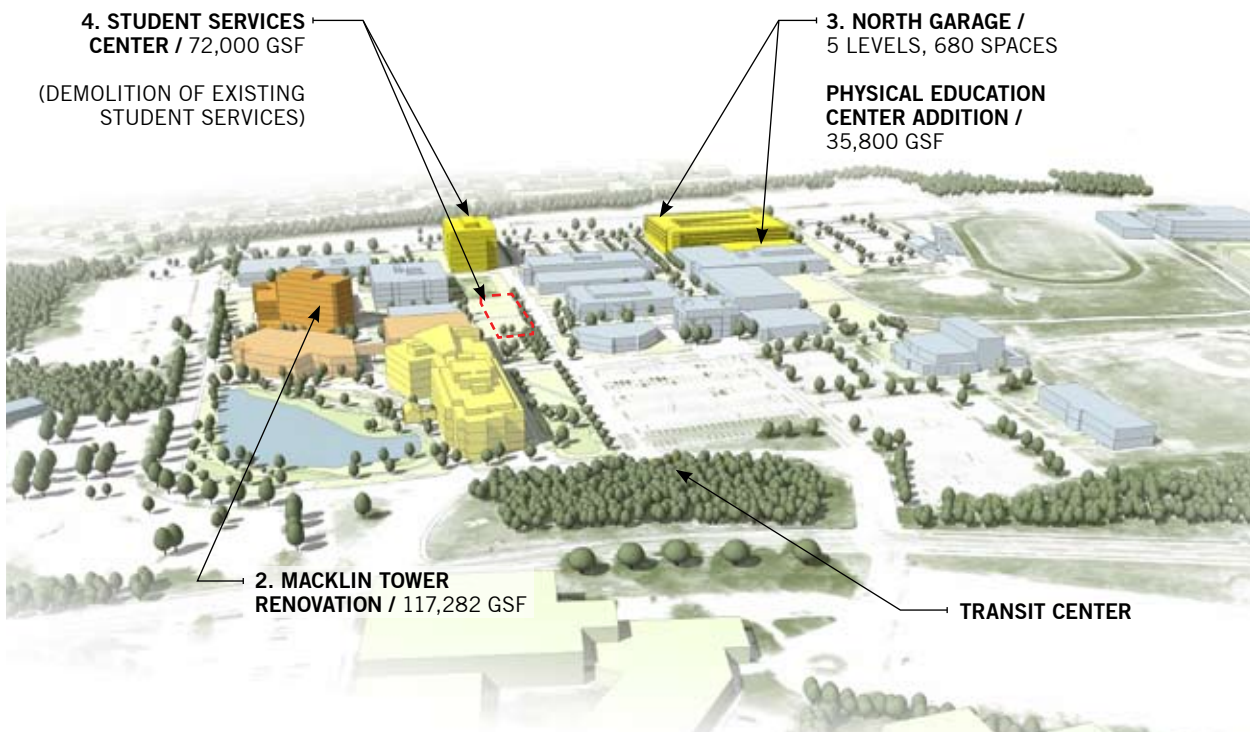


FIGURE 4.4.12
IMPLEMENTATION PLAN PHASE 2

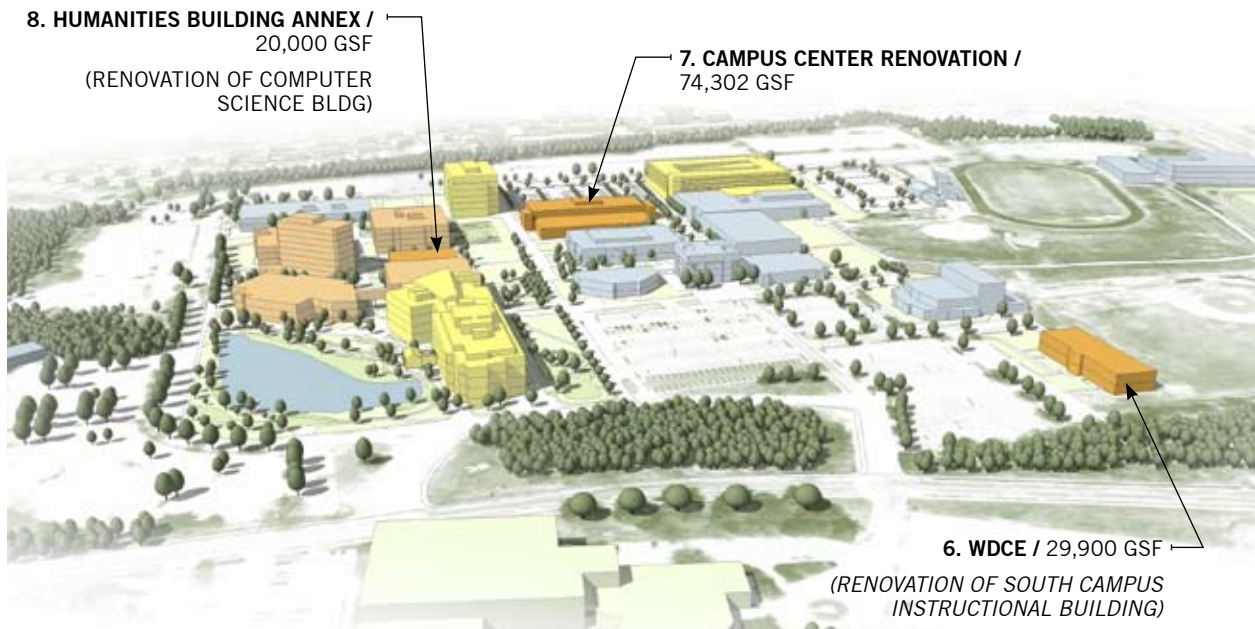


FIGURE 4.4.13
IMPLEMENTATION PLAN PHASE 3

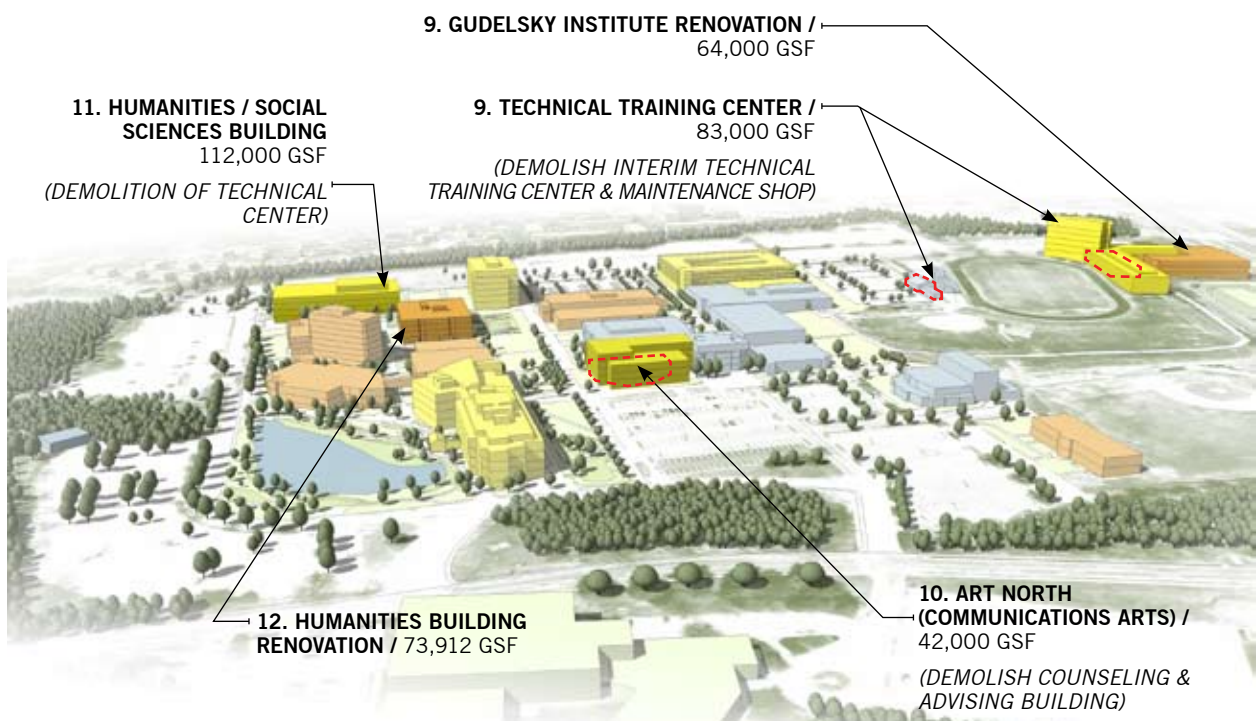


FIGURE 4.4.14
IMPLEMENTATION PLAN PHASE 4

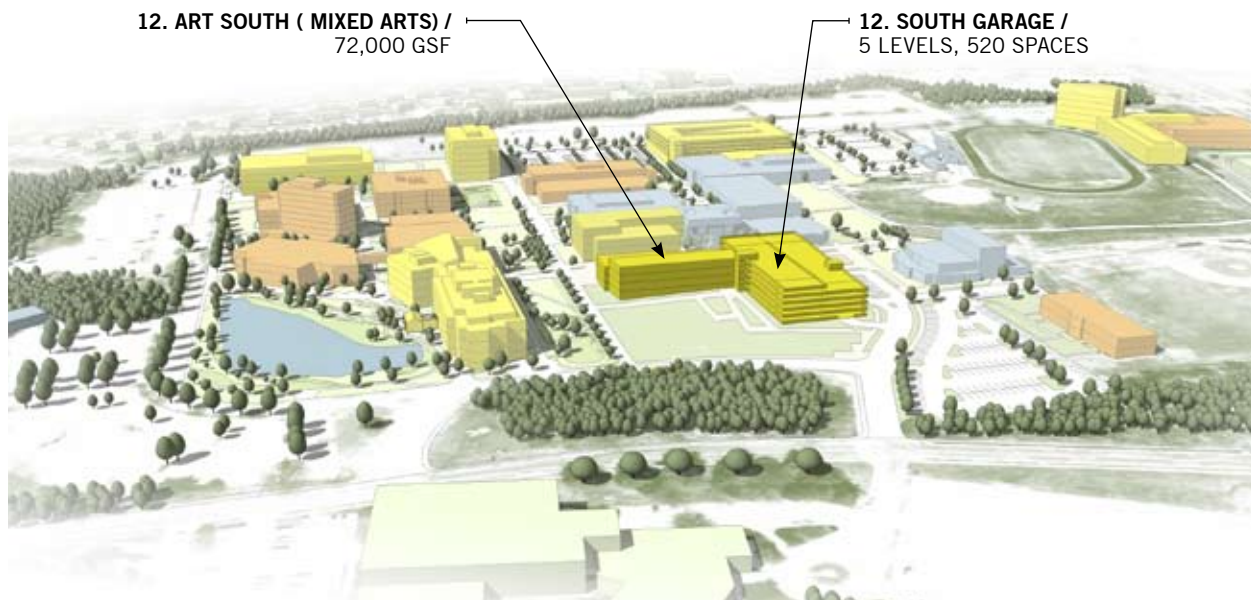


FIGURE 4.4.15
IMPLEMENTATION PLAN PHASE 5



4.4.9 Projected Costs

An estimate of project costs for the design, construction and furnishing of the various projects included in the 2006-2016 Facilities Master Plan was prepared by DMS International and the College's Office of Facilities. These project estimates are based on a mini-program which cumulatively respond to the academic and support needs reflected in this master plan. The mini-program for each project is in turn based on the enrollment and staffing requirements of that project as supported by the data analysis which is again presented in this master plan. These project costs are tabulated in Table 4.4.2 for the Rockville Campus. The project construction cost estimates were prepared in May 2010 by DMS International and extended and compiled by the Office of Facilities for design, supplemental construction and construction administration, and furniture, instructional equipment, and information technology equipment costs in September 2010. The intent of this effort is to prepare a total project budget that allows for the opening of a complete, fully functioning building. A supplemental document prepared by the Office of Facilities provides additional detail and assumptions related to each project cost estimate.

TABLE 4.4.2
CAPITAL PROJECTS FOR THE ROCKVILLE CAMPUS

Project	Cost Estimate (Current Dollars - 09/10)
Student Services Center	\$69,550,000
South Campus Instruction Building Renovation	\$16,745,000
Computer Science Building Renovation	\$10,114,000
Campus Center Renovation	\$27,509,000
North Parking Garage	\$23,587,000
Humanities & Social Sciences Building	\$68,095,000
Humanities Building Renovation	\$36,728,000
Macklin Tower Renovation	\$40,621,000
Communication Arts North	\$25,848,000
Mixed Arts Building	\$36,553,000
Performing Arts Center Renovation and Addition	\$40,035,000
Library Resource Center	\$73,576,000
South Parking Garage	\$17,225,000
Physical Education Center Renovation and Addition	\$20,544,000
Physical Plant Facility	\$18,721,000
Campus Total	\$525,451,000

4.4.10 2016 to 2026

This Facilities Master Plan also takes a look at a time beyond the planning year 2016 and proposes some strategies for managing growth in the future on this campus. See Figure 4.4.16. Five key strategies are proposed:

1. On the campus proper, continue to building larger, taller buildings at the perimeter of the core campus as proposed in this Facilities Master Plan for the 2016 period. The proposed building in parking Lot 3 would act as a screen for Garage North and have a strong presence for those entering campus onto North Campus Drive.
2. Increase the density of buildings at the south edge of campus by extending South Campus Drive to the Mannakee Building, thereby giving it a much stronger connection to the core campus. This extension provides the opportunity for new buildings to be built between the WDCE building (currently the South Campus Instruction Building) and the new Library, as well as along the South Campus Drive extension. An additional building site is proposed due south of the Science Center, which would be ideally suited to strengthen the connection to the south.
3. Acquire the Carver Educational Services Center (CESC) property across Mannakee Street and expand the campus to the south. As part of this strategy, extend the mall into the existing tree grouping.
4. Demolish outdated, small, low buildings in the core campus and build taller (three to four stories) buildings in their place. Take care not to dwarf open space.
5. Consider demolition of outdated buildings which received a high FCI rating as described in Table 4.2.1.

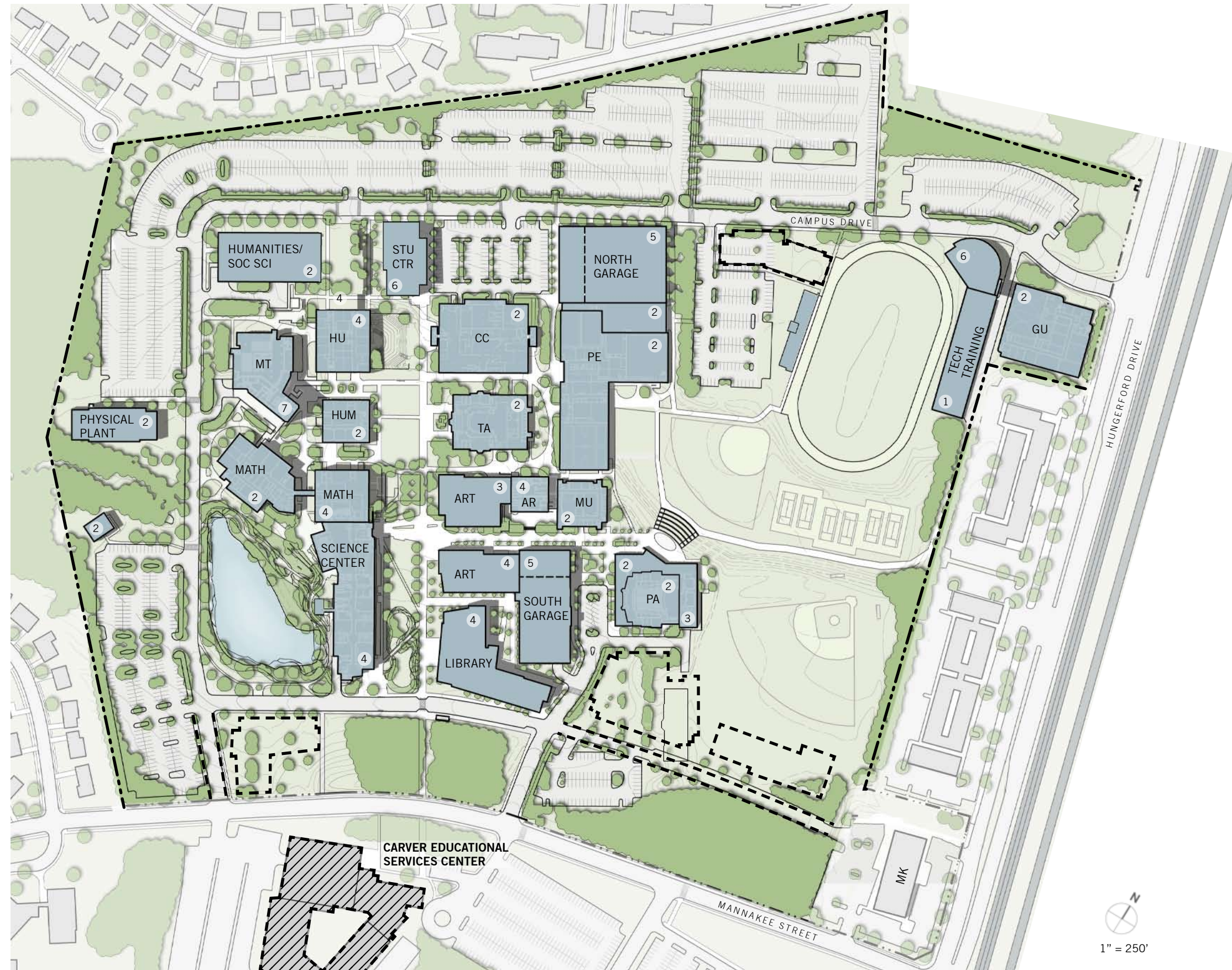
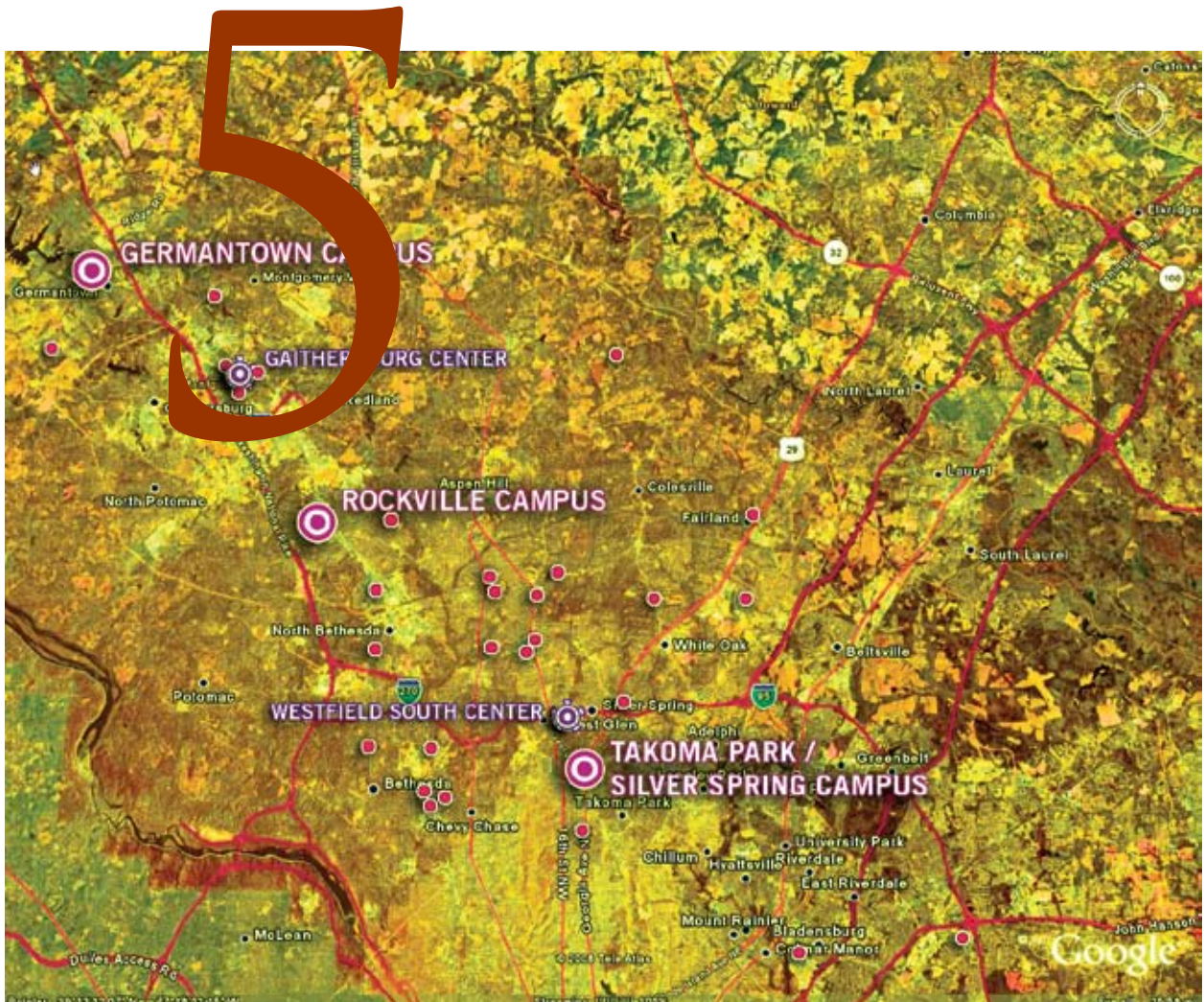


FIGURE 4.4.16
2016-2026 LAND USE PLAN

- # NUMBER OF STORIES
- FUTURE BUILDING SITE OR ROAD
- ▨ POTENTIAL EXPANSION OPPORTUNITY
- EXISTING BUILDING
- CAMPUS BOUNDARY

- AR Paul Peck Art Building
- CC Campus Center
- GU Homer S. Gudelsky Institute
- HU Humanities Building
- MK Mannakee
- MT Gordon & Marilyn Macklin Tower
- MU Music Building
- PA Robert E. Parilla Performing Arts Center
- PE Physical Education Center
- TA Theatre Arts Building
- WDCE Workforce Development & Continuing Education



WORKFORCE DEVELOPMENT & CONTINUING EDUCATION

5.1 CAMPUS BACKGROUND INFORMATION

5.1.1 Facilities Master Plan

This chapter of the 2006-2016 Facilities Master Plan for Montgomery College focuses on the programs of Workforce Development & Continuing Education. The over-arching goal of the Facilities Master Plan is to establish a framework for the development of capital projects to support the role, mission, and academic vision of Montgomery College.

5.1.2 Comparison with 2002-2012 Facilities Master Plan

Enrollment - Annual total student enrollment increased 62.8% from Fall 2002 (27,358) to Fall 2006 (44,540) and over this same period the annual number of sections increased from 2,667 to 4,234 sections, with the result that the annual total FTE student enrollments increased by 93.2%. The growth of State funded FTE was even greater with annual State-funded FTE increasing from 1,449 to 3,270, an increase of 125.7%. Comparing the 10-year projections, the 2016 annual State-funded FTE of 5,078 is a 61.6% increase of the over the 2012 projection of 3,142. This is a decrease in the 10-year rate of growth between the two periods from 117% (2012) to 55% (2016).

Faculty and Staff – In 2002, faculty supporting Workforce Development & Continuing Education totaled 6.25 FTE and in 2006 also totaled 6.25 FTE. This stability recognizes that growth in WD&CE programs does not require support from traditional faculty sources, but rather relies on professionals within their respective fields.

In 2002, staff supporting Workforce Development/Continuing Education totaled 70.75 FTE and in 2006 totaled 90.75 FTE, or an increase of 28.3%. The projected staff FTE will also increase from 102.25 (2012) to 109.5 (2016), or 7.1%. The largest growth in positions is planned for the instructional areas of Community Education & Extended Learning, as well as Business, IT and Safety.

Academic Programs – The breadth of the courses offered by Workforce Development & Continuing Education grew from more than 1,500 courses in 2002 offered through the unit's five organizational units and more than 20 program areas to over 1,700 courses in 2006 offered in six organizational units and more than 25 program areas. Many of the WD&CE courses are delivered as a result of customized training programs developed for business and community organizations. The courses are offered during the day, in the evening, and on weekends to meet the needs of the students being served.

Plan Comparison

Needs Assessment – The ten-year space deficit for Workforce Development & Continuing Education has grown from a deficit of 32,209 net square feet in 2012 to a deficit of 53,149 net square feet in 2016, or 65.0%, based on State of Maryland space guidelines. The increase in the unit's deficit is after accounting for the addition of new facilities on the Takoma Park/Silver Spring and Rockville campuses.

With these additions, the unit's inventory is expected to grow from 34,182 net square feet in 2002 to 40,649 net square feet in 2016, or 18.9%, and still result in the need for additional new space for the unit.

Proposed Facilities Program – Both the 2002-2012 and 2006-2016 Facilities Master Plans proposed new projects on the Takoma Park/Silver Spring Campus, adding to the Campus net assignable square foot space inventory and responding to the 10-year space deficiencies of each plan. The near term projects are essentially the same in both plans with the establishment (Germantown) or expansion (Takoma Park/Silver Spring and Rockville) or a presence for WD&CE on each campus. The campus presence is matched by the unit's significant off-campus leased facilities which are anticipated to continue to meet nearly half of the unit's space requirements.

5.1.3 Institutional Characteristics

Workforce Development and Continuing Education (WD&CE) provides a unique instructional function on each of the College's campuses, as well as separate sites at Westfield South in Wheaton and the Business Training Center in Gaithersburg. The WD&CE supports the College's mission of meeting multi-leveled educational, economic, and work force development needs by providing non-credit instruction, workforce training, and contract training. To support this effort, the Facilities Master Plan focuses on:

- Providing sufficient and adequate space at each location—classrooms, labs, offices, study, and support facilities—based on existing and projected needs;
- Consolidating work force development and continuing education efforts on the Germantown, Rockville, and Takoma Park/Silver Spring campuses so that students, visitors, and the College community benefit from the ease, energy, and excitement generated by the synergy of proximity; and
- Presenting students the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, counselors, and staff.

5.1.4 Academic Programs

The Workforce Development and Continuing Education (WD&CE) programs at the College provide a wide range of non-credit and credit educational offerings and services designed to meet the needs of County residents and businesses. Individuals in career transitions, those reentering the workforce, and those maintaining current technical skills, as well as those seeking lifelong educational enrichment experiences, are among the more than 23,000 enrollees of WD&CE programs each year.

The educational offerings of WD&CE to residents, employees, and employers are organized into six program areas:

- Community Education and Extended Learning Services;
- Business, Information Technology and Safety;
- Gudelsky Institute for Technical Education;
- Health Sciences Institute;
- School of Art and Design (non-credit); and
- Adult ESOL and Literacy-GED programs.

Courses in these program areas may be taken at the three College campuses and at other community sites, including the Westfield South Center in Wheaton and the Business Training Center in Gaithersburg. In addition, programs are offered at numerous schools, churches, community facilities, and places of business throughout Montgomery County.

Many WD&CE courses are delivered as a result of a customized training program developed for business and community organizations. Contract training partnerships align College education and training resources with the demands of the workplace and are tailored to each business partner's requirements. Employer-sponsored training programs have grown significantly in recent years and are frequently delivered at the business location.

More than 1,700 courses are offered each year through the six organizational units of WD&CE and reflect more than 25 program areas, including information technology, small business and management, technical training, certification and licensure preparation, financial planning, real estate, child care, health sciences, personal development, career development, writing, American English, cultural diversity, customer service, quality management, and leadership development. They are offered during the day, in the evening, and on weekends to meet the needs of the students being served. Following are descriptions of these six program areas that are encompassed within WD&CE at Montgomery College.

Community Education and Extended Learning Services

Community Education and Extended Learning Services (CEELS) offers programs in six areas. Academic Pre-Credit Programs focus on assisting individuals to get ready for college and careers. The Pathways to Success program gives students who score below 52 on the College's entrance exam an opportunity to begin their education at Montgomery College by providing a fifteen week session in reading, writing, and life skills and career planning, including meeting with a Job Specialist to explore realistic career paths. Also offered is Fast Track Math, a two-week intensive review of pre-algebra and elementary algebra. The Foundation Skills program connect reading and writing and enhance preparation of students for college-level placement. Extended Learning Services options include off-campus courses and Assessment of Prior Learning, whereby students may be able to obtain college credit for prior learning experiences. Foreign

Language Programs offer non-credit language training and education to residents, employees, and employers, including a full range of English as a Second Language, conversational Spanish, and TOFEL preparation, as well as instruction of American Sign Language.

The Lifelong Learning Institute offers many courses for County residents 50 years and older at campus and community locations and sponsors several Elderhostels each year with people from all over the United States. Personal Finance and Investing offers courses related to the management of personal finances and investment options. Through programs in Professional Certifications and Training adults are helped to get a job, keep a job, or be promoted. The Alternative Certification for Effective Teachers program prepares accomplished, talented individuals for teaching positions within the Montgomery County Public Schools. The Early Childhood Education programs offer classes designed for teachers, child care providers, and parents and award Continuing Education Units satisfying the State of Maryland annual staff training requirements. Developmental Disabilities Administration Training, which satisfies the State of Maryland Developmental Disabilities Administration, provides up-to-date human services training through recertification training courses for employees who currently work with individuals with disabilities.

Additional programs are offered in Food Safety and Hospitality and Real Estate/Mortgage Loan and Insurance Training. Professional Development courses focus on skills important for career advancement, especially communication skills. Programs for Adults with Developmental Disabilities include the Graduate Transition Program, the Challenge Program, and the Transitions Training for Independence. The Graduate Transition Program, resulting from a partnership with Target Community and Educational Services and Potomac Community Resources, assists students with special needs who are exiting from high school to make the transition to greater independent living through functional education, residential, vocational, and life skills services. Similarly the Challenge Program provides unique courses for adults with developmental disabilities function more independently in their homes, at work, and in the community. The Transitions Training for Independence class is designed to allow students of ages 19 and 20 enrolled in Montgomery County Public Schools to complete their public education on a college campus. Test Preparation programs assist individuals in preparing for such standardized test as the SATs, while Writing programs involve courses for writing for business, writing for pleasure, and on appreciating literature, film and music. The College, through its Youth Programs and in cooperation with Montgomery County Public Schools, many private schools, and community organizations, offers a large summer program, school-year enrichment programs, and after-school and weekend programs for students in grades 3-12.

Business, Information and Safety

Business, Information and Safety (BITS) offers courses and programs in Management Development, including project management, supervision, and team building, as well as courses leading to the AMA Certificate in Management; Sales and Marketing and Small Business, including customer service, sales success, marketing for managers, and selling and promoting products; and Biotechnology, assisting businesses in this expanding industry in Montgomery County with such courses as Cell Culture Basics, Essential DNA and RNA Technology, Good Laboratory Practice, and Teams and Team Building. The Instituto Hispano de Negocios (Hispanic Business Institute) offers bilingual training and education for this business sector in such areas as small business development, food safety certification, OSHA safety, QuickBooks, and legal office assistant. The Information Technology Institute specializes in information technology and

responds to the rapidly expanding need for skilled workers in high technology companies. It offers cutting edge high technology courses at all three campuses, as well as at strategic off-campus sites, and provides customized training at business and government sites throughout the region. In addition to credit and non-credit courses, special programs include: Tech LEAP/Web LEAP, which is intended to retrain individuals for new careers in the information technology field, summer programs for high school students, and a program developed in partnership with Montgomery County Public Schools to train information technology teachers. The Hospitality and Food Safety programs provide training and certification in the fields of restaurant, hotel, event management, and customer service industries. Real Estate Professional Licensure and Certification Program offers approved licensure and certification courses for insurance and real estate and training as a mortgage loan officer. Transportation Safety Institute offers approved courses related to boating safety, driver education, motorcycle safety, truck driver (CDL), and sport pilot. Finally the Advanced Placement Institute is an intensive four-day professional development opportunity designed to provide AP teachers with the strategies and tools to engage students in active, high-level learning which results in academic success.

Homer S. Gudelsky Institute for Technical Education

The Homer S. Gudelsky Institute for Technical Education (GITE) is a public-private joint venture providing state-of-the-art technical education and training opportunities in automotive education, building and construction technology, computer publishing and printing technologies, and fabrication and manufacturing technology. Eight different instructional delivery options are available—customized contract training, distance education, apprenticeship-related instruction, on-site training, long- or short-term training, certificate programs, Associate of Applied Science degree programs, and credit and continuing education courses.

Health Sciences Institute

The Health Sciences Institute (HSI) WD&CE, provides non-credit programs for adult education and workforce development in health related fields, including entry level and advancement health career training, CPR and first aid, health information, nursing, and wellness. Located in the Health Sciences Center at the Takoma Park/Silver Spring Campus, programs and courses are offered in a variety of health careers and human service related fields that can increase the expertise of trained healthcare professionals and lead to entry-level positions for those new to the industry. Specially designed curricula offer practical, real world training to build professional skills in a variety of healthcare and human service fields.

School of Art and Design

WD&CE offers student-focused non-credit art and design (NC A & D) classes for ages 6 and older in an art college setting that provides a supportive community for artists at all levels. Classes for age 6 to 15 are offered by age groups and type of art to be explored, and a pre-college program for high school students and adults is available for those who wish to develop a portfolio for college admissions or for professional growth. Adult classes in fine arts range from very beginning levels to drawing and painting classes at the advanced levels. Digital design and multi-media classes for adults are for artists and photographers

to expand their artistic skills while other adults are enhancing their digital design skills for job change or promotion.

Adult ESOL and Literacy-GED

The Adult ESOL and Literacy-GED Programs (AELG) are grant-funded programs offering a variety of classes for newcomers, refugees, those who wish to become U.S. citizens, and those who wish to take the General Educational Development (GED) examination. The Adult English for Speakers of Other Languages (ESOL) has six levels and provides basic English language and life skills instruction to county residents. Classes are also available in English in civic participation and U.S. citizen preparation. The Refugee Training Program is a grant-funded program that offers classes in English for documented refugees and political asylees in the American workplace, basic life skills, computer literacy, and pre-vocational training in health care and other fields. The Literacy-GED Program serves those who have not obtained a high school diploma and need to improve their literacy, writing, numeracy, and other content area skills, to earn a GED. It also offers a GED Practice Test and community orientations on the GED test and program.

5.1.5 Enrollment

Growth in the program offerings of WD&CE has been significant. WD&CE enrolled 44,540 students during FY 2006, a 77% increase over its FY 2002 enrollments, and it offered 4,234 sections of courses, a 66% increase over the number of sections offered in FY 2002. While annual FTE enrollments grew to 3,749 annual FTE, an increase of 89%, the growth in State funded FTE was even greater, 126% to 3,075 in FY 2006. The percentage of State funded FTE also grew significantly, from 69% in FY 2002 to 82% in FY 2006.



Automobile Facility at GU

TABLE 5.1.1
ANNUAL WD&CE ENROLLMENT

	2002	2006	2002-2006 % Change
Annual Total Students	25,190	44,540	77%
Annual No. of Sections	2,549	4,234	66%
Annual Total FTE	1,988	3,749	89%
Annual State FTE	1,362	3,075	126%
% Annual State FTE	69%	82%	19%

WD&CE is also projecting significant growth in its programs, although much less than in its recent past. Annual funded course FTE enrollments are expected to increase 55% to 5,078 FTE in fall 2016. Not all of these enrollments will be delivered on-campus or at leased locations. Those courses offered off-campus or on-line are expected to increase by 35% while on-campus enrollments or those at the College's leased sites are expected to increase at 28%. These enrollments translate into a projected fall term, on-campus/leased location enrollment of 1,373 FTE, an increase of 29% over the 2006 fall term. The amount of this on-campus/leased location enrollment is substantial, equivalent to 43% of the 2006 fall FTE enrollment at Germantown and 49% of that at Takoma Park/Silver Spring.

TABLE 5.1.2
WD&CE ANNUAL AND FALL TERM FTE ENROLLMENT

	2006	2016	10 Yr. % Change
Annual State FTE	3,270	5,078	55%
Annual Off-campus/On-line FTE	1,504	2,030	35%
Annual On-campus/site FTE	1,492	1,907	28%
Fall On-campus/site FTE	1,065	1,373	29%

Focusing on WD&CE's fall term enrollment, Community Education and Extended Learning and the AELG Programs represent over 60% of WD&CE FTE enrollment, and this is expected to continue over the planning period. AELG is expected to grow faster than the WD&CE average of 29%, and CEELS is expected to grow at a slower rate. Offerings by the School of Art and Design (non-credit) are expected to grow the most—115%, but enrollments will only represent 6% of the total FTE enrollments. BITS will also grow at a slightly higher rate than average and will represent 13% of the total FTE enrollment.

TABLE 5.1.3
2006 AND 2016 FALL TERM ON-CAMPUS/SITE FTE BY WD&CE PROGRAM AREA

	2006	% of Total	2016	% of Total	10 Yr. % Chg
Community Ed & Ext Learning	428	40%	526	38%	23%
Business, IT, & Safety	135	13%	176	13%	30%
Gudelsky Institute Technical Ed	180	17%	217	16%	21%
Health Sciences Institute	51	5%	61	4%	20%
Non-credit Art + Design	39	3%	84	6%	115%
AELG Programs	232	22%	309	23%	33%
Fall On-campus/site FTE	1,065	100%	1,373	100%	29%

Where the growth in WD&CE enrollments will occur is also of importance to the College's planning, especially for facilities. Rockville will continue to serve the greatest numbers of FTE WD&CE students, with 557 FTE WD&CE enrollments in fall 2016, but the projected growth is only expected to be 11% over fall 2006 levels. The largest growths in enrollment are expected at the Germantown campus (183%) with the planned emphasis on biotechnology and the new Bioscience Education Center and on the Takoma Park/Silver Spring Campus (37%) with highest growth occurring with the art programs. The Gaithersburg Business Training Center is also expected to grow only modestly by 13%, and the Westfield South Center, even less at 6%. Takoma Park/Silver Spring Campus' share of FTE enrollments will continue to represent the second largest share of enrollments with 23% of the WD&CE FTE enrollments. Finally, WD&CE expects to establish by 2016 a presence in White Oak on the US-29 corridor in the East County Science and Technology Center.

TABLE 5.1.4
2006 AND 2016 FALL TERM ON-CAMPUS/SITE FTE ENROLLMENT BY LOCATION

	2006	% of Total	2016	% of Total	10 Yr. % Chg
Germantown	40	4%	113	8%	183%
Rockville	500	47%	557	41%	11%
Takoma Park / Silver Spring	231	22%	316	23%	37%
Gaithersburg Business Training Center	142	13%	178	13%	13%
Westfield South Center	152	14%	161	12%	6%
White Oak	-	-	48	3%	n/a
Fall On-campus/site FTE	1,065	100%	1,373	100%	29%

5.1.6 Faculty and Staff

While the College projects that its overall number of FTE faculty will increase at 12%, slightly less than its overall 15% increase in FTE enrollment, from 784.00 in fall 2006 to 876.75 in fall 2016, an increase of 92.75 FTE faculty, faculty supporting WD&CE will remain at 6.25 FTE faculty. It is anticipated that there will be no change in the current mix of four (4) full-time faculty and one (1) part-time faculty member. This lack of change in WD&CE faculty recognizes that most of the growth in WD&CE programs over the planning period will not require support from traditional faculty sources, but rather will rely on professionals from the respective fields.

In terms of staff, the College expects its overall numbers of full-time, part-time, and FTE staff to increase 10% from fall 2006 to fall 2016, less than its overall projected 15% increase in fall term FTE enrollment. In contrast WD&CE is anticipating a substantial 32% increase in staff, reflecting the projected enrollment growth and expanded outreach, particularly in the health sciences and art at the Takoma Park/Silver Spring Campus and biotechnology at the Germantown Campus. Overall, WD&CE staff is expected to increase by 35.75 FTE staff, with thirty-three (33) additional full-time staff and eleven (11) additional part-time staff.

The largest growth in positions is planned for the CEELS, an addition of 28.75 positions, or 202%. BITS is also expected to grow substantially by 10.25 FTE positions, or 117%. The remaining areas of WD&CE are planned to increase only slightly, and central administration is expected to decline, distributing positions to program areas.

Relative to WD&CE locations, not unexpectedly, the Germantown Campus will have the highest increase in the number of positions, with 10.50 FTE staff added. The Takoma Park/Silver Spring Campus will have the highest rate of growth, 375%, with an increase of 9.50 FTE staff positions, followed closely by the Westfield South Center at 313%, representing an increase of 8.25 FTE positions. The Gaithersburg Business Training Center is planning for a modest 6% growth rate, adding 2.00 FTE positions. Staffing at the Germantown Campus will grow by 1.75 FTE positions, or 21%, while at the Rockville Campus, 7.50 FTE positions will be added, an increase of 28%. Finally, the planned presence at White Oak will be supported by 9.00 FTE staff.

TABLE 5.1.5
2006 AND 2016 STAFF POSITIONS BY WD&CE AREA

	2006			2016		10 Yr	2016			10 Yr
	FT	PT	FTE	FT	% Chg	PT	% Chg	FTE	% Chg	
Vice President	51	40	61.00	39	-13 (-24%)	30	-10 (-25%)	46.50	-14.50 (-24%)	
CEELS	13	5	14.25	39	+26 (200%)	16	+11 (220%)	43.00	+28.75 (202%)	
BITS	8	3	8.75	18	+10 (125%)	4	+1 (33%)	19.00	+10.25 (117%)	
GITE	3	1	3.25	5	+2 (67%)	4	+3 (300%)	6.00	+2.75 (85%)	
HSI	3	2	3.50	5	+2 (67%)	0	-2 (-100%)	5.00	+1.50 (43%)	
NC A+D	0	0	0	4	n/a	0	0 (0%)	4.00	n/a	
AELG	22	0	22.00	23	+1 (5%)	8	n/a	25.00	3.00 (14%)	
TOTAL WD&CE	100	51	112.75	133	33 (33%)	62	11 (22%)	148.50	35.75 (32%)	

TABLE 5.1.6
2006 AND 2016 STAFF POSITIONS BY WD&CE LOCATION

	2006			2016		10 Yr	2016			10 Yr
	FT	PT	FTE	FT	% Chg	PT	% Chg	FTE	% Chg	
Germantown	3	2	3.50	13	10 (233%)	4	+2 (100%)	14.00	+10.50 (300%)	
Rockville	22	34	30.50	24	2 (9%)	32	-2 (-6%)	32.00	+1.50 (5%)	
Takoma Park/ Silver Spring	24	35	32.75	27	17 (70%)	6	4 (200%)	28.50	+1.50 (171%)	
Gaithersburg	43	10	45.50	40	-3 (-7%)	10	0 (0%)	42.50	-3.00 (-7%)	
Westfield	22	3	22.75	21	-1 (-5%)	6	3 (100%)	22.50	-0.25 (-1%)	
White Oak	--	--	--	8	n/a	4	n/a	9.00	n/a	
Total WD&CE	100	51	112.75	133	33 (33%)	62	11 (22%)	148.50	35.75 (32%)	

5.2 EXISTING CONDITIONS

5.2.1 Location

Work Force Development & Continuing Education is spread among the three College campuses at Takoma Park/Silver Spring, Germantown, and Rockville, and is also located in leased space in Wheaton at the Westfield South Center, and in Gaithersburg at the Gaithersburg Business Training Center. In addition, WD&CE offerings are distributed throughout the county at many business and municipal locations.

Figure 5.2.1 Illustrates the relative locations of course offerings. The figure highlights the distribution of courses offered throughout the County. The size of the circle represents the relative number of WD&CE courses offered. Table 5.2.1 WD&CE Course Offerings displays the percent of course offerings per site.

TABLE 5.2.1
WD&CE COURSE OFFERINGS

	2007
	Percent of Total
Takoma Park / Silver Spring	11%
Germantown	2%
Rockville	29%
Westfield South Center	9%
Gaithersburg Business Training Center	7%
Other (community)	35%
On-Line Courses	6%
Total	100%

5.2.2 Program Identity and Image

In general, WD&CE lacks an identity of its own within Montgomery College. Currently the space utilized at each of the campuses is dispersed which does not allow students, visitors, and the College community to benefit from the ease, energy, and excitement generated by the synergy of proximity and consolidation of like functions. In addition, the extent of off-campus offerings dilutes the identity of the WD&CE program as a unique entity.

FIGURE 5.2.1
LOCATIONS OF WD&CE COURSE OFFERINGS WITHIN MONTGOMERY COUNTY

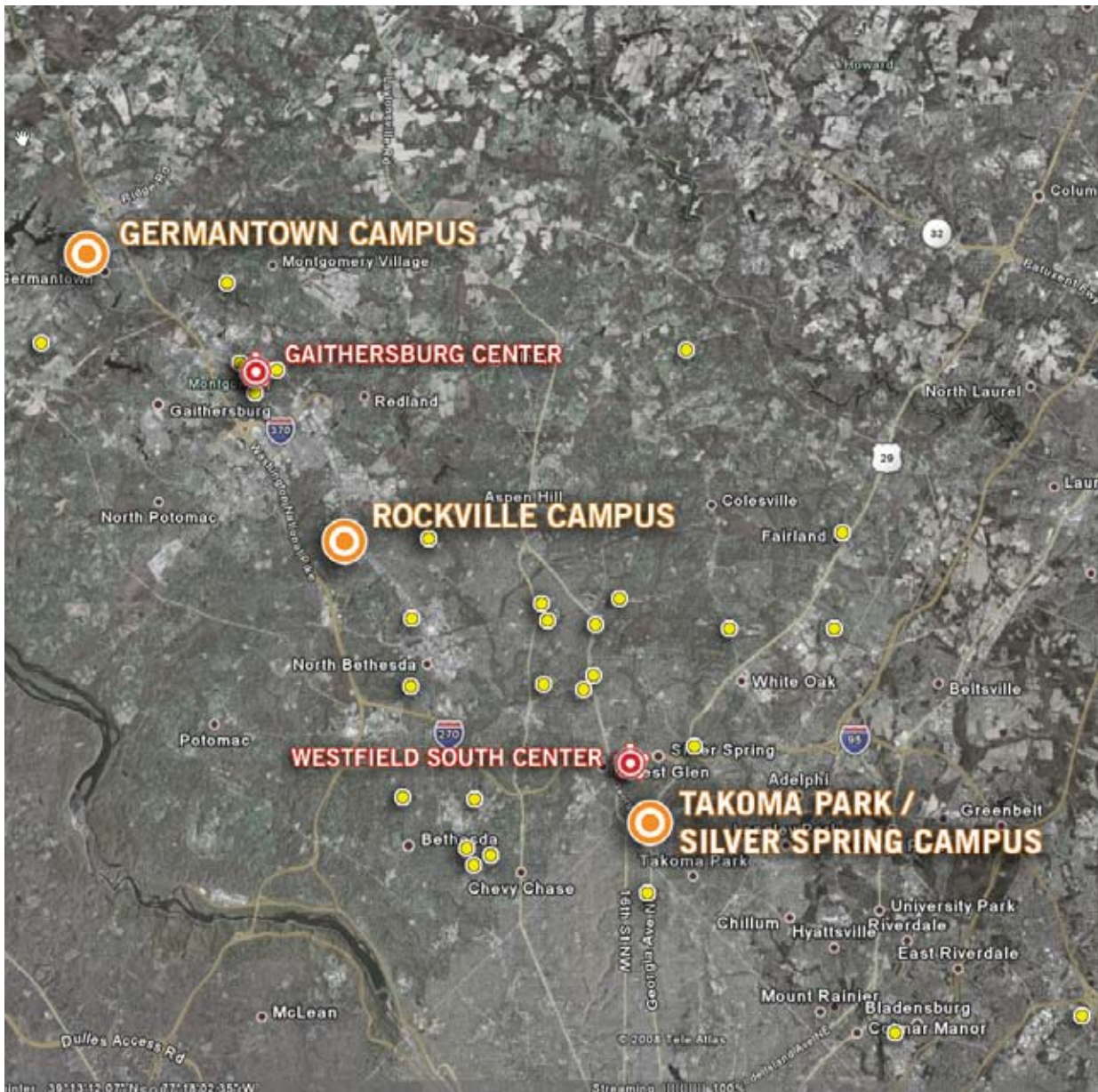


FIGURE 5.2.2
BUILDING USAGE- TAKOMA PARK/SILVER SPRING

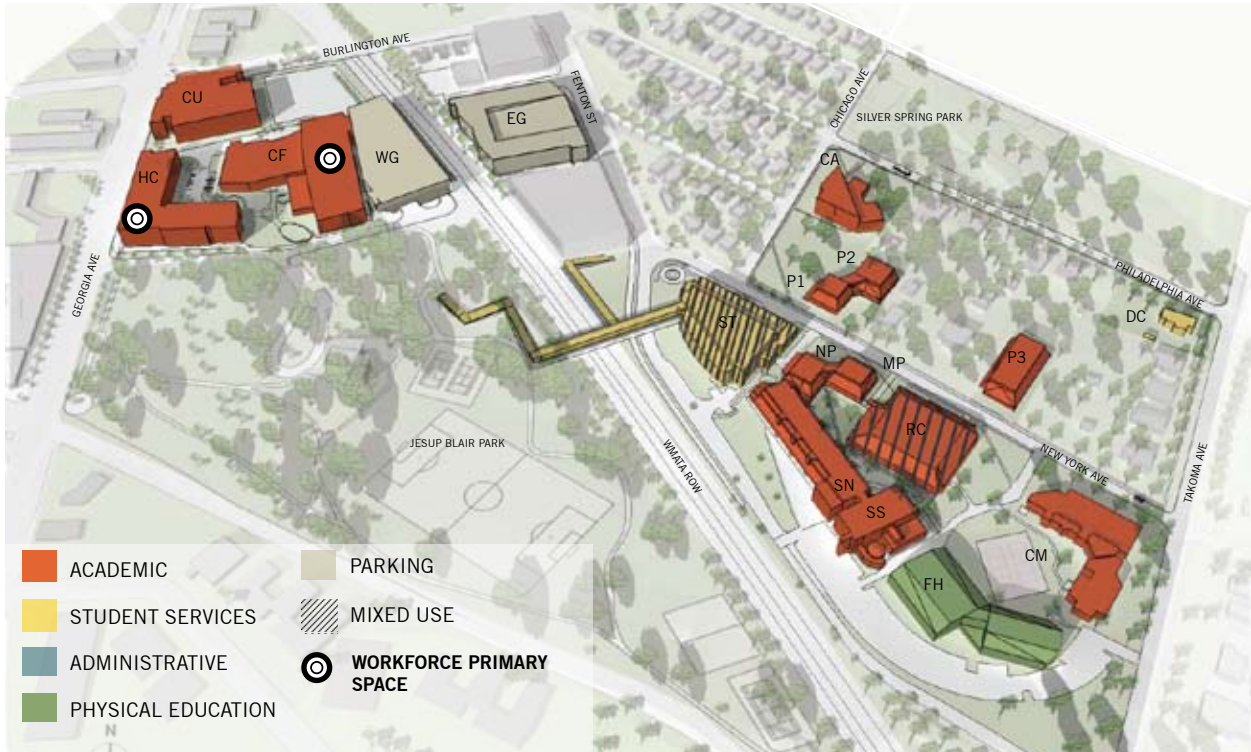
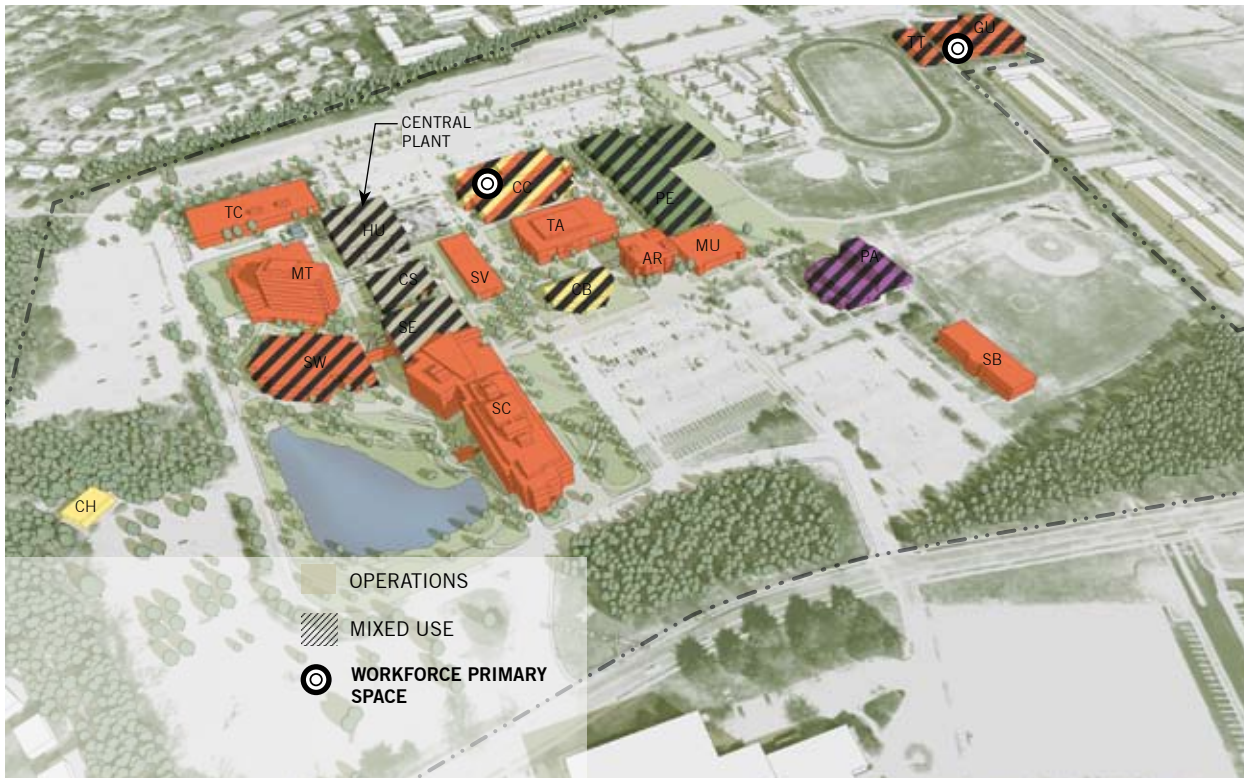


FIGURE 5.2.3
BUILDING USAGE- GERMANTOWN



FIGURE 5.2.4
BUILDING USAGE- ROCKVILLE



5.2.3 Building Usage / Functional Adequacy of Facilities

Workforce Development & Continuing Education (WD&CE) occupies space at each of the campuses, and also manages two off-campus leased locations, Gaithersburg Business Training Center in Gaithersburg and Westfield South Center in Wheaton.

