

# FACILITIES MASTER PLAN

FEBRUARY, 2019



**WOR-WIC**  
COMMUNITY COLLEGE

**hord | coplan | macht**



Thank you for your interest in Wor-Wic's new facilities master plan.

In the next 10 years, our campus will be transformed – with a new sign on Route 50, a new entrance way that increases the visibility of the campus from afar, new vehicular patterns and the addition of several new buildings.

A new applied technology center will bring with it new programs designed to support local economic development efforts in existing, new and emerging technologies – including a makerspace for students and the community to create, invent and learn. A new learning commons will unify our academic community by bringing together the resource centers in each building into one central location, while the existing resource centers will be converted to needed program space. A wellness center will provide greater opportunities for students and employees to enjoy physical education, fitness and recreational activities.

An expanded maintenance building will improve the ability of our facilities management team to maintain our beautiful campus.

There are many people who contributed to the development of this master plan over the past seven months. I'd like to thank the board of trustees, our local government officials, members of the master plan steering committee, our team of consultants, and all of the employees and students who took time out from their busy schedules to provide their opinions about what our campus should look like in the future.

We hope you are as excited as we are about lies ahead for the campus of Wor-Wic Community College.

Thank you,

Dr. Murray K. Hoy  
President  
Wor-Wic Community College

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# i: WOR-WIC COMMUNITY COLLEGE BOARD OF TRUSTEES, SENIOR ADMINISTRATION, AND LOCAL COUNTY ELECTED OFFICIALS

## Wor-Wic Community College Board of Trustees

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Russell W. Blake, Vice Chairperson  
Andrew W. Booth  
Kimberly C. Gillis  
Morgan Hazel  
William H. Kerbin  
Lorraine Purnell-Ayres  
Dr. Murray K. Hoy, Secretary / Treasurer

## Wor-Wic Community College Senior Administration

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Dr. Kristin Mallory, Vice President for Academic Affairs  
Bryan Newton, Vice President for Enrollment Management and Student Services  
Jennifer A. Sandt, Vice President for Administrative Services  
Dr. Reenie McCormick, Vice President for Institutional Affairs

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Ernest F. Davis, Councilman  
Josh Hastings, Councilman  
Joe Holloway, Councilman  
Marc Kilmer, Councilman  
William R. McCain, Councilman

## Worcester County

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Joseph M Mitrecic, Vice President  
Anthony "Chip" W. Bertino, Jr., Commissioner  
Madison J. Bunting, Jr., Commissioner  
James C. "Bud" Church, Commissioner  
Theodore "Ted" J. Elder, Commissioner  
Joshua C. Nordstrom, Commissioner

## ii: INTRODUCTION

### Purpose, Scope

This Master Plan was undertaken to establish a framework for the physical growth and change that can be anticipated for Wor-Wic Community College (Wor-Wic). It provides projected enrollment growth and establishes space needs by discipline.

Capital projects to be implemented later than 2024 are noted as long term. For each major project that proceeds, the master plan will need to be followed by programming, design, and construction, unless programming or design have been undertaken already. The master plan does not attempt to design projects, but it does provide a campus development plan for the campus, identifying locations and establishing relationships of major components.

The Facilities Master Plan should be regarded as a working document, which will need to be periodically reviewed and updated; it is recommended that the update should occur in five years. As a 10-year master plan, the space needs are projected 10 years from the most recent Fall semester for which data is available, which was Fall 2017 at the time the space needs projections were developed one year later. The nominal planning horizon used in this report, then, is 2027.

This report is both a master plan and facilities assessment. The facilities assessment component provides an inventory and evaluation for the site infrastructure, buildings, and building systems for the campus. This provides the foundation for the evaluation, both quantitatively and qualitatively, of the facilities and for recommendations for improvements to the site and buildings.

Because of inevitable unforeseen changes in programs, priorities, policies, and funding, this Facilities Master Plan should be viewed as a fluid document that is a conceptual tool and guide for making decisions regarding the College's physical resources. This document integrates academic and physical planning on a campus-wide basis; as facility and site development needs change or are newly

identified, they must be incorporated into subsequent plan updates.

The planning process for development of this Facilities Master Plan results in a long-range planning document that addresses a broad range of subjects:

- Review of the College's vision, mission, functional and instructional program emphases, and organizational structure.
- Description of the students in terms of credit participation and choice of academic programs.
- Academic programs and projections of institutional growth.
- Inventory of existing facilities and patterns of physical development.
- Identification of projects that are needed to support the programs, personnel, and students of the College for the next ten years.

The information contained in this Facilities Master Plan serves various purposes. It affords the College a written reference that can be used to facilitate communication within the Wor-Wic community and with representatives of local and state review agencies. This document provides the rationale for physical improvements and serves as the basis for long-range capital development.

Inventory data concerning the existing facilities are collected and presented. Alternative actions to deliver improved educational facilities are presented. Recommendations are provided for renovation, replacement, and/or new construction as necessary, and priorities are suggested for the recommended facilities actions. In brief, this document aggregates the inventory of existing facilities and physical resources, identifies current and future facility needs of Wor-Wic, and then provides a framework for achieving the required additional facilities.

## Methodology

The Master Plan was developed beginning August 2018. Information gathering began with the College providing information on the facilities, institutional history, enrollment, programs and operations. Serving as the basis for current and future space needs, the enrollment and projected enrollment were established by Wor-Wic, incorporating MHEC projections and planned program expansion. Using MHEC formulae, space needs were determined and allocated according to HEGIS code. Interviews, focus groups, and workshops were conducted with staff, faculty, and the steering committee for the master plan to solicit input from the College community.

Parallel to these efforts, the buildings were documented narratively and photographically. Previous reports were examined, considered, and incorporated with the consultant team's more current evaluations. Site conditions were evaluated in the same way. The consultants visited the campus, assessed the condition of all buildings and the site, and integrated their assessments with the evaluations by Wor-Wic. Combining considerations of formula-

driven space needs calculations, as well as qualitative factors, the consultant team and College developed a list of recommended capital projects and other initiatives recommended by the consultant team for consideration by the College. Alternative site development plans were developed to accommodate capital projects, including both renovations and proposed new construction. A preferred plan was selected and refined, ultimately becoming the selected development plan for this report.

## Organization of the Report

Chapter 1	Executive Summary
Chapter 2	Overview of the College
Chapter 3	Space Needs
Chapter 4	The Campus Today
Chapter 5	Looking to the Future
	Appendix

### iii: ACKNOWLEDGEMENTS

Any project such as this requires a great deal of help from many people. We conducted twenty interviews with several members of the College community, including representatives of the administration, faculty, staff, students, and County and State planners. All had helpful opinions and information to share. The President of the College, Dr. Ray Hoy, and other members of the Steering Committee have contributed their time, knowledge of the College, and thoughtful comments on the College's needs. In particular, Jennifer Sandt, Vice President for Administrative Services, provided important data, timely decisions, and helpful perspective to the benefit of the consultant team and to the betterment of the Facilities Master Plan.

The College's Facilities Master Plan Steering Committee consisted of the following persons:

- Jennifer Sandt, Vice President for Administrative Services (committee chair)
- Dr. Murray K. Hoy, President
- Dr. Reenie McCormick, Vice President for Institutional Affairs
- Bryan Newton, Vice President for Enrollment Management and Student Services
- Dr. Kristin Mallory, Vice President for Academic Affairs
- Allison Canada, Director of Purchasing & Auxiliary Services
- Gregory Grey, Senior Director of Facilities Management
- Will Preneta, Facilities Manager

The Consultant Team, led by Hord Coplan Macht, Inc., included the following firms and persons:

- |                                |                                 |
|--------------------------------|---------------------------------|
| Hord Coplan Macht, Inc.        | Architects, Planners            |
| Kevin King                     |                                 |
| Bruce Manger                   |                                 |
| Matthew Fitzsimmons            |                                 |
| Bin Liu                        |                                 |
| Facilities Planning Associates | Facilities Planners             |
| Rich Watkins                   |                                 |
| Al Robinson                    |                                 |
| DMS & Associates, Inc.         | Civil Engineers                 |
| Kevin Shearon                  |                                 |
| Gipe Associates, Inc.          | Mechanical-Electrical Engineers |
| Dave Hoffman                   |                                 |

# CHAPTER 1: EXECUTIVE SUMMARY

This Facilities Master Plan (FMP) was undertaken to establish a framework for the physical growth and change that can be anticipated for Wor-Wic Community College over the next ten years and beyond. It establishes projected enrollment growth and space needs and lays out a direction for orderly growth of the campus. Several capital projects are identified and others are suggested. For each major project the FMP will need to be followed by programming, design and construction. The plan does not attempt to design projects, but it does provide a campus development plan which suggests locations for specific projects and organizes them within the boundaries of the current campus.

## BACKGROUND

In June 1975 the Maryland State Board of Community Colleges approved the creation of a community college to serve the post-secondary vocational and technical education needs of the residents of Worcester and Wicomico counties, and, later, Somerset County. The three counties comprise the region known as Maryland's Lower Eastern Shore. Continuing education courses in temporary facilities were offered in the fall of 1975, and the college opened its doors to credit program students in the fall of 1976. After almost 20 years of leasing classroom and office space in its service area, the college purchased 173 acres on the southeast corner of Route 50 and Walston Switch Road in Salisbury to develop a permanent campus. Construction was started in 1993, and the campus officially opened with three buildings in the fall of 1994.

In 2019, the College will celebrate its 25<sup>th</sup> year of educating and training students at the campus. In that time, the college has seen significant growth in enrollment, programs, and its improved campus, expanding to 214 acres and 9 buildings. Since the 2006 Facilities Master Plan, two significant buildings were constructed, and the College has invested in strategic infrastructure, site improvements, and renovations. Already strong academic programs have become stronger, and additional programs will be added during the planning horizon of this Facilities Master Plan (10 years). From 3,739 students in 2012 to 3,110 in 2017, the Fall semester benchmark for this study, the College has seen a pause in its growth, which is forecasted to reach 4,346 students (40% increase) in this ten-year period. As the College has met similar challenges to accommodate growth in its decades of operation, while keeping cost per credit hour one of the lowest in the State, it needs an updated planning framework to meet current and future needs. This plan provides that framework.





## PROGRAMS OF STUDY

Wor-Wic has skillfully, efficiently and smartly administered its programs, education and training to facilitate its students' paths to further their education through transfer programs and prepare them for direct entry to careers. The Lower Eastern Shore has also experienced steady growth over the past 25 years in population, industry, jobs, land use, and visitors. The College has oriented and developed its programs to address the needs of the major industries driving the economy of the Lower Eastern Shore, including healthcare and related senior services and facilities, education, hospitality, gaming, ship-building, and several other industries providing goods and services to the residents and businesses of the region. It fills a need not provided by any other institution on the Lower Eastern Shore.



Credit offerings are organized under the following programs: biology, business, chemical dependency counseling, computer studies, criminal justice, education, emergency medical services, general studies, hotel-motel-restaurant management, nursing, occupational therapy assistant, office technology, physical therapist assistant, and radiologic technology. Degree programs include: Associate of Arts (A.A.), Associate of Arts in Teaching (A.A.T), Associate of Science (A.S.), and Associate of Applied Science (A.A.S.)

## ENROLLMENT

In the fall term of 2017 Wor-Wic Community College enrolled 3,110 students, generating 26,226 credit hours of enrollment – 79% day, 21% evening, and not including an additional 2,301 online credit hours. In the same fall term, 2,605 students enrolled in non-credit continuing education courses. The forecasted 40% enrollment increase to 4,346 students in 2027 further swells current space deficits.



## SUMMARY OF NEEDS AND PROPOSED PROJECTS

As the College has seen steady growth, it has also experienced the current and continuing need for facilities to accommodate its programs. Existing buildings, totaling over 300,000 GSF (Gross Square Feet), while regularly updated and re-configured as funds permit, are not sufficient to accommodate current needs, let alone future. Deficits exist in almost every category of building functions, and those deficits are forecasted to grow through the next decade.

Major 2027 deficits in NASF (Net Assignable Square Feet) include:

• Athletics / Physical Education	30,449
• Office / Conference	20,464
• Study (Library)	9,189
• Labs	6,996
• Assembly	7,388
• Shop / Storage	5,315
• Central Services	3,418
• Classrooms	3,311
• Food Service	2,149

Including other categories with smaller needs, the total forecasted 2027 deficit is 97,734 NASF. The Athletics / Physical Education category alone equates to a 50,000-80,000 +/- square-foot facility. Taken together, the others equaling 67,285 NASF, equate to about 120,000 GSF in new construction or additions, or about three buildings the size of Guerrieri Hall. This plan identifies the need for three new major buildings to be constructed in the next five to twenty years: 1) Applied Technology Center, anticipated to be a 40,000 GSF building, 2) Learning Commons also at 40,000 GSF, and 3) the Wellness Center (= Athletics / Physical Education Building described above) estimated at 50,000 – 80,000 GSF. Other future (long term) academic buildings are also shown in the proposed campus development plan and are projected to be in the range of 35,000 GSF each.

While the campus is relatively new, its older buildings and their building systems have aged to the point where significant renovations will be needed. Partial to comprehensive renovations will be needed for Brunkhorst Hall, Maner Technology Center, Henson Hall and Guerrieri Hall, which are now between 18-25 years old; already, much of the mechanical equipment serving those buildings needs to be replaced. When new buildings are built to provide needed space for expanding programs and functions, the vacated space in existing buildings will also need to be re-purposed and renovated, such as the Nursing Lab on the second floor in Henson Hall and the Information Technology suite in Shockley Hall. When the proposed Wellness Center is constructed, the existing small gym in Guerrieri Hall could be re-purposed to also add an additional level within the volume of the gym.

New buildings, additions and renovations are needed to accommodate growth in all departments and functions and services. Proposed capital projects include:

1. New Applied Technology Center and Related Roadway Improvements\*
2. Landscape and site furnishings improvements\*
3. Gateway signage and landscaping at the US 50 – Walston Switch Road intersection\*
4. New Learning Commons\*
5. Re-configure and expand Brunkhorst Hall Parking Lot\*
6. Renovate Brunkhorst Hall
7. Expand Maintenance Building
8. New Wellness / Physical Education Center
9. Renovate Henson Hall
10. Renovate Guerrieri Hall
11. Expand and renovate Hazel Center
12. Additional academic buildings (long term)
13. Additional parking (long term)

\*Short Term – through 2024

A description of each of the above proposed capital projects is included in Chapter 5.

## ACCESS, CAMPUS DEVELOPMENT

In addition to quantitative and qualitative building and building systems issues to be addressed by proposed projects, several campus-wide considerations related to access, way-finding, vehicular and pedestrian circulation and safety, parking, utility services, drainage, landscaping and gathering spaces, while remarkable in their beauty and condition, nonetheless can be enhanced and strengthened. The following paragraphs describe these elements and present strategies to improve the built environment beyond the campus buildings.

Access to the campus is primarily by private vehicle. The great majority of students, staff, faculty and visitors arrive from the greater Salisbury area, and bus ridership is similar albeit at a much smaller volume. While an on-campus stop for Shore Transit allows some students to bus to campus, service is varied relative to location, and the commute for some students can be up to two hours, including waits and transfers. In addition to Salisbury, Shore Transit service extends to Ocean City, Berlin, Princess Anne, Pocomoke City, and Crisfield.

The campus location on US Route 50 is within five miles of Salisbury and affords a strategic location relative to access and visibility. At 214 acres, including some protected forests and streams, the campus will easily accommodate growth planned in this Facilities Master Plan, including buildings, parking, and roads. Existing development occupies about 50 acres at the north-west corner of the site. The topography is relatively flat, varying up to 10 feet from low to high, between about 50-60 feet above sea level for most of the site. Occasional ponding is reported to have increased in recent years, and drainage is regularly a challenge for new construction projects. The campus is served by public water and sewer, and utilities are adequate not only for current needs, but for at least the next ten years. Electrical service is generally dependable and will need to be extended to serve future buildings. A new sign at the intersection of Walston Switch Road and US Route 50 is proposed as part of this report.



The natural environment of the campus stands in positive contrast to the more formal configuration of the buildings and quadrangles of the campus core, which are maintained with care. The layout of site furnishings, the allocation of informal spaces within the buildings, and the distribution of programs in certain buildings may tend to limit interaction and collaboration between students and between students and faculty. This plan suggests exploration of strategies to encourage interaction and collaboration, as building and site programs and designs are developed and as furnishings are selected for proposed new and renovation projects.

The development plan reflects key attributes of smart growth principles. New buildings are located on previously disturbed sites, minimizing impact to sensitive environmental features, particularly the stream buffers and the expansive forest areas. Proposed buildings are generally two-to-three stories and maintain the scale and character of existing campus buildings. The compact campus reinforces the college's identity and sense of place while creating a walkable environment.

Roadway improvements from Walston Switch Road will enhance the sense of arrival for visitors, improve access options and eliminate cars from the academic core. A new straight alignment between the traffic circle and Brunkhorst Hall reinforces the main east-west axis of the campus, creates an intuitive route for visitors and transit services and expands visitor parking capacity. From that entrance road between Walston Switch Road and the new Brunkhorst Hall lot, a reconfigured and dualized road extending to the south and around the new Applied Technology Building will provide a more direct connection to the south parking lots. The north-south campus drive between South Lots 1 and 2 extending north to the west side of the north lot will be replaced by a fire lane / pedestrian way, improving pedestrian safety while allowing access to service and emergency vehicles. Similarly, the exit road between Brunkhorst Hall and Maner Technology Center will be eliminated, improving pedestrian safety and allowing traffic to exit the campus more directly to Walston Switch Road.

A surplus of parking accommodates current need and will support future campus growth over the next five-to-ten years. New parking will need to be provided when new buildings displace existing parking lots. Parking lot expansion is mainly proposed south of the existing southern parking lots. As lots are constructed, a new access road will be expanded between Horsebridge and Shortridge Drive to complete the roadway network and minimize congestion within the parking lots.

Landscape and open space improvements will continue to strengthen pedestrian connectivity and encourage outdoor experiences throughout the campus. Shade trees will provide an additional layer of spatial definition for quads and walkways, soften the architectural form and reduce urban heat. New building projects should create outdoor seating areas to encourage social interaction. Landscape design

should integrate storm water management with a consistent and indigenous planting palette to reinforce the sense of place. Design standards for paving, site furniture, and site lighting are recommended, to continue to reinforce campus identity for future projects affecting these components.

### Guiding Principles

- Strengthen the College's impact on the economic development, education and training in the Lower Eastern Shore
- Enhance visibility and access to the campus
- Preserve the traditional campus identity
- Create spaces that encourage interaction



Existing Buildings

- BH Brunckhorst Hall
- MTC Maner Technology Center
- HC Hazel Center
- HH Henson Hall
- GH Guerrieri Hall
- JC Jordan Center
- MB Maintenance Building
- FOH Fulton-Owen Hall
- SH Shockley Hall

*Existing Campus Plan 2019*



Proposed Buildings

- A Applied Technology Center
- B Learning Commons
- C Wellness Center
- D Future Academic Buildings
- E Maintenance Building Expansion

*Proposed Campus Development Plan*



# CHAPTER 2: COLLEGE OVERVIEW

Wor-Wic Community College, as do all public segments of higher education, must provide a new or updated Facilities Master Plan (FMP) to the State on an annual basis. The FMP outlines the orderly development of all capital improvements to support the role and mission of the institution. The FMP must be for a period no less than ten years and institutions should consider developing 20-year land use plans. Most capital construction results from the need to accommodate people, modernize or replace facilities, or provide space for services or programs. Therefore, the FMP should present information on each of these subjects. It should evaluate current conditions and projected needs, develop proposals for addressing any deficiencies noted, and present recommendations which will enable Wor-Wic to meet its goals over the time frame of the plan. These are Maryland requirements foundational to the state's capital budget review process. In order for Wor-Wic to request state capital funds for its campus development, it must comply.<sup>1</sup>

In order to assist and to contextualize understanding and ultimately support of the FMP by all audiences, Wor-Wic needs to address its origins and evolution. Wor-Wic must inform and/or educate the reader to the unique characteristics of its geography and people. Wor-Wic must identify factors influencing social, economic, cultural and other trends impacting its policies, programs and services. Last but not least, Wor-Wic must provide compelling reasons for the capital investments and its impact locally, regionally and state-wide.

In accordance with the above, the need for Wor-Wic is better understood in the context of the three counties that ultimately agreed there was an unmet postsecondary educational need - with two counties agreeing to provide local financial support: Worcester and Wicomico.

## SOMERSET, WORCESTER, AND WICOMICO COUNTIES

In order to fully understand the postsecondary education needs of the Lower Eastern Shore and the quintessential purpose of Wor-Wic, one must understand the beginnings of the counties, their current demographics; and current cultures that have transformed over time but are true to their beginnings. Somerset County was founded August 22, 1666. It is the southernmost county in the State of Maryland. Worcester County was created by the division of the formerly larger Somerset County in 1742 as the easternmost county in Maryland. Wicomico County was created from Somerset and Worcester counties in 1867.

"Somerset's first inhabitants, however, were the native tribes of the Lower Eastern Shore. Native American occupation of the region dates back thousands of years; its earliest inhabitants occupied a landscape far different than today with much lower sea levels. Spanning over fifteen to twenty thousand years, native American habitation matured from hunter-gatherers to settled communities of tribes who resided along the region's numerous waterways, many of which still carry their names. The Pocomoke, Manokin, Annemessex, Monie and Wicomico waterways are named for these native tribes. Native American occupation is also represented by the thousands of artifacts that turn up in the soil, or through the written historical record as Anglo-American explorers, traders and ultimately settlers interacted with them across the peninsula."<sup>2</sup>

Somerset County's motto says it all: "Semper Eadem" - - Always the Same - -. Somerset is miles of tidal bays and rivers, lush woodlands, smog less skies, and

<sup>1</sup> Code of Maryland Regulations (COMAR), Title 13B Maryland Higher Education Commission, Subtitle 07 Community Colleges, Chapter 4 Construction Procedures, regulation 03 Five-Year Capital Improvements Program/Annual Capital Budget Request Submission

<sup>2</sup> "Somerset 350: Where History Lives 1666-2016"; Retrieved from: <http://www.somersetmd.us/Documents/Somerset350.pdf>



seafood bounty. Somerset is a paradise for hunters, fishermen, photographers, kayakers, and nature lovers.<sup>3</sup> Somerset County is home to the University of Maryland Eastern Shore (UMES) a historic land grant university and a Historically Black College or University (HBCU) located in the county seat of Princess Anne. UMES was originally created to educate young black men and women when it was opened in 1886, today it is a multi-racial campus hosting faculty and students from all over the world.<sup>4</sup> Somerset County is an area rich in Eastern Shore and Maryland history, boasting more historic buildings and sites per capita than any other county in Maryland. Vividly reflecting the past is a wealth of surviving eighteenth and nineteenth century plantation, farm and town dwellings, churches and agricultural buildings.

Established in 1666 by Cecil Calvert, the second Lord Baltimore, Somerset was named in honor of his wife's sister, Lady Mary Somerset. As originally conceived, Somerset stretched from the bayside to the seaside and from the Virginia line to the Nanticoke River, encompassing what is now the three lower shore counties as well as a part of southern Delaware. Seventy-six years after its original creation, Somerset was divided in half, with the seaboard side established as Worcester County in 1742. Princess Anne, founded in 1733, was declared the new county seat of Somerset in 1744. In 1867, a portion of Somerset and a section of Worcester were partitioned to create Wicomico County.<sup>5</sup>

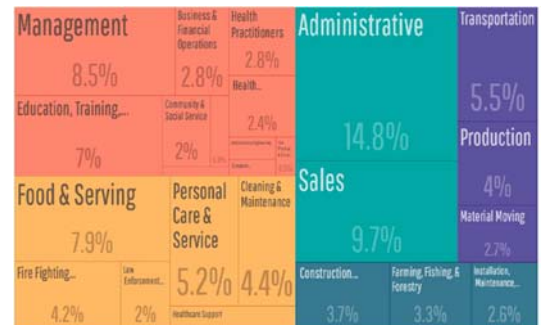
Somerset's primary occupations are reflected in the American Community Survey (ACS) 2013-2017 released in 2017. Most recent data are 2016.<sup>6</sup>

<sup>3</sup> Retrieved from URL: <http://www.somersetmd.us>

<sup>4</sup> Retrieved from URL: [http://lowershoreheritage.org/index.php/LESHeritage/interests\\_article/african-american-heritage/](http://lowershoreheritage.org/index.php/LESHeritage/interests_article/african-american-heritage/)

<sup>5</sup> *ibid*

### Employment by Occupation in Somerset County



Dataset: ACS 5-year Estimate

#### DATA USA

Source: Census Bureau

Note. The closest comparable data for the county of Somerset County, MD is from the public use microdata area of Salisbury City PUMA, MD.

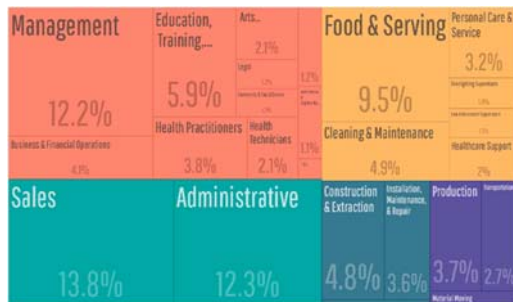
Worcester County is the easternmost county within the state of Maryland the county seat is the town of Snow Hill. The county was named for Mary Arundel, the wife of Sir John Somerset, a son of Henry Somerset, 1st Marquess of Worcester. She was the sister of Anne Arundel (for whom Anne Arundel County was named), wife of Cecil Calvert, the first Proprietor and Proprietary Governor of the Province of Maryland. The native peoples of Worcester were all part of the Algonquin Nations. They had similar language, dialects, and customs. Snow Hill was chartered in 1686; this small settlement grew and prospered as a farming and business community with the Pocomoke River playing a key role. Snow Hill became the county seat in 1742, when the county was formed. Imported goods came through Snow Hill to be taxed. In addition, Snow Hill was the home of a thriving shipbuilding industry. The railroad provided a new boost after the Civil War, continuing the town's importance in the shipping of goods. It has remained a trading, commercial and governmental hub of a rich agricultural area. Ocean City was a barren wind-swept barrier island separating the Atlantic Ocean from Sinepuxent Bay. It was primarily known to only a handful of fishermen until the Rhode Island Inn was

<sup>6</sup> United States Census Bureau, "Data USA – Tree Map of Employment by Industries in Somerset County", Retrieved from: <https://datausa.io/about/>

constructed to serve the fishermen and the few people who sought the beach as a summer refuge. In 1872, early developers of the island named it the "Ladies Resort of the Ocean" to infer it was a place of gentility and an attraction to families. To this day, that is how Ocean City is perceived and has grown to a year-round destination.<sup>7</sup> Ocean Pines is a planned residential community encompassing 3,500 acres with over nine miles of waterfront and waterways, twelve miles of canals, and 67 miles of surfaced roads. There are 700 platted lots in the community with 4,500 homes built or under construction. It opened July 12, 1968 and offers a diversity of lifestyle options from starter homes, condominiums and age-restricted communities to million-dollar estates. Worcester is included in the Salisbury, MD-DE Metropolitan Statistical Area. The county includes the entire length of the state's ocean coast and borders the Sinepuxent Bay, Assawoman Bay and Assateague Channel and Bay between the sand barrier islands of Assateague Island and Chincoteague Island. It is home to the popular vacation resort area of Ocean City, founded in 1875, as well as wild habitats on the wilderness areas on Assateague Island and in the Pocomoke River and Swamp.<sup>8</sup>

Primary occupations as reflected in the American Community Survey (ACS) 2013-2017 released in 2017. Most recent data are 2016:<sup>9</sup>

### Employment by Occupation in Worcester County



Dataset: ACS 5-year Estimate

#### DATA USA

Source: Census Bureau

**Note.** The closest comparable data for the county of Worcester County, MD is from the public use microdata area of Salisbury City PUMA, MD.

Wicomico County is one of "America's 100 Best Communities for Young People," for the many programs and activities available to nurture youth.<sup>10</sup> It is located on Maryland's Lower Eastern Shore -- less than a three-hour drive from Washington, Baltimore, Philadelphia and Norfolk. Atlantic Ocean resorts and Chesapeake Bay recreational attractions are only 30 miles away. Coming and going is quick and easy since Wicomico County is served by the only FAA-Certified Air Carrier airport on the Delmarva Peninsula. Created from neighboring Somerset and Worcester Counties in 1867, "Wicomico" is derived from the American Indian words "wicko" and "meeke" meaning "a place where houses are built." Wicomico's county seat, Salisbury, dates back to 1732. The area is rich in colonial and post-revolutionary American history. The town of Salisbury has been the center of Wicomico's social, political and economic life since before the Wicomico County was founded. Salisbury and environs are recognized as an urban area, but agriculture reigns as the county's main industry. Nationally-known Perdue Farms has its headquarters

<sup>7</sup> "Worcester County A Brief History", p.10, Retrieved from URL:

<http://www.co.worcester.md.us/departments/tourism>

<sup>8</sup> Ibid, p. 11

<sup>9</sup> United States Census Bureau, "Data USA Tree Map of Employment by Industries in Worcester County", Retrieved from: <https://datausa.io/about/>

<sup>10</sup> Retrieved from URL:

<http://www.americaspromise.org/wicomico-county-salisbury-maryland>

here. Whether you're a 'come here' or a 'from here' we know that you'll fall in love with this land of pleasant living and become a 'stay here.'<sup>11</sup> Wicomico County is home to Salisbury University and Wor-Wic Community College and it serves as a hub for commerce, industry, health care, education and transportation and is the number two agricultural producing county and ranks third in broiler chicken production. Wicomico's 2,500 businesses employ 37,200 workers; 50 of these businesses have 100 or more workers. Major employers are Chesapeake Shipbuilding, Delmarva Power, Jubilant Cadista Pharmaceuticals, K&L Microwave, Peninsula Regional Medical Center, Perdue Farms, Salisbury University and Tishcon. Wicomico County has a 5,223-acre State Enterprise Zone in Salisbury and a 129-acre zone in Fruitland.



Primary occupations are reflected in the American Community Survey (ACS) 2013-2017 released in 2017. Most recent data are 2016<sup>12</sup>

The Tri-County Council for the Lower Eastern Shore of Maryland was formed by an Act of the Maryland General Assembly in 2001. The purpose of the Council is to facilitate regional planning and development in Somerset, Wicomico, and Worcester counties.<sup>13</sup>

*Employment by Occupation in Wicomico County*



Dataset: ACS 5-year Estimate

DATA

**USA**

Source: Census Bureau

Note. The closest comparable data for the county of Wicomico County, MD is from the public use microdata area of Salisbury City PUMA, MD.

The Council membership is made up of municipal, county and state elected officials as well as the county administrators from the three counties. The voting members are the five Somerset County Commissioners, four of the seven Wicomico County Council members, the Wicomico County Executive, five of the seven Worcester County Commissioners, one municipal representative from each of the three Counties, and the members of the General Assembly who represent the region and have a majority of their districts within the three counties. Currently, there are twenty-three voting members, fourteen non-voting members and the full Council meets quarterly.

Together, Somerset, Worcester and Wicomico counties form the region known as the Lower Eastern Shore of Maryland.