Currently WD&CE occupies 9,783 NASF on the Takoma Park/Silver Spring Campus, 987 NASF on the Germantown Campus, and 11,978 NASF on the Rockville Campus.

Descriptions of the programs and functions at the Westfield and Gaithersburg Business Training Centers are included below. The general adequacy of each building to support these programs and functions is also presented.

At the Takoma Park/Silver Spring Campus, WD&CE is currently transferring its Customer Services and other programs from the Health Sciences Center and Refugee Training Center to a new location on the second floor of the adjacent Cafritz Foundation Arts Center.

At the Germantown Campus, the WD&CE program is currently distributed throughout the Campus. The recently opened Goldenrod Building serves as the consolidated location for the Germantown WD&CE programs, housing offices and classrooms.

The Rockville Campus houses the largest concentration of WD&CE administrative staff. These spaces are located primarily on the upper floor of Campus Center, along with a few dedicated offices in the Gudelsky Institute for Technical Education.



Westfield Shopping Town in Wheaton (7,811 NASF, 10,793 GSF), originally occupied in 1999 and expanded in 2000 and 2010 is a five year lease that resulted in the College occupying a portion of the first two floors of the building. The space includes ten classrooms ranging in capacity from 15 to 25, reception areas, private offices and associated workspace, a small lounge, coat storage, and IT support space serving primarily the AELP and ESL programs. Except for being split between two floors which results in some inefficiencies and duplication of functions, the physical space is adequate to meet the instructional needs. However, there is currently insufficient classroom space for the long term as well as insufficient space for study and for informal meeting and relaxing.



Gaithersburg Business Training Center at 12 S. Summit Avenue, Gaithersburg (11,294 NASF, 14,747 GSF) was leased in 2001 for a period of 10 years. Occupying the fourth floor of the building, the renovated space provides WD&CE with four computer classrooms, four general purpose classrooms, the WD&CE administrative suite, faculty and staff offices including space for the Office of Information Technology (OIT), a reception/registration area, testing area, and lounge.



The instructional space needs are adequate to meet the current programmatic requirements; however, the offices are under-sized, there is insufficient space for OIT staging and work areas, and there is no room to accommodate growth without leasing additional space. There is also insufficient space for study and for informal meeting and relaxing.

5.2.4 Building Conditions

In 2007, the College updated the facilities condition assessment for each of its three campuses, including buildings and site infrastructure components. The primary focus of this effort was to:

- Provide a baseline condition assessment of the College's facilities to include infrastructure components and building systems.
- Provide the College with budget estimates for funding required safety improvements and reducing the deterioration of campus buildings and infrastructure components.

FIGURE 5.2.5
SITE PLAN OF THE WESTFIELD SOUTH CENTER

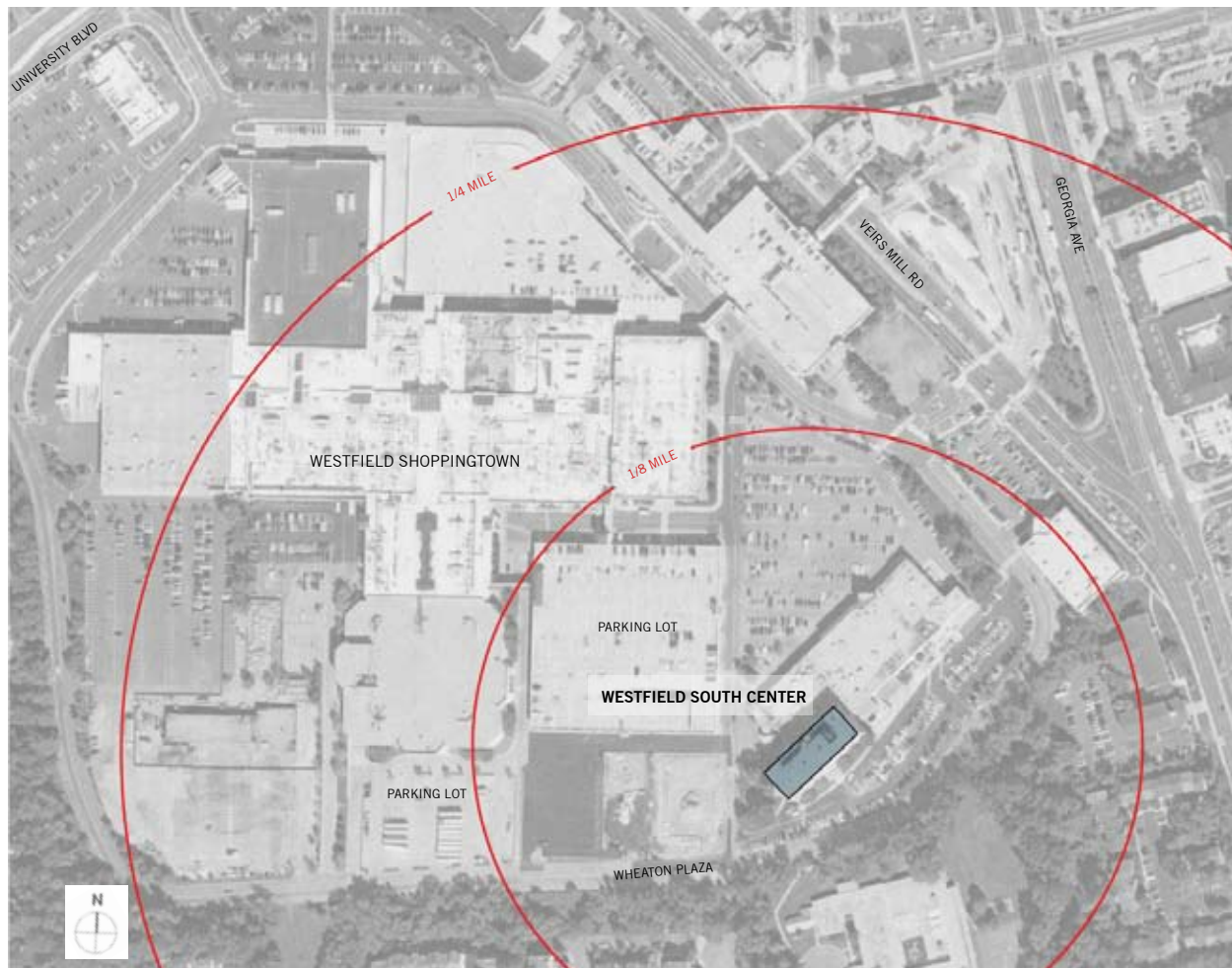
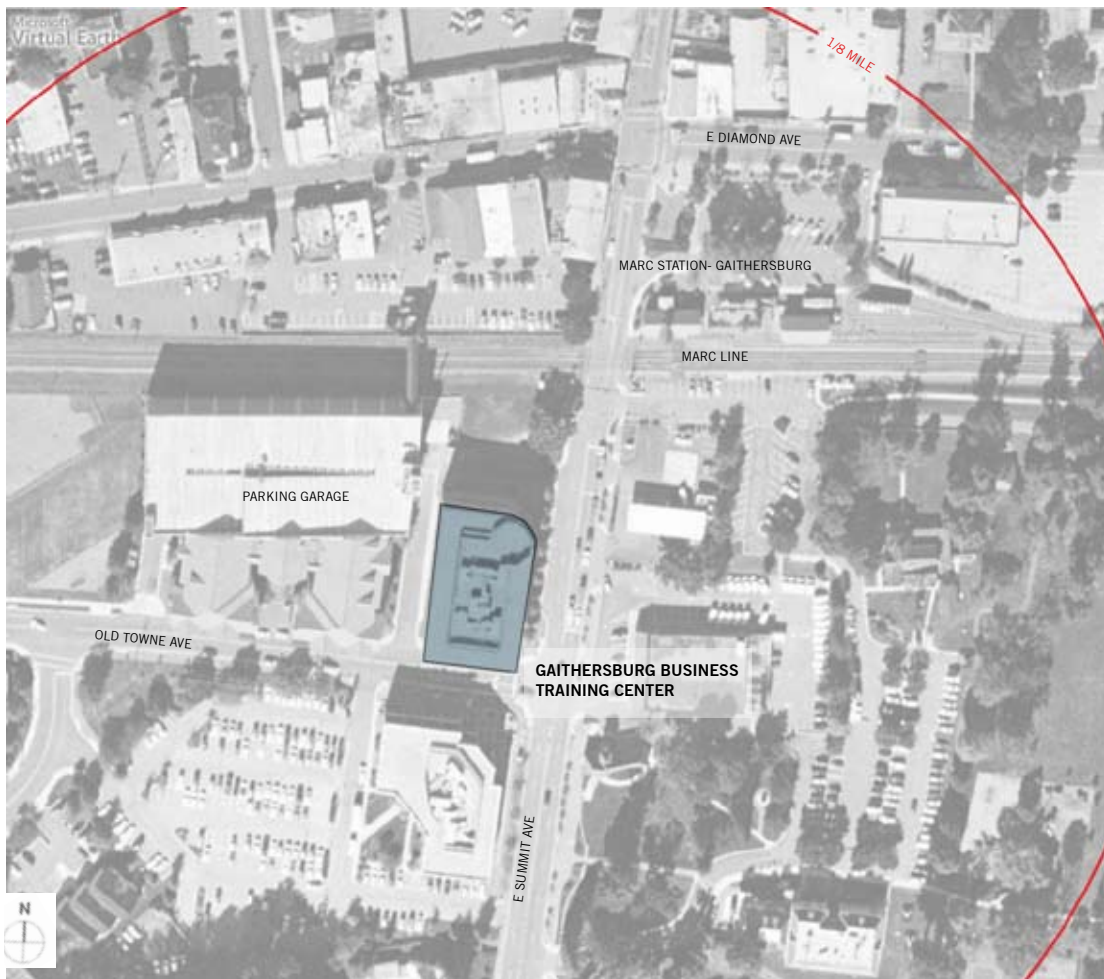


FIGURE 5.2.6
SITE PLAN OF THE GAITHERSBURG BUSINESS TRAINING CENTER



— STUDENT WALKING RADIUS ■ BUILDING PARTIALLY OCCUPIED BY WDCE

- Assist the College with building code and accessibility compliance and to ensure that the facilities are operated as required.
- Utilize the assessment in the implementation of an ongoing process of the identification and prioritization of maintenance and capital repair projects.
- Provide decision support capabilities with VFA's facility management software solutions.

A Building Conditions analysis was not performed for the leased space at the Westfield and Gaithersburg Business Training Centers. Analysis of the spaces that are only partially occupied by WD&CE functions

are included with the summaries for the Takoma Park/Silver Spring, Germantown and Rockville Campuses, sections 2.2.6, 3.2.6 and 4.2.6, respectively.

5.2.5 Circulation and Parking

This section presents the parking, access and pedestrian issues dealing specifically with WD&CE uses at each of the campuses, including Wheaton and Gaithersburg.

Takoma Park/Silver Spring Campus

Students and faculty that are part of the WD&CE program on this campus can use both the East and West Parking Garage facilities. Parking is generally adequate to serve the courses offered by the Health Sciences Institute and other WD&CE programs on the Takoma Park/Silver Spring Campus. Campus-wide issues of access and circulation are addressed in Section 2.2.9 Parking and Circulation.

Germantown Campus

The Goldenrod Building is served by an adjacent parking lot. Campus-wide issues of access and circulation are addressed in Section 3.2.9 Parking and Circulation.

Rockville Campus

Currently faculty, staff and students in the WD&CE programs park throughout the available Campus parking. Because classes are spread throughout the campus, it is assumed that the response to parking is also spread evenly throughout the perimeter parking lots.

Westfield South Center

The Westfield facility is located in the Westfield shopping mall, with ample parking adjacent to the WD&CE offices and program spaces. The shopping mall is also served by mass transit via the Wheaton station of WMATA.

Gaithersburg Business Training Center

The Gaithersburg facility is served by an adjacent parking structure which offers ample parking. It is also located in historic downtown Gaithersburg, which is served by the MARC trains; the Gaithersburg station is across the street from the GBTC.

5.3 FACILITIES PROGRAM

5.3.1 Needs Assessment

Assessments of the current and projected facilities needs for Workforce Development & Continuing Education are generated by applying current and projected planning data related to enrollment, instructional delivery, library collections, faculty, and staff to the State of Maryland Guidelines for facilities at community colleges, as well as guidelines developed by the College specifically for Workforce Development & Continuing Education. Separate planning data and needs assessments are done for non-credit programs offered on-campus, whether at the Germantown, Rockville, and Takoma Park/Silver Spring Campuses, and for those offered off-campus, at either the Gaithersburg or Westfield South Centers or planned for a new center at White Oak. Refer to Table 5.3.1 for the planning data for on-campus WD&CE functions, and Table 5.3.2 for the planning data for the off-campus WD&CE functions.

In general, the College expects growth of its WD&CE programs to be higher at 29% than for its credit programs at 15%. At the same time this projected growth in WD&CE programs is about half of the 63% growth that was experienced over the five-year period prior to fall, 2006. Further, growth at the off-campus centers is expected to be higher than on-campus program delivery. Finally, WD&CE will take advantage of the class laboratories available on the College's campuses, while instruction at the off-campus centers will emphasize classrooms more, enhanced by general computer labs, rather than discipline specific labs.

TABLE 5.3.1
NEEDS ASSESSMENT PLANNING DATA FOR ON-CAMPUS WD&CE

	Actual	2006 FMP	% Change
	Fall 2006	Fall 2016	Fall 2006
FTDE-Noncredit	501	628	25%
WSCH-Lecture-Noncredit	5,207	6,385	23%
WSCH-Lab-Noncredit	2,308	3,035	31%
FTE Students	771	985	28%
FTE Faculty	2.25	2.25	0%
FT-Faculty	2	2	0%
PT-Faculty	1	1	0%
FT-Staff	25	37	48%
Planning Head Count	199	258	30%

TABLE 5.3.2
NEEDS ASSESSMENT PLANNING DATA FOR OFF-CAMPUS WD&CE

	Actual	2006 FMP	
	Fall 2006	Projected	% Change
		Fall 2016	Fall 2006
FTDE-Noncredit	181	242	34%
WSCH-Lecture-Noncredit	2,120	2,905	37%
WSCH-Lab-Noncredit	595	725	22%
FTE Students	294	387	32%
FTE Faculty	2.00	2.00	0%
FT-Faculty	2	2	0%
PT-Faculty	0	0	0%
FT-Staff	65	69	6%
Planning Head Count	124	157	27%

Current and projected space needs for each type of space in the respective on-campus or off-campus inventories for which a guideline is available were then computed. Comparisons with the respective current inventories and the ones planned for 10 years later, given approved capital projects, were made, and surpluses or deficiencies relative to the respective space categories were identified. Table 5.3.3 presents the computation of space needs for the Germantown, Rockville, and Takoma Park/Silver Spring on-campus delivery of WD&CE programs, while Table 5.3.4 shows similar computation for the off-campus centers, including the Gaithersburg Business Training Center, Westfield South, and the planned presence in White Oak.

Currently WD&CE's on-campus delivery of programs at the College's Germantown, Rockville, and Takoma Park/Silver Spring Campuses shows an overall deficiency of -28,278 NASF, a significant amount of space representing 129% of the on-campus current inventory for WD&CE. WD&CE has two approved facility projects at the Takoma Park/Silver Spring Campus over planning period of 2006 to 2016; the provision of 611 NASF in the Cafritz Foundation Arts Center and the renovation of 6,950 NASF of unfinished space in Cafritz to allow the relocation of class labs and offices from their current location in the Health Science Center. Space projections for 2016 show a remaining overall deficiency of -43,636 NASF.

TABLE 5.3.3
COMPUTATION OF SPACE NEEDS FOR ON-CAMPUS WD&CE

HEGIS CODE	ROOM USE CATEGORY	Need 2016	Projected Inventory *	Surplus/ (Deficit)
100	CLASSROOM	65,562	5,433	(4,145)
200	LABORATORY	148,047	5,752	(29,016)
210	Class Laboratory	136,724	5,097	(27,033)
220	Open Laboratory	11,323	655	(1,983)
300	OFFICE	80,159	9,526	1,675
310 /350	Office/ Conf. Room	78,061	9,526	(1,472)
320	Testing/Tutoring	2,098	0	(1,335)
400	STUDY	31,940	400	(800)
410	Study	16,850	400	(650)
420-30	Stack/Study	10,779	0	0
440-55	Processing/Service	4,312	0	(150)
500	SPECIAL USE	49,517	0	0
520-23	Athletic	45,960	0	0
530	Media Production	2,557	0	0
580	Greenhouse	1,000	0	0
600	GENERAL USE	45,541	3,306	(407)
610	Assembly	14,392	0	0
620	Exhibition	2,098	200	(400)
630	Food Facility	16,113	0	(1,556)
640	Childcare	0		0
650	Lounge	4,739	0	(963)
660	Merchandising	2,198	200	(400)
670	Recreation Space	0		0
680	Meeting Room	6,000	0	0
700	SUPPORT	23,963	0	(3,376)
710	Data Processing	2,500	0	(600)
720-740	Shop/ Storage	17,120	0	(2,506)
750	Central Service	4,000	0	(450)
760	Chemical Storage	342	0	0
800	HEALTH CARE	739	0	0
Total NASF:		65,146	21,511	(43,635)

* Projected Inventory includes existing space in 2006 plus approved development projects, including those in design or construction.

Currently WD&CE's off-campus delivery of programs at the Gaithersburg and Westfield South Centers shows a deficiency of -4,810 NASF, representing 25% of the off-campus current inventory for WD&CE. WD&CE has no approved facility projects for its off-campus centers over planning period of 2006 to 2016; the key decision will be whether to continue leasing space for off-campus program delivery or to construct or otherwise acquire permanent facilities, although the planning data has incorporated development of a presence at White Oak. For WD&CE at off-campus sites, space projections for 2016 show an almost doubling of the deficiency to -9,514 NASF.

TABLE 5.3.4
COMPUTATION OF SPACE NEEDS FOR OFF-CAMPUS WD&CE

HEGIS CODE	ROOM USE CATEGORY	Need 2016	Projected Inventory *	Surplus/ (Deficit)
100	CLASSROOM	4,358	7,183	2,826
200	LABORATORY	6,091	2,637	(3,454)
210	Class Laboratory	5,075	2,496	(2,579)
220	Open Laboratory	1,016	141	(875)
300	OFFICE	1,382	8,763	7,381
310 /350	Office/ Conf. Room	11,786	8,763	(3,023)
320	Testing/Tutoring	1,050	0	(1,050)
400	STUDY	1,200	0	(1,200)
410	Study	1,050	0	(1,050)
420-30	Stack/Study	0	0	0
440-55	Processing/Service	150	0	(150)
500	SPECIAL USE	0	0	0
520-23	Athletic	0	0	0
530	Media Production	0	0	0
580	Greenhouse	0	0	0
600	GENERAL USE	2,000	188	(1,812)
610	Assembly	0	0	0
620	Exhibition	400	0	(400)
630	Food Facility	400	0	(400)
640	Childcare	0	0	0
650	Lounge	600	188	(412)
660	Merchandising	600	0	(600)
670	Recreation Space	0	0	0
680	Meeting Room	0	0	0
700	SUPPORT	1,709	367	(1,342)
710	Data Processing	600	367	(233)
720-740	Shop/ Storage	1,117	0	(1,117)
750	Central Service	450	0	(450)
760	Chemical Storage	0	0	0
800	HEALTH CARE	0	0	0
Total NASF:		28,652	19,138	(9,514)

* Projected Inventory includes existing space in 2006 plus approved development projects, including those in design or construction.

5.3.2 Proposed Facilities Programs

One of the priorities for WD&CE is to ensure that sufficient and adequate space is available among its various locations and buildings. As WD&CE seeks to support the College’s mission with non-credit and workforce development training, there is a need to closely monitor enrollment and program changes to determine WD&CE’s evolving facility needs.

In addition to the proposed projects to allocate dedicated space to WD&CE programs noted below, it is critical that the WD&CE programs be given fair consideration along with for-credit courses, when scheduling use of on-campus space. A critical component of the WD&CE programs is their integration with and use of the various, often specialized facilities currently existing on each campus.

A description of the programs located within proposed building projects for dedicated WD&CE space follows. The physical aspects of these projects will be discussed in section 5.4, Facilities Master Plan.

Renovation of the Goldenrod Building for WD&CE at Germantown Campus

Currently WD&CE staff are housed in available offices in the Humanities & Social Sciences Building but without a specific location to provide a point of presence. Ultimately, the location in the Humanities & Social Sciences Building is required to support the Germantown Campus's credit programs. It is anticipated that at some point in time the WD&CE presence should be relocated to the Goldenrod Building where the program can be consolidated and provided with an identifiable presence.

Reallocation of South Campus Instructional Building to WD&CE at Rockville Campus

The South Campus Instructional Building should be reallocated for use by WD&CE activities at the Rockville Campus that currently are housed at the Campus Center and elsewhere. The relocation of WD&CE into this building will make possible the consolidation of Rockville Campus in-take functions and student support spaces in a future Student Services Center and renovated Campus Center.

Alteration of Gudelsky Institute for Technical Education and Replacement of the Interim Technical Training Center at Rockville Campus

There is an on-going need to reconfirm WD&CE's program needs within the Gudelsky Institute for Technical Education (GU) and reallocate space for new program initiatives and growth of existing activities. The Interim Technical Training Center (TT) should be replaced with a facility that is better integrated with the needs and functions of the Institute, including supplies storage for GU. This project is accounted for in the Rockville Campus Facilities Master Plan.

Acquisition/Renovation of Westfield South Center

This project either acquires and renovates any needed additional space or constructs a new facility to support the Workforce Development and Continuing Education efforts at the Westfield South Center. While the College believes such facilities should continue to be leased over the duration of this planning period, an alternative would be to construct a facility to support the Westfield South Center.

Acquisition/Renovation or Construction of Gaithersburg Business Training Center

This project either acquires and renovates any needed additional space or constructs a new facility to support the WD&CE efforts at the Gaithersburg Business Training Center. While the College believes such facilities should continue to be leased over the duration of this planning period, an alternative would be to construct a facility to support the Gaithersburg Business Training Center.

Acquisition/Renovation or Construction in White Oak as the East County Science and Technology Center

Given the growth in program offerings in the east County area, the College seeks to provide a facility to house WD&CE programs in this part of the County. The alternatives are to lease and/or purchase a facility or to construct a new building.

Table 5.3.5 lists the WD&CE projects included in this 10-Year Facilities Master Plan. Section 5.4.7 Projected Costs summarizes the cost estimates for completing this work.

TABLE 5.3.5
EXISTING AND PROPOSED DEDICATED WD&CE FACILITIES

	Existing NASF 2008	Master Plan 2016	NASF Change
ON CAMPUS			
Takoma Park / Silver Spring Campus			
Cafritz Foundation Arts Center	611	7,561	6,950
Resource Center	278	0	(278)
Health Sciences Center	8,894	1,007	(7,887)
Germantown Campus			
Bioscience Education Center	2,075	(2,075)	(2,075)
Humanities Building	897	0	(897)
Goldenrod Building	0	6,720	6,720
Rockville Campus			
Campus Center	10,333	0	(10,333)
Gudelsky Institute for Technical Education	incl in MCR	incl in MCR	incl in MCR
Humanities Building	970	0	(970)
Interim Technical Training Center	incl in MCR	incl in MCR	incl in MCR
South Campus Instructional Building	675	13,255	12,580
TOTAL	24,733	26,468	3,810
OFF-CAMPUS			
Takoma Park Fenton Building (Refugee Training enter)	5,447	0	(5,447)
Westfield South Center	7,811	12,380	4,569
Gaithersburg Business Training Center	11,327	16,255	4,928
White Oak Center	0	5,840	5,840
TOTAL OFF-CAMPUS	24,585	34,475	9,890
TOTAL WD&CE	49,318	60,943	13,700

5.4 2006-2016 FACILITIES MASTER PLAN

5.4.1 Guiding Principles

As part of the master plan process, a series of guiding principles were developed to assist in the evaluation of master plan alternatives. These guiding principles are presented below, and are reflected in the 2006-2016 Facilities Master Plan. This Master Plan for WD&CE focuses on:

- Consolidating Workforce Development & Continuing Education efforts on the Germantown, Rockville, and Takoma Park/Silver Spring Campuses so that students, visitors, and the College community benefit from the ease, energy, and excitement generated by the synergy of proximity (see Figures 5.4.1 through 5.4.3);
- Providing sufficient and adequate space at each location—classrooms, labs, offices, study, and support facilities—based on existing and projected needs;
- Presenting students the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, counselors, and staff;
- Creating a stronger identity for the WD&CE program on each campus and at off-campus locations to enable a broader reach into the community and a clear, welcoming environment for visitors, and new and potential students.

5.4.2 Regional or Local Issues

The College is constantly reassessing the breadth of community outreach as embodied in the WD&CE program. They have identified a growing population in the east Montgomery County area which is currently underserved by the community college network. This is the primary impetus for developing a WD&CE site at White Oak.

5.4.3 Program Identity and Image

In order to strengthen the identity and image of the college's WD&CE programs, an approach similar to that of retail establishments is recommended. This approach will entail developing a standard welcoming configuration and design for public entry space of each WD&CE on-campus and off-campus location. The design would include standard materials for flooring, walls, ceiling and lighting, as well as furniture and signage. The graphics developed for signage should be coordinated with the printed material that WD&CE distributes. The College should expend some effort to develop a design concept that is consistent with the WD&CE mission and will serve the program for the next five to ten years.

5.4.4 Proposed Land and Building Use

Based on the College's anticipated enrollment growth over the 2006 to 2016 period, and supported by the instructional and other needs identified during the master planning process, the College has identified a number of capital projects for Workforce Development & Continuing Education (WD&CE). Implementation of these projects will allow the College to provide for the physical space needs of WD&CE over the ensuing 10-year period. Detailed facility programs will be prepared for each project as the College's capital funding requests are developed for submission to the State of Maryland and Montgomery County.

Below are listed the WD&CE projects included in this 10-Year Facilities Master Plan. Section 5.4.7 Projected Costs summarizes the cost estimates for completing this work.

1. REALLOCATION OF THE GOLDENROD BUILDING ON THE GERMANTOWN CAMPUS (12,200 GSF)

- The Goldenrod Building is a former office building on Goldenrod Lane that has been leased by the College and renovated for academic space. The building is being leased with an option to purchase in 2011.

2. REALLOCATION OF SOUTH CAMPUS INSTRUCTIONAL BUILDING TO WD&CE AT ROCKVILLE (13,255 NASF)

- This building will be reallocated to support WD&CE activities that are currently housed in the Campus Center. Minor alterations will be required.

3. ALTERATION OF THE GUDELSKY INSTITUTE FOR TECHNICAL EDUCATION AND REPLACEMENT OF THE INTERIM TECHNICAL TRAINING CENTER AT ROCKVILLE

- There is an on-going need to reconfirm WD&CE's program needs within the Gudelsky Institute for Technical Education (GU) and reallocate space for new program initiatives and growth of existing activities.
- This project replaces and expands on the current Interim Technical Training Center, and also serves to consolidate the Technical Training programs and Applied Technology programs currently housed in Technical Center. The building is proposed as a low, 2-story mass housing the high bay automotive classrooms/labs, with a 6-story tower fronting toward North Campus Drive, and marking the north vehicular entry to campus. The 2-story building will be situated parallel to the track, and could possibly incorporate bleacher seating.

4. ACQUISITION AND RENOVATION OF BUILDINGS AT WESTFIELD SOUTH CENTER (22,500 GSF)

- To enlarge the WD&CE program in Wheaton, the College will lease or acquire if possible a new building within Westfield South Center to expand this campus. An alternative would be to acquire land and develop a new purpose-built facility of at least 22,500 GSF.

5. ACQUISITION AND RENOVATION OF BUILDINGS AT GAITHERSBURG BUSINESS TRAINING CENTER (29,600 GSF)

- To enlarge the WD&CE program in Gaithersburg, the College will lease or acquire if possible a new building within Gaithersburg Business Training Center to expand this campus. An alternative would be to acquire land and develop a new purpose-built facility of at least 28,500 GSF.

6. LEASE OF BUILDING AT NEW WHITE OAK CENTER FOR THE EAST COUNTY SCIENCE AND TECHNOLOGY CENTER (10,600 GSF)

- To address a need for more WD&CE programs in Eastern Montgomery County, the College will lease a new building within White Oak Center to create a campus with a focus on science and technology.

5.4.5 Proposed Circulation and Parking

This section presents the parking, access and pedestrian issues dealing specifically with WD&CE uses at each of the campuses, including Wheaton, Gaithersburg and White Oak.

Takoma Park / Silver Spring Campus

With the completion of the West Garage, parking is generally adequate to serve the courses offered by the Health Sciences Institute and other WD&CE programs on campus. No new changes are proposed.

Germantown Campus

Since the Goldenrod Building is served by an adjacent parking lot, parking is considered to be generally adequate to serve the courses offered by the WD&CE programs on campus. No new changes are proposed.

Rockville Campus

With the relocation of the main WD&CE programs to the South Campus Instructional Building, the parking situation will improve for a good portion of WD&CE program students, faculty and staff. The SB is served by an adjacent parking lot, and is also quite close to the leased lot across Mannakee Street. No new changes are proposed.

Westfield South Center

With ample parking in the adjacent parking garage also serving the WD&CE programs located here, no new changes to parking are proposed. The College will continue to encourage the use of mass transit to this location.

Gaithersburg Business Training Center

With ample parking for the shopping center also serving the WD&CE programs located here, no new changes are proposed. The College will continue to encourage the use of mass transit to this location.

East County Science and Technology Center

The proposed site for the East County Science and Technology Center in White Oak is served by two major thoroughfares - MD 29 Columbia Pike and MD 650 New Hampshire Avenue. Parking will be addressed during the design phase of this facility.

FIGURE 5.4.1
BUILDING USAGE - TAKOMA PARK/SILVER SPRING CAMPUS



FIGURE 5.4.2
BUILDING USAGE - GERMANTOWN CAMPUS

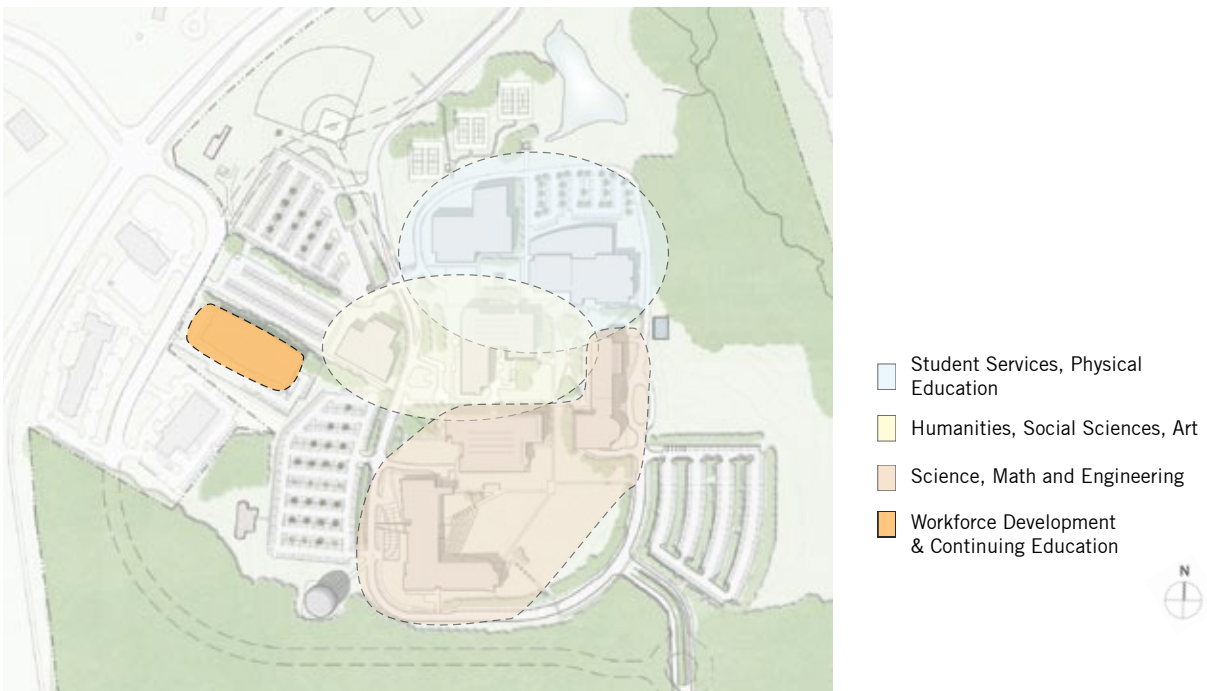


FIGURE 5.4.3
BUILDING USAGE - ROCKVILLE CAMPUS



	BMIS	Business, Management, and Information Science
	SS	Student Services
	FPA	Fine and Performing Arts
	HPE	Health and Physical Education
	HUM	Humanities
	SEH	Social Sciences, Education, and History
	SEM	Science, Engineering, and Math
	WD&CE	Workforce Development & Continuing Education

0 50 100 250

5.4.6 Implementation of the Facilities Master Plan

With regard to implementing the proposed WD&CE projects, the College prioritized the sequence based on current plans. Changes in program priorities may lead to changes in the implementation plan.

IN DESIGN OR CONSTRUCTION - approved projects that will be constructed in the near-term 2010-2011

Reallocation of existing unfinished space within the Cafritz Foundation Arts Center on the Takoma Park/Silver Spring Campus.

PHASE 1 - project whose need is immediate and will be developed for approval in the near term

- Reallocation of South Campus Instructional Building to WD&CE at Rockville. This project depends on existing functions there being relocated.

PHASE 2 - projects whose need has been identified but will be developed for approval in the long-term

- Reallocation of the Goldenrod Building on the Germantown Campus;
- Alteration of the Gudelsky Institute for Technical Education and Replacement of the Interim Technical Training Center at Rockville. This project depends on existing functions there being relocated;
- Acquisition and Renovation of buildings at Westfield South Center;
- Acquisition and Renovation of buildings at Gaithersburg Business Training Center;
- Lease of building at new White Oak Center for the East County Science and Technology Center.

5.4.7 Projected Costs

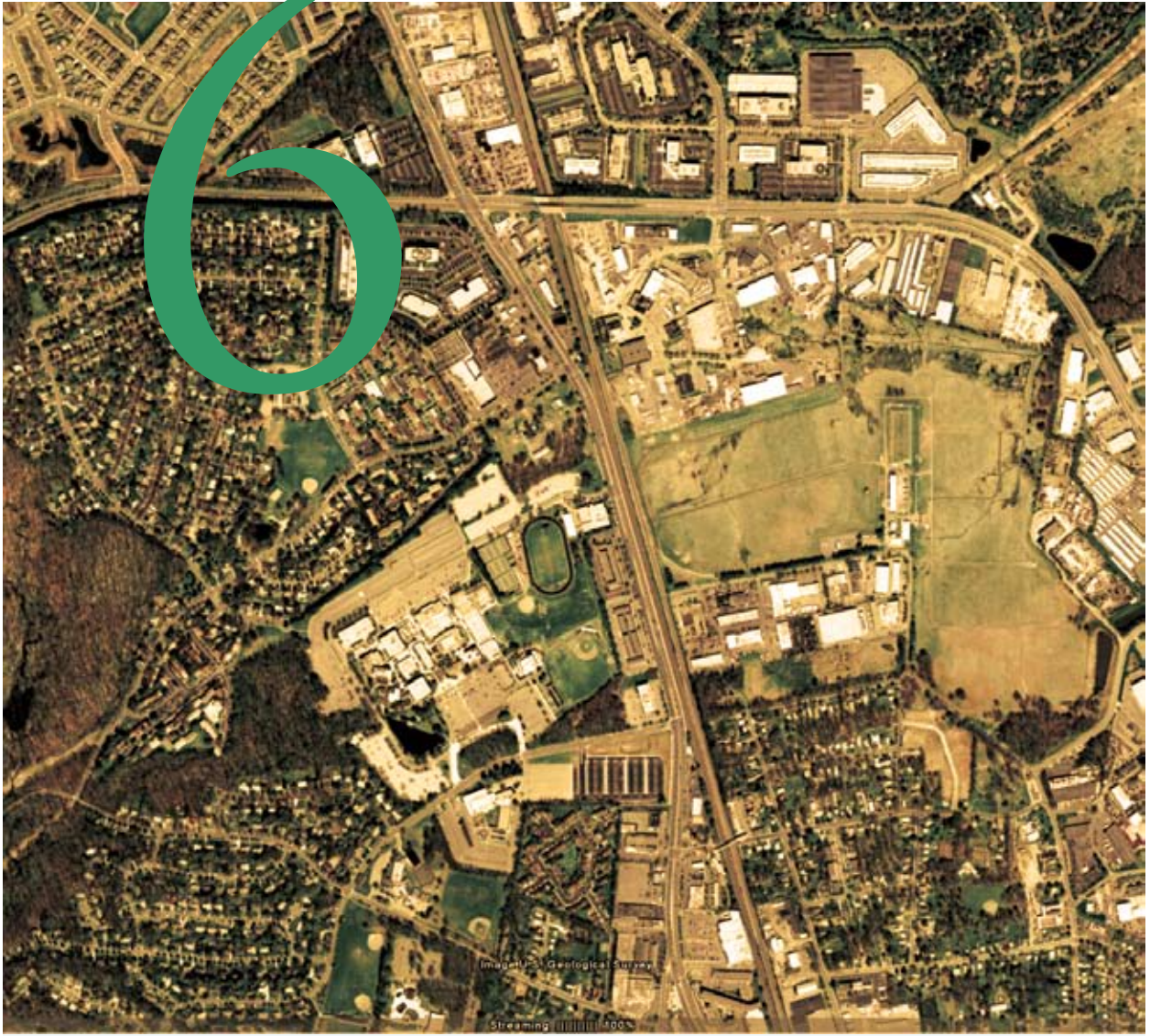
An estimate of project costs for the design, construction and furnishing of the various projects included in the 2006-2016 Facilities Master Plan was prepared by DMS International and the College's Office of Facilities. These project estimates are based on a mini-program which cumulatively responds to the academic and support needs reflected in this master plan. The mini-program for each project is in turn based on the enrollment and staffing requirements of that project as supported by the data analysis which is again presented in this master plan. These project costs are tabulated in Table 5.4.1 for Workforce Development & Continuing Education. The project construction cost estimates were prepared in May 2010 by DMS International and extended and compiled by the Office of Facilities for design, supplemental construction and construction administration, and furniture, instructional equipment, and information technology equipment costs in September 2010. The intent of this effort is to prepare a total project budget that allows for the opening of a complete, fully functioning building. A supplemental document prepared by the Office of Facilities provides additional detail and assumptions related to each project cost estimate.

TABLE 5.4.1
CAPITAL PROJECTS FOR WORKFORCE DEVELOPMENT & CONTINUING EDUCATION

Project	Cost Estimate (Current Dollars - 09/10)
South Campus Instructional Building Renovation	Included w/Rockville Campus
Gudelsky Institute for Technical Education Renovation & Addition	Included w/Rockville Campus
Goldenrod Building Renovation	Beyond 2016 - No Cost Est.
Gaithersburg Business Training Center (Lease expires July 2011)	Continue Lease - No Cost Est.
Westfield South Center (Lease expires February 2012)	Continue Lease - No Cost Est.
East County Science & Technology Park – White Oak	Beyond 2016 - No Cost Est.
Campus Total	See Rockville Campus

5.4.8 2016 to 2026

The WD&CE program is intended to adjust flexibly to the continuing education needs of the community workforce. Further development will be part of ongoing monitoring of needs, as well as population fluctuations in Montgomery County.



CENTRAL ADMINISTRATION

6.1 CAMPUS BACKGROUND INFORMATION

6.1.1 Facilities Master Plan

This chapter of the 2006-2016 Facilities Master Plan for Montgomery College complements the document focusing on services provided by the College-wide Central Administration. The overarching goal of the Facilities Master Plan is to establish a framework for the development of capital projects to support the role, mission, and academic vision of Montgomery College.

The Facilities Master Plan looks at Central Administration as a unique function distinct from the individual campuses. The vision for Central Administration seeks to extend and support the College's overall educational mission. The Facilities Master Plan for Central Administration focuses on:

- Relocating, as appropriate, central administration offices and functions from core campus facilities to facilities supporting central administration;
- Co-locating central administration departments and functions rationally so that students, visitors, and the College community itself benefit from the ease, energy, and excitement generated by the synergy of proximity; and
- Providing sufficient and adequate space—offices, meeting rooms, and support facilities—based on existing and projected needs, so that each and every area can support the College.

6.1.2 Comparison with 2002-2012 Facilities Master Plan

Staff – In 2002, total staff supporting the three campuses, WD&CE and Central Administration totaled 1,152.75 FTE and in 2006 totaled 1,485.25 FTE, or an increase of 28.8%. The projected staff FTE will also increase from 1,392.25 (2012) to 1,632.75 (2016), or 17.3%. The largest growth in staff positions is planned for the instructional areas on the three campuses and within WD&CE.

The Central Administration functions of the College accounted for 399.75 Staff FTE positions in 2002, or approximately 34.7% of the College's total 2002 Staff FTE of 1,152.75. In 2006, the Central Administration functions accounted for 416.75 FTE, or 28.1% of the College's total 2006 Staff FTE of 1,485.25.

The projected Central Administration Staff FTE will also increase modestly from a projected 434.75 FTE in 2012 to 439.25 FTE in 2016. The share of Central Administration staff to college-wide staff is anticipated to continue to decline from 31.2% (2012) in the 2002-2012 Facilities Master Plan to 26.9% (2016) in the 2006-2016 Facilities Master Plan.

Plan Comparison

Needs Assessment – The ten-year space deficit for Central Administration has fallen from a deficit of 39,239 net square feet in 2012 to a deficit of 32,752 in 2016, or a reduction of 16.5%, based on State of Maryland space guidelines. The decrease in the Central Administration deficit is the result of leasing of several facilities for information technology, central facilities in 40 West Gude Drive and Central Receiving and Storage.

6.1.3 Institutional Characteristics

Montgomery College is one of the largest community colleges in the State of Maryland, with three campuses at Germantown, Rockville, and Takoma Park/Silver Spring and the Workforce Development & Continuing Education (WD&CE) efforts on all three campuses and at other locations throughout Montgomery County. The College's educational mission of changing student lives is accomplished through associate degrees, certificates, transfer to baccalaureate institutions, or the acquisition or enhancement of occupational skills. The College recognizes that numerous administrative activities outside the instructional setting also contribute to student success. Those elements that contribute to student success have undergone considerable transformation over the years because of changing demographics, technology, pedagogy, political circumstances, and other societal factors. The College's administrative organization and college-wide access to electronic communications enables the College community to think and act college-wide, rather than campus-wide. Top-level administrators on each campus have college-wide responsibilities. All full-time College employees have email. The College intranet is used to post information, facilitate discussion, and collect feedback. Student services ranging from web registration and grade posting to in-depth advising and abundant transfer information to distance learning courses are making the virtual campus a reality. Through a partnership with the University System of Maryland, College students can continue their education and earn a bachelor's degree in the County at the Universities at Shady Grove. The College Institute affords qualified high school students the opportunity to take College classes and earn college credit. Montgomery Scholars study at Cambridge University in England. Almost 2,000 students take on-line courses. The College not only provides a variety of programs and support services that foster the personal and professional growth of its students but also continually strives to meet the ever-changing needs and interests of the community.

The foundations for the College's effectiveness as "the community's college" rest with outstanding programs, effective partnerships, and sound practices and policies. Central Administration as a unit of the College incorporates all of those institutional support offices and departments that function to support these four "Ps" and the efforts of the three campuses and WD&CE. Four major organizational components comprise Central Administration:

Office of the President, including Chief of Staff, Director of Equity and Diversity, Director of Government Relations, and General Counsel;

Office of the Senior Vice President for Academic and Student Services, including Vice President for Academic Initiatives and Partnerships, Vice President for Planning and Institutional Effectiveness, Director of Admissions and Enrollment Management, and College Director of Student Financial Aid;

Office of the Senior Vice President for Administrative and Fiscal Services, including Associate Vice President for College Facilities, Chief Budget and Management Studies Officer, Chief Business Officer, Chief Human Resources Officer, Chief Information Officer, and Director of Auxiliary Services; and

Office of the Vice President of Institutional Advancement, including Director of Communications, Director of Development, Director of Foundation Finance, and Director of Business Development and Grants.

In addition, the Vice Presidents and Provosts of the College's three campuses at Germantown, Rockville, and Takoma Park/Silver Spring and the Vice President for Workforce Development & Continuing Education report to the Senior Vice President for Academic and Student Services. Due to a reorganization, the

Director of Libraries now reports to the Senior Vice President of Academic and Student Services. While Central Administration has a strong visible presence on the Rockville campus, the College’s approach to organization and management has been to weave some of this institutional support into the campus fabric as well.

6.1.4 Academic Programs

The College is authorized by the Maryland Higher Education Commission to offer four degrees: the Associate of Arts (A.A.), the Associate of Science (A.S.), the Associate of Arts in Teaching (A.A.T.), the Associate of Fine Arts (A.F.A.) for students wanting to transfer to baccalaureate programs and the Associate of Applied Science (A.A.S.) for those seeking immediate employment. The College also awards certificates (Cert) that focus on the development of technical skills, as well as letters of recognition (L of R) for non-degree seeking students who satisfactorily complete certain courses. In summary the College offers eighty-one (81) different degree programs, fifty-five (55) certificate programs, and ten (10) letter of recognition programs. The Rockville Campus has the highest concentration of programs offered, although each campus has or is developing unique program offerings. Not included here are the programs offered by WD&CE.

**Table 6.1.1
SUMMARY OF 2006 ACADEMIC PROGRAMS OFFERED**

	Degree	Cert	L of R
Total	80	59	11
Germantown	44 (55%)	17 (29%)	3 (27%)
Rockville	68 (85%)	46 (78%)	10 (91%)
TP/SS	50 (63%)	12 (20%)	3 (27%)

**Table 6.1.2
NUMBER OF 2006 ACADEMIC PROGRAMS AND LOCATION BY PROGRAM AREA ***

	AA	AS	AAT	AFA	AAS	Cert	L of R
Accounting					1 GR	1 GR	
American Sign Language					1 GRT	1 GRT	
Applied Geography					1 R	2 R	
Architectural & Construction Technology					2 R	2 R	
Art	1 GT; 3 R			1 GR; 3 T		2 GRT	
Automotive Technology					1 R	4 R	
Biotechnology					1 G	1 G	
Building Trades Technology	2 GRT				1R	2R	4R

Table 6.1.2 CONT'D

Business	2 GRT							
Communication Arts Technologies					5 R		11 R	
Computer Application					1 GRT		1 GT; 2 R	
Computer Gaming & Simulation	1 GRT							
Computer Publishing & Printing Management					1 R		2 R	
Computer Science & Technologies	2 GRT						1 GRT	
Criminal Justice					1 R			
Education			5 GRT		1 R		1 R	
Engineering Science		10 GRT						
Emergency Medical Technician								1 GRT
Fire Science Fire Service Management					1 R		1 R	
General Studies	1 GRT							
Health Enhancement, Exercise Science & Physical Education	4 R						1 R	
Health Sciences		1 T			6 T		3 T	
Hospitality Management					1 R		3 R	3 R
		AA	AS	AAT	AFA	AAS	Cert	L of R
Interior Design	1 R					1 R	3 R	1 R
Landscape Technology						1 G	1 G	
Liberal Arts	3 GRT							
Management							1 GRT	1 GRT
Music	1 R						1 R	
Network & Wireless Technologies						1 GRT	3 G	
Paralegal Studies						1 GT	1 GT	1 GT
Pre-Professional	5 GRT							
Science			5 GRT					
Technical Writing							1 G	
Theatre	3 R							
Transfer Studies							1 GRT	
Web Careers						1 GRT	2G; 4R; 1T	

GRT: Germantown, Rockville, Takoma Park/Silver Spring; G: Germantown only; R: Rockville only; T: Takoma Park / Silver Spring only

* Montgomery College Catalog 2006-2007

General Education requirements are a part of all degree programs, with courses providing students with a common, well-grounded educational experience to support and complement the courses in their majors. In addition to specific course content, General Education requirements assist students in the development of critical literacy, respect for others, creative expression, effective oral and written communication, and respect for the intellectual community tempered with skepticism about unchallenged “truths.” Providing foundation and distribution course requirements, the College’s General Education Program conforms to the Maryland Higher Education Commission Academic Regulations on General Education and Transfer.

In addition to courses supporting the General Education curriculum, the campuses offer courses supporting student development, addressing study habit, college survival, and memory skills, building confidence in math, and developing a portfolio. Students are also taught how to plan, establish, or change a career. International students are provided a specific orientation course to American higher education customs, typically taken in conjunction with American language development courses. These courses support the College’s philosophy and approach to building student success and changing lives.

To serve students with high academic ability and motivation, the College maintains an Honors Program offering advanced-level, highly stimulating learning experiences both inside and outside the classroom through a variety of seminars, independent studies, tutorials, and honors modules of existing courses. Students who engage in honors activities and programming have completed 12 hours of college-level work with a GPA of 3.2 or higher. The Honors Program implements the Montgomery Scholars Program, which is designed for high school graduates planning to transfer to baccalaureate programs, and the Millennium Scholars Program, which is designed primarily for adult, part-time students at the Germantown and Takoma Park/Silver Spring campuses.

The College’s mission is to meet the needs not only of those students who come well equipped academically but also of those who come under-prepared. The Appropriate Course Placement Policy of the College mandates required placement based on scores from the College admissions test. Traditionally about two-thirds of the students evaluated are recommended for remediation in mathematics, one-fourth for remediation in English, and one-half for remediation in reading. The developmental education program is comprised of two, non-credit bearing courses in Mathematics, English, and Reading. Movement through the sequences varies by discipline; however, developmental courses have entry and exit level testing procedures.

The American English Language Program (AELP) at Montgomery College is a multi-level, cross-cultural, highly structured program designed to meet the language needs of non-native speakers of American English. AELP supports students with intermediate to advanced English-speaking skills and allows them to earn institutional credit as they prepare for college-level courses. Students with entry level English speaking skills begin their work under Continuing Education in a separate sequence of courses. The AELP Program is a dynamic and flexible program that strives to meet the needs of the ever growing and extraordinarily diverse student population.

Delivery of all these programs is expected to change substantially over the coming decade. The College has made significant and substantial investments in its classroom environments to incorporate smart instructional technology and to provide and support technology-based learning centers that help

students learn effectively and efficiently. The forthcoming challenges will be to keep current in computer technology, develop and implement alternative course delivery, assess student technology readiness, and train faculty and staff in the use of new technologies. Working as a team, the Office of Information Technology, the Center for Teaching and Learning, and the Office of Human Resources Professional Development hold in high priority the development and implementation of strategies and programs that address these continuing technology challenges.

Students can now complete many of the College's General Education and degree requirements by enrolling in distance learning course sections. In fall 2006, 8,521 credit hours were taught completely on-line, representing a little more than 4% of the total credit hours taught. By fall, 2016 11,588 credit hours are projected to be taught completely on-line, an increase of 36% but representing only 5% of the total number of credit hours taught. The number of on-campus courses with a distance learning component, often referred to as blended courses, however, will continue to increase. A number of non-credit distance learning courses are also available for students through such third party vendors as "Ed to Go." The educational community can also take advantage of other alternative instructional delivery modes. Channel 10, the College's county-wide television station, broadcasts television courses, and some limited interactive television capability supports two-way instruction, meetings, and demonstration courses.

Apart from technology, the College must prepare to address other changes in pedagogy. Mathematics instruction, for example, is transforming from a traditional classroom chalk and talk to an interactive lab environment. Professions, such as engineering, education, nursing, and the health sciences, are increasing their requirements for professionally based learning early in the college experience, and the specialized learning environments which had been typically associated with upper-level baccalaureate education are now present during the first two college years. Community colleges generally, and Montgomery College specifically, can be expected to decrease reliance on classroom environments, even smart ones, and shift to more "lab-like" teaching and learning environments. In addition, instruction, especially in those disciplines with heavy emphasis on specialized learning environments can be expected to require more scheduled time in the lab. Finally, the emphasis on collaborative learning will continue to require flexible instructional environments that allow seating and equipment to be rearranged and study and work spaces that support small groups of students engaged in projects.

These instructional delivery changes, together with the increases projected for enrollment, can be expected to have impact on the College's contact hour productions. The ratio of contact hours (WSCH) to credit hours (SCH) shows the extent to which time scheduled in class is greater than the credit hours earned. In most classroom courses, WSCH equals SCH, and the ratio is 1.00. For more "lab" environments, whether science, physical education, art, or music, this ratio gets larger because of the lab component. For example, the course Illustration I is offered for 3 SCH, but has 2 hours of lecture and 3 hours of lab per week, with a WSCH/SCH ratio of 1.67. In fall 2006 the College's average WSCH to SCH ratio was 1.17, and by 2016 the College believes this will increase to 1.23 primarily because of increased availability of labs and lab courses at the Germantown and Takoma Park/Silver Spring Campuses. The majority, 78%, of the College's credit hours, are expected to be generated during the day (from 8:00 a.m. to 5:00 p.m., Monday through Friday), the same as in fall 2006. Finally, the relative percentage of contact hours in lab environments is projected to increase from 33% in 2006 to 48% in 2016, reflecting increased availability of lab environments and changes in pedagogy in disciplines such as Writing, Reading, and Mathematics.

TABLE 6.1.3
2006 AND 2016 CREDIT AND CONTACT HOURS
 Day, On-line, and Total Credit Hours

	2006 Day SCH	2006 On-Line SCH	2006 Total SCH	2006 % Day SCH	2016 Day SCH	10 yr % Chg	2016 On-Line SCH	10 yr % Chg	2016 Total SCH	10 yr % Chg	2016 % Day SCH
GT	28,725	2,078	39,000	74%	38,356	34%	3,286	58%	51,833	33%	74%
RV	96,345	3,715	121,440	79%	100,830	5%	4,402	18%	127,633	5%	79%
TP/SS	32,685	2,728	41,940	78%	40,811	25%	3,900	43%	52,322	25%	78%
College	157,755	8,521	202,380	78%	179,997	14%	11,588	36%	231,788	15%	78%

Day Contact Hour (WSCH) to Day Credit Hour (SCH) Ratio

	2006 WSCH	2006 SCH	2006 WSCH/ SCH	2016 WSCH	10 yr % Chg	2016 SCH	10 yr % Chg	2016 WSCH/ SCH	10 yr % Chg
GT	33,573	28,275	1.17	46,027	37%	38,356	34%	1.20	3%
RV	112,611	96,345	1.17	119,988	7%	100,830	5%	1.19	2%
TP/SS	38,574	32,685	1.18	55,095	43%	40,811	25%	1.35	14%
College	184,758	157,755	1.17	221,110	20%	179,997	14%	1.23	5%

Day Lecture and Lab Contact Hour

	2006 Day Lecture WSCH	2006 Day Lab WSCH	2006 Day Total WSCH	2006 Day % Lab WSCH	2016 Day Lecture WSCH	10 yr % Chg	2016 Day Lab WSCH	10 yr % Chg	2016 Day Total WSCH	10 yr % Chg	2016 Day % Lab WSCH
GT	20,050	13,523	33,573	40%	22,517	12%	23,510	74%	46,027	37%	51%
RV	77,811	34,800	112,611	31%	65,508	-16%	54,480	57%	119,988	7%	45%
TP/SS	25,123	13,451	38,574	35%	26,952	7%	28,143	109%	55,095	43%	51%
College	122,984	61,774	184,758	33%	114,977	-7%	106,133	72%	221,110	20%	48%

6.1.5 Student Development and Other Services

On all three campuses, the Student Development Division provides a broad spectrum of student services, including:

- Assessment to ensure appropriate course placement of students given their skills,
- Advising and counseling to assist students, in groups and individually, in making educational, career, and personal decisions and in planning and progressing toward their academic and career goals;
- Academic support skill development, including study and test-taking skill development, strategies for overcoming math anxiety, and time management;
- Disability support services, in accordance with the provisions of the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 and from the framework of student self-determination and self-advocacy, which determine and facilitate appropriate academic and technological accommodations, act as liaisons with College resources and external agencies and consultants, and provide referral services for students with disabilities;
- International and multicultural student services for students from diverse cultures and language backgrounds;
- Career and transfer assistance, offering information and assistance on choosing a major and exploring career fields, job opportunities, and educational programs at four-year colleges and universities;
- Student employment services, including employment skills training, matching students with employment openings, and placing students in cooperative education and internship experiences; and
- A wide variety of educational, social, cultural, leadership, and recreational activities that enhance student life.

In addition to these student development programs, the College further supports campus life for students by operating bookstores, child care centers, and food services on each campus. Safety and Security Offices on each campus are responsible for the protection of students, personnel, and visitors and their property and provide first aid response, emergency assistance, escort services, and lost and found services. They also issue vehicle registration and parking permits and enforce campus parking regulations.

Finally, each campus library provides a wide variety of information resources and services to support the curricula of the College. The Rockville Campus library has the largest and broadest collection and has longer hours of operation than the other libraries. The Takoma Park/Silver Spring Campus library has special collections to support art, the health sciences, multiculturalism, and American English Language Programs. The Germantown Campus library emphasizes business, computing, high technology, biotechnology, and multicultural programs. The College archives, located at the Rockville Campus, include student government records, student newspapers, accreditation documents, and other historical records of interest. Except for the archive materials, these materials can be located through the College's on-line

catalog. Each library also provides access to numerous on-line indexes and full-text databases, as well as internet stations for student and community use and an interlibrary loan system for acquiring resources not available at the College.

6.1.6 Enrollment

The faculty, staff, and administrators of the College work to serve the needs of an increasingly diverse student body and community. The College enrolls more than 56,000 students annually in credit and non-credit courses. One out of every four graduates from Montgomery County public high schools comes directly to the College; approximately 40% of these graduates are enrolled at the College within two years of their high school graduation. The average age of students is about 26 years of age, with 58% being between 18 and 24 years old. Women account for 55% of the student population. Minority students make up 60% of the student body, including 28% Black, 16% Asian, and 16% Hispanic.

Relative to fall term credit enrollments, the College has been experiencing growth in the total number of students enrolling at any one of its campuses, a 5% five-year change. These students have been taking an average of 8.9 credits, with the impact that the number of full-time equivalent students (FTE) has not increased at the same rate. As the College looks to 2016, it expects that both the number of headcount students and the average credit hour load will increase, with the result that FTE enrollment will increase 15% from its 2006 level. These enrollment projections are based on conservative expectations of population growth in the county and transition rates from high school to college, as well as a trend toward younger student enrollments. Careful monitoring by the College of its enrollments will be critical, particularly given the significantly constrained facilities available to support the current campuses and programs.

**TABLE 6.1.4
FALL TERM COLLEGE-WIDE ENROLLMENT STATISTICS**

							5yr		10 yr
	2001	2002	2003	2004	2005	2006	% Chg	*24,527	% Chg
Headcount*	*21,347	*21,805	*21,671	*22,254	*22,263	*22,893	5%	*9.5	7%
Credit Load*	*8.7	*9.1	*8.8	*8.8	*8.9	*8.8	1%	15,453	7%
FTE Students	12,443	13,284	12,677	13,016	13,275	13,492	2%	8,509	15%

* unduplicated count

For campus fall term enrollment, the Rockville Campus is the largest, with 15,275 headcount and 8,096 FTE students enrolled in fall 2006. The Germantown Campus, with 5,529 headcount and 2,600 FTE students, and the Takoma Park/Silver Spring Campus, with 5,684 headcount and 2,796 FTE students, are of comparable enrollment size. Projections to fall 2016, however, show very different growth for these campuses. Focusing on FTE enrollments, the Germantown Campus is planning for substantial growth of 33%, with expanded programs and new facilities supporting the biosciences developed in conjunction with Montgomery County’s plan for a contiguous biotechnology industry park. The College is expecting higher than average growth at Takoma Park/Silver Spring Campus, with a 25% increase as this campus capitalizes

on the recent expansion of programs and facilities in the health sciences, as well as new facilities supporting the arts and student services. Enrollment growth at the Rockville Campus is anticipated to be maintained at the growth rate of 5% over the next ten years; significant campus space constraints being the principal factor.

**Table 6.1.5
FALL TERM CREDIT HEADOUNT* STUDENTS BY CAMPUS**

							5yr		10 yr
	2001	2002	2003	2004	2005	2006	% Chg	*24,527	% Chg
Germantown	4,871	4,948	5,000	5,326	5,273	5,529	12%	6,911	25%
Rockville	14,334	14,817	14,765	14,953	14,726	15,275	3%	15,565	2%
TP / SS	4,575	4,821	4,873	5,154	5,641	5,685	18%	6,708	18%
College	21,347	21,805	21,671	22,254	22,263	22,893	5%	24,527	7%

* unduplicated count

**TABLE 6.1.6
FALL TERM CREDIT FTE STUDENTS BY CAMPUS**

							5yr		10 yr
	2001	2002	2003	2004	2005	2006	% Chg	*24,527	% Chg
Germantown	2,168	2,224	2,318	2,440	2,454	2,600	17%	3,456	33%
Rockville	7,908	8,050	7,935	7,977	8,023	8,096	1%	8,509	5%
TP / SS	2,367	2,358	2,424	2,599	2,798	2,796	19%	3,488	25%
College	12,443	13,284	12,677	13,016	13,275	13,492	2%	15,453	15%

Work Force Development and Continuing Education is also expecting substantial growth in its programs, with annual funded course FTE enrollments increasing 55% to 5,078 FTE. These enrollments translate into a fall term, on-campus enrollment of 1,373 FTE, an increase of 29% over the 2006 fall term and equivalent to 53% of the 2006 fall FTE enrollment at the Germantown Campus or 49% of that for the Takoma Park/Silver Spring Campus.

**TABLE 6.1.7
WD&CE ANNUAL AND FALL TERM CREDIT FTE ENROLLMENT**

	Fall	Fall	10-yr
	2006	2016	% Chg
Annual State FTE	3,270	5,078	55%
Annual Off-campus/On-line FTE	1,504	2,030	35%
Annual On-campus/site FTE	1,492	1,907	28%
Fall On-campus/site FTE	1,065	1,373	29%

6.1.7 Faculty and Staff

The College remains committed to developing a diverse workforce that reflects the demographics of Montgomery County and the student body. In Fall, 2006, Black employees comprise 21% of all employees, Asians, 9%, and Hispanics, 6%. Just over 57% of the College’s employees are female. The average faculty member is 51 years old and has been at the College for 11 years. Slightly more than 31% hold a doctorate, and about 8% hold tenure. The College recruits faculty both nationally and locally.

The College projects that its number of FTE faculty will increase at a rate slightly lower than its overall increase in enrollment, 12% from 784.00 to 876.75, an increase of 92.75 FTE faculty. Full-time faculty, however, are expected to increase more than part-time, as the College seeks to achieve and maintain its goal of having two-thirds of its instruction delivered by full-time faculty. Faculty supporting WD&CE will remain at current levels. Campus projections of faculty seek to reduce and/or equalize the credit hour loads of faculty and therefore do not necessarily parallel enrollment growth rates.

**TABLE 6.1.8
2006 AND 2016 COLLEGE FACULTY POSITIONS**

	2006	2006	2006	2016	10 Yr # (%)	2016	10 Yr # (%)	2016	10 Yr # (%)
	FT	PT	FTE	FT	Chg	PT	Chg	FTE	Chg
Germantown	91	178	135.75	123	32 (35%)	235	57 (31%)	181.75	46.00 (34%)
Rockville	323	504	449.00	350	27 (8%)	491	-13 (-3%)	472.75	23.75 (5%)
TP / SS	141	216	195.00	158	17 (12%)	240	24 (11%)	218.00	23.00 (12%)
WD&CE	4	1	4.25	4	0 (0%)	1	0 (0%)	4.25	0 (0%)
College	559	900	784.00	635	76 (14%)	967	67 (7%)	876.75	92.75 (12%)

Overall, the College expects its numbers of full-time, part-time, and FTE staff to increase 10% from fall 2006 to fall 2016, a rate lower than either its overall projected increases in fall term FTE enrollment and FTE faculty. Campus and division projections, also, are not across the board. The number of Central Administration FTE staff is projected to grow only by 5% over the next 10 years, capitalizing on the human resource investments made recently in Information Technology and Institutional Advancement, especially, and on economies of scale. WD&CE is anticipating a substantial 32% increase in staff, reflecting the projected enrollment growth and expanded outreach, particularly in the health sciences at the Takoma Park / Silver Spring Campus and biotechnology at the Germantown Campus. Campus projections of staff seek to reduce and/or equalize the ratios of student and of faculty to staff and therefore do not necessarily mirror enrollment growth rates.

**TABLE 6.1.9
2006 AND 2016 COLLEGE STAFF POSITIONS**

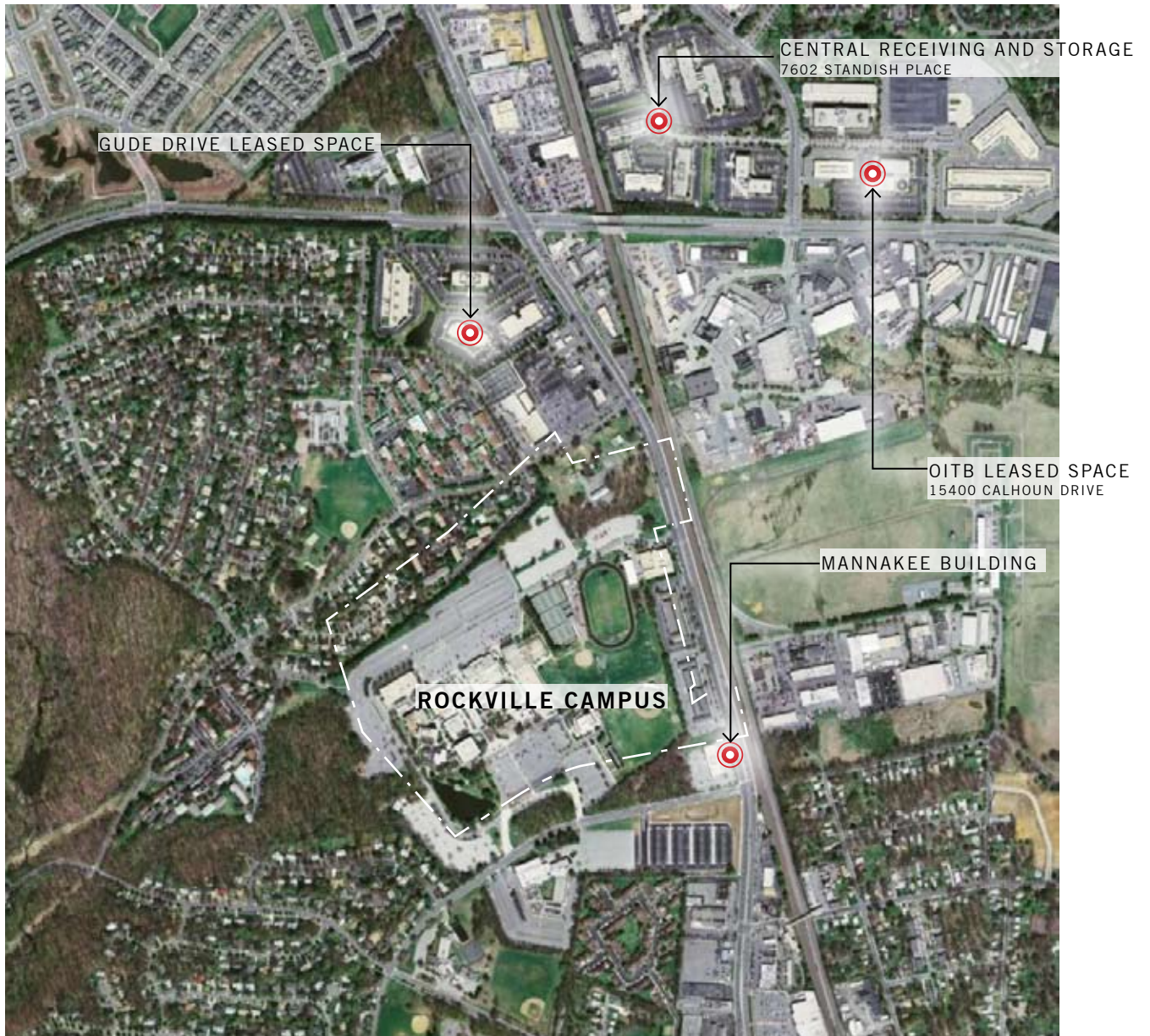
					10 Yr		10 Yr		10 Yr
	2006	2006	2006	2016	# (%)	2016	# (%)	2016	# (%)
	FT	PT	FTE	FT	Chg	PT	Chg	FTE	Chg
Central Adm	406	43	416.75	426	20	53	10	439.25	22.50
					(5%)		(23%)		(5%)
Germantown	152	52	165.00	201	49	68	16	218.00	53.00
					(32%)		(31%)		(32%)
Rockville	479	160	519.00	500	21	174	14	543.50	24.50
					(4%)		(9%)		(5%)
TP / SS	252	79	271.75	261	9	90	11	283.50	11.75
					(4%)		(14%)		(4%)
WD&CE	100	51	112.75	133	33	62	11	148.50	35.75
					(33%)		(22%)		(32%)
College	1,389	385	1,485.25	1,521	132	447	62	1,632.75	147.50
					(10%)		(16%)		(10%)

With 406 full-time staff, Central Administration functions at the College account for about 29% of the College’s total fall 2006 full-time staff, and given the modest projected growth for this division, this share of the College’s staff will decrease to 28% by fall 2016.

**TABLE 6.1.10
2006 AND 2016 CENTRAL ADMINISTRATION STAFF POSITIONS**

					10 Yr		10 Yr		10 Yr
	2006	2006	2006	2016	# (%)	2016	# (%)	2016	# (%)
	FT	PT	FTE	FT	Chg	PT	Chg	FTE	Chg
President	23	1	23.25	24	1	3	2	24.75	1.50
					(6%)		(6%)		(6%)
Acad & Stud Serv	63	5	64.25	67	4	8	3	73.00	8.75
					(6%)		(60%)		(14%)
Fiscal & Admin Srv	286	28	293.00	294	8	32	4	302.00	9.00
					(3%)		(14%)		(3%)
VP-IA	34	9	36.25	37	3	10	1	39.50	3.25
					(9%)		(11%)		(9%)
Central Adm	406	43	416.75	426	20	53	10	439.25	22.50
					(5%)		(23%)		(5%)

**FIGURE 6.2.1
LOCATIONS OF CENTRAL ADMINISTRATION FACILITIES**



6.2 EXISTING CONDITIONS

6.2.1 Location

Central Administration functions are primarily housed in the Mannakee Building, on the Rockville Campus and in off-campus leased space. The Mannakee Building is situated at the prominent corner of MD 355 (Hungerford Drive) and Mannakee Street. It is perhaps the most visible of all the Rockville Campus buildings, displaying a large sign identifying “Montgomery College” which is seen easily from MD 355. Also on the Rockville Campus, Central Administration occupies space within Campus Center and the Student Services Building.

As of January, 2010, the College also leases office space in various buildings in the area for college-wide administration purposes. The principal locations are 40 West Gude Drive, a two story office building in Rockville, space for the Office of Information Technology (OIT) at 15400 Calhoun Drive in Rockville, and leased warehouse space at 7602 Standish Place in Rockville for a central receiving facility and general college storage. Figure 6.2.1 locates the College’s administration building and leased spaces.

6.2.2 Building Usage / Functional Adequacy of Facilities

Descriptions of the programs and functions in each building are included below. The general adequacy of each building to support these programs and functions is also presented.

Mannakee Building (32,737 NASF, 42,102 GSF); constructed in 1985 and subsequently purchased by the College, this three story office building accommodates a majority of the College’s Central Administration functions: Offices of the President including executive conference room, General Counsel, Board of Trustees (BOT) staff, Senior Vice President for Academic and Student Services, Senior Vice President for Administrative and Fiscal Services, Vice President for Institutional Advancement, and the offices of the Chief Business Officer, Chief Human Resource Officer, Director of Budget and Audit, and Director of Planning and Institutional Projects, and Central Administration OIT support staff. In addition, the building houses a BOT conference room for 40, four conference rooms for 6, 10 (two rooms), and 15 occupants, a central mail/copy room, and a kitchen and staff lounge for 25.

In addition to Mannakee, Central Administration leases space for OIT (see below), and houses the offices of the Associate Vice President for College Facilities, the Director of Institutional Research and Analysis, the Director of Auxiliary Services and the College’s Response Center in leased space at 40 West Gude Drive. Procurement’s Property Control and Central Receiving along with its operations staff are located at 7602 Standish Place. The Offices of the Director of Admissions, Records, and Registration and Student Financial Aid are located in the Student Services Building on the Rockville Campus.

Although the Property Control and Central Receiving functions can be separate and are currently located at an off-campus location, co-locating the central administration departments and functions in one location would result in students, visitors, and the College community benefiting from the synergy of proximity. In addition, there is a need to provide sufficient and adequate space - offices, meeting rooms, and support

facilities – so that each and every area can contribute creatively and productively every day to support the College as it assists students in their education. The desire to occupy space on the Rockville Campus further impacts the Campus' ability in the long run to provide and carry out the necessary services to the faculty, staff, and students.

Office of Information Technology Building (19,827 NASF, 27,826 GSF), leased in 2008 for a ten year period, facilities include a reception/waiting area, office for the Chief Information Officer, 24 private offices for directors, managers, and senior staff, 112 systems workstations, three conference rooms (one for 8, one for 12, and one for 20), a teleconferencing room for approximately 40, a training room for approximately 18, combination pantry and multi-purpose lounge and lunch room, a workroom with supply storage, computer testing room, a call center, computer staging area, workroom, storage, the network room, and receiving area.

Functional issues include limited space for growth in staff and staff support, insufficient workspace for Applications, Network, and Computer support including storage, and rightsizing the capacity of the Training Room and the Teleconferencing Room.

40 West Gude Drive (23,570 NASF), leased in 2006, houses the Facilities Department, the Office of Institutional Research and Analysis, the Office for Institutional Advancement and the Office of Auxiliary Enterprise. In addition to offices, 40 W. Gude provides a conference room, computer training room, large meeting room, and kitchenette.

6.2.3 Building Conditions

In 2007, the College updated the facilities condition assessment prepared for the Mannakee Building. No analysis has been undertaken for any of the leased facilities operated by the College. The primary focus of the analysis was to:

- Provide a baseline condition assessment of the College's facilities to include infrastructure components and building systems;
- Provide the College with budget estimates for funding required safety improvements and reducing the deterioration of campus buildings and infrastructure components;
- Assist the College with building code and accessibility compliance and ensure that the facilities are operated as required;
- Utilize the assessment in the implementation of an ongoing process of the identification and prioritization of maintenance and capital repair projects;
- Provide decision support capabilities with the assessment's facility management software solutions.

The facilities analyses include the following:

- Current Condition Analyses – existing facility deficiencies including deferred maintenance, deferred renewal, near-term anticipated renewal, recommended discretionary improvements, and code, non-compliance issues;
- Anticipated capital renewal analyses – projections of ongoing degradation of facilities' components and costs associated with renewal or replacement of these components as they reach the end of their useful life;
- Capital funding analyses – scenario comparisons showing various funding levels and the effect of each on the condition and value of the building.

Even if a building system is not currently deficient or projected to be deficient in the next five (5) years (current condition analysis above), it has a finite lifetime after which expenditures will be necessary to renew the system. Based on industry standards, actual experience of the facility management staff and the experience of the assessment team, each major building system is assigned a lifetime. Based on field observations and the assumption that the requirements identified for each building system will be corrected, a % used (or years remaining) is established to estimate where the system is currently in its lifetime cycle.

Assessment Methodology

The deficiencies were classified in several different ways. In addition to detailed specific descriptions, each deficiency was assigned a category, priority, and primary system association. This parallel differentiation allows for multiple queries of the database, facilitating analysis of the data. It is possible, for instance, to query the database for all Priority 1 deficiencies in the electrical systems or all Priority 5 accessibility code issues. The criteria used to determine the priorities, categories, primary systems, and cost estimating are as follows:

Priority Definitions:

Priority 1: Currently Critical - Projects requiring immediate action to return a facility to normal operation, stop accelerated deterioration and correct a cited safety hazard.

Priority 2: Potentially Critical - Situations that, if not corrected expeditiously, will become critical within a year, including intermittent interruptions, rapid deterioration and potential safety hazards.

Priority 3: Necessary – Not Yet Critical - Conditions requiring appropriate attention to preclude predictable deterioration or potential down time and the associated damage or higher costs if deferred further.

Priority 4: Recommended - Items that represent a sensible improvement to the existing conditions. These items are not required for the most basic function of a facility; however, Priority 4 projects will improve overall usability and/or reduce long-term maintenance.

Priority 5: Does Not Meet Current Codes/Standards - Items that do not conform to existing codes, but are grandfathered in their existing condition. No immediate action is required, although the items will need to be addressed if any significant work is performed on the building. The amount of work that triggers code compliance is typically at least partially at the discretion of the local building official.

Facility Condition Index

An automated standard process for assessing the relative condition of buildings and site infrastructure components, facilitating comparison both within and among the campuses was established. For each building or site component, the Facility Condition Index (FCI) was developed which measures the relative amount of current deficiencies in the building including recommended improvements and grandfathered issues. The total value of recommended corrections is divided by current replacement value for the building or site component resulting in the FCI. The higher the FCI, the poorer the condition of the facility or system component. The FCI ranges for the standard of services for each building or site component are:

- Good: .00 to .05
- Fair: .05 to .10
- Poor: Greater than .10

FCI is a standard measure used throughout the country; it is recommended by both the National Association of College Business Officers (NACUBO) and the Association of Higher Education Facility Officers (APPA). In the attached tables, this is represented by a Deficiency %, which takes the FCI and converts it to a percentage of replacement. For example, an FCI of .10 translates into a Deficiency percentage of 10%.

TABLE 6.2.1
 TOTAL REPLACEMENT VALUE AND CURRENT DEFICIENCY COST [from 2004 FMP]
 One structure, Mannakee Building, which houses the College's Central Administration functions.

	Replacement Value	Current Deficiency	Deficiency as % of Replacement*
Priority One - Five			
Building Systems	\$6,084,160	\$1,603,017	26%
Infrastructure	in Rockville	in Rockville	in Rockville
CAMPUS TOTAL	\$6,084,160	\$1,603,017	26
Priority One-Three Only			
Building Systems	\$6,084,160	\$1,282,000	21%
Infrastructure	in Rockville	in Rockville	in Rockville
CAMPUS TOTAL	\$6,084,160	\$1,282,000	21%

Table 6.2.2

BUILDING DEFICIENCY CATEGORY AMOUNT (1-5) AND (% OF REPLACEMENT)

26% (1 building)	\$1,603,017	100%
TOTAL	\$1,603,017	100%

6.2.4 Circulation and Parking

Parking, access and pedestrian issues dealing specifically with Central Administration functions are focused at the Rockville Campus and other major off-campus leased facilities. General Rockville Campus issues of parking, circulation and access are discussed in Section 4.2.9 of this document.

Mannakee Building

The Mannakee Building is served by a dedicated 154-space parking lot. It is also across the street from a 407-space lot leased from the Montgomery County Public Schools system. For those using public transit, the closest stop is on the main Rockville Campus, about a 1/2 mile walk from Mannakee. It is accessed directly off both MD 355 (Hungerford Road) and Mannakee Street. Since this lot is removed from the general campus, it is used primarily by those occupying or visiting the Mannakee Building and is generally adequate at this time.

40 W. Gude Drive

The College is limited to 136 parking spaces at this leased facility. For the time being, the number of spaces is adequate. This location is also served by public transit along MD 355.

Office of Information Technology

The College is limited to 152 parking spaces at this leased facility. For the time being, the number of spaces is adequate. This location is also served by public transit along West Gude Drive.

Central Receiving and Storage

The College is provided with 35 parking spaces at this leased facility. Parking is unassigned and on a first-come basis.

6.3 FACILITIES PROGRAM

6.3.1 Needs Assessment

Assessments of the current and projected facilities needs for Central Administration are generated by applying current and projected planning data to the State of Maryland Guidelines for facilities at community colleges.

Table 6.3.1

NEEDS ASSESSMENT PLANNING DATA FOR CENTRAL ADMINISTRATION

	Fall 2006	Fall 2016	% Change Fall 2006
FTDE	0	0	--
WSCH-Lecture	0	0	--
WSCH-Lab	0	0	--
FTE Students	0	0	--
Bound Volume Equivalents	0	0	--
FTE Faculty	0	0	--
FT-Faculty	0	0	--
PT-Faculty	0	0	--
FT-Staff	406	426	5%
Planning Head Count	203	213	5%

Current and projected space needs for each type of space in the Central Administration inventory for which a guideline is available are computed. For Central Administration, a current inventory was developed by combining all on-campus central administrative space into a single inventory regardless of location. Off-campus leased space was inventoried, but the needs assessment did not incorporate this space as available; the master planning assumption is that the College should support its functions in College-owned facilities. In fall 2006, Central Administration functions were located in 80,584 NASF of space. The College used 46,255 NASF (57%) of on campus space at either the Germantown, Rockville, or Takoma Park/Silver Spring campuses. Additionally, it provided 1,005 NASF (1%) in temporary on-campus facilities and 33,324 NASF (41%) in leased off-campus facilities.

Comparisons with the fall 2006 inventory and the one planned for fall 2016, given approved capital projects, are made, and surpluses or deficiencies relative to the respective space categories are identified. In 2008, Central Administration vacated central receiving space in the Campus Center on the Rockville Campus, allowing the Rockville Campus to use this space for campus operations and maintenance. The College finished space in the Cafritz Foundation Arts Center on the Takoma Park/Silver Spring campus to support central administration information technology functions, relocating them from the Computer Science Building on the Rockville Campus. The vacated space is available for use by this campus. Finally, the College will continue to lease and add to the inventory of off-campus space to support Central Administration functions, including substantial portions of the Office of Information Technology, Procurement and Central Receiving, Central Facilities, Institutional Research and Analysis, and Creative Services of Institutional Advancement, among others.

Importantly, the space guidelines do not incorporate the college-wide demands for centralized functions generated by each of the campuses and not met by their planned changes—especially in information and data processing, centralized storage, central services, and hazardous materials storage. To provide an indicator of this demand, the College has leased 14,166 GSF, 10,266 NASF off campus to support Procurement, Central Receiving and Storage, and Information Technology storage. As additional buildings are constructed on the College’s campuses, additional demands for such space will be generated.

The Central Administration guideline needs assessment, therefore, only reflects the amount of space allowed given Central Administration staffing levels and does not address the demands placed on Central Administration by various campus-based functions and facilities. Within this context, Central Administration currently shows an overall deficiency of -27,815 NASF, a substantial amount of space representing 60% of the unit’s current inventory. Even with very modest projected growth in Central Administration staffing of only 5%, this overall deficiency is projected to increase to -32,752 NASF in ten years. This overall facility deficiency represents 73% of the projected Central Administration on campus inventory.

Table 6.3.2

COMPUTATION OF SPACE NEEDS FOR CENTRAL ADMINISTRATION

HEGIS CODE	ROOM USE CATEGORY	Need 2006	Inventory 2006	Surplus/ (Deficit)	Need 2016	Inventory 2016	Surplus/ (Deficit)
100	CLASSROOM	0	0	0	0	0	0
200	LABORATORY	0	0	0	0	0	0
300	OFFICE	68,516	39,225	(29,291)	71,836	39,084	(32,752)
310 /350	Office/ Conf. Room	68,516	39,225	(29,291)	71,836	39,084	(32,752)
320	Testing/Tutoring	0	0	0	0	0	0
400	STUDY	0	0	0	0	0	0
500	SPECIAL USE	0	0	0	0	0	0
600	GENERAL USE	2,680	592	(2,088)	2,812	592	(2,220)
610	Assembly	0	0	0	0	0	0
620	Exhibition	0	0	0	0	0	0
630	Food Facility	2,071	0	(2,071)	2,173	0	(2,173)
640	Childcare	0	0	0	0	0	0
650	Lounge	609	592	(17)	639	592	(47)
660	Merchandising	0	0	0	0	0	0
670	Recreation Space	0	0	0	0	0	0
680	Meeting Room	0	0	0	0	0	0
700	SUPPORT	2,905	6,438	3,533	3,046	5,265	2,219
710	Data Processing	0	2,852	2,852	0	4,618	4,618
720-740	Shop/ Storage	2,848	3,586	738	2,986	647	(2,339)
750	Central Service	0	0	0	0	0	0
760	Hazmat Storage	57	0	(57)	60	0	(60)
800	HEALTH CARE	0	0	0	0	0	0
	Total NASF:	74,100	46,255	(27,845)	77,693	44,941	(32,752)

Proposed Facility Projects

Importantly, the proposed facility projects for Central Administration must reflect a vision that advances the College's mission by:

- Relocating, as appropriate, central administration offices and functions from core campus facilities to facilities supporting central administration;
- Co-locating central administration departments and functions rationally so that students, visitors, and the College community itself benefit from the ease, energy, and excitement generated by the synergy of proximity; and
- Providing sufficient and adequate space—offices, meeting rooms, and support facilities—based on existing and projected needs, so that each and every area can contribute creatively and productively every day to supporting the College as it helps students change their lives.

The College does not believe that the central administration functions must be housed at the Rockville Campus nor necessarily at the Mannakee Building. Over the ten-year planning period, Mannakee will remain as the key facility supporting many, but not all, central administration functions, implementing leasing strategies as needs change or new needs emerge. Beyond this time horizon, however, planning should consider the construction of a central administration facility combining central administration functions at a single location either central to the county or at the Germantown campus.

One of the goals of the College's Facilities Master Plan is to relocate Central Administration staff from campus facilities to Central Administration facilities. The Mannakee Building, with about 32,570 NSF, is unable to accommodate all of College's central administration staff, and spaces have been leased to support the Office of Information Technology, Central Facilities, the Office of Institutional Research and Analysis, Procurement and Central Receiving, and the Creative Services Office from Institutional Advancement, among others. Certain central administrative offices can be expected to be retained in their entirety in Mannakee—the Office of the President, the Office of the Senior Vice President for Academic and Student Services, and the Office of the Vice President for Institutional Advancement. Offices under the Senior Vice President for Administrative and Fiscal Services may also be retained, including the Office of the Senior Vice President, Business, Human Resources, Budgets and Audits, while others may also have to be placed in off-campus leased space over the planning period. The College may also decide to place targeted Central Administration functions, such as Admissions and Enrollment Management and College-wide Student Financial Aid, into new facilities being proposed, like the Student Services Center at the Rockville Campus or Library Technical Services currently included in the plans for the proposed new Library and Resource Center at the Rockville Campus.

A summary of the proposed Central Administration facility projects follows. It assumes that all Central Administration functions, except for those already planned to be located in on-campus facilities, will remain in their current locations.

**Table 6.3.3
CENTRAL ADMINISTRATION 2006-2016 MASTER PLAN FACILITY PROJECTS**

	NASF	GSF
Lease, Construction, or Acquisition of OIT Building	31,240	56,800
Lease, Construction, or Acquisition of Administrative Services Building	29,450	53,500
OR		
Lease, Construction, or Acquisition of Administrative Services/ OIT Building	59,290	107,800
Alteration of the Mannakee Building	3,200	3,560
Total	62,490	111,360
	to	to
	63,890	113,860

Lease, Construction, or Acquisition of OIT Building and Administrative Services Building (2 Buildings) OR Lease, Construction, or Acquisition of OIT Building/Administrative Services Building (1 Building). One alternative to meeting the Central Administration planning goal is to lease, construct, or acquire two properties—one for the Office of Information Technology and one for Administrative Services. These projects would replace the leased space now being provided for the OIT with a facility that has sufficient space and provide a second facility to house the offices in leased space. The College should make decisions as to whether certain functions—e.g., Admissions and Enrollment Management, College-wide Financial Aid, Library Technical Services—would be included in these facilities or in planned campus facilities.

The complementary alternative to meeting these needs through two projects would be to lease, construct, or acquire a single building to accommodate both these groups.

Alteration of the Mannakee Building. Assuming that space is vacated as a result of relocating the Administrative Services units to another facility, this reallocation and alteration project allows the much needed expansion and growth of most central administration functions. It also allows those units with undersized office resources to “right-size,” as well as to provide individual offices as appropriate. Relocations within Mannakee should be planned to maximize desired productive and functional relationships. As space is vacated by those units moving elsewhere, alterations should be made to accommodate unit needs.

6.4 2006-2016 FACILITIES MASTER PLAN

6.4.1 Proposed Land and Building Use

Based on the College's anticipated enrollment growth over the 2006 to 2016 period, and supported by the instructional and other needs identified during the master planning process, the College has identified a number of capital projects for Central Administration. Implementation of these projects will allow the College to provide for the central administration physical space needs over the ensuing 10-year period. Detailed facilities programs will be prepared for each project as the College's capital funding requests are developed for submission to the State of Maryland and Montgomery County.

Throughout this section the term "new construction" is used to describe a completely new facility, while the term "renovation" is used to describe a complete interior and exterior reconstruction of an existing facility. An "alteration" is used to describe a lesser level of effort than a renovation and does not anticipate extensive program modifications to a facility.

One of the goals of the Facilities Master Plan is to co-locate central administration functions so that individuals engaged in these functions can benefit from the convenience of proximity, as well as opportunities for collaboration and exchange of ideas. With each campus short of space, consideration has been given to locating central administration functions that are not required to be on campus, in off-campus facilities. A summary of proposed projects identified for Central Administration follows. Refer to Figure 6.2.1 Locations of Central Administration Facilities for illustration of the location of the Mannakee Building on Rockville's campus.

1. Off-campus Facilities

Several options are available for consolidating central administration functions in off-site facilities. Facilities could be leased, built to suit, or acquired.

- Currently, the Office of Information Technology is located in an off-campus facility at 15400 Calhoun Drive. The lease for that facility expires in June of 2018. This function could be co-located with other central administration facilities at the end of that lease, or could continue to be located independently.
- Currently, a number of administrative functions and offices are located in an off-campus facility at 40 W. Gude Drive, with that lease expiring in September 2016. The Facilities Master Plan recommends continuing the lease at 40 W. Gude through the planning period.
- Currently, Central Receiving and Storage is leasing space at 7602 Standish Place, with that lease expiring in January, 2019.

2. Mannakee Building

The Facilities Master Plan recommends that the Mannakee Building continue to house the Office of the President, the Office of the Senior Vice President for Academic and Student Services, the Office of the Vice President for Institutional Advancement, and the Office of the Senior Vice President for Administrative and Fiscal Services. Once the programmatic requirements are developed, Mannakee should be altered to accommodate the new program that reflects the relocation of central administration functions out of the

building and into leased facilities in recent years. Should the college decide to consolidate all its Central Administration functions in a new facility, it is nonetheless recommended that the Mannakee building be retained in the college inventory, given its centralized location and potential for connection to the Rockville campus.

3. Centralized, Dedicated Central Administration Facility

The Facilities Master Plan recommends that, in the long term, the college consider construction, lease or acquisition of a larger centralized facility adequate to house all central administration needs. While space is most likely available at the Germantown Campus, a Rockville location is recommended due to its central location for all three campuses and as the location of the county seat.

6.4.2 Proposed Circulation and Parking

No changes are proposed to the parking, circulation or access of the existing facilities that house Central Administration functions.

6.4.3 Implementation of the Master Plan

With regard to implementing the proposed Central Administration projects, Montgomery College prioritized the sequence based on current plans. Changes in program priorities may lead to changes in the implementation plan. The categories for implementation are defined as;

PHASE 1

- Retain or extend existing leases at off-campus locations for Facilities, OIT and Receiving;
- Retain and alter Mannakee once program has been developed.

PHASE 2 - projects whose need has been identified and not in Phase 1.

- Lease or purchase centralized, dedicated Central Administration facility.

6.4.4 Projected Costs

An estimate of project costs for the design, construction and furnishing of the various projects included in the 2006-2016 Facilities Master Plan was prepared by DMS International and the College's Office of Facilities. These project estimates are based on a mini-program which cumulatively responds to the academic and support needs reflected in this master plan. The mini-program for each project is in turn based on the enrollment and staffing requirements of that project as supported by the data analysis which is again presented in this master plan. These project costs are tabulated in Table 6.4.1 for Central Administration. The project construction cost estimates were prepared in May 2010 by DMS International and extended and compiled by the Office of Facilities for design, supplemental construction and construction administration, and furniture, instructional equipment, and information technology equipment costs in September 2010. The intent of this effort is to prepare a total project budget that allows for the opening of a complete, fully functioning building. A supplemental document prepared by the Office of Facilities provides additional detail and assumptions related to each project cost estimate.

**Table 6.4.1
CAPITAL PROJECTS FOR CENTRAL ADMINISTRATION**

Project	Cost Estimate (Current Dollars - 09/10)
Mannakee Building Renovation	\$17,648,000
40 West Gude (Lease expires September 2016)	Continue Lease - No Cost Est.
Office of Information Technology Building (Lease expires June 2018)	Continue Lease - No Cost Est.
Central Receiving and Storage (Lease expires January 2019)	Continue Lease - No Cost Est.
Campus Total	\$17,648,000

6.4.5 2016 to 2026

In the longer term, the 2006 – 2016 Facilities Master Plan contemplates both continuing to lease off-campus space for Central Administration and pursuing future opportunities as they become available, such as the transfer of the Carver Educational Services Center to the College for serving the Rockville Campus and Central Administration functions.



Takoma Park / Silver Spring Campus



Germantown Campus



Rockville Campus



Workforce Development and Continuing Education



Central Administration

MONTGOMERY COLLEGE

Facilities Master Plan
Update 2006 - 2016
APPENDIX

Approved on
September 27, 2010
by the Board of Trustees
BOT Resolution No. 10-09-072

TABLE OF CONTENTS VOLUME 2 - APPENDIX

1. Forest Conservation Plans

Takoma Park/Silver Spring Campus

Germantown Campus

Rockville Campus

2. Takoma Park/Silver Spring Campus

City of Takoma Park David Capp Memorandum, 09-23-10

City of Takoma Park Letter, 06-15-2010

City of Takoma Park Resolution #2008-62

City of Takoma Park Agreement among Montgomery College, City of Takoma Park, Historic Takoma Inc, and Montgomery County, 07-03-2002

3. City of Rockville Zoning Update

4. Montgomery College Ridership Surveys and Transportation Demand Management

5. Montgomery College Green Routine

6. Montgomery College Germantown Development Project Major Milestones

7. Utility and Information Technology Infrastructure

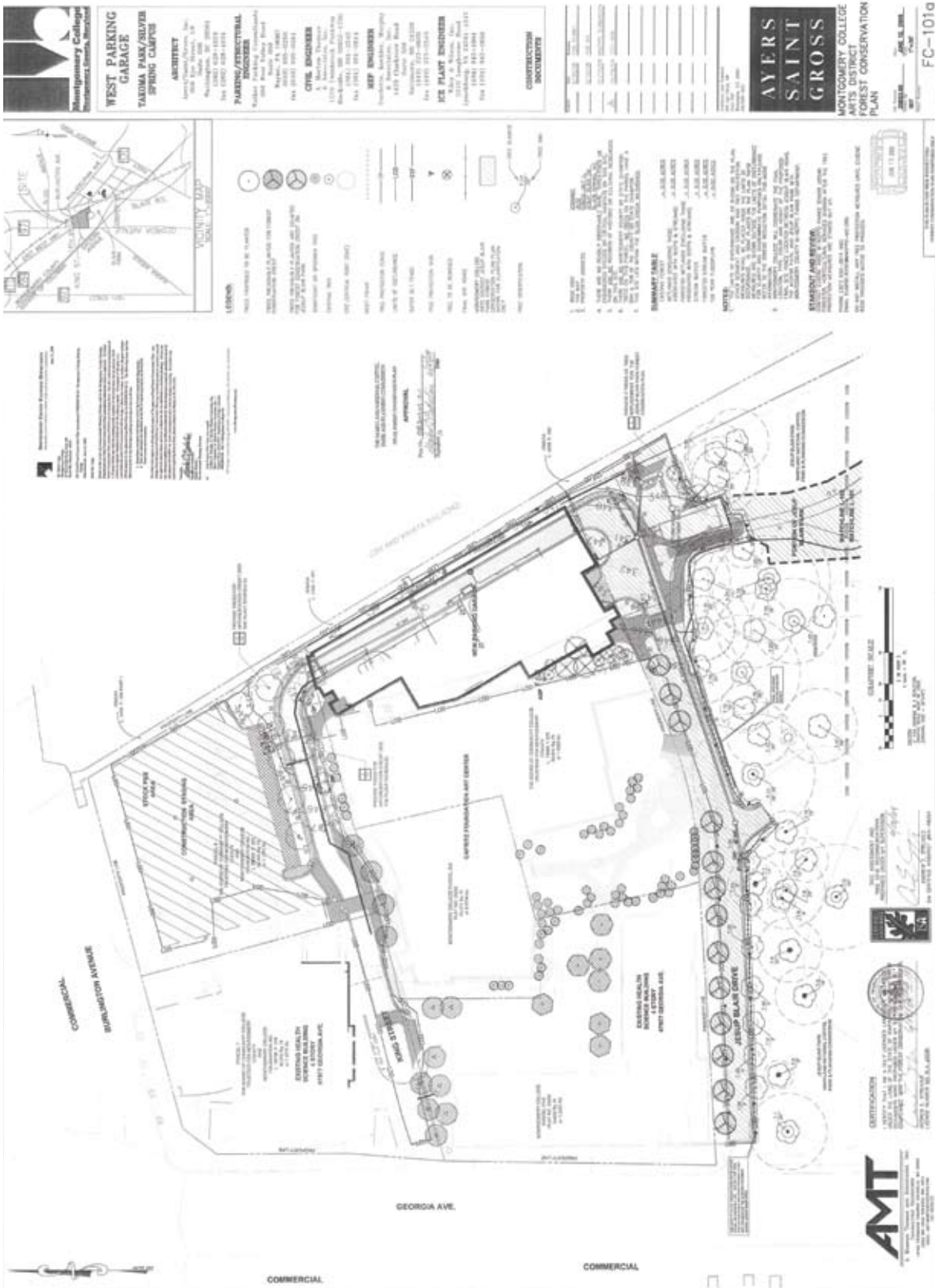
Takoma Park/Silver Spring Campus

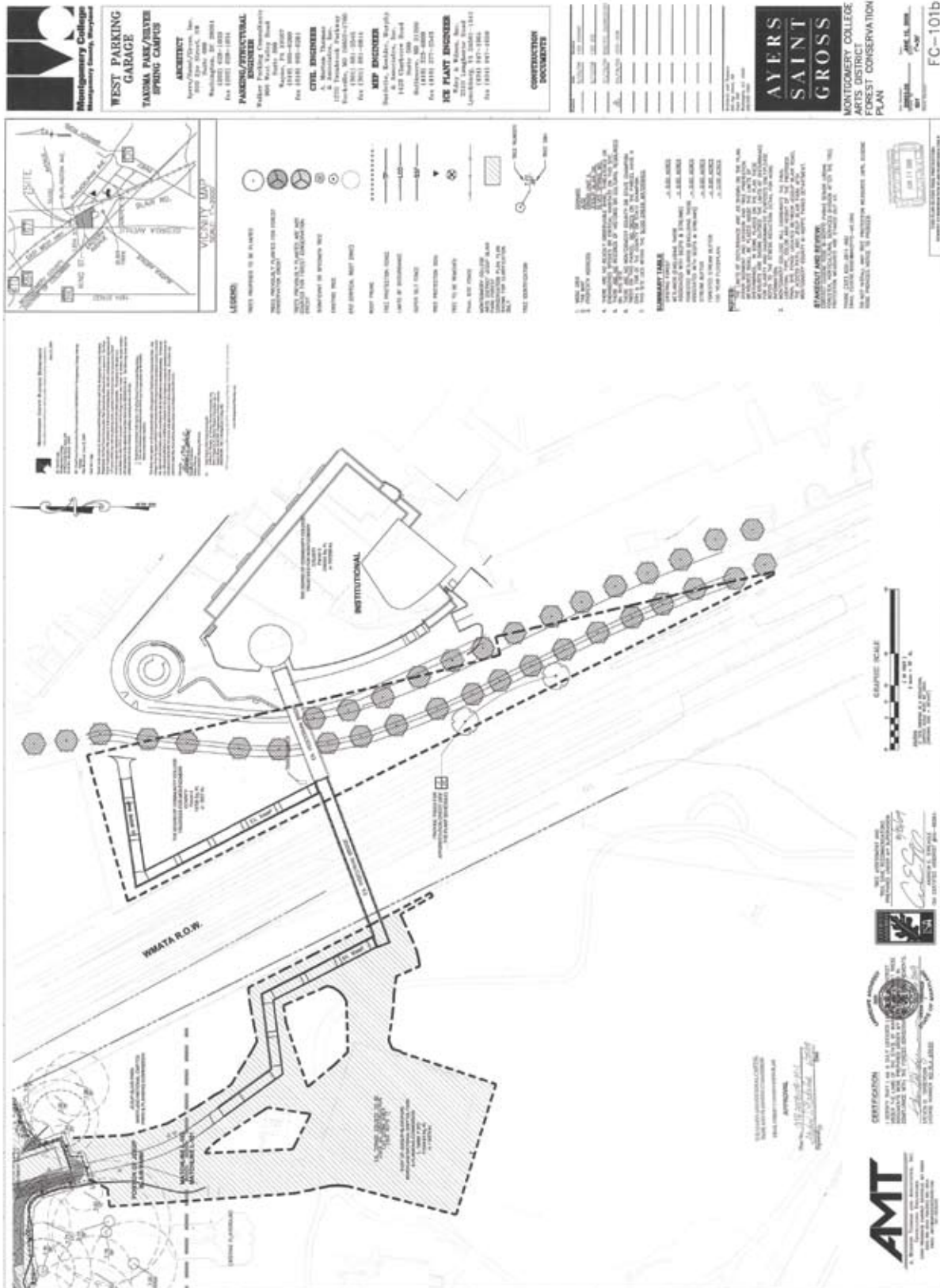
Germantown Campus

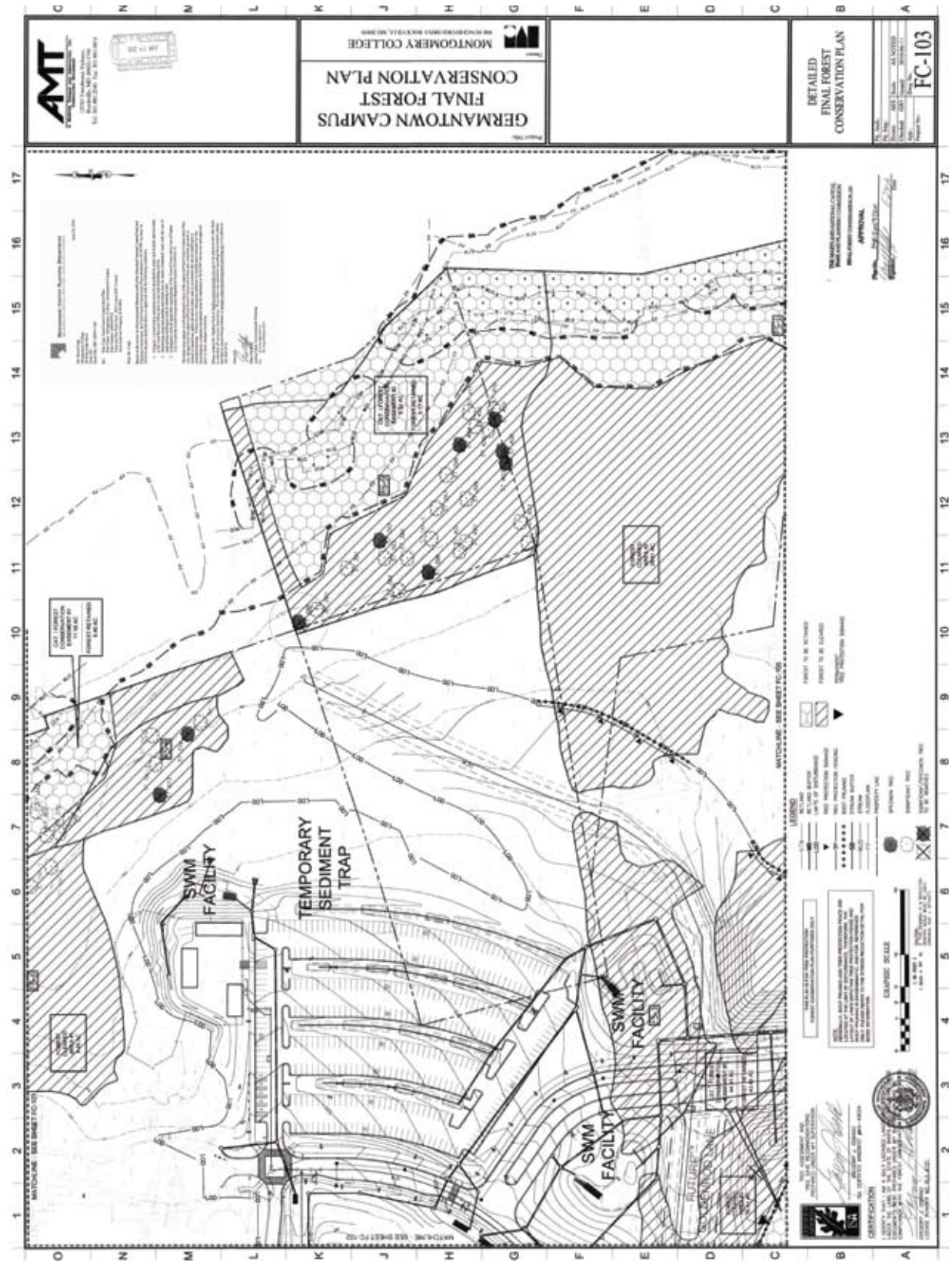
Rockville Campus

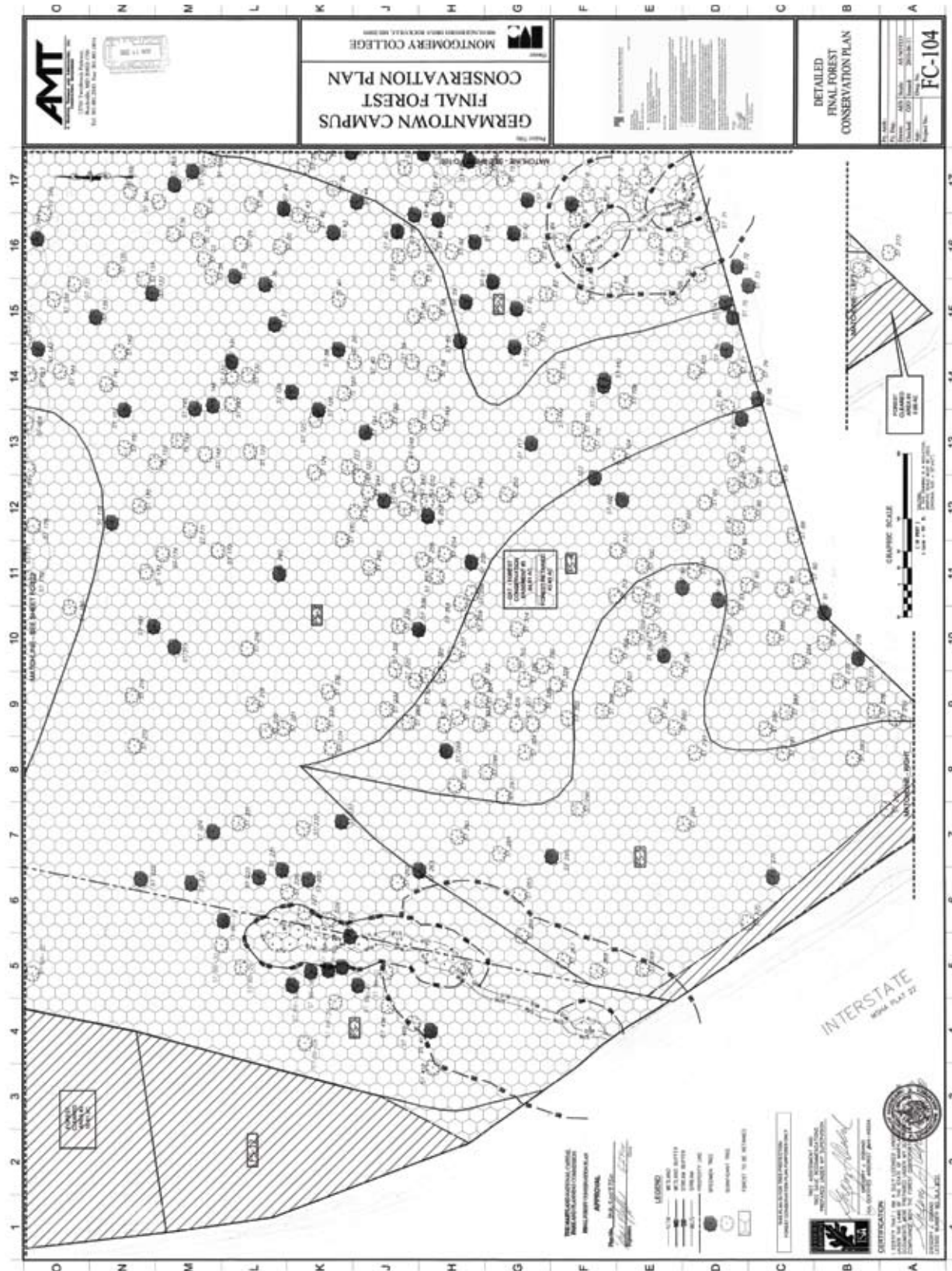
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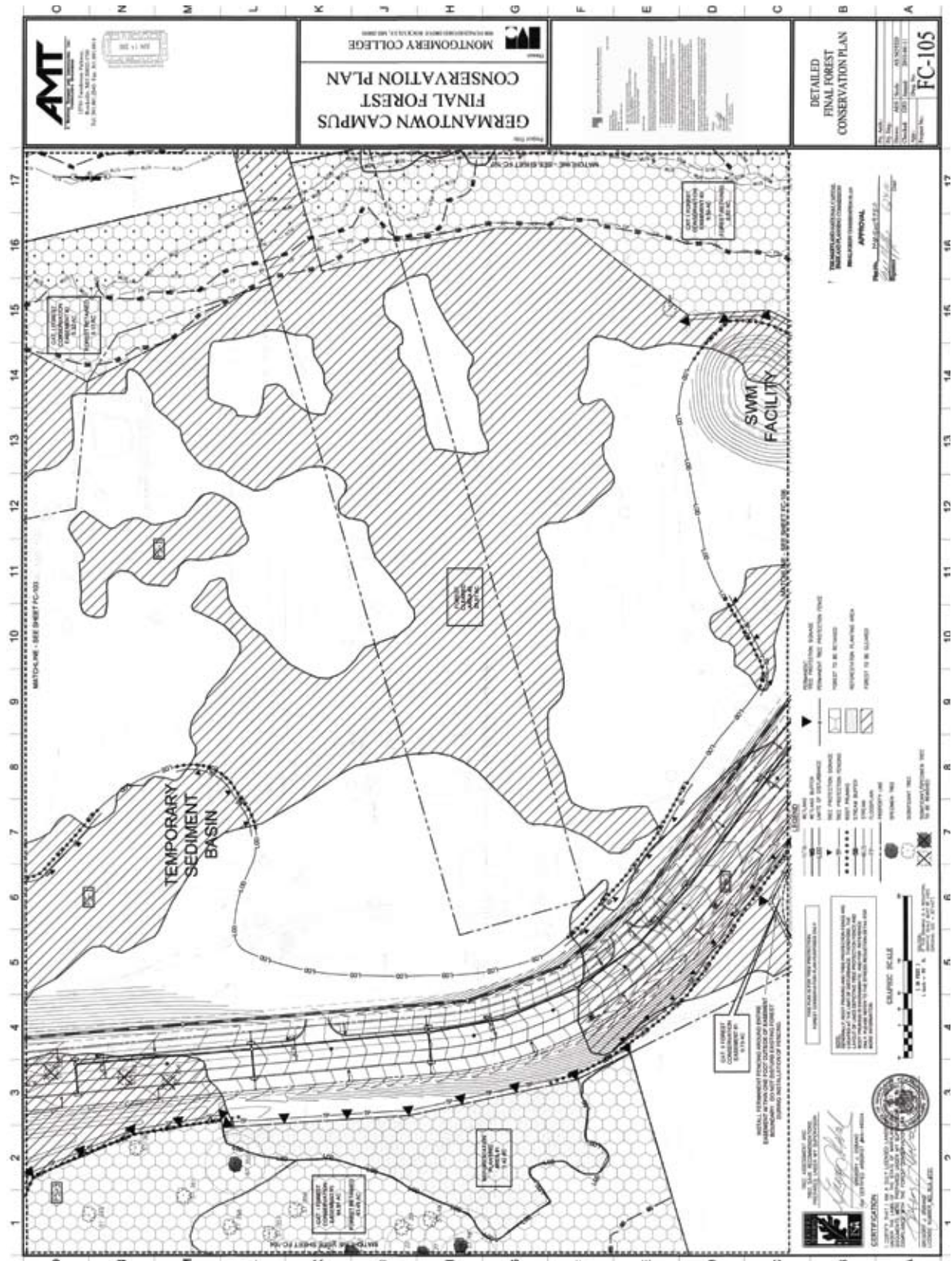
FOREST CONSERVATION PLANS