The Council works closely with the Economic Development Administration (EDA) of the U.S. Department of Commerce and U.S. Department of Agriculture (USDA) Rural Development and partners with the Maryland Department of Commerce. In October 2009 the Tri-County Council for the Lower Eastern Shore of Maryland (TCC) procured the former

<sup>11</sup> Retrieved from URL: <http://www.wicomicocounty.org/323/New-Residents-Guide-to-County-Government>

<sup>12</sup> United States Census Bureau, "Data USA Tree Map of Employment by Industries in Wicomico County", Retrieved from: <https://datausa.io/about/>

<sup>13</sup> Retrieved from: <http://www.lowershore.org/AboutUs.aspx>

Filtronic/Comtek/ Powerwave property on Route 50 across from Wor-Wic Community College. This allowed the TCC to consolidate its Administrative and Executive Office, all four Shore Transit locations and the One Stop Job Market.<sup>14</sup>

In November 2009 the Council was designated as an Economic Development District (EDD) by the Economic Development Administration (EDA) of the U.S. Department of Commerce. This will allow the Council (on behalf of the counties) to apply directly to the EDA for funding. TCC's regional planning and economic development focuses on economic development, infrastructure, healthcare, geographic information systems, technology and visioning. Currently, the LES finds itself at a crossroads with its three largest basic industries—agriculture, poultry production, and tourism - facing significant challenges due to current economic trends. These trends pose a threat to the area's rural character as growth continues. The LES is seeking to promote economic diversity while retaining the historical nature of the region. Encouraging, while also controlling, this transition has dominated the planning process for the last two decades.<sup>15</sup>

## DEMOGRAPHICS AND CULTURE

In 1970, the U.S. Bureau of the Census<sup>16</sup> estimated the total population of Worcester County to be 24,442 with a median age of about 31.5. Wicomico County estimated to be 54,236 with a median age of about 30.0; and Somerset County to be 18,924 with a median age of about 32.1.

In 2017, the U.S. Census Bureau and the Maryland Department of Planning estimated the population in Worcester County to be about 51,690; the population in Wicomico County to be about 102,923; and the population in Somerset county to be about 25,918. The postsecondary primary age cohort of 20-44 is estimated to be currently 12,632 or 24.4% of the total

population in Worcester County with a secondary cohort of 45-64 to be 15,052 or 29.1%. In Wicomico County the postsecondary primary age cohort of 20-44 is estimated to be 33,780 or 32.8% of the total population with a secondary cohort of 45-64 to be 25,404 or 24.7%. In Somerset County the postsecondary primary age cohort of 20-44 is estimated to be 9,467 or 36.5% of the total population with a secondary cohort of 45-64 to be 6,486 or 25%. The educational attainment for residents age 25 and over from 2012-2016 in Worcester County is 89.6% with a high school diploma or higher and 29.9% of the total population with a bachelor's degree or higher; in Wicomico County it is 88.6% with a high school diploma or higher and 27.4% of the total population with a bachelor's degree or higher; and in Somerset County it is 79.2% with a high school diploma or higher and 14% with a bachelor's degree or higher. The average household income in Worcester County is approximately \$76,373; in Wicomico it is \$69,617; and in Somerset it is \$50,909.<sup>17</sup>

In 2020, the U.S. Census Bureau and the Maryland Department of Planning project Worcester County's population to be about 53,100 with a median age of about 50.5 years. Wicomico County's population to be about 106,200 and a median age of about 35.9 years. Somerset County's population to be about 26,750 with a median age of 37.0 years.<sup>18</sup>

## WOR-WIC COMMUNITY COLLEGE

The State of Maryland under the auspices of the Maryland State Department of Education and the Maryland State Board for Community Colleges (SBCC) conducted a study in 1974 of the needs for postsecondary vocational-technical education in four Lower Eastern Shore of Maryland counties (i.e., Dorchester, Somerset, Wicomico, and Worcester). Note: It was ultimately determined that the geographic distance of Dorchester's population from the other three counties militated against its inclusion in the

<sup>14</sup> *ibid*

<sup>15</sup> Tri-County Council; "Comprehensive Economic Development Strategy for the Lower Eastern Shore of Maryland"; revised June 2018, p.4

<sup>16</sup> MARYLAND, "Population of Counties by Decennial Census: 1900 to 1990"; Compiled and Edited by Richard L. Forstall; Population Division; U.S. Bureau of the Census; Washington, DC 20233; March 27, 1995.

<sup>17</sup> Maryland Department of Commerce; "Brief Economic Facts"; Retrieved from:

<http://commerce.maryland.gov/Documents/ResearchDocument/WorcesterBef.pdf>

<http://commerce.maryland.gov/Documents/ResearchDocument/WicomicoBef.pdf>

<http://commerce.maryland.gov/Documents/ResearchDocument/SomersetBef.pdf>

<sup>18</sup> *ibid*

catchment area for this new effort. Therefore, Dorchester was included within the regional catchment area of Chesapeake College (i.e., 'Upper Shore').

It was in June 1975 that SBCC approved a proposal for the creation of a community college to serve the postsecondary vocational and technical education needs of the residents of Worcester and Wicomico counties. The college was designated to operate as a "college without walls." In November 1975, the college's board of trustees appointed Dr. Arnold H. Maner to serve as president of the college. Continuing education courses were offered in the fall of 1975, and

the college opened its doors to credit program students in the fall of 1976.

After almost 20 years of leasing classroom and office space at various locations in its service area, the college purchased 173 acres on the southeast corner of Route 50 and Walston Switch Road in Salisbury to develop a permanent campus. Construction was started in 1993, and the campus officially opened in the fall of 1994. Its address is 32000 Campus drive, Salisbury, MD 21804. Its latitude is 38.3728° N, and longitude is 75.5006° W. It has an elevation of about 15 meters or 49 feet above sea level.

*Wor-Wic Community College Campus Aerial Photo*



The campus is located about 123 miles southeast of Baltimore, Md or about 2 hours 10 minutes on US-50 East, 122 miles southeast of Washington D.C. or about 2 hours 17 minutes on US-50 East or about 94 miles southeast of Annapolis, MD or about 1 hour 43 minutes. It is about 60 miles from Dover, Delaware or 1 hour 15 minutes via US-13 South. It is about 25

miles from Ocean City, MD via US-50 West. It is about 22 minutes from Princess Anne, MD or about 18 miles via US-13 North. Public transportation is available through Shore Transit with regional routes.

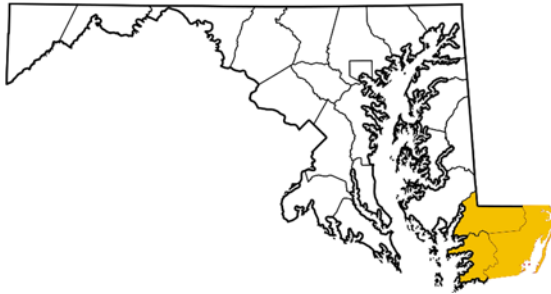
## AREA / VICINITY / LOCATION MAPS

Maryland's Lower Eastern Shore is a rural region with a wealth of historic, cultural and natural resources that distinguish it from other places in the state and country. The lower shore counties of Somerset, Wicomico and Worcester encompass a vast region stretching from the shorelines of Tangier Sound and Chesapeake Bay to the washed beaches of the Atlantic seaboard. The Lower Eastern Shore Heritage Area is the only place in Maryland where the shores of the Atlantic Ocean and the Chesapeake Bay are only an hour apart.

From earliest time, life on the Lower Eastern Shore has depended on the Atlantic Ocean, the Chesapeake Bay, its tributaries, the marshes and land between. Compelling evidence of past peoples and cultures reverberates throughout the various corners of the region. The Manokin, Nanticoke, Pocomoke and Wicomico Rivers and the outer bays connect the past and present, towns with history, and homes with open spaces.<sup>19</sup>



The Delmarva Peninsula has a land area of nearly 6,000 square miles. There are 2,000 miles of coastline for the Chesapeake Bay, 381 miles for the Delaware Bay and 150 miles coastline on the Atlantic Ocean. The highest elevation is 400 feet with most of the peninsula being at 35 feet above sea level.<sup>20</sup>



Wor-Wic Community College is located in Salisbury, Maryland, in Wicomico County. The area is served by the Tri-County Council for the Lower Eastern Shore of Maryland.

The College began the process of transforming itself from a "college without walls" to a campus-based institution in 1991. Wor-Wic created a facilities master plan (FMP) to guide its orderly and measured campus development. This FMP culminated in the opening of the new campus in 1994 with the dedication of the Academic and Administrative Building (subsequently named Brunkhorst Hall (BH), the Maner Technology Center (MTC), the original Student Center (subsequently named the Hazel Center (HC) and the Maintenance Building (MB). In 1997 the college purchased 29 acres immediately to the south of the existing campus. An additional 12 acres along the north side of Longridge Road was acquired in 2011.

After the original construction in 1994, new buildings such as Henson Hall (HH), Guerrieri Hall (GH), a new Maintenance Building (MB), Jordan Center (JC), Student Center now the Hazel Center (HC), and Workforce Development Center (subsequently named Fulton-Owen Hall (FOH) were constructed. Public water and sewer arrived in early 2006. A new and expanded Allied Health Building (AHB) subsequently named Shockley Hall (SH) opened in July 2011. All

<sup>19</sup> Retrieved from:  
[http://lowershoreheritage.org/index.php/LESHeritage/about\\_article/this-is-our-heritage/](http://lowershoreheritage.org/index.php/LESHeritage/about_article/this-is-our-heritage/)

<sup>20</sup> Retrieved from: <http://delmarvausa.com>

campus development has been in compliance with Code of Maryland Regulations (COMAR), Title 13B Maryland Higher Education Commission, Subtitle 07 Community Colleges, Chapter 4 Construction Procedures, Regulation 02 Facilities Master Plan. Accordingly, Wor-Wic had a new or updated Facilities Master Plan in 1997, 2001, 2006, 2011, 2012, 2013, 2014, 2015, 2016, 2017 and 2018. The current effort is intended to continue to build on this progress and continue to guide the next twenty-five years of campus build-out.

Wor-Wic provides affordable, high quality postsecondary credit programs and continuing education courses in a high technology environment. The college serves a diverse student population from current high school students to senior citizens. Its open-door admission policy and comprehensive support services enable Wor-Wic to provide educational opportunities for those who have the desire and ability to benefit from its courses and programs.<sup>21</sup>



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<sup>21</sup> Retrieved from:  
[https://mhec.maryland.gov/institutions\\_training/Pages/collegeinfodetails.aspx?SIC=115470](https://mhec.maryland.gov/institutions_training/Pages/collegeinfodetails.aspx?SIC=115470)

## MISSION, VISION, VALUES AND GOALS

"Start Here and Go Anywhere"

### Mission

Wor-Wic is a comprehensive community college that enhances local economic growth by addressing the educational, training and workforce development needs of residents of Worcester, Wicomico and Somerset counties. The college serves a diverse student body through its high quality, affordable educational offerings and comprehensive support services designed to facilitate student goal accomplishment.

### Vision

Wor-Wic will be a leader in enhancing the quality of life on the Lower Eastern Shore by developing a world-class workforce and providing excellence in education and training.

### Values

**Accessibility:** Accessibility is the availability of educational services for all members of the community regardless of geographic, physical or economic limitations.

**Community:** Community is the result of collaboration and cooperation among employees, students and stakeholders to meet the needs of the service area.

**Diversity:** Diversity is embracing all people, ideas and experiences by providing an inclusive and supportive environment.

**Integrity:** Integrity is honest and ethical behavior that allows for mutual respect, responsibility and accountability among employees, students and the community.

**Innovation:** Innovation is the adoption of new or creative ideas and technologies to enhance learning and institutional performance.

**Learning:** Learning is the acquisition of knowledge and skills that lead to intellectual and personal growth.

**Excellence:** Excellence is the highest level of performance, professionalism and standards.

### Goals

In support of its mission, vision and values, Wor-Wic has identified the following goals:

1. Provide service area residents with access to quality education and training at a reasonable cost.
2. Offer courses and programs to prepare students for entry into the workforce, career advancement, licensure, certification, transfer to four-year colleges and universities, and personal development.
3. Promote economic development by providing innovative programs and services that address needs of business, government, nonprofits and other community groups.
4. Provide students with the educational experiences and support services that help them achieve their goals through college completion and workforce preparation.
5. Partner with local high schools and universities to facilitate seamless transitions through the levels of education.
6. Attract and retain a diversity of students and employees.
7. Acquire appropriate human, financial and technological resources to meet institutional needs.
8. Ensure the highest quality of student learning, support services and the institutional effectiveness through the assessment process



## FIVE-YEAR STRATEGIC PLAN

Wor-Wic has a five-year strategic planning cycle to address critical challenges for our future. The cycle starts with the collection of information from employees, students, local business people and other members of our community, as well as a review of college and local area data.

### Strategic Priority One: Student Success

Increase student success by delivering relevant courses and programs, providing flexible scheduling and diverse delivery methods, and improving developmental education student outcomes. The goals are to:

- a. Strengthen the alignment of programs and courses with local employer needs.
- b. Enhance course availability, modality and scheduling.
- c. Increase student success in developmental education.

### Strategic Priority Two: Community Needs

Address community needs by developing and implementing a collegewide plan that focuses on student recruitment, retention, academic advising and other support strategies. The goals are to:

- a. Increase the recruitment of new students
- b. Improve student retention and completion rates.

- c. Enhance academic and career advisement for students.
- d. Expand student and academic support services.

### Strategic Priority Three: Institutional Effectiveness

Improve institutional effectiveness by expanding facilities and enhancing technology systems, processes and support. The goals are to:

- a. Expand facilities to address student and institutional needs.
- b. Strengthen technology and related services in support of teaching and learning.
- c. Enhance technology systems and processes to increase the effectiveness of college operations.
- d. Improve the dissemination of college information through the use of technology.

### Strategic Priority Four: High-Quality Workforce

Ensure a high-quality workforce by enhancing recruitment and hiring practices, addressing staffing needs and providing equity in compensation. The goals are to:

- a. Improve competitiveness of the college's salary and benefits structure.
- b. Ensure appropriate staffing levels throughout the college.
- c. Increase diversity in faculty and administrative positions.



## GOVERNANCE AND ORGANIZATION

Wor-Wic's leadership structure incorporates shared governance promoting input and decision-making from all parts of the campus. In addition to the president's staff that includes the president and vice presidents, a college council meets during the academic year to discuss issues impacting the college and approve policy changes. The college also has councils for its different types of employees including administrative, faculty and support staff. In response to a visit by the Middle States Commission on Higher Education (MCHE) to the Wor-Wic Community College campus from March 29 – April 1, 2015, the Evaluation Team determined that Wor-Wic Community College appeared to meet the standard for Leadership and Governance<sup>22</sup>

The Standard for Leadership and Governance states: "The institution's system of governance clearly defines the roles of institutional constituencies in policy development and decision-making. The governance structure includes an active governing body with sufficient autonomy to assure institutional integrity and to fulfill its responsibilities of policy and resource development, consistent with the mission of the institution."

Based on a review of the Self-Study and other institutional documents, the following conclusions are made relative to this standard:

- Authority for the Board of Trustees has been conferred by the State of Maryland. Board members are selected by the Governor. Board membership is stable, and all members appear active in the local community and representative of the region served by the college. The Board appears knowledgeable about issues not only facing the community, but the higher education system overall.
- There is a comprehensive set of by-laws and policies governing the Board and various college committees. The Board has a conflict of interest policy.
- Policies, procedures and responsibilities are clear and available on the College's web portal.

Board minutes also are published on the web portal and available for employees.

- There are three major "councils" on campus that represent College employees (faculty, administrative employees and support staff employees). Each council posts meeting minutes on the web portal. These groups, along with the Student Government Association, elect members to serve on the College Council. The College Council is an information sharing/recommending body of the College.
- The College uses employee satisfaction surveys to gauge employee feedback on communication and leadership matters and uses a self-evaluation instrument for its Board of Trustees.
- The effectiveness of the Board's leadership can be demonstrated by the substantial progress that has been made over the past twenty years as Wor-Wic moved from a "College Without Walls" in 1994 to a comprehensive smaller community college. Since the last Self-Study, the College has expanded its physical plant and significantly increased its endowment funds.
- The Board and the President should be commended for their leadership in transforming and expanding College programs and facilities over the past decade.

### Board of Trustees

Wor-Wic Community College's governing board is comprised of seven trustees exercising general control over Wor-Wic (Code Education Article, secs. 16-101 through 16-103). The Board members are appointed to six-year terms by the Governor with consent of the Senate. The Board keeps separate records and minutes, and adopts reasonable rules, regulations, or bylaws to carry out the provisions of this subtitle. The Board is subject to the authority of the Maryland Higher Education Commission.

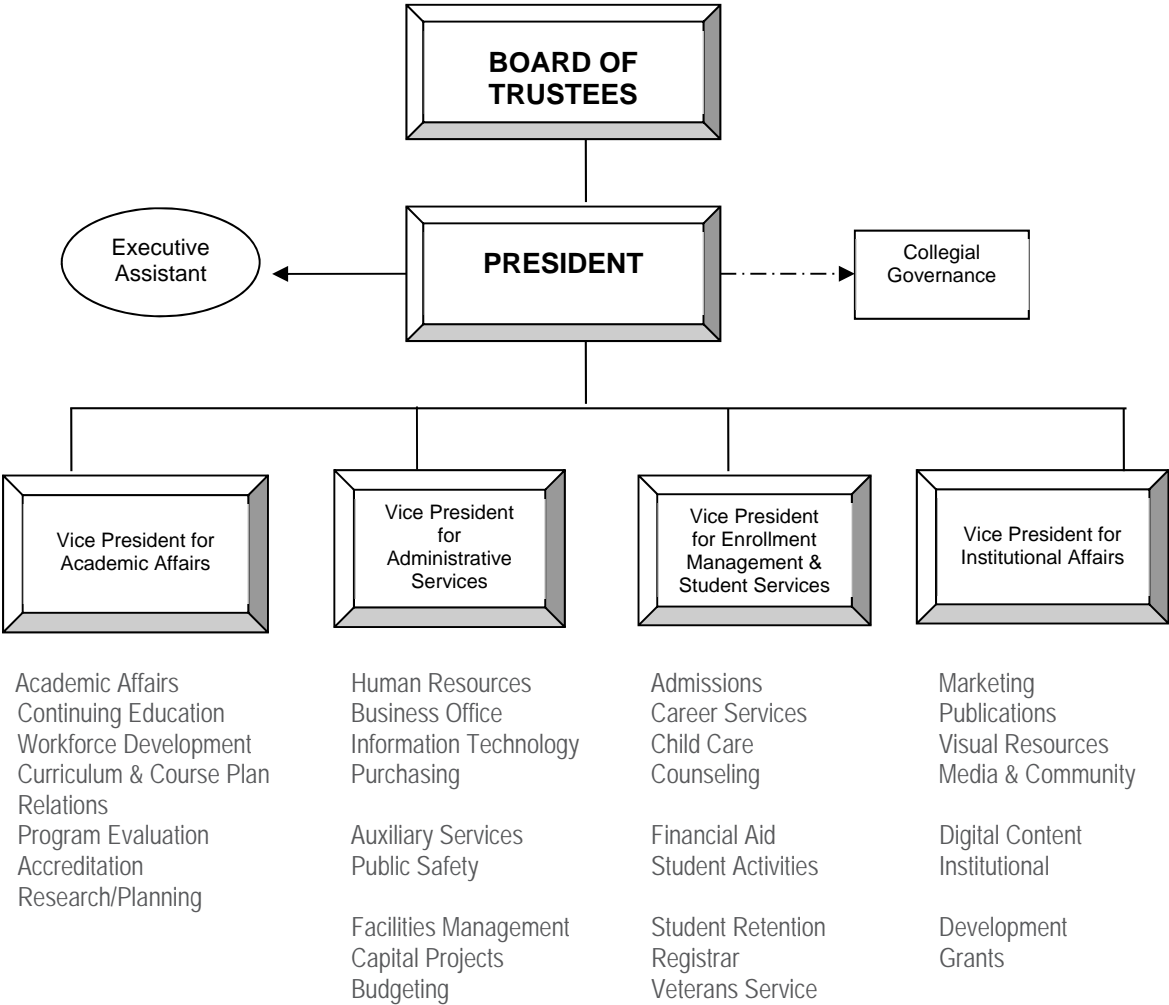
The President is hired by the Board of Trustees and reports directly to the Board. The President recommends the appointment by the Board qualified faculty members and other employees necessary for the efficient administration of the community college.

<sup>22</sup> Middle States Commission on Higher Education; "Report April 1, 2015 to the Faculty, Administration, Trustees, Students of Wor-Wic Community College 32000 Campus Drive, Salisbury, MD 21804 By An Evaluation

Team Representing the Middle State Commission on Higher Education Prepared After Study of the Institution's Self-Study Report and a Visit to the Campus on March 29 – April 1, 2015; pp.8-9

The President is responsible for the conduct of the community college and for the administration and supervision of its departments; and shall attend all meetings of the board, except those involving his personal position as president.

*Wor-Wic Community College Organization Chart*



## Shared Governance<sup>23</sup>

Wor-Wic's leadership structure incorporates shared governance promoting input and decision-making from all parts of the campus. In addition to the president's staff that includes the president and vice presidents, a college council meets during the academic year to discuss issues impacting the college and approve policy changes. The college also has councils for its different classifications of employees including administrative, faculty and support staff and a student government association for credit students.

### President's Staff

The president's staff meets to advise the president and provide various viewpoints on matters pertaining to the operation of the college. Attention is given to recommendations concerning college policies and procedures and on matters that relate to the functional responsibilities of the college's administrators. The committee meets as necessary, usually twice a month, and deals with items such as budget, facilities, educational programs and staffing assignments.

The membership of the president's staff consists of the administrators who report directly to the president. Other administrators and faculty members are invited as needed.

### College Council

The college council provides a forum for all segments of the college to be included in the decision-making process. In addition to issues brought for discussion by members of the council, issues can come from the faculty council, administrative council, support staff council or student government. The council meets twice a month during the academic year and as needed during the summer.

The membership of the college council consists of the president as chairperson, the vice presidents, the deans, the senior director of human resources, the director of institutional research and planning, the director of assessment, the senior director of information technology, the senior director of facilities management, the evening and weekend administrator,

the chairperson of the faculty council, the chairperson of the administrative council, the chairperson of the support staff council and the president of the student government association. Other administrators, faculty members and support staff are invited as needed.

### Administrative Council

The administrative council is committed to promoting a collegewide atmosphere of open communication, cooperation and creativity. The council reviews and discusses items that directly affect its members, such as inter- and intra-office cooperation and communication, professional and personal development, and general college concerns.

Membership of the administrative council consists of all standard full-time and part-time administrators, excluding the president, vice-presidents and deans.

### Faculty Council

The faculty council assists the vice president for academic affairs by providing ideas, suggestions and proposals for the improvement of the college. Members of the faculty council can consider procedural and operational issues of the college that directly affect the instructional process of the college or their professional employment. The faculty council communicates proposals related to the general improvement of the college to the college council, through the chairperson of the faculty council. The faculty council communicates proposals related to instructional programs to the vice president for academic affairs, who reacts to and implements those procedural proposals that are within the vice president's authority. Instructional program proposals that are not agreeable to the vice president or require board action are referred to the president for the president's consideration. At the president's discretion, various advisory committees and/or individuals at the college may become involved. The selection as to which group is used is determined by the nature and scope of the issue being discussed.

The faculty council voting membership includes all full-time credit faculty. Part-time credit faculty members are invited to participate as non-voting members.

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<sup>23</sup> Wor-Wic Community College FY 2019 Policies and Procedures Manual

Retired full-time faculty members are invited to participate as non-voting members.

student membership consists of one advisor, the director of student engagement or a designated administrator, appointed by the college president.

### **Support Staff Council**

The support staff council provides a vehicle for support staff personnel to communicate collegewide concerns that directly affect support staff members and to encourage their professional development. Any support staff member who has a collegewide concern that directly affects the support staff must present that concern in writing to his or her department representative. The representative contacts the council chairperson, who meets with the executive committee to determine whether the concern is an individual or a collective support staff issue. If the concern is determined to be a collective support staff issue, the chairperson takes the issue to the college council.

Membership of the support staff council consists of all standard full-time and part-time support personnel employed by Wor-Wic.

### **Student Government Association**

The student government association centralizes student activities and interests to promote the general welfare of the college and to serve the cooperative endeavors of students, faculty members and college administrators in matters of student concern.

The general membership consists of all credit students enrolled at Wor-Wic. The executive board consists of four students voted in by credit students enrolled at the college. The committee board consists of ten positions filled by currently enrolled Wor-Wic students nominated by the executive board. The non-

## STUDENT ENROLLMENT

In the fall term of 2017 Wor-Wic Community College enrolled 3,110 students who generated 26,225 credit hours of enrollment. The following table shows the distribution of on campus and distance learning credit enrollments.

In fall 2017, 2,605 students also enrolled in non-credit continuing education courses at Wor-Wic.

### *Current Credit Enrollment Distribution (Fall 2017)*

Fall 2017	Credit Hours	FTES	Percent
On Campus			
Day (Before 5:00 pm)	19,013	1,268	72%
Evening ( 5:00 pm or After)	4,912	327	19%
Subtotals	23,925	1,595	91%
Online/Distance Learning	2,301	153	9%
<b>Wor-Wic CC Totals</b>	<b>26,226</b>	<b>1,748</b>	<b>100%</b>

Data Source: Wor-Wic Community College Institutional Research and Planning

## FACULTY AND STAFF

During the academic year 2016-2017, Wor-Wic employed 225 full-time faculty, administrative and support staff. In addition, the college employed 211 part-time faculty and staff. The following table illustrates the distribution of personnel who are critical to the mission and learning experience at Wor-Wic Community College.

### *Faculty and Staff (Fall 2017)*

Category	Full-Time	Fall 2017	
		Part-Time	Total
Faculty (Credit)	69	89	158
Faculty (Noncredit)	2	86	88
Staff	154	36	190
<b>Totals</b>	<b>225</b>	<b>211</b>	<b>436</b>

Data Source: Wor-Wic Community College Institutional Research and Planning

## LEARNING EXPERIENCE DELIVERY

### Credit Programs of Study

Wor-Wic Community College's programs of study are developed by college faculty members in conjunction with business and industry representatives who serve on program advisory committees. This joint college-community effort results in programs that are designed to prepare graduates for entry-level positions in the local job market (career programs) or for further study at four-year institutions (transfer programs), and non-credit learning opportunities for children, youth and adults (continuing education programs).

These programs, services, and activities are administered by the following 14 learning experience delivery organization elements:

- Biology
- Business
- Chemical Dependency Counseling
- Computer Studies
- Criminal Justice
- Education
- Emergency Medical Services
- General Studies
- Hotel-Motel-Restaurant Management
- Nursing
- Occupational Therapy Assistant
- Office Technology
- Physical Therapist Assistant
- Radiologic Technology

This Facilities Master Plan acknowledges the impact of the built environment on Wor-Wic Community College's ability to fulfill its mission. There is an interface between student learning styles and the institutional learning environment. The intent in over-viewing the learning experience delivery system(s) at the college is to identify opportunities for Wor-Wic Community College to provide both on-campus and off-campus transformative learning environments in support of its mission. Traditional and non-traditional approaches to learning and instruction both have to recognize that online or in-person, there is a space impact.

Bloom's Taxonomy in 1956 sought to promote higher forms of thinking in education beyond just

remembering facts (i.e., rote learning). Focus was redirected to three additional types of learning: 1) cognitive: mental skills (knowledge), 2) affective: growth in feelings or emotional areas (attitude or self), and 3) psychomotor: manual or physical skills (skills). The cognitive was further updated by Anderson, et al. to: remembering, understanding, applying, analyzing, evaluating, and creating. Although education's prior principal focus was K-12, the current focus is based on lessons learned from those experiences over the last twenty years. Wor-Wic seeks to provide the most flexible and effective opportunities possible to support student success.

Students enrolled in credit programs at Wor-Wic can earn an associate of applied science (A.A.S.) degree, associate of science (A.S.) degree, associate of arts (A.A.) degree, or an associate of arts in teaching (A.A.T.) degree or certificate.

### Degree Programs

#### Associate of Arts (A.A.)

The Associate of Arts degree recognizes a curricular focus on the liberal arts (humanities, social sciences and similar subjects) and fine arts. The Associate of Arts degree not only transfers to appropriate baccalaureate programs, but also provides for career exploration and skills upgrading.

#### Associate of Arts in Teaching (A.A.T.)

The Associate of Arts in Teaching degree recognizes a curricular focus in teacher education that meets the lower-level degree academic content, outcomes, and requirements for teacher education similar to the first two years of a baccalaureate program in teacher education. This degree requires a passing score on Praxis I and a cumulative grade point average of 2.75 on a 4.0 scale and will transfer in total without further review by Maryland public and independent four-year institutions. Certain SAT and ACT scores may also be considered.

#### Associate of Science (A.S.)

The Associate of Sciences degree recognizes a curricular focus on science, mathematics, engineering and technology. The Associate of Sciences degree not only transfers to appropriate baccalaureate programs, but also provides for career exploration and skills upgrading.

### **Associate of Applied Science (A.A.S.)**

The Associate of Applied Sciences degree recognizes a curricular focus in a specific occupational area. The Associate of Applied Sciences degree is intended primarily for immediate employment or career mobility; it also provides some opportunities for transfer to baccalaureate programs.

Current credit programs (with program codes in parenthesis) include:

#### **Biology**

Biology Transfer, A.S. (BIO.AS.BTR)

#### **Business**

Business Management, A.A.S. (BMT.AAS.BMT)

Business Transfer, A.A. (BMT.AA.BTT)

Business Management, Certificate

General Business (BMT.CERT.BMC)

#### **Chemical Dependency Counseling**

Chemical Dependency Counseling, A.A.S.  
(CDC.AAS.CDC)

Chemical Dependency Counseling, Certificate  
(CDC.CERT.CCD)

#### **Computer Studies**

Computer Studies Transfer, A.A.

Game Development Concentration  
(CMP.AA.GDT)

Information Systems Concentration  
(CMP.AA.IST)

Computer Technology, A.A.S.

Computer & Network Support Technology  
Concentration (CMP.AAS.CNS)

Web Development Concentration  
(CMP.AAS.CWD)

Computer Technology, Certificate

Computer Information Security (CMP.CERT.CIS)

Web Development (CMP.CERT.CWT)

#### **Criminal Justice**

Criminal Justice, A.A.S.

Corrections Concentration  
(CMJ.AAS.COR)

Forensic Science Technology  
Concentration (CMJ.AAS.FOR)

Law Enforcement Concentration  
(CMJ.AAS.LEF)

Criminal Justice, Certificate

Corrections (CMJ.CERT.CRC)

Investigative Forensics Technology  
(CMJ.CERT.IFO)

Law Enforcement (CMJ.CERT.LEC)

Law Enforcement Technology  
(CMJ.CERT.LET)

#### **Education**

Early Childhood Education, A.A.S.  
(EDU.AAS.ECE)

Early Childhood Education, Certificate  
(EDU.CERT.ECC)

Early Childhood Education Transfer, A.A.T.  
(EDU.AAT.TEC)

Elementary Education/Generic Special  
Education PreK-12

Transfer, A.A.T. (EDU.AAT.TEG)

Secondary Education Transfer, A.A.  
(EDU.AA.TES)

#### **Emergency Medical Services**

Emergency Medical Services, Certificate

EMT-I (EMS.CERT.EMC or  
GNS.AA.EMS for applicants)

EMT-P (EMS.CERT.EMT or  
GNS.AA.EMS for applicants)

Emergency Medical Services, A.A.S.  
(EMS.AAS.EMS or GNS.AA.EMS for applicants)

#### **General Studies**

General Studies Transfer, A.A. (GNS.AA.GNS)

#### **Hotel-Motel-Restaurant Management**

Hotel-Motel-Restaurant Management,  
A.A.S.

Culinary Arts Concentration  
(HMR.AAS.CAA)

Hotel-Motel-Restaurant Management  
Concentration (HMR.AAS.HMR)

Hotel-Motel-Restaurant Management,  
Certificate

Culinary Arts (HMR.CERT.CAC)

Hotel-Motel Management  
(HMR.CERT.HMC)

Restaurant Management  
(HMR.CERT.HRC)

#### **Nursing**

Practical Nursing, Certificate  
(NUR.CERT.LPN or GNS.AA.LPN for applicants)

Nursing, A.S. (NUR.AS.ADN or  
GNS.AA.LPN for applicants)



**Occupational Therapy Assistant**  
Occupational Therapy Assistant, A.A.S.  
(OTA.AAS.OTA or GNS.AA.OTA for applicants)

**Office Technology**  
Office Technology, A.A.S.  
Medical Office Assistant  
(OFT.AAS.MOA)  
Office Technology, Certificate  
Office Assistant (OFT.CERT.OAC)

**Physical Therapist Assistant**  
Physical Therapist Assistant, A.A.S.  
(PTA.AAS.PTA or GNS.AA.PTA for applicants)

**Radiologic Technology**  
Radiologic Technology, A.A.S.  
(RDT.AAS.RDT or GNS.AA.RDT for applicants)

### Non-Credit Programs of Study

Since its beginnings, Wor-Wic Community College has manifested a commitment to train local people for local jobs and to support local economic development efforts throughout the Lower Eastern Shore. Moreover, the continuing education and workforce development division consistently and continuously partners with area businesses, industries, agencies and organizations to “strengthen workforce skills” by providing results-oriented customized training for employees. These efforts have been in even more demand since the State of Maryland passed Senate Bill 740 in the Maryland General Assembly of 2013. The College and Career Readiness and Completion Act of 2013 (CCR-CCA) established a number of requirements designed to increase college readiness and degree completion in Maryland. CCR-CCA further built upon Maryland’s Career and Technology Education (CTE) programs to increase pathways to success.

Consistent with the aforementioned, Wor-Wic Community College offers a comprehensive array of Career Technology Education (CTE) programs including apprenticeships, contract training and other workforce development programs and courses. In addition to expected growth of its existing programs and course offerings, Wor-Wic proposes to provide learning environments and leading-edge programs that promote the nurturing of partnership opportunities among the various existing and potential education,

business and industry organizations throughout the Lower Eastern Shore region, the U.S. Routes 13 and 50 Corridors, and even the statewide and neighboring states’ workforce and economic development communities.

Wor-Wic’s continuing education and workforce development division offers career-oriented non-credit courses during three major terms each year. Courses are designed to help students prepare for a new career, upgrade existing skills, meet licensure, certification or continuing education requirements, improve technical skills and provide opportunities for self-improvement.

Categories of continuing education courses include business and leadership, child care, computers and technology (accounting, computer basics, desktop publishing and graphics, digital imaging and video editing, the internet and mobile technologies, office skills, operating systems, PC hardware, networking and security, social media, spreadsheets, webpage design and word processing), health and safety (cardiopulmonary resuscitation and basic first aid, certified nursing assisting, continuing education for nurses and other health care professionals, dental assisting, medical coding, medicine aide recertification, personal trainer certification, pharmacy technician examination preparation and phlebotomy), hospitality and culinary (food preparation and safety, bartending, pool operation and safety, and hotel and motel operations), trades and manufacturing (air conditioning, refrigeration, computer-aided design, construction, electricity, electronics, lead paint abatement, mold remediation, sanitary technology, solar energy and welding), personal enrichment, real estate, transportation (bus driver training, driver education, motorcycle safety and truck driver training) and veterinary assistant training. Computer courses are offered for senior adults, as well as enrichment courses for gifted and talented students in grades three through nine. Many online courses are also offered in a variety of areas. Maryland senior adults, 60 years of age or older at the time of registration, can take most credit and continuing education courses without paying tuition, but they must pay for any required fees and textbooks.

As part of the college’s commitment to train local people for local jobs and support local economic development efforts, the continuing education and

workforce development division regularly partners with area businesses, industries, agencies and organizations to strengthen workforce skills by providing results-oriented customized training for their employees. Courses and seminars, which vary from basic skills development to sophisticated business operations, are developed for individual companies and clusters of companies with related training needs. Customized training is tailored to meet specific company schedules and needs, and is conducted both day and evening in college facilities or at company business sites. Laptop computers make computer applications training convenient for on-site locations at companies throughout the Lower Eastern Shore.

## Non-Traditional Studies

### Early College Access

The College and Career Readiness and College Completion Act of 2013 provides for qualified dual enrollment students discounts for tuition. Public high school students who qualify for free and reduced meals (FARM) can enroll in Wor-Wic fall and spring term classes for free, while those who do not qualify for FARM pay 90 percent of the 75 percent tuition rate. Students attending any Worcester, Wicomico or Somerset public high school, the Salisbury School, Salisbury Christian School or Holly Grove Christian School, as well as Delmar High School students who live in Maryland, can provide certification by a high school official that they meet the school's dual enrollment eligibility requirements to receive a discount on the regular tuition rate.

### Distance Education

Distance education is an alternative method of taking credit courses whereby the majority of the instruction occurs when the student and the instructor are not in the same place at the same time. Information is distributed through learning technologies to students who have time constraints, work schedule conflicts or are otherwise unable to attend classes at a specific college location at a designated time. All first-time hybrid and online students are required to complete a one-time online orientation in Blackboard, Wor-Wic's learning management system. This self-paced orientation is available in Blackboard within 24 hours after a student registers for his or her first hybrid or online course and should be completed prior to the

start of classes. First-time hybrid and online students can access their hybrid or online course in Blackboard only if the orientation has been successfully completed. Wor-Wic offers the following distance education options:

### Hybrid Courses

A hybrid course is a blend of face-to-face and web-based instruction. Required classroom time is split between on-campus class time and web-based activities, which include interactive forums, assessments, research and/or video. In order to participate, students must have access to a computer with an internet connection.

### Online Courses

Blackboard is used to facilitate learning in each online course. Active participation, although not simultaneous, includes interactive forums, assessments, research and/or video. In order to participate, students must have access to a computer with an internet connection. Online courses require on-campus testing or testing at an approved off-campus testing center.

### Virtual Courses

Virtual courses are held in distance learning classrooms on Wor-Wic's campus. Students interact with the instructor, who is located at another site, through a computer connection.

## AUTHORITY and ACCREDITATION

Wor-Wic is a state-approved two-year college. Under Education Article, §§ 10-207, 11-105, the Maryland Higher Education Commission (MHEC) is the State of Maryland's higher education coordinating board responsible for establishing statewide policies for Maryland public and private colleges and universities and for-profit career schools. MHEC plans, supervises, and coordinates Maryland's postsecondary education system. MHEC also administers state financial aid programs that affect students on a statewide basis. Wor-Wic is accredited by the Middle States Commission on Higher Education, 3624 Market St., Philadelphia, PA19104, 267-284-5000. The Middle States Commission on Higher Education is an institutional accrediting agency

recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation. Several of Wor-Wic's programs have specialized accreditations.

### **Specialized Accreditations**

Several Wor-Wic programs and services have specialized accreditations to demonstrate quality and represent to employers that graduates received a quality education in the field. Specialized accreditations are:

- Child Development Center
- Emergency Medical Services Program
- Culinary Arts Program
- Nursing Program
- Occupational Therapy Assistant Program
- Physical Therapist Assistant Program
- Radiologic Technology Program

### **Assessment of Academic Programs and Student Services**

In accordance with Wor-Wic's mission to provide high quality programs, the college engages in routine, systematic assessment processes to ensure continuous improvement of student learning and success. The college's assessment process determines to what extent students are attaining stated student learning outcomes. To that end, student academic performance data are collected in the aggregate, at the course, program and institutional levels. Individual students are not identified. In addition, students are asked to participate in a number of collegewide surveys to provide feedback on the quality of academic and student services. The results of the surveys are analyzed by college officials in order to continually improve teaching and learning, as well as institutional procedures.

## CAMPUS FACILITIES

At the beginning of the base year for this Facilities Master Plan (fall 2017), the facilities inventory at Wor-Wic includes nine (9) permanent buildings totaling 301,422 gross square feet (GSF) that contain approximately 162,741 net assignable square feet (NASF) of space.

In addition, Wor-Wic Community College shares space in two off-site facilities. These buildings are classified as "overflow space", therefore are not included in the college's permanent building inventory.

### *Wor-Wic Community College Facilities*

Building	Code	Built	GSF	NASF	Primary Use
<b>On Campus Permanent</b>					
Brunkhorst Hall	BH	1994	58,879	32,813	Instruction, Offices
Maner Technology Center	MTC	1994	19,412	11,408	Instruction, Offices
Henson Hall	HH	1999	34,500	18,248	Instruction, Executive Offices, Boardroom
Guerrieri Hall	GH	2001	38,000	19,767	Athletic (Fitness), Assembly, Instruction
Maintenance Building	DH	2005	6,032	4,857	Storage, Shops
Hazel Center	HC	2005	35,505	18,655	Food Service, Student Activities, Bookstore
Jordan Center	JC	2007	6,757	4,236	Day Care, Instruction
Fulton-Owen Hall	FOH	2008	49,604	25,481	Instruction, Offices
Shockley Hall	SH	2011	52,733	27,276	Instruction, Offices, Data Processing
<b>Totals</b>			<b>301,422</b>	<b>162,741</b>	

Data Source: Wor-Wic Community College Facilities Management

Building	Code	Built	GSF	NASF	Primary Use
<b>Off Campus Overflow</b>					
Ocean Resorts Golf Club	ORGC	n/a	940	840	Instruction
Parkside High School	PHS	n/a	14,021	11,684	Instruction
<b>Totals</b>			<b>14,961</b>	<b>12,524</b>	

Data Source: Wor-Wic Community College Facilities Management

## CHAPTER 3: SPACE NEEDS

The purpose of space needs analysis is to assess, on a macro level, the extent to which the total amount of space for instruction and other campus activities is adequate, appropriate or sufficient to support future enrollments. Specifically, space needs analysis incorporates the concept of supply and demand. It is the process of estimating the needed supply of learning, support and resource space given a projected demand of academic programs and their ensuing student enrollments and staffing levels.

Projected space needs are the results of demand, in terms of anticipated programs, enrollments and staffing, on buildings and space at a future date. The ultimate outcome of this assessment is to provide estimates of supply of types and amounts of space likely to be needed to accommodate Wor-Wic Community College's projected fall 2027 demand in terms of academic programs, enrollments and staffing.

Growth of some existing programs and the establishment of new ones suggest concomitant growth in enrollment and a need for specific, specialized facilities. The demand for college completion and workforce preparation will drive program offerings in the coming years. Many of these programs require specialized classrooms, labs and other facilities that can be flexibly adjusted for a variety of teaching/learning settings. This demand is considered in subsequent sections to identify space needs and suggests future physical development.

Demand for critical skills in top growth occupations, flexibility in contract and workforce training with their unique learning environments, veterans, and aging of the general population will be the primary drivers for future program offerings and enrollments.

The lack of sufficient numbers of contemporary, flexible instructional and learning spaces has directly and indirectly curtailed the college's ability to fully develop the inherent potential of its credit and non-credit course offerings.

In addition to its existing credit programs, Wor-Wic will offer an associate of science in STEM degree with concentrations in biology, chemistry, pharmacy, mathematics, physics and engineering in FY 2020.

Concentrations in communication studies and social media specialist, as well as a certificate in computed tomography will also be introduced in FY 2020. Wor-Wic has identified an additional twenty new program areas or development in the next decade. These programs are needed in response to demands in the community and are outlined in the table below.

The continuing education and workforce development division does not offer "programs", as such, but "market-driven" courses. Since the division's offerings must be extremely flexible, course changes are continuous. This flexibility is essential in order to meet the ever-changing needs of its unique market. As the general population ages, it is expected that a maturing workforce will create greater demand for continuing education and personal enrichment opportunities.

Workforce development programs will require highly flexible specialized learning environments for a variety of trade skills. These types of programs often necessitate large unique commercial and industrial type specialty spaces, utilizing interior and exterior open areas. Such spaces, or groupings of spaces, are intended to maximize efficiency and flexibility of use in terms of highly specialized tasks, tools, materials and equipment.

The need for facilities should also be viewed in the context of how the process of learning may evolve over time. Due to ever changing technology for both teaching and learning, much of higher education must rethink its learning environments. Although the lecture/lab instructional delivery mode will continue to be used, colleges and universities will increasingly supplement that delivery methodology with specialized learning environments that allow for both scheduled and unscheduled instruction and learning in discipline-related simulated environments.

Electronic presentation that allows integration and manipulation of complex data into the learning environment is becoming more and more the norm. Teleconferencing and online capabilities will make learning partnerships with other schools and businesses commonplace.

Future environments should be such that the distinction between a computer lab and a lecture classroom will disappear because the technology and furnishings will be unobtrusive but available on demand. All furnishings will be easily movable, or the instructional area will automatically be able to configure the furnishings based upon immediate need.

With the exception of highly specialized spaces such as science labs, forensics labs, physical education spaces, workforce development facilities, and some visual and performing arts studios, the idea of rooms belonging exclusively to an instructional area will also disappear. Credit classrooms would be available to continuing education learners and vice versa.

Modernization of instructional delivery requires that instructional spaces be configured relative to future disciplinary/programmatic goals whose objectives and functions dictate more efficient organization and utilization of space. Contemporary learning environments are required for Wor-Wic to continue to successfully attract and retain a representative level of available student populations in Worcester, Wicomico and Somerset counties.

In summary, space needs analysis is the process of estimating the needed supply of learning, support and resource space given a projected demand of academic programs, disciplines and student enrollments. Thus, space needs analysis begins the transitioning from the language of academic assessment and academic planning to the language of facilities planning and master planning.

*Projected New Credit Programs*

Programs of Study	Projected Enrollment <sup>a</sup>	Programs of Study	Projected Enrollment <sup>a</sup>
Automotive Technician, A.A.S.	20	Applied Technology-Health, A.A.S.	50
Applied Technology, A.A.S.	30	MRI, Certificate	10
Electrical Technician, Certificate	15	Medical Coder, Certificate	15
HVAC Technician, Certificate	15	Homeland Security, A.A.S.	10
Welding Technician, Certificate	15	Emergency Management, A.A.S., Certificate	10
Plumbing Technician, Certificate	15	Security Loss Prevention, Certificate	10
PLC Technician, Certificate	15	Sleep Technology, A.A.S.	10
Computer Studies: Coding Area of Emphasis, Certificate	10	Applied Geographic	
Supply Chain Manufacturing, A.A.S.	10	Information Science (GIS), A.A.S., Certificate	10
Transportation Logistics Analyst, A.A.S., Certificate	10	Unmanned Aerial Vehicle (UAV) Piloting, Certificate	10
Secondary Education-Chemistry, A.A.T.	10		

Data Source: Wor-Wic Community College Administration

<sup>a</sup>Projected Initial Enrollments

## GLOSSARY OF TERMS

This glossary contains brief definitions of generic terms related to educational facilities planning and explanations of the acronyms and abbreviations referred to in this Space Needs Analysis.

Bound Volume Equivalent (BVE)	The physical space required to accommodate a variety of library materials in amounts equal to one single typical book
Class Laboratory	Spaces that are used primarily for formally or regularly scheduled classes that require special purpose equipment for a specific room configuration for student participation, experimentation, observation, or practice in an academic discipline
Classroom	Spaces that are not tied to a specific subject or discipline by equipment or room configuration
Core Space	Space necessary because of existence of the institution or program without regard to other factors
Credit Hour	A numerical value awarded a student for successfully completing a course
Facilities Inventory	Room-by-room and building-by-building listing of assignable spaces, their primary use, their size and their capacity
Full-Time Equivalent Faculty (FTEF)	A base factor statistic equal to a full-time faculty plus 25% of all part-time faculty <b>Note: This statistic is used in this document for facilities planning purposes only, and the calculation may differ from the FTEF computed for budgetary or other reporting purposes.</b>
Full-Time Equivalent Student (FTE or FTES)	The total number of on-campus credit hours taught during a given semester/term, divided by 15 <b>Note: This statistic is used in this document for facilities planning purposes only, and the calculation may differ from the FTE computed for budgetary or other reporting purposes.</b>
Full-Time Day Equivalent Student (FTDE or FTDES)	The total number of on-campus credit hours taught before 5:00 p.m. during a given semester/term, divided by 15 <b>Note: This statistic is used in this document for facilities planning purposes only, and the calculation may differ from the FTDE computed for budgetary or other reporting purposes.</b>
Gross Square Feet (GSF)	The sum of square feet of space in a building included within the outside faces of exterior walls for all stories or areas that have floor surface Included are all structural, mechanical, service and circulation areas.
Net Assignable Square Feet (NASF)	The sum of all areas on all floors of a building assigned to, or available for assignment to an occupant for specific use Excluded are spaces defined as structural, mechanical, service and circulation areas.

Student Contact Hour

A measure of time of scheduled interface between students and teacher that is usually expressed in terms of Weekly Student Contact Hour (WSCH), which is the number of hours per week of required interface  
**Note:** This statistic is used in this document for facilities planning purposes only, and the calculation may differ from the WSCH computed for budgetary or other reporting purposes.

## SUMMARY OF KEY FINDINGS

Space deficits in all but one major room use category (Merchandising) are suggested when Maryland's *Space Allocation Guidelines for Community Colleges* formulae are applied to Wor-Wic Community College's projected (2027) space inventory.

The 2017 campus building space inventory was 162,741 net assignable square feet (NASF). As of this plan's publication, the college has no completed programs for future facilities. Therefore, the current space inventory serves as the 2027 base or supply against which the need, generated by the demand of

future enrollments, staffing and library volumes would be quantified.

When space deficits and surpluses were computed by comparing enrollment and staffing projections against the space inventory, the outcome was a projected 2027 overall space deficit of 96,635 NASF as shown by the following tables. Quantitative indicators suggest immediate and long-term need for facilities to support space classifications showing significant deficits.



*Projected (Fall 2027) Space Deficits and Surpluses*

Use Code	Space Classification	Projected Fall 2027 NASF		Surplus / (Deficit)
		Inventory	Allowance	
520	Athletics/Physical Education	6,221	36,670	(30,449)
310/350	Office /Conference Room	40,300	60,764	(20,464)
200	Laboratory	40,742	47,738	(6,996)
100	Classroom	34,670	37,981	(3,311)
610	Assembly	5,146	12,534	(7,388)
720-740	Shop/Storage	4,550	9,865	(5,315)
420-440	Stack/Study & Processing	0	5,004	(5,004)
410	Study/Seating	6,859	11,044	(4,185)
750	Central Service	582	4,000	(3,418)
630	Food Facility	8,695	10,844	(2,149)
530	Media Production	0	1,814	(1,814)
320	Testing /Tutoring	0	1,634	(1,634)
620	Exhibition	0	1,634	(1,634)
650	Lounge	2,125	3,189	(1,064)
580	Greenhouse	0	1,000	(1,000)
710	Data Processing	1,791	2,500	(709)
800	Health Care	0	553	(553)
680	Meeting Room	5,549	6,000	(451)
760	Hazmat Storage	0	197	(197)
	<b>Subtotals Deficits (NASF)</b>	<b>157,230</b>	<b>254,963</b>	<b>(97,734)</b>
660	Merchandising	2,834	1,734	1,100
	<b>Subtotals Surplus (NASF)</b>	<b>2,834</b>	<b>1,734</b>	<b>1,100</b>
	<b>Totals (NASF)</b>	<b>160,064</b>	<b>256,698</b>	<b>(96,635)</b>

Two other space classifications (Day Care: 2,087 NASF and Recreation: 590 NASF) are included in the campus inventory but are not addressed by the *Guidelines*. These are specialized spaces for which need is based entirely on programmatic requirements which vary greatly by institution and are excluded from this quantitative analysis. For these Ad Hoc categories of space, existing space is the guideline.

A comprehensive computation of space needs is summarized in the following table. All numbers in this, preceding and succeeding tables may not exactly add or match due to rounding.

In addition to findings of quantitative indicators of space need, there are qualitative indicators of need addressed in detail later in this chapter and abbreviated here as follows:

- There is a need for on-campus workforce development space for various trades such as construction, transportation and maintenance.
- There is insufficient space to support formal learning community concepts.
- Library services functions are scattered in different parts of the campus which results

in duplication of resources and operating inefficiencies.

- The space designated for student activities is too small. There is a need for student areas that are more inviting for enjoyment, relaxation, individual study and group learning.
- There is a need for a properly located and sized wellness, fitness and recreation

center. The criminal justice program has need for the one athletic facility and fitness equipment on campus and has priority over other students, faculty and staff.

- The Maintenance Building is grossly inadequate for the functions it must accommodate. There is insufficient space for physical plant operations such as; maintenance shops, storage, offices, and central services.

### Summary Guideline Calculations

Use Code	Use Classification	Base Year (2017)				2018-2027		Projected Year (2027)			
		Inventory	Guideline	Surplus (-) Deficit	Inventory as a % of Guideline	Additions	Deletions	Inventory	Guideline	Surplus (-) Deficit	Inventory as a % of Guideline
100	Classroom Facilities	34,670	27,255	7,415	127.2%	0	0	34,670	37,981	-3,311	91.3%
200	Laboratory Facilities	40,742	34,257	6,485	118.9%	0	0	40,742	47,738	-6,996	85.3%
210	Class Laboratory	35,635	28,931	6,704	123.2%	0	0	35,635	40,316	-4,681	88.4%
220	Open Laboratory	5,107	5,326	-219	95.9%	0	0	5,107	7,421	-2,314	68.8%
300	Office Facilities	40,300	47,233	-6,933	85.3%	0	0	40,300	62,398	-22,098	64.6%
310/50	Office / Conference	40,300	45,733	-5,433	88.1%	0	0	40,300	60,764	-20,464	66.3%
320	Testing / Tutoring	0	1,500	-1,500	0.0%	0	0	0	1,634	-1,634	0.0%
400	Study Facilities	6,859	11,873	-5,014	57.8%	0	0	6,859	16,047	-9,188	42.7%
410	Study	6,859	7,925	-1,066	86.5%	0	0	6,859	11,044	-4,185	62.1%
420/30	Stack / Study	0	2,748	-2,748	0.0%	0	0	0	3,574	-3,574	0.0%
440/55	Processing / Service	0	1,200	-1,200	0.0%	0	0	0	1,430	-1,430	0.0%
500	Special Use Facilities	6,221	36,600	-30,379	17.0%	0	0	6,221	39,484	-33,263	15.8%
520/23	Athletic	6,221	34,000	-27,779	18.3%	0	0	6,221	36,670	-30,449	17.0%
530	Media Production	0	1,600	-1,600	0.0%	0	0	0	1,814	-1,814	0.0%
580	Greenhouse	0	1,000	-1,000	0.0%	0	0	0	1,000	-1,000	0.0%
600	General Use Facilities	27,026	33,919	-6,893	79.7%	0	0	27,026	38,612	-11,586	70.0%
610	Assembly	5,146	12,000	-6,854	42.9%	0	0	5,146	12,534	-7,388	41.1%
620	Exhibition	0	1,500	-1,500	0.0%	0	0	0	1,634	-1,634	0.0%
630	Food Facility	8,695	7,837	858	110.9%	0	0	8,695	10,844	-2,149	80.2%
640	Day Care (No Guideline)	2,087	2,087	0	0.0%	0	0	2,087	2,087	0	0.0%
650	Lounge	2,125	2,305	-180	92.2%	0	0	2,125	3,189	-1,064	66.6%
660	Merchandising	2,834	1,600	1,234	177.1%	0	0	2,834	1,734	1,100	163.4%
670	Recreation (No Guideline)	590	590	0	0.0%	0	0	590	590	0	0.0%
680	Meeting Room	5,549	6,000	-451	92.5%	0	0	5,549	6,000	-451	92.5%
700	Support Facilities	6,923	14,474	-7,551	47.8%	0	0	6,923	16,562	-9,639	41.8%
710	Data Processing	1,791	2,500	-709	71.6%	0	0	1,791	2,500	-709	71.6%
720-740	Shop / Storage	4,550	7,818	-3,268	58.2%	0	0	4,550	9,865	-5,315	46.1%
750	Central Service	582	4,000	-3,418	14.6%	0	0	582	4,000	-3,418	14.6%
760	Hazmat Storage	0	156	-156	0.0%	0	0	0	197	-197	0.0%
800	Health Care Facilities	0	500	-500	0.0%	0	0	0	553	-553	0.0%
000	Unclassified (No Guideline)	0	0	0	0.0%	0	0	0	0	0	0.0%
<b>Totals</b>		<b>162,741</b>	<b>206,111</b>	<b>-43,370</b>	<b>79.0%</b>	<b>0</b>	<b>0</b>	<b>162,741</b>	<b>259,375</b>	<b>-96,635</b>	<b>62.7%</b>

Data Source: Compiled by Facilities Planning Associates from data provided by Wor-Wic Community College Facilities Management and Wor-Wic Community College Institutional Research & Planning

## HISTORICAL TRENDS

### Students

By analyzing an institution's student body composition over several years, it is possible to deduce trends in the numbers and types of students enrolled, number of credit hours generated and choices among continuing programs.

Historical enrollment trends for students who chose the option of attending Wor-Wic Community College during the past six years reflected fluctuations in enrollments through the fall term of 2017. Between fall terms of 2012 and 2017, the number of full-time students appeared ranged between 1,190 and 798 respectively. At the same time, the number of part-time enrollments ranged between 2,549, obtained in fall 2012, declining slightly to a total of 2,265 students in fall 2017. The total headcount enrollment declined in fall 2013 then again in 2014. Since then, total headcount enrollment has remained relatively flat providing an average enrollment of 3,268 credit students.

#### *Enrollment Trends (2012–2017) Headcount, Credit Hours, FTES, and FTDE*

	Full-Time Headcount	Part-Time Headcount	Total Headcount	Credit Hours	FTES	DAY (Before 5:00 pm) Credit Hours FTDES	
Fall 2012	1,190	2,549	3,739	33,623	2,242	23,532	1,569
Fall 2013	1,091	2,328	3,419	30,595	2,040	21,630	1,442
Fall 2014	909	2,198	3,107	27,193	1,813	19,430	1,295
Fall 2015	864	2,273	3,137	26,863	1,791	18,955	1,264
Fall 2016	833	2,265	3,098	26,235	1,749	18,797	1,253
Fall 2017	798	2,312	3,110	26,225	1,748	19,013	1,268
Average Enrollment	948	2,321	3,268	28,456	1,897	20,226	1,348
Average Annual Growth Rate	-7.7%	-1.9%	-3.6%	-4.8%	-4.8%	-4.2%	-4.2%

Data Source-2017: Wor-Wic Community College Institutional Research and Planning

A comprehensive summary of actual six-year fall enrollment trends by credit hour and FTES generation for Day before 5:00 pm, Evening 5:00 pm and after, and Online/Distance Learning is provided in the next two tables. These two tables also encapsulate trends of mutual relationships between credit hours and FTES over time. The total credit hour generation for the three primary educational segments appears to have declined approximately 19% from 33,623 in fall 2012 to 27,193 in fall 2014 and remained relatively flat through fall 2017. In consonance with trends in credit hours, the FTES total for all segments also declined approximately 19% from 2,242 in fall 2012 to 1,813 in fall 2014. Total FTES also remained relatively flat through the fall term of 2017.

It appears that the credit hours generated before 5:00 pm declined by more than 19% between fall 2012 and fall 2017. Of the three primary segments, the greater downturn in credit hour generation occurred in evening enrolments 5:00 pm and after. Evening enrollments experienced a decline of approximately 40% during the observed time period. Overall, credit hour generation by segment reflected an average enrollment decline of 22% during the same period.

*Enrollment Trends (2012-2017) Credit Hours*

	FALL TERM Credit Hours						Net Chg	Annual Rate
	2012	2013	2014	2015	2016	2017		
Day (Before 5:00 pm)	23,532	21,630	19,430	18,955	18,797	19,013	-19.2%	-4.2%
Evening (5:00 pm and after)	8,184	6,876	5,529	5,657	5,132	4,912	-40.0%	-9.7%
Online/Distance	1,907	2,089	2,235	2,251	2,307	2,301	20.7%	3.8%
Totals	33,623	30,595	27,193	26,863	26,235	26,225	-22.0%	-4.8%

Data Source: Wor-Wic Community College Institutional Research and Planning

*Enrollment Trends (2012-2017) Credit Hours*

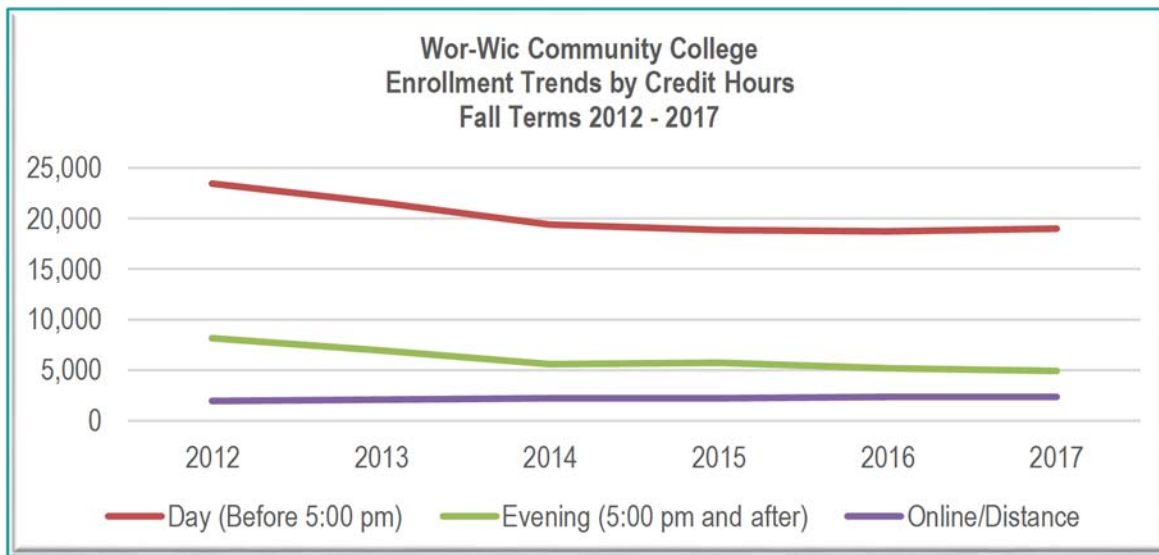
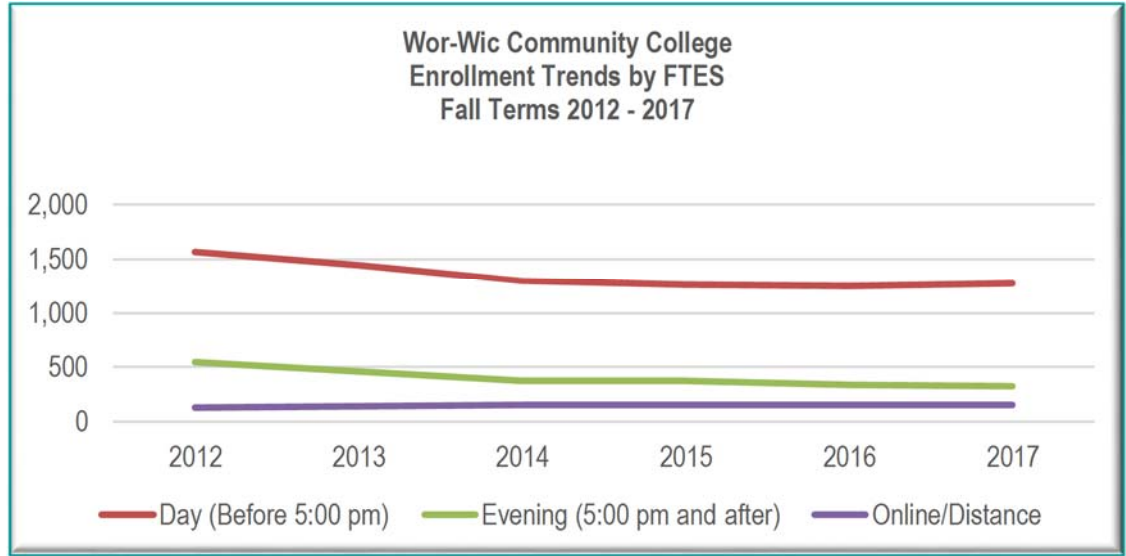


Table 3.6: Enrollment Trends (2012 – 2017) by FTES

	FALL TERM FTES						Net Chg	Annual Rate
	2012	2013	2014	2015	2016	2017		
Day (Before 5:00 pm)	1,569	1,442	1,295	1,264	1,253	1,268	-19.2%	-4.2%
Evening (5:00 pm and after)	546	458	369	377	342	327	-40.0%	-9.7%
Online/Distance	127	139	149	150	154	153	20.7%	3.8%
Totals	2,242	2,040	1,813	1,791	1,749	1,748	-22.0%	-4.8%

Data Source: Wor-Wic Community College Institutional Research and Planning

*Enrollment Trends (2012–2017) FTES*



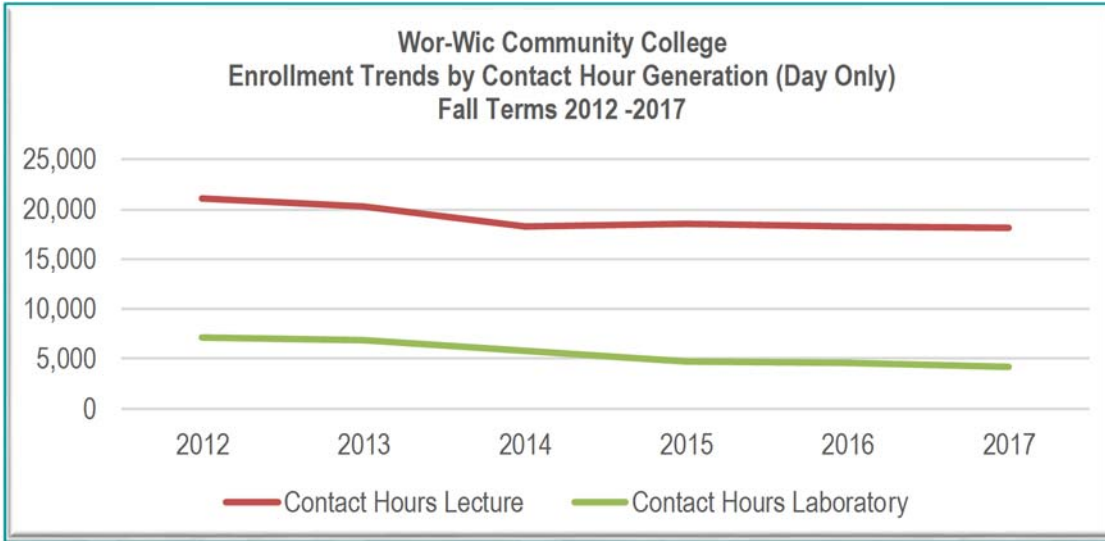
The table below isolates, in summary format, the historical trends of contact hours across six years by type of instruction (lecture and laboratory). It appears that total weekly student contact hours (WSCH) declined from 28,307 in fall 2013 to 22,303 in fall 2017.