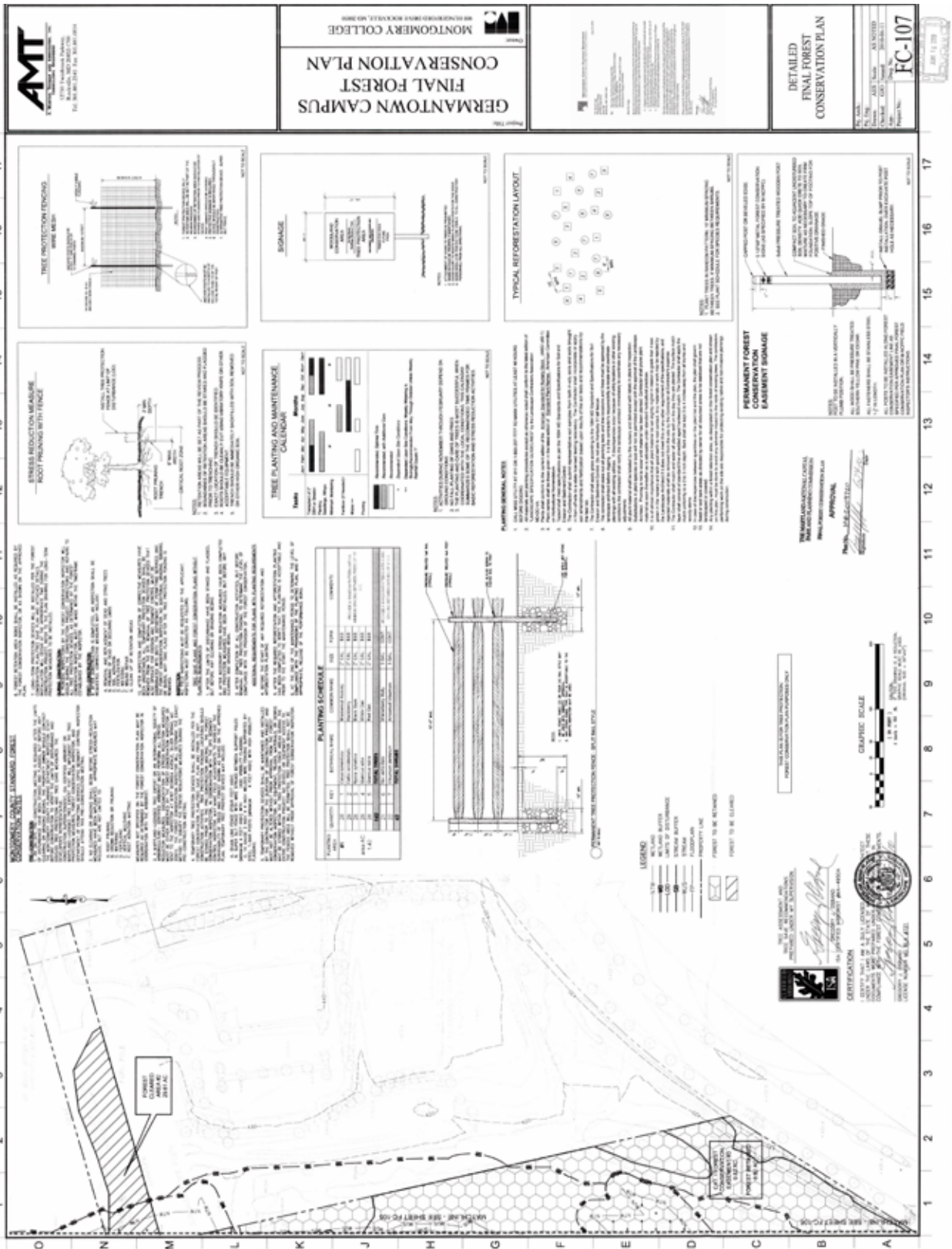












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**GERMANTOWN CAMPUS
FINAL FOREST
CONSERVATION PLAN**

MONTGOMERY COLLEGE
10000 ROCKVILLE PIKE, SUITE 300
ROCKVILLE, MD 20850

Approved by: _____
Date: _____

Approved by: _____
Date: _____

**DETAILED
FINAL FOREST
CONSERVATION PLAN**

Project No. **FC-108**

Client: MONTGOMERY COLLEGE
Date: 09/27/10

APPROVED:

THE MONTGOMERY COLLEGE
FINAL FOREST CONSERVATION PLAN

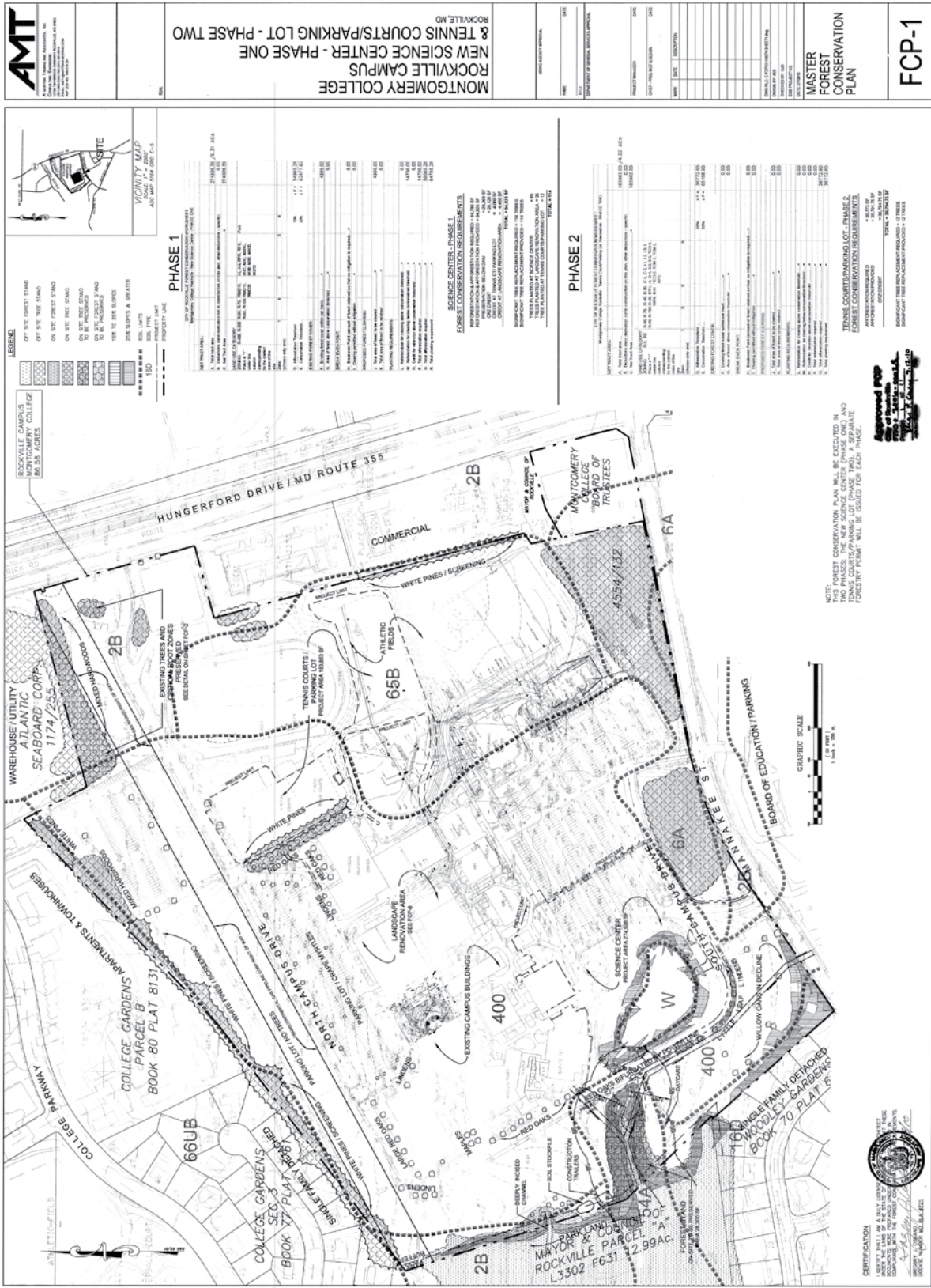
APPROVED: _____
DATE: _____

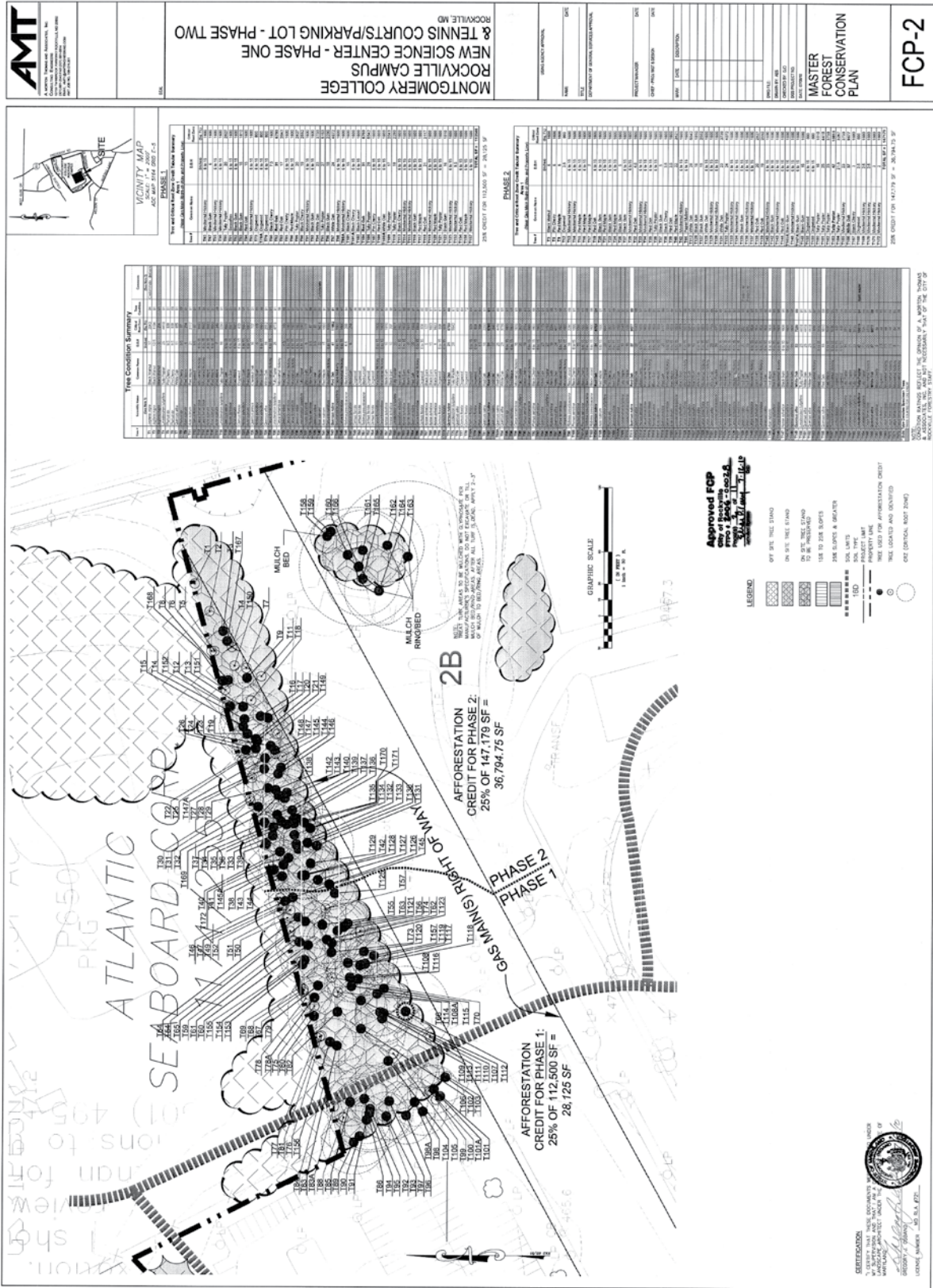
CERTIFICATION

I, _____, certify that the information provided in this report is true and correct to the best of my knowledge and belief.

DATE: _____

PROJECT: FC-108





Tree Condition Summary

Tree ID	Species	DBH (in)	Height (ft)	Health	Notes
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AMT
 American Mountain Tree, Inc.
 10000 Old Farm Road
 Rockville, MD 20850
 Phone: 301-761-1100
 Fax: 301-761-1101
 Website: www.amtinc.com

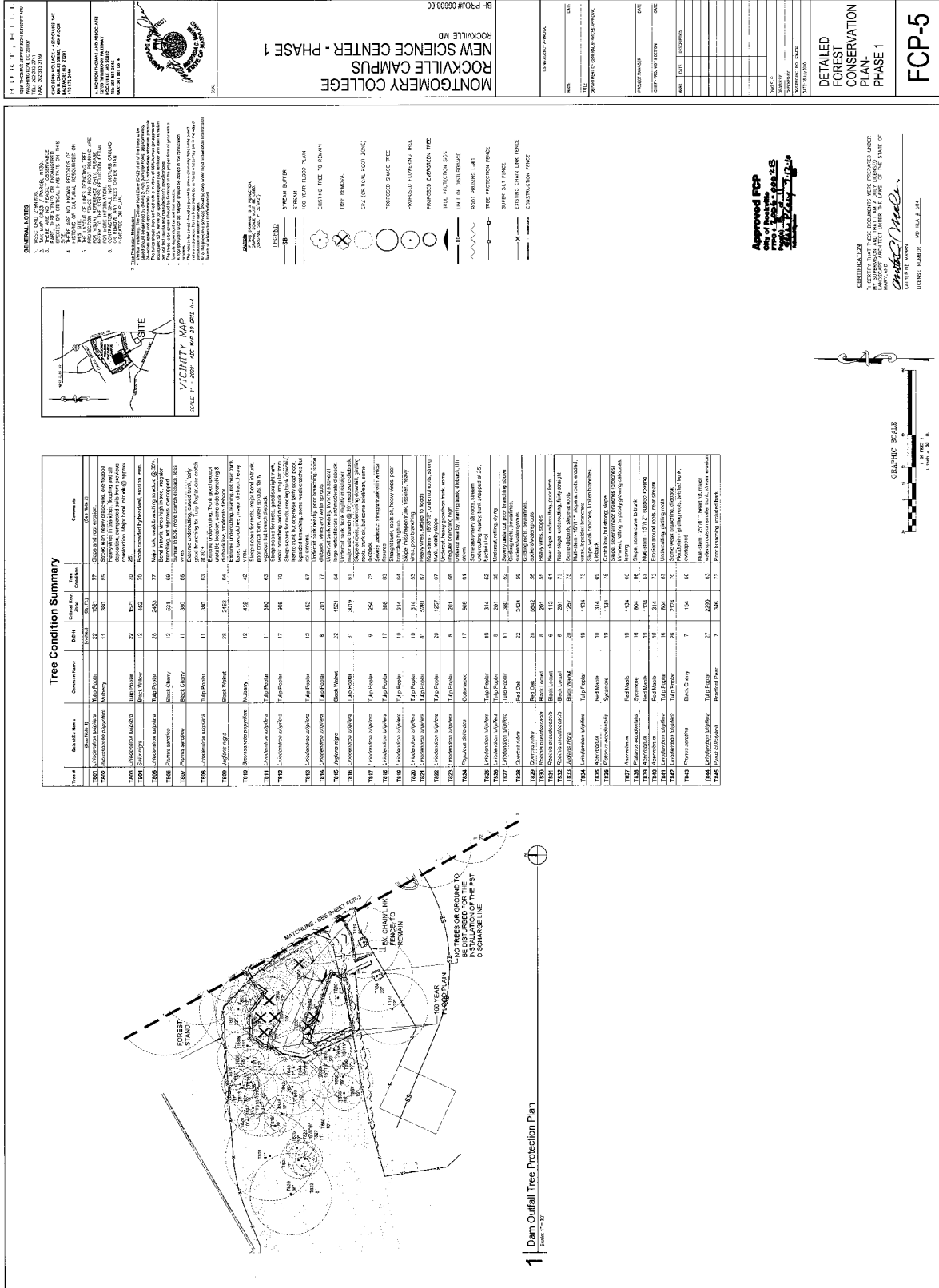
MONTGOMERY COLLEGE
 ROCKVILLE CAMPUS
 NEW SCIENCE CENTER - PHASE ONE
 & TENNIS COURTS/PARKING LOT - PHASE TWO
 ROCKVILLE, MD

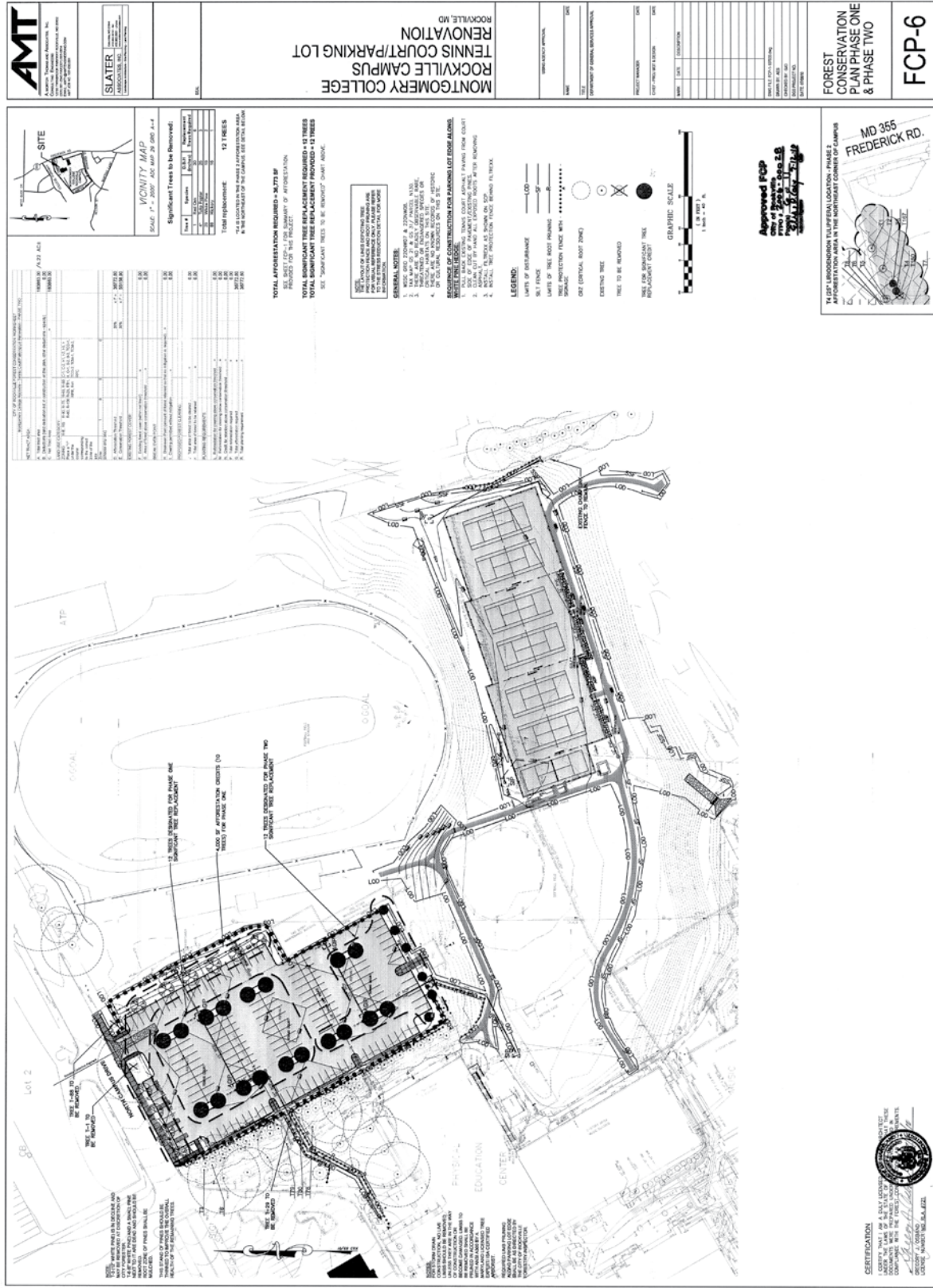
PHASE 1

Tree ID	Species	DBH (in)	Height (ft)	Health	Notes
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MASTER FOREST CONSERVATION PLAN

FCP-2





AMT
 AMT CONSULTING, INC.
 10000 ROCKVILLE PIKE, SUITE 100
 ROCKVILLE, MD 20850
 TEL: 301-281-1100
 FAX: 301-281-1101
 WWW.AMTCONSULTING.COM

SLATER
 SLATER CONSULTING, INC.
 10000 ROCKVILLE PIKE, SUITE 100
 ROCKVILLE, MD 20850
 TEL: 301-281-1100
 FAX: 301-281-1101
 WWW.SLATERCONSULTING.COM

**MONTGOMERY COLLEGE
 ROCKVILLE CAMPUS
 TENNIS COURT/PARKING LOT
 RENOVATION
 ROCKVILLE, MD**

DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 PROJECT NUMBER: _____
 DATE: _____
 SHEET: _____
 TOTAL SHEETS: _____
 DEPARTMENT OF GENERAL SERVICES/AMT

FOREST CONSERVATION PLAN PHASE TWO

FCP-7

Tree Condition Summary

NOTE: THIS TABLE PROVIDES AN OVERVIEW OF THE TREE CONDITION SUMMARY. THE NUMBER OF TREES IN EACH CATEGORY IS INDICATED IN THE TOTAL COLUMN. THE NUMBER OF TREES IN EACH CATEGORY IS INDICATED IN THE TOTAL COLUMN.

Tree #	Species	DBH (in)	Height (ft)	Condition	Notes
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Tree Identification, Conditions and Potential

NOTE: THIS TABLE PROVIDES AN OVERVIEW OF THE TREE IDENTIFICATION, CONDITIONS AND POTENTIAL. THE NUMBER OF TREES IN EACH CATEGORY IS INDICATED IN THE TOTAL COLUMN.

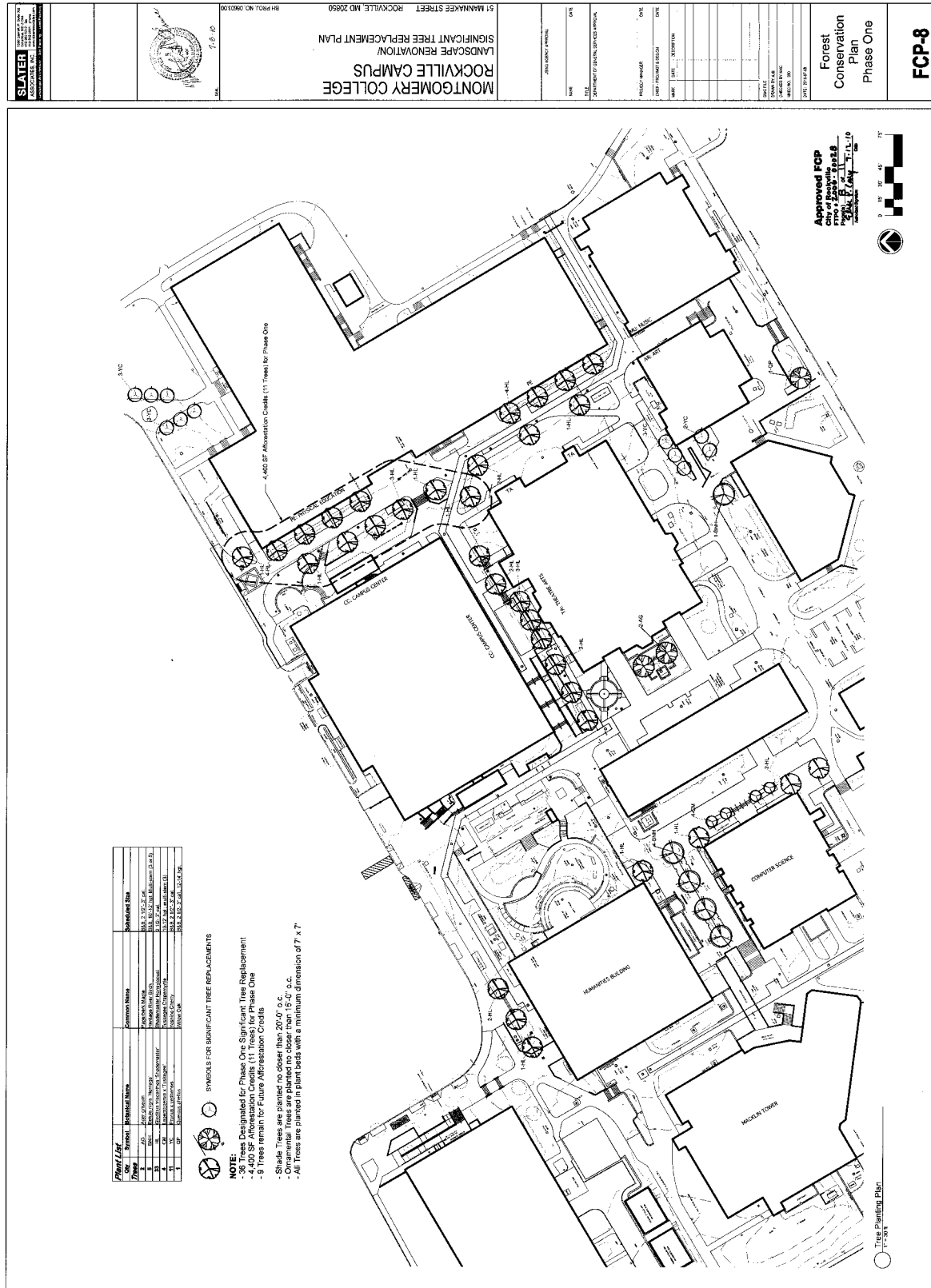
Tree #	Species	DBH (in)	Height (ft)	Condition	Potential
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Tree Identification, Conditions and Potential

NOTE: THIS TABLE PROVIDES AN OVERVIEW OF THE TREE IDENTIFICATION, CONDITIONS AND POTENTIAL. THE NUMBER OF TREES IN EACH CATEGORY IS INDICATED IN THE TOTAL COLUMN.

Tree #	Species	DBH (in)	Height (ft)	Condition	Potential
1
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3</		



Plant List	Common Name	Botanical Name	Reference Size
1	Red Maple	Acer rubrum	18.0' x 12.0' x 4.0'
2	White Birch	Betula papyrifera	18.0' x 12.0' x 4.0'
3	Black Birch	Betula nigra	18.0' x 12.0' x 4.0'
4	Red Oak	Quercus rubra	18.0' x 12.0' x 4.0'
5	White Oak	Quercus alba	18.0' x 12.0' x 4.0'
6	Black Oak	Quercus velutina	18.0' x 12.0' x 4.0'
7	Striped Bark Oak	Quercus macrocarpa	18.0' x 12.0' x 4.0'
8	Pin Oak	Quercus palustris	18.0' x 12.0' x 4.0'
9	White Pine	Pinus strobus	18.0' x 12.0' x 4.0'
10	Black Pine	Pinus nigra	18.0' x 12.0' x 4.0'

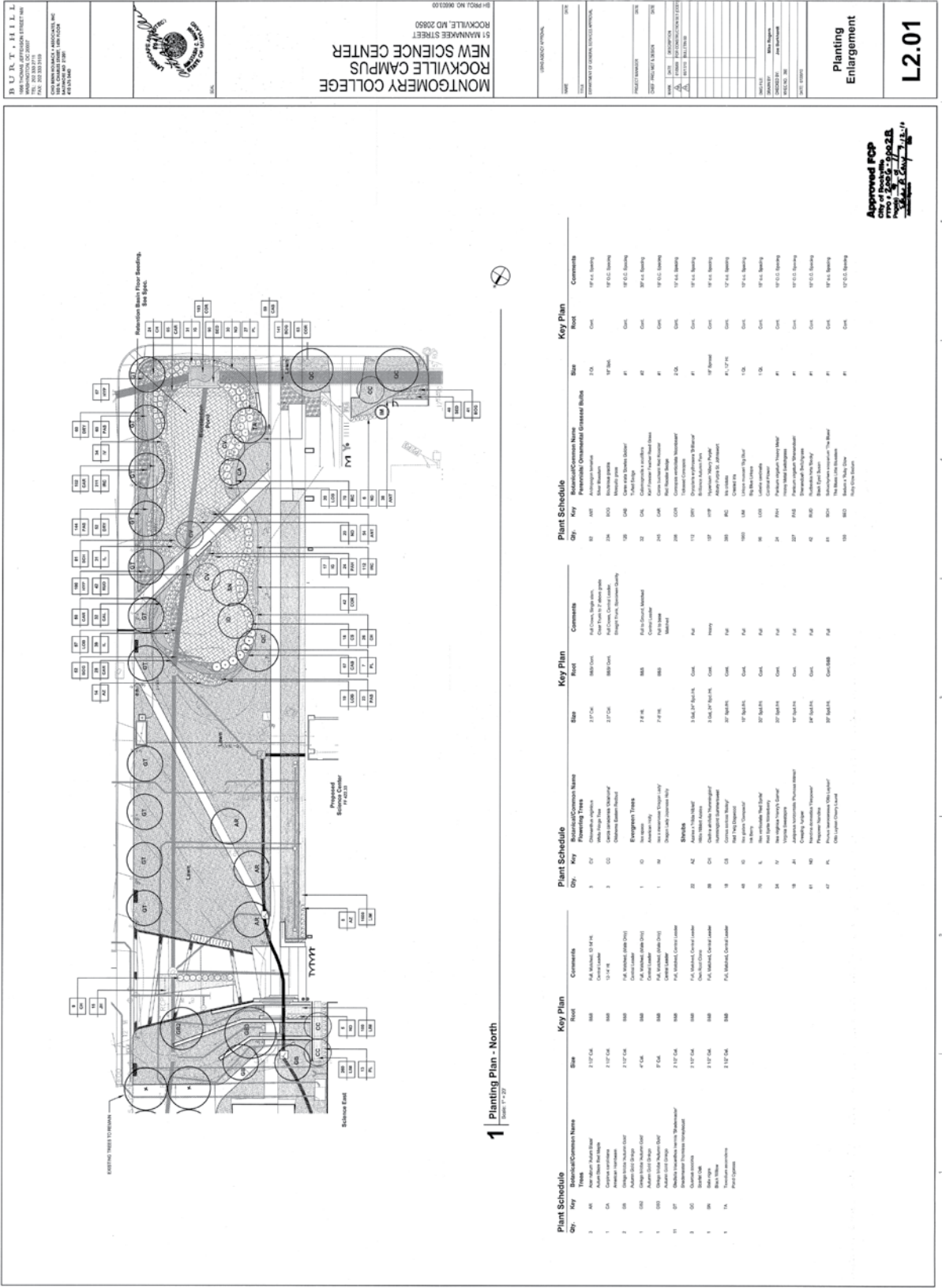
SYMBOLS FOR SIGNIFICANT TREE REPLACEMENTS

NOTE:

- 36 Trees Designated for Phase One Significant Trees Replacement
- 4,400 SF Admiration Credits (111 Trees) for Phase One
- 9 Trees Remain for Future Admiration Credits
- Shade Trees are planted no closer than 20'-0" o.c.
- All trees are planted in plant beds with a minimum dimension of 7' x 7'.

Approved FCP
 City of Rockville
 Resolution # 2010-0228
 Adopted 11/11/10
 Mayor: [Signature]





1 Planting Plan - North
Scale: 1" = 20'

BURT HILL
1000 PULASKI AVENUE, SUITE 100
ROCKVILLE, MD 20850
TEL: 301-330-3111
WWW.BURTHILL.COM

CHO BENN HOLBACK + ASSOCIATES INC.
1000 PULASKI AVENUE, SUITE 100
ROCKVILLE, MD 20850
TEL: 301-330-3111
WWW.CHOBENNHOLBACK.COM

MONTGOMERY COLLEGE
NEW SCIENCE CENTER
51 MANNGER STREET
ROCKVILLE, MD 20850
PROJECT NUMBER: 09-0103

PLANTING SCHEDULE

NO.	SYMBOL	PLANTING SCHEDULE	PLANTING SCHEDULE	PLANTING SCHEDULE	PLANTING SCHEDULE	PLANTING SCHEDULE	PLANTING SCHEDULE	PLANTING SCHEDULE	PLANTING SCHEDULE	PLANTING SCHEDULE
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7	700	700	700	700	700	700	700	700	700	700
8	800	800	800	800	800	800	800	800	800	800
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10	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
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22	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
23	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
24	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400
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35	3500	3500	3500	3500	3500	3500	3500	3500	3500	3500
36	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600
37	3700	3700	3700	3700	3700	3700	3700	3700	3700	3700
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41	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100
42	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200
43	4300	4300	4300	4300	4300	4300	4300	4300	4300	4300
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47	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700
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57	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700
58	5800	5800	5800	5800	5800	5800	5800	5800	5800	5800
59	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900
60	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
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62	6200	6200	6200	6200	6200	6200	6200	6200	6200	6200
63	6300	6300	6300	6300	6300	6300	6300	6300	6300	6300
64	6400	6400	6400	6400	6400	6400	6400	6400	6400	6400
65	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500
66	6600	6600	6600	6600	6600	6600	6600	6600	6600	6600
67	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700
68	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800
69	6900	6900	6900	6900	6900	6900	6900	6900	6900	6900
70	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000
71	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100
72	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200
73	7300	7300	7300	7300	7300	7300	7300	7300	7300	7300
74	7400	7400	7400	7400	7400	7400	7400	7400	7400	7400
75	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
76	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600
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79	7900	7900	7900	7900	7900	7900	7900	7900	7900	7900
80	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
81	8100	8100	8100	8100	8100	8100	8100	8100	8100	8100
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83	8300	8300	8300	8300	8300	8300	8300	8300	8300	8300
84	8400	8400	8400	8400	8400	8400	8400	8400	8400	8400
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90	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
91	9100	9100	9100	9100	9100	9100	9100	9100	9100	9100
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94	9400	9400	9400	9400	9400	9400	9400	9400	9400	9400
95	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500
96	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600
97	9700	9700	9700	9700	9700	9700	9700	9700	9700	9700
98	9800	9800	9800	9800	9800	9800	9800	9800	9800	9800
99	9900	9900	9900	9900	9900	9900	9900	9900	9900	9900
100	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000

Approved FCP
City of Rockville
Project # 09-0103
Date: 10/27/10

2

TAKOMA PARK/SILVER SPRING

MONTGOMERY COLLEGE
Office of Central Facilities
September 23, 2010

MEMORANDUM

To: Whom It May Concern

From: David J. Capp, Associate Vice President for College Facilities

Subject: Montgomery College Facilities Master Plan

Montgomery College will seek all the necessary regulatory approvals including land use and permitting from Montgomery County. More specifically, the College will complete the mandatory referral process of the Maryland National Capital Park and Planning as appropriate for facilities projects at this campus. The inclusion of the Takoma Park City's resolution in this Facilities Master Plan document does not imply concurrence on the part of Montgomery College. Additionally, the inclusion of this resolution in this document in no way implies that the City of Takoma Park has any jurisdictional authority over the College's Takoma Park Silver Spring Campus construction activities.

Montgomery College will continue to confer with the City of Takoma Park and our neighbors as we have in the past as capital projects move from the conceptual stage to design and construction.

City of Takoma Park, Maryland

Office of the Mayor
Telephone: (301) 891-7230
Fax: (301) 270-8794
BruceW@takomago.org



7500 Maple Avenue
Takoma Park, MD

The Honorable Bruce R. Williams
Mayor

June 15, 2010

Brad J. Stewart, Ph.D.
Vice President and Provost
Montgomery College
Takoma Park/Silver Spring Campus

Dear Dr. Stewart

Thank you for the opportunity to include our comments on the future development of Montgomery College's Takoma Park Silver Spring campus in the Facilities Master Plan update.

On Monday, June 7, the Takoma Park City Council, concerned that the City and the community had not been given an opportunity to participate more fully in the development of the Plan nor to view the prepared document, elected to re-submit its original Resolution providing comment on the Facilities Master Plan and asked that it be included, in its entirety, in the Plan. A copy of Resolution No. 2008-62, adopted by Council on July 28, 2008, is attached.

Given the impact of the planned expansion of the Takoma Park Silver Spring campus, and the renovation of several of the existing buildings on the community and the surrounding historic neighborhood, we strongly encourage Montgomery College to include the City and the community in the planning and design of future capital projects.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce R. Williams".

Bruce R. Williams
Mayor

cc: Takoma Park City Councilmembers

Introduced by: Councilmember Wright

CITY OF TAKOMA PARK, MARYLAND

RESOLUTION #2008-62

**PROVIDING COMMENT ON THE PROPOSED MONTGOMERY COLLEGE
TAKOMA PARK/ SILVER SPRING 2006-2016 FACILITIES MASTER PLAN**

WHEREAS, Montgomery College (the “College”), founded in 1946, is Maryland’s oldest community college with three campuses, the first of which was established in 1950 and lies within the 1976 Takoma Park National Register Historic District; and,

WHEREAS, the Takoma Park campus is distinct from the other campuses because of its residential setting, small site, its location within the 1976 Takoma Park National Register Historic District and its proximity and adjacency to residences both within the Takoma Park National Register Historic District as well as the local Montgomery County Takoma Park Historic District; and,

WHEREAS, the College is in the process of updating its Facilities Master Plan which is intended to serve as a framework for the development of each of the College’s campuses in a manner that is cohesive, integrated, and visionary while addressing the individual campuses’ space usage and academic and administrative requirements; and,

WHEREAS, to accommodate the College’s expansion needs, beginning in 2000, the Montgomery County Executive, the Montgomery County Council, and the Montgomery County Planning Board agreed and financed a policy of westward expansion of College facilities and a “shift of uses from the east campus to the Georgia Avenue campus;” and,

WHEREAS, both the County and the City, through their actions, have recognized the limited expansion potential of the Takoma Park core campus and wish to identify opportunities for sustainable short-term and long-term growth and expansion of the College in Takoma Park/Silver Spring; and,

WHEREAS, the Takoma Park Master Plan, adopted in December 2000 recommends “maintaining compatibility with adjacent residential communities” and providing pedestrian and bike linkages as the College expands; and,

WHEREAS, the City established the Montgomery College Neighbors Advisory Committee (MCNAC) in 2005, to serve in an advisory role to the City Council on matters relating to the expansion/renovation of the College; and,

WHEREAS, MCNAC undertook a comprehensive review of the College’s Takoma Park/Silver Spring campus, completed an extensive characterization of the adjacent neighborhood, evaluated the College’s options for expansion and the potential impact of any expansion on the City’s historic residential neighborhood, and presented its recommendations for the future expansion of the campus to the City Council on February 25, 2008; and,

WHEREAS, the College presented a preliminary draft of its 2006-2016 Facilities Master Plan Update to the City Council on July 14, 2008; and,

WHEREAS, the North Takoma Citizens Association and MCNAC have expressed great concern in their comments to Council over the College's proposed options 5 and 6 and instead strongly endorse continuation of the established shift of uses and density from the eastern to the western campus.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF TAKOMA PARK, MARYLAND THAT the following comments reflect the Council's position on the College's proposed alternatives for expansion of the Takoma Park/Silver Spring campus as reflected in the College's 2006-2016 Facilities Master Plan Update.

Section 1. The Council recognizes the great value the College has for the community and is committed to working constructively and cooperatively with the College in identifying short and long-term solutions to its expansion needs.

Section 2. The Council strongly supports the established policy of westward expansion of the Takoma Park/Silver Spring campus into South Silver Spring along Georgia and Burlington Avenues and requests that the College:

- a) Work with its Montgomery College Foundation, Inc. (the "Foundation") in the short term to develop the property deeded to the Foundation by the College, fronting on Burlington Avenue and identified in the 2002-2012 Facilities Master Plan for an "academic building" for development of its identified immediate academic space need, i.e., the Math & Science Center; and,
- b) Actively pursue the purchase of the remaining commercial properties located along Fenton Street and Burlington and Georgia Avenues to create a "cohesive, integrated, and visionary" campus while addressing long-term expansion needs.

Section 3. The Council supports the policy of greater consolidation and cohesiveness of College facilities and the reconnection of its historic residential neighborhood of North Takoma of Block 69, and requests the College to:

- a) Remove the Child Care Facility from its current location within the City's locally designated historic district and return this property to single-family use; and,
- b) Vacate and demolish Pavilion 3 and the kiln bunker, both of which are obsolete structures, and work constructively with the City in re-integrating these properties appropriately into the single-family residential neighborhood as a passive memorial park.

Section 4. The Council strongly supports a low-scale, low-density redevelopment of the Takoma Park campus and the use of design guidelines and massing standards which reflect and preserve the architectural integrity and residential character and scale of the adjoining neighborhood and historic districts, keeping buildings at the current size and scale. It

requests that the College review and revise its proposed alternatives to accomplish this goal.

Section 5. The Council applauds the College's commitment to sustainability and LEED certification and endorses the College's efforts to develop a pedestrian oriented campus and streetscape along New York Avenue and Fenton Street and to create attractive and environmentally sensitive linkages between the campus and Takoma Park, South Silver Spring, and Fenton Village.

Section 6. The City looks forward to working in partnership with the College in encouraging and promoting the use of alternative forms of transportation such as transit, shuttles and bicycling through appropriate policies and infrastructure improvements.

Adopted this 28th day of July 2008.

AGREEMENT

THIS AGREEMENT, made this 30th day of July, 2002, by and between the BOARD OF COMMUNITY COLLEGE TRUSTEES OF MONTGOMERY COUNTY (hereinafter referred to as "Montgomery College"), the CITY OF TAKOMA PARK, MARYLAND (hereinafter referred to as "City"), HISTORIC TAKOMA, INC. (hereinafter referred to as "Historic Takoma"), and MONTGOMERY COUNTY, MARYLAND (hereinafter referred to as "Montgomery County"),

WITNESSETH:

WHEREAS, Montgomery College is a community college which is responsible for operating community college facilities in Montgomery County, including the City of Takoma Park and areas of Silver Spring, Maryland; and

WHEREAS, the City of Takoma Park is a municipality located in Montgomery County, Maryland; and

WHEREAS, Historic Takoma is an historic preservation organization which is incorporated and does business in the State of Maryland and the District of Columbia; and

WHEREAS, Montgomery County is a charter county of the State of Maryland and administers the Montgomery County Historic Preservation Ordinance, Montgomery County Code, as amended, Chapter 24A; and

WHEREAS, there was friction in the past between the College and the City of Takoma Park with respect to historic structures within the City of Takoma Park, and the City of Takoma Park and the College wish to avoid such friction in the future and continue their good and unique relationship; and

WHEREAS, to maintain their collaborative relationship, the parties wish to enter into an Agreement whereby Montgomery College voluntarily agrees under these unique circumstances to submit any and all plans for proposed development in the current or future historic preservation district in the City of Takoma Park, as further defined and delineated below, for review by the Montgomery County Historic Preservation Commission and further agrees to be subject to the provisions of the Montgomery County Code, Chapter 24A, for this development and proposed construction.

NOW, THEREFORE, in consideration of the premises and the mutual promises and covenants hereinafter contained, the parties hereto do agree, each with the other, as follows:

1. Montgomery College hereby agrees to submit any and all plans for proposed development in the current or future historic preservation district in the City of Takoma Park as now constituted in the City of Takoma Park or henceforth expanded, saving and excepting property now owned by Montgomery College as depicted on Attachment B that is not in the Takoma Park historic district as it is presently defined¹; Montgomery College further agrees to be subject to the provisions of the Montgomery County Code, Chapter 24A, Historic Preservation Ordinance, for all activities henceforth proposed to be conducted by Montgomery College in the historic preservation district of the City of Takoma Park as now constituted in the City of Takoma Park or henceforth expanded, saving and excepting property now owned by Montgomery College as depicted on Attachment B that is not in the Takoma Park historic district as it is presently defined.²

2. Montgomery College agrees to seek and obtain all local permit review within the designated historic district, including but not exclusive to building permits,

¹ NOTE: The property that is presently used by Montgomery College as a child care facility is in the Takoma Park historic district and will be subject to the local historic preservation provisions under this agreement.

² NOTE: The property that is presently used by Montgomery College as a child care facility is in the Takoma Park historic District and will be subject to the local historic preservation provisions under this agreement.

plumbing permits, electrical permits, Fire Code permits, subdivision review, zoning applications, and demolition permits. Such permit review does not alter past and current practices of Montgomery College to be subject to other municipal regulations – such as forestation (trees), police, curb cuts and other regulations in the municipal rights of way, and stormwater management.

3. Montgomery College agrees that it shall consult with the City of Takoma Park and the local community when making any major or substantial changes or alterations to the existing structures designated on Appendix B (“Existing Structures”).

4. The parties agree that this consultation envisioned in the prior paragraph will occur at the earliest practicable stage during the planning for any alteration, construction, or revitalization of the exterior of the existing buildings.

5. The parties agree that they have the authority to enter into this Agreement and to bind all entities in perpetuity for this Agreement.

6. The parties agree that this document may be recorded in the miscellaneous records of Montgomery County, and the City of Takoma Park may publish this agreement as part of or as an appendix to the City Code.

7. If any of the provisions of this Agreement are declared to be invalid by a Court of law, all other provisions shall remain in full force and effect.

8. If any parties fails to fulfill their obligation hereunder, any party to this agreement shall have the right to sue to enforce the terms of this agreement. The breaching party agrees to pay reasonable attorney fees and costs incurred by the other party in the event a final judgment is obtained against the breaching party.

9. Notwithstanding anything contained in this Agreement to the contrary, by entering into this Agreement, Montgomery College does not waive any position that it may take with respect to the jurisdiction of the Montgomery County Historic Preservation Commission to review the activities of Montgomery College or issues of compliance with

or the applicability of the provisions of Chapter 24A, Montgomery County Code, except with respect to activities addressed specifically by this Agreement.

10. Each party shall at any time and from time to time hereafter take any and all steps to execute, acknowledge and deliver to the other party all further instruments and assurances that the other party may reasonably require for the purposes of giving full force and effect to the provisions of this Agreement.

11. The parties have incorporated in this Agreement their entire understanding. No oral statement or prior written matter extrinsic to this Agreement shall have any force or effect. The parties are not relying on any representation or warranties other than those expressly set forth herein.

12. No modification or waiver of any of the terms of this Agreement shall be valid unless in writing and executed with the same formality as this Agreement. No waiver of any breach or default hereunder shall be deemed a waiver of any subsequent breach or default of the same or similar nature.

13. Each party hereto declares that they have had independent legal advice by counsel of their own selection or the opportunity to obtain the same; that each fully understands the facts and has been fully informed of all legal rights and liabilities and the advisability of obtaining independent legal counsel; that after such advice and knowledge, each believes the Agreement to be fair and reasonable. This Agreement contains the entire understanding of the parties. There are no representations, warranties, promises, covenants or undertakings other than those expressly set forth herein.

14. This Agreement shall be binding on the parties hereto, their successors in interest and assigns. This Agreement shall be construed under the laws of the State of Maryland.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals this day and year first above written.

BOARD OF COMMUNITY COLLEGE
TRUSTEES OF MONTGOMERY COUNTY

By: William E. Campbell

CITY OF TAKOMA PARK, MARYLAND

By: Kathryn H. Porter

HISTORIC TAKOMA, INC.

By: Lorraine Pearl

MONTGOMERY COUNTY, MARYLAND

By: William M. Mooney, Jr.
William M. Mooney, Jr.
Assistant Chief Administrative
Officer

APPROVED AS TO FORM AND LEGALITY
OFFICE OF COUNTY ATTORNEY
BY Sileen O. Bussan
DATE 7/26/2007

STATE OF MARYLAND

SS:

COUNTY OF MONTGOMERY

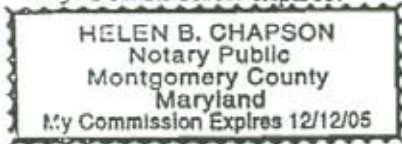
I HEREBY CERTIFY that on this 24th day of July, 2002, before me, the subscriber, a Notary Public in and for the State and County aforesaid, personally appeared William E. Campbell, EVP of the Board of Community College Trustees of Montgomery County, who is authorized to execute this document on behalf of said entity, and who made oath in due form of law that he executed the foregoing Agreement on behalf of the Board of Community College Trustees of Montgomery County for the purposes stated therein.

AS WITNESS my hand and Notarial Seal.

Helen B. Chapson

Notary Public.

My Commission expires:



STATE OF MARYLAND

SS:

COUNTY OF MONTGOMERY

I HEREBY CERTIFY that on this 23rd day of July, 2002, before me, the subscriber, a Notary Public in and for the State and County aforesaid, personally appeared Kathryn H. Porter, Mayor of the City of Takoma Park, Maryland, who is authorized to execute this document on behalf of said entity, and who made oath in due form of law that she executed the foregoing Agreement on behalf of the City of Takoma Park, Maryland, for the purposes stated therein.

AS WITNESS my hand and Notarial Seal.

Jessie Carpenter

Notary Public

My Commission expires: 10-01-04

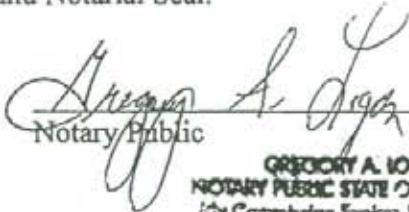
STATE OF MARYLAND

ss:

COUNTY OF MONTGOMERY

I HEREBY CERTIFY that on this 22nd day of July, 2002, before me, the subscriber, a Notary Public in and for the State and County aforesaid, personally appeared Caroline J. Kinsall, President of Historic Takoma, Inc., who is authorized to execute this document on behalf of said entity, and who made oath in due form of law that she executed the foregoing Agreement on behalf of the Historic Takoma, Inc. for the purposes stated therein.

AS WITNESS my hand and Notarial Seal.


Notary Public
GREGORY A. LOGAN
NOTARY PUBLIC STATE OF MARYLAND
My Commission Expires June 1, 2009

My Commission expires:

STATE OF MARYLAND

ss:

COUNTY OF MONTGOMERY

I HEREBY CERTIFY that on this 31 day of July, 2002, before me, the subscriber, a Notary Public in and for the State and County aforesaid, personally appeared William M. Mueney, Jr. Asst. CAO of Montgomery County, Maryland, who is authorized to execute this document on behalf of said entity, and who made oath in due form of law that he, as Asst. CAO executed the foregoing Agreement on behalf of the Montgomery County, Maryland for the purposes stated therein.

AS WITNESS my hand and Notarial Seal.

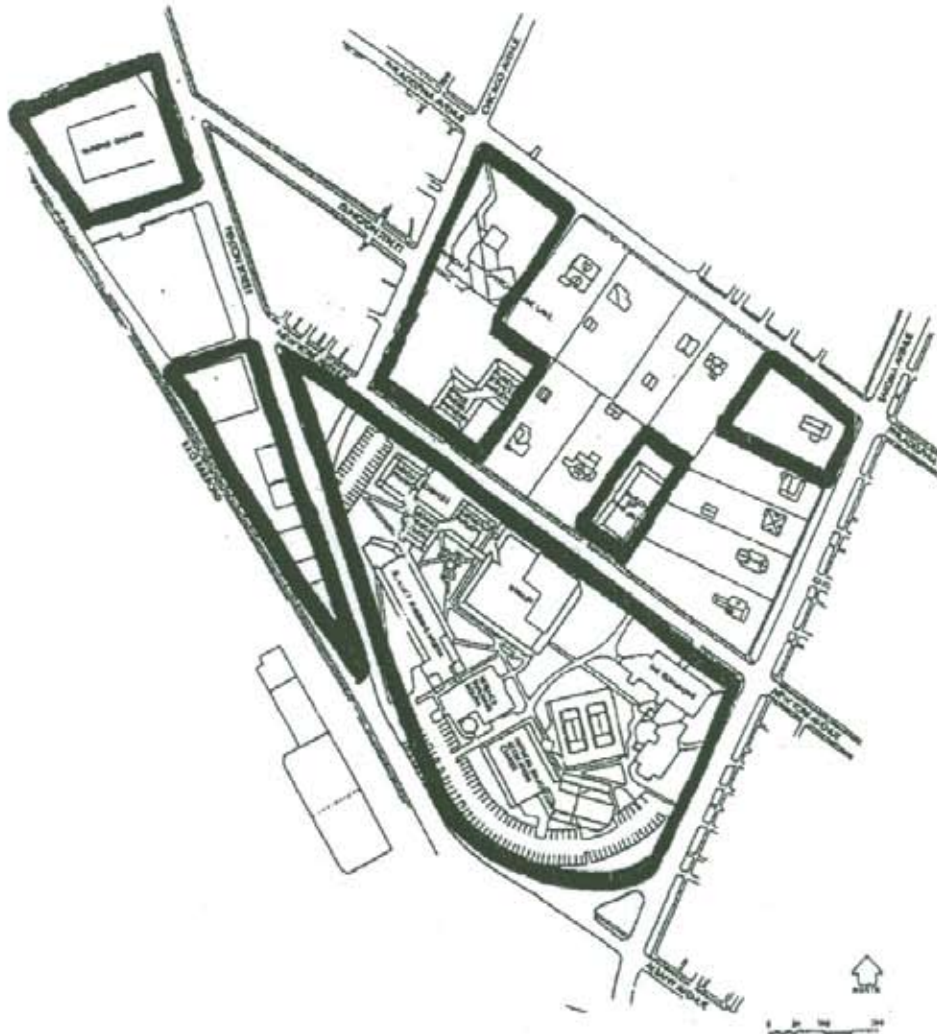
Notary Public 

My Commission expires:

CINDY A. SULLIVAN
Notary Public
State of Maryland
My Commission Expires
January 1, 2004

FINALVERSION.doc

Attachment B



**MONTGOMERY COLLEGE TAKOMA PARK CAMPUS - SITE PLAN
MASTER PLAN**

WISHNOE DRIFTS & WISPIU UPDATED MASTER PLAN PER 06.0111

3

CITY OF ROCKVILLE ZONING UPDATE

Article 10 –Single Dwelling Unit Residential Zones

25.10.01 – Purpose

The purpose of the Single Dwelling Unit Residential Zones is to:

1. Provide appropriately located areas for residential development that are consistent with the Plan and public health and safety;
2. Consistent with the *Environmental Guidelines*, ensure adequate light, air, privacy, and open space for each dwelling;
3. Protect residents from adverse environmental effects;
4. Promote a suitable environment for residential living through the provision of recreational, religious, and educational facilities as basic elements of a balanced neighborhood;
5. Stabilize and protect the essential characteristics of existing residential development; and
6. Foster development compatible with the topography and other natural characteristics of the area.

25.10.02 - Zones Established

The individual Single Dwelling Unit Residential Zones include the following:

Type of Zone	Distinguishing Feature	Name of Zone
Residential – Single unit dwellings (detached and semi-detached)	40,000 square feet minimum lot area	Residential Estate Zone ("R-400")
	20,000 square feet minimum lot area	Suburban Residential ("R-200")
	15,000 square feet minimum lot area	Low Density Residential ("R-150")
	9,000 square feet minimum lot area	Single unit Detached Dwelling, Restricted Residential ("R-90")
	7,500 square feet minimum lot area.	Single unit Detached Dwelling, Residential ("R-75")
	6,000 (or 5,000) square feet minimum lot area	Single unit Detached Dwelling, Residential ("R-60")
	4,000 square feet minimum lot area	Single unit Semi-detached Dwelling, Residential ("R-40")
NOTES: 1. Provisions for Medium Density Residential Zones are contained in Article 11. 2. Provisions for development in Planned Development areas are contained in Article 14.		

25.10.03 – Land Use Tables

The uses permitted in the Single Dwelling Unit Residential Zones are shown in the table below. All special exceptions are subject to the requirements of Article 15.

	Uses	Zones							Conditional requirements or related regulations
		Residential Estate Zone (R-400)	Suburban Residential Zone (R-200)	Low Density Residential Zone (R-150)	Single Unit Detached Dwelling, Restricted Residential Zone (R-90)	Single Unit Detached Dwelling, Residential Zone (R-75)	Single Unit Detached Dwelling, Residential Zone (R-60)	Single Unit Semi-detached Dwelling, Residential Zone (R-40)	
a. Residential uses	Dwelling, single unit detached ¹	P	P	P	P	P	P	C	Conditional use subject to the requirements of the R-60 Zone
	Dwelling, two-unit detached (duplex)	N	N	N	N	N	N	P	
	Accessory apartment	S	S	S	S	S	S	N	See Sec. 25.15.02.a
b. Swimming pools: Non-accessory		S	S	S	S	S	S	N	See Sec. 25.15.02.p
c. Swimming pools, accessory		P	P	P	P	P	P	P	
d. Home-based business enterprises	No impact	P	P	P	P	P	P	P	See Sec. 25.09.07b
	Major	S	S	S	S	S	S	S	See Sec. 25.09.07c & Sec. 25.15.02.h
e. Institutional uses	Educational institution, private	S	S	S	S	S	S	S	See Sec. 25.15.02.g
	Nursing home	S	S	S	S	S	S	S	See Hospitals and Nursing Homes, Sec. 25.15.02.i
	Child care home	P	P	P	P	P	P	P	
	Child care center:								Special exception subject to the requirements of Sec. 25.15.02.f
	9 – 12 children	P	P	S	S	S	S	S	
More than 12 children	S	S	S	S	S	S	S		
Institutional	Adult day care	S	S	S	S	S	S	S	

	Uses	Zones							Conditional requirements or related regulations
		Residential Estate Zone (R-400)	Suburban Residential Zone (R-200)	Low Density Residential Zone (R-150)	Single Unit Detached Dwelling, Restricted Residential Zone (R-90)	Single Unit Detached Dwelling, Residential Zone (R-75)	Single Unit Detached Dwelling, Residential Zone (R-60)	Single Unit Semi-detached Dwelling, Residential Zone (R-40)	
uses (con't):	Charitable or philanthropic institution	S	S	S	S	S	S	S	See Sec. 25.15.02.e
	Group home:								
	Small	P	P	P	P	P	P	P	
	Large	S	S	S	S	S	S	S	
	Hospital	S	S	S	S	S	S	S	See 25.15.02.i
	Housing for senior adults and persons with disabilities	S	S	S	S	S	S	S	See Sec. 25.15.02.j
	Life Care Facility	S	S	S	S	S	S	S	See Sec. 25.15.02.k
	Place of worship	P	P	P	P	P	P	P	Use subject to site plan review under Art. 7; see also Sec. 25.16.03.d
	Private club	S	N	N	N	N	N	N	
	Public utility building and structure	S	S	S	S	S	S	S	See Sec. 25.15.02.n
	Publicly-owned or publicly-operated building and use, excluding sanitary landfill	C	C	C	C	C	C	C	Conditional use subject to a Level 3 Site Plan Review (Sec. 25.07.05)
Veterinary office and animal hospital	S	S	N	N	N	N	N	See Sec. 25.15.02.r	
f. Miscellaneous uses	Bed and Breakfast lodging	S	S	S	S	S	S	N	See Sec. 25.15.02.d

	Uses	Zones							Conditional requirements or related regulations
		Residential Estate Zone (R-400)	Suburban Residential Zone (R-200)	Low Density Residential Zone (R-150)	Single Unit Detached Dwelling, Restricted Residential Zone (R-90)	Single Unit Detached Dwelling, Residential Zone (R-75)	Single Unit Detached Dwelling, Residential Zone (R-60)	Single Unit Semi-detached Dwelling, Residential Zone (R-40)	
Miscellaneous uses (con't):	Wireless communication facility entirely within an existing building or on the roof or side of a building, or attached to an existing structure	C	C	C	C	C	C	C	Conditional use subject to the requirements of Sec. 25.09.08
	Wireless communication facility not entirely within an existing building or on the roof or side of a building, or attached to an existing structure, including, but not limited to, antennas on a freestanding ground mounted antenna support structure	S	S	S	S	S	S	S	Subject to the requirements of Secs. 25.09.08, and 25.15.02.s
f. Temporary uses:	Temporary building or yard for construction materials or equipment	C	C	C	C	C	C	C	Conditional use subject to the requirements of Sec. 25.09.04
	Temporary office or model home	C	C	C	C	C	C	C	

	Uses	Zones							Conditional requirements or related regulations
		Residential Estate Zone (R-400)	Suburban Residential Zone (R-200)	Low Density Residential Zone (R-150)	Single Unit Detached Dwelling, Restricted Residential Zone (R-90)	Single Unit Detached Dwelling, Residential Zone (R-75)	Single Unit Detached Dwelling, Residential Zone (R-60)	Single Unit Semi-detached Dwelling, Residential Zone (R-40)	
Temporary uses (con't)	Portable Storage Units	C	C	C	C	C	C	C	Conditional use subject to the requirements of Sec. 25.09.04
	Christmas tree sale	C	C	C	C	C	C	C	
	Garden produce	C	C	C	C	C	C	C	
	Temporary carnival	C	C	C	C	C	C	C	
g. Accessory Uses		P	P	P	P	P	P	P	See Secs. 25.09.01,&02.

Key: P = Permitted Use; S = Special Exception; C = Conditional Use; N = Not Permitted

¹ Except as otherwise provided, no more than one (1) single unit detached dwelling may be built on a recorded lot.

25.10.04 – Prohibition on the Creation of New Pipe Stem Lots

No new pipe stem lots may be created in any Single Dwelling Unit Residential Zone.

25.10.05 –Development Standards

a. *Table of Development Standards*

Zone	Minimum Lot Dimensions			Building Envelope Requirements						Lot Coverage		Additional Regulations
				Minimum Setbacks						Max. Height	Max. Lot Coverage (All main and accessory buildings) (See Sec. 25.10.05.b)	
	Front		Side		Rear							
	Area	Width at Front Setback Line	Width at Front Lot Line	Standard	Where established setback exceeds standard (See Sec. 25.10.05.e.2)	Where street abuts	Where land abuts					
R-400	40,000 sq ft	150'	N/A	50'	Est. setback up to 100'	30'	20'	50'	40'	15%	10%	
R-200	20,000 sq ft.	100'	N/A	35'	Est. setback up to 100'	25'	13'	35'	40' ²	25%	20%	
R-150	15,000 sq ft	90'	N/A	35'	Est. setback up to 60'	30'	13'	30'	40'	25%	25%	
R-90	9,000 sq ft	80'	N/A	30'	Est. setback up to 60'	20'	11'	25'	35'	25%	30%	See Sec. 25.10.09 for limitations on building height in R-60, R-75 & R-90 zones
R-75	7,500 sq ft	70'	40'	25'	Est. setback up to 50'	20'	9'	20'	35'	35%	35%	
R-60	6,000 sq ft	60'	35'	25'	Est. setback up to 50'	20'	8'	20'	35'	35%	40%	
R-60 qualifying undersized lots	5,000 sq ft	50'	35'	25'	Est. setback up to 50'	20'	7'	20'	35'	35%	40%	See Sec. 25.08.03
R-40	4,000 sq. ft.	40'		25'	Est. setback up to 50'	25'	10'	20'	35'	40%	45%	Single unit detached dwellings: R-60 standards in lieu of R-40 standards
Lincoln Park Conservation District	6,000 sq ft	60'	35'	25'	Est. setback up to 50'	20'	8'	20'	25'	1,500 square feet	40%	See Sec. 25.14.03

¹ In cases where the Director of the Department of Public Works approves a pervious paving material, the area of the front yard devoted to vehicle movement and parking is still limited to the percentage limits shown in the table above.

² In the case of an institution of higher learning located on a site greater than 75 acres, the maximum building height is 75 feet where the use adjoins property in a Single Dwelling Unit Residential Zone or a Park Zone, and building height cannot penetrate a layback slope formed by an angle of 30 degrees measured from the property boundary of the adjoining residential or Park Zone.

b. *Maximum Lot Coverage*

1. *Inclusion of Accessory Buildings* - Maximum lot coverage includes accessory buildings; however, historic structures, located in a Historic District Zone, are exempt from the calculation of rear yard coverage pursuant to Section 25.09.03.a.2.
2. *Special Provision in the R-200 Zone*- In the R-200 Zone, the maximum lot coverage is 25%, except as provided for in Sections 25.15.02.j and 25.15.02.k for housing for senior adults and persons with disabilities and life care facilities.

c. *Impervious Surface Limits for Corner Lots and Through Lots*

1. *Corner Lots* – On corner lots, the maximum impervious surface limits for the front yard are one-half (1/2) the percentage requirements shown in the development standards table in Section 25.10.05.a above.
 2. *Through Lots* – On through lots, the maximum impervious surface limits for the two (2) front yards are calculated as follows: Each front yard is defined as the area along the full width of the lot and the depth of the minimum front yard setback required in the zone. Each front yard must not exceed the maximum impervious surface limits shown in the development standards table in Section 25.10.05.a above.
- d. *Exclusions from Impervious Surface Requirements* – Institutional uses in the Single Dwelling Unit Residential Zones must normally meet the requirements set forth in Section 25.10.05.a, above for the maximum impervious surface area in a front yard. However, through site plan review in accordance with the provisions of Article 7, the Approving Authority may waive this requirement if it finds that such a waiver will reduce impacts of paved areas on adjoining residential uses, provide more efficient on-site traffic circulation, or address practical difficulties.

e. *Setbacks*

1. *Side Setbacks Where Street Abuts* – A street along a side lot is deemed to be a side street only if the lot abutting the rear of the subject lot does not front on the street, otherwise the front setback requirement must apply.

2. *Front Setback Where Established Setback Exceeds the Standard Setback* – In cases where more than half of the lots located on one (1) side of a street between two (2) intersecting streets are occupied by buildings having a front setback different from the normal specified, any building hereafter must conform to the setback line up to the maximum specified in the development standards table in Section 25.10.05.a above.
3. *Minimum Setbacks* – A 50 foot setback is required from a right-of-way of limited access and a major or arterial highway unless the lot or lots are shown on an approved preliminary subdivision plan or an approved final record plat prior to January 1, 1980.

25.10.06 – Additional Neighborhood Districts

Historic District and Neighborhood Conservation District regulations are contained in Article 14 and the boundaries of such districts are shown on the Zoning Map.

25.10.07 – Accessory Uses and Structures

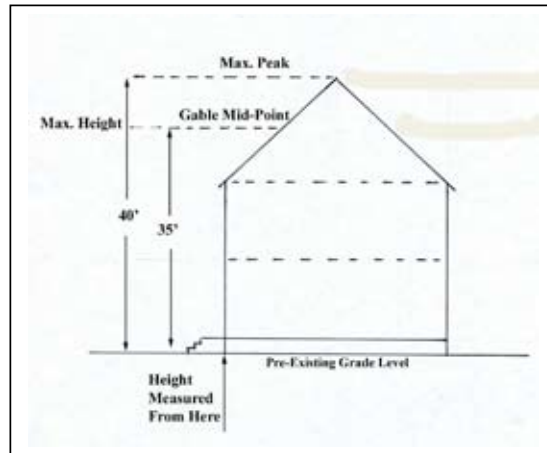
All accessory uses and structures within the Single Dwelling Unit Residential Zones must comply with the provisions of Article 9 of this Chapter.

25.10.08 – Moderately Priced Dwelling Units

Any development that includes residential units must comply with the Moderately Priced Dwelling Unit requirements of Chapter 13.5 of the Code.

25.10.09 – Special Regulations for Building Height in the R-60, R-75, and R-90 Zones.

- a. *Height of Residential Buildings* - The height of residential dwellings in the R-60, R-75, and R-90 Zones is limited to 35 feet, measured at the mid-point of the front of the building from the surface of the pre-existing grade to the mid-point of a gable, hip, or mansard roof or to the roof surface of a flat roof. In the case of a gable, hip or mansard roof, the height to the peak of the roof cannot exceed 40 feet.



- (b) In cases where the existing grade of the lot slopes below the street grade, building height will be measured from the finished street grade, provided that construction of the dwelling requires re-grading of the lot for purposes of positive drainage of wastewater and stormwater to the street.

25.10.10 – Nonconformities

All nonconforming uses and structures within the Single Dwelling Unit Residential Zones must comply with the provisions of Article 8 of this Chapter.

25.10.11 – Parking and Loading Requirements

All parking and loading within the Single Dwelling Unit Residential Zones must comply with the provisions of Article 16 of this Chapter.

25.10.12 – Landscaping and Buffer Requirements

All landscaping and buffering within the Single Dwelling Unit Residential Zones must comply with the provisions of Article 17 of this Chapter and, where applicable, the Forest and Tree Preservation Ordinance.

25.10.13 – Signs

4

MONTGOMERY COLLEGE RIDERSHIP SURVEY and TRANSPORTATION DEMAND MANAGEMENT

Montgomery College Pedestrian Questionnaire Summary

Presented by:



December 18, 2007

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Takoma Park/Silver Spring Campus

- Mode of Travel Characteristics by User Group
- Zip code Trip Origin by User Group
- Most Utilized Transit Routes
- Most Popular Transit connections

Montgomery College Summary

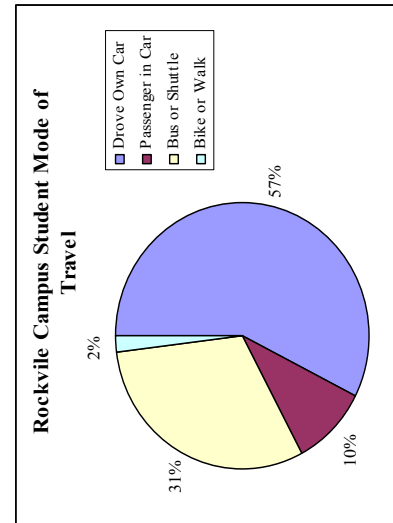
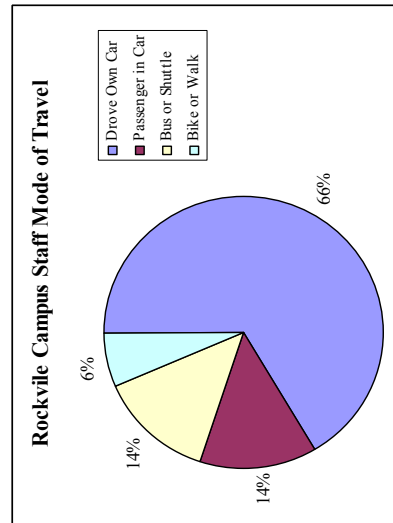
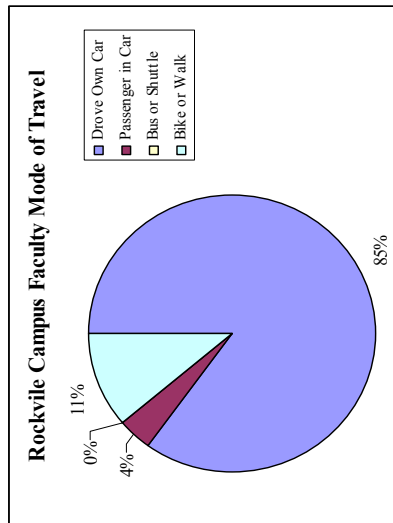
- Mode of Travel Characteristics by User Group
- Zip code Trip Origin by User Group
- Most Utilized Transit Routes
- Most Popular Transit connections

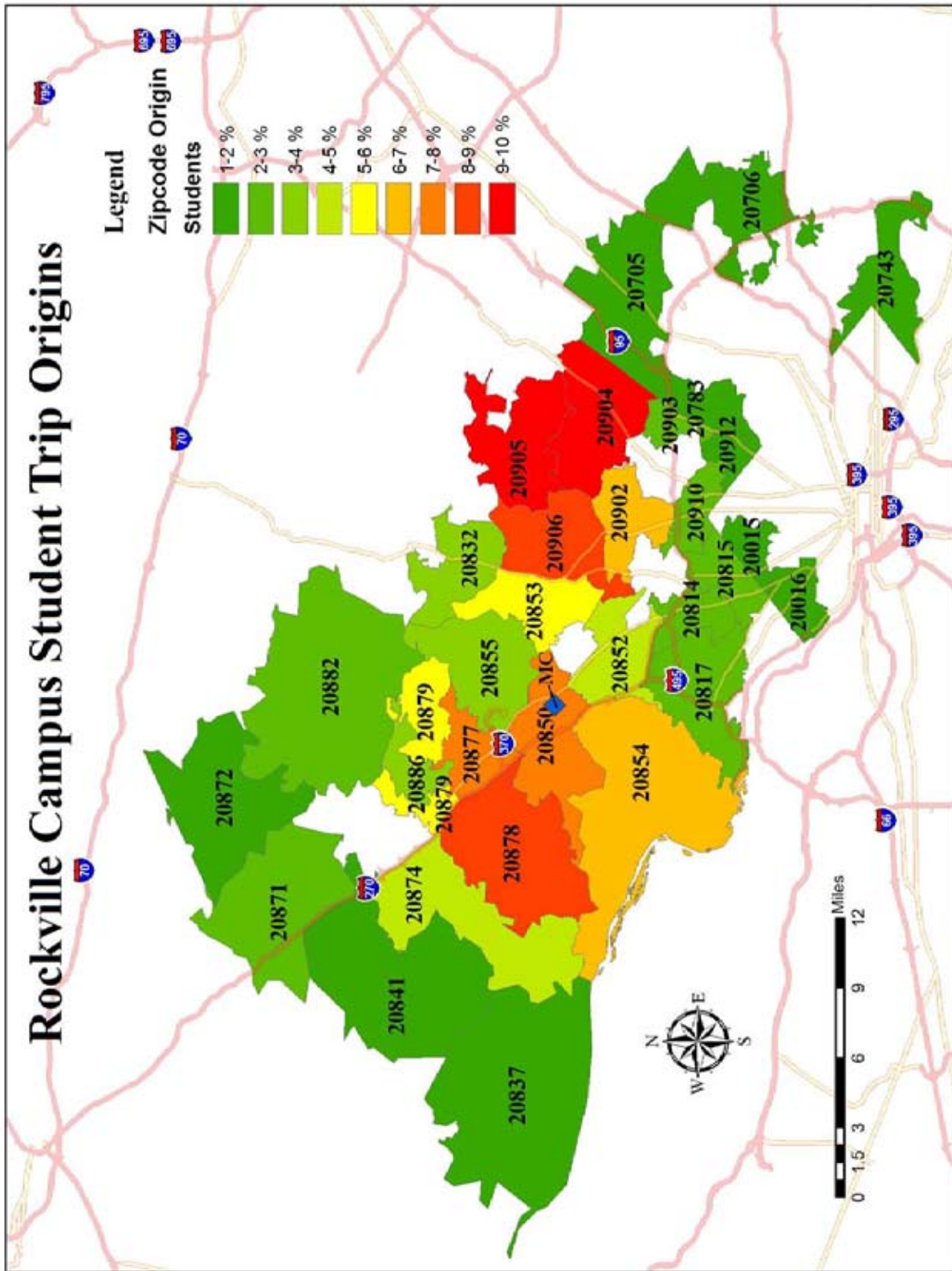
Rockville Campus

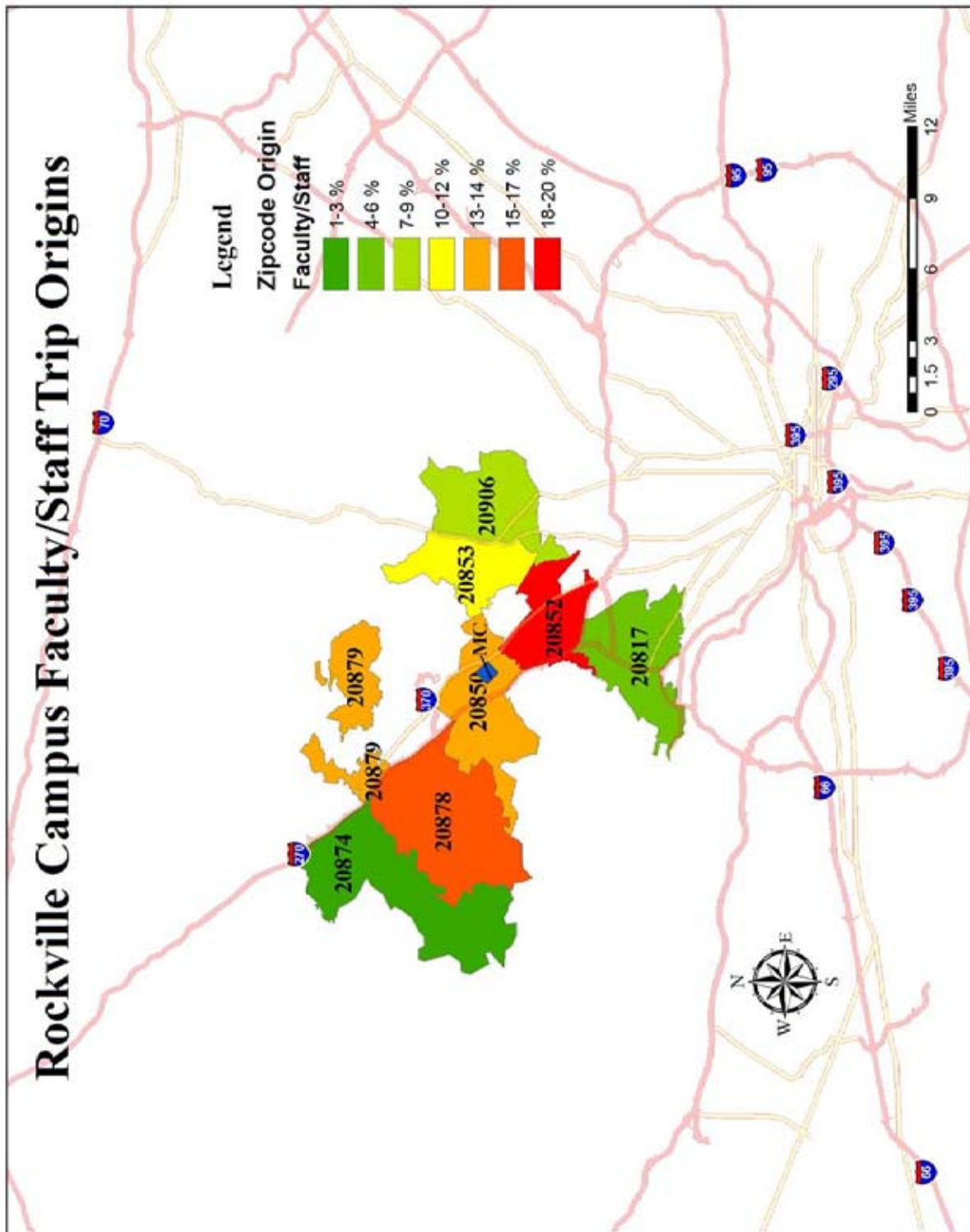
Mode of Travel Characteristics by User Group

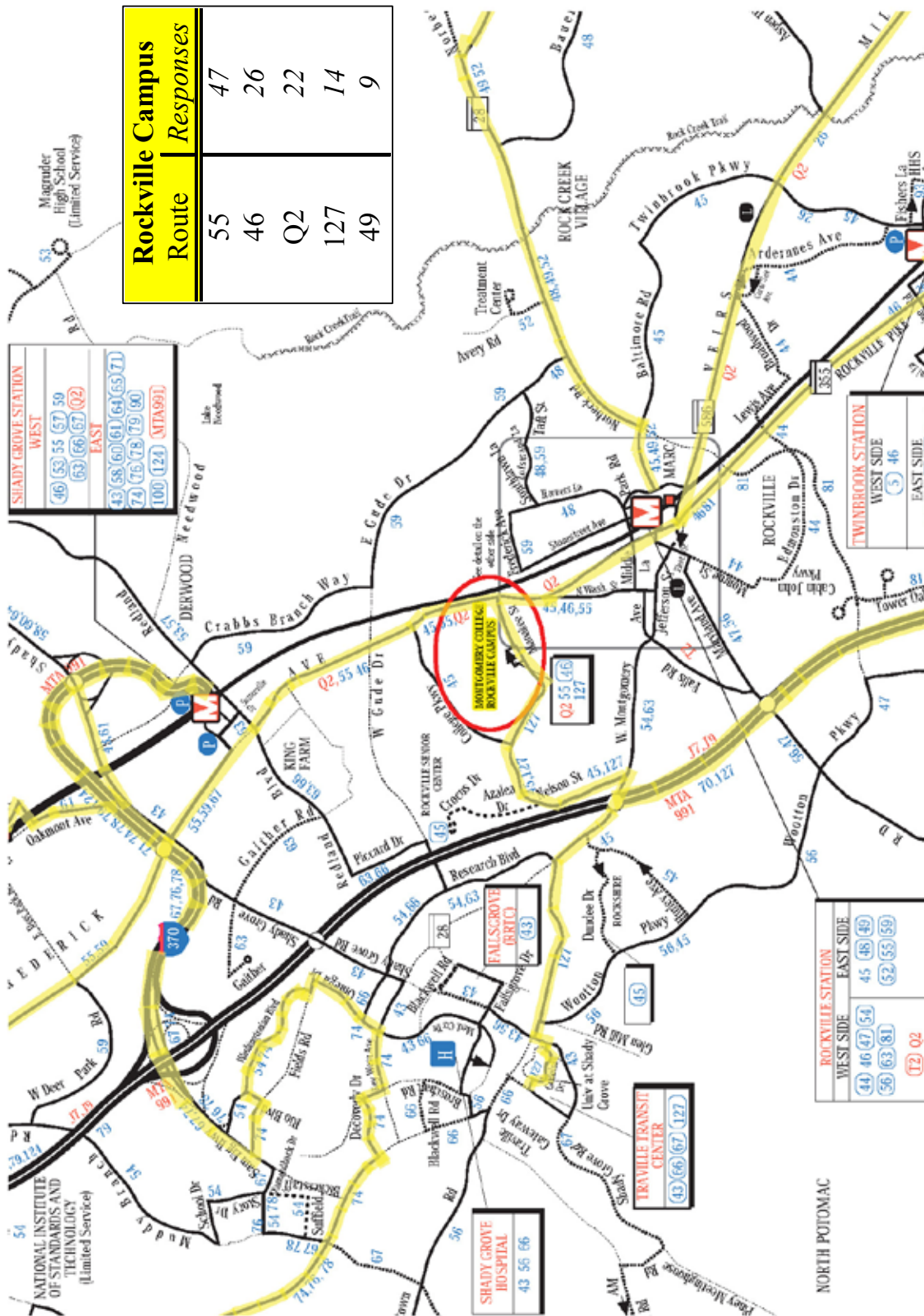
User Group	# of Responses					Persons per Vehicle
	Drove Own Car	Passenger in Car	Bus or Shuttle	Bike or Walk	Persons per Vehicle	
Faculty	23	1	0	3	1.04	
Staff	10	2	3	1	1.20	
Student	263	45	141	7	1.17	
Visitor	5	1	1	0	1.20	
Other	3	0	3	0	---	
Campus Total	301	49	148	11	1.16	

User Group	# of Responses					Persons per Vehicle
	Drove Own Car	Passenger in Car	Bus or Shuttle	Bike or Walk	Persons per Vehicle	
Faculty	27	0	0	11%	1.04	
Staff	16	13%	6%	19%	1.20	
Student	456	10%	2%	31%	1.17	
Visitor	7	14%	0%	14%	1.20	
Other	3	0%	43%	0%	---	
Campus Total	509	59%	10%	29%	1.16	









Transit Connections Associated With the Most Popular Routes

Students & Staff heading somewhere other than home after school

Rockville Campus					
Route 55: 47 Respondents		Route 46: 26 Respondents		Route Q2: 22 Respondents	
Zipcode	Connections	Zipcode	Connections	Zipcode	Connections
20815	46	20815	55	20815	46
	Q2		Q2		55
20853	49	20904	Q2	20904	46
	52	20850	55	20906	49
20850	46	20878	55		
20852	45	20906	55		
20878	46	20852	38		
20879	90				
20906	49				
20906	46				

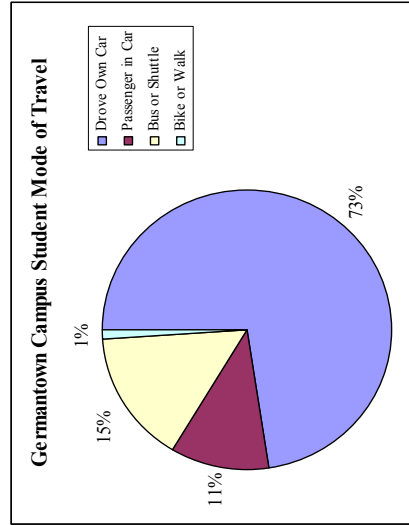
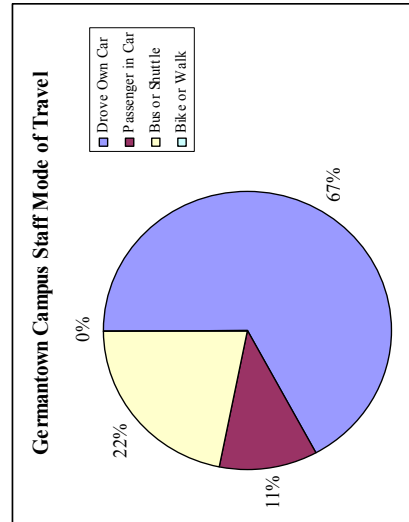
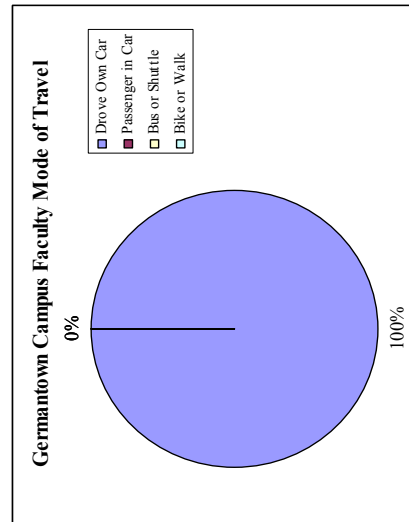
Any user group using public transit to return home from school

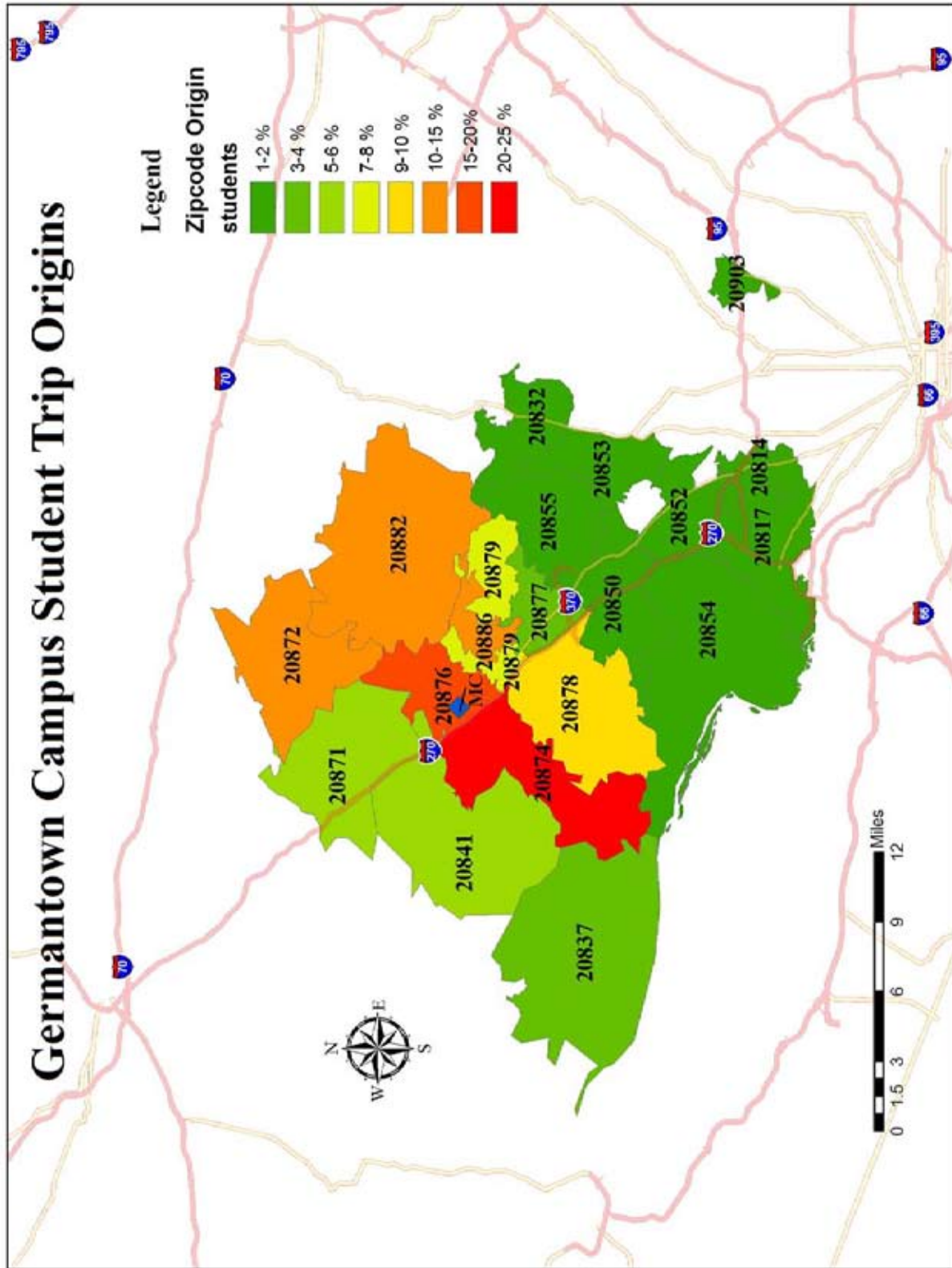
Rockville Campus					
Route 55: 22 Respondents		Route Q2: 16 Respondents		Route 46: 10 Respondents	
Zipcode	Connections	Zipcode	Connections	Zipcode	Connections
20878	76	20878	55	20878	55
	Q2		76	20895	34
20904	10	20874	83	20902	10
	45		100		
20874	97	20902	49		
20850	67	20904	26		
20877	64				
20877	61				
20886	59				
20809	57				
20902	49				
20904	49				
20906	49				
20817	47				
20878	46				

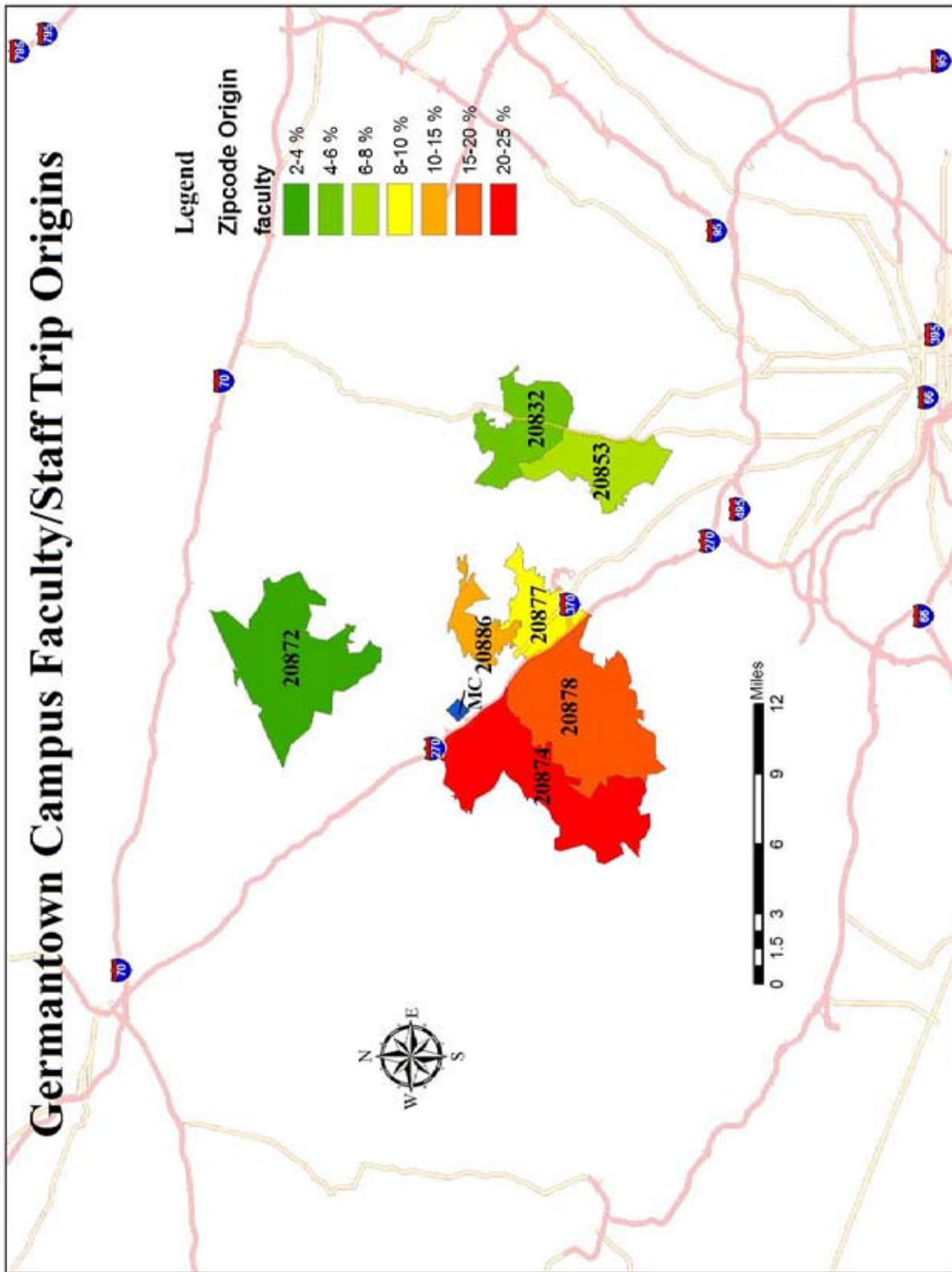
Germantown Campus

Mode of Travel Characteristics by User Group

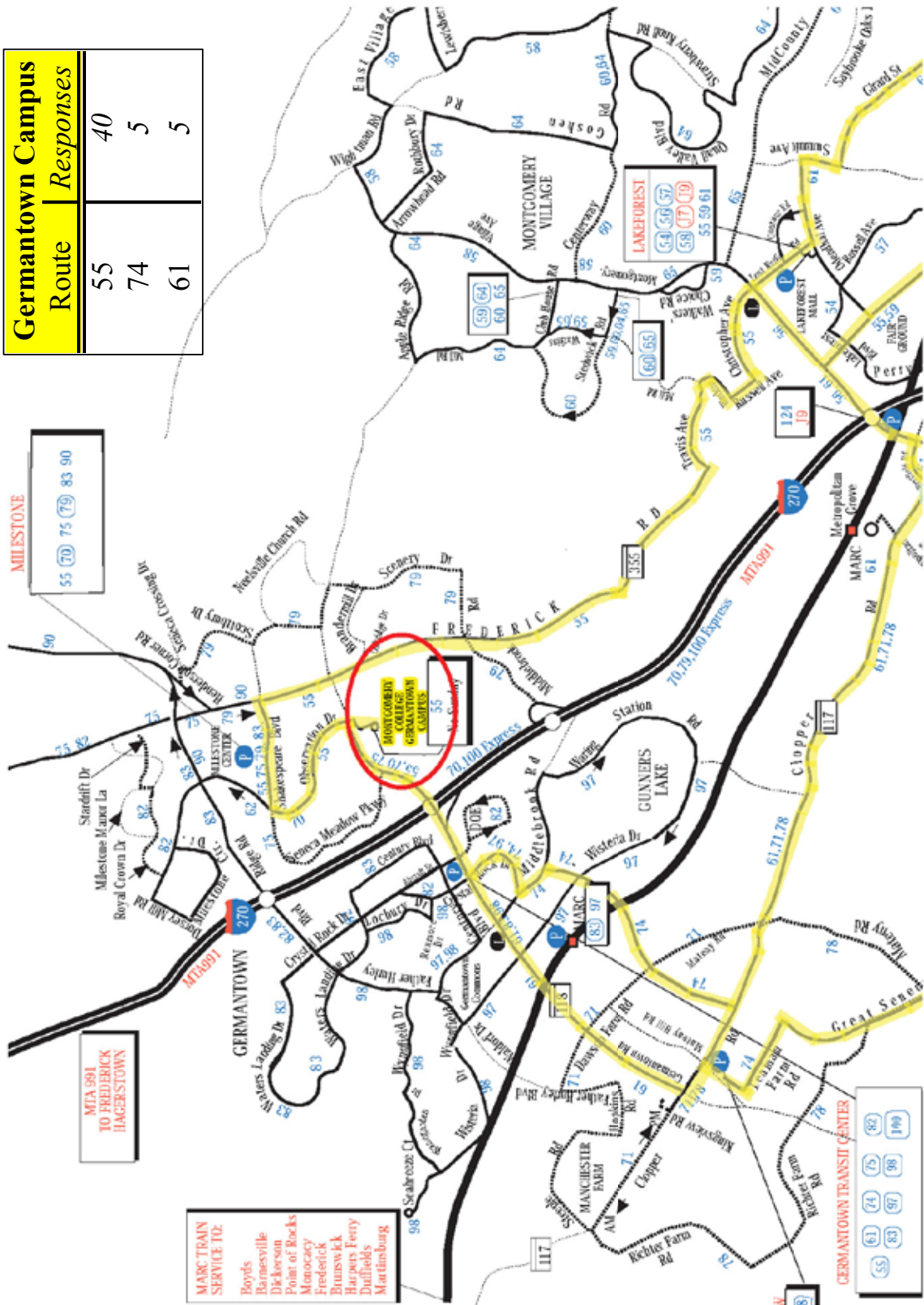
User Group	# of Responses		Drove Own Car		Passenger in Car		Bus or Shuttle		Bike or Walk		Persons per Vehicle				
	Faculty	Staff	Student	Visitor	Other	Faculty	Staff	Student	Visitor	Other	Faculty	Staff	Student	Visitor	Other
Faculty	12	18	0	0	0	0	0	0	0	0	0%	0%	0%	0%	1.00
Staff	27	18	3	6	0	0	0	0	0	0	12%	23%	0%	0%	1.17
Student	369	263	41	54	3	0	0	0	0	0	12%	15%	2%	0%	1.16
Visitor	6	4	0	2	0	0	0	0	0	0	0%	0%	0%	0%	1.00
Other	1	1	0	0	0	0	0	0	0	0	0%	0%	0%	0%	1.00
Campus Total	415	298	44	62	3	0	0	0	0	0	72%	11%	15%	2%	1.15







Germantown Campus	
Route	Responses
55	40
74	5
61	5



Transit Connections Associated With the Most Popular Routes

Students & Staff heading somewhere other than home after school

Germantown Campus					
Route 55: 40 Respondents		Route 61: 5 Respondents		Route 59: 1 Respondents	
Zipcode	Connections	Zipcode	Connections	Zipcode	Connections
20874	83	20874	55	20886	55
20879	86	20878	55		
	74				
	100				
20852	95				
20874	61				
20878	61				
20886	59				

Any user group using public transit to return home from school

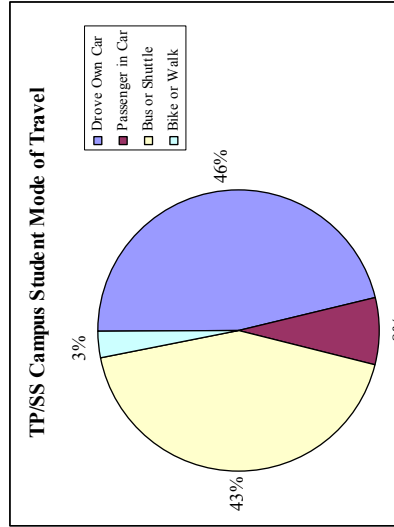
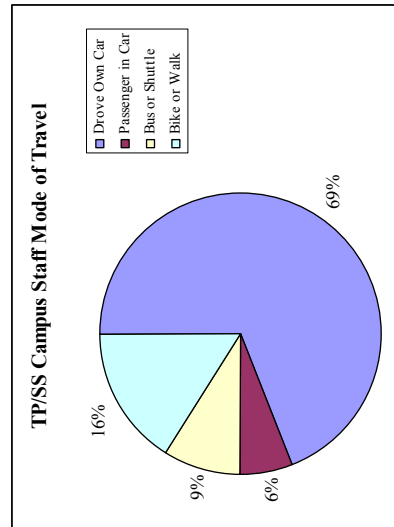
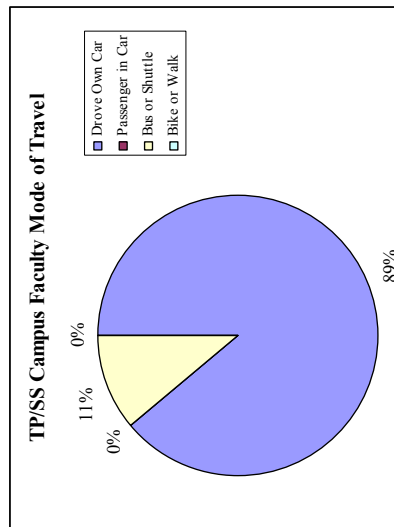
Germantown Campus	
Route 55: 33 Respondents	
Zipcode	Connections
20832	90
20874	74
20874	97
20874	86
20874	61
20876	97
20878	54
20878	74
20878	61
20878	56