*Enrollment Trends (2012–2017) WSCH*

Source of WSCH (Day Only)	FALL TERM Weekly Student Contact Hours (Day Only)						Net Chg	Annual Rate
	2012	2013	2014	2015	2016	2017		
Contact Hours Lecture	21,150	20,258	18,335	18,588	18,288	18,170	-14.1%	-3.0%
Contact Hours Laboratory	7,157	6,790	5,782	4,662	4,538	4,133	-42.3%	-10.4%
Totals	28,307	27,048	24,117	23,250	22,826	22,303	-21.2%	-4.7%

Data Source: Wor-Wic Community College Institutional Research and Planning

*Enrollment Trends (2012–2017) WSCH*



Among enrollments occurring before 5:00 pm, the average number of WSCH's generated between fall 2012 and fall 2017 was 24,642. Lecture segments generated 19,132 or 78% and laboratory segments generated 5,510 or 22% of the total WSCH initiated across the six-year interval.

It has been shown that enrollment for Wor-Wic Community College has undergone a decline during the most recent six-year interval. Such changes can be expected given recent enrollment declines community colleges are facing nationwide.

**Faculty and Staff**

Since 2012, Wor-Wic's full-time faculty level has remained rather flat at an annual rate of growth of just .3% while part-time faculty has slightly declined at a rate of 1.8%. The college has experienced an annual increase of 3.1% in total staff over the same period. Credit student to faculty ratio is 16:1.

*Faculty and Staff Trends (2012-2017)*

	Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Current Fall 2017	Net Change 2012-2017	Annual Rate 2012-2017
Full-Time Faculty	70	72	73	71	73	71	1.4%	0.3%
Part-Time Faculty	192	181	187	204	178	175	-8.9%	-1.8%
<b>Faculty Totals</b>	<b>262</b>	<b>253</b>	<b>260</b>	<b>275</b>	<b>251</b>	<b>246</b>	<b>-6.1%</b>	<b>-1.3%</b>
Full-Time Staff	145	148	148	152	156	154	6.2%	1.2%
Part-Time Staff	18	19	23	22	19	36	100.0%	14.9%
<b>Staff Totals</b>	<b>163</b>	<b>167</b>	<b>171</b>	<b>174</b>	<b>175</b>	<b>190</b>	<b>16.6%</b>	<b>3.1%</b>

Data Source: Wor-Wic Community College Institutional Research and Planning

## EXISTING SPACE

### Building Space Inventory

A room-by-room inventory of assignable space in each campus building, by room use classification, was prepared by the college and given to the consultant team. Wor-Wic's campus building inventory comprises nine buildings which collectively total approximately 301,000 gross square feet (GSF) and contain approximately 163,000 net assignable square feet (NASF) of space. This inventory of existing spaces serves as the baseline data against which computed space needs are compared.

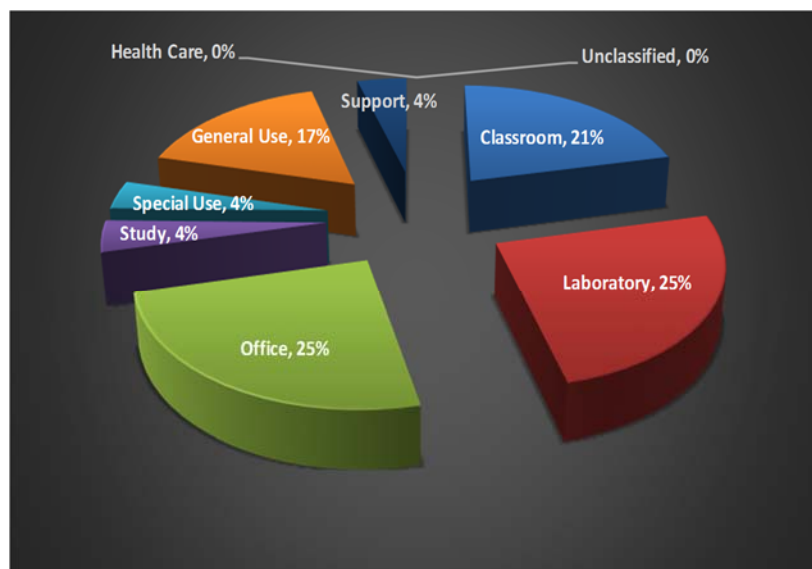
In addition, Wor-Wic Community College shares approximately 13,000 NASF of space in two off-site facilities at the Ocean Resorts Golf Club, just west of Ocean City, and at Parkside High School in Salisbury. These two facilities are classified as "overflow space" and therefore neither are included in Wor-Wic's campus permanent building inventory, nor are they subject to this analysis.

The campus building space inventory utilizes the space taxonomy found in the *2006 Postsecondary Education Facilities Inventory and Classification Manual* (FICM) published by the U.S. Department of Education in cooperation with the National Center for

Education Statistics. For the most part, room use codes and classifications referenced in this analysis refer to the primary activity space plus support space that directly services the primary activity. Furthermore, the space inventory data in this section is presented in such a way as to satisfy the requirements of the Maryland Higher Education Commission's *Space Allocation Guidelines for Community Colleges*. More detailed attention is devoted to each of the college's building structures later in this document.

In determining the base inventory to be used in calculating permanent space needs, inventoried net assignable square footage (NASF) is designated as either "permanent" or "overflow." Only "permanent" space is used to determine space needs. Space contained in temporary structures and space in facilities at locations other than a main campus is considered "overflow" and is not included in the base calculations.

As depicted in the accompanying table and graphic, 46% of Wor-Wic's assignable space is classified as classroom and laboratory instruction (classroom 21%, laboratory 25%), 25% as office, 4% as study (library), and the remaining 25% is a combination of special use, general use and support spaces.



*Distribution of Existing Space by Room Use Classification*

Use Code	Classification	NASF
100	Classroom	34,670
200	Laboratory	40,742
300	Office	40,300
400	Study	6,859
500	Special Use	6,221
600	General Use	27,026
700	Support	6,923
800	Health Care	0
000	Unclassified	0
<b>Total</b>		<b>162,741</b>

Comparison of these percentages to other institutions or generally accepted rules of thumb would not be very meaningful given Wor-Wic's unique approach to providing library services and the absence of physical education and athletic programs.

Wor-Wic Community College's total inventory of net assignable square feet (NASF) is summarized, by building and room use classification, in the table that follows: This table provides a ready review of the distribution of existing space among the functional classification categories.

*Campus Space Inventory (NASF) By Building*

Use Code	Use Classification	(BH) Bunkhorst Hall	(MTC) Maner Tech Cntr	(HH) Henson Hall	(GH) Guerrieri Hall	(DH) Maintenance Building	(HC) Hazel Center	(JC) Jordan Center	(FOH) Fulton-Owen Hall	(AHB) Allied Health Building	WWCC On-Campus Totals
100	Classroom Facilities	10,319	0	4,218	3,848	0	0	1,619	10,372	4,294	34,670
200	Laboratory Facilities	6,167	7,368	8,977	767	0	0	0	5,456	12,007	40,742
210	Class Laboratory	1,060	7,368	8,977	767	0	0	0	5,456	12,007	35,635
220	Open Laboratory	5,107	0	0	0	0	0	0	0	0	5,107
300	Office Facilities	13,616	4,040	2,645	1,758	1,538	2,943	530	5,223	8,007	40,300
310/50	Office / Conference	13,616	4,040	2,645	1,758	1,538	2,943	530	5,223	8,007	40,300
320	Testing / Tutoring	0	0	0	0	0	0	0	0	0	0
400	Study Facilities	2,104	0	797	689	0	641	0	1,482	1,146	6,859
410	Study	2,104	0	797	689	0	641	0	1,482	1,146	6,859
420/30	Stack / Study	0	0	0	0	0	0	0	0	0	0
440/55	Processing / Service	0	0	0	0	0	0	0	0	0	0
500	Special Use Facilities	0	0	0	6,221	0	0	0	0	0	6,221
520/23	Athletic	0	0	0	6,221	0	0	0	0	0	6,221
530	Media Production	0	0	0	0	0	0	0	0	0	0
580	Greenhouse	0	0	0	0	0	0	0	0	0	0
600	General Use Facilities	498	0	1,611	5,789	0	14,253	2,087	2,648	140	27,026
610	Assembly	0	0	0	5,146	0	0	0	0	0	5,146
620	Exhibition	0	0	0	0	0	0	0	0	0	0
630	Food Facility	0	0	0	385	0	7,806	0	504	0	8,695
640	Day Care (No Guideline)	0	0	0	0	0	0	2,087	0	0	2,087
650	Lounge	498	0	0	0	0	1,627	0	0	0	2,125
660	Merchandising	0	0	224	258	0	2,212	0	0	140	2,834
670	Recreation (No Guideline)	0	0	0	0	0	590	0	0	0	590
680	Meeting Room	0	0	1,387	0	0	2,018	0	2,144	0	5,549
700	Support Facilities	109	0	0	695	3,319	818	0	300	1,682	6,923
710	Data Processing	109	0	0	0	0	0	0	0	1,682	1,791
720-740	Shop / Storage	0	0	0	695	3,319	236	0	300	0	4,550
750	Central Service	0	0	0	0	0	582	0	0	0	582
760	Hazmat Storage	0	0	0	0	0	0	0	0	0	0
800	Health Care Facilities	0	0	0	0	0	0	0	0	0	0
000	Unclassified (No Guideline)	0	0	0	0	0	0	0	0	0	0
<b>Total Net Assignable Square Feet (NASF)</b>		<b>32,813</b>	<b>11,408</b>	<b>18,248</b>	<b>19,767</b>	<b>4,857</b>	<b>18,655</b>	<b>4,236</b>	<b>25,481</b>	<b>27,276</b>	<b>162,741</b>
<b>Total Gross Square Feet (GSF)</b>		<b>58,879</b>	<b>19,412</b>	<b>34,500</b>	<b>38,000</b>	<b>6,032</b>	<b>35,505</b>	<b>6,757</b>	<b>49,604</b>	<b>52,733</b>	<b>301,422</b>

Data Source: Compiled by Facilities Planning Associates from data provided by Wor-Wic Community College Facilities Management

**Parking Space Inventory**



Wor-Wic Community College has 1,628 parking spaces distributed among nine (9) sites. Fifty-Two (52) spaces are reserved for disabled individuals and three (3) are designated for visitors. The remaining 1,573 spaces are open to all students, faculty, staff and the general public. All existing parking at Wor-Wic is on surface lots.

The college's parking facilities are generally located on the campus perimeter, thereby minimizing vehicular/pedestrian conflict within the campus'

academic core. The following graphic depicts the locations of the various parking lots relative to the campus' buildings and roadway infrastructure.

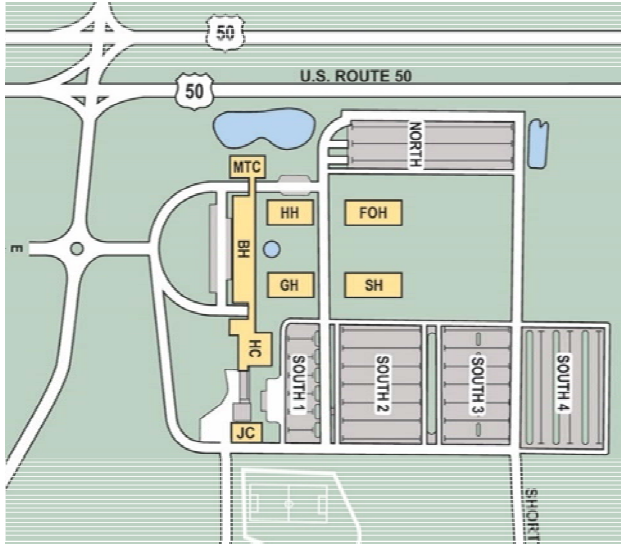
The focus of this *Facilities Master Plan* does not include a parking utilization study. Therefore, calculated existing and projected demand for parking and its impact appear later in this chapter as suggested allowances under Maryland's *Space Allocation Guidelines for Community Colleges*.

*Distribution of Existing Parking Space*

Lots	Regular Spaces	Visitor Spaces	ADA Spaces	Total Spaces
BH/MTC Lot	29	3	18	50
JC/West Lot	13	0	0	13
South 1	142	0	11	153
South 2	382	0	9	391
South 3	332	0	0	332
South 4	272	0	0	272
North Lot	370	0	12	382
Facilities	28	0	2	30
Exit Roadway	5	0	0	5
<b>Total Parking Spaces</b>	<b>1,573</b>	<b>3</b>	<b>52</b>	<b>1,628</b>

Data Source: Wor-Wic Community College Public Safety

*Campus Map: Buildings, Parking Lots and Roadways*



## DEMAND AGAINST EXISTING AND PROJECTED SPACE

The base year for this analysis is 2017. Current demands against existing space reflect the actual situation during the fall term of 2017 while the data projected to 2027 are statistically based and are, for the most part, assumptions made by the college. Summary explanations of the data assumptions for the input items are as follows:

- **Student Data** (FTDE) are calculated from course credit hours. Credit hour and contact hour data are derived from current enrollment course data provided by Wor-Wic's office of institutional research and planning; then projections of enrollment are developed by the Maryland Higher Education Commission.
- **Faculty and Staff Data** for 2017 are provided by Wor-Wic Community College's office of institutional research and planning. Information about the projected number of faculty is obtained by maintaining the current student/faculty ratio. Information about the projected numbers of staff is based on a conservative anticipated average annual growth rate of 2.6% over the next ten years.
- **Library Volume Data** in terms of Bound Volume Equivalent (BVE), is based on an allowance of 2.7% average annual increase of basic collection over the next ten-year period as determined by the Maryland Higher Education Commission.
- **Parking Space Data** is provided by Wor-Wic Community College's department of public safety. Information about the projected number of parking spaces derived by applying planned adjustments over the next ten years to the existing parking space inventory. Demand against that inventory is generated by the numbers of projected students, faculty and staff as determined by the Maryland Higher Education Commission.

As of this plan's publication, the college has no completed programs for future facilities. Therefore, the current space inventory serves as the 2027 base or supply against which the need, generated by the demand of future enrollments and staffing, would be quantified

### Student Enrollments

Headcount enrollments and full-time equivalent student (FTE or FTES) enrollments are the primary measures of student population. Although the headcount is most commonly used when referring to enrollments, this measure is generally not used for facility planning purposes.

The most generally accepted method of counting students for the purposes of assessing facilities needs is the FTE. However, it is useful to analyze trends in headcount enrollments with particular attention given to the mix of full-time versus part-time students. Because full-time students have more needs for space than do part-time students, a sizeable shift in the ratio of full-time to part-time could have a significant impact on FTE generation, and consequently, on overall space needs.

Space needs analysis primarily focuses upon academic activities that occur during the prime hours before 5:00 p.m. (Day), and will be engaged by full-time and part-time students, faculty and staff. Students enrolled during these hours are referred to as full-time day equivalent students (FTDES). While presenting various measures of FTES is important, of prime significance is establishing a stable foundation of planning tools upon which the effectiveness and quality of instructional environments necessary for learning can be predicted. For those purposes, projections of weekly student contact hours (WSCH) are also presented.

Estimates are that the total daytime on-campus WSCH will reach 34,934 by fall 2027. Of this total, approximately 28,297 WSCH will be generated by lecture segments and approximately 6,637 WSCH are expected to occur in laboratory segments for courses offered before 5:00 p.m. Determination of program and course content ten years out is difficult at best. However, given an anticipated number of students to be enrolled, projections of weekly student contact hours generated, as well as the number of classroom and laboratory sections, general estimations of space need can be calculated. These projections of weekly student contact hours form the basis for planning for future instructional spaces. Projections of enrollments

for fall 2018 through fall 2027 represent the recommendations developed by the Maryland Higher Education Commission in keeping with the pursuit of Wor-Wic's mission through the year 2027. The table below presents an overall distribution of projected

credit/contact hours for fall term of 2027 in comparison with fall 2017 enrollments. The table isolates those on-campus credit hours, FTDES and weekly student contact hours expected to be generated on campus during the day before 5:00 p.m.

*Projected Enrollments by Headcount, Credit Hours, FTES, FTDES and WSCH: Fall 2027*

	Full-Time Headcount	Part-Time Headcount	Total Headcount	Credit Hours	FTES	ON CAMPUS DAY ONLY (Before 5:00 pm)			
						Credit Hours	FTDES	WSCH Lecture	WSCH Laboratory
Fall 2017	798	2,312	3,110	26,225	1,748	19,013	1,268	18,170	4,133
Fall 2027	1,201	3,145	4,346	38,610	2,574	26,505	1,767	25,320	5,759
% Change 2017-2027	50.5%	36.0%	39.7%	47.2%	47.2%	39.4%	39.4%	39.4%	39.3%
Average Annual Growth Rate	4.2%	3.1%	3.4%	3.9%	3.9%	3.4%	3.4%	3.4%	3.4%

Data Source-2017: Wor-Wic Community College Institutional Research and Planning  
Data Source-2027: Maryland Higher Education Commission

While the use of static demographics may not be realistic for micro-level planning, such as individual project programming where population movement needs to be considered and planned for, macro-level analysis and estimates of future student populations often using static demographic data have shown to be a relatively reliable tool for most facilities master planning purposes.

When student population movement is projected by means of comprehensive academic planning and/or expressions of institutional policy, such considerations are incorporated into space planning guidelines applications to set priorities for campus development

and to compute campus-wide allowances for each category of space. In instances where such is not the case, static data for student enrollments, faculty and staff levels, and library collections are appropriately used as the basis for computing future campus-wide need for space.

**Faculty and Staff**

The college expects to maintain its current student/faculty ratios of 16:1 for the year 2027. For master planning purposes, a conservative annual increase of 2.6% is projected for full-time staff.

*Current and Projected Faculty and Staff Summary*

	Faculty (Credit & Non-Credit)				Staff		
	Full-Time <sup>a</sup>	Part-Time	Total	FTEF <sup>b</sup>	Full-Time	Part Time	Total
Fall 2017	72	175	247	116	153	36	189
Fall 2027	100	244	344	161	198	72	270
% Change 2017-2027	38.9%	39.4%	39.3%	39.1%	29.4%	100.0%	42.9%
Annual Average Growth Rate	3.3%	3.4%	3.4%	3.4%	2.6%	7.2%	3.6%

Data Source: Wor-Wic Community College Institutional Research and Planning

<sup>a</sup>Includes one full-time librarian

<sup>b</sup>Full-time equivalent faculty, including librarians, plus 25% of all part-time faculty

Source: COMAR 13B.07.05.02

## Library Volumes

Use of Bound Volume Equivalents (BVE) is a generally accepted determinant of need for overall library or study space. The BVE concept provides for conversion of a variety of collections materials such as e-books, audio-visual materials, and electronic reference sources into amounts equal to on typical book. Although the term bound volume equivalent is used to reference the measure of overall library collections, it should not be construed that growth in BVE's necessarily means a corresponding growth in actual "book" resources.

Wor-Wic's virtual library reflects an electronic references approach to supporting student and faculty needs for information access that features a noticeable absence of stack space and collaboration areas. Its library services function provides streaming videos and full text articles from books, scholarly journals, magazines and newspapers 24/7 from on

and off campus. As such, it differs significantly from traditional approaches to providing learning support services. Although the substitution of digital formats for bound, print volumes at Wor-Wic and libraries elsewhere are well underway, particularly for journals, reference books, and government documents, there continues to be a need for stack space for certain types of books.

However, just as the use of static demographics is generally accepted as reliable in macro-level planning for people-driven space requirements, the use of book equivalents is a generally accepted methodology for estimating long-range library and study space needs. At the time of actual programming for future learning commons facilities, as for other facilities, more timely consideration can be given to actual planning for design that is contemporary.

### *Current and Projected Bound Volume Equivalents (BVE)*

	BVE <sup>a</sup>
Fall 2017	27,480
Fall 2027	35,740
% Change 2017-2027	30%
Average Annual Growth Rate	2.7%

Data Source: Maryland Higher Education Commission

<sup>a</sup>Bound Volume Equivalent (BVE): the physical space required to accommodate a variety of library materials in amounts equal to one single typical book.

## QUANTITATIVE INDICATORS OF SPACE NEED

### Methodology

The college provided an inventory of existing space for each campus building, Credit Hour and Eligible Continuation Reports, section-level fall 2017 course enrollment data, and staffing data for 2017. These sets of data form the basis for quantitative analysis of Wor-Wic Community College's need for space.

The consultant team then applied elements of the data to the Maryland Higher Education Commission's *Space Allocation Guidelines for Community Colleges* to arrive at quantitative indicators of current and future space needs. Definitions and room use codes are those provided by the Higher Education General Information Survey (HEGIS) taxonomy found in the *Postsecondary Education Facilities Inventory and Classification Manual* published in 2006 by the U.S. Department of Education in cooperation with the National Center for Education Statistics. Basic methodology for quantitative analysis can be expressed using the following demand vs. supply formula:

The quantitative need for space via new or renovated facilities is typically calculated with respect to hours of instruction and the number of students, employees and library volumes to be accommodated. Projections of total space need are based on anticipated student enrollments, faculty and staff, and library volumes for fall term 2027 as mutually determined by Wor-Wic Community College and the Maryland Higher Education Commission.

These computed space projections should be viewed only as a listing of suggested maximum allowances for

### *Space Need Determinants*

Space Categories	Need Determinants
Instructional Spaces	Contact Hours (WSCH)
Open Laboratory Spaces	FTDES
Office Spaces	FTEF, FT Staff, Student Offices
Study (Library) Spaces	FTDES & Bound Volume Equivalent (BVE)
All Other Spaces	FTDES, Core Allowance, Ad Hoc Allowance

$$\begin{aligned}
 &\text{Total Space Need (Demand)} \\
 &\text{-- Facilities Space Inventory (Supply)} \\
 &= \text{Net Space Need (Minimum Need)}
 \end{aligned}$$

the campus for each type of space that are eligible for capital funding by the State of Maryland and do not necessarily relate to needs for a particular program.

The *Space Allocation Guidelines* application suggests only a computed allowance and does not suggest what sort of projects should be undertaken. Space deficits and surpluses are identified based on the application of the *Guidelines* to inventories of various categories of space and projected student enrollments. However, *Guidelines* only provide one measure of overall sufficiency of campus space and in no way address adequacy or appropriateness of space. Therefore, *Guidelines* calculations are not to be used as the determining factor when making decisions about facilities' needs. A variety of qualitative indicators of space need offer augmentation to any use of master planning metrics.

### Space Allocation Guidelines Application and Analysis

Computation of quantitative need for space is based primarily on the projected program of instruction and the number of weekly student contact hours (WSCH) that it generates. Determinations of current and projected space surpluses and/or deficits are driven by current space inventory and anticipated changes, current enrollment and projected enrollments, and current and anticipated staffing levels.

The consultant team used the space guidelines model developed by the State of Maryland and published under *Title 13B of the Code of Maryland Regulations*

(COMAR). These guidelines, *Space Allocation Guidelines for Community Colleges*, provide an initial quantitative assessment of campus-wide facility needs.

By applying information about the type of space required to teach the various courses to the current and projected enrollments previously presented, it is possible to determine the approximate amount of space that is allowed using guidelines. Then by applying current space inventory data, it is possible to determine the current and projected space surplus and/or deficit.

The assumptions made for the application of the formulae-driven space computations for fall 2027, as shown in the following table, were presented earlier and are shown again for easy reference and are applied to the existing campus space inventory.

### Space Guidelines Application and Analysis (Buildings)

With respect to current and projected space surpluses and deficits as the result of the *Guidelines* application, review of the individual data elements reveals the following:

**Classroom (110):** Facilities used for classes and that are also not tied to a specific subject or discipline by equipment in the room or the configuration of the room. This category includes general purpose

classrooms, lecture halls, seminar rooms, and support rooms that directly service classroom activity. Guideline allowance assumes 27 hours per week target room utilization; 66.7% seat occupancy rate; and 20 NASF per student station.

Given the current inventory of classroom space, application guideline suggests a current surplus of 7,415 NASF and a deficit of 3,311 NASF by 2027.

The college currently owns 127% of the space allowance in this classification. The data suggests that by 2027, the college will own 91% of its computed space allowance.

**Class Laboratory/Open Laboratory (210/220):** A class laboratory or teaching laboratory (210) is space used primarily for formally or regularly scheduled instruction (including associated mandatory, but non-credit-earning laboratories) that requires special purpose equipment or a specific space configuration for student participation, experimentation, observation, or practice in an academic discipline. Included in this category are spaces generally called teaching laboratories, instructional shops, art studios, computer laboratories, drafting rooms, band rooms and similar specially designed or equipped rooms, and support rooms that directly service class laboratory activity.

An open laboratory (220) is used primarily for individual or group instruction that is informally scheduled, unscheduled, or open. An open laboratory is designed for or furnished with equipment that serves the needs of a particular discipline or discipline group for individual or group instruction. Included in

### Guidelines Planning Assumptions

	FTES	FTDES	WSCH Lecture	WSCH Laboratory	Full-Time Faculty	Part-Time Faculty	Full-Time Staff	Full-Time Librarians	Library Volumes
Fall 2017	1,748	1,268	18,170	4,133	71	175	153	1	27,480
Fall 2027	2,574	1,767	25,320	5,759	99	244	198	1	35,740
Percent Change 2017-2027	47.3%	39.4%	39.4%	39.3%	39.4%	39.4%	29.4%	0.0%	30.1%
Average Annual Growth Rate	3.9%	3.4%	3.4%	3.4%	3.4%	3.4%	2.6%	0.0%	2.7%

Data Sources: Wor-Wic Community College Institutional Research and Planning and Maryland Higher Education Commission

CLASSROOM	2017	2017	Surplus (-) Deficit	2018-2027		2027	2027	Surplus (-) Deficit
	Inventory	Guideline		Additions	Deletions	Inventory	Guideline	
Classroom	34,670	27,255	7,415	0	0	34,670	37,981	-3,311

this category are spaces generally called music practice rooms, language laboratories used for individualized instruction, studios for individualized instruction, special laboratories or learning laboratories if discipline restricted, individual laboratories, and computer laboratories involving specialized restrictive software or where access is limited to specific categories of students.

Class Laboratory guideline allowance assumes 18 hours per week target room utilization; 60% seat occupancy rate; 50 NASF per student station for natural and social science labs; and 115 NASF per student station for technical and career labs. The allowance assumes 80% of lab contact hours are generated in natural and social science labs, and 20% in technical and career labs. Open Laboratory guideline allowance assumes a space factor of 4.2 NASF/FTDE.

**Office (300):** Office facilities are individual, multi-person, or workstation spaces specifically assigned to faculty, staff, or students in academic, administrative, and service functions of a college or university. This category also includes conference rooms, file rooms, break rooms, kitchenettes, copy rooms, and testing/tutoring space. The guideline allows:

- 166 NASF per individual requiring office space, plus 1,120 NASF core space for student offices
- 1,500 NASF core space, plus 0.5 NASF/FTDE in excess of 1,500 FTDE for testing and tutoring

Given the current inventory of office space, application guideline suggests a current deficit of 5,433 NASF in

Office/Conference space and a deficit of 1,500 NASF in Testing/Tutoring space. By 2027, these classifications are projected to have deficits of 20,464 NASF and 1,634 NASF respectively.

The college currently owns 85% of the space allowance in this combined classification. The data suggests that by 2027, the college will own 65% of its computed space allowance.

The college space inventory currently classifies no space as Testing/Tutoring.

**Study (400):** In this analysis, study space refers to, individually or collectively, three space categories:

- **Study (410):** A room or area used by individuals to study at their convenience and not restricted to a particular subject or discipline by contained equipment. It includes rooms or areas located in the library or other buildings. Study spaces are primarily used by students or staff for learning at their convenience.
- **Stack/Study (420/30):** Stack is a space used to house arranged collections of educational materials for use as a study resource. Stack/Study is a combination study space and stack, generally without physical boundaries between the stack and study areas.
- **Processing/Service (440):** A room or area devoted to processes and operations in support of library functions. Included are card and microfiche areas, reference desk and circulation desk areas, bookbinding rooms, multimedia materials

CLASS LABORATORY / OPEN LABORATORY								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Class Laboratory	35,635	28,931	6,704	0	0	35,635	40,316	-4,681
Open Laboratory	5,107	5,326	-219	0	0	5,107	7,421	-2,314
Totals	40,742	34,257	6,485	0	0	40,742	47,737	-6,996
OFFICE								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Office / Conference	40,300	45,733	-5,433	0	0	40,300	60,764	-20,464
Testing / Tutoring	0	1,500	-1,500	0	0	0	1,634	-1,634
Totals	40,300	47,233	-6,933	0	0	40,300	62,398	-22,098

processing areas, interlibrary loan processing areas, and other areas with a specific process or operation in support of library functions.

Guideline allowance assumes a combination of three separate space factors:

- Seating: 25 NASF per seating station for 25% of FTDE
- Stack: .1 NASF per Bound Volume Equivalent
- Processing/Service: 40% of Stack space plus a core of 1,200 NASF.

Given the current inventory of collective study space, application guideline suggests a current deficit of 5,014NASF and a deficit of 9,188 NASF by 2027.