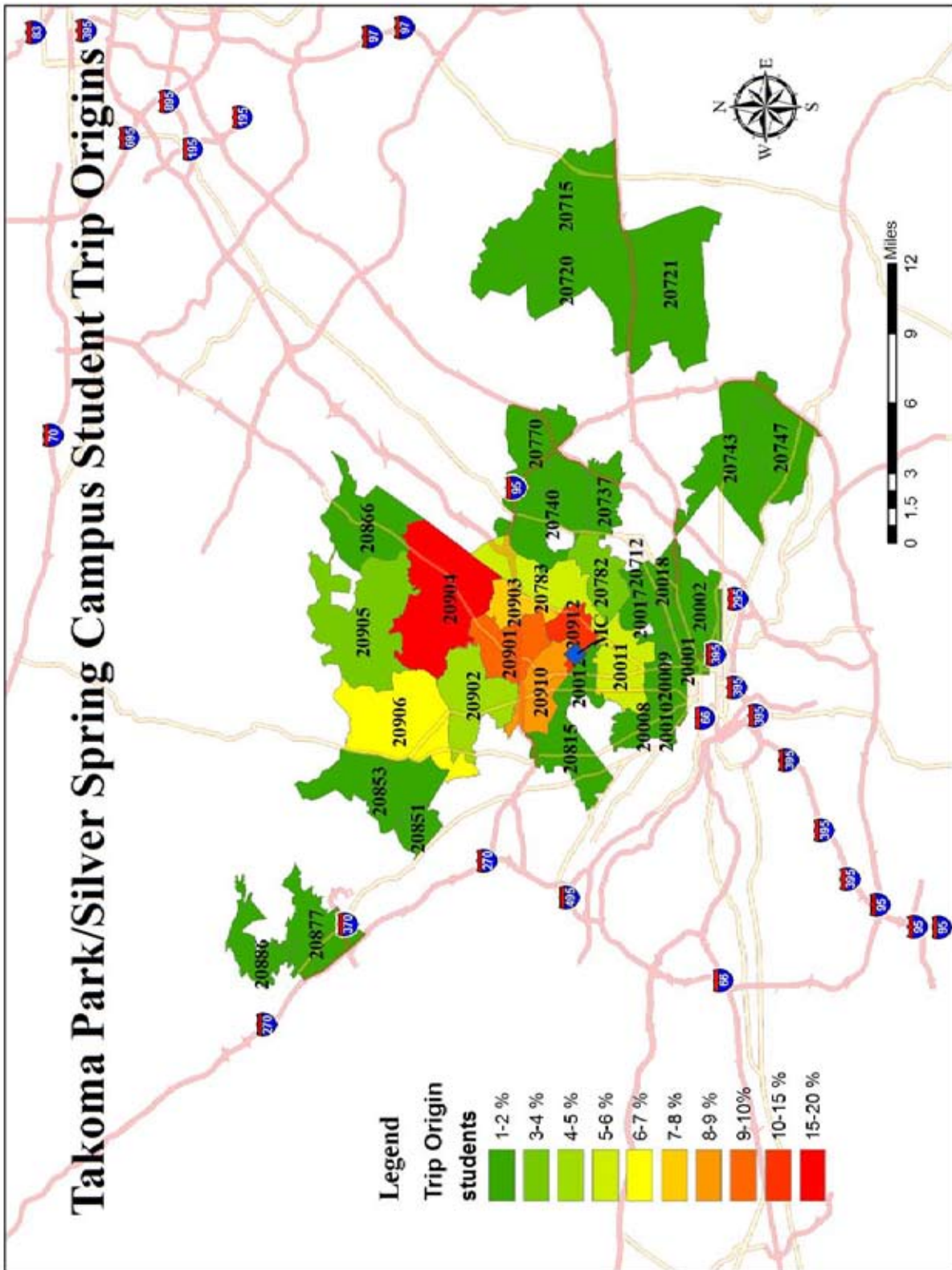
Takoma Park/Silver Spring Campus

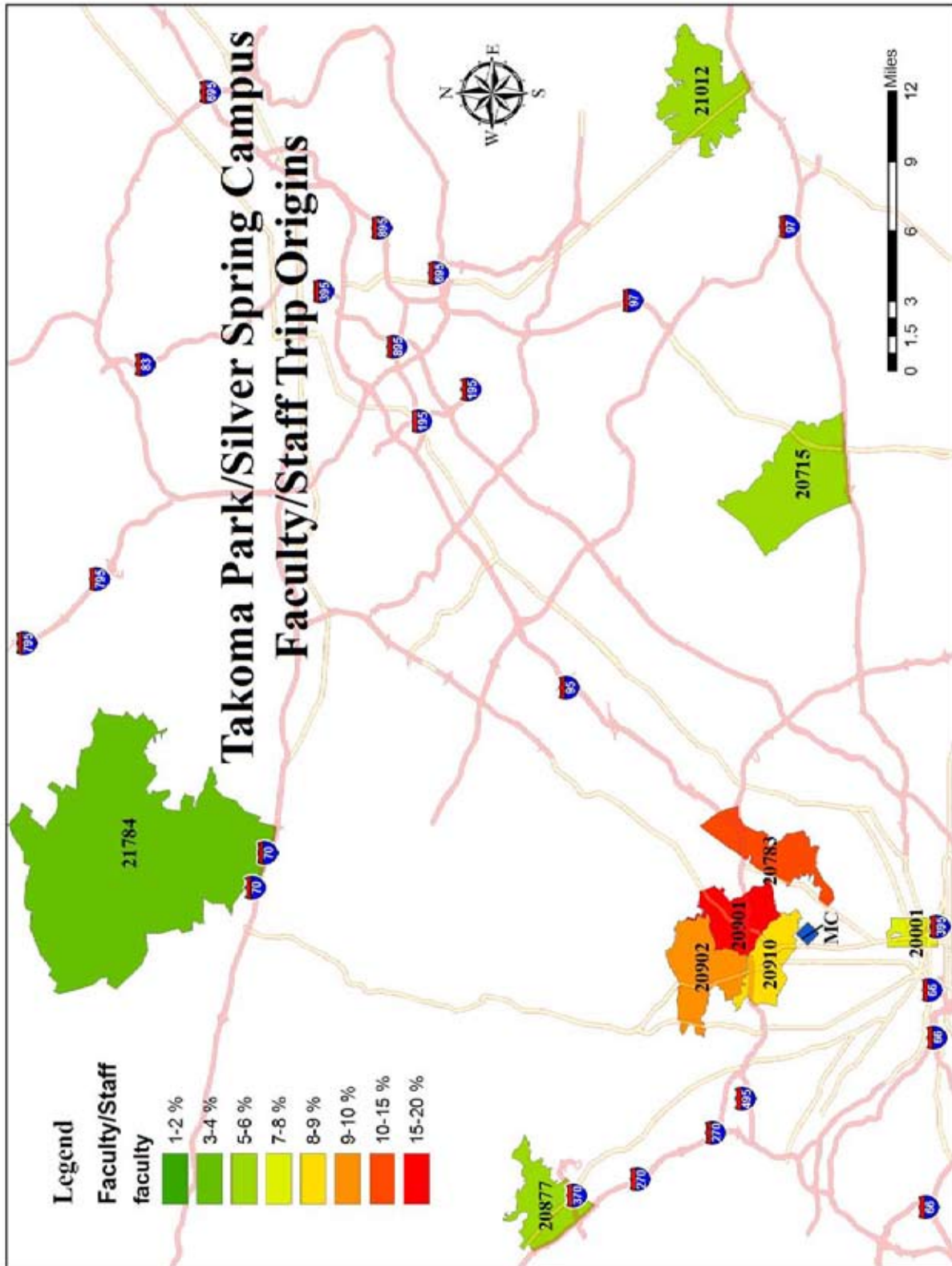
Mode of Travel Characteristics by User Group

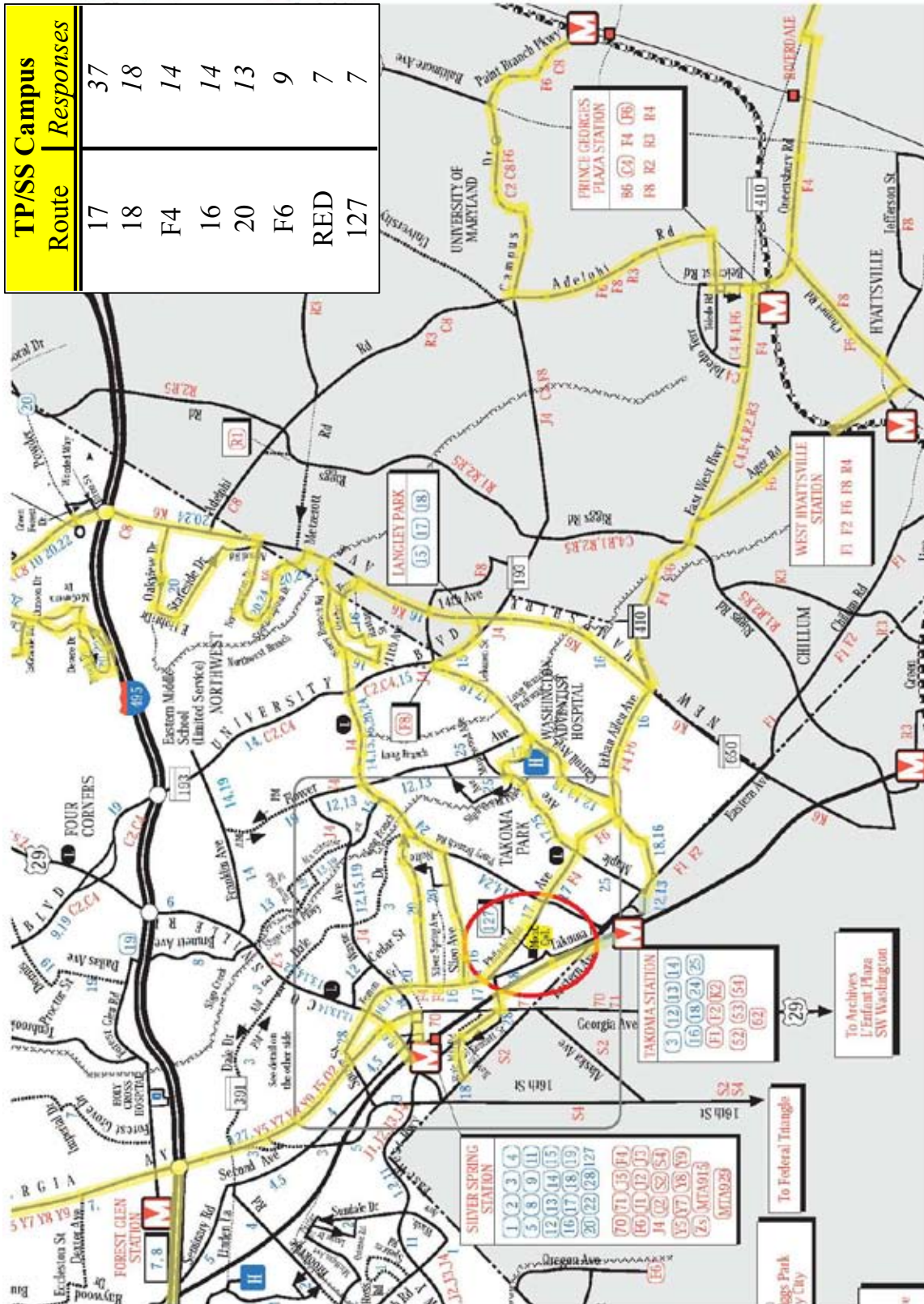
User Group	# of Responses				Persons per Vehicle
	Drove Own Car	Passenger in Car	Bus or Shuttle	Bike or Walk	
Faculty	19	17	0	2	1.00
Staff	32	22	2	3	1.09
Student	349	159	28	151	1.18
Visitor	6	3	1	1	1.33
Other	0	0	0	0	---
Campus Total	406	201	31	157	1.15

User Group	# of Responses				Persons per Vehicle
	Drove Own Car	Passenger in Car	Bus or Shuttle	Bike or Walk	
Faculty	19	89%	0%	11%	1.00
Staff	32	69%	6%	9%	1.09
Student	349	46%	8%	43%	1.18
Visitor	6	50%	17%	17%	1.33
Other	0	0%	0%	0%	---
Campus Total	406	50%	8%	39%	1.15









Transit Connections Associated With the Most Popular Routes

Students & Staff heading somewhere other than home after school

TP/SS Campus							
Route 17: 37 Respondents		Route F4: 14 Respondents		Route F6: 9 Respondents		Route 18: 7 Respondents	
Zipcode	Connections	Zipcode	Connections	Zipcode	Connections	Zipcode	Connections
20866	F4	20866	17	20866	17	20912	17
	F6		F6		F4		F4
20912	18	20912	17	20912	17		F6
	F4		18		18	20011	17
	F6		F6		F4	20903	17
20895	9	20783	F6	20783	F4		
20904	78	20912	F6	20912	F4		
20901	28						
20011	24						
20783	20						
20011	18						
20903	18						
20901	16						
20901	15						

Any user group using public transit to return home from school

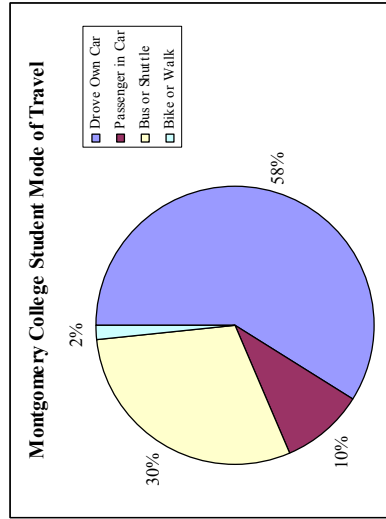
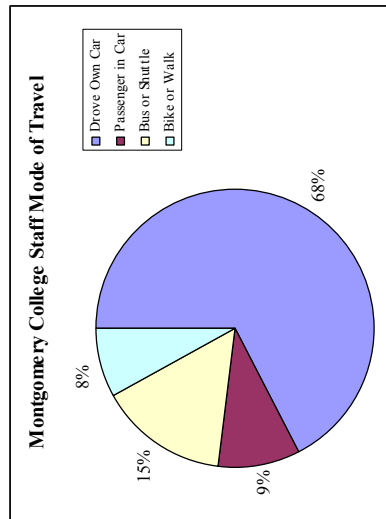
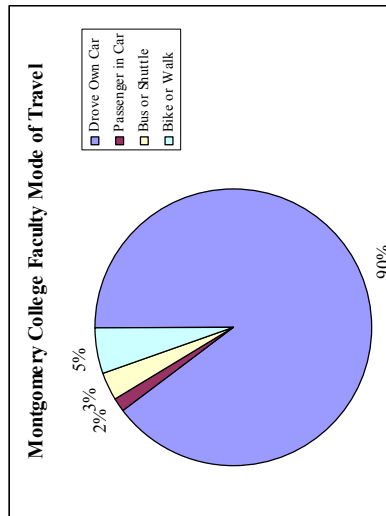
TP/SS Campus							
Route 17: 20 Respondents		Route 18: 11 Respondents		Route F4: 9 Respondents		Route F6: 5 Respondents	
Zipcode	Connections	Zipcode	Connections	Zipcode	Connections	Zipcode	Connections
20904	F4	20747	K3	20904	17	20904	17
	F6	20005	17		F6		F4
20903	K6	20010	17	20904	F8	20783	F2
20902	84	20877	17				
20783	20	20912	17				
20903	20	20301	16				
20904	20	20735	16				
20005	18						
20010	18						
20877	18						
20912	18						
20901	16						
20901	15						

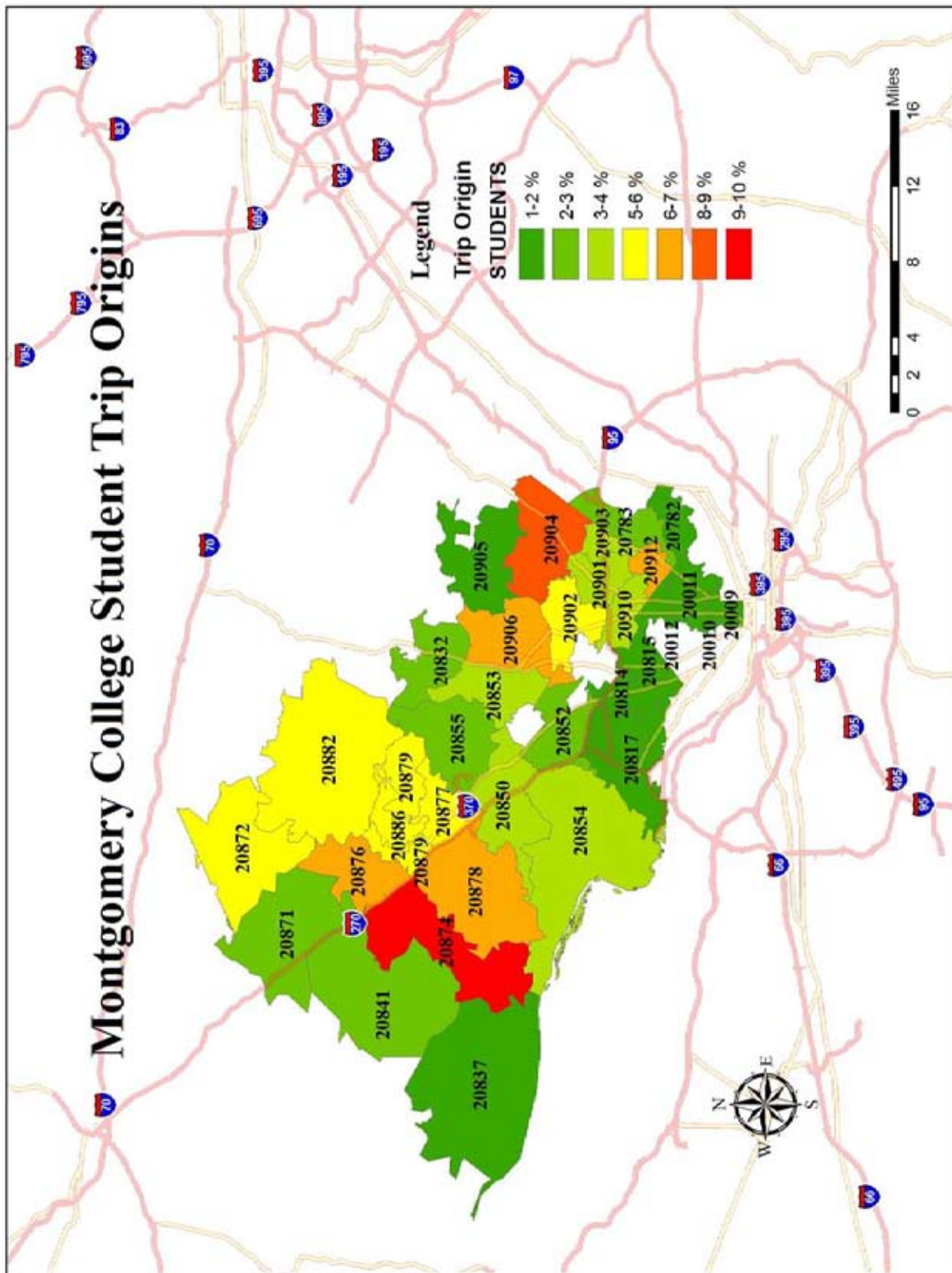
Montgomery College College Summary

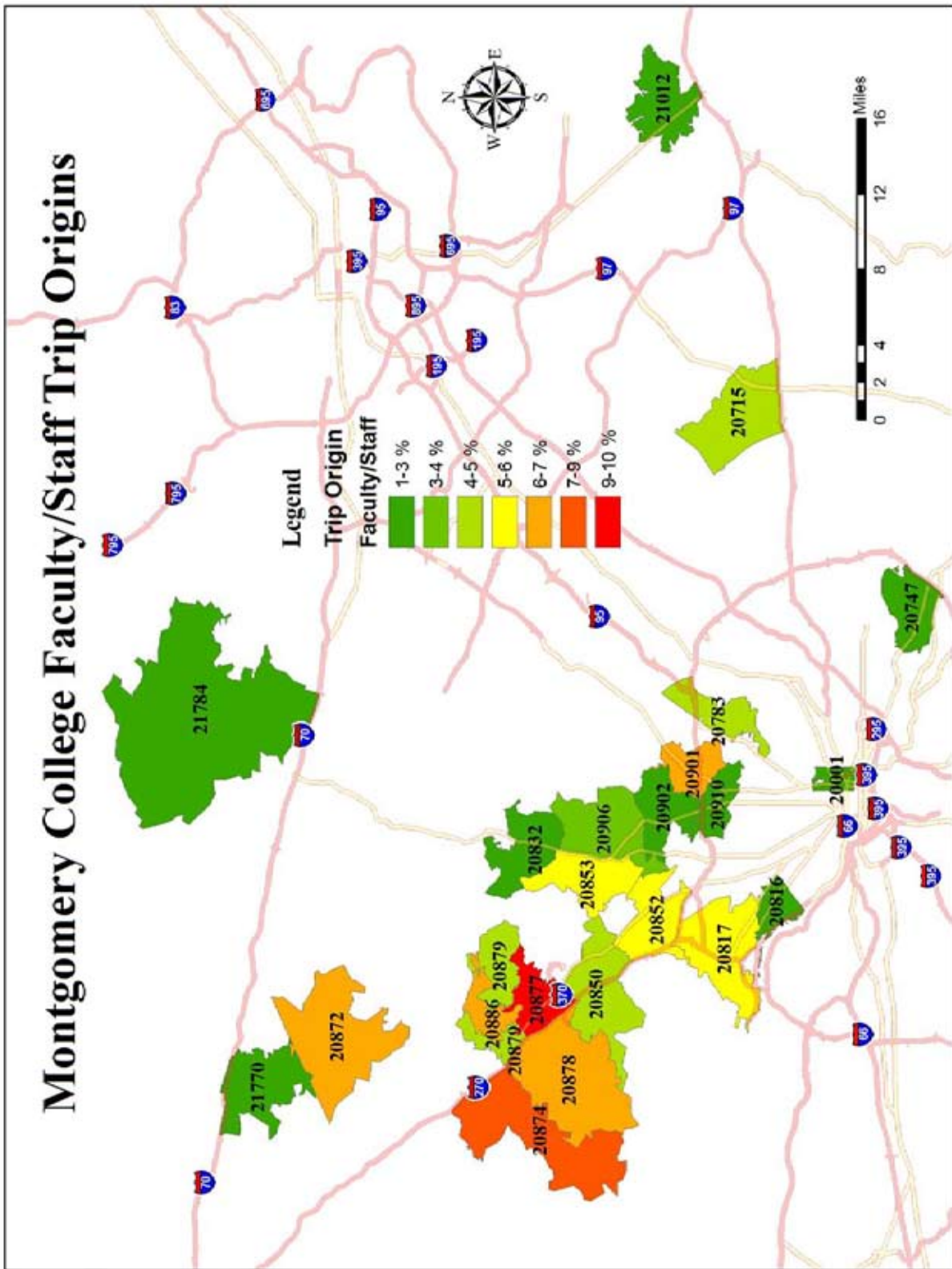
Mode of Travel Characteristics by User Group

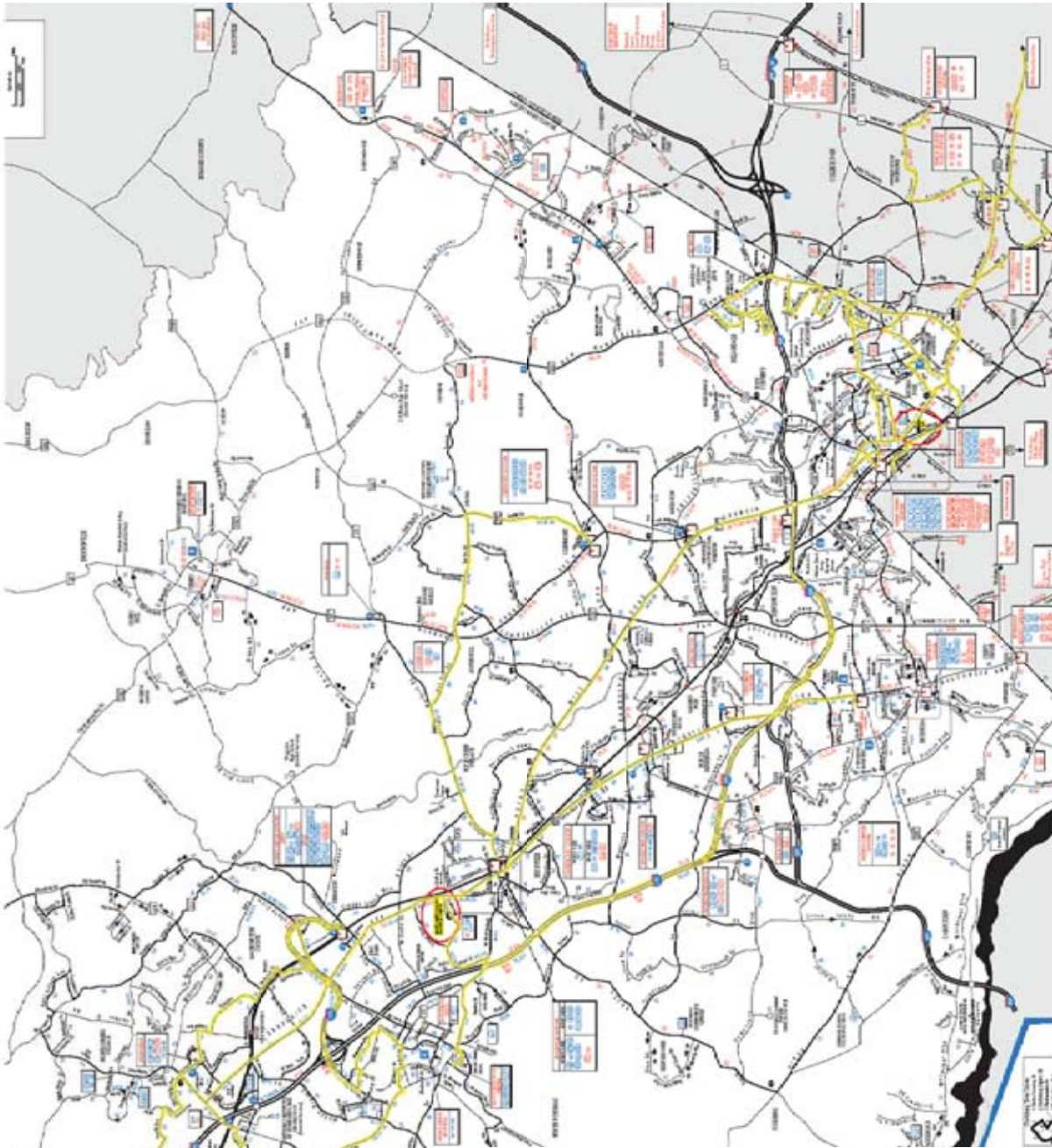
User Group	# of Responses					Persons per Vehicle
	Drove Own Car	Passenger in Car	Bus or Shuttle	Bike or Walk	Persons per Vehicle	
Faculty	52	2	3	1.02		
Staff	50	11	6	1.14		
Student	685	346	20	1.17		
Visitor	12	4	1	1.17		
Other	4	3	0	1.00		
College Total	800	366	30	1.16		

User Group	# of Responses					Persons per Vehicle
	Drove Own Car	Passenger in Car	Bus or Shuttle	Bike or Walk	Persons per Vehicle	
Faculty	58	2	3	1.02		
Staff	75	9	15	1.14		
Student	1,174	10	30	1.17		
Visitor	19	11	21	1.17		
Other	4	0	75	1.00		
College Total	1,330	60%	28%	1.16		









Montgomery College Route	Responses
55	87
17	37
46	26
Q2	22
127	21
18	18
F4	14
16	14
20	13
RED	9
F6	9
49	9
74	6
61	6

Montgomery College											
Route 55: 87 Respondents	Route 17: 37 Respondents	Route 46: 26 Respondents	Route F4: 14 Respondents	Route 18: 7 Respondents	Route F6: 9 Respondents	Route Q2: 22 Respondents					
Zipcode	Zipcode	Zipcode	Zipcode	Zipcode	Zipcode	Zipcode					
20815	20912	20815	20912	20912	20912	20815					
46	18	55	17	17	17	46					
Q2	F4	Q2	18	F4	18	55					
20874	F6	20904	F6	F6	F4	20904					
83		20850		F6	F6	20906					
86	F4	20878	17	17	17	49/Q2					
20879	20866	20906	55	20011	20866						
74		20904	55	20903							
100	F8	20906	F6	17							
20853	20901	20852	F6	17							
49	28	20852	F6								
52	24										
20879	20783										
90	20										
20886	18										
59	18										
20882	18										
95	18										
20874	16										
61	15										
20878											
61											
20906											
49											
20850											
46											
20878											
46											
20906											
46											
20852											
45											

Transit Connections Associated With the Most Popular Routes

Montgomery College											
Route 55: 55 Respondents	Route 17: 20 Respondents	Route 18: 11 Respondents	Route Q2: 16 Respondents	Route F4: 9 Respondents	Route F6: 5 Respondents	Route 46: 10 Respondents					
Zipcode	Zipcode	Zipcode	Zipcode	Zipcode	Zipcode	Zipcode					
20878	20904	20747	20878	20904	20904	20878					
76	F4	20005	55	17	17	55					
Q2	F6	17	76	F6	F4	20895					
20904	K6	20010	83	F8	F2	20902					
10	84	20877	100								
45	20	20912	49								
20832	20	20301	26								
20850	20	20735									
67	20										
20874	20										
74	18										
20874	18										
97	18										
20874	18										
61	18										
20876	18										
97	18										
20877	16										
64	16										
20877	15										
61											
20878											
54											
74											
20878											
61											
20878											
61											
20878											
56											
20886											
59											
20809											
57											
20902											
49											
20904											
49											
20906											
49											
20817											
47											
20878											
46											

Transportation Demand Management

Each of the college's three campuses has different issues and priorities with regard to parking. The college realizes that future growth on each campus will depend on how well parking is managed and addressed. In addition, Montgomery College is aware of the impact of student transit on sustainability. As such, some discussion of transportation demand management (TDM) strategies is warranted.

The traffic and circulation elements of the FMP for each campus briefly note current auto-use and trip generation characteristics and relative merits of TDM strategies. TDM is a form of social engineering where a collection of techniques are used to manipulate people into performing actions. It is the art of influencing behavior for the purpose of achieving a particular goal or condition. TDM is a general term for policies that result in more efficient use of transportation resources, combining transit, bicycle, rideshare, and land planning. Through recent studies and practical application, the most effective of these TDM strategies fall within the parking demand management category. Parking demand management, or PDM, is a menu of parking related policies and procedures that maximize the effectiveness of existing resources and which support non-SOV (single occupant vehicle) mode choices.

PDM strategies have generated interest for a number of reasons. A national study of college campuses noted that the average ratio of campus parking spaces is 5 spaces for every 10 authorized users and that between 8% (urban) and 45% (rural/suburban) of campus land is used for parking. The cost of providing and maintaining parking facilities places a great strain on an institution's finances as surface and above grade structured parking development costs can average \$3,500 to \$25,000 per space respectively, excluding land value. Annual parking operations and maintenance costs can equal \$500 per space for structured parking and \$150 per space for surface parking. Furthermore, campus parking operations are increasingly falling under auxiliary services and parking costs/expenses must be satisfied through user fees.

One of the major PDM policies relates to alternative travel modes such as bicycle and public transit. Making bicycling an attractive option for accessing the campus could reduce the traffic and parking demand. For example, currently the city of Rockville has a Bikeway Master plan in place with single-shared roadway and on-street bike lanes located relatively close to the campus. The Rockville Campus can take advantage of the existing/proposed bikeway planning efforts and propose a campus-wide bikeway master plan to be integrated to the City's current plan. Germantown also has nearby bike paths which the campus can promote as an alternative to driving.

The following presents an overview of some of the more recent PDM policies, and their relative cost to effectiveness ratios.

- Transportation allowance is a program that subsidizes in whole or in part the cost of non-automobile travel. By forgoing the use of a parking space the individual (typically employee) is reimbursed for the cost of a public transit pass.
- Free transit passes are implemented through a student or employee program that issues "unlimited access" transit passes. Montgomery College currently provides such passes but on a limited number of Ride-on routes.
- Bike stations encourage non-automobile travel by providing safe, secure, and covered parking for bicyclists. Some programs include complementary services such as showers, lockers, equipment sales and service.
- Promotional activities can be directed to a wide range of alternative travel modes including car/vanpool, bicycle, public transit, and walking. Promotional activities could include marketing material on the health benefits of walking/biking, bike to work day, commuter of the week awards, and so on.

- Parking cash-out is a program where parkers forgo the opportunity to purchase a parking permit by accepting cash as a paid equivalent to utilizing a parking space. It is similar to a transportation allowance however the cash can be used for any purpose.
- Carsharing programs such as those managed by Flexcar and Zipcar are basically rental services where a flex of vehicles are available for limited utilization for members of a carshare program or for fee per use.
- Vanpool subsidy is a cost-savings program that provides financial incentives to first-time users. A typical subsidy is 30% to 50% the per-seat costs of operating the vehicle.
- Car/vanpool preferential parking programs provide parking spaces for carpoolers and vanpoolers near areas of high or preferred demand.
- Parking fees by themselves or in combination with other strategies can be the most effective and can vary/tied in cost based on parking location, duration of stay, user (faculty/staff parking vs. student), or through a mix of assignment/allocation strategies.

Unfortunately, there is no rule-of-thumb with regards to the cost and benefit of these and other parking demand management programs, many of which have significant implementation costs. Typically, a pilot program is developed and closely managed over the course of a year to measure any changes in transit ridership, bicycle parking, and automobile parking demand. However, given the value of campus property, the \$15,000-\$25,000 per space cost for structured parking facilities, and the negative environmental impacts of single occupant automobile travel, the cost of these strategies could prove in the long-run a bargain.

5

MONTGOMERY COLLEGE GREEN ROUTINE

June 29, 2009

MC's Green Routine

Resource Conservation Program Overview – Since the first energy crisis of the 1970s Montgomery College has been a leader in sustainability, energy and resource conservation and cost containment. Integrated life cycle management practices have reduced the College's environmental footprint while avoiding capital and operating cost. The following list is a brief description of the activities.

Strategic Master Planning – Managing a quality planning process whose goal is to integrate resource conservation principals into the College infrastructure and optimization of resources. Plans are developed for programs, space, facility condition assessment, utilities, information technology infrastructure, building automation, life safety systems, emergency response and environmental safety.

Storm Water Management – Minimizing environmental effects of storm water run-off by reducing impervious surfaces, increasing on-site infiltration and installing and maintaining storm water structures on the campus. Use of green roofs to reduce storm water run-off and reduce heat island effect.

Heat Island Effect – Use of high albedo (reflective) roofs, green roofs and enhanced landscape to reduce the increase in urban temperatures due to absorption of solar radiation and heating in structures.

Light Pollution and Dark Sky – Best practices to optimize site lighting to provide appropriate lighting for occupants while reducing energy, reducing light pollution from spilling over into neighboring sites and limiting light pollution above the horizontal plane (Dark Sky).

Sustainable Sites – Goal to limit consumption of undeveloped land by redevelopment of urban sites or development of existing sites in order to minimize impact of campus expansion. Properties already served by transportation, storm water and utility infrastructure tend to minimize environmental impacts and preserve and improve existing urban settings. Improved transportation management practices.

Water Conservation – Best practices for conservation of water resources and sewer costs through specification, installation and maintenance of low water consuming devices. Use of drought resistant native plant species. Capture of condensate from air handling units and re-use as make-up water for cooling towers. Evaluation of rain water capture systems for domestic water use and storm water management reduction.

Forest Conservation & Native Plant Species – Conservation and maintenance of natural cover trees and native plant species to provide impervious surface and reduce the heat island effect. Plant species that have long lives, are resistance to pests and drought, are less dependant on chemicals and watering.

Renewable Energy – Site generated solar electricity, site generated solar thermal energy conversion and purchase of renewable energy certificates (REC) reduce consumption of energy derived from other less environmentally friendly energy sources. Annually 160,000 kilowatt-hours (kWh) of photovoltaic (PV) electricity and 183,000 kWh(thermal equivalent) from evacuated tube collectors are generated college-wide. An additional 70kW of PV will be installed in the next five years and generate an additional 200,000 kWh of electricity. 60% of the Colleges electricity is obtained from wind energy RECs up from

the original 5% which began in fiscal year 2005. This renewable energy displaces approximately 27 million pounds of carbon dioxide (CO₂) annually

High Performance Buildings – Since 1985, new and renovated buildings have been designed, constructed and maintained to minimize the impact on the environment. Energy efficiency, occupant comfort, indoor environmental quality, daylighting, high performance building automation systems, high performance lighting systems, high performance envelope systems, whole building total quality commissioning, environmentally friendly building materials and site infrastructure are routinely integrated into building designs. The two new science buildings, one under construction and one in design are being submitted for U.S. Green Building Council (USGBC) LEED Gold Certification which exceeds the County Council mandated LEED Silver Certification.

Transportation Management – Encourage students to use public transportation by providing on-campus transportation facilities and free bus service on Montgomery County's Ride-On bus system. At the Takoma Park/Silver Spring campus this has resulted in single person use of vehicles to be less than 50%. Full automation of parking management systems for issue of parking passes, tickets and payments.

Utility Management – Management of utility accounts, payment of bills, tracking consumption, auditing costs and utility database management is a basic function of utility cost center accounting. Maintaining accurate utility consumption records also provides measurement and verification of resource conservation program performance. Montgomery College has participated with other County Agencies in the procurement of deregulated natural gas and electricity procurement.

Utility Demand Management & Smart Grid Technologies – Since the early 1990s the College has incorporated demand management features in central plants that are able to reduce utility peak demand and capable of responding to Smart Grid pricing signals. All four central plants include ice thermal storage with low temperature high efficient chillers and ammonia (R-717) refrigerant. Ice is made at night during low demand rate periods and melted during the day during high demand rate periods reducing electrical demand charges and more efficiently using the utility grid. Colder chilled water is then made available to the system which reduces pumping energy and improves heat transfer performance. Ammonia is also a high efficient refrigerant with no global warming potential (GWP), no ozone depletion potential (ODP) and a low total equivalent warming index (TEWI). Building heating, cooling and power technologies (BHCP) are also incorporated which electrical demand while more efficiently using the available energy in the fuels. Three of the College's central plants use natural gas fired engine driven chillers during peak electrical periods to make chilled water for cooling while recovering waste exhaust and engine jacket heat for use in the central heating distribution system.

Operations & Maintenance – Operation and maintenance of College resources in a safe, reliable and economical manner which maximizes the educational experience while minimizing life cycle costs. Best practice use of cleaning and pesticide chemicals reduce costs and environmental impacts. Grounds and landscape best practice use of drought, disease and insect resistant native species and use of high efficiency, low emitting grounds equipment. Management of recycling programs. Best practice vehicle fleet management maximizes life cycle costs. Use of recycled or reusable plastic instead of virgin materials such as woods or storage and moving containers.

Educational Programs – Credit, non-credit and certificate programs related to sustainable or “green” collar jobs are offered at the College while many traditional courses have integrated sustainable concepts into their syllabi. Montgomery College has partnered with Montgomery County Government, University of Maryland, and the State of Maryland to support the new Clean Energy Center at the University of Maryland Shady Grove with the intent to further promote and stimulate sustainable programs and “green” collar jobs training. The College is developing strategic partnerships with commercial enterprises in the local clean energy industry to identify and address the workforce needs of the industry through training.

Interagency Coordination – Coordination with government and professional organizations maximizes communication and shares resources such as energy management, deregulated utility management, procurement, building systems and information technology. Participate in development of Montgomery County Climate Protection Plan, Greenhouse Gas Inventory, Clean Energy Center and legislative green initiatives working groups. Participate with NIST & ASHRAE in building system research studies and building automation systems standards development

Occupant Awareness & Outreach – Publish annual Resource Conservation Plan and promote occupant awareness through various media outlet such as electronic and paper newsletter, e-mail distribution and management of the Montgomery College Speaker’s Bureau. Support for student MC Student Green Club.

Environmental Safety – Since late 1970s, management of occupational and environmental safety issues, including OSHA, asbestos abatement, hazardous waste stream management, occupant awareness and indoor environmental quality (IEQ). Introduce use of alternatives such as citrus based solvents for automotive and printing shop and lab cleaning rather than volatile organic compounds (VOC).

Recycling – In calendar year 2008, Montgomery College recycled 69% of its waste stream, far exceeding the County’s legally mandated 50% recycling requirement. This resulted in being awarded the County’s Excellence in Recycling Award. This is the sixth such award in the past eight years for the College. This is also an increase in poundage of materials recycled from one million in 2002 to three million in 2008.

Building Automation Systems – Planning, design, operations and management of multivendor, open protocol (BACnet) fully integrated building automation systems. Integrating direct digital systems that control, monitor, operate and record heating and air conditioning systems (HVAC), lighting systems, occupancy sensing, electrical system, fire protection systems and security and access control.

Administrative Functions – Digital automation and management of administrative functions reduce time, paper and postage such as electronic processing and direct deposit of employee paychecks. Provide automated web based financial systems for student bill paying and transportation management functions such as parking stickers and traffic enforcement.

Information Technology Systems – Efficient management of information technology resources (IT). Use of high performance energy star equipment and low energy consuming LCD screens. Participation in interagency committees to share information and resources. Master planning for information technology life cycle infrastructure management. Use of e-mail and electronic newsletters rather than paper or mail distribution.

Procurement – Automation of procurement process to reduce time and paper. Use of electronic media to reach out to broader audience, opportunity for more competition and reduced cost. Purchase material using existing procurement contracts to reduce administrative duplication. Purchase energy star equipment to reduce energy consumption. Participate in interagency committees to share information and resources and work towards common procurement guidance for purchase of “green” materials.

6

MONTGOMERY COLLEGE GERMANTOWN DEVELOPMENT PROJECT MAJOR MILESTONES

Montgomery College Germantown Development Project

Major Milestones*

*Updated by the Office of Vice President/Provost, Germantown Campus, Montgomery College, 08-02-2010
May 2001 to July 2010

1. May of 2001: Montgomery County Department of Economic Development released a consultant's report that examined 20 sites in County where high tech development similar to the Shady Grove Life Sciences Center could be promoted since the Life Sciences Park was nearing build-out. Among the top rated sites was a 50 acre site on the Germantown Campus of Montgomery College. Particularly relevant was the statement in the report that the College site would have "extraordinary infrastructure costs" and that a partnership with the County may be necessary to finance the infrastructure.
2. June, 2001: At that time the College was not in a position to allocate 50 acres of the campus for a business park since it was in the early stages of updating future space needs for the academic programs on the campus. After much deliberation, the College agreed to set aside 20 acres of the campus for the business park on the condition that an additional adjacent 20 acres of available private land would be added to the campus and funded by the County.
3. November 2002: Adjacent land was acquired by the College with \$6.1 million funding by the County and State plus a \$2 million gift. As part of the funding request, the County examined the purchase through the economic development model created by the State to evaluate such investments. The model indicated that combined net annual tax revenue of almost \$2 million per year would be returned to the State and County as a result of the ultimate development of the 40 acre business park.
4. June 2003: Board of Trustees endorses concept of the "Germantown Development Project" which includes the co-location of a Sciences and Technology Business Park with a high technology business incubator and the proposed Biosciences Education Center to create opportunities for synergy between the College and the and science and technology businesses. The BOT calls for the creation of a non-profit organization to represent the interests of the College in the development of the Science and Technology Business Park.
5. January 2004: Montgomery College issued a request for proposals for a private developer to lease a portion of the Germantown Campus on which to plan, design, construct and manage a "life sciences and technology business park" taking advantage of synergies with the campus and sharing "profits" with the College.
6. March 2004: Three responses were received to the request for proposals and an in-depth consideration followed with the assistance of the consultant and a selection committee which included representatives of the College, the College Foundation, biotech industry representatives and Montgomery County.
7. May 2004: Board of Trustees approves the Montgomery College Foundation, Inc. as the non-profit organization to represent the interests of the College in the development of the Science and Technology Business Park.
8. July 2004: Foulger Pratt Development, Inc. of Rockville, Maryland, was selected to undertake the

- project in cooperation with the College.
9. March 2005: Foulger Pratt (F/P) signed a non-binding Memorandum of Understanding with the College. This MOU outlined the administrative, legal and financial relationship with the College and set deadlines to undertake the project. Specifically, this MOU obligated F/P to undertake certain studies concerning infrastructure costs and funding.
 10. January 2006: F/P presented to the College the first sketches of the business park proposal and indicated they were pursuing a major medical provider as the anchor tenant for the business park.
 11. January 2006: Montgomery College was notified that it had received a \$500,000 Congressional Special Appropriation, FY 2006, for the Montgomery College Biotechnology Project to provide design funding.
 12. February 2006: F/P, with the assistance of their consultants, Einhorn, Yaffee and Prescott made two presentations of the draft Montgomery College Science and Technology Park Master Plan to Planning Board staff including representatives of the Environmental, Zoning, Transportation, Urban design and Community Planning Divisions at the Silver Spring Regional Office. Numerous comments were received but no suggestion was made that the project could not proceed due to environmental constraints.
 13. In May 2006: F/P presented a detailed master plan for the business park to the College. This master plan proposed significantly less density for the business park than had been anticipated and proposed utilizing almost 60 acres of the campus (addressing infrastructure, utilities, open space, reforestation and other requirements). F/P reported that their studies indicated a weaker market for bioscience and technology development existed in Germantown than originally anticipated. F/P indicated that in the near future only two story buildings with surface parking would be economical thus reducing the development yield to 480,000 square feet initially and ultimately 680,000 square feet.
 14. May 2006: Montgomery College at the invitation of F/P met with representatives of Kaiser Permanente to discuss the possibility of construction of a major health care facility as the anchor tenant for the Montgomery College Science and Technology Business Park.
 15. June 2006: An Urban Land Institute report commented on the College's partnership with the business community, stating: "The successful repositioning of Montgomery College as a center of excellence will provide an important anchor for the Germantown community."
 16. October 2006: F/P indicated that the project could only proceed with the original synergistic objectives and building parameters if other means of financing the infrastructure could be found, i.e. publicly financed. F/P provided preliminary infrastructure cost estimates of approximately \$7 million. (Currently F/P suggests that infrastructure costs are around \$10 million. September 2008)
 17. August 2007: State of Maryland Department of Business and Economic Development offered Montgomery College a \$1 million grant to assist in the construction of the infrastructure for Science and Technology Park.
 18. August 2007: Montgomery College hosted a meeting with William Robertson of Adventist Health Care

to brief him on plans for the Science and Technology Business Park and invited Adventist Healthcare to become a partner in the project.

19. September 2007: Montgomery College leases Goldenrod Building adjacent to campus and subleases ½ of the building to the County to be renovated as a County business incubator in support of the Germantown Development Project. The remainder of the building will be renovated as classroom, faculty and administrative space for College.
20. January 2008: Montgomery College was notified that it had received a \$1.78 million Congressional Special Appropriation, FY 2008, for construction of the infrastructure for the Montgomery College Science and Technology Park.
21. February 2008: Representatives of the College presented the plan for the Science and Technology Business Park along I-270 at a Germantown Master Plan Advisory Committee meeting managed by Planning Board staff; no adverse comments.
22. March 11, 2008: Planning Board staff presentation to the Germantown Master Plan Citizens Advisory Committee did not propose the reservation of the forest reserve on College property.
23. 23. March 27, 2008: Presentation to the Planning Board proposed the forest reserve in the footprint of the Science and Technology Business Park.
24. July 2, 2008: College President is briefed on request of Holy Cross Hospital to become the anchor tenant for Science and Technology Park.
25. July 28, 2008: Representatives of Montgomery College testify at a public hearing on the draft community master plan for Germantown and indicated (1) a western alignment through the Science and Technology Park for an extension of Observation Drive was preferable to an extension through the eastern portion of the campus; (2) preservation of a forest in the footprint of the Science and Technology Park was inappropriate and untimely, and; (3) more flexible zoning for the campus was needed in order to create a more desirable mixed use development.
26. August 2008: Holy Cross Hospital announces that it desires to be the anchor tenant in the Science and Technology Business Park and files a request for a Certificate of Need with the State Health Care Commission to build a hospital on the Germantown Campus. In following days Adventist Health Care publically objects to the Holy Cross Hospital proposal citing their plans to build a hospital in Clarksburg despite the fact Adventist has not filed a request for a Certificate of Need with the State.
27. September 2008: Germantown Innovation Center, County's 5th business incubator, opens in the Goldenrod Building following renovation with State and County funds of over \$7 million. The incubator included 11 wet labs, averaging 500 square feet, two modular clean rooms and 45 offices and is intended to accommodate 20-30 bioscience and advanced technology companies.
28. October 20, 2008: College representatives and partners in the business park (Foulger Pratt, College Foundation and Holy Cross Hospital) appeared before the Planning Board to discuss the staff recommendations dated October 16, 2008. After extensive discussion the Planning Board voted to support their staff recommendations contrary to the College requests including (1) preservation the 50 acre

forest reserve thus minimizing the business park in this area, and (2) construction of Observation Drive Extension on the east side of the campus as a four lane highway.

29. December 2008: After extensive negotiations, the College BOT agreed to general conditions under which Foulger Pratt could negotiate a sublease with Holy Cross Hospital to construct a hospital as an anchor tenant in the Science and Technology Park.
30. February 2009: Adventist Health Care files a request for a Certificate of Need with the State Health Care Commission to build a hospital on land they own in Clarksburg. Adventist urges a “comparative review” with Holy Cross proposal.
31. April 2009: While not required, Holy Cross supports a “comparative review” of hospital proposals.
32. April-May 2009: As an integral part of the Germantown Development Project, the State of Maryland and Montgomery County approve funding for the Bioscience Education facility on the Campus. This academic building will include the Biology, Chemistry and Biotechnology Departments, 18 science laboratories including robotics and bio-manufacturing, 2 instrument labs, 2 student project labs, 6 recitation rooms, 6 general purpose classrooms and study rooms, UMCP upper level partner labs and offices, a Science Learning Center, Faculty and staff offices, and meeting space for 400 in 126,900 gross square. The estimated cost is \$82.5 million including \$38.2 million of state funding and \$43.6 million of county funding.
33. August 14, 2009: Holy Cross Hospital-Germantown and Adventist HealthCare Hospital -Clarksburg submit “comparative review” applications with the State Health Care Commission in consideration for a Certificate of Need.
34. September 2009: In September of 2009, after extensive negotiations with the College, the County Council, in action on the Germantown community master plan, determined that 46 acres of forest would be preserved on the western side of the campus necessitating moving most of the Science and Technology Park to the southeast corner of the campus. The County Council also decided that the commuter road would be moved to act as access for the Science and Technology Park. The County Council also urged that the academic campus be consolidated in the northern portion of the campus.
35. Late September, 2009: Taking into consideration the actions of the County Council on the Germantown community master plan, a lease was signed between Montgomery College and Foulger Pratt Development which would allow Foulger Pratt to lease a portion of the relocated Science and Technology Park to Holy Cross Hospital to construct a hospital, subject to State approvals. The lease was accompanied with a Memorandum of Understanding (MOU) between Montgomery College and Holy Cross Hospital. The MOU established a Joint Working Group that would develop and implement a plan to forge a close working relationship between the academic programs of Montgomery College and nursing and allied health programs of Holy Cross Hospital. Further, Holy Cross is committed to provide \$100,000 annual funding for academic program support in addition to the land lease payments.
36. January 21, 2010: College submits land lease approved by the Board of Trustees between Montgomery College and Foulger Pratt/Holy Cross Hospital to the Maryland Higher Education Commission for approval prior to submission to State Board of Public Works for final approval.

37. February 2, 2010: Representative of Adventist Health Care corresponds with several State agencies objecting to the use of College land for a Holy Cross Hospital.
38. February 2, 2010: Maryland Higher Education Commission responds to College request for lease approval and asks certain questions concerning the impact of the hospital on academic programs, enrollments and the expected availability of the hospital.
39. February 15, 2010: College responds to MHEC questions of February 2, 2010 and outlines the academic relationship with the hospital.
40. February 17, 2010: MHEC corresponds with College indicating that it cannot recommend approval of the lease between Montgomery College and Foulger Pratt/Holy Cross without an updated Facility Plan for the Germantown Campus.
41. March 10, 2010: College President and College Counsel respond to the February 2, 2010 concerns expressed by Adventist Health Care outlining how the Science and Technology Park will support the educational mission of the College, help accommodate future enrollment growth at the Germantown Campus and noting that a hospital will be a strong anchor for the Science and Technology Park.
42. March 15, 2010: College Board of Trustees approves an updated Facility Plan for the campus reflecting the proposed Science and Technology Park and the Holy Cross Hospital as the anchor tenant along with the general update of all aspects of the Germantown Campus. The updated Facility Plan is forwarded to MHEC.
43. April 2010: Sage Policy Group Inc. issues "The Economic Impact of a Holy Cross Hospital in Germantown MD." The report concludes that once in operation the HCH will generate a continuing need for 1,548 jobs, annual sales of \$215.7 million and annual income of \$86.4 million.
44. April 9, 2010: The Maryland Health Care Commission asks both Holy Cross and Adventist to comment on geographic accessibility, the need and cost effectiveness of alternatives and financial viability. Following a preliminary discussion on May 20, the Commission/Reviewer established a formal hearing on these subjects to begin on August 30 and continuing into mid September.
45. May 20, 2010: The County Council passed the Sectional (Zoning) Map Amendment for the Germantown area which included placing the Life Sciences Center zone on the Germantown Campus as requested by the College. This zone allows hospitals as a matter of "right." Without this change the hospital would have had to pursue a "special (land use) exception" with the Board of Appeals which would have added up to 2 years to the approval process with no guarantee of a positive outcome.
46. May 20, 2010: After almost a year delay, the Montgomery County Planning Board approved a State-required Forest Conservation Plan for the Germantown Campus. This action required College dedication of an easement of 46 acres of campus forest land but allows the College to continue to use the forest as an outdoor classroom. As part of their action, the Planning Board also concluded their comments on the official Mandatory Review (not approval) of the design of the Bioscience Education building. Action on the Forest Conservation Plan and the Mandatory Review allowed the College to proceed to final design of the Bioscience Education building, the final engineering design of the Observation Drive Extended and the initiation of engineering design for Goldenrod Lane Extended which is required

for the hospital construction. With these approvals it is anticipated that construction of the Bioscience Education building site work as well as the building will be initiated in late fall of 2010.

47. June 24, 2010: MHEC responds to March 15 submission of updated Facility Plan for the Germantown Campus and asks questions about campus enrollment and seeks more information on the impact of the proposed Holy Cross Hospital on the Germantown Campus and educational programs.
48. July 16, 2010: Montgomery College responds to the June 24, 2010, correspondence from MHEC with a letter that contains responsive information concerning future plans for nursing education on the Germantown campus, the educational impact of a hospital on the Germantown Campus, and alternative locations that were explored for the Science and Technology Park.

7

UTILITY AND INFORMATION TECHNOLOGY INFRASTRUCTURE

TAKOMA PARK/SILVER SPRING CAMPUS

Existing Infrastructure

Master planning for utility service (water, sewer, central heating, cooling and compressed air, natural gas, electrical, and information technology infrastructure) is an integral part of the master planning process. Utility master planning optimizes the use of utility resources while minimizing disruption and costs. As part of this Facilities Master Plan process, the 2006 Utilities Master Plans were reviewed to determine the adequacy of existing systems and to ascertain the potential for future expansion. Because the 2006 Utilities Master Plans were developed based upon the space and program conditions identified in the previous 2002-2012 Facilities Master Plan, additional evaluations and analysis may be necessary to determine the full utility impact of this updated 2006-2016 Facilities Master Plan. The following is a synopsis of the Takoma Park/Silver Spring Campus utilities.

Domestic and Fire Protection Water System

The Campus receives all water from the Washington Suburban Sanitary Commission (WSSC). Each of the campus buildings is individually metered. On the East Campus, 8-inch WSSC water mains are located in Fenton Street adjacent to the Charlene R. Nunley Student Services Center (ST), New York Avenue and Takoma Avenue. The 8-inch water main located in Fenton Street was constructed in 2002. The 8-inch water main located in New York Avenue adjacent to the ST was constructed in 1929. The remainder of the 10-inch water main located in New York Avenue was constructed in 1974. The 8-inch water main supplying Pavilion 3 (P3) was constructed in the 1950s.

Individual Building Water Supply Summary:

ST:	4-inch water line
Mathematics and North Pavilions:	2-inch water line
Resource Center (RC):	3-inch water line
The Commons (CM):	2 ½ -inch water line
Falcon Hall (FH):	unknown size
Science North (SN) and Science South (SS):	unknown size
Pavilion 2 (P2):	2 ½ -inch water line
Pavilion 4 (P4):	3-inch water line
Pavilion 3 (P3):	2 ½ -inch water line

On the West Campus, the Cultural Arts Center (CU) and West Garage (WG) are supplied by an 8-inch on-site water main located in King Street. This 8-inch line was required to be installed because of the lack of available fire flow in the existing 6-inch WSSC water main located in King Street. The Morris & Gwendolyn Cafritz Foundation Arts Center (CF) is supplied by a WSSC 6-inch water main located in Jesup Blair Drive. The WSSC has upgraded the water distribution system located in Georgia Avenue and the surrounding area. Based on the WSSC on-site submission of WG, a pressure of 32 psi is available at the connection with the WSSC water main located in Georgia Avenue with a fire flow of 1500 gpm.

The WSSC system is capable of providing the existing and future volumes of water required for domestic uses. However, the WSSC system does not presently provide the recommended water flow rates needed for fire protection for unsprinklered buildings on campus. Montgomery College plans to install sprinklers in all new buildings and in existing buildings as they are renovated. After all buildings have sprinklers, the fire protection flow requirements will be lower and the City system will be capable of meeting fire flow requirements for classroom and office buildings. In addition, WSSC is planning to reconstruct many water mains

in the vicinity, including Georgia Avenue, to provide improved flows to area properties. A WSSC analysis has determined that properties off Georgia Avenue will not be supplied with adequate (per WSSC standards) fire flows to on-site hydrants. Lower flows to hydrants adjacent to the new WG have been approved by the Montgomery County Fire Marshal with the expectation that the water service along Georgia Avenue will be improved.