The college currently owns 58 % of the space allowance in this overall classification. The data suggests that by 2027, the college will own 43% of its computed space allowance.

As noted earlier, Wor-Wic's virtual library reflects an electronic references approach to supporting student and faculty needs for information access that features a noticeable absence of stack space and collaboration areas. Its library services function provides streaming videos and full text articles from books, scholarly journals, magazines and newspapers 24/7 from on and off campus. As such, it differs significantly from traditional approaches to providing learning support services.

**Athletics / Physical Education (520):** A room or area used by students, staff, or the public for athletic or physical education activities. Athletics / Physical Education space includes gymnasias, basketball courts, handball courts, squash courts, wrestling rooms, weight or exercise rooms, racquetball courts, indoor swimming pools, indoor putting areas, indoor ice rinks, indoor tracks, indoor stadium fields, and field houses. This category includes spaces used for dancing and bowling.

Guideline allowance assumes 10 NASF/FTDE beyond 1,500 plus a core of 34,000 NASF.

Given the current inventory of physical education space, application guideline suggests a current deficit of 27,779 NASF and a deficit of 30,449NASF by 2027. The college currently owns 18% of the space allowance in this classification. The data suggests that by 2027, the college will own 17% of its computed space allowance.

Wor-Wic does not offer a curriculum in physical education and it does not have recreational, intramural, or intercollegiate athletic teams, but it values the health and wellness of its students, faculty and staff.

**Media Production (530):** A space used for the production or distribution of multimedia materials or signals. This classification Includes spaces generally called TV studios, radio studios, sound studios, photo studios, video or audio cassette and software production or distribution rooms, and media centers.

STUDY								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Study	6,859	7,925	-1,066	0	0	6,859	11,044	-4,185
Stack / Study	0	2,748	-2,748	0	0	0	3,574	-3,574
Processing / Service	0	1,200	-1,200	0	0	0	1,430	-1,430
Totals	6,859	11,873	-5,014	0	0	6,859	16,048	-9,188

ATHLETICS / PHYSICAL EDUCATION								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Athletics / Physical Education	6,221	34,000	-27,779	0	0	6,221	36,670	-30,449



Guideline allowance assumes 0.8 NASF/FTDE beyond 1,500 plus a core of 1,600 NASF.

Given the current inventory indicates no space classified as Media Production, application of guidelines suggests a current deficit of 1,600 NASF and a deficit of 1,814 NASF by 2027.

**Greenhouse (HEGIS 580):** A building or room usually composed chiefly of glass, plastic, or other light transmitting material, which is used for the cultivation or protection of plants or seedlings for research, instruction, or campus physical maintenance or improvement purposes.

Guideline allowance assumes a minimum core of 1,000 NASF

Given the current inventory indicates no space classified as Greenhouse, application of guidelines suggests a current deficit of 1,000 NASF and a continued deficit of 1,000 NASF by 2027.

**Assembly (610):** A space designed and equipped for the assembly of many persons for such events as dramatic, musical, devotional, livestock judging, or

commencement activities. Includes theaters, auditoria, concert halls, arenas, and chapels that are used primarily for general presentations (speakers), performances (dramatic, musical, dance), and devotional services.

Guideline allowance assumes 2 NASF/FTDE beyond 1,500 plus a core of 12,000 NASF.

Given the current inventory of assembly space, application guideline suggests a current deficit of 6,854 NASF and a deficit of 7,388 NASF by 2027. The college is currently just above the core guideline allowance for assembly space.

The college currently owns 43% of the space allowance in this classification. The data suggests that by 2027, the college will own 41% of its computed space allowance.

**Exhibition (620):** A room or area used for exhibition of materials, works of art, artifacts, etc., and intended for general use by faculty, students, staff, and the public. This includes both departmental and institution-wide museums, galleries, and similar exhibition areas

MEDIA PRODUCTION								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit

Media Production	0	1,600	-1,600	0	0	0	1,814	-1,814
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GREENHOUSE								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit

Greenhouse	0	1,000	-1,000	0	0	0	1,000	-1,000
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ASSEMBLY								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit

Assembly	5,146	12,000	-6,854	0	0	5,146	12,534	-7,388
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EXHIBITION								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit

Exhibition	0	1,500	-1,500	0	0	0	1,634	-1,634
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that are used to display materials and items for viewing by institutional population and the public.

Guideline allowance assumes 0.5 NASF/FTDE beyond 1,500 plus a core of 1,500 NASF. Given the current inventory indicates no space classified as Exhibition, application of guidelines suggests a current deficit of 1,500 NASF and a deficit of 1,634 NASF by 2027.

**Food Facility (630):** Rooms intended for the consumption of food, and rooms that provide direct service. This category includes dining halls, cafeterias, snack bars, restaurants, kitchens, food serving areas, food storage, dishwashing, and cleaning areas. Also included are such facilities located in residence halls.

Guideline allowance assumes 8.4 NASF times Planning Headcount (50% FTDE, FTEF, and FT Staff).

Given the current inventory of food facility space, application guideline suggests a current surplus of 858 NASF and a deficit of 2,149 NASF by 2027.

The college currently owns 111% of the space allowance in this classification. The data suggests that by 2027, the college will own 80% of its computed space allowance.

**Lounge (650):** Lounge space used for rest and relaxation that is not restricted to a specific group of people, unit, or area. A lounge facility is typically

equipped with upholstered furniture, draperies, and carpeting, and may include vending machines.

Guideline allowance assumes 3.0 NASF times Planning Headcount (50% FTDE, FTEF, and FT Staff).

Given the current inventory of lounge space, application guideline suggests a current deficit of 180NASF and a deficit of 1,064 NASF by 2027.

The college currently owns 92% of the space allowance in this classification. The data suggests that by 2027, the college will own 67% of its computed space allowance.

**Merchandising (660):** This classification is for areas used to sell products or services. Examples include bookstores, student supply stores, campus food stores, barber and beauty shops, walk-away vending areas, and central ticket outlets.

Guideline allowance assumes 0.5 NASF/FTDE beyond 1,500 plus a core of 1,600 NASF.

Given the current inventory of merchandising space, application guideline suggests a current surplus of 1,234 NASF and a surplus of 1,100 NASF by 2027.

The college currently owns 177% of the space allowance in this classification. The data suggests that by 2027, the college will own 163% of its computed space allowance.

FOOD FACILITY								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Food Facility	8,695	7,837	858	0	0	8,695	10,844	-2,149

LOUNGE								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Lounge	2,125	2,305	-180	0	0	2,125	3,189	-1,064

MERCHANDISING								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Merchandising	2,834	1,600	1,234	0	0	2,834	1,734	1,100

**Meeting Room (680):** A room that is used by the institution and is also available to the public for a variety of non-class meetings.

Guideline allowance assumes a core of 8,000 NASF

Given the current inventory of meeting space, application guideline suggests a current deficit of 451 NASF and a continued deficit of 451 NASF by 2027.

The college currently owns 93% of the space allowance in this classification. The data suggests that by 2027, the college will still own 93% of its computed space allowance.

**Data Processing (710):** A space used as a data or telecommunications center with applications that are broad enough to serve the overall administrative or academic primary equipment needs of a central group of users, department, college, school, or entire institution.

Guideline allowance assumes 0.75 NASF/FTDE beyond 4,500 plus a core of 2,500 NASF.

Given the current inventory of data processing space, application guideline suggests a current deficit of 709 NASF and a continued deficit of 709NASF by 2027.

The college currently owns 72% of the space allowance in this classification. The data suggests that by 2027, the college will still own 72% of its computed space allowance.

**Physical Plant (720-760):** Support facilities, which provide centralized space for various auxiliary support systems and services of a campus, help keep all institutional programs and activities operational. While not as directly accessible to institutional and community members as General Use Facilities (Code 600 series), these areas provide a continuous, indirect support system to faculty, staff, students, and the public. Support facilities are centralized in that they typically serve an area ranging from an entire building or organizational unit to the entire campus. Included are centralized areas for shop services, general storage and supply, vehicle storage (720-745); central services e.g., printing and duplicating, mail, shipping and receiving, environmental testing or monitoring, laundry, or food stores (750), and hazardous materials areas (760/770).

Guideline allowance assumes a combination of three room use categories:

- Central Services: 1.0 NASF/FTDE beyond 4,500 plus a core of 4,000 NASF.

MEETING ROOM								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Meeting Room	5,549	6,000	-451	0	0	5,549	6,000	-451
DATA PROCESSING								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Data Processing	1,791	2,500	-709	0	0	1,791	2,500	-709
PHYSICAL PLANT								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Shop / Storage	4,550	7,818	-3,268	0	0	4,550	9,865	-5,315
Central Service	582	4,000	-3,418	0	0	582	4,000	-3,418
Hazmat Storage	0	156	-156	0	0	0	197	-197
Totals	5,132	11,974	-6,842	0	0	5,132	14,062	-8,930

- Shops/Storage/Vehicle Storage/Repair: 4% of all other campus inventory
- Hazardous Materials Storage: 2% of existing shops/storage/vehicle storage/repair NASF

Given the current inventory of physical plant facilities, application guideline suggests a current deficit of 6,842 NASF and a deficit of 8,930 NASF by 2027.

The college currently owns 43% of the space allowance in this classification. The data suggests that by 2027, the college will own 36% of its computed space allowance.

**Health Care Facilities (800):** Space used for patient care areas that are located in separately organized and budgeted health care facilities: student infirmaries and centers, teaching hospitals, stand-alone clinics run by these hospitals, and veterinary and medical schools.

Guideline allowance assumes 0.2 NASF/FTDE beyond 1,500 plus a core of 500 NASF.

Given the current inventory indicates no space classified as Health Care Facilities, application of guidelines suggests a current deficit of 500 NASF and a deficit of 553 NASF by 2027.

The college space inventory currently classifies no space as Health Care Facilities.

**Space Guidelines Application and Analysis (Parking):** Maryland's *Space Allocation Guidelines for Community Colleges* are also used to compute parking allowances. The Guidelines allow 300 square feet per car and a number of spaces to accommodate 75% of full-time faculty, staff, and eligible full-time day equivalent students with regular parking. In addition to regular parking spaces, the Americans with Disabilities Act (ADA) requires reserved spaces for disabled individuals.

Wor-Wic Community College has 1,628 parking spaces distributed among nine (9) lots. 52 spaces are reserved for disabled individuals. 1,562 spaces are available for students, employees and visitors/general public. All existing parking is on surface lots as there are no parking structures at Wor-Wic.

When the guidelines input data assumptions are applied to current parking inventory data, it is possible to determine the number of parking spaces allowed for state funding participation. The current parking inventory was presented earlier and calculations of allowance are provided in the following table.

The campus currently owns 136% of guidelines allowed parking spaces. The data suggests that by 2027, the campus will own 98% of its computed parking space allowance.

HEALTH CARE FACILITIES								
	2017 Inventory	2017 Guideline	Surplus (-) Deficit	2018-2027		2027 Inventory	2027 Guideline	Surplus (-) Deficit
				Additions	Deletions			
Health Care Facilities	0	500	-500	0	0	0	553	-553

Parking Category	Factor	Allowance Current	Inventory 2017	Surplus/ (Deficit)	Allowance 10 Years	Inventory 2027	Surplus/ (Deficit)
FTDE-T	0.75	951			1,325		
FT-Faculty plus Staff	0.75	196			278		
Visitors	0.02	23			32		
Reserved Accessible (ADA)	Required	23			28		
<b>Total Spaces</b>		<b>1,193</b>	<b>1,628</b>	<b>435</b>	<b>1,663</b>	<b>1,628</b>	<b>(35)</b>

Data Source: Wor-Wic Community College Public Safety (Inventory)

## QUALITATIVE INDICATORS OF SPACE NEED

A variety of qualitative or non-statistical environmental characteristics impact the space needs of a college campus. These global space needs, where Wor-Wic is concerned, focus more on quality and functionality of spaces than on quantity with the exception of workforce development, wellness/fitness/recreation, student activities, physical plant, and assembly, which are currently experiencing serious deficiencies. A sampling of such needs is summarized here by the following functions:

- Instruction
- Instructional Support
- Student Services
- Institutional Support
- Outdoor Functions
- Continuing Education

Unlike quantitative analysis, qualitative analysis is very subjective. Qualitative indicators of current conditions and program characteristics and future space needs/desires are the result of observations by the consultants and of views expressed by college personnel during interviews with the consultants and/or via written statements.

This listing is by no means all-inclusive. Future facility programming for individual new or renovated facilities at Wor-Wic Community College will require, in each instance, a thorough review and analysis of each of the subject function's component activities to determine a specific justification and rationale for new or reconfigured spaces.

### Instruction

- Functions that should be co-located are sometimes separated and distributed throughout the campus by floor and by building. There is a need for physical proximity with respect to spaces within various departments.
- There are insufficient numbers of skills labs in the Shockley Hall to support both credit and non-credit instruction.
- There is reported credit vs. non-credit conflict involving availability of science laboratories.

- As guidelines application suggests the need for more instructional space in the near future, the need is for highly flexible, multi-functional instructional spaces. Migration to teaching more disciplines in computer labs has created rooms that are inflexible. Permanent furniture, hardware and wiring installations have made it difficult, if not impossible, to rearrange classrooms to suit varied needs in different courses or even in the same course. There is a need for some "quick response capability" to take advantage of emergent opportunities to respond rapidly to business needs particularly in continuing education and workforce development environments.
- There is a need for on-campus workforce development space for various trades such as construction, transportation and maintenance.

### Instructional Support

- The college has an insufficient number of facilities that are appropriate for part-time faculty to work and communicate before and after classes. Not only is there a need for appropriate settings outside the classroom for student/faculty interaction, but also a need for spaces that allow for seamless integration of part-time faculty into departmental frameworks.
- There are limited copy/duplication facilities available to support faculty and staff who need services on the evening shift (after 4:30 pm).
- There is a need for more group study rooms. There are a minimal number of group or collaborative learning environments on campus. There is a need for available study rooms and spaces where small groups could meet, either as spontaneous groupings or as scheduled study circles
- There is insufficient space to support formal learning community concepts.
- Library services functions are scattered in different parts of the campus which results in

duplication of resources and operating inefficiencies.

- There is a need for break rooms and social spaces for students, staff and faculty.

### Student Affairs

- The space designated for student activities is too small. The Hazel Center is not functionally efficient or effective as a student center. Students complain that there are insufficient and inadequate places for them to really hang out. There is a need for student areas that are more inviting for enjoyment, relaxation, individual study and group learning.
- There is also a need for more distributed informal spaces, especially during evening and weekend hours. At present, the lounge space (and cafeteria) in the Hazel Center is available only for limited hours during evenings and weekends. There is no informal lounge space within Brunkhorst Hall despite the extensive evening and weekend hours that the building is open.
- There is generally insufficient and inadequate student lounge space, meeting space, recreational areas, and student organization space.
- Facilities for counseling and other areas that need confidential space are inadequate.
- There is a need for student service facilities to be consolidated and grouped in such a way that allows for an incoming student to progress in a natural order through the admissions, registration, financial aid, and cashiering process. Additionally, there is the need for contiguous, centralized and dedicated spaces for students. The student service facilities also must provide services and conveniences that students, faculty, staff, alumni, guests and other members of the college community need in their daily lives, including the cafeteria, bookstore, and student organizations.

### Institutional Support

- There is insufficient space for physical plant operations such as; maintenance shops, storage, offices, and central services. The Maintenance Building is grossly inadequate for the functions it must accommodate. It contains insufficiently sized and inappropriate shop space. Its vehicle bay, at just over 800 NASF is large enough for only one vehicle in maintenance at a time. That leaves little to no space to appropriately operate trades shops. With a small locker space being the exception, there are no other spaces classified as staff support spaces. Most offices are insufficiently sized.
- Insufficient storage space is a significant problem throughout the campus buildings resulting in inappropriate storage of records, furniture and equipment, books, academic and administrative supplies, performing and fine arts materials and equipment, event equipment, and custodial supplies.
- Facilities for human resources and other areas that need confidential spaces are insufficient, inadequate and inappropriate.
- There are insufficient numbers of break rooms and social spaces for staff and faculty.
- Gathering spaces for students are not evenly distributed throughout the buildings.
- There is a need for a properly located and sized wellness, fitness and recreation center. The criminal justice program has need for the one athletic facility and fitness equipment on campus and has priority over other students, faculty and staff.
- The single assembly space on campus is a 218-seat auditorium area in Guerrieri Hall which is insufficiently sized to accommodate large gatherings. This space represents only 43% of the Maryland guidelines for even minimum core community college assembly space.
- Food facilities in general are insufficiently sized to effectively serve the needs of future campus populations.

- There is only one all-gender toilet facility on campus.

### Outdoor Functions

- There are very few designated outdoor student spaces for active recreation. The soccer field is in poor shape and doesn't get used. Students go off-campus for recreational activities.
- Although there is a current overall surplus of parking space, projections of student enrollment and staffing suggest a parking deficit by the year 2027. Some existing parking is at inconvenient distances to user destinations.
- There are no provisions to assist students and others in safely crossing Route 50. This activity becomes even more intensified after dark and is considered a major life safety issue.

### Continuing Education

Continuing Education is included with the Qualitative Indicators of Space Need section only because viable metrics have yet to be generally accepted and consistently applied in response the unique needs for space as generated by non-credit programs such as found in continuing education and workforce development situations.

Wor-Wic's continuing education and workforce development division provides courses, programs and

services that are responsive to the needs, interests and trends of Worcester, Wicomico and Somerset counties' business and industrial community and promote the personal and professional growth and stability of the people who live and work in the Lower Eastern Shore. Courses tailored to the applications of individual businesses are offered through customized training contracts within parameters convenient to the businesses. A wide range of career-oriented non-credit courses is offered during three major terms each year, beginning in September, January and April. Courses are designed to help students prepare for a new career, upgrade existing skills, meet licensure, certification or continuing education requirements, improve technical skills and provide opportunities for self-improvement.

The following table presents data showing that over 45% of Wor-Wic Community College's students during the fall term of 2017 were enrolled in non-credit courses. Although Maryland space planning models do not fully provide for consideration of continuing education and workforce development student enrollment data when computing space needs, it is rather obvious that the implications of this statistic would have a significant impact on Wor-Wic's needs for space.

Student Headcount	Fall Term					
	2012	2013	2014	2015	2016	2017
Credit	3,739	3,419	3,107	3,137	3,098	3,110
Non-credit	2,761	2,775	2,691	2,772	2,914	2,605
Total Headcount	6,500	6,194	5,798	5,909	6,012	5,715
Non-credit %	42.5%	44.8%	46.4%	46.9%	48.5%	45.6%

Data Source: Wor-Wic Community College Institutional Research and Planning

## SUMMARY

It is often said that inferior spaces equal inferior environments equal perceived inferior service. Qualitative facilities problems often stem from the impact of quantitative problems on the physical campuses as a whole and the absence of certain necessary spaces.

The data leading up to and including the computed and qualitative needs establishes the necessity for renovated and/or additional facilities at Wor-Wic

Community College to meet its present and future requirements for space. Potential strategies for meeting these identified space requirements are addressed, in physical terms, by the capital projects outlined later in this *Facilities Master Plan*.

The next chapter begins the evaluation of buildings and campus site infrastructure to determine their suitability to support existing and future programs.



# CHAPTER 4: THE CAMPUS TODAY

This chapter analyses the campus buildings systems, site infrastructure, the campus grounds, sustainability, and signage.



- Existing Buildings
- BH Brunkhorst Hall
  - MTC Maner Technology Center
  - HC Hazel Center
  - HH Henson Hall
  - GH Guerrieri Hall
  - JC Jordan Center
  - MB Maintenance Building
  - FOH Fulton-Owen Hall
  - SH Shockley Hall

## BRUNKHORST HALL

Building Designation	BH
Number of Floors	3 + 4 <sup>th</sup> level mechanical mezzanine
Net Assignable Square Feet	32,813
Gross Building Area - GSF	58,879
Net-to-Gross Efficiency	56%
Year Constructed	1994
Renovations	2016-2018 Geo-thermal system with related HVAC modifications; on-going renovations.
Additions	None
Contains	Administrative and faculty offices; classrooms, technology labs, Veterans center, central library services hub
General Condition	Good
Sprinkler System	Fully sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

Brunkhorst Hall, constructed in 1994, is the original "core" building of the campus and serves as the most identifiable feature of the college. This building, a 3-story steel frame, masonry infill structure with a 4<sup>th</sup> story mechanical mezzanine houses Student Services offices, faculty offices, business office, HR, grants, institutional advancement, classrooms, developmental and technology laboratories, Veterans center, and technology laboratories.

BH is highly utilized and still serves the functions for which it was designed. With the addition of the Hazel Center in 2005, the large meeting room on the first floor of BH was renovated to provide more office space for student service functions such as admissions, career services and financial aid, which grew out of existing space. The addition of Fulton-Owen Hall in 2007 allowed the Continuing Education and Workforce Development (CEWD) office and business department to relocate, which provided more first floor administrative space and second floor faculty office space. The construction of the new Allied Health

Building in 2011 provided allied health and nursing spaces and incorporated the college's information technology (IT) department, which allowed it to consolidate operations in the new building and provide additional administrative space in BH.

BH is now more than 24 years old. Based on the condition of the building (aside from some masonry and sealant repairs) it is not anticipated that a structural renovation project will be required during the time frame of this plan. However, as proposed new buildings identified in this Plan are developed, opportunities exist in Brunkhorst to continue to re-purpose and upgrade spaces and provide for expansion of Student Services. Enclosing the existing north-south arcade along the east side of the first floor would create an expansion opportunity for Student Services and provide a more efficient floor plan. In addition to Student Services, other areas including business office, HR and faculty offices are in need of additional space.

### MECHANICAL

#### Description of Existing HVAC Systems

Brunkhorst Hall utilizes the closed loop vertical U-tube geothermal system that was installed in the Maner Technology Center for heating and cooling the building. Refer to the Maner Technology Center write up for the details of the geothermal system.

The terminal equipment in the building consists of variable speed heat pump ceiling cassettes that provide simultaneous heating and cooling of all of the spaces in Brunkhorst Hall with the exception of the south pavilion which is served by a low temperature variable air volume air handling system located in the south main mechanical room. The low temperature variable air volume air handling unit is not served by the geothermal system and receives its heating/cooling media from the Brunkhorst chiller and boilers located in the South main mechanical room. The low temperature variable air volume system utilizes 2-way modulating control valves on the heating and chilled water coils. All of the variable refrigerant compressor units and the packages energy recovery units utilize 2-way modulating control valves.

All of the HVAC equipment in Brunkhorst Hall was installed in 2018 and is in very good condition.

Sidewall propeller fans are utilized for general ventilation of mechanical spaces.

The automatic temperature control systems consist of a web based direct digital control system and the same is in very good condition. The following tables summarize the major components of the HVAC systems.

*Refer to Maner Technology Center for description of the Central Heating/Cooling System that serves Brunkhorst Hall.*

#### HVAC Reported/Observed Deficiencies

- The glycol serving the chilled water system that feeds AHU #9 needs to be tested to verify freeze protection and ph.
- The original boilers that essentially serve the Hazel Center and the bookstore AHU #9/VAV Boxes are oversized for the current remaining heating loads.
- The heating water pumps in the main boiler room are oversized.
- All boiler controls, piping, and hydronic specialties are beyond their useful service life.
- The boiler room ventilation system and heaters have served their useful life.
- The chiller that essentially serves just the Hazel Center and the bookstore AHU is oversized.
- The chilled water system pumps are oversized for the current loads.
- All of the abandoned HVAC equipment in the South mechanical yard is an eyesore and currently serves no purpose.
- The new ERV units have experienced control/operational issues. However, this is being addressed by the original mechanical contractor.

#### HVAC Recommendations

- Replace existing boilers with condensing boilers sized for the current and future expected loads.
- Replace boiler primary pumps, secondary pumps, air separator, expansion tank, make-up water valve train, and all boiler controls.
- Replace ventilation system in the boiler room.

- Replace heating system in the boiler room.
- Replace the chiller with a properly sized chiller for the current and future expected loads.
- Replace the chilled water pumps.
- Remove the abandoned ice storage vaults, concrete piers, piping, supports, and cooling towers in the South Mechanical Yard.
- Complete final resolution of control issues with new ERV units.
- Test glycol system serving the chilled water system and take appropriate action.

#### PLUMBING

##### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of higher education academic facilities. The piping systems and plumbing fixtures are all in good condition. Some of the electric water heaters have been replaced. The following tables summarize the major components of the plumbing systems.

##### Plumbing Reported/Observed Deficiencies

- Water heaters do not have thermal expansion tanks.
- Water heaters are electric resistance type which are costly to operate.

##### Plumbing Recommendations

- Install thermal expansion tanks at all water heaters.
- When electric water heaters are replaced consider utilizing heat pump type water heaters to reduce operating costs.
- When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.

#### FIRE PROTECTION

##### Description of Existing Fire Protection System

The fire protection system is served from the original diesel fire pump that is fed from the 32,000 gallon ground storage tank. A dedicated fire protection service feeds the sprinkler system and hose valves. The main fire protection components are in poor condition.

### Fire Protection Reported/Observed Deficiencies

- The diesel fire pump should be replaced due to age and the fact that it is the only fuel oil fired equipment on the campus.
- The diesel fire pump is expensive to maintain and operate.
- The diesel fire pump is oversized.
- The 32,000 gallon ground suction storage tank should be removed.

### Fire Protection Recommendations

- Replace the diesel fire pump with a vertical in line fire pump that is sized only for the current buildings served by the same.
- Remove the 32,000 gallon ground suction storage tank and all associated piping.
- Connect the new electric vertical in-line fire pump into the Campus elevated fire storage tank piping.

## ELECTRICAL

### Description of Existing Electrical Systems:

- The building is served by both the service switchboard located at MTC and behind the HC. A 1000A main lug only distribution panel DP1A, rated for 480/277V, 3 phase, 4 wire is fed from the MTC service switchboard via a 1000A feeder. DP1A is manufactured by Square D, and is original to the building. Panel DHPC was installed as part of the HVAC renovation in 2015. This is fed from DHPA located in the Maner Technology Center.
- Local batteries provide standby power for Life Safety loads in the building.
- Fluorescent lamps were retrofitted with LED replacement bulbs, and automatic lighting controls were installed as part of a rebate program. The fixtures with integral emergency battery ballasts were not retrofit and still utilize fluorescent lamps.

### Electrical Systems Reported Problems/Deficiencies:

- None.

### Electrical Systems Recommendations:

- Replace remaining fluorescent lighting fixtures with LED lighting fixtures for additional energy savings. As retrofit

lighting systems reach the end of their anticipated useful life of 25-30 years, replace with LED type fixtures.

- Provide surge protection device on main distribution panel(s) inside the building.
- Provide generator backup if/when fire pump is replaced with vertical in-line electric fire pump.

## FIRE ALARM SYSTEM

### Description of Existing Fire Alarm Systems:

- The system is an Edwards IRC-3. The fire alarm control panel is located in the First Floor IDF adjacent to the Main Lobby. The panel reports directly to a Central Monitoring Station. A remote annunciator is located in the reception area on the opposite side of the Lobby.

### Fire Alarm System Reported Problems/Deficiencies:

- The system has reached its anticipated useful life of 25-30 years and should be a priority for replacement.
- Lack of reporting/troubleshooting from a common location on campus.

### Fire Alarm System Recommendations:

- Integrate the fire alarm control panel into a campus wide system annunciating at the Campus Safety Office.

## SECURITY SYSTEM

### Description of Existing Security System:

- The intrusion detection panel is located in the First Floor IDF adjacent to the Main Lobby.

### Security System Reported Problems/ Deficiencies:

- The system has reached its anticipated useful life of 25-30 years and should be a priority for replacement.
- Lack of reporting/troubleshooting from a common location on campus.

### Security System Recommendations:

- Replace the fire alarm system and integrate it into a campus wide system annunciating at the Campus Safety Office.



*Exterior from Brunkhorst Hall Quad*



*Central Atrium*



*Arcade*



*Library Services Hub*



*Student Services*



*Honors Program Space*

## MANER TECHNOLOGY CENTER

Building Designation	MTC
Number of Floors	3 + 4 <sup>th</sup> level mechanical mezzanine
Net Assignable Square Feet	11,408
Gross Building Area - GSF	19,412
Net-to-Gross Efficiency	59%
Year Constructed	1994
Renovations	2016-2018 Geothermal system with related HVAC modifications as part of Brunkhorst project; on-going renovations.
Additions	None
Contains	Administrative offices; classrooms, computer and technology labs
General Condition	Good
Sprinkler System	Fully sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

The Maner Technology Center (MTC) was constructed in 1994 as part of the original complex of buildings on campus. It lies directly north of and is connected to Brunkhorst Hall by a second- and third-floor bridge. The MTC is of similar design and construction to Brunkhorst Hall and houses executive and administrative offices including the boardroom on the first floor and computer and technology laboratories on the second and third floors.

### MECHANICAL

#### Description of Existing HVAC Systems

The Maner Technology utilizes a closed loop vertical U-tube geothermal system for heating and cooling the building. The heat exchanger is located to the West side of the Maner Technology Center and consists of 270 high density polyethylene vertical U-Tubes installed 350 feet deep. The heat exchanger is headered together into an underground high density polyethylene vault, also located to the West side of the Maner Technology Center. The main geothermal supply/return pipes are routed up the North side of the

Maner Technology Center and enter the upper floor mechanical penthouse.

The "heart" of the geothermal system is two based mounted variable speed pumps that distribute water for heat absorption and heat rejection to water cooled variable refrigerant systems (VRV) and packaged energy recovery units.

The terminal equipment in the building consists of variable speed ceiling cassettes that provide simultaneous heating and cooling of all of the spaces in the Maner Technology Center.

All of the HVAC equipment in the Maner Technology Center was installed in 2016 and is in very good condition with the exception of the energy recovery units which have been problematic due to manufacturer equipment/control issues.

Sidewall propeller fans are utilized for general ventilation of mechanical spaces.

The automatic temperature control systems consist of a web based direct digital control system and same is in very good condition. The HVAC systems are in very good condition. The following tables summarize the major components of the HVAC systems.

#### HVAC Reported/Observed Deficiencies

- The new ERV units have experienced control/operational issues. However, this is being addressed by the original mechanical contractor.

#### HVAC Recommendations

- Complete final resolution of control issues with new ERV units.

### PLUMBING

#### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of higher education academic facilities. The piping systems, water heater, and plumbing fixtures are all in good condition.

#### Plumbing Reported/Observed Deficiencies

- Existing water heater has served its useful life.

- Water heater is electric resistant type which is costly to operate.
- Water heater does not have thermal expansion tank.

#### Plumbing Recommendations

- Replace existing water heat with heat pump water heater.
- Install thermal expansion tank at water heater.
- When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.

### FIRE PROTECTION

#### Description of Existing Fire Protection System

The fire protection system is served from the original diesel fire pump that is fed from the 32,000 gallon ground storage tank. A dedicated fire protection service feeds the sprinkler system and hose valves. The main fire protection components are in poor condition.

#### Fire Protection Reported/Observed Deficiencies

- The diesel fire pump should be replaced due to age and the fact that it is the only fuel oil fired equipment on the campus.
- The diesel fire pump is expensive to maintain and operate.
- The diesel fire pump is oversized.
- The 32,000 gallon ground suction storage tank should be removed.

#### Fire Protection Recommendations

- Replace the diesel fire pump with a vertical in line fire pump that is sized only for the current buildings served by the same.
- Remove the 32,000 gallon ground suction storage tank and all associated piping.

### ELECTRICAL

#### Description of Existing Electrical Systems:

- The building is served the service switchboard located adjacent to the building. A 1200A feeder serves Distribution panel DPHA, manufactured by Square D. DPHA is rated for 480/277V, 3 phase, 4 wire and is equipped with a 1200A main breaker and surge protection device. This was installed

in 2016 as part of an HVAC system renovation and serves mechanical equipment. Panel NDP1A is fed from a 400A feeder in the same switchboard. This panel is original to the building and serves lighting and receptacle loads. NDP1A is also manufactured by Square D, rated for 480/277V, 3 phase, 4 wire with a 600A MCB.

- Local batteries provide standby power for Life Safety loads in the building.
- Fluorescent lamps were retrofit with LED replacement bulbs, and automatic lighting controls were installed as part of a rebate program. The fixtures with integral emergency battery ballasts were not retrofit and still utilize fluorescent lamps. Select areas have been renovated with lighting systems that utilize LED fixtures and local automatic lighting control devices.

#### Electrical Systems Reported Problems/Deficiencies:

- None.

#### Electrical Systems Recommendations:

- Replace remaining fluorescent fixtures with LED for additional energy savings. As retrofit lighting systems reach the end of their anticipated useful life of 25-30 years, replace with LED type fixtures.
- Provide surge protection device on main distribution panel(s) inside the building.

### FIRE ALARM SYSTEM

#### Description of Existing Fire Alarm System:

- The fire alarm system is tied into the Brunkhorst Hall control panel.

#### Fire Alarm System Reported Problems/Deficiencies:

- The system has reached its anticipated useful life of 25-30 years and should be a priority for replacement.
- Lack of reporting/troubleshooting from a common location on campus.

**Fire Alarm System Recommendations:**

- Replace the fire alarm system and integrate it into a campus wide system annunciating at the Campus Safety Office.

**SECURITY SYSTEM**

**Description of Existing Security System:**

- The intrusion detection system is tied into the Brunkhorst Hall control panel.

**Security System Reported Problems/ Deficiencies:**

- The system has reached its anticipated useful life of 25-30 years and should be a priority for replacement.
- Lack of reporting/troubleshooting from a common location on campus.

**Security System Recommendations:**

- Integrate the intrusion detection control panel into a campus wide system annunciating at the Campus Safety Office.



*Exterior from West*



*Electronics Lab (to be de-commissioned)*



*Computer Classroom*



*Board Room*



## HAZEL CENTER

Building Designation	HC
Number of Floors	3 + 4 <sup>th</sup> level mechanical mezzanine
Net Assignable Square Feet	18,655
Gross Building Area - GSF	35,505
Net-to-Gross Efficiency	53%
Year Constructed	1994
Renovations	2005 as part of addition project
Additions	2005
Contains	Cafeteria, bookstore, printing services, student lounges and study room, faculty and staff offices, faculty and staff offices, public meeting room, conference room.
General Condition	Good
Sprinkler System	Fully sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

A student center was originally constructed in 1994 as part of the original campus. The single-story masonry building was located to the south of Brunkhorst Hall and connected to that building by a ground-level covered walkway. The building housed a dining room, lounge, game room, student club offices and the bookstore. Food service was provided by vending machines and series of local vendors selling prepackaged products at lunch time. This building also housed the mechanical room (boilers and chillers) for BH, MTC and HC. The original mechanical room now only supplies heating and cooling to the Hazel Center.

As enrollment increased, it became apparent that the services offered to the students in this building were inadequate, especially food service. In the fall of 2005, an expanded building, a combination of renovated existing space and new construction, opened for business.

The Hazel Center addition is a 3-story steel frame, masonry infill building with a 4<sup>th</sup> story mechanical mezzanine and a total of 35,505 gross square feet of

space. The building houses a full-service cafeteria operated by an outsourced, independent contractor, a 250-seat dining area and a 10-station cyber cafe on the first floor; a game room, TV room and lounge for students as well as faculty and staff offices and a conference room on the second floor; and a study room and large public meeting room on the third floor. The expanded campus bookstore, operated by an outsourced, independent contractor, and the college print center carved out of a portion of the former student dining area, remain in the original portion of the building.

This building was a valuable addition to the college and serves the function for which it was constructed quite well. However, because of the age of the building and the roofing system, the college has begun replacing sections of the structure in phases beginning in FY 2019 (see Appendix, Facilities Renewal Projects).

### MECHANICAL

#### Description of Existing HVAC Systems

The Hazel Center utilizes hydronic hot water and chilled water systems for heating and cooling the building, respectively. The boiler and hot water pumps are located in the original Brunkhorst mechanical room and the air-cooled chiller is located outside adjacent to the Brunkhorst Mechanical Room. The heating water system utilizes a primary/secondary piping arrangement with constant speed primary pumps and variable speed secondary pumps. The chilled water system utilizes a primary/secondary piping arrangement utilizing constant primary speed pumps and variable speed secondary chilled water pumps. The chilled water system utilizes antifreeze to protect the exterior, exposed chilled water piping and chiller barrel.

Terminal equipment in the building consists of fan powered VAV boxes, central station air handling units, kitchen make-up air units, and hydronic unit heaters. The chilled water coils utilize 2-way control valves and the hot water coils also utilize 2-way control valves.

Various fans are utilized for general ventilation of toilet rooms, mechanical spaces and the kitchen hoods. The kitchen ventilation systems are variable air volume systems including variable air volume gas

fired make-up air units and variable air volume hood exhaust fans.

The automatic temperature control systems consist of direct digital controls system and the same is in good condition. The HVAC systems are in fair condition considering the age of the same.

#### HVAC Reported/Observed Deficiencies

- Circuit #1 on the chiller has metal shavings.
- The chiller is likely oversized for the current loads.
- The boilers are oversized and need to be replaced.
- The heating system pumps, VFDs (Variable Frequency Drives) and associated controls need to be replaced.
- The refrigerant systems that serve the walk-in boxes have become problematic due to age.
- The kitchen hood exhaust and make-up air systems are not operating as intended and need to be investigated.
- The hydronic coils need to be cleaned on all air handling units.
- The glycol serving the chilled water system needs to be tested to verify freeze protection and ph.
- HVAC controls have not been calibrated or tested in years.
- The air handling unit/return air fan air flow monitoring stations have failed and need to be replaced.
- One of the ductless units on the roof needs to be replaced.

#### HVAC Recommendations

- Temporarily repair chiller and/or replace chiller.
- Install new boilers, heating water pumps, boiler controls, and heating system hydronic specialties.
- Replace walk-in box refrigeration systems.
- Perform a feasibility study to determine the proper size chiller for the current cooling loads
- Test all kitchen make-up air unit and hood exhaust fans and take the appropriate action to return operation to design parameters.

- Install new air flow monitoring stations at all air handling units and return air fans.
- Clean all air handling units/make-up air units/VAV box coils, fan wheels, and casings.
- Test glycol system serving the chilled water system and take appropriate action.
- Retro-commission all HVAC systems.

#### PLUMBING

##### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of higher education academic facilities. The Hazel Center also has commercial grade food service plumbing systems for the kitchen. The piping systems, water heater, and plumbing fixtures are all in good condition.

##### Plumbing Reported/Observed Deficiencies

- Building only has one domestic water heater.

##### Plumbing Recommendations

- Install an additional domestic water heater to provide redundancy for the domestic hot water system.
- When plumbing fixture flush valves/aerators fail, replace with high efficiency low flow type.

#### FIRE PROTECTION

##### Description of Existing Fire Protection System

The fire protection system is served from the original diesel fire pump that is fed from the 32,000 gallon ground storage tank. A dedicated fire protection service feeds the sprinkler system and hose valves. The main fire protection components are in poor condition.

##### Fire Protection Reported/Observed Deficiencies

- The diesel fire pump should be replaced due to age and the fact that it is the only fuel oil fired equipment on the campus.
- The diesel fire pump is expensive to maintain and operate.
- The diesel fire pump is oversized.
- The 32,000 gallon ground suction storage tank should be removed.

### Fire Protection Recommendations

- Replace the diesel fire pump with an electric vertical in line fire pump that is sized only for the current buildings served by the same.
- Connect the new electrical vertical in-line fire pump to the campus water system that is fed by the new elevated ground storage tank.
- Remove the 32,000 gallon ground suction storage tank and all associated piping.

## ELECTRICAL

### Description of Existing Electrical Systems:

- The building is served by a service switchboard located behind the building, installed during the renovation and addition in 2004. This service serves the Hazel Center as well as portions of Brunkhorst Hall. A Square D I-line panel MDP, rated for 1000A, 480/277V, 3 phase, 4 wire was installed to serve the addition. A 400A feeder serves distribution panel SDP1A and an 800A feeder serves motor control center MCC. SDP1A and MCC are original to the building and were initially fed from the service switchboard at MTC.
- Local batteries provide standby power for Life Safety loads in the building. An abandoned diesel generator is located behind the building in the mechanical yard.
- Lighting systems dating to the 2004 renovation utilize linear fluorescent and compact fluorescent lamps, and are equipped with local manual switches. Older fixtures have been retrofit with LED replacement tubes as part of a utility rebate program. The fixtures with integral emergency battery ballasts were not retrofitted and still utilize fluorescent lamps.

### Electrical Systems Reported Problems/Deficiencies:

- MCC is a 1200A Square D Model 5 motor control center, which is obsolete. It is located in the mechanical room and currently serves only two fans.
- LED and fluorescent fixtures in the same spaces appear to be different shades of "white." WWCC staff has started stocking

different color temperature lamps to better match fluorescent and LEDs.

### Electrical Systems Recommendations:

- Provide automatic lighting controls and retrofit/replace fluorescent fixtures with LED lighting fixtures for additional energy savings.
- Provide individual starters for the fans served by the MCC and remove the equipment to free up space in the mechanical room.
- Remove abandoned generator.

## FIRE ALARM SYSTEM

### Description of Existing Fire Alarm System:

- The system is an Edwards EST 2. The fire alarm control panel is located in the Main Electric Room. The panel reports directly to a Central Monitoring Station.
- **Fire Alarm System Reported Problems/Deficiencies:**
  - Lack of reporting/troubleshooting from a common location on campus.
- **Fire Alarm System Recommendations:**
  - Integrate the fire alarm control panel into a campus wide system annunciating at the Campus Safety Office.

## SECURITY SYSTEM

### Description of Existing Security Systems:

- The intrusion detection panel is located in the Main Electric Room and is integrated with the NAPCO system in the Brunkhorst Building. The panel reports to a Central Monitoring Station.

### Reported Problems/ Deficiencies:

- Lack of reporting/troubleshooting from a common location on campus.

### Recommendations:

- Integrate the intrusion detection control panel into a campus wide system annunciating at the Campus Safety Office.



*Exterior from Southeast*



*Dining Space*



*Cafeteria*



*Duplicating Services*



*Student Lounge*



*Classroom*

## HENSON HALL

Building Designation	HH
Number of Floors	3 + 4 <sup>th</sup> level mechanical mezzanine
Net Assignable Square Feet	18,248
Gross Building Area - GSF	34,500
Net-to-Gross Efficiency	53%
Year Constructed	1999
Renovations	Minor renovations in 2011.
Additions	None
Contains	Classrooms, nursing and science labs, faculty offices, public safety office.
General Condition	Good
Sprinkler System	Fully sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

In 1999, the first building added to the original core group of buildings on campus was Henson Hall. The mathematics/science department, as well as an electronic resource center and Public Safety office, are located on the first floor; the second floor contains nursing skills laboratories, science laboratories, classrooms and a vending area; and the third floor contains science laboratories.

Henson Hall is a highly utilized space that adequately serves the function and population for which it is used. With the completion of minor renovations in 2011, it is not anticipated that any major changes to this space will be required during the time frame of this plan other than upgrades to mechanical, electrical/lighting and technology systems, and the possibility of relocation of the Public Safety office as part of future new project development.

### MECHANICAL

#### Description of Existing HVAC Systems

Henson Hall utilizes hydronic hot water and chilled water systems for heating and cooling the building, respectively. The boiler and hot water pumps are located in the lower level mechanical room and the air-cooled chiller is located in an exterior mechanical

equipment yard. The heating water system utilizes a primary/secondary piping arrangement with constant speed primary pumps and constant speed secondary pumps. The chilled water system utilizes a primary loop piping arrangement utilizing constant speed pumps. The existing hydronic systems are all constant speed and should be re-piped to take advantage of variable speed pumping strategies. The chilled water system utilizes antifreeze to protect the exterior, exposed chilled water piping and chiller barrel.

Terminal equipment in the building consists of fan powered VAV boxes, central station air handling units, lab make-up air units, and hydronic unit heaters. The chilled water coils utilize 3-way control valves and the VAV box hot water coils utilize 2-way control valves. The air handling unit pre-heat coils and the make-up air unit utilize 3-way controls valves.

Various fans are utilized for general ventilation of toilet rooms, mechanical spaces and storage rooms.

The automatic temperature control systems consist of direct digital controls system and the same are in very poor condition and the entire system needs to be replaced. The HVAC systems are in fair condition considering the age of the same. The majority of the HVAC equipment with the exception of the chiller is over 20 years.

#### HVAC Reported/Observed Deficiencies

- Air separators serving chilled water/hot water systems should be replaced.
- The chilled water/hot water systems do not take advantage of variable speed pumping strategy.
- The hydronic coils need to be cleaned on all air handling unit/make-up air units.
- The glycol serving the chilled water system needs to be tested to verify freeze protection and ph.
- HVAC controls needs to be completely replaced.
- Control valves should be replaced with new 2-way pressure independent control valves at all chilled water/hot water coils.
- All VAV boxes should be replaced.

## HVAC Recommendations

- Install coalescing air separators on the chilled water/heating water systems.
- Convert the heating water/chilled water systems to variable speed systems.
- Clean all air handling unit/make-up air unit/VAV box coils, fan wheels, and casings.
- Test glycol system serving the chilled water system and take appropriate action.
- Replace the entire automatic temperature control system.
- Replace all control valves with 2-way pressure independent control valves.
- Replace all VAV boxes.
- Retro-commission all HVAC systems.

## PLUMBING

### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of higher educational academic facilities. The piping systems, water heater, and plumbing fixtures are all in fair condition.

### Plumbing Reported/Observed Deficiencies

- Building only has one domestic water heater.
- Water closets have served their useful life and need to be replaced.
- The electric watercoolers have served their useful life and need to be replaced.

### Plumbing Recommendations

- Install an additional domestic water heater to provide redundancy for the domestic hot water system.
- Install new water closets/flush valves with low flow type.
- Install new electric watercoolers with bottle filling stations.
- When any plumbing fixture flush valves/aerators fail, replace with high performance low flow type.

## FIRE PROTECTION

### Description of Existing Fire Protection System

The fire protection system is served from the original diesel fire pump that is fed from the 32,000 gallon ground storage tank. A dedicated fire protection

service feeds the sprinkler system and hose valves. The main fire protection components are in poor condition.

### Fire Protection Reported/Observed Deficiencies

- The diesel fire pump should be replaced due to age and the fact that it is the only fuel oil fired equipment on the campus.
- The diesel fire pump is expensive to maintain and operate.
- The diesel fire pump is oversized.
- The 32,000 gallon ground suction storage tank should be removed.

### Fire Protection Recommendations

- Replace the diesel fire pump with an electric vertical in line fire pump that is sized only for the current buildings served by the same.
- Connect the new electrical vertical in-line fire pump to the campus water system that is fed by the new elevated ground storage tank.
- Remove the 32,000 gallon ground suction storage tank and all associated piping.

## ELECTRICAL

### Description of Existing Electrical Systems:

- The building is fed from a 1000A feeder in the service switchboard located outside FOH, routed through an underground duct bank system. The building main distribution panel is main lug only, rated for 1000A, 480/277V, 3 phase, 4 wire, manufactured by General Electric. The feeder breaker in the service switchboard is equipped with a Micrologic 6.0A electronic trip unit with a built-in ammeter.
- Local batteries provide standby power for Life Safety loads in the building.
- Linear fluorescent fixtures have been retrofitted with LED replacement lamps as part of a utility rebate program. The fixtures with integral emergency battery ballasts were not retrofitted and still utilize fluorescent lamps. Automatic lighting controls were installed as part of the rebate program.

### **Electrical System Reported**

#### **Problems/Deficiencies:**

- LED and fluorescent fixtures in the same spaces appear to be different shades of "white." WWCC staff has started stocking different color temperature lamps to better match fluorescent and LEDs.

#### **Electrical System Recommendations:**

- Replace remaining fluorescent fixtures with LED lighting fixtures for additional energy savings. As retrofit lighting systems reach the end of their anticipated useful life of 25-30 years, replace with LED type fixtures.
- Provide surge protection device on main distribution panel inside the building.
- Provide label on the main switchboard indicating the location of the service disconnect in the exterior switchboard.

telephone lines are located within this room as a backup to the network. The office of the Head of Security is located immediately adjacent. This office is equipped with the same type of flat screen monitor for video surveillance.

#### **Security System Reported Problems/ Deficiencies:**

- Lack of reporting/troubleshooting from a common location on campus.

#### **Security System Recommendations:**

- Integrate the intrusion detection control panel into a campus wide system annunciating at the Campus Safety Office.

## **FIRE ALARM SYSTEM**

#### **Description of Existing Fire Alarm System:**

- The system is an Edwards EST 2. The fire alarm control panel is located in the Main Telecommunications Room.
- Remote annunciation has been provided in the Brunkhorst Building.

#### **Fire Alarm System Reported Problems/ Deficiencies:**

- Lack of reporting/troubleshooting from a common location on campus.

#### **Fire Alarm System Recommendations:**

- Integrate the fire alarm control panel into a campus wide system annunciating at the Campus Safety Office.

## **SECURITY SYSTEM**

#### **Description of Existing Security Systems:**

- The intrusion detection panel is located in the Main Telecommunications Room, and is integrated with the NAPCO system in the Brunkhorst Building. The panel reports to a Central Monitoring Station.
- The Campus Security Office is located within his building. A widescreen flat screen monitor scrolls through the campus video surveillance cameras. Two analog



*Exterior from Main Quad*



*Nursing (CNA) Lab*



*Entry Roof*



*Science Lab*



*Large Classroom*



*Vending Lounge*



## GUERRIERI HALL

Building Designation	GH
Number of Floors	3 + 4 <sup>th</sup> level mezzanine
Net Assignable Square Feet	19,767
Gross Building Area - GSF	38,000
Net-to-Gross Efficiency	52%
Year Constructed	2001
Renovations	Minor renovations in 2011.
Additions	None
Contains	Classrooms, offices, auditorium, small gymnasium.
General Condition	Good
Sprinkler System	Fully sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

The Eastern Shore Criminal Justice Academy, located in Guerrieri Hall, is a state-certified law enforcement and correctional training facility that offers entry-level training to employees of criminal justice agencies and correctional institutes from throughout the state. In an early masterplan, the need for a permanent home for the academy and the entire criminal justice department was recognized, and Guerrieri Hall was opened in 2001 in response to that need. This building steel frame, masonry infill building includes a 218-seat assembly room with a stage is on the first floor; offices, classrooms, a resource center and a laboratory are located on the second floor; and a small gymnasium, defense tactics and workout areas are on the third floor and mezzanine.

Guerrieri Hall is a highly utilized building that is well suited to the programmatic activities for which it was constructed. No changes to the programs offered or the building are anticipated during the time frame of this masterplan update; however, after a future wellness center / physical education building is constructed, the existing gym space can be expanded and converted to academic functions by adding a fourth-floor level within the volume of the space.

## MECHANICAL

### Description of Existing HVAC Systems

Guerrieri Hall utilizes hydronic hot water and chilled water systems for heating and cooling the building, respectively. The boiler and hot water pumps are located in the lower level mechanical room and the air-cooled chiller is located in an exterior mechanical equipment yard. The heating water system utilizes a primary/secondary piping arrangement with constant speed primary pumps and constant secondary pumps. The chilled water system utilizes a primary loop piping arrangement utilizing constant speed pumps. The existing hydronic systems are all constant speed and should be re-piped to take advantage of variable speed pumping strategies. The chilled water system utilizes antifreeze to protect the exterior, exposed chilled water piping and chiller barrel.

Terminal equipment in the building consists of fan powered VAV boxes, central station air handling units, and hydronic unit heaters. The chilled water coils utilize 3-way control valves and the VAV box hot water coils utilize 2-way control valves. The air handling unit pre-heat coils utilize 3-way control valves.

Various fans are utilized for general ventilation of toilet rooms, mechanical spaces and storage rooms.

The automatic temperature control systems consist of direct digital controls system and the same are in very poor condition. The building automatic temperature control system has a new JACE (Java Application Control Engine), but the remaining original controls need to be replaced. The HVAC systems are in fair condition considering the age of the same. The majority of the HVAC equipment in this building is 20 years old. The following tables summarize the major components of the HVAC systems.

### HVAC Reported/Observed Deficiencies

- Circuit #1 on the chiller has a "frozen" or damaged slide valve and the chiller needs to be replaced.
- Air separators serving chilled/hot water systems need to be replaced.
- The chilled water/hot water systems do not take advantage of variable speed pumping strategy.
- The chiller refrigerant is R-22.

- The hydronic coils need to be cleaned on all air handling unit/make-up air units.
- The glycol serving the chilled water system needs to be tested to verify freeze protection and ph.
- HVAC controls need to be completely replaced.
- Control valves should be replaced with new pressure independent 2-way control valves if the pumping systems are converted from constant volume to variable volume pumping systems.
- All VAV boxes should be replaced.

#### HVAC Recommendations

- Replace chiller.
- Install coalescing air separators on the chilled water/heating water systems.
- Convert the heating water/chilled water systems to variable speed systems.
- Clean all air handling unit/make-up air unit/VAV box coils, fan wheels, and casings.
- Test glycol system serving the chilled water system and take appropriate action.
- Replace the entire automatic temperature control system except the JACE.
- Replace all control valves with 2-way pressure independent control valves. (Control valves shall remain 3-way type if pumping systems are not converted to variable volume type).
- Replace all VAV boxes.
- Retro-commission all HVAC systems.

#### PLUMBING

##### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of higher educational academic facilities. The piping systems, water heater, and plumbing fixtures are all in good condition.

##### Plumbing Reported/Observed Deficiencies

- Building only has one domestic water heater.
- The electric water coolers have served their useful life and need to be replaced.

#### Plumbing Recommendations

- Install an additional domestic water heater to provide redundancy for the domestic hot water system.
- When any plumbing fixture flush valves/aerators fail, replace with high performance low flow type.
- Install new electrical water coolers with bottle filling stations.

#### FIRE PROTECTION

##### Description of Existing Fire Protection System

The fire protection system is served from the original diesel fire pump that is fed from the 32,000 gallon ground storage tank. A dedicated fire protection service feeds the sprinkler system and hose valves. The main fire protection components are in poor condition.

##### Fire Protection Reported/Observed Deficiencies

- The diesel fire pump should be replaced due to age and the fact that it is the only fuel oil fired equipment on the campus.
- The diesel fire pump is expensive to maintain and operate.
- The diesel fire pump is oversized.
- The 32,000 gallon ground suction storage tank should be removed.

##### Fire Protection Recommendations

- Replace the diesel fire pump with a vertical in-line fire pump that is sized only for the current buildings served by the same.
- Remove the 32,000 gallon ground suction storage tank and all associated piping.
- Connect the new electric vertical in-line fire pump into the campus elevated fire storage tank piping.

## ELECTRICAL

### Description of Existing Electrical Systems:

- The building is fed from a 1000A feeder in the service switchboard located outside FOH, routed through an underground duct bank system. The building main distribution panel PD1 is main lug only, rated for 1000A, 480/277V, 3 phase, 4 wire, manufactured by Siemens. Each breaker in the main distribution panel is labelled "Service Disconnect." The incoming feeder is not a service, but a feeder per the NEC. The feeder breaker in the service switchboard is equipped with a Micrologic 6.0A electronic trip unit with a built-in ammeter.
- Local batteries provide standby power for Life Safety loads in the building.
- Linear fluorescent fixtures have been retrofitted with LED replacement lamps as part of a utility rebate program. The fixtures with integral emergency battery ballasts were not retrofitted and still utilize fluorescent lamps. Automatic lighting controls were installed as part of the rebate program. Corridor lights have been replaced by WWCC staff.

### Electrical Systems Reported Problems/Deficiencies:

- Transformer TPD1, suspended in the Boiler Room, is suspected by WWCC staff to be damaged.
- LED and fluorescent fixtures in the same spaces appear to be different shades of "white." WWCC staff has started stocking different color temperature lamps to better match fluorescent and LEDs.
- WWCC staff indicated having some difficulty in obtaining replacement parts for the Siemens equipment.

### Electrical Systems Recommendations:

- Replace suspect transformer TPD1.
- Replace remaining fluorescent lighting fixtures with LED lighting fixtures for additional energy savings. As retrofit lighting systems reach the end of their anticipated useful life of 25-30 years, replace with LED type fixtures.

- Provide surge protection device on main distribution panel inside the building.
- Provide label on the main switchboard indicating the location of the service disconnect in the exterior switchboard.

## FIRE ALARM SYSTEM

### Description of Existing Fire Alarm System:

- The system is an Edwards EST 2. The fire alarm control panel with dialer is located in the Main Telecommunications Room.
- Fire alarm cabling is extended to Admin through Henson Hall via an underground 2" C.

### Fire Alarm System Reported Problems/Deficiencies:

- Lack of reporting/troubleshooting from a common location on campus.

### Fire Alarm System Recommendations:

- Integrate the fire alarm control panel into a campus wide system annunciating at the Campus Safety Office.

## SECURITY SYSTEM

### Description of Existing Security System:

- The intrusion detection panel is located in the Main Telecommunications Room, and is integrated with the NAPCO system in the Brunkhorst Building. The panel reports to a Central Monitoring Station.

### Security System Reported Problems/ Deficiencies:

- Lack of reporting/troubleshooting from a common location on campus.

### Security System Recommendations:

- Integrate the intrusion detection control panel into a campus wide system annunciating at the Campus Safety Office.



*Exterior from Southwest*



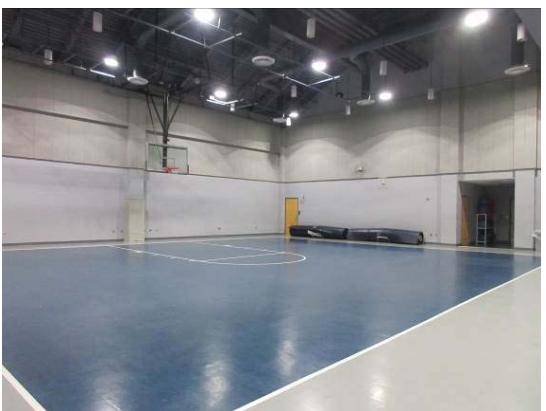
*Classroom*



*Entrance Hall / Lobby*



*Assembly Room*



*Gym*



*Open Office Area*

## JORDAN CENTER

Building Designation	JC
Number of Floors	One
Net Assignable Square Feet	4,236
Gross Building Area - GSF	6,757
Net-to-Gross Efficiency	64%
Year Constructed	1994 as Maintenance Building
Renovations	2007 as part of conversion to Child Care Center.
Additions	2007 as part of expansion of the Maintenance Building
Contains	Child care and college-level classrooms, staff offices, support spaces
General Condition	Good
Sprinkler System	Fully sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

A number of students and employees at Wor-Wic require child care services. Early in the history of the campus, it was recognized that Wor-Wic should offer these services. The 1997 masterplan update incorporated this concept, identifying the Maintenance Building as the core of a new facility, which would be extensively renovated. In 2005, the new Maintenance Building was constructed on Horsebridge Drive, which allowed construction of the Jordan Center in 2006.

The Jordan Center houses a child development center that serves as a laboratory for early childhood education majors and provides child care for children of students and employees. The renovated single story former Maintenance Building masonry building includes an addition with two child care classrooms, two college classrooms, employee offices, a kitchen, storage and restrooms for children. Site amenities include a drop-off area and a fenced playground. The facility serves the needs of the students and employees and no additions or renovations to the building are anticipated in the near future.

## MECHANICAL

### Description of Existing HVAC Systems

The Jordan Center HVAC systems consist of multiple split system heat pumps with auxiliary electric heat. Ventilation air is provided by energy recovery unit modules that pre-condition outside air prior to deliver the same to the return air ducts of each air handling unit.

Various fans are utilized for general ventilation of toilet rooms and mechanical spaces.

The automatic temperature control systems consist of packaged controls or local thermostats. The HVAC systems are in poor condition. The following tables summarize the major components of the HVAC systems.

### HVAC Reported/Observed Deficiencies

- Auxiliary electric heat serving heat pumps does not operate in the winter.
- Fresh air is introduced into the return ducts, which requires air handling unit fans to operate continuously without cycling with load.
- The building experiences very high relative humidity in the summer, spring, and fall months. The College has had to install temporary dehumidifiers.
- The ERV modules do not contain mechanical cooling/dehumidification which is the source of the poor humidity control when dewpoint temperatures are high.
- Exterior refrigerant piping is not properly insulated/jacketed.
- HVAC controls have not been calibrated or tested in years.

### HVAC Recommendations

- Perform a feasibility study to determine the appropriate HVAC system for replacing the existing HVAC systems. A fundamental requirement of the new HVAC systems would be the use of a decoupled ventilation system that fully dehumidifies and re-heats the outside air.
- Replace all HVAC systems.

## PLUMBING

### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of daycare type facilities. The piping systems, water heater, and plumbing fixtures are all in fair condition.

### Plumbing Reported/Observed Deficiencies

- None.

### Plumbing Recommendations

- When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.
- When water heater fails, replace with heat pump type water heater to reduce operating costs.

## FIRE PROTECTION

### Description of Existing Fire Protection System

The fire protection system is served from the original diesel fire pump that is fed from the 32,000 gallon ground storage tank. A dedicated fire protection service feeds the sprinkler system and hose valves. The main fire protection components are in poor condition.

### Fire Protection Reported/Observed Deficiencies

- The diesel fire pump should be replaced due to age and the fact that it is the only fuel oil fired equipment on the campus.
- The diesel fire pump is expensive to maintain and operate.
- The diesel fire pump is oversized.
- The 32,000 gallon ground suction storage tank should be removed.

### Fire Protection Recommendations

- Replace the diesel fire pump with an electric vertical in-line fire pump that is sized only for the current buildings served by the same.
- Remove the 32,000 gallon ground suction storage tank and all associated piping.
- Connect the new electric vertical in-line fire pump into the campus elevated fire storage tank piping.

## ELECTRICAL

### Description of Existing Electrical Systems:

- The building main distribution panel MP1A is 225A, 480/277V, 3 phase, 4 wire, manufactured by Square D. The building is fed from a 225A feeder in panel SDP1A, located in the Hazel Center. MP1B was added with the renovation of the building.
- Local batteries provide standby power for Life Safety loads in the building. Dual head emergency battery units are utilized for egress lighting in lieu of emergency battery ballasts in select fixtures.
- Fluorescent lamps were retrofitted with LED replacement bulbs, and automatic lighting controls were installed as part of a rebate program.

### Electrical Systems Reported Problems/Deficiencies:

- None.

### Electrical Systems Recommendations:

- None.

## FIRE ALARM SYSTEM

### Description of Existing Fire Alarm System:

- The system is an Edwards EST 2. The fire alarm control panel is located in the Mechanical Closet.

### Fire Alarm System Reported Problems/Deficiencies:

- Lack of reporting/troubleshooting from a common location on campus.

### Fire Alarm System Recommendations:

- Integrate the fire alarm control panel into a campus wide system annunciating at the Campus Safety Office.

## SECURITY SYSTEM

### Description of Existing Security System:

- The NAPCO intrusion detection panel is located in the Mechanical Closet and is integrated with the NAPCO system in the Brunkhorst Building.

**Security System Reported Problems/ Deficiencies:**

- Lack of reporting/troubleshooting from a common location on campus.

**Security System Recommendations:**

- Integrate the intrusion detection control panel into a campus wide system annunciating at the Campus Safety Office.