Sanitary Sewer System

At the East Campus, existing 8-inch sanitary sewer systems are located in Fenton Street and New York Avenue. The sanitary sewer line in Fenton Street flows to the north where it connects to the sanitary sewer located in Fenton Street. The sanitary sewer in Fenton Street was constructed in 2002. Only SN connects to this line. The sanitary sewer line in New York Avenue was constructed in 1918. The remainder of the buildings, except for Pavilion 1(P1), Pavilion 4 (P4) and the Child Care Center (DC) connect to the sanitary sewer line located in New York Avenue. P1 and P4 connect to the existing 8-inch sanitary sewer located in Chicago Avenue. The sanitary sewer line in Chicago Avenue was constructed in 1922. DC connects to the existing 8-inch sanitary sewer line located in Takoma Avenue which was constructed in 1921. At the West Campus, the Health Sciences Center (HC) connects to an existing 8-inch WSSC sanitary sewer line located in Georgia Avenue. This sanitary sewer line was constructed in 1949. PC also connects to the existing sanitary sewer line located in Georgia Avenue. CF, as part of its redevelopment, installed a new 8-inch sanitary sewer that extends out towards King Street and then traverses to the south where it connects into an existing 8-inch sanitary sewer line located along the eastern side of Jesup Blair Park. WG was constructed over the 8-inch sanitary sewer line. The garage is situated such that the sanitary sewer line is located within the roadway that extends through the garage.

The existing WSSC construction plan indicates a sanitary sewer line located in Jesup Blair Drive. Investigation during the development of CF and WG showed that this line is no longer active.

Heating System and Chilled Water

The original Takoma Park Campus buildings were constructed with decentralized heating, ventilating and air conditioning (HVAC) systems serving the individual buildings. Most of the buildings still have their original equipment which has reached the end of its' useful life, is inefficient and needs to be replaced. Some buildings such as the RC and SS, have had major air handlers replaced with high efficient decentralized equipment because the original equipment could no longer be maintained. In 2007, a high performance East Campus central heating and cooling plant was installed and commissioned in the lower level of ST. The plant includes high efficiency, variable speed drive, rotary screw chillers using natural ammonia refrigerants and ice storage modules for electrical demand management and plant equipment optimization. A natural gas engine driven chiller also used for electrical demand management, co-generates chilled water and captures waste heat for the plant's hot water system. High efficiency natural gas condensing boilers are installed in the plant to provide space heating, domestic water heating and eventually swimming pool heating. The plant has sufficient capacity to serve all the buildings on the East Campus. A high performance underground hot water and chilled water piping distribution system has been extended from the building, south along New York Avenue. The piping terminates in strategically located concrete vaults so that the hot water and chilled water system can be extended to the adjacent buildings during future renovations. The CM renovation, completed in fall 2009, is the first building outside of ST to be connected to this new central plant.

An identical high performance hot water and chilled water West Campus central plant was installed and commissioned in 2008 as part of the redevelopment of CF. This plant now provides chilled water and hot

water through a high performance underground distribution system to CF and CU. The plant is the primary cooling source for the new high performance ITOC located in CF. High performance chilled water underground distribution piping interconnects the CF central plant to a high performance satellite chiller located in HC. HC can be chilled by the central plant, stand-alone on its own chiller or feed chilled water back to the chilled water distribution system, thus providing operational redundancy and flexibility. Since HC has its own high performance natural gas pulse combustion boilers, it is not currently connected to CF central plant hot water distribution system. The ice modules for this CF central plant are located in the lower level of the WG. The central plant has sufficient chilled water and hot water capacity to serve all loads on the West Campus.

Natural Gas

Washington Gas Light Company (WGL) provides natural gas to both the East and West Campus central plants as well as to SS on the East Campus. Natural gas is used in the central plants as the fuel for the engine driven co-generation chillers and the heat source for space and domestic water heating. Natural gas is used in SS for domestic, greenhouse space heating and for laboratory use. The central plant natural gas services are sized for current and future space loads. Natural gas to future laboratory spaces is anticipated by extending existing services.

Electrical

Electrical power is distributed to the Campus buildings by Potomac Electric Power Company (PEPCO). Buildings are separately served from high voltage overhead power lines. A substation feed from the east serves the East Campus and a substation feed from the west serves the West Campus. The two feeds intersect in a PEPCO controlled switch located on the West Campus, which at PEPCO's discretion can provide some system flexibility and redundant back-up. The ITOC and CF central plants are individually fed from east and west and have internal building crossover capability which provides system flexibility and redundancy to the ITOC. As part of the redevelopment of King Street on the West Campus, all overhead high voltage power lines, switches and tap boxes have been placed underground. All new and renovated buildings will be served from one of these two electrical sources which have adequate capacity for expansion. Emergency electrical power for life safety and critical operations are provided by either battery powered inverters or standby generators. Due to the high energy density or critical nature of the connected electrical loads, most new and renovated structures have self-contained diesel fueled generators rather than the battery powered inverters. Information technology equipment may require both technologies in order to quickly pick-up loads on the short term while the generator spools-up and operates for the long term.

Building Automation Controls

Original building automation controls (BAC) consisted of electrical/pneumatic systems with time clocks responding to occupancy schedules. The majority of these systems are still in service in buildings that have not been renovated or that have not had air handlers replaced. These original controls have reached the end of their useful lives and have become an operations and maintenance burden. Modern networked direct digital controls (DDC) have been installed in new or renovated buildings or on replacement air handlers and air distribution systems. These new controls are integrated with other central plant and building equipment using ASHRAE BACnet compliant open protocols. Building actuators are primarily electrical but many large central plant actuators use 100 psig air for positive actuation. Multiple vendors are used to ensure competitive pricing and market flexibility.

Fire Alarm and Emergency Notification Systems

The original East Campus buildings were originally built with legacy fire alarm systems. A new addressable

fire alarm system was installed in CM and in CF . The new buildings on campus, including WG, all include new fire alarm systems. The new fire alarm and emergency notification systems will be included in all new and renovated building designs in accordance with College design standards. Fire alarm systems will be addressable, be connected to a remote UL/NFPA monitoring facility, capable of emergency notification, have a BACnet interface, and be capable of integrating with other networked Campus fire alarm devices.

Pneumatic Air Systems

Low pressure (less than 100 psig) compressed air has traditionally been used on campus as a signal and power source for early pneumatic HVAC comfort control systems, as a source for actuating large central plant valves, for various laboratory applications and in shops for powering pneumatic tools. Because of the earlier extensive use of low moisture pneumatic air and maintenance issues associated with distributed compressors, air dryers and filters, earlier Utilities Master Plans recommended centralized compressors and pneumatic air distribution systems. However, direct digital control (DDC) technology has replaced the pneumatic signal air and electrical motor operators have mostly replaced the pneumatically operated valve and damper actuators. Exceptions are large central plant pneumatic valve actuators which still require compressed air for actuation and laboratories and shops which require pneumatic air for equipment and tools. The trend will continue toward reduced compressed air requirements as older control systems are replaced and decentralized. Building-based compressors will be installed as necessary to support building programs.

Telecommunication Circuits Infrastructure

The campus telecommunication circuits point of presence (POP) is located in the main distribution facility (MDF) located in the basement of ST. A direct buried telecommunications circuit duct bank leaves the building and runs south parallel to the central plant distribution system which is located beneath New York Avenue. Conduits also leave ST run over the pedestrian bridge and connect to the West Campus and the telecommunication circuits. The college-wide telecommunication circuits, completed in 2009, are located in the Information Technology Operations Center (ITOC) on the first floor of CF and replace many of the functions previously served by the facility located on the Rockville Campus in the Computer Sciences Building.

Planned Infrastructure

Many of the recommendations of previous utilities master plans have been implemented as part of the expansion of the campus. In general, those recommendations remain applicable to the proposed changes to facilities in this Facilities Master Plan but do not exactly reflect current or proposed conditions. To remain accurate, the 2006 Utilities Master Plan should be updated to reflect changes to the utility infrastructure as a result of recent construction and renovation, and the addition of information related to telecommunication circuits infrastructure, fire alarms and security/access control systems.

Domestic and Fire Protection Water Systems

The updated utilities master plan should coordinate with the WSSC to ensure that sufficient fire flow rates and pressures can be obtained for the respective development. Such coordination can be accomplished by submitting a Hydraulic Planning Analysis request to the WSSC for review. The WSSC code now requires that all water meters be located outside of the building adjacent to the property line.

Sanitary Sewer

At the East Campus, the existing sanitary sewer systems located in Fenton Street, New York Avenue, Chicago Avenue and Takoma Avenue should be adequate for the future sanitary sewer flows generated by the master planned development. The same is also true for the West Campus where new buildings have resulted in upgraded sewer service connections to Georgia Avenue for HC and PC, and through Jesup Blair Park for CF and WG. New buildings will require new service connections as the projects are implemented.

Heating and Cooling Systems

High Performance Hot Water and Chilled Water Central Plant – The new high performance hot water and chilled water East Campus central plant located in the basement of ST, has sufficient capacity to supply the heating and cooling needs for the existing and future new and renovated buildings on the East Campus. The central plant has high performance electric rotary screw ammonia refrigeration chillers, ice thermal storage, a co-generation natural gas engine driven chiller and high performance condensing natural gas boilers. Hot and chilled water is distributed from the plant through a high performance piping system, directly buried under New York Avenue, and terminated in strategically located underground vaults. Hot water and chilled water are currently supplied to ST and the renovated CM. In the future, piping extend from these vaults to new and renovated buildings will provide heating (space, swimming pool and domestic hot water) and cooling to the building via high performance variable air volume (VAV) air handling systems. Connections of these buildings will continue to amortize the initial investment and realize the life cycle cost advantage of the central plant while improving occupant comfort, reducing building energy consumption and the environmental footprint. The central plant cooling system, combined with networked open protocol controls is capable of responding to real time electricity pricing signals as envisioned by the proposed “Smart Grid” technologies.

The high performance West Campus central plant, located in the basement of CF, is capable of providing heating and cooling to all existing and future buildings on the West Campus. Hot water is distributed to CF and CU. The HC has an independent high performance condensing boiler system. Chilled water is distributed to CF, HC and CU. A satellite chiller is located in the basement of HC and is connected to the central chilled water distribution system. In the cooling mode, HC can operate independently, be cooled from the central plant or in a limited capacity provide cooling to the West Campus chilled water distribution system. The plant is the primary cooling source for the ITOC located in CF. Redundant cooling is provided by a direct expansion (DX) system which is connected to a standby generator.

Both East and West Campus central plants have ice thermal storage and cogeneration and are capable of responding to real time electrical pricing signals and to “Smart Grid” initiatives. Measurement and verification capabilities will be included in all new designs and integrated with the Building Automation System.

It is intended that the central plant distribution system will be extended to all campus buildings, either at the time of new or renovated construction or when a building’s HVAC system is replaced. Underground fuel oil storage tanks that currently supply heating fuel to buildings will be property decommissioned in the future.

The update to the 2006 Utilities Master Plan will verify and document the existing conditions and make recommendations for future system improvements.

Electrical Systems

Electricity is supplied both overhead and underground from the local PEPCO distribution system to separately metered service to each campus building. New electrical systems will be designed and installed during new and renovated construction activities. An engineering evaluation will be performed to determine optimum building voltage and transformer configuration based upon life cycle analysis. These new services will be coordinated with PEPCO and meet all codes, standards and guidelines. Each building will have a main electrical room and stacked electrical rooms on each floor. On-site renewable solar electricity generation using photovoltaic technology will be included in all new and renovated building designs. Measurement and verification capabilities will be provided and integrated with the Building Automation System.

Emergency and Stand-By Electrical Power Systems

Emergency power will be required for life safety systems and stand-by power may be required to support critical building systems. All new and renovated building emergency and stand-by power requirements will be identified and systems will be optimized based upon life cycle evaluation. The update to the 2006 Utilities Master Plan should identify and evaluate opportunities for buildings to share emergency and stand-by electrical power resources.

Building Automation Control Systems

All new and renovated buildings will be designed with integrated network enabled ASHRAE BACnet building automation control (BAC) systems. The BAC system will be integrated with other building systems such as fire alarm, security, etc., using the BACnet standard. The designs shall include sufficient graphics and details to integrate the building systems with the existing campus automation network. Operational sequences will provide smooth and efficient operations be capable of measurement and verification and accommodate electrical demand management strategies. Specifications will be prepared to allow competitive multi-vendor participation in accordance with College standards.

Fire Alarm and Emergency Notification Systems

New fire alarm and emergency notification systems will be included in all new and renovated building designs in accordance with College design standards. Fire alarm systems will be addressable, be connected to a remote UL/NFPA monitoring facility, capable of emergency notification, have a BACnet interface, and be capable of integrating with other networked campus fire alarm devices.

Security and Access Control Systems

Security and access control systems will be installed in all new and renovated buildings.

Telecommunication Circuits Systems

Telecommunication circuits systems (voice, data and cable TV) for all new and renovated buildings will be designed and installed in accordance with College design standards. The campus information technology point of presence (POP) is located in the basement of the ST. In general, conduit systems extend out from this location to campus buildings and information is transmitted over copper and fiber optic cabling. Recently installed conduit systems terminate in strategically located vaults from which new conduit systems can be extended to new and renovated buildings.

New and renovated building designs will have cable management systems designed in accordance with College design standards. Building design will integrate telecommunication circuits spaces (MDF/IDF) as well as coordination of telecommunication circuits terminations.

The update to the 2006 Utilities Master Plan should include a Takoma Park/Silver Spring telecommunication circuits Infrastructure Master Plan. The scope of this plan should include documentation of existing conditions and plans for future technology and system expansion.

GERMANTOWN CAMPUS

Existing Infrastructure

Master planning for utility service (water, sewer, central heating, cooling and compressed air, natural gas, electrical, and information technology infrastructure) is an integral part of the master planning process. Utility master planning optimizes the use of utility resources while minimizing disruption and costs. As part of this Facilities Master Plan process, the 2006 Utilities Master Plans were reviewed to determine the adequacy of existing systems and to ascertain the potential for future expansion. Because the 2006 Utilities Master Plans were developed based upon the space and program conditions identified in the previous 2002-2012 Facilities Master Plan, additional evaluations and analysis may be necessary to determine the full utility impact of this updated 2006-2016 Facilities Master Plan. The following is a synopsis of the Germantown Campus utilities.

Domestic and Fire Protection Water System

The Campus receives all of its' water, for both domestic and fire protection, from the Washington Suburban Sanitary Commission (WSSC) from a 20-inch WSSC water main located in Germantown Road (MD 118) through a 10-inch water meter located adjacent to the vehicle maintenance shop. After the water meter, a 12-inch on-site water main extends from the water meter and traverses southwest through the Campus to the Science and Applied Studies Building (SA). An 8-inch line extends from the 12-inch line along the north side of SA and turns south and extends between the SA and the High Technology and Science Center (HT). A 2-inch water line extends to the baseball field. The College recently extended a 6-inch water main from the south side of the SA west to the location of the future Child Care Center (CG).

The WSSC owns and operates a water tower (painted to represent the Earth as seen from Space). The tower is a visual presence on the Campus, located on the highest point of the property.

A 30-inch WSSC water main extends from the tower for approximately 300 feet north where it downsizes into two 24-inch WSSC water mains. One of the 24-inch WSSC water mains travels to the north and connects to the 20-inch WSSC water main located in Germantown Road. The other 24-inch WSSC water main travels to the east and connects to a 24-inch water main located in Frederick Road (MD 355). The 30-inch WSSC water main is located within a 30 foot WSSC Right-of-way. The 24-inch WSSC water main extending to the north is located in a 20 foot WSSC Right-of-way. The 24-inch WSSC water main extending to the east is located within a 20 foot WSSC Right-of-way for the majority of length through the Campus with the last 600 feet of the line before the property line located within a 25 foot WSSC Right-of-way. The WSSC water tower serves much of the Germantown community.

The Bioscience Education Center (BE) project will relocate the 24-inch WSSC water main that connects to MD 355 by relocating the main to the south into the Right-of-way of the future extension of Goldenrod Lane as it connects to the new Campus entrance road south to Middlebrook Road. The layout of the relocated water line is coordinated with the proposed parking lot to be located east of BE.

Based on the 2006 Utilities Master Plan, the WSSC system is capable of providing the existing and future volumes of water required for domestic uses and fire flow requirements. The future southerly extension of Observation Drive and connection with Middlebrook Road will provide an opportunity for a second connection to the WSSC system. A second connection will provide a more reliable and stable water distribution network to the Campus and surrounding area.

Sanitary Sewer System

Several WSSC sanitary sewers traverse the Germantown Campus. An 8-inch WSSC sanitary sewer that services commercial properties along Goldenrod Lane extends from Goldenrod Lane and travels to the east through the parking areas north of the Physical Education Building (PG) where it connects into a 12-inch WSSC collector sewer. The 8-inch WSSC sanitary sewer is located within a 20 foot WSSC Right-of-way. A 12-inch WSSC collector sewer travels along the Gunners Branch stream valley located along the eastern side of the Campus. The 12-inch WSSC sanitary sewer is located within a 15-foot WSSC Right-of-way. This 12-inch WSSC collector main runs from Germantown Road and continues south and crosses under Observation Drive (at Middlebrook Road). Once the line crosses under Observation Drive, the line is upsized to 15-inches and continues to the south where it connects into a 15-inch WSSC sanitary sewer located in Middlebrook Road. The 12-inch WSSC collector sewer receives sanitary sewer flow from the residential and commercial properties located to the north of the College.

All of the Campus buildings outfall into an 8-inch on-site sanitary system that combines into a sanitary sewer manhole located to the south of HT where it extends south through the College property and ultimately connects into the main within the Gunners Branch stream valley.

Heating, Ventilation and Air Conditioning (HVAC) Systems

Air Distribution Systems: The Humanities and Social Science Center (HS) and SA are heated and cooled with air distributed from perimeter water source heat pump systems and constant volume (CV) center core air handling systems. The center core air handlers also provide ventilation air to the occupied spaces. The water source heat pump loop contains a thermal capacitance tank to moderate temperature swings and store heat or cool energy as transferred from interior/exterior spaces. Condenser heat was originally rejected to atmosphere by cooling towers in both buildings but now rejects heat to the central plant cooling system. The air distribution systems in these buildings are scheduled to be replaced with variable air volume (VAV) air handling systems during renovations. PG has heating and ventilating units (HV) except for some independent DX spot cooling units. HT has VAV air handling systems, while the Goldenrod Building (GB) has a stand-a-lone water source heat pump system. The new BE and CG will contain VAV air handlers and BE will have desiccant heat recovery systems.

Hot Water System: All buildings are heated by modular, high efficiency, gas-fired, hot water boilers, located in individual buildings; the exception is PG which is served by boilers located in HS. Boilers supply 200 degree Fahrenheit hot water and range in age from 2 to 15 years. Modular pulse boilers (HT, HS and SA), in general are in good condition, but are no longer supported by the manufacturer. An update to the 2006 Utilities Master Plan will determine a plan for phased replacement of these systems.

Originally, HS and SA were built with large flat plate solar thermal collectors and storage systems for primary building, domestic hot water and swimming pool heating. Electric boilers and domestic hot water heaters provided back-up, but became the primary heating source as the solar systems reached the end of their useful lives. Natural gas was supplied to the Campus in the early 1990s and replaced electricity

as a heating source. The majority of the solar hot water panels were replaced in the late 1990s with solar electric photovoltaic panels, except for a small portion of the array on HS which was converted to evacuated tube collectors.

Hot water is pumped from HS to PG through a high performance underground hot water distribution system, which supplies both space and swimming pool heating. Hot water is supplied from SA to the Greenhouse (GN) through an underground hot water distribution system. Hot water is also distributed from SA to CG through a high performance underground hot water distribution system which was installed in 2005 anticipating future construction.

Boilers in these buildings are also the heat source for domestic hot water and tempered hot water for the GN. Domestic hot water is generated in domestic hot water storage heaters (storage tanks with internal heat exchangers). Large storage heaters located in HS supply domestic hot water to HS and to PG through a high performance domestic hot water underground distribution system. A small hot water storage heater supplies tempered hot water to the GN through an underground distribution system.

The original HS to PG underground hot water and domestic hot water distribution systems were replaced with high performance distribution systems in 2005.

HS has an evacuated tube solar thermal collector and storage system designed for supplementing heating for space, swimming pool and domestic hot water. Portions of this system have reached the end of their useful lives. An engineering evaluation will be required to determine future solar energy options.

Chilled Water System: Originally HS and SA had distributed chillers and cooling towers which served the central core cooling. PG cooling was provided with independent DX for spot cooling. In the mid-1990s, a high performance central chilled water plant with ice storage was installed during the construction of HT and a high performance underground chilled water distribution system was extended to all Campus buildings. A future chilled water connection is located in a vault outside of PG and terminated to the east of SA for future extension to the south. A high performance underground chilled water distribution system was extended from a vault (south) of SA west and south to CG. Two 270 nominal ton, ammonia refrigerant chillers and auxiliaries are located in the basement of HT while the two, 1200 ton-hour (2400 ton-hr total) ice storage modules and single 270 ton cooling tower are located in a chain-link enclosure to the east of HT. Direct buried glycol and condenser water pipes transfer thermal energy between the equipment in the plant and the enclosure. The plant and the enclosure can accommodate additional pumps, heat exchanger, two ice storage modules and an additional cooling tower, effectively doubling the capacity of the central plant. Unlike the central plants on the other campuses, this plant does not have cogeneration (engine drive chiller) capabilities.

Satellite Central Chilled Water and Hot Water Plant

A high performance satellite central chilled water and hot water central plant and distribution system is scheduled to be installed in the basement of the new BE. The plant will contain ammonia refrigerant chillers, ice thermal storage, one cogeneration (natural gas engine driven chiller with heat recovery) and high efficiency natural gas condensing boilers. In addition to serving BE, a high performance underground distribution system will distribute hot water to SA and an adjacent future building site and chilled water to these terminations and to the existing central plant distribution system termination, east of SA. This connection will allow two way redundancies between the two chilled water systems.

Natural Gas System

The Campus is served from Middlebrook Road to the south by a 4-inch (60 psig) natural gas line supplied by the natural gas utility, Washington Gas Light Company (WGL). Gas was extended to this Campus in the early 1990s to accommodate the construction of HT and, with the installation of a new gas line, to convert HS and SA heating source from electricity to natural gas. In 2008, a 4-inch branch line was extended to the west around the southwest side of the WSSC water tower and to the northwest to provide natural gas to GB. The 4-inch natural gas line currently located in the footprint of BE is scheduled to be re-located during BE's construction.

Fuel Oil, Propane and Vehicular Fuel Systems

Heating Fuel Oil Systems: Presently, there are no heating fuel oil systems on the Germantown Campus.

Emergency Diesel Fuel Oil: No. 2 fuel oil (diesel) is used for emergency and standby generator systems. Tanks are above ground and are either self standing or integral with the generator set (genset). Generators are located at GB, HS, HT and SA.

Propane: Propane is used for heating the Grounds Storage Building (GS).

Vehicular Fuel Storage: No.2 fuel (diesel) oil and unleaded gasoline are stored in above ground storage tanks.

Electrical System

General Description: The Campus is served by the Potomac Electric Power Company (PEPCO) through a high voltage underground distribution system that originates from overhead lines near the intersection of MD 118 and Goldenrod Lane. For the larger buildings, ground mounted transformers step the high voltage down to low voltage, three phase 480 volts and buildings are separately metered. HS electrical service serves PG and also served the original CG's until they were demolished in 1991. The HT has two services, one for the building and one for the central plant. GB is separated into two services, one for the first floor occupied by the College and one for the second floor occupied by the Montgomery County Government. GS is served by a pole mounted transformer that supplies it with three phase 208 volts which is separately metered. All other buildings are either fed from the adjacent larger structure or have minimal requirements that are fed from site generated solar photovoltaic cells. The electrical service entrance in HS and the sub-panel in PG were renovated in 2008.

Site Generated Renewable Electricity: In 1998 and 2000, the solar thermal arrays on SA and HS were converted to solar photovoltaic systems using thin film amorphous silicon solar panels. A 26 kW array is located on the SA and a 24 kW array is located on HS. Both arrays are directly connected to their building's electrical grid. A ground mounted demonstration array is located on the south side of SA. The new BE design includes a 35 kW photovoltaic array and a number of small parapet mounted wind turbines.

Emergency and Standby Electrical Systems: No. 2 fuel oil (diesel) generators located adjacent to the large buildings provide power for emergency and standby services in the event of a power loss. The HS generator was replaced in 2008 and it now serves both the HS and PG. The SA generator will be replaced by a circuit from the new BE generator. The GB has a battery inverter system for the College's first floor and a standby generator for the County's second floor. GS has individual battery packs for emergency egress lighting.

Building Automation Controls

HS, PG and SA automation controls (BAC) consist of electrical/pneumatic systems with time clocks responding to occupancy schedules. The majority of these systems are still in service but have been supplemented by a legacy direct digital control system (DDC). These original controls have reached the end of their useful lives and have become an operations and maintenance burden. HT was originally built in 1992 with legacy DDC controls with pneumatic actuators which remain in serviceable condition. Portions of SA have ASHRAE BACnet controls. The GB, which was leased and renovated in 2008, has ASHRAE BACnet controls which form a hybrid network with the existing legacy controls system. BE is being designed with native BACnet controls which will be competitively bid and integrated with the satellite central plant that is located in the basement. Building actuators are primarily electrical but many large central plant actuators use 100 psig air for positive actuation. BACnet open network protocols and multiple vendors ensure integration compatibility and competitive pricing.

Pneumatic Air Systems

Low pressure (less than 100 psig) compressed air has traditionally been used on Campus as a signal and power source for early pneumatic HVAC comfort control systems, as a source for actuating large central plant valves, for various laboratory applications and in shops for powering pneumatic tools. Because of the earlier extensive use of low moisture pneumatic air and maintenance issues associated with distributed compressors, air dryers and filters, earlier Utilities Master Plans recommended centralized compressors and pneumatic air distribution systems. However, direct digital control (DDC) technology has replaced the pneumatic signal air and electrical motor operators have mostly replaced the pneumatically operated valve and damper actuators. The exception is large central plant pneumatic valve actuators which still require compressed air for actuation and laboratories and shops still require pneumatic air. The trend will continue toward reduced compressed air requirements as older controls systems are replaced and decentralized (building based compressors) are installed as necessary to support building programs.

Fire Alarm and Emergency Notification System

HS, PG and SA were originally built with legacy fire alarm systems. A new addressable fire alarm system was installed in HS. HT was built with a digital, non-addressable system. New fire alarm and emergency notification systems will be included in all new and renovated building designs in accordance with College design standards. Fire alarm systems will be addressable, be connected to a remote UL/NFPA monitoring facility, capable of emergency notification, have a BACnet interface, and be capable of integrating with other networked Campus fire alarm devices.

Information Technology Systems

Campus telecommunication circuits (data, voice and cable TV) enter the Campus from overhead utility poles at the intersection of MD 118 and Goldenrod Lane and are routed underground and through buildings to the telecommunication circuits point of presence (POP) located in the lower level of the SA. In general, connection with other buildings is through buildings and through underground conduit systems. A new standard College conduit system was installed between SA and the site for the proposed CG and to GB. A new telecommunication circuits conduit system will be installed between SA and BE to support BE's telecommunication circuits requirements. A facilities telecommunication circuits Infrastructure Master Plan has not been initiated for this Campus.

Planned Infrastructure

Many of the recommendations of previous utilities master plans have been implemented as part of the expansion of the Germantown Campus. In general, those recommendations remain applicable to the proposed changes to facilities in this Facilities Master Plan but do not exactly reflect current or proposed conditions. To remain accurate, the 2006 Utilities Master Plan should be updated to reflect changes to the utility infrastructure as a result of recent construction and renovation, and the addition of information related to telecommunication circuits infrastructure, fire alarms and security/access control systems.

Domestic and Fire Protection Water Systems

Prior to the implementation of the 2006-2016 Facilities Master Plan, the College should coordinate with the WSSC to ensure that adequate fire flows and pressures can be obtained for the master planned development. Such coordination can be accomplished by submitting a Hydraulic Planning Analysis request to the WSSC for review. WSSC in this planning review will determine the adequacy of the WSSC water supply to the College as well as the adequacy of the 10-inch water meter. This hydraulic request should include the complete master plan build out of the Campus. The 24-inch WSSC water main located on the south side of the Campus is to be re-routed around the footprint of the proposed BE and coordinated with other proposed Campus site infrastructure.

Extension of Observation Drive to the south to Middlebrook Road and extension of Goldenrod Lane to the east may provide an opportunity for WSSC to form a new water network. Connection of this supply to the south side of the Campus water network would improve Campus water flow and provide redundancy. A new water meter and vault would be required to connect the Campus water network to the new WSSC network. Adequacy of domestic water supply through the existing water supply mains will need to be verified as part of the implementation of the master plan. As a note, the location of the existing 24-inch WSSC water main that runs north towards Germantown Road does not coordinate with the WSSC Right-of-way location as indicated on the record plat for the property.

For the proposed Student Services Center, the building will be constructed over the existing 2-inch water line that services the baseball field. The 2-inch water line will need to be relocated around the proposed development. A new building water line connection will be required and can be extended from the existing 8-inch water main located on the north side of the SA.

For the proposed Social Sciences and Art Building, the building will be constructed in very close proximity to the 24-inch WSSC water main. The location of the building should be coordinated such that the building or structure is not located within the WSSC Right-of-way. If this cannot be avoided, the 24-inch water main would need to be relocated around the proposed building.

For the proposed PG, the building will not affect any existing water lines. The building will require a new water line connection. It is recommended that a water loop be created by extending a water line from the existing 8-inch water main located on the west side of the PG and extend it to the existing 8-inch water line located on the southeast corner of the PG. The building connection would then be made to this newly created water loop.

For the proposed Germantown CG, a 6-inch domestic and fire water protection main was installed in 2005 in anticipation of site development. A 4-inch domestic and fire water protection line will be extended from the 6-inch main to support the CG.

The proposed PG located in the vicinity of the existing GS lies over and adjacent to many utilities including the Campus' 12-inch domestic water line and the 24-inch WSSC water line. Relocation of these water lines may be necessary if this proposed site is chosen.

All other building renovations, HS, HT and SA will re-use existing domestic and fire protection water system supplies and be modified as necessary to meet codes and standards in force at the time of the renovation. Fire hydrants will be required for each building development.

Sanitary Sewer System

The sanitary sewer system is owned and maintained by WSSC. Any modifications to the WSSC owned lines will require review and approval by the WSSC Systems Infrastructure Group. The design of any new or modifications to any "On-Site" sanitary sewer systems will require the review and approval by the WSSC Regulatory Services Group. The WSSC should be consulted early on in the planning process.

For the proposed Social Sciences and Art Building, the building will be constructed over an existing 8-inch WSSC sanitary sewer that services the Goldenrod Lane properties. This existing line and associated Right-of-way should be relocated to the east of the proposed building. The location and layout of this line will need to be coordinated with the location of the existing 24-inch WSSC water main and the other existing utilities located in the vicinity of this project.

For the proposed Student Services Center, the building will also be constructed over an existing 8-inch WSSC sanitary sewer that services the Goldenrod Lane properties. The existing line and associated Right-of-way will need to be relocated to the north of the proposed development. The relocation of this sanitary sewer line will require the review and approval of the WSSC. The WSSC should be consulted early on in the planning process.

For the proposed PG, the building will not impact any existing sanitary sewer line and will require that the building's sanitary sewer system be extended to the existing WSSC sanitary sewer located to the north. The existing sanitary sewer system has adequate capacity to handle the increase sewer flows.

Heating, Ventilation and Air Conditioning (HVAC) Systems

Air Distribution Systems: In general, air distribution systems will consist of penthouse (new construction) or rooftop mounted (renovations) central station, variable air volume (VAV) air handling systems with enthalpy heat recovery systems as appropriate. Hot water and low temperature chilled water will be supplied by central boilers and chillers with ice storage either located in the building or in a central or satellite plant facility. High performance ductwork and properly zoned and controlled terminal devices will respond to ventilation and comfort requirements in the occupied spaces. HS and SA, which currently use perimeter water source heat pumps and constant volume interior air handlers, will benefit from the central station VAV replacement during renovation. Coordination of HVAC replacement with building envelope enhancements will reduce the size of the systems and energy consumption.

Hot Water Distribution Systems: The existing heating systems are a mixture of electric heat, DX heat pumps, distributed building boilers and central plant hot water distribution systems. Hot water is produced by 15-20 year old, modular, small increment, high performance natural gas pulse boilers which will need to be replaced. As the Campus expands, the tendency will be towards centralized hot water distribution systems and hot water will be produced by large increment, high performance natural gas condensing boilers. This configuration is currently being included in BE satellite central plant which will supply hot

water to BE, CG and HS a future adjacent building and to a future stub connection to the north. Prior to implementation of the Facilities Master Plan an update to the 2006 Utilities Master Plan will be required to evaluate central and satellite hot water plant configurations, capacity and distribution systems.

For the CG, hot water will be supplied from SA from the existing boiler plant through an existing 3-inch diameter, high performance, direct buried, high temperature fiber resin piping system. Eventually, the aging SA boiler system will be replaced by boiler capacity currently being designed into the BE central hot water plant and distribution system.

For the renovation of SA, hot water which is currently being supplied by aging high performance natural gas boilers will be replaced by high performance boiler capacity currently being designed into the BE central hot water plant and distribution system. VAV HVAC air handlers with hydronic hot water coils will provide space heating and replace the existing perimeter water source heat pumps and cooling only interior zone constant volume (CV) air handlers.

For the renovation of HS, hot water which is currently being supplied by aging high performance natural gas boilers will be replaced by high performance boiler plant capacity proposed for the Student Services Center. VAV HVAC air handlers with hydronic hot water coils will provide space heating and replace the existing perimeter water source heat pumps and cooling only interior zone constant volume (CV) air handlers. Currently space heating and domestic hot water is generated in HS and distributed through an underground piping system to PG. This configuration should be evaluated in an update to the 2006 Utilities Master plan.

For the proposed Student Services Center, either a central hot water and chilled water plant or a hot water plant and a connection to the existing chilled water distribution system fed from the central chilled water plant in HT will be required. See chilled water distribution system discussion. The hot water plant will be sized to supply the proposed Student Services Center, HS, PG, and the proposed PG addition and incremental capacity for a future distribution system connection. A 10-inch diameter, high performance, direct buried carbon steel or high temperature fiber resin pipe distribution system will leave the proposed hot water plant, connect to HS and PG and terminate in a stub located in a vault to the east. A 6-inch stub connection will be located in a vault facing west for future extension to the proposed Student Services Center. For the proposed Student Services Center, either a hot water and chilled water plant will be installed or a connection to adjacent hot water and chilled water distribution systems on the northeast side of Observation Drive will be required. The distribution system will be a 6-inch diameter, high performance, direct buried carbon steel or high temperature fiber resin pipe distribution system from the building to the proposed stub connection in a vault southwest of the Student Services Center.

For the proposed PG addition and the existing PG, hot water will be supplied from the proposed boiler plant located in the Student Services Center, either directly or through the existing HS to PG underground hot water distribution system. This configuration should be evaluated in an update to the 2006 Utilities Master Plan.

Chilled Water Distribution Systems: The existing building cooling systems are a mixture of DX PTAC, DX split systems and hydronic coils supplied by central plant chilled water. With the exception of GB, which is a water source heat pump system, primary cooling is from the central chilled water plant located in HT. The trend toward larger central chilled water plants with cogeneration and ice thermal storage will continue as will the trend toward larger central hot water plants. For example, the new satellite chilled water,

cogeneration, ice storage, central hot water plant and distribution system being designed into BE will serve the chilled water and hot water needs of the south end of Campus and provide redundant connection to the existing chilled water distribution and connection for a future Campus hot water distribution system. The existing chilled water plant in HT has capacity for expansion but will require additional piping, pumps, heat exchangers in the plant and additional cooling towers and ice storage modules in the adjacent enclosure east of the plant. HT plant equipment, installed in 1994, is aging and replacement options will have to be evaluated. Opportunity exists to include satellite cooling capacity in the footprint of Student Services Center along with the proposed heating capacity which could then form a northwest satellite facility. Prior to implementation of this Facilities Master Plan the 2006 Utilities Master Plan should be updated to evaluate these options.

For the CG, chilled water will be supplied from the HT central plant through the existing 4-inch diameter high performance, direct buried, fiber resin piping system. When the chilled water system is extended from the new BE satellite chilled water plant to the SA, cooling can also be supplied from that plant.

For the renovation of SA, chilled water will be supplied either from the HT central plant through existing 8-inch piping or from the new BE satellite chilled water plant through a new 8-inch branch piping system. VAV HVAC air handlers with hydronic chilled water coils will provide space cooling and replace the existing perimeter water source heat pumps and cooling only interior zone CV air handlers.

For the renovation of HS, chilled water will be supplied from HT through existing 8-inch chilled water lines. VAV HVAC air handlers with hydronic chilled water coils will provide space cooling and replace the existing perimeter water source heat pumps and cooling only interior zone CV air handlers. If a satellite chilled water plant is installed in the Student Services Center, redundant cooling capacity could be shared with HS and the existing central plant distribution system.

For the proposed Student Services Center, sufficient cooling infrastructure may exist in the existing HT central plant, but will require that the plant be expanded to include pumps, heat exchangers, ice modules, and cooling towers. Existing 8-inch diameter chilled water distribution lines to the northwest of HS would have to be increased to accommodate larger capacity flows. If a satellite chilled and hot water plant with cogeneration and ice storage is installed in the building it would be sized to serve Student Services Center, Social Sciences and Art Building, and HS with additional capacity for distribution back to the Campus system. A 12-inch high performance direct buried fiber resin piping system would be installed and connected to the existing 12-inch Campus distribution system. A vault to the southwest will be installed for connections to the existing 8-inch HS chilled water piping and for a future 8-inch connection to the Student Services Center. Future chilled water plant options will need to be evaluated by updating the 2006 Utilities Master Plan.

For the proposed Student Services Center, either a hot water and chilled water plant will be installed or a connection to adjacent hot water and chilled water distribution systems on the northeast side of Observation Drive will be required. The distribution system will be an 8-inch diameter, high performance, direct buried carbon steel or fiber resin pipe distribution system from the building to the proposed stub connection in a vault southwest of the Student Services Center.

For the proposed PG addition and existing PG, cooling will be provided from the existing HT central plant or from the proposed satellite central plant in the Student Services Center. The existing 6-inch diameter direct buried stub, south of PG will need to be increased to 8-inch diameter to accommodate additional capacity flow.

For the proposed PG addition, cooling systems will be standalone package or split system DX.
Natural Gas System

Prior to the Facilities Master Plan implementation an update to the 2006 Utilities Master Plan should evaluate the requirements for expansion of the Campus natural gas system. This evaluation should be coordinated with WGL and include impacts of development to the south. The current 4-inch diameter gas main from Middlebrook Road to the south end of the Campus has a 4-inch branch to GB and a 2-inch diameter branch, through the proposed footprint of BE, to SA, HT and HS. During BE construction a 4-inch branch will be installed to serve the BE hot water plant and a 4-inch branch will be installed to the east side of BE to replace the 2-inch diameter line currently in BE's footprint. Natural gas is not planned for the CG but is available from the 4-inch GB main, direct buried in the parking lot just east of the site.

For the proposed renovation of SA, the natural gas service may be eliminated since hot water will be supplied from the BE hot water plant thus replacing the existing natural gas boilers. Natural gas for academic programs is not currently supplied to the laboratories in this building.

For the proposed Student Services Center, natural gas will be required for the proposed central hot water plant and cafeteria (relocated from HS). The natural gas service at HS maybe eliminated if its heating load is supplied by the hot water plant in Student Services Center and no other natural gas loads can be identified. If it is determined that existing 2-inch diameter line is not capable of handling the expanded load, at least a 4-inch diameter line from the south side of Student Services Center to southeast corner of SA will have to be installed by WGL. This installation could be coordinated with other underground construction such as installation of an IT duct bank or hydronic distribution system. Another possible but less likely scenario would be for WGL to bring a new line from the north side of MD 118 to the Campus and form a loop.

For the proposed renovation of HS, the boiler plant in Student Services Center will eliminate the need for natural gas, however, if the cafeteria function remains in this building and the area get renovated, natural gas may be used to replace existing electric resistance cooking equipment. This option would have to be evaluated.

For the proposed Student Services Center, natural gas would be required if the building required a separate boiler plant and the cafeteria relocates from HS. Natural gas to this site would most likely be a branch from the existing, recently installed, 4-inch diameter natural gas line that serves the GB otherwise the natural gas load would be assigned to the Student Services Center plant.

For the proposed PG, no natural gas service would be required assuming that heating and domestic hot water are served as they are now, from domestic hot water tanks and pumps in HS or from a new heating plant in Student Services Center.

For the PG, natural gas would replace existing propane fuel currently used for GS and HS. A branch from the existing recently installed 4-inch diameter supply to GB can be extended to the site. Utility interference on this site needs to be examined.

Electrical Systems

General: According to PEPCO, the existing Campus high voltage distribution system may be reaching

capacity. Furthermore, it is an underground system, is 30 years old and has a non-redundant single point connection to the PEPCO grid at the northwest corner of the Campus. Outages and power quality issues have become increasingly more frequent. Prior to implementation of the Facilities Master Plan an update to the 2006 Utilities Master Plan should evaluate capability for system expansion including upgrade of existing high voltage feeders and feasibility of a second high voltage feed from Middlebrook Road to the south. Buildings will continue to have separate transformers and meters. Existing transformer ratings for HS and SA should be re-evaluated since both buildings have shed their original all-electric building heating and cooling loads to natural gas and central plant and renovations are slated to further cut these load requirements. Reduction of the transformer ratings will reduce PEPCO standby losses and return this capacity to the high voltage feeders, possibly eliminating the need to upgrade feeders. Designs will include capability to respond to electrical demand management programs or real time pricing signals, communicated using open protocols (BACnet) via the internet.

CG: A high voltage single phase tap will be provided off of the existing transformer vault located to the west side of Observation Drive, south of the WSSC water tower. High voltage feeders will be pulled through existing direct buried conduits. A pad mounted transformer with capability for expansion will be located to the east of the CG and provide single phase 208/120 volt service to the building.

Renovation of SA: An existing high voltage electrical service will be re-used but a new load letter will be submitted to PEPCO. A significant reduction in transformer and switchgear can be realized since the SA no longer has electric chillers, electric water and space heaters or after the renovation will no longer have electric water source heat pumps which add to the capacity of the electrical system. This capacity can be returned to the primary high voltage system and possibly eliminate the need for primary system upgrade. The existing electrical service entrance equipment and building distribution system will be completely replaced.

Chilled water (central plant), hot water (local gas boilers) and domestic hot and tempered warm water storage, located in the lower southeast mechanical room, will have to be replaced and reconfigured to accommodate new connections to the BE satellite central plant and to convert the HVAC system from the current perimeter water source heat pump system to an all air VAV system. Facilities telecommunication circuits infrastructure will have to be modified to accommodate northern expansion from the existing point of presence (POP), located adjacent to the mechanical room.

Renovation of HS: An existing high voltage electrical service will be re-used but a new load letter will be submitted to PEPCO. A significant reduction in transformer and switchgear maybe realized since the SA no longer has electric chillers, electric water and space heaters or after the renovation will no longer have electric water source heat pumps which add to the capacity of the electrical system. This capacity can either be returned to the primary high voltage system and possibly eliminate the need for primary system upgrade or be used to power PG through the existing low voltage circuits from HS. The existing electrical service entrance equipment was replaced in 2007 and the distribution system will be replaced during the renovation.

Student Services Center: A high voltage electrical service can be supplied from the south by intercepting the high voltage feeder at HS transformer pad or from the west by intercepting the high voltage feeder vault on the west side of Observation Drive. The size of the service depends upon the results of the central plant evaluation in the update to the 2006 Utilities Master Plan. This project may trigger an increase in primary feeder size which may add to project complexity and costs.

Social Sciences and Art Building: A high voltage electrical service can be supplied from the vault located

to the north on the west side of Observation Drive. There is an existing direct buried high voltage single phase feeder that extends from the vault, south, up the hill to the vault that serves the WSSC water tower and the CG. This feeder may interfere with the proposed feeder routing for the building or be close enough to the building footprint such that it will need to be incorporated or re-routed. As with the Student Service Center, the size of the service depends upon the results of the central plant evaluation in the update to the 2006 Utilities Master Plan. If not already increased, this project may trigger an increase in primary feeder size which may add to project complexity and costs.

PG: A low voltage electrical service most likely can be supplied from the HS through the existing HS to PG distribution system. The update to the 2006 Utilities Master Plan should evaluate this to determine additional impacts.

Physical Plant Building: A low voltage service most likely can be supplied from the existing shop service. The proposed footprint may encroach into the existing PEPCO electrical Right-of-way. An evaluation of existing low voltage capacity to serve this expansion and interference with the right of way should be examined in the update to the 2006 Utilities Master Plan.

Site Generated Renewable Electricity: In general, all new and renovated buildings will be considered as candidates for site generated solar electricity. The new BE is scheduled to have 35 kW of photovoltaic cells (PV) as well as several small wind turbines. A small array is being considered for the CG. Existing PV arrays are located on the SA (26 kW) and HS (24 kW) buildings but may require some equipment replacements to keep them functioning properly. Other building roofs will be considered for addition of PV arrays. Emergency and Standby Electrical Systems: A diesel generator for the BE will be located inside the enclosure located on the southeast side of SA. The generator will be sized to include the emergency loads and standby electrical loads for both the BE and the SA and replace the existing aging generator. A new generator was installed in HS and supplies emergency and standby power to both HS and PG. The proposed PG loads will have to be evaluated to determine if the existing HS/PG capacity is adequate. The proposed Student Services Center and the proposed Social Sciences and Art Building will have dedicated diesel generators. The proposed PG, depending upon its needs will either have a central battery inverter or a small standby diesel.

Building Automation Control Systems

New and renovated direct digital control (DDC) building automation control systems (BAC) will be competitively bid and comply with ASHRAE Standard 135, Building Automation Control Network, an open protocol (BACnet). College standard control sequences and demand management capabilities will be integrated with real time utility pricing signals and smart grid technologies. Central plant ice thermal storage and co-generation efficiencies will be optimized. BACnet Ethernet message will be transmitted over the College's Facilities Network (FNet), have virtual local area network capabilities (VLAN) and use the College's standard object and network numbering scheme. Major equipment such as variable frequency drives, chillers and boilers will be fully integrated and controlled, while building systems such as fire alarms, security and access control systems will be integrated and supervised. Integration of building control systems with remote central plant, satellite plant and distribution control system functions will require controls integration beyond the building boundary. Space occupancy sensors will control lighting and HVAC terminal devices while daylighting sensors will reduce electrical lighting loads by optimizing the use of natural daylight. Small damper and valve actuators will be electrically powered while large central station valve and actuators will be powered by compressed pneumatic air. Building based operator work stations (OWS) with a graphic user interface (GUI) will allow local operator access to the building control system. Intra-campus access will be through existing terminals or portable devices using vendor specific software or WEB Ser-

vices while remote off-campus access will be via secure VLAN internet access.

Fire Alarm and Emergency Notification Systems

New fire alarm and emergency notification systems will be included in all new and renovated building designs in accordance with College design standards. Fire alarm systems will be addressable, be connected to a remote UL/NFPA monitoring facility, capable of emergency notification, have a BACnet interface, and be capable of integrating with other networked Campus fire alarm devices.

Security and Access Control Systems

Security and access control systems will be installed in all new and renovated buildings.

Pneumatic Air Systems

Pneumatic air systems (air driers, compressors, filters) which power controls, power pneumatic shop tools and which supply compressed air to academic laboratories will be located in the building as required. Central plant or central station control pneumatic air requirements will be evaluated as the trend toward electrical actuation will continue.

Telecommunication Circuits Systems

Facilities telecommunication circuits Infrastructure Master Planning to support data, voice and cable TV should be incorporated into the update of the 2006 Utilities Master Plan in order to evaluate the Campus requirements for facilities telecommunication circuits infrastructure. A new campus-wide direct buried conduit distribution network will be required to support new and renovated building construction since existing conduit and manhole systems are either full or have reached the end of useful lives. The current College standard distribution configuration is eight 5-inch direct buried conduits, ground accessible manholes and air blown fiber optic cable/inner duct. The existing POP in SA will need to be expanded or relocated in order to provide additional capacity. All new and renovated buildings will require space for main distribution frames (MDF), intermediate distribution frames (IDF) and dedicated cooling systems to support Telecommunication circuits operations. Dedicated electrical circuits, raceways and standard terminations will be required to support Montgomery College Television (MCTV) media broadcast operations. Mass video and emergency broadcast notification capabilities will be integrated with the fire alarm system and into video displays located in public areas. Opportunities for redundant access to public/utility telecommunication circuits infrastructure to the south via Observation Drive extension to Middlebrook Road will need to be evaluated.

The new BE will have a standard 8-way duct bank from SA POP to the MDF. The 8-way duct bank will be extended around the building to the west, south and east with the extension of Observation Drive to form the telecommunication circuits network at the south end of the campus. The 2-way duct bank and manhole system installed in 2005 from SA to the west has been used to connect to GB and will be used to connect the new CG.

Renovation of SA: Sufficient space should be planned for expansion of the existing POP to support the growth of the campus. The design should include evaluation of electrical needs and standby power and cooling requirements. Consideration should be given for extension of the standard 8-way duct bank and manhole network from the new termination, installed as part of BE, to the north on the east side of SA and HS to replace aging infrastructure and support telecommunication circuits' needs to the north. Student Services Center: Either a satellite POP located in the building or a new 8-way duct bank system and expansion of the SA POP will be needed to support expanded telecommunication circuits requirements. If a satellite POP is installed in the proposed building, a standard 8-way duct bank will need to

be installed between the building and HS. At time of this installation a manhole can be located on the northwest corner of HS, connect to HS and provide for future extension to the west toward the proposed Social Sciences and Art Building. Expansion to the east from this manhole can connect with the proposed north-south duct bank on the east side of SA. Its construction could be coordinated with the proposed installation of underground piping systems.

A heating and cooling plant will be located in the lower level of this building and serve as the satellite central plant facility for the north end of the campus. Hot water and chilled water distribution to adjacent buildings and to existing distribution infrastructure will be required. Facilities space and telecommunication circuits infrastructure will have to be installed to integrate this building with campus telecommunication circuits infrastructure. Storm water, sanitary and a house water line exist in the proposed footprint and will require evaluation.

Renovation of HS: Opportunity for upgrading telecommunication circuits systems is possible by connecting to the proposed duct banks on the north or east. Additional space may be needed to support increased telecommunication circuits capabilities as well as additional electrical and cooling capacity. Chilled water (central plant), hot water (local gas boilers) and domestic hot water storage, located in the northwest mechanical room will need to be replaced and reconfigured to connect to the new Student Services Center satellite central plant and to convert the HVAC system from the current perimeter water source heat pump system to an all air VAV system.

Social Sciences and Art Building: A standard 8-way duct bank and manhole system can be extended from the proposed manhole on the northwest side of HS. Sufficient space, electrical and cooling capacity will be included in the building to support telecommunication circuits systems. Prior to implementation of the Facilities Master Plan, the 2006 Utilities Master Plan should be updated to determine issues related to the building site with respect to interference with other utilities.

Heating and cooling energy for this structure can either be from dedicated building equipment or from existing nearby (Student Services Center) capacity. Storm water management infrastructure, sanitary sewer, and possibly electrical and domestic water lines lie in the proposed footprint and will require evaluation.

HT: The campus central chilled water plant located in the lower level, northeast mechanical room and the adjacent cooling tower and ice storage modules outside of the building can be expanded to accommodate additional campus building capacity. Original plant and building equipment is approaching its' 20 year anniversary and will need to be evaluated for life expectancy and replacement.

PG: Heating and cooling energy will be provided from plant facilities located in adjacent buildings. Renovation of the HVAC systems and extension of existing chilled water distribution to the building will be required.

Physical Plant Building: If the proposed Physical Plant Building is to be located in the area of the existing GS structure, it will have an independent heating and cooling system served by electricity and natural gas. Large domestic water pipes (12-inch and 24-inch), high voltage electricity and telecommunication circuits infrastructure (data, voice and cable) run through or closely adjacent to this site and interferences will have to be evaluated.

HS also distributes hot water for space and swimming pool heating, domestic hot water and electricity to the adjacent PG.

ROCKVILLE CAMPUS

Existing Infrastructure

Master planning for utility service (water, sewer, central heating, cooling and compressed air, natural gas, electrical, and information technology infrastructure) is an integral part of the master planning process. Utility master planning optimizes the use of utility resources while minimizing disruption and costs. As part of this Facilities Master Plan process, the 2006 Utilities Master Plans were reviewed to determine the adequacy of existing systems and to ascertain the potential for future expansion. Because the 2006 Utilities Master Plans were developed based upon the space and program conditions identified in the previous 2002-2012 Facilities Master Plan, additional evaluations and analysis may be necessary to determine the full utility impact of this updated 2006-2016 Facilities Master Plan. The following is a synopsis of the Rockville Campus utilities.

Domestic and Fire Protection Water System

The Rockville Campus obtains its' domestic and fire protection water from the City of Rockville public water system. Two metered supply lines from Mannakee Street and one metered supply line from MD 355 Hungerford Drive, feed the campus water network. The existing piping may be adequately sized to handle both current and future domestic water demand, but in the past several years, failure of portions of the aging underground piping network have caused campus disruptions. Pressure differences on the Rockville City water network do not provide balanced flow to all campus meters and hydraulic simulations using the Kentucky Pipe Model Program based upon the flow requirements of the Insurance Service Office (ISO) Fire Suppression Rating Schedule indicate that the system is inadequate to handle fire water flows on the campus.

Sanitary Sewer System

Central core building sanitary sewer is discharged into the City of Rockville sanitary sewer system at the building boundary and flows through a piping network into an 8-inch collector pipe on the west side of campus. The 8-inch line is located on the west side of West Campus Drive in a 15-foot Right-of-way. This line also drains sanitary sewer from the College Square subdivision to the south of the campus and the Child Care Center (CH). The Homer S. Gudelsky Institute for Technical Education (GU), Interim Technical Training Center (TT) and the Mannakee Building (MK) discharge their sanitary sewer to a line on the east side of campus which drains to Mannakee Street then back into the collection system on the west side of campus. The 2006 Utilities Master Plan concluded that many portions of the sanitary sewer pipes were not adequate for either present or projected future flows and that the underground system is aging and needs to be replaced.