*Exterior from Northeast*



*Playground*



*Entrance Hall*



*Child Care Classroom*

## MAINTENANCE BUILDING

Building Designation	MB
Number of Floors	One
Net Assignable Square Feet	4,857
Gross Building Area - GSF	6,032
Net-to-Gross Efficiency	81%
Year Constructed	2005
Renovations	None.
Additions	None except for several free-standing temporary structures
Contains	Storage and maintenance spaces, offices, mail room
General Condition	Good
Sprinkler System	Not sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

The original Maintenance Building was a one-story masonry building located to the south of the original Student Center and main mechanical room constructed in 1994 along with the rest of the original campus. In 2005, a new Maintenance Building was constructed in a vacant field to the west of Horsebridge Drive to allow the original structure to be converted to the Jordan Center.

The replacement Maintenance Building, a single-story pre-engineered metal building housing maintenance and facilities offices, vehicle repair bay, locker room, mailroom/receiving, and storage and warehousing. Two small wood-frame storage buildings used to house landscaping equipment and chemicals were relocated from their original location to the new Maintenance Building site. One rigid fabric-covered structure houses some of the major pieces of land management equipment.

### MECHANICAL

#### Description of Existing HVAC Systems

The Maintenance Building HVAC systems consist of various natural gas fired technologies. The offices are conditioned by a ground mounted packaged air conditioner with integral gas furnace. The Warehouse

is conditioned by a split systems gas furnace with direct expansion cooling. In addition, the Warehouse is also heated with a gas fired unit heater. The Vehicle Bay is heated and ventilated with gas fired infrared heaters and a ventilation fan, respectively.

Various fans are utilized for general ventilation of toilet rooms, mechanical spaces and the Vehicle Bay.

The automatic temperature control systems consist of packaged controls or local thermostats and are in poor condition. The HVAC systems are in good condition considering the age of the same. The following tables summarize the major components of the HVAC systems.

#### HVAC Reported/Observed Deficiencies

- Ground mounted packaged air conditioner ductwork/insulation is in very poor condition.
- The Vehicle Bay ventilation systems does not operate.
- The HVAC equipment for this building has served its useful life and should be replaced.
- HVAC controls have not been calibrated or tested in years.

#### HVAC Recommendations

- Perform a feasibility study to determine the appropriate HVAC system for replacing the existing HVAC systems. A fundamental requirement of the new HVAC systems would be the use of decoupled ventilation systems that fully dehumidify and re-heat outside air.
- Replace all HVAC systems.
- Investigate Vehicle Bay ventilation system and take appropriate action.
- Carbon monoxide detection system should be installed with Vehicle Bay ventilation system.

### PLUMBING

#### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of higher education facilities. The piping systems, water heater, and plumbing fixtures are all in fair condition.

#### Plumbing Reported/Observed Deficiencies

- Water heater does not have a thermal expansion tank.



### Plumbing Recommendations

- Install a thermal expansion tank at the water heater.
- When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.
- Install emergency shower with thermostatic mixing valve in Vehicle Bay.

## FIRE PROTECTION

### Description of Existing Fire Protection System

The fire protection system is served from the original diesel fire pump that is fed from the 32,000 gallon ground storage tank. A dedicated fire protection service feeds the sprinkler system and hose valves. The main fire protection components are in poor condition.

### Fire Protection Reported/Observed Deficiencies

- The diesel fire pump should be replaced due to age and the fact that it is the only fuel oil fired equipment on the campus.
- The diesel fire pump is expensive to maintain and operate.
- The diesel fire pump is oversized.
- The 32,000 gallon ground suction storage tank should be removed.

### Fire Protection Recommendations

- Replace the diesel fire pump with an electric vertical in-line fire pump that is sized only for the current buildings served by the same.
- Remove the 32,000 gallon ground suction storage tank and all associated piping.
- Connect the new electric vertical in-line fire pump into the campus elevated fire storage tank piping.

## ELECTRICAL

### Description of Existing Electrical Systems:

- The building main distribution panel is 400A, 480/277V, 3 phase, 4 wire, manufactured by Square D. The meter and General Electric service disconnect are located on the outside of the building across from the 150kVA Choptank pad-mount transformer.
- Local batteries provide standby power for Life Safety loads in the building.
- Lighting systems utilize fluorescent lamp and are equipped with local manual switches. Exterior

building mounted lighting consists of HID wall packs.

### Electrical Systems Reported Problems/Deficiencies:

- The lighting system was not retrofitted with the remainder of the campus as Choptank Electric does not have a rebate program.

### Electrical Systems Recommendations:

- Replace lighting system with LED type fixtures and provide automatic lighting controls.

## FIRE ALARM SYSTEM

### Description of Existing Fire Alarm System:

- The system is an Edwards EST 2. The fire alarm control panel is located in the Main Electric Room. The panel reports directly to a Central Monitoring Station.

### Fire Alarm System Reported Problems/Deficiencies:

- Lack of reporting/troubleshooting from a common location on campus.

### Fire Alarm System Recommendations:

- Integrate the fire alarm control panel into a campus wide system annunciating at the Campus Safety Office.

## SECURITY SYSTEM

### Description of Existing Security System:

- The NAPCO intrusion detection panel is located in the Main Electric Room.

### Security System Reported Problems/ Deficiencies:

- Lack of reporting/troubleshooting from a common location on campus.

### Security System Recommendations:

- Integrate the intrusion detection control panel into a campus wide system annunciating at the Campus Safety Office.



*Exterior and Entry*



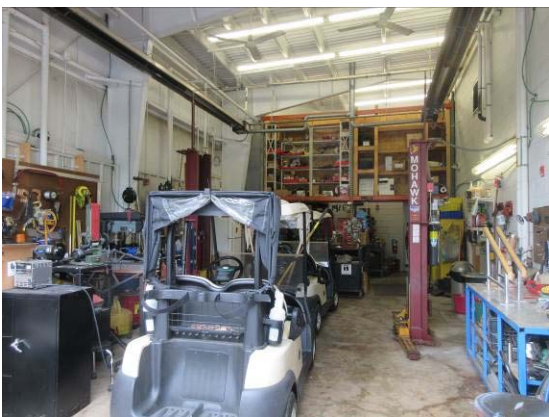
*Storage Bay*



*Open Office Area*



*Small Landscape Equipment Shed Interior*



*Vehicle Repair Bay*



*Small Vehicle Storage Structure*

## FULTON-OWEN HALL

Building Designation	FOH
Number of Floors	3 + 4 <sup>th</sup> level mezzanine
Net Assignable Square Feet	25,481
Gross Building Area - GSF	49,604
Net-to-Gross Efficiency	51%
Year Constructed	2008
Renovations	None.
Additions	None
Contains	Classrooms, labs, offices, culinary arts lab
General Condition	Very Good
Sprinkler System	Fully sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

Fulton-Owen Hall is the first building to be built in the east quadrangle of the existing campus. This quadrangle and the associated buildings appeared in the original masterplan, and in all subsequent updates, and was the next logical extension to the campus.

Completion of this building occurred in August of 2007. This building is a three-story steel frame, masonry infill structure with a fourth floor mechanical mezzanine similar in construction and appearance to Henson Hall, its closest neighbor. This building serves continuing education and workforce development (CEWD) programs, housing administrative offices, and large multipurpose lecture room, faculty offices, classrooms, student break rooms, computer labs, an allied health lab, electronic resource center and hotel-motel restaurant management (HMR) classroom and culinary arts lab (kitchen).

Construction of this building allowed the CEWD division to relocate to a more prominent and accessible location and to make more administrative space available in BH. In addition, when the business department relocated to this building, the move allowed other areas to expand within BH. Relocation of the HMR program from the rented Berlin-Ocean City Instructional Center in Berlin to the third floor of this building has allowed students access to a full-

scale commercial kitchen, dining room and bar for teaching practicum and has facilitated the department's offering of a credit culinary arts program.

### MECHANICAL

#### Description of Existing HVAC Systems

Fulton-Owen Hall utilizes hydronic hot water and chilled water systems for heating and cooling the building, respectively. The boiler and hot water pumps are located in the lower level mechanical room and the air-cooled chiller is located in an exterior mechanical equipment yard. The heating water system utilizes a primary/secondary piping arrangement with constant speed primary pumps and variable speed secondary pumps. The chilled water system utilizes a primary loop piping arrangement utilizing constant speed pumps. The chilled water system utilizes antifreeze to protect the exterior, exposed chilled water piping and chiller barrel.

Terminal equipment in the building consists of fan powered VAV boxes, central station air handling units, and hydronic unit heaters. The chilled water coils utilize 3-way control valves and the hot water coils utilize 2-way control valves.

Various fans are utilized for general ventilation of toilet rooms, mechanical spaces and the culinary lab hoods. The kitchen ventilation systems are constant volume systems which should be converted to variable air volume systems to reduce noise and save the College operating costs.

The automatic temperature control systems consist of direct digital controls system and the same are in very good condition. The HVAC systems are in good condition considering the age of the same.

#### HVAC Reported/Observed Deficiencies

- Circuit #1 on the chiller has a "frozen" or damaged slide valve.
- The chilled water system has a substantial amount of entrained air.
- The hot water system has a substantial amount of entrained air.
- The chilled water system does not take advantage of variable speed pumping strategy.

- The refrigerant systems that serve the walk-in boxes have become problematic due to age.
- The hydronic coils need to be cleaned on all air handling unit/make-up air units.
- The glycol serving the chilled water system needs to be tested to verify freeze protection and ph.
- HVAC controls have not been calibrated or tested in years.

#### HVAC Recommendations

- Repair or replace slide valve serving chiller.
- Check air charge pressure on chilled/heating water expansion tanks.
- Install coalescing air separator on the chilled water/heating water systems.
- Replace walk-in box refrigeration systems.
- Clean all air handling units/make-up air units/VAV box coils, fan wheels, and casings.
- Test glycol system serving the chilled water system and take appropriate action.
- Retro-commission all HVAC systems.

#### PLUMBING

##### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of higher education academic facilities. The piping systems, water heater, and plumbing fixtures are all in good condition.

##### Plumbing Reported/Observed Deficiencies

- Building only has one domestic water heater.

##### Plumbing Recommendations

- Install an additional domestic water heater to provide redundancy for the domestic hot water system.
- When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.

#### FIRE PROTECTION

##### Description of Existing Fire Protection System

The fire protection system is served from the campus water supply that is fed from the elevated storage

tank. A combination fire protection/domestic water service feeds the sprinkler system and hose valves. The fire protection system is in good condition.

##### Fire Protection Reported/Observed Deficiencies

- None.

##### Fire Protection Recommendations

- None.

#### ELECTRICAL

##### Description of Existing Electrical Systems:

- The building is fed from a 1000A feeder in the service switchboard located outside FOH, routed through an underground duct bank system. The building main distribution panel is double-width, rated for 1200A, 480/277V, 3 phase, 4 wire, manufactured by Square D. Each section is equipped with an integral surge protection device. The feeder breaker in the service switchboard is equipped with a Micrologic 6.0A electronic trip unit with a built-in ammeter.
- Local batteries provide standby power for Life Safety loads in the building.
- Linear fluorescent fixtures have been retrofitted with LED replacement lamps as part of a utility rebate program. The fixtures with integral emergency battery ballasts were not retrofitted and still utilize fluorescent lamps. Automatic lighting controls were installed as part of the rebate program.

##### Electrical Systems Reported Problems/Deficiencies:

- LED and fluorescent fixtures in the same spaces appear to be different shades of "white." WWCC staff has started stocking different color temperature lamps to better match fluorescent and LEDs.

##### Electrical Systems Recommendations:

- Replace remaining fluorescent lighting fixtures with LED lighting fixtures.
- Provide label on the main switchboard indicating the location of the service disconnect in the exterior switchboard.

## **FIRE ALARM SYSTEM**

### **Description of Existing Fire Alarm System:**

- The system is a General Electric EST 2. The fire alarm control panel is located in the Main Electric Room.
- Fire alarm cabling is extended to Henson Hall via an underground 2" C.

### **Fire Alarm System Reported Problems/ Deficiencies:**

- Lack of reporting/troubleshooting from a common location on campus.

### **Fire Alarm System Recommendations:**

- Integrate the fire alarm control panel into a campus wide system annunciating at the Campus Safety Office.

## **SECURITY SYSTEM**

### **Description of Existing Security Systems:**

- The intrusion detection panel is located in the Main Telecommunications Room, and is integrated with the NAPCO system in Henson Hall.

### **Security System Reported Problems/ Deficiencies:**

- Lack of reporting/troubleshooting from a common location on campus.

### **Security System Recommendations:**

- Integrate the intrusion detection control panel into a campus wide system annunciating at the Campus Safety Office.



*Exterior from Main Quad*



*Resource Center / Computer Lab*



*CEWD and Corridor/Lounge*



*Culinary Lab Kitchen*



*Classroom*



*Large Divisible Classroom*

## SHOCKLEY HALL

Building Designation	SH
Number of Floors	3 + 4 <sup>th</sup> level mezzanine
Net Assignable Square Feet	27,276
Gross Building Area - GSF	52,733
Net-to-Gross Efficiency	52%
Year Constructed	2011
Renovations	None.
Additions	None
Contains	Allied Health labs, classrooms, faculty offices, and campus IT department offices, server room and storage.
General Condition	Very good
Sprinkler System	Fully sprinklered
Accessibility	Fully accessible

### GENERAL / ARCHITECTURAL AND STRUCTURAL

Shockley Hall, formerly known as the Allied Health Building, began operation in June of 2011. This building was constructed to house the expanded nursing program, as well as the existing radiologic technology and emergency medical services programs. Since the building was constructed, the college has added two programs, the occupational therapy assistant and physical therapist assistant programs, which are also housed in the building. This building three-story steel frame, structural stud infill structure with a fourth floor mechanical mezzanine. provides three nursing labs, an electronic resource center, lecture hall, classrooms, faculty offices, labs, faculty offices and the information technology (IT) department including server room and storage.

Construction of this building allowed expansion of the math/science department in Henson Hall and the renovation of the first floors of BH and MTC to make room for HR and institutional advancement. The IT infrastructure of the campus has been much improved by the consolidation of key equipment in the server room, which has central battery backup capabilities as well as diesel engine-generator backup and dedicated fire protection system.

### MECHANICAL

#### Description of Existing HVAC Systems

Shockley Hall utilizes hydronic hot water and chilled water systems for heating and cooling the building, respectively. The boiler and hot water pumps are located in the lower level mechanical room and the air-cooled chiller is located in an exterior mechanical equipment yard. The heating water system utilizes a variable speed primary piping arrangement with variable speed primary pumps. The chilled water system utilizes a variable primary loop piping arrangement utilizing variable speed pumps. The chilled water system does not utilize antifreeze to protect the exterior, exposed chilled water piping and chiller barrel. We would recommend the use of propylene glycol as an antifreeze for the chilled water system.

Terminal equipment in the building consists of standard VAV boxes, central station air handling units with energy recovery wheels and hydronic unit heaters. The chilled water coils utilize 2-way control valves and the hot water coils utilize 2-way control valves.

A skid mounted steam boiler was originally designed for humidification. However, the steam humidification system is de-energized and is not needed for this building. All air handling unit systems have the ability to humidify the air in the winter via steam distribution manifolds.

Various fans are utilized for general ventilation of toilet rooms, mechanical spaces and storage rooms.

The automatic temperature control systems consist of direct digital controls system and the same are in very good condition. The HVAC systems are in good condition.

#### HVAC Reported/Observed Deficiencies

- The boiler plant capacity appears excessive for the size of the building.
- The chiller plant capacity appears excessive for the size of the building.
- Chilled water system does not contain antifreeze.
- The steam humidifier and all associated humidifier piping and manifolds should be removed from the building.

- The energy recovery wheel controls/operation needs to be evaluated due to operational issues.
- HVAC controls have not been calibrated or tested since the building was built in 2010.
- The ATC system front end is only 8 years old but is already obsolete and needs to be replaced.
- The computer room primary source of cooling should be changed from the air handling system economizers to the actual computer room unit due to the economizers creating very low and unacceptable humidity conditions in the winter.

#### HVAC Recommendations

- Perform a feasibility study to determine if the existing boilers are oversized and take appropriate action.
- Perform a feasibility study to determine if the existing chiller is oversized and take appropriate action.
- Install an automatic glycol feeder and propylene glycol in the chilled water system.
- Remove steam humidification system and all piping and manifolds.
- Retro-commission the energy recovery wheels.
- Install a new ATC system front end with graphics.
- The computer room unit should be programmed to be the primary cooling source for the computer room with the air handling unit economizers as the back-up.
- Retro-commission the air handling unit and the energy recovery wheels.

#### PLUMBING

##### Description of Existing Plumbing Systems

The plumbing systems are typical institutional grade systems typical of higher educational academic facilities. The piping systems, water heater, and plumbing fixtures are all in good condition.

##### Plumbing Reported/Observed Deficiencies

- Building only has one domestic water heater.

- The laboratory compressed air system inlet pipe (1-1/4 inch) is too small and should be replaced with at least a 2-inch pipe.

#### Plumbing Recommendations

- Install an additional domestic water heater to provide redundancy for the domestic hot water system.
- When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.
- Replace the existing laboratory compressed air system inlet pipe (1-1/4inch) with a minimum 2-inch pipe.

#### FIRE PROTECTION

##### Description of Existing Fire Protection System

The fire protection system is served from the campus water supply that is fed from the elevated storage tank. A combination fire protection/domestic water service feeds the sprinkler system and hose valves. The fire protection system is in good condition.

##### Fire Protection Reported/Observed Deficiencies

- None.

##### Fire Protection Recommendations

- None.

#### ELECTRICAL

##### Description of Existing Electrical Systems

- The building is fed from a 1000A feeder in the service switchboard located outside FOH, routed through an underground duct bank system. The building main distribution panel is a Cutler-Hammer POW-R-LINE C switchboard, rated for 1200A, 480/277V, 3 phase, 4 wire. The main breaker is equipped with ground fault protection. Customer metering has been provided in the switchboard, as well as a surge suppression device.
- Emergency power is derived from a 250kW diesel generator located outside the building, manufactured by Kohler. The generator is equipped with a weatherproof housing and a sub-base fuel tank with approximately 18 hours of capacity. Two automatic transfer switches with



maintenance bypass switches serve life safety loads and data center UPS, and data center HVAC equipment loads, respectively. The transfer switches are ASCO Series 7000.

- Lighting systems utilize linear fluorescent and compact fluorescent lamps and are equipped with local automatic lighting control devices.

#### **Electrical Reported Problems/Deficiencies:**

- The life safety distribution equipment utilizes molded case breakers exclusively for overcurrent and short circuit protection. These do not typically provide code required selective coordination, first required in the 2005 NEC.
- A single panelboard fed from the generator serves both automatic transfer switches via molded case breakers. This does not provide physical separation of life safety and standby sources, first required in the 2008 NEC.

#### **Electrical Recommendations:**

- Address NEC code requirements.
- Perform life cycle cost analysis for retrofitting/replacing fluorescent fixtures with more energy efficient LED type.

## **FIRE ALARM SYSTEM**

#### **Description of Existing Fire Alarm System**

- The system is a GE EST 2. The fire alarm control panel is located in the Main Electric Room.
- A Simplex 4010 control panel is located within the Data Center for the Halon Fire Suppression System.

#### **Fire Alarm System Reported Problems/Deficiencies:**

- Lack of reporting/troubleshooting from a common location on campus.

#### **Fire Alarm System Recommendations:**

- Integrate the fire alarm control panel into a campus wide system annunciating at the Campus Safety Office.

## **SECURITY SYSTEM**

#### **Description of Existing Security System**

- The intrusion detection panel is located in the Main Electric Room.

#### **Security System Reported Problems/ Deficiencies:**

- Lack of reporting/troubleshooting from a common location on campus.

#### **Security System Recommendations:**

- Integrate the intrusion detection control panel into a campus wide system annunciating at the Campus Safety Office.



*Exterior from Southwest*



*Lecture Hall*



*Ground Floor Corridor / Lounge*



*OTA Domestic Simulation Lab*



*Lecture / Lab*



*Information Technology Storage*

## CAMPUS-WIDE AND BUILDING SYSTEMS

### MECHANICAL

#### Existing Systems:

- a. The original campus buildings (Brunkhorst Hall and Maner Technology Center) were recently renovated (2018) and retrofitted with a geothermal system that provides all of both buildings' cooling and heating needs.
- b. The remaining buildings on campus are served by conventional individual heating and cooling plants. The cooling plants consist of single air cooled chillers and the heating plants multiple natural gas fired boilers. The chillers are located in mechanical yards adjacent to each building and the boilers are located in ground floor boiler rooms. All boilers are of the cast iron sectional type with the exception of the Shockley Hall boilers which utilizes condensing boilers.
- c. Natural gas is routed below ground throughout the campus with local gas meters installed at each building.

#### Reported problems/deficiencies:

- a. Some of the boiler plants and chiller plants appear to be oversized due to modifications that have occurred when new buildings were installed or original buildings modified.
- b. Refer to the individual buildings write-up for detailed findings in each building.

#### Recommendations:

- a. Due to the amount of land and existing and future parking lots, the College should consider implementing geothermal systems for all future buildings. The geothermal borefields could be located under green spaces and/or parking lots. The use of geothermal for heating/cooling future buildings would reduce operating costs substantially. In addition, the need for exterior mechanical yards and the noise associated with exterior chillers would be eliminated.
- b. If future buildings are not heated with geothermal then all new boilers should be condensing type with low temperature distribution systems.

- c. For buildings with oversized boiler/chiller plants studies should be performed to verify the extent of the same.

### PLUMBING

#### Existing systems:

- a. The entire campus and all buildings are provided with potable water from the elevated water tower. As long as all proposed new buildings are similar in height to the existing buildings, the need for domestic water booster pumps is eliminated.
- b. All buildings have proper backflow preventers to protect the potable water supplies in each building and the campus water supply.

#### Reported problems/deficiencies:

- a. None.

#### Recommendations:

- a. All existing buildings that are not currently monitoring potable water usage should be retrofitted with local water meters that can be interfaced to each building's automatic temperature control system.
- b. All future buildings should be designed to incorporate water meters with pulse meters to monitor each future building's potable water consumption.
- c. Water consumption for all existing and new buildings should be trended and tabulated to identify unusual water usage and/or leaks.
- d. Backflow preventers in each building should be tested yearly.

### FIRE PROTECTION SYSTEMS

#### Existing Systems:

- a. The campus is served by multiple wet pipe fire protection systems. Prior to the installation of an elevated water tower the older building's (Maner Technology Center, Brunkhorst Hall, the Jordan Center, Henson Hall, Hazel Center, the Maintenance Building, and Guerrieri Hall) were all served by a diesel fired horizontal split case fire pump (with jockey pump) located in the Brunkhorst Hall boiler room. The water

supply is a 32,000 gallon above ground suction storage tank located in the South Mechanical Yard adjacent to Brunkhorst Hall. The fire protection systems for the buildings were all hydraulically calculated based on the delivery pressure (128 psig) and flow rate of (1500 gpm) of the diesel fire pump. All of these buildings are still supplied by the diesel fired fire pump and ground suction storage tank.

- b. The remaining buildings on campus are all served by underground fire protection mains that are connected to the campus elevated water tower.
- c. All of the fire protection systems have proper backflow preventers to protect the campus potable water supply from contamination.

#### Reported problems/deficiencies:

- a. The diesel fired fire pump and ground suction storage tank have become difficult to maintain and have served their useful life.
- b. The diesel-fired fire pump is the last remaining item of equipment on the campus that requires fuel oil to operate.

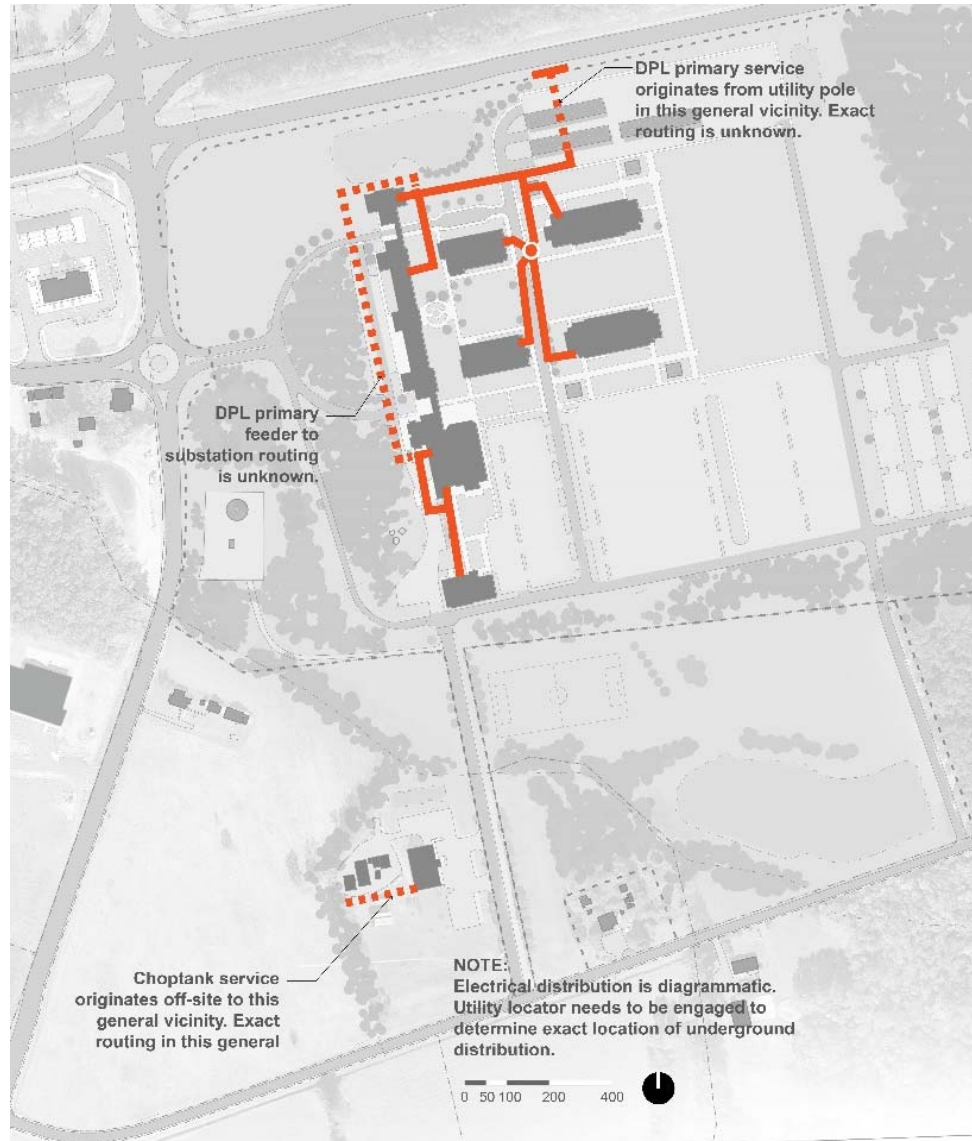
#### Recommendations:

- a. Install a new electric vertical in-line fire pump that is designed to meet the sprinkler demands of the existing seven (7) buildings that are currently served by the diesel fire pump.
- b. Connect the new electric vertical in-line fire pump to the campus elevated water tower to eliminate the need for the ground suction storage tank.
- c. Remove the existing diesel-fired fire pump, fire pump controller, ground suction storage tank, jockey pump, and all associated piping.
- d. To eliminate the need for a fire pump would require the sprinkler system in each of the seven (7) buildings to be replaced with new fire protection piping with larger pipes.
- e. Remove the 32,000 gallon ground suction storage tank and all associated piping.
- f. Provide generator backup if/when fire pump is replaced with vertical in-line electric fire pump.

## ELECTRICAL

### Existing Systems:

- a. The campus has three metered secondary services from Delmarva Power, fed from a single underground primary feeder from a pole mounted fused cut-out on Route 50 adjacent to the North Parking Lot. Pad-mount utility transformers and secondary switchboards are strategically located on the site to serve multiple adjacent buildings. Utility meters are located at the pad-mounted transformers. The Maintenance Building has a dedicated metered secondary service from Choptank Electric with the meter and service disconnect located at the building.
- b. The utility transformers and associated service switchboards are located adjacent to the Maner Technology Center (MTC), Fulton-Owen Hall (FOH) and behind the Hazel Center (HC). All three switchboards are freestanding with Nema 3R weather resistant enclosures, manufactured by Square D, rated for 480/277V, 3 phase, 4 wire. Each dates to the original construction of the respective building listed. The MTC switchboard "MSB" is rated for 3000A main lugs only with individual service disconnects serving the MTC and BH buildings. The FOH switchboard is also rated for 3000A main lugs only with individual service disconnects serving the MTC and BH buildings. The HC switchboard has a 4000A main breaker, surge protection device, and power logic meter. This serves the HC and BH buildings. The installation of the HC service switchboard appears to have additional capacity due to the lack of capacity on the MTC service. There are no reported issues with physical or electrical capacity on building panelboards. The service switchboards at MTC and FOH are limited to a maximum of six service disconnects.



### Electrical Service and Distribution

- c. Three photovoltaic panel arrays are located in the North Parking Lot. All arrays are connected into the switchboard at MTC. The PV Service disconnects are located adjacent to the switchboards.
- d. Site lighting consists primarily of LED cobra head type fixtures on 40' poles for parking lots and roadways on the campus, and a smaller scale version on shorter poles along the entry drive to the campus. Pole mounted decorative walkway fixtures by

Lumec are located for pedestrian traffic between the buildings. The fixtures originally installed utilize metal halide lamps. These are in the process of being replaced with LED by WWCC staff. This is being done approximately 6-7 fixtures at a time due to the cost of the replacement fixtures. Lumec building wall mounted fixtures match the walkway fixtures. Metal halide fixtures in building overhangs have been replaced with LED type by WWCC staff. Fulton-Owen Hall is the only building with ground

mounted HID floodlights. Low height bollard type fixtures are utilized between the Jordan Center and the Hazel Center. The exterior lighting fixtures are fed from multiple buildings but are controlled via contactors from the BMS system. All the fixtures are currently programmed to be on dusk-to-dawn for security reasons, although the back lots have the capability to be controlled separately.

- d. Emergency egress lighting is provided by individual battery backup per fixture. Shockley Hall is the only facility on campus with an emergency generator, as it houses the campus data center.
- e. A lightning protection system is installed on each building.
- f. The campus participates in a demand response program to load-shed on "red" days. Load shedding is typically accomplished by raising the discharge water temperature of the chillers and raising the air temperature at the air handling units.

#### Reported Problems/Deficiencies:

- a. The quantity of individual batteries throughout the campus has become an issue to maintain, test and replace. The majority of these batteries are located in lighting fixture for emergency egress lighting.
- b. Shrubbery has been planted as a screen around the utility transformer and switchboard behind the Hazel Center. These have grown within the code required clearance area and are an impediment to accessing and maintaining the equipment.
- c. There is some exposed bussing in service switchboards.

#### Recommendations:

- a. Continue replacement of all exterior HID fixtures with energy efficient LED type.
- b. Remove shrubbery around exterior electrical equipment noted above. Replace with removable bollards/screening.
- c. Provide an emergency generator(s) for emergency egress lighting on new/renovation projects. An emergency generator is also recommended to provide

standby power if the existing diesel fire pump is replaced with electric.

- d. Provide labels identifying all breakers in MTC and FOH service switchboards as service entrance disconnects. Provide placards on MTC and HC switchboards identifying locations of both and portions of buildings they each serve.
- e. Provide cover plates on any exposed bussing in service switchboards.
- f. Provide sub-meters on the electrical distribution system, configured as required to capture electric usage and peak demand load information for each building, tied into the campus building management system.

#### FIRE ALARM SYSTEMS

##### Existing Systems & Reported Problems/Deficiencies:

- a. Each building has a standalone system, although some of the buildings report together to Ark Systems, which monitors and maintains the systems. The alarm groups are AAB/MTC/SC/JC, HH/GH/WDC, SH, and MB.
- b. All the buildings have horn/strobe occupant notification.

##### Reported Problems/Deficiencies:

- a. All building alarm systems need to tie back to a central building where issues can be reported and diagnosed. At present, the staff has to go to multiple buildings on the campus to verify system status.
- b. Some of the systems are aging and there have been problems finding replacement parts.