Heating, Ventilation and Air Conditioning (HVAC) Systems

Air Distribution Systems: Air distribution, in the original campus buildings, were through perimeter fan coil units and center core constant volume single or multi-zone air handlers. These units had hydronic hot water and chilled water coils which were either 2-pipe or 4-pipe configurations and were pneumatically and electrically controlled. The exception to this would be buildings such as MK, Maintenance (MS), CH and TT which have packaged DX, constant volume or variable air volume systems (VAV). Since the mid-1980s, new or renovated buildings or renovated spaces have been converted to high performance variable air volume (VAV) air handling systems with direct digital controls. Many of the original and mid-1980s vintage renovated air distribution systems remain in service but have reached the end of their useful lives and need to be replaced.

Hot Water Systems: In the mid-1980s, the original central core buildings were heated (space heat, domestic hot water and swimming pool heating) by an aging central plant that produced medium temperature, high pressure hot water. The hot water was distributed to the buildings through a direct buried single pipe distribution system. This plant and distribution system was replaced in the late 1980s and early 1990s with a more efficient low temperature, low pressure dual fuel (No.2 fuel oil and natural gas) heating plant, a new dual pipe, carbon steel, in-trench distribution system and with variable speed pumping. The plant and distribution system are now 21 years old, have reached the end of their useful lives and have been experiencing age related failures which continues to disrupt campus activities. A new high performance satellite heating plant has been located in the new Science Center (SC). When connected to the west distribution system during the Science East (SE) renovation, this plant will be capable of providing redundant heating to SC, SE, Science West (SW), Computer Science (CS) and Macklin Tower (MT) and under low loads providing heat to the rest of the campus. MT and CH are electrically heated, TT has heat pumps and the MS has a stand-alone propane fired hydronic system.

Chilled Water Systems: In the mid-1980s, the original central core buildings were cooled by aging chillers distributed throughout the campus in the buildings. In the early 1990s, electric and natural gas engine driven chillers were installed as part of the Humanities (HU) central plant renovation. A high performance non-corrosive direct buried chilled water distribution system was installed on the east side of campus and a carbon steel system was installed in the trench along with the hot water system on the west side of campus. Variable speed pumping was also installed on this system. The electric chillers in the central plant use natural ammonia refrigerants and ice storage to provide environmentally friendly electrical demand management and increased cooling density. The natural gas engine drive chillers also provide electrical demand management and reject waste heat to the heating system. In the 2000s, satellite chillers were added to SE, Campus Center (CC) and Robert E. Parilla Performing Arts Center (PA) to supplement the central plant capacity. Expansion infrastructure exists within the central plant and outside at the ice storage area.

The original central plant infrastructure is aging and experiencing increasing age related failures which disrupt campus activity. The high performance fiber resin reinforced chilled water distribution system has performed better than carbon steel piping systems because of its non-corrosive properties. Carbon steel chilled water distribution piping, located in the west side trench, has experienced corrosion related failures similar to those associated with the carbon steel hot water distribution systems. All original central chilled water plant systems are approaching the end of their useful lives and planning for life cycle replacement is necessary.

Satellite Chilled Water and Hot Water Plants: Satellite chilled water and hot water plants providing redundancy and operational flexibility have been installed to supplement the central plant capacity. In the early to mid 2000s, the original chillers and supporting equipment located in the SE, CS and PA were replaced with high performance chillers capable of circulating chilled water back to the central plant distribution system. SE resides on the west side of the campus distribution system, while CS and PA reside on the east side of the campus distribution system. A satellite hot water and chilled water plant has been installed in the new SC and is capable of supplying chilled water to the building and to the west campus chilled water distribution system. The plant is capable of supplying hot water to the building and has space for two additional boilers which can provide hot water to the west campus hot water distribution system. The chillers are high performance, variable speed, and have low friction magnetic levitation bearings. Boilers are high efficiency, condensing, natural gas fueled, and all pumping is variable speed. Connection to the west campus distribution system will occur during the planned renovation of SE.

Natural Gas System: Natural Gas is supplied to the campus by the Washington Gas Light Company (WGL) from connections on Mannakee Street. Originally, the campus had a single 2-inch diameter, low pressure, line which distributed natural gas to meters at HU, CC, SE, AR, and MU. In the late 1980s, as part of the renovation of the central boiler plant in HU, a 6-inch diameter, cross linked polypropylene, high pressure gas line was installed from a new connection on Mannakee Street to two new meters located on the north side of HU. This gas provided interruptible gas service to the newly installed dual fuel boilers and firm gas service to College owned house gas lines. Eventually as part of the installation of the new hot water and chilled water distribution system, cross linked polypropylene firm gas house lines were extended to CC and SE which replaced WGL meters in those buildings and extended to the Student Services Building (SV) and MT to replace existing College owned house lines to emergency generators. In the late 1990s, WGL intercepted the line serving AR and MU and extended a gas line through the playing field to the GU for natural gas for HVAC trades program laboratories. The WGL service lines from Mannakee Street were relocated away from the footprint of the new SC and upgraded to a single high pressure 6-inch diameter pipe system. The new 6-inch diameter cross linked polypropylene main branches south and west around the existing storm water management pond to the existing service to HU building and south and east to supply the new SC and intercept the existing carbon steel service line to AR and MU. This short run of carbon steel gas piping is all that remains of the original campus low pressure WGL infrastructure.

Fuel Oil, Propane and Vehicular Fuel Systems: The original campus central medium temperature hot water plant was capable of burning No. 6, heavy fuel oil but primarily burned lighter, No.2 fuel oil. Oil was stored in two, 20,000 gallon underground carbon steel fuel oil storage tanks, located north of HU. In the mid 1990s, those tanks were replaced by a single 20,000 gallon fiberglass tank and leak detection monitoring system to support the dual fuel (interruptible natural gas and No.2 fuel oil) boiler plant upgrade.

Propane is used in several facilities on campus as fuel for standby generators, as a heat source for clothes driers and for space heating. Storage is limited to small tanks located next to the application. Vehicular fuel storage is located in the maintenance yard on the north side of campus adjacent to the MS shop. Low lead and diesel fuel is stored in above ground storage tanks which are factory configured for spill containment and recovery.

Electrical System

General Description: Electrical power is supplied by the Potomac Electric Power Company (PEPCO) by 13.2 kV overhead distribution feeders that circle the campus. The primary electrical source is from a circuit on MD 355 Hungerford Drive and the secondary source is from a circuit on Mannakee Street. Pole mounted, ground mounted and underground transformers supply secondary voltage building electrical systems by single and multi-phase circuits in the 120-460 volt range. Each building has a separate electrical meter except AR and MU which share a meter and CH which is a circuit off of SW. A new three phase, 460 volt service was supplied to SC directly from the 13.2 kV overhead feeders on Mannakee Street to underground vault mounted transformers adjacent to the building. Either as part of a building's renovation or as part of a planned replacement, many of the original electrical service entrances and many of the building branch electrical circuits have been replaced because the electrical equipment had reached the end of its' useful life. Often as they age, electrical systems become unstable, are unreliable and replacement parts are not readily available. Electrical service interruptions caused either by the utility's or the College's aging infrastructure have disrupted College activities and damaged connected equipment.

Site Generated Renewable Electricity: A 25 kW photovoltaic (PV) solar electrical generation system will be incorporated into the sloped roof of the new SC along with interactive education kiosks which will be

located in the building lobby atrium. Similar sized arrays are anticipated to be integrated into all new and renovated buildings.

Emergency and Stand-by Electrical System: No. 2 fuel oil (diesel) generators located adjacent to the large buildings, natural gas fuel generators located inside buildings or battery inverters systems, provide power for emergency and stand-by services in the event of a power loss. The CC, CS and MT generators were replaced in the mid-2000s during electrical service entrance replacements or in response to primary feeder outages as the result of the utility's aging infrastructure. A new emergency standby diesel fuel generator was installed as part of the SC and is sized to serve the SC/SE/SW (SEM) complex.

Building Automation Controls: The original campus building automation controls (BAC) consisted of stand-alone electrical/pneumatic systems with occupancy schedules controlled by time clocks. Many of these systems are still in service but have been supplemented by a supervisory direct digital control system (DDC). Since 1985, new or renovated buildings have incorporated DDC controls and since the early 2000s, all DDC controls have been competitively bid to comply with ASHRAE BACnet open protocol controls specifications. The campus controls network architecture remains a mixture of electrical/pneumatic, legacy DDC and BACnet DDC. All of the original electrical/pneumatic equipment has reached the end of their useful lives while early DDC equipment is quickly becoming obsolete. Building actuators are primarily pneumatic and electrical while large central plant actuators use 100 psig air for positive actuation. The new SC controls were competitively procured, comply with BACnet protocols and integrate all building systems and system components into a network using internet protocol (IP).

Pneumatic Air Systems: Low pressure (less than 100 psig) compressed air has traditionally been used on campus as a signal and power source for early pneumatic HVAC comfort control systems, as a source for actuating large central plant valves, for various laboratory applications and in shops for powering pneumatic tools. In the 1980s, because of extensive use of low moisture pneumatic air and maintenance issues associated with distributed compressors, air dryers and filters, earlier Utilities Master Plans recommended centralized compressors and pneumatic air distribution systems. A centralized pneumatic air compressor, drier and distribution system was installed in the mid-1990s as part of the central plant and distribution system renovation. Two centralized scroll air compressors and air driers are located in the basement of the MT. Compressed air at 100 psig is distributed throughout the campus by piping routed adjacent to the hot water piping in the distribution trench. Satellite air compressors are strategically located in buildings to supply redundant back-up should the central compressors or distribution system fail. Most recently, the original carbon steel compressed air distribution pipe has experienced corrosion related failures and has been replaced with copper pipe. Also, DDC technology has replaced the pneumatic signal air and electrical motor operators have mostly replaced the pneumatically operated valve and damper actuators. The exceptions are large central plant pneumatic valve actuators which still require high pressure compressed air for actuation, and laboratories and shops which still require pneumatic air. The trend will continue toward reduced compressed air requirements as older control systems are replaced and decentralized (building based compressors), will be installed as necessary to support building programs.

Fire Alarm and Emergency Notification Systems

The original campus buildings were built with electrical fire alarm systems with sensors, pull stations and alarms all hard wired to a base station cabinet. In new or renovated buildings electronic systems have been installed with most recent systems having programmable and addressable devices which can provide fault detection capabilities and audible notification. The high priority recommendation of the VFA study identified fire alarm systems that required upgrade and emergency response planning required building

and campus-wide emergency notification capabilities. Open protocol communications capabilities such as ASHRAE BACnet also allow integration of these systems with the BAC to provide maintenance supervisory capabilities. New fire alarm systems are also being connected to remote UL/NFPA monitoring facilities to provide supervisory capabilities that meet code requirements.

Telecommunication Circuits Systems: Campus telecommunication circuits (data, voice and cable TV) enter the campus from overhead utility poles at the intersection of MD 355 Hungerford Drive and North Campus Drive and is routed overhead, west on North Campus Drive, over utility poles and south over poles through the parking lot to the telecommunication circuits point of presence (POP) in HU. Cable pathways and cables distribute signals from the POP, through HU to various conduit runs and manholes throughout the campus. Three strategic campus locations are, 1) HU POP, since it serves the whole campus; 2) SV, which housed the original campus telephone switch board and distribution system and remains the hub for a significant portion of voice distribution on campus and; 3) CS, which until recently housed the College's network operations center (NOC). In 2008, the primary network operations function migrated to the new Information Technology Operations Center (ITOC) in the Takoma Park/Silver Spring Campus, Cafritz Arts Center, and some redundant ITOC capabilities remain in CS (backup tape library, Active Directory, eDirectory, DNS, DHCP, and NTP). CS is projected to be the disaster recovery site for Banner, Exchange, and other functions. A new standby generator was installed in 2007 in response to a failure of one of the electric utility's primary underground feeders and subsequent disruption of college wide network services. In FY 2007, the Rockville Campus Facilities Information Technology (IT) Infrastructure Master Plan was completed. This master plan, commissioned primarily to identify existing and proposed telecommunication circuits infrastructure required to support the new SC, was expanded to include the remainder of the campus. Identification and location of existing and proposed data and voice terminations led to the design of an underground campus conduit plan. This campus conduit plan is currently being installed as part of the new SC and part of the inner campus site renovation work.

Planned Infrastructure

Many of the recommendations of previous utilities master plans have been implemented as part of the expansion of the campus. In general, those recommendations remain applicable to the proposed changes to facilities in this Facilities Master Plan but do not exactly reflect current or proposed conditions or building footprint utility interferences. To remain accurate, the 2006 Utilities Master Plan should be updated to reflect changes to the utility infrastructure as a result of recent construction and renovation and impacts from proposed new construction projects. Furthermore, the updated utilities master plan should include planning information related to the telecommunication circuits infrastructure, fire alarms and security/access control systems.

Domestic and Fire Protection Water Systems

Domestic water supply from the existing supply mains is adequate for the Facilities Master Plan period 2006 to 2016. However, to meet current and future fire suppression demands, the system will need to be modified. The 8-inch diameter meter and water line from Mannakee Street serving the east side of the campus core will need to be upgraded to a 12-inch diameter line and relocated as part of the construction of the southeast core buildings. The 12-inch diameter line from MD 355 Hungerford Drive, its associated check valve assembly and the 8-inch diameter line in North Campus Drive will have to be upgraded to supply expansion on the north side of campus. The College should coordinate with the City of Rockville regarding water meter and system pressure requirements for the proposed campus expansion to ensure that the system is adequately sized to accommodate the future expansion flow demands. From experience,

most buildings over two stories will require a fire protection booster pump and every effort should be made to replace and upgraded aging underground domestic water infrastructure as part of building site construction.

SE and SW Renovations: Both buildings will require a new water service. SE will be an extension of the adjoining SC while SW will require a new service and possibly a fire pump. The 8-inch domestic water line that runs between SE and SW should be upgraded as part of the SW site work.

MT Renovation: MT's domestic and fire protection water systems have been upgraded and should not require additional infrastructure upgrade as part of renovation work.

North Garage: This new building will require a new 8-inch diameter supply line connected to the supply main to the west. The existing 8-inch diameter line to the west of the proposed site and to the north should be upgraded to a 12-inch diameter line at the time of construction to comply with Facilities Master Plan recommendations. Depending upon the fire protection requirements and height of the structure, a fire pump most likely will be required. Consideration should be given for system expansion to accommodate the proposed adjoining Physical Education Center Addition (PE).

PE Addition and Outdoor Facilities: This new building's system will be extended from the existing infrastructure in North Garage or have a new 8-inch diameter system installed and connected to the 12-inch diameter system to the west side of PE. Fire flows will either be supplied from North Garage infrastructure or a dedicated system with a fire pump. Landscape watering of outdoor facilities should meet sustainability guidelines and if necessary use recovered water or have sub-meters which reduce sewer charges.

Student Services Center (SV): The proposed SV footprint will require relocation of a 12-inch diameter main and a 6-inch diameter service line to Technical Center (TC). The 6-inch diameter service line should be increased to an 8-inch diameter service line and to the maximum extent possible the 8-inch diameter run to the southwest should be increased to 12-inch diameter. To accommodate recommendations of the Facilities Master Plan and as part of SV Center site work, a new 12-inch diameter line should be installed in North Campus Drive and connect the 12-inch diameter pipe at the northeast corner of TC with the proposed 12-inch diameter line proposed to be installed as part of the North Garage.

Campus Mall Phase 2: Underground domestic water lines should be upgraded as part of the site work.

South Campus Instructional Building: Existing domestic and fire protection systems should be adequate for renovation of this building. Aging service entrance equipment should be replaced and sub-meters should be added if not presently installed.

CC: Existing domestic and fire protection systems should be adequate for renovation of this building. Aging service entrance equipment should be replaced sub-meters should be added if not presently installed.

Humanities Addition: Existing domestic and fire protection systems should be adequate for renovation of this building. Aging service entrance equipment should be replaced and sub-meters should be added if not presently installed.

TT: A new water service will be required for this building. An 8-inch diameter service line will be extended from the existing 8-inch diameter main to the south that currently serves the GU building or an 8-inch

diameter redundant loop can be extended from the existing 12-inch diameter main from the north. A fire pump will most likely be required. As part of the site work the existing 8-inch diameter main to the north should be increased to 12-inch diameter and extended to the maximum extent possible to the west along North Campus Drive.

GU: Existing domestic and fire protection systems should be adequate for renovation of this building. Aging service entrance equipment should be replaced and sub-meters should be added if not presently installed.

Arts Building North and Arts Building South: A new water service will be required for both of these buildings and the infrastructure should be installed to also accommodate future buildings. Existing 6-inch and 8-inch diameter lines located in or adjacent to the building footprint should be increased to 8-inch and 12-inch respectively in accordance with Facilities Master Plan recommendations. Both buildings will most likely require fire pumps. Building sub-meters should be included.

South Garage: The footprint of this structure will require relocation of the existing 8-inch diameter water supply. The line should be increased to 12-inch diameter in accordance with recommendations of the Facilities Master Plan. This relocation and infrastructure improvement should be coordinated with the proposed Library building and other domestic water infrastructure improvements on the south side of campus. A new 8-inch diameter water supply line and fire pump system will be required for South Garage. Building sub-meters should be included.

Humanities and Social Sciences Building: The building will require a new water service and fire pump. The 8-inch diameter service line installed as part of the SV project should be re-used to serve this building. Building sub-meters should be included.

HU Building: Existing domestic and fire protection systems should be adequate for renovation of this building. Aging service entrance equipment feeding both the building and the central hot and chilled water plant should be replaced and sub-meters should be added if not presently installed.

Library Resource Center: The building will require a new water service and fire pump. As noted in South Garage the existing 8-inch diameter main will need to be increased to a 12-inch main with an 8-inch diameter service line installed as part of this project. A satellite hot water and chilled water plant will be located in this building and will introduce additional water requirements. Water recover, conservation and building sub-meters should be included.

PA: The foot print of this addition will require relocation of an existing 8-inch diameter water line that wraps the building around the north and east and possibly a 3 in diameter athletic field water supply line. This relocation should be evaluated and coordinated with the relocation and upgrade of the existing 8-inch diameter main from the Mannakee meter. The building will require a new water service and fire pump and extend this infrastructure to the existing PA. Verification of athletic field water supply requirements and justification for continued use will dictate relocation or upgraded to include backflow prevention and sub-meters.

CH: CH is currently served by a 2 inch diameter line from the 12-inch diameter main from West Campus Drive. The expansion of CH will most likely require an increase in this service line to accommodate more recent code requirements. Building sub-meters should be included.

Physical Plant Building: The proposed Physical Plant Building will require a new water service but probably not a fire pump since it is only two stories.

Sanitary Sewer System

The sanitary sewer system on the Rockville Campus may require significant upgrade and coordination with the City of Rockville in order to provide capacity for future expansion. The earlier utilities master plan calculated that based upon fixture count flow conditions, both the College and the City of Rockville sewer system may not be capable of handling flows. Furthermore, the majority of the system is more than 50 years old and should be replaced with newer higher performance materials. All site work should incorporate improvements to the underground sanitary sewer system. An update to the 2006 Utilities Master Plan including sanitary flow measurements is recommended prior to implementation of the Facilities Master Plan. This utilities master plan should be coordinated with the City of Rockville since their existing 8-inch outfall to the west appears to be inadequate for both the College and other non-College sewer flows.

SE and SW Renovation: Portions of the 8-inch line north of SE and SW should be replaced during the renovation of these buildings and sizes should be increased as recommended in the 2006 Utilities Master Plan.

MT Renovation: The existing 8-inch outfall should be adequate; however, it empties into the existing 8-inch segment which currently is over capacity.

North Garage: The nearest connection is manhole no. 30, located on the southeast corner of CC, which will require coordination with high voltage electrical and water services. Another option would be to coordinate the installation of the sewer line with capacity evaluation and upgrade to the existing 5-inch outfall.

PE Addition and Outdoor Facilities: The sewer requirements for these facilities should be coordinated with the North Garage construction.

SV: The nearest existing connection is manhole no. 26, just outside of the northwest entrance to HU. This manhole accepts flows from the existing TC and HU and is currently identified as being in a surcharge condition from flow conditions at manhole no. 25. Flows from the proposed SV and the net increase from the construction of the new Humanities and Social Sciences Building will need to be considered. If the existing 8-inch line is adequate for these flows then the restriction around SE and SW will need to be corrected or an alternate route will need to be installed, i.e. around TC and down West Campus Drive which will serve as a buffer during peak flow periods. Construction of the sanitary sewer system and location of other underground utilities in the vicinity of the northwest corner of HU and southeast corner of the TC will require additional coordination.

Campus Mall Phase 2: Any site work should include upgrades to the underground sanitary sewer infrastructure.

South Campus Instructional Building: The existing outfall is adequate but portions will be affected by construction of the south campus buildings and relocation of the adjacent sewer lines.

CC: The existing outfall is adequate for building services but replacement should be coordinated with site work associated with the Campus Mall and demolition of the SV Building.

HU Addition: The existing outfall is adequate for building services but is affected by the surcharge condition on this segment. Replacement should be coordinated with site work associated with improvements to other underground utilities in the vicinity.

TT: This proposed building's footprint will require relocation of the existing 8-inch sanitary sewer line and coordination with existing underground hot water, chilled water, domestic water and telecommunication circuits infrastructure. Although the 8-inch line is adequate for the TT and the GU, the line eventually arrives at the same collector on the west side of campus that has been identified with flow restrictions. The flow restriction will have to be considered in the update to the 2006 Utilities Master Plan.

GU: The renovation of the GU will have to be coordinated with the construction Technical Training center as the same issues apply to this building's sanitary sewer system.

Art Building North and Art Building South Addition: Will require relocation and increase of the existing 8-inch lines that are currently located in the proposed building footprint. This work should be coordinated with Campus Mall site work to integrate improvements of the underground infrastructure.

South Garage: South Garage's footprint will require relocation of the existing 8-inch sanitary sewer line on the north side of the site and portions of the 8-inch outfall that serves the South Campus Instructional Building. Replacement and increase in size to 12-inch should be coordinated with construction of the Arts Building North and Arts Building South and other underground utility infrastructure improvements in this area.

Humanities and Social Sciences Building: A new outfall will be required to serve this building and it should be coordinated with the sanitary sewer infrastructure improvements that need to be constructed to serve the SV Center. See SV Center narrative.

HU: HU outfall remains adequate for the building's occupancy but should be replaced as part of the infrastructure upgrade being considered for the proposed buildings to the north and west. See SV narrative.

Library Resource Center: A new sanitary sewer outfall will need to be provided for this building. The outfall location should be coordinated with the sanitary sewer line relocation associated with Arts Building North, Arts Building South and South Garage.

PA: The addition of the PA will require relocation of the existing 8-inch line to the north and the 6-inch line that arrives from the northeast. This work should be coordinated with the sanitary sewer infrastructure improvements associated with the other adjacent buildings proposed for the south campus area.

CH: The addition to CH will most likely use the existing 4-inch outfall pipe but flow issues will need to be addressed at its connection to manhole no. 2.

Physical Plant Building: The outfall for this building will need to connect to the existing 8-inch sanitary sewer line to the southeast of the site or to manhole no. 2. The surcharging condition exists at both of these locations and needs to be addressed.

Heating, Ventilation and Air Conditioning (HVAC) Systems

Air Distribution Systems: In general, air distribution systems will consist of penthouse (new construction) or rooftop mounted (renovations) central station, variable air volume (VAV) air handling systems with enthalpy heat recovery systems as appropriate. Hot water and low temperature chilled water will be supplied by central boilers and chillers with ice storage either located in the building or in a central or satellite plant facility. High performance ductwork and properly zoned and controlled terminal devices will respond to ventilation and comfort requirements in the occupied spaces. Buildings which currently use distributed constant volume single or multi-zone air handlers and perimeter fan coil units will benefit from the central station VAV replacement during renovation. Coordination of HVAC replacement with building envelope enhancements will reduce the size of the systems and energy consumption.

Hot Water Distribution Systems: The existing heating systems are predominantly hydronic hot water supplied by the original central hot water and chilled water central plant in HU and supplemented by the new satellite hot water facility in the SC. The original central plant boilers, engine driven chiller with heat recovery and hot water distribution system have reached the end of their useful lives and need to be replaced. New plant boilers will be high performance natural gas and new distribution systems will be high performance and corrosion resistant. Natural gas fueled engine driven chillers with heat recovery will remain a feature of future central plants. New gas boilers will eliminate the requirement for the 20,000 gallon underground storage tank north of HU so that it can be removed. Prior to implementation of the Facilities Master Plan, an update to the 2006 Utilities Master Plan will be required to evaluate central and satellite hot water plant configurations, capacity and distribution systems.

SE and SW Renovations: Hot water distribution from the new satellite hot water plant in SC will run through SE and eventually terminate underground to the north in a new connection to the hot water distribution system that feeds the west side of campus. Hot water will be tapped from the distribution pipes and feed both SE and SW. Two new boilers will be installed in SC penthouse to infrastructure already installed. Eventually as part of SW site work abandoned underground infrastructure can be removed to make way for other underground utilities such as enhanced domestic water and sewer.

MT Renovation: MT will remain connected to the existing underground hot water distribution system but existing internal piping will be replaced. Underground piping from the west mechanical room entrance to the west distribution system located on the east side of MT should be replaced as part of the renovation. Pipe sizing should consider future extension to the west to supply hot water to the proposed Physical Plant Building. Hot water distribution system expansion tank removal should be coordinated as part of the SV project.

North Garage: Depending upon occupied space such as the PE Addition, this building will require connection to the hot water distribution system. Existing underground hot water piping to PE should be replaced and sized to accommodate additional square feet. Existing PE equipment rooms should be reconfigured with larger pumps and hot water piping should be extended through existing PE spaces to supply hot water to the addition. Domestic hot water systems should be adequate to supply the additional space but pipes would have to be extended through the existing PE spaces. The majority of HVAC infrastructure in PE is original equipment, has reached the end of its' useful life and needs to be replaced.

PE Addition and Outdoor Facilities: Hot water system infrastructure should be coordinated with the North Garage project and extended as necessary to accommodate phased construction of the PE additions. Hot

water from the central plant distribution systems will remain the primary source for space, swimming pool and domestic hot water heating.

SV: The proposed SV will require that a new high performance natural gas fueled central hot water or hot water and chilled water plant be installed to replace the aging plant in HU. The plant will be sized to serve the campus but optimized to take into account the hot water plant capacity already installed in the SC. New underground distribution piping will be installed and extended south to the HU building and connected to the campus hot water distribution system. New underground distribution piping installed and extended west to the TC will replace aging underground piping from HU to TC and eventually serve the proposed Humanities and Social Sciences Building and the proposed Physical Plant Building to the west. Existing central plant equipment in HU such as boilers, natural gas service and underground fuel oil storage tanks can be removed as well as hot water expansion tanks in the basement of MT. Cogeneration capabilities using natural gas engine driven chillers with heat recovery will remain a feature of future central plants. Prior to implementation of the Facilities Master Plan, an update to the 2006 Utilities Master Plan will be required to evaluate central and satellite hot water plant configurations, capacity and distribution systems.

Campus Mall Phase 2: Underground hot water distribution system replacement and extension to the south should be accomplished during this site work.

South Campus Instructional Building: Existing hot water distribution system piping should be adequate for the near future; however, replacement should be coordinated with the PA renovation.

HU Addition: Existing hot water distribution system piping is adequately sized for future use of this building, however, underground main and branch distribution systems have reached the end of their useful lives. Renovation of this facility should also include replacement of adjacent underground and service entrance infrastructure.

CC: Existing hot water distribution system piping to the building is adequately sized for the proposed renovation. Exterior underground branch and main piping has reached the end of useful life and should be replaced. Main distribution piping located to the west of the building should be replaced either during this renovation if not already replaced during Campus Mall Phase 2 work. Aging service entrance equipment should be replaced and BTU sub-meters should be added.

Technical Training Center: Existing hot water distribution system piping installed in the early 1990s to support the GU was sized to support hot water demands for a new building of similar size and hot water demand on this site. Confirmation of capacities, condition of exterior underground supply piping should be determined as part of the update to the 2006 Utilities Master Plan prior to implementation of this Facilities Master Plan. BTU sub-meters should be included as part of the design.

GU: Existing hot water supply systems should be adequate for renovation of this building; however, aging HVAC infrastructure will need to be replaced. Condition and capacity of exterior underground supply piping should be determined as part of the update to the 2006 Utilities Master Plan prior to implementation of this master plan. Arrangements for infrastructure upgrades should be coordinated with the new TT.

Arts Building North and Arts Building South: An existing hot water distribution system is located just north of this site at the northeast corner of the Theatre Arts Building (TA). A new 12-inch diameter high

performance underground piping system should be extended south, under the Campus Mall, to the Arts Building North and Arts Building South. This piping should be terminated such that it can be extended further southward and eventually connect to the satellite plant facility proposed for the Library Resource Center.

South Garage: The proposed South Garage parking structure itself will need little or no heat for either space or domestic hot water unless its footprint includes additional occupied space. Depending upon the construction phasing of this structure and the phasing of other adjacent buildings, a central plant may be located in this footprint rather than in the footprint of the Library Resource Center. An update to the 2006 Utilities Master plan should be completed prior to implementation of this Facilities Master Plan.

Humanities and Social Sciences Building: This new building will be located on the footprint of the demolished TC. Hot water will be distributed from the new hot water plant and distribution system installed as part of the new SV. Consideration should be given to additional hot water distribution to the west to support the proposed Physical Plant Building heating and cooling requirements.

HU Building: This renovation may need to include HVAC system upgrades since the equipment will be reaching its' 20 year life. Hot water systems upgrades will be required as well as any central hot water plant equipment replacements not previously completed.

Library Resource Center: A new satellite hot water and chilled water plant and distribution system will be included in this building. The new plant will use high performance natural gas boilers and natural gas engine driven chillers with heat recovery. Plant capacity should be sized to serve the south and east side of campus and coordinated with plant capacity in the HU, SC and SV buildings. High performance underground distribution system piping will be installed and connected to the existing hot water distribution system on the east side of campus.

PA: The foot print of this addition will require relocation of the existing hot water distribution to both the north side of existing PA and east side to South Campus Instructional Building. A new high performance hot water distribution system should be installed from the hot water mains located in the athletic fields just north of the PA and appropriately sized and routed to serve both new and existing structures. Coordination will be required to accommodate interference with existing HVAC infrastructure inside north and east areas of the PA. Update to the 2006 Utilities Master Plan should be completed prior to implementation of the Facilities Master Plan.

CH: CH is an all electric facility and because of its remote location does not have ready access to hot water distribution. Replacement and expansion of existing heating capacity should include an evaluation of a ground coupled heat pump system.

Physical Plant Building: The proposed Physical Plant Building will require a new heating service. Consideration should be given to supplying this building with hot water from the central distribution system, either from an upgraded MT hot water supply line or from a new underground hot water supply line installed as part of the Humanities and Social Science Building construction. Update to the 2006 Utilities Master Plan should be completed prior to implementation of the Master Plan.

Chilled Water Distribution Systems

The existing building cooling systems are primarily hydronic chilled water supplied from the HU central chilled water plant and underground distribution system which was installed in the early 1990s. Supplemental satellite chillers are located in CC, PA and SE. This system has the capacity to supply low temperature chilled water to all large campus buildings including SC under specified load conditions. Expansion infrastructure exists within the HU plant and outside in the ice storage area. The new satellite chilled water and hot water plant located in SC has the capacity to supply SC and all of the buildings on the west side of the campus with chilled water under full load conditions and the remainder of the campus under a specified load condition. The east campus distribution is primarily non-corrosive fiber resin pipe (FRP), 8-inch diameter up to 12-inch diameter with smaller branch distribution, 6-inch diameter and smaller being non-corrosive polyvinyl chloride (PVC). West distribution is 10-inch diameter carbon steel collocated in the distribution trench with the hot water piping. The central plant and distribution system has reached the end of its useful life and failures have disrupted campus operations. The trend toward larger high performance central and satellite chilled water plants with co-generation and ice thermal storage will continue.

Central or satellite plants or infrastructure will remain and be renovated or upgraded as necessary. New plants are proposed for SV and Library Resource Center. Central plants properly designed and strategically located will provide the best life cycle cooling options and operational reliability. Prior to implementation of this Facilities Master Plan the 2006 Utilities Master plan should be updated to evaluate these options.

SE and SW Renovations: Chilled water distribution from the new satellite hot water plant in SC will run through SE and eventually terminate underground to the north in a new connection to the existing chilled water distribution system that feeds the west side of campus. Chilled water will be tapped from the distribution pipes and feed both SE and SW. Existing high performance chillers installed in the SC penthouse are sized to supply the cooling needs for all west campus buildings and under low load conditions supply to the infrastructure already installed. The satellite chiller located in SE will be removed as part of the renovation. Eventually, as part of SW sitework, abandoned underground infrastructure can be removed to make way for other underground utilities such as enhanced domestic water and sewer.

MT Renovation: MT will remain connected to the chilled water distribution system but the underground chilled water distribution system should be replaced and upgraded to include distribution for the Physical Plant Building which is proposed to be located on the opposite side of West Campus Drive.

North Garage: Chilled water demand to this structure will depend upon the cooling load the adjoining PE. Chilled water is available in existing PE but cooling loads will have to be evaluated to determine if the existing distribution infrastructure has sufficient capacity.

PE Addition and Outdoor Facilities: This new building will require cooling for the occupied spaces. Chilled water is available in the existing PE but cooling loads will have to be evaluated to determine if the existing distribution infrastructure has sufficient capacity.

SV: The cooling need for the proposed SV will be supplied from either a satellite facility located in the building footprint or from a refurbished central plant located in the HU. Regardless of the cooling source, a high performance underground chilled water distribution system will be installed from this building, south, to HU and tie into the campus central distribution network. Chilled water piping will branch from this building to TC in order to replace existing aging underground piping between HU and TC and west

towards the proposed Physical Plant Building if not already served from the refurbished MT line. High performance natural refrigerant chillers, ice thermal storage, natural gas fueled engine driven chillers with heat recovery and high performance underground distribution systems will be incorporated in all new or renovated chilled water plant facilities.

Campus Mall Phase 2: The underground chilled water distribution network should be replaced as part of this work. Aging piping should be replaced as well as extension southward to accommodate connection to future buildings and satellite chilled water facilities.

South Campus Instructional Building: Existing chilled water capacity should be sufficient to meet the future needs of this building. Construction of the proposed PA addition will interfere with existing underground chilled water piping which will have to be re-routed.

CC: Existing chilled water distribution system piping to the building is adequately sized for the proposed renovation. Exterior underground branch and main piping has reached the end of its' useful life and should be replaced. Main distribution piping located to the west of the building should be replaced either during this renovation if not already replaced during Campus Mall Phase 2 work. Aging service entrance equipment should be replaced and the satellite chiller and its' infrastructure refurbished.

HU Addition: Existing chilled water distribution system piping is adequately sized for future use of this building, however, underground main and branch distribution systems have reached the end of their useful lives. Renovation of this facility should also include replacement of adjacent underground and service entrance infrastructure.

TT: Existing chilled water distribution system piping installed in the early 1990s to support the GU was sized to support chilled water demands for a new building of similar size and chilled water demand on this site. Confirmation of capacities, condition of exterior underground supply piping should be determined as part of the update to the 2006 Utilities Master Plan prior to implementation of this master plan.

GU: Existing chilled water supply systems should be adequate for renovation of this building; however, aging HVAC infrastructure will need to be replaced. Condition and capacity of exterior underground supply piping should be determined as part of the update to the 2006 Utilities Master Plan prior to implementation of this Facilities Master Plan. Arrangements for infrastructure upgrades should be coordinated with the new TT.

Arts Building North and Arts Building South: An existing chilled water distribution system is located just north of this site at the northeast corner of TA. A new 12-inch diameter high performance underground piping system should be extended south, under the Campus Mall, to the Arts Building North and Arts Building South Additions. This piping should be terminated such that it can be extended further southward and eventually connect to the satellite plant facility proposed for the Library Resource Center. Plant capacities should be verified and compared to building demand to determine if additional cooling capacity is required.

South Garage: The proposed South Garage parking structure itself will need little or no chilled water for space conditioning unless its footprint includes additional occupied space. Depending upon the construction phasing of this structure and the phasing of other adjacent buildings, a central plant may be located in this footprint rather than in the footprint of the Library Resource Center. Space could also be allocated

in the footprint to house the ice thermal storage system, as was done in the West Garage on the Takoma Park/Silver Spring Campus. An update to the 2006 Utilities Master plan should be completed prior to implementation of this Master Plan.

Humanities and Social Sciences Building: This new building will be located on the footprint of the demolished TC. Chilled water will be distributed from the plant or distribution system installed as part of the new SV. Consideration should be given to additional chilled water distribution to the west to support the proposed Physical Plant Building cooling requirements unless already coordinated with the MT distribution system replacement.

HU Building: This renovation may need to include HVAC system upgrades since the equipment will be reaching its' 20 year life. Chilled water systems upgrades will be required as well as any central chilled water plant equipment replacements not previously completed. Expansion to include additional chillers, heat exchangers, cooling towers, and ice modules is possible if necessary. These options should be evaluated in the update to the 2006 Utilities Master Plan.

Library Resource Center: A new satellite hot water and chilled water plant and distribution system will be included in this building. The new plant will use high performance chillers, ammonia refrigeration, ice thermal storage, and natural gas engine driven chillers with heat recovery. Plant capacity should be sized to serve the south and east side of campus and coordinated with plant capacity in HU, SC and SV. High performance underground distribution system piping will be installed and connected to the existing hot water distribution system on the east side of campus. Depending upon the phasing portions of this plant, i.e. ice thermal storage or the whole plant could be incorporated into the footprint of the South Garage. These options should be evaluated in the update to the 2006 Utilities Master Plan.

PA: The foot print of this addition will require relocation of the existing chilled after distribution to both the north side of existing PA and east side to South Campus Instructional Building. A new high performance chilled water distribution system should be installed from the chilled water mains located in the athletic fields just north of the PA and appropriately sized and routed to serve both new and existing structures. Coordination will be required to accommodate interference with existing HVAC infrastructure inside north and east areas of the PA. Coordination will be required with exterior chilled water infrastructure, i.e. chillers and underground piping which is located on the north side of the building. Update to the 2006 Utilities Master Plan should be completed prior to implementation of the Facilities Master Plan.

CH: CH is an all electric facility and because of its remote location does not have ready access to chilled water distribution. Replacement and expansion of existing heating capacity should include an evaluation of a ground coupled heat pump system.

Physical Plant Building: The proposed Physical Plant Building will require a chilled water service. Consideration should be given to supplying this building with chilled water from the central distribution system, either from an upgraded MT chilled water supply line or from a underground chilled water supply line installed as part of the Humanities and Social Sciences building construction. Update to the 2006 Utilities Master Plan should be completed prior to implementation of the Master Plan.

Natural Gas System

Prior to this Facilities Master Plan implementation, an update to the 2006 Utilities Master Plan should evaluate the requirements for expansion of the campus natural gas system. This evaluation should be co-

ordinated with WGL and include impacts of development to both the north and to the south campus. The current 6-inch diameter gas main from Mannakee Street, branches west and east on the south side of the SC. It extends to the west and north to the HU Central Plant, then to campus house lines and to the east and north to serve SC and natural gas loads on the east side of campus. The majority of underground lines are non-corrosive cross linked polypropylene. A small portion of the original WGL lines carbon steel and should be replaced with the cross linked polypropylene. The large utility gas line easement located in the north parking areas is not affected by any proposed building projects.

SE and SW Renovations: After renovation, SE and SW will no longer require natural gas service. The original buildings were served by a metered low pressure natural gas service from WGL which entered at the south west corner of SE. The metered utility service was discontinued when the building was connected in the mid-1990s to a College owned house line from the HU service. Site work for the renovation can remove the house line and terminate it on the north side of the complex.

MT Renovation: The MT will not need natural gas service. The original natural gas emergency generator was replaced in the mid-2000s with a diesel fueled emergency generator. The College owned house gas line was capped but remains connected to the house main which runs adjacent to the central plant piping distribution trench. This line can be disconnected from the main and abandoned in place at the same time the site work is being completed for the SE and SW renovations.

North Garage: This new building will not require natural gas unless the program space occupied by PE requires a fuel source for clothes drying. If natural gas is required a College owned house line should be extended from the existing meter located on the north side of AR and MU.

PE Addition and Outdoor Facilities: This new building will not require natural gas unless the program space occupied by PE requires a fuel source for clothes drying. If natural gas is required a college owned house line should be extended from the existing meter located on the north side of AR and MU.

SV: The proposed SV will have a central hot water plant located in its footprint. The existing 6-inch diameter WGL gas line that currently supplies natural gas to the northwest corner of the HU central plant and to a separate meter for College house gas lines can be extended. Once the central heating functions are transferred to SV the interruptible rate service can be removed. The firm rate meter supplying gas to the College's house line will most likely remain.

Campus Mall Phase 2: The existing SV will be demolished and a mall will be installed in its' place. The College-owned natural gas house line currently serving the building can be capped at the main and removed. Opportunity exists to include natural gas utility infrastructure improvements during mall construction.

South Campus Instructional Building: Natural gas is not currently supplied to this building nor is it required in the future.

CC: Natural gas is supplied to this building through a College owned underground house line. Gas is used in this building for cooking in the cafeteria and for the Hospitality Management Program training kitchen.

HU Addition: Natural gas is not currently supplied to this building nor is it required in the future. However, if exterior site involves the underground distribution system then the gas line on the west side of the

building can be removed and capped since gas supply is no longer required south of the building.

TT: Natural gas may be required to support program laboratory requirements. An existing metered utility service is located on the southwest side of GU. A house line can be extended from this service to the TT.

GU: A metered natural gas service exist at this building and is used in the HVAC lab program.

Arts Building North and Arts Building South: Natural gas may be required to support programs in this building. A College owned house gas line should be extended from the existing metered service located on the north side of Arts Building North and Arts Building South. Existing WGL underground lines now serving the metered service at Arts Building North and Arts Building South will need to be relocated and upgraded from carbon steel to cross linked polypropylene.

South Garage: This building will not need natural gas service unless it is decided that the satellite hot water and chilled water plant should be located in this structure. If so then the existing 6-inch diameter WGL gas line serving SC can be extended east to a new metered service.

Humanities and Social Sciences Building: There is currently no natural gas supply to the TC.

HU Building: The 6-inch diameter WGL natural gas line serving this building originates on Mannakee Street and is the terminus of the western branch. An interruptible rate and firm rate metered service are located on the northwest side of the building and serve the central heating plant and College owned house lines. The interruptible rate natural gas metered service can be removed once the campus heating functions are transferred to the proposed SV and the remaining engine driven chiller loads can be transferred to the firm gas meter. The firm gas meter will remain to serve the College's house gas lines.

Library Resource Center: The building will require a new firm gas metered service to support the proposed satellite hot water plant functions, assuming those functions have not been incorporated into the South Garage. A 6-inch branch line can be extended from the new WGL gas main that was installed on the east side of SC.

PA: There is currently no natural gas supply to the PA and no service is required to this or the addition in the future unless there is a requirement for a gas fueled clothes dryer in the dressing rooms.

CH: There is currently no natural gas service to this building and none is required in the future.

Physical Plant Building: The proposed Physical Plant Building may require natural gas if HVAC requirements are not supplied from the central hot water and chilled water system. A new firm gas metered service can be supplied by WGL from the 6-inch diameter main located in the eastern curb of West Campus Drive.

Electrical Systems

General: The existing PEPCO high voltage distribution system is capable of expanding and providing capacity to the campus but PEPCO should be included in all master plan discussion to determine their requirements such as College funded high voltage redundant loops. Furthermore, much of the existing utility owned infrastructure is in excess of 40 years old and has experienced age related failures which have disrupted College operations. Discussions with PEPCO should include upgrades to utility infrastructure.

Building designs will include capability to respond to electrical demand management programs or real time pricing signals, communicated using open protocols (BACnet) via the internet.

SE and SW Renovation: CS, SE and SW share a single high voltage feed and transformer which is located on the north side of SW. CH is fed from a low voltage circuit in SW. The service connections to these three buildings will be examined to determine feasibility of separating these services. The existing natural gas fueled life safety and standby emergency generator located in the southwest mechanical room of SE currently serves CS, SE and SW. A new diesel fueled generator is currently being installed as part of the SC project and will provide emergency and standby power to SC, SE and SW. Life safety circuits for the CS and SW buildings will have to be migrated to either temporary or permanent sources prior to SE renovation. A new electrical service will need to be installed for the CH, prior to renovation of SW and should be sized to anticipate the proposed CH expansion. Renovation design and construction phasing will need to consider the effects of electrical system disruptions, particularly with respect to the critical nature of the college-wide and campus-wide network operations functions that will remain in CS for the foreseeable future. See earlier discussion about these current and proposed functions under campus telecommunications.

MT Renovation: MT's electrical service entrance equipment, emergency generator and fire pump were upgraded in the mid-2000s. Branch circuit upgrades should be completed with each phase of the renovation.

North Garage: This building will require a new transformer and electrical service sized for the garage and any proposed operations and maintenance or physical education occupied space. A high voltage PEPCO feeder is located just west or under the proposed building footprint. The existing high voltage feeder will have to be moved out of the building footprint as necessary and will require significant coordination since the high voltage feeder serves all buildings east of the center core. This circuit can also be fed from the south from a switched feed from Mannakee Street. An emergency generator may be included in this building's footprint as a logical location for life safety systems to support the garage/PE Addition complex. The emergency generator should be sized to accommodate life safety and standby loads in North Garage, PE Addition and existing PE.

PE Addition and Outdoor Facilities: This new building's electrical and life safety systems will be extended from the existing infrastructure in North Garage, the utility infrastructure for North Garage applies to this building. Electrical utility requirements for Outdoor Facilities will be extended from existing electrical systems in the adjacent buildings.

SV: The proposed SV footprint will require relocation of a 13.2 kV main PEPCO feeder which serves CC, SV and TA. The SV will require a new service which can be fed from the existing 13.2 kV feeder. Installation of the new service, relocation of the existing high voltage feeder and coordination of outages with existing building services will need to be included in this project. Technical Center electrical service interference is possible depending upon the extent of site construction to the west. An emergency standby generator will provide life safety loads and serve standby loads as required depending upon the requirements for the campus telecommunication circuits point of presence.

Campus Mall Phase 2: Underground electrical utility services should be upgraded as part of this project. Demolition of existing SV will require removal of the existing electrical service and feeders from the common transformer serving CC, SV and TA. Extension of the high voltage feeders from the existing transformer vaults may be required to serve the proposed Arts North Building and Arts South Building complex.

South Campus Instructional Building: This building is served by a high voltage PEPCO feeder from the north through the PA transformer enclosure and from a switched feeder from the south from Mannakee Street. PA addition will require relocation of this feeder.

CC: The CC electrical service entrance, branch circuits and emergency standby generator were replaced in mid-2000s. Renovations may require reconfiguration of branch electrical circuits.

HU Addition: CS currently shares a transformer with SE and SW. During the schematic design of SE segregation of services will need to be investigated. College network operations currently exist in this building and provide back-up to network functions that reside in the Cafritz Arts Center on the Takoma Park/Silver Spring. If these functions remain in place additional redundancy and coordination with standby power systems will be required.

TT: An existing high voltage service and pad mounted transformer, located on the north, provides power to the existing TT. This service will have to be demolished and relocated to make way for the new building. Life safety requirements for this new building and the existing GU should be evaluated to determine if a shared generator is the most cost effective option.

GU: Renovation of the GU will not require a new electrical service; however, condition of switch gear should be evaluated for replacement as well as internal building distribution and sub panels. Coordination with the new TT's life safety loads should determine if a shared generator is the most cost effective option.

Arts Building North and Arts Building South: These two new buildings will require new electrical service and will most likely be served by an existing PEPCO high voltage feeder which is located on the west side of the campus core. However, PEPCO may require that the service be provided from high voltage feeder currently feeding the center core. An emergency standby generator will be included in the first building to be built and should be sized to accommodate adjacent existing and proposed buildings. The Counseling and Advising Building (CB) demolition will require removal of the existing secondary service and the existing transformer vault may be reused or expanded to accommodate the new buildings. Size of the electrical service will be dependent upon the location of the satellite plant facility and should be evaluated in the update to the 2006 Utilities Master Plan prior to this Facilities Master Plan implementation.

South Garage: The building will require a new electrical service and most likely be served by an existing PEPCO high voltage feeder which is located on the west side of the center core. An emergency standby generator may be required or served by emergency capacity from adjoining buildings. Size of the electrical service will be dependent upon the location of the satellite plant facility and should be evaluated in the update to the 2006 Utilities Master Plan prior to this Facilities Master Plan implementation.

Humanities and Social Science Building: The building will require a new electrical service, most likely served from the existing high voltage feeder currently serving the TC from the northeast. Relocation of the vault may be required depending upon the building's footprint. An emergency standby generator sized for this building's loads will be required. The electrical service should be evaluated in the update to the 2006 Utilities Master Plan prior to Master Plan implementation.

HU Building: There are two electrical services to the HU; one service to the building and another to the central plant. HU renovation will most likely re-use the existing building service; however, condition of the service entrance equipment and branch circuits should be evaluated for life expectancy and replacement.

The central plant service should be evaluated based upon the proposed re-configuration of the central plant. Existing central plant equipment is a combination of 3 phase 480 and 230 volt services. The plant should be converted to 3 phase 480 volt for consistency. A new emergency stand-by generator will be required.

Library Resource Center: This new building will require a new electrical service sufficient to serve both the building and a satellite chilled water and hot water plant and distribution system unless the central plant facility has been incorporated into an earlier structure such as the Arts or South Garage. This building will require an emergency standby generator sufficiently sized to handle the life safety loads and other standby loads such as a second campus telecommunication circuits point of presence. The electrical service should be evaluated in the update to the 2006 Utilities Master Plan prior to this Facilities Master Plan implementation.

PA: The footprint of this addition will require relocation of the existing transformer to the north and to the high voltage loop feeder to the east. A new building service should be installed to accommodate the addition and be coordinated with the recently renovated building service. The existing emergency generator which was installed in 2007 will need to be relocated and re-used depending upon the new emergency load requirements, or a new generator should be installed.

CH: CH is currently served by circuit from the SW building. A new electrical service should be installed prior to renovation of the SW building and should be sized to accommodate the proposed expansion.

Physical Plant Building: The proposed Physical Plant Building will require a new electrical service and its' size will be dependent upon whether the building is connected to the central hot water and chilled water distribution system or is served by its own systems. An emergency standby generator will be installed. The electrical service should be evaluated in the update to the 2006 Utilities Master Plan.

Site Generated Renewable Electricity

In general, all new and renovated buildings will be considered as candidates for site generated solar electricity. The new SC, SE and SW renovations all include roof mounted solar photovoltaics. Small wind turbines may also be considered.

Emergency and Stand-By Electrical Systems

Emergency and Stand-by electrical systems will be evaluated for each building and the trend will continue toward diesel fuel generator systems. These generators will be sized and configured to serve multiple structures, in order to optimize life cycle costs. Systems will also be evaluated to incorporate on-site power production as necessary to support "Smart Grid" efforts.

Building Automation Control Systems

New and renovated direct digital control (DDC) building automation control systems (BAC) will be competitively bid and comply with ASHRAE Standard 135, Building Automation Control Network, an open protocol (BACnet). College standard control sequences and demand management capabilities will be integrated with real time utility pricing signals and "Smart Grid" technologies. Central plant ice thermal storage and cogeneration efficiencies will be optimized. BACnet Ethernet message will be transmitted over the College's Facilities Network (FNet), have virtual local area network capabilities (VLAN) and use the College's standard object and network numbering scheme. Major equipment such as variable frequency drives, chillers and boilers will be fully integrated and controlled, while building systems such as

fire alarms, security and access control systems will be integrated and supervised. Integration of building control systems with remote central plant, satellite plant and distribution control system functions will require controls integration beyond the building boundary. Space occupancy sensors will control lighting and HVAC terminal devices while daylighting sensors will reduce electrical lighting loads by optimizing the use of natural daylight. Small damper and valve actuators will be electrically powered while large central station valve and actuators will be powered by compressed pneumatic air. Building based operator work stations (OWS) with a graphic user interface (GUI) will allow local operator access to the building control system. Intra campus access will be through existing terminals or portable devices using vendor specific software or WEB Services while remote off campus access will be via secure VLAN internet access.

Fire Alarm and Emergency Notification Systems

New fire alarm and emergency notification systems will be included in all new and renovated building designs in accordance with College design standards. Fire alarm systems will be addressable, be connected to a remote UL/NFPA monitoring facility, capable of emergency notification, have a BACnet interface, and be capable of integrating with other networked campus fire alarm devices.

Security and Access Control Systems

Security and access control systems will be installed in all new and renovated buildings.

Pneumatic Air Systems

Pneumatic air systems (air driers, compressors, filters) which power controls, power pneumatic shop tools and which supply compressed air to academic laboratories will be located in the building as required. Central plant or central station control pneumatic air requirements will be evaluated as the trend toward electrical actuation will continue.

Information Technology (IT) Systems

An update to the Facilities Telecommunication Circuits Infrastructure Master Plan to support data, voice and cable TV should be incorporated into the update of the 2006 Utilities Master Plan in order to evaluate the campus requirements for facilities telecommunication circuits infrastructure. A new campus-wide direct buried conduit distribution network will be required to support new and renovated building construction since existing conduit and manhole systems are either full or have reached the end of their useful life. The current College standard distribution configuration is eight 5-inch direct buried conduits, ground accessible manholes and air blown fiber optic (ABFO) cable/interduct. All new and renovated buildings will require space for main distribution facilities (MDF), intermediate distribution facilities (IDF) and dedicated cooling systems to support telecommunication circuits operations. Dedicated electrical circuits, raceways and standard terminations will be required to support Montgomery College Television (MCTV) media broadcast operations. Mass video and emergency broadcast notification capabilities will be integrated with the fire alarm system and into video displays located in public areas. Opportunities for redundant access to public/utility telecommunication circuits infrastructure to the south on Mannakee Street will need to be evaluated. The following telecommunication circuits infrastructure items will need to be considered:

SV (new): The existing POP in HU will need to either be relocated to this building or re-fed since the footprint for the SV building conflicts with the existing overhead services.

SV Building Demolition (existing): Demolition of the existing SV will require relocation of the distribution hub currently located in this build.

CS: This building currently serves as a back-up network operations function for the College. The facilities telecommunication circuits infrastructure update to the 2006 Utilities Master Plan will determine future requirements and location for this activity.

Campus Telecommunication Circuits Infrastructure: The Facilities Telecommunication Circuits Infrastructure Master Plan recommended installation of a College standard eight 5-inch duct bank and manhole system. Portions of this system have been installed as part of the new and building site work and as part of the campus sidewalk replacement project. Site work associated with all projects should include this upgraded system.

Redundant Point of Presence: Redundant access to data, voice and cable TV from a point south on Manakee Street may be desirable in order to provide additional system reliability.