##### Recommendations:

- a. Replace fire alarm systems with network capability. A networked campus fire alarm system is preferred to report to the Security Office in Shockley Hall.
- b. Evaluate with input from Campus Security the necessity for upgrading fire alarm systems to voice evacuation type in order to provide greater ability to evacuate and direct building occupants in the event of an emergency or other hazardous situations.

## SECURITY SYSTEMS

### Existing Systems & Reported Problems/Deficiencies:

- a. Each building has a standalone intrusion detection system, although some of the buildings report together to Ark Systems, which monitors and maintains the systems. The alarm groups are AAB/MTC/SC/JC/MB, HH, GH, and SH.
- b. Intrusion detection systems consist of door contacts and motion detectors in hallways facing entry doors. Buildings are armed/unarmed manually by local keypads when the campus is closed.
- c. There is no access control system on campus. A few card readers are still present at some IT closets, but are not in use.
- d. IP addressable video surveillance cameras are located throughout the campus. There is currently sufficient coverage, although cameras that are 5 years of age are being replaced on a one-to-one basis as part of preventative maintenance.
- e. Emergency blue light/phones are strategically located on the site for direct communication with campus security.
- f. Mass notification is provided on campus through the Omnilert Emergency Notification and Alert System, which sends text messages/Facebook/phone alerts to individuals who are subscribed to the service. These messages are sent via security cell phones or computers. Live broadcasts are also sent through campus VoIP phones using InformaCast software solution. These messages can be sent from any campus phone.
- g. Security and Maintenance facilities utilize radios for communications. A radio amplifier is located in the AHB, fed from the emergency distribution system in the building.

### Reported Problems/Deficiencies:

- a. The system is becoming antiquated. A specialized adaptor (NAPCO PCI-MINI) is required to tie into the system for changing the security codes. All the security codes are hosted on a laptop.

- b. All building alarm systems should tie back to the campus security office where issues can be reported and diagnosed.

### Recommendations:

- a. Replace intrusion detection systems with a networked campus system.

## INFORMATION TECHNOLOGY

### Existing Systems:

- a. An underground communications duct bank system provides voice/data/video services to the buildings on campus. The campus has a Cisco VoIP system, although the original copper and coax are still in place. Current 19 POTS lines are in use, primarily for elevator cab phones, fire and burglar alarms. We are in year 2 of a 3 year switch replacement project to replace end-of-life Cisco switches with Dell switches.
- b. The campus data center is located on the fourth floor of Shockley Hall. The following fiber has been verified through a recent fiber assessment conducted to determine the health and capacity of the existing fiber. With a few exceptions in Brunkhorst Hall and the Maner Technology Center, all fiber is routed from the data center to the following campus locations:
  1. 12 strand SM to Jordan Center MDF (fiber is routed from Jordan Center to Maintenance Bldg.)
  2. 48 strand MM (orange) to Guerrieri Hall (24 strand MM from Guerrieri to Henson Hall).
  3. 48 strand MM (orange) & 6 strand SM to FOH 400
  4. 96 strand MM (orange) to BHT1
  5. 12 strand SM to BHT3 (24 strand MM from BHT3 to Henson Hall).
  6. 12 strand MM (orange) & 12 strand SM to IDF 307 1-12 Shockley Hall
  7. 12 strand MM (orange) & 12 strand SM to IDF 201 1-12 Shockley Hall

### Reported Problems/Deficiencies:

1. Several broken pairs of multi-mode fiber in the BH 106 IDF room.

2. Need to upgrade fiber to support increase in network speed in accordance with IEEE 802.3 Ethernet standards.

**Recommendations:**

The recommendations below will correct the deficiencies above and enable the college to increase network speed throughout the campus in accordance with current IEEE 802.3 Ethernet standards:



**Shockley Hall: SH400 - MDF**

Install 1700 feet of 96 Strand, OS2, OSP, Single Mode Fiber to BHT1

Install Corning 4U LIU on both ends and terminate with Corning SC connectors and coupler panels.

Install 1500 feet of 24 Strand, OS2, OSP, Single Mode Fiber to GHT1

Install Corning 2U LIU on both ends and terminate with Corning SC connectors and coupler panels.

Install 1000 feet of 24 Strand, OS2, OSP, Single Mode Fiber to FOH400

Install Corning 2U LIU in FOH400 and terminate with Corning SC connectors and coupler panels.

A minimum of 6 rack units would be needed in the SH400 rack.

Existing 12 Strand of Single Mode Fiber to IDF SH201, 275 feet.

Existing 12 Strand of Single Mode Fiber to IDF SH307, 250 feet.

Existing 12 Strand of Single Mode Fiber to BHT3, 1075 feet.

Existing 12 Strand of Single Mode Fiber to JC, 2000 feet. & Existing 12 Strand of Single Mode Fiber from JC to FM.

Existing 6 Strand of Single Mode Fiber to FOH400, 825 feet.

**Brunkhorst Hall: BHT1 - MDF**

Install 800 feet of 24 Strand, OS2, Armored, Single Mode Fiber to MTCT1

Install Corning 2U LIU in MTCT1 and terminate with Corning SC connectors and coupler panels. 2 rack units needed.

Install 350 feet of 24 Strand, OS2, Armored, Single Mode Fiber to BHT3

Install Corning 2U LIU in BHT3 and terminate with Corning SC connectors and coupler panels. 2 rack units needed.

Install 350 feet of 24 Strand, OS2, Armored, Single Mode Fiber to BHM3

Install Corning 2U LIU in BHM3 and terminate with Corning SC connectors and coupler panels. 2 rack units needed.

Install 1000 feet of 24 Strand, OS2, Armored, Single Mode Fiber to HCT2

Install Corning 2U LIU in HCT2 and terminate with Corning SC connectors and coupler panels. 2 rack units needed.

A Corning 4U LIU will be installed in one of the BHT1 racks.

A minimum of 8 rack units would be needed in the BHT1 rack.

**Guerrieri Hall: GHT1**

Install 450 feet of 24 Strand, OS2, OSP, Single Mode Fiber to HH100A

Install Corning 1U LIU in HH100A and terminate with Corning SC connectors and coupler panels. 1 rack unit needed.

Terminate fiber from HH100A in same Corning LIU as 24 Strand of SM from SH400.

A minimum of 2 rack units would be needed in the GHT1 rack.

**Fulton Owen Hall: FOH400**

Install 150 feet of 24 Strand, OS2, Armored, Single Mode Fiber to FOH100A-EI.

Install Corning 1U LIU in FOH100A-EI and terminate with Corning SC connectors and coupler panels. 1 rack unit needed.

Terminate fiber from FOH100A-EI in same Corning LIU as 24 Strand of SM from SH400.

A minimum of two rack units would be needed in the FOH400 rack.

## SITE INFRASTRUCTURE

### LOCATION

Located just six miles from downtown Salisbury, Maryland, Wor-Wic Community College is sited on nearly 214 acres on the south side of US Route 50. The campus is comprised of three parcels (Tax Map 39, Parcels 134, 208, & 631) that generally stretch west to east from Walston Switch Road (Maryland Route 992) along the US Route 50 corridor. There is approximately 7,200-ft of frontage along Route 50, however, the core campus is located on the west side of the property within a general footprint of approximately 51 acres. The primary campus entrance is from a recently constructed round-a-bout at Walston Switch Road with secondary access points to Longridge Road to the south from Horsebridge Drive and Shortridge Drive.

The campus carries a split zoning designation according to the Wicomico County Zoning Map. The core portion of campus is designated Light Business & Institutional (LB-1) while the eastern portion of the campus is designated Agricultural – Rural (A-1). Given the proximity of the Salisbury-Ocean City-Wicomico Regional Airport to the south, the entire campus property is subject to the Airport Overlay District (A-2).

The site is not located within the Chesapeake Bay Critical Area, the ribbon of land within 1000-ft of tidally influenced water of the Bay which carries additional development restrictions. This site is also not located within any tidal or non-tidal floodplain. Topography on the site is generally flat. Topographically, the highest points are along the eastern, wooded portion of the site with elevations near 75-ft. The balance of the site generally ranges in elevation between 50 and 60-ft.

The core campus area generally drains north toward US Route 50 and south toward Longridge Road. The runoff is treated through several storm water ponds before entering an intermittent stream that cuts diagonally across the southwest corner of the property. The stream runs northwest before emptying into Beaverdam Creek.

### SOILS AND HYDROLOGY

A Web Soil Survey has been included in this report for the campus. Soil types are categorized from A to D with A soils being well draining and D soils being poorly draining. The core of the existing campus consists of predominately A soils. These soil types include PrA (Pepperbox-Rockawalkin) and RsB (Runclint Sand). Both soils are A type soils with groundwater elevations typically between 20 and 40 inches below the surface.

The land between the southern parking lots and Longridge Road contains soil types KfA (Keyport) and LfA (Lenni Sandy Loam). Both of these soils are classified as D type soils. In addition, they are both considered “hydric” soils. Hydric soil are defined as “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” according to the United States Department of Agriculture. Hydric soils along with hydrophytic vegetation and wetland hydrology are used to define wetlands.

The Web Soil Survey also indicates hydric soils located in the middle and eastern sections of the Wor-Wic properties. The presence of wooded wetlands in these areas may prevent or hinder development. The United States Geological Survey Quadrangle Maps (USGS Quad Maps) are used to identify the presence of existing streams. Streams are mapped as either intermittent or perennial streams as blue lines. These “blue line streams” are differentiated with a dotted line type for intermittent streams and a solid line type for perennial streams. Although the Wicomico Zoning Ordinance permits flexibility in the width of a vegetative stream buffer, typically a 25-ft buffer is applied from the top of bank of an intermittent stream and a 100-ft buffer is applied from the top of bank of a perennial stream.

An intermittent stream is identified on the USGS Quad Maps in the southwest corner of campus known as Horsebridge Creek. The stream begins near the existing storm water management pond northeast of the intersection of Longridge Road and the Horsebridge Road. The stream runs northwest under Horsebridge Road, continues northwest under

Walston Switch Road, and continues approximately 1,600-ft before discharging into Beaverdam Creek. Beaverdam Creek generally runs west toward the City of Salisbury before discharging into the Wicomico River near the Salisbury Zoo.

## **STORM WATER**

In accordance with Maryland regulations, Wor-Wic Community College currently maintains a number of storm water management practices that are designed to reduce runoff velocities and allow infiltration to recharge underground aquifers. The majority of the facilities pre-date the Maryland Storm Water Management Act of 2007 which switched the approach to managing from large wet ponds to Environmental Site Design implementation to the Maximum Extent Practicable (ESD to the MEP). Only Shockley Hall and its associated satellite parking lot have been designed utilizing ESD. Bioretention areas between bays of parking treat the runoff nearer the source before being conveyed downstream. The balance of the site's storm water drains through one of four perimeter extended detention wet ponds of varying size.

As the college evaluates proposed development projects, ESD to the MEP will be the standard for storm water management compliance. These practices are intended to be installed as close as possible to the impervious surfaces being treated, so parking lots, walkways, or roof areas associated with campus expansion projects will require the closest adjacency to "green space" storm water allocations. Due to the rural nature of Wor-Wic Community College, the campus is uniquely suited to comply with storm water management requirements when compared to institutions in more tightly-constrained urban settings. However, high groundwater conditions and insufficient outfall slopes can hinder the implementation of these practices.

The campus currently has a network of inlets and underground pipes that collect and convey storm drainage toward outfall points around the perimeter of campus. As noted above, there are four primary ponds serving the campus. They are: the northwest pond, the northeast pond, the southeast pond, and the maintenance facility pond.

The northwest pond is located near the intersection of US Route 50 and Walston Switch Road and has a surface area of approximately 0.91 acres. An existing storm drain system ranging in size from 12" to 24" serves the drainage area which includes Brunkhorst Hall, Maner Technology Center, Guerrieri Hall, and Henson Hall as well as surrounding surface areas. The northeast pond is located west of the North Parking Lot and has a surface area of approximately 0.16 acres. An existing storm drain system collects runoff from the solar-panel-covered parking lot and discharges into the pond. The pond outfalls into the adjacent US Route 50 roadside ditch.

The southeast pond is located near the intersection of Longridge Road and Shortridge Road and has the largest surface area at approximately 2.68 acres. A storm drain system captures Fulton-Owen Hall and Shockley Hall area and discharges into a swale between parking lots South 2 and South 3. South of the perimeter road, the runoff joins with a large swale that begins south of the northeast pond and captures South 4 before making its way into the southeast pond. This is the largest drainage area and will remain the primary point of for discharging future expansion on campus. The southeast pond discharges directly into Horsebridge Creek.

The maintenance facility pond is located between the maintenance facility and the Horsebridge Creek, west of Horsebridge Drive. The pond has a surface area of approximately 0.11 acres. The pond outfalls directly into Horsebridge Creek.

## **FOREST CONSERVATION**

As Wor-Wic Community College initiates future development projects, officials must be mindful of the State of Maryland's Forest Conservation Act of 1991, which stipulates Forest Stand Delineations and Forest Conservation Plans for any activity requiring subdivision, grading, or sediment control permits on areas greater than 40,000 square feet. As a result of past projects, a portion of the existing on-site forest has been deed restricted to comply with Forest Conservation Requirements. For each future individual development project, designers will need to prepare the necessary computation updates that determine how much forest would be lost and what sort of mitigating measures would be necessary to satisfy regulatory requirements. The Maryland law is

designed to promote the preservation of intact forest resources ("retention") as much as possible. Given the amount of existing woods in the eastern portion of the campus, it would be recommended that the deed restricted forest conservation retention area be located in that area. It is possible through an amendment process to relocate existing retention areas for qualifying forest stands. This would allow expansion of the campus east of the core setting without impacting deed restricted areas.

## UTILITIES

### Water

Prior to the City of Salisbury's East Service Area Water and Sewer Extension project, the Wor-Wic Community College campus relied on private wells to feed a small tank with booster station for its water supply. The utility project was completed in 2003 and brought public water and sewer to the campus. A 16" diameter water main was extended east from the City to a new 500,000 gallon elevated water storage tank. The tower is located within a fenced area off of Walston Switch Road and is owned and maintained by the City of Salisbury. The City attempts to maintain the water pressure at the tower around between 55 and 60 psi. Based on a Water Flow Test on October 27, 2017, the static water pressure was 55psi with a residual pressure of 54 psi at 1,640 gallons per minute. This test was conducted by Bayside Fire Protection Co., Inc. using a hydrant 1.56-ft NW of Walston Switch Road near the Royal Farms entrance as the pressure hydrant and a hydrant at the entrance to Choptank Electric on Walston Switch Road as the flow hydrant. Just outside of the tower's fenced utility yard is a master meter for the college. Based on City records, the average flow over the past three years is 6,047 gallons per day. This is based on quarterly readings with the most water used at 744,000 gallons in the quarter ending September, 2018 and the least amount used at 399,000 gallons used in the quarter ending March, 2018. The average quarterly use since 2016 is 544,200 gallons

Beyond the master meter, the 16" water main extends to Horsebridge Road. An 8" water main extends to the Maintenance Building, and a 12" water main loops encircles the campus. The loop was installed to run north along the west side of Brunkhorst Hall, east by Henson Hall, south by Henson Hall and Guerrieri Hall

extending to the south side of Parking Lots South 1 and South 2, before turning west to connect back to the 16" feeder main. With the construction of Fulton-Owen Hall, a secondary 12" loop was installed off of the existing to encircle FOH and what would become Shockley Hall. Fire hydrants are appropriately spaced along the water main loops to meet the needs of fire protection coverage. Future projects should test the flow and pressure from nearby fire hydrants to ensure sufficient capacity exists for the proposed building's domestic and fire suppression needs.

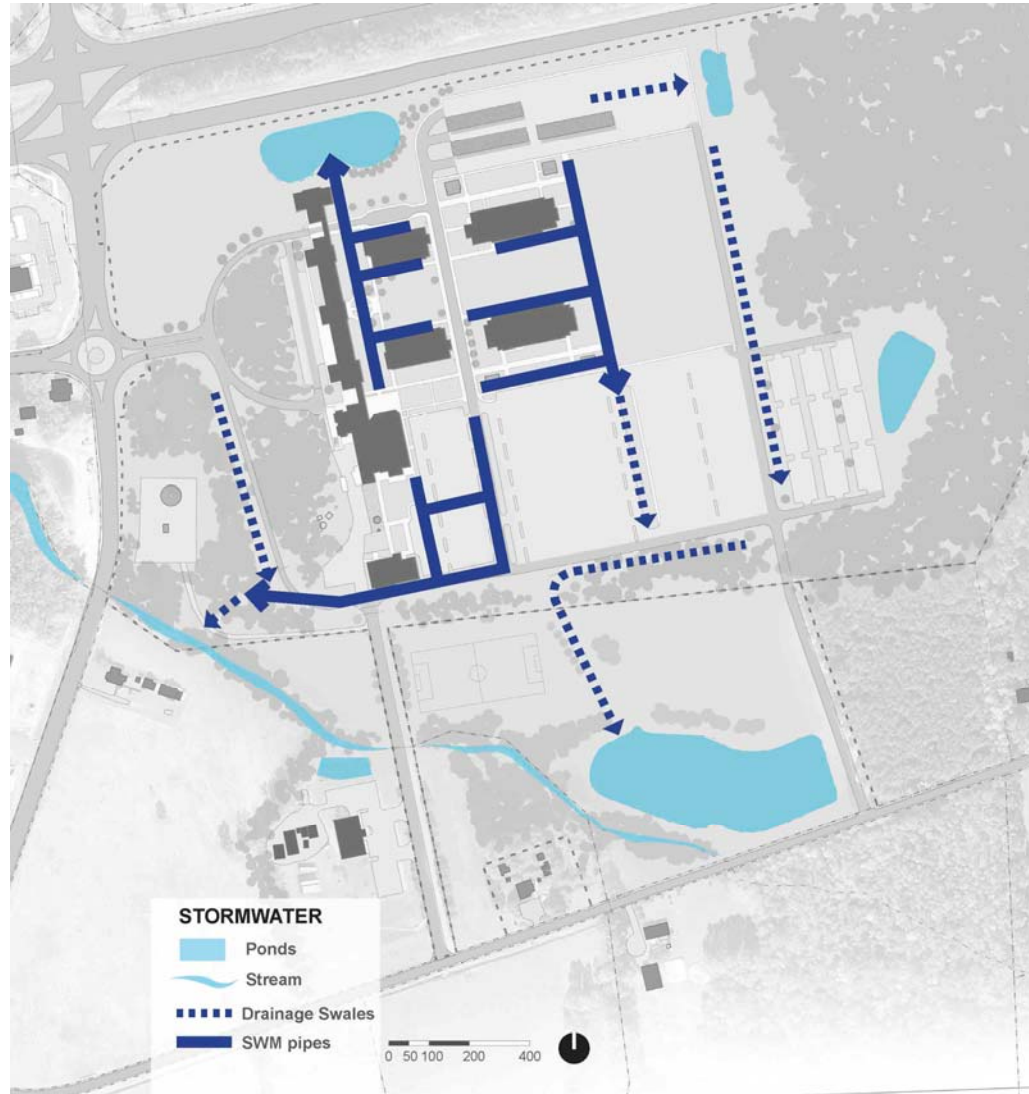
The City of Salisbury is currently implementing a plan to extend a 12" water main from the existing water tower to the Salisbury-Ocean City-Wicomico Regional Airport.

### Sanitary

Prior to the City of Salisbury's East Service Area Water and Sewer Extension project, the Wor-Wic Community College campus relied on private sewer treatment plant and sewer lagoon for its sewage treatment and disposal. The utility project was completed in 2003 which included a new pumping station and 12" diameter force main west into the City. The pump station is located within a fenced area off of Walston Switch Road and is owned and maintained by the City of Salisbury.

From the pump station, a new network of 8" gravity lines were installed that also intercepted the existing 8" gravity lines already serving the campus. The existing main that was salvaged runs along the east side of Brunkhorst Hall (BH) beginning with a connection at Manor Technology Center (MTC). The gravity line serves MTC, BH, Henson Hall, Guerrieri Hall, the Hazel Center, and the Jordan Center. It is intercepted by the new 8" main southwest of Guerrieri Hall and flows east toward the vehicular road, turns south and flows between Parking Lots South 1 and South 2, turns west and flows toward Horsebridge Drive. The new line again intercepts the last mentioned run near the Jordan Center serving both the Jordan Center and Henson Hall. A new 8" gravity line was also installed south to serve the Maintenance Facility.

For future extension considerations, the depth from manhole rim elevation to the pipe invert is important.

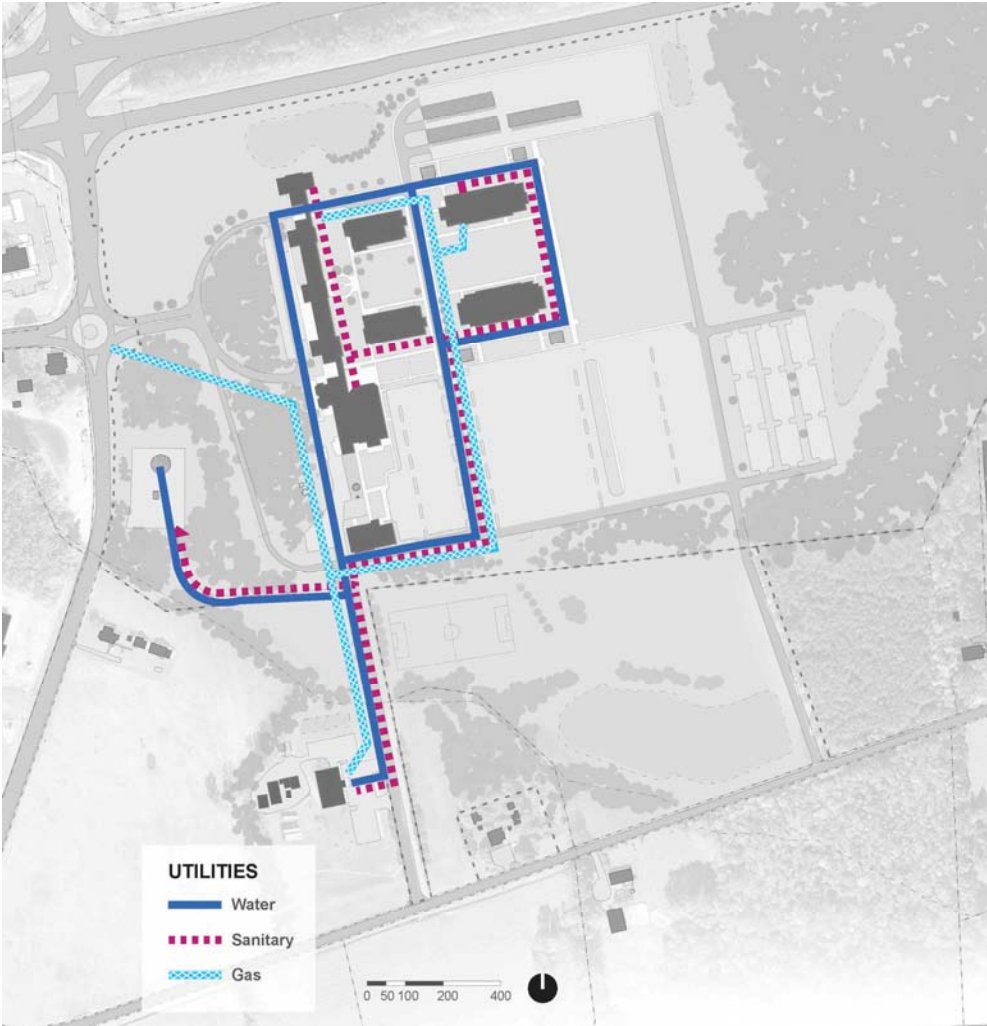


### Storm Water System

At the far eastern edge of the campus, there are two pipe stubs installed for possible future connections. The one located northeast of Fulton-Owen Hall (FOH) has a depth of approximately 6.7-ft. The stub at the southeast corner of Shockley Hall (SH) has a depth of approximately 5.7-ft. Depending upon the depth of the sewer line leaving a future building, and the slope needed in the lateral from the building to the main, and the required cover over the pipe, it is possible that a lift pump would be needed for future buildings east of FOH and SH. Sufficient depth is available for building sites west of this location and south as far as the Maintenance Facility

### Natural Gas

The campus is served by Chesapeake Utilities Corporation for its natural gas needs. A 4" diameter polyethylene service line serves two buildings on campus and is monitored through two existing meters. The service line is fed from a 6" main in Walston Switch Road. The utility company maintains 40 p.s.i. in the main which is sufficient to serve the existing demand. Future buildings using natural gas should be coordinated with Chesapeake Utilities Corporation to ensure sufficient supply capacity.



*Water, Sanitary and Gas System*

## SITE ANALYSIS

### CONTEXT

Wor-Wic Community College is located on US Route 50 east of Walston Switch Road. This location at the eastern edge of the Salisbury growth corridor is central to the lower eastern shore region consisting of Wicomico, Worcester and Somerset County. The campus is within a 20-mile radius of most population centers, public schools as well as Salisbury University and University of Maryland Eastern Shore.

Wor-Wic College property consists of 213.7 acres along US Route 50. The developed portion of the campus uses approximately a 1/3 the gross land area southeast of the Walston Switch Road and US Route 50 intersection. The remainder of the property is undeveloped and wooded. The property is surrounded by a rural landscape, except for the strip retail development west of Walston Switch Road. Properties west of Walston Switch Road have access to municipal water and sewer connection, thereby enabling future urbanized development stemming from Salisbury.



*Regional Context*

The property straddles a ridge line between Wicomico River and Pocomoke River Watersheds. Both rivers flow west to the Chesapeake Bay. The headwaters of Horsebridge Creek, a tributary of the Wicomico River, flows west along the southern edge of the college. On-campus treatment of storm water management and protection of stream buffers contribute to the health of the tributary and greater watershed. The eastern portion of the property is forested and contains non-tidal wetlands and land dedicated to forest conservation.

The following pages describe and analyze the existing campus in terms of overall campus organization, open space and landscape, land use, access and vehicular circulation and pedestrian circulation.

## CAMPUS ORGANIZATION

### Existing Conditions

Wor-Wic Community College is a compact and formal academic setting surrounded by open space, forests and parking lots. The academic core of the campus is defined by two organizing axes. The dominant east-west axis provides a strong linear organization aligning with Walston Switch Road traffic circle entrance, Brunkhorst Hall cupola and the main quad flanked by Henson Hall and Fulton-Owen Hall on the north and Guerrieri Hall and Shockley Hall on the south. A secondary north-south axis organizes the

narrower open space east of Brunkhorst Hall connecting Hazel Center to Maner Technology Center and adjacent scenic pond. The Jordan Center, child care facility, is south of the Hazel Center outside of the academic core of campus.

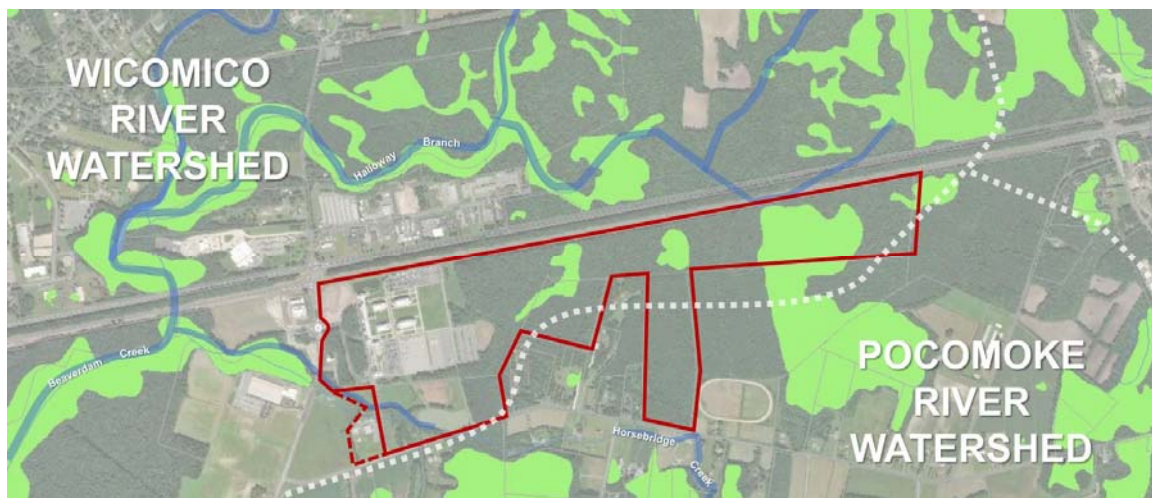
Surface parking lots surround the academic core, with a majority of the parking provided south of the core.

The Maintenance Building is located on Horsebridge Drive beyond the southern parking lot.

Athletic fields and facilities are absent from the campus with the exception of a single soccer field looped by an exercise walking path. The field is located east of Horsebridge Drive, south of South Lot 2.

### Analysis

The academic quad has a distinctive “sense-of-place.” The buildings that support the daily academic mission of the college are contained within an easy walking distance to each other and convenient parking. The campus grid framework allows for growth without major disruption to infrastructure and parking capacity.





## OPEN SPACE AND LANDSCAPE

### Existing Conditions

The academic core is composed of two intersecting quads that reinforce the organizing axes. The larger main quad runs east-west and the secondary quad runs north-south. The dolphin fountain, framed by ornamental trees is located at the crossing of the two quads. This reflect space is the symbolic center of the campus with views to all buildings.

The older open spaces between Brunkhorst Hall, Henson Hall and Guerrieri Hall are framed by ornamental scaled trees, whereas the eastern and newer end of the main quad is relatively treeless. The large lawn east of Fulton-Owen Hall and Shockley Hall awaits future development.

A transitional open space provides a landscape buffer between buildings and parking areas. These spaces along the back of buildings provides an east-west pedestrian and utility corridor. Mechanical enclosures are integrated into the pattern of walkways and landscape plantings.

The plaza north of the Hazel Center is one of a few spaces that provides space for outdoor events. Fixed and heavy benches and tables limits the flexibility of how this space can be programmed. Site furniture elsewhere tend to be stationary and arranged in patterns that are not conducive to socializing.

The geothermal field at the corner of Walston Switch Road and US Route 50 has visually opened the campus from the highway. Maner Technology Center is more visible to passing traffic. The monumental campus sign at the intersection of US Route 50 and Walston Switch is highly visible but feels insignificant especially with the expansive field behind it.

The storm water pond and surrounding manicured landscape including the flag poles and monumental signage wall creates a welcoming setting along US Route 50. This scenic setting is difficult to experience when traveling at high speeds along the highway. East of the pond, a row of trees along the highway helps reinforces the edge of the campus.

The forest stand west of Brunkhorst Hall within the existing one-way drop-off loop is densely planted and

obscures views of the main entrance. Without clear vision of their destination along a route with multiple turns the arrival sequence becomes disorienting to a first-time visitor. In other locations along Walston Switch Road the forest screens views of the utility infrastructure and service loading behind Hazel Center.

The open space between Hazel Center and Jordan Center is programmed with raised vegetable gardens, outdoor seating and a playground for the child care center. The only recreational soccer field is located south of Jordan Center across the existing access drive.

The landscape palette in the academic core is comprised of well-maintained lawn areas, building foundation plantings and ornamental trees screening utilities or accenting key architecture and site features. The campus core lacks a layer of taller mature shade trees.

Hedge rows and forest stands create enclosure around the campus core. The eastern forest stand provides wildlife habitat and ecological services near the headwaters of the tributaries for the Wicomico and Pocomoke Rivers.

### Analysis

The highly organized quads along with a consistent architectural style establish a strong sense of campus cohesion. The lack of a variety of landscape layers and materials accentuate the uniformity of architectural patterns. Shade trees can help soften the open spaces and reduce the rigidity of the hard-edged rectangular spaces. Mature shade trees would provide another layer of texture and color in the quads as well as provide shade to help mitigate urban heat.

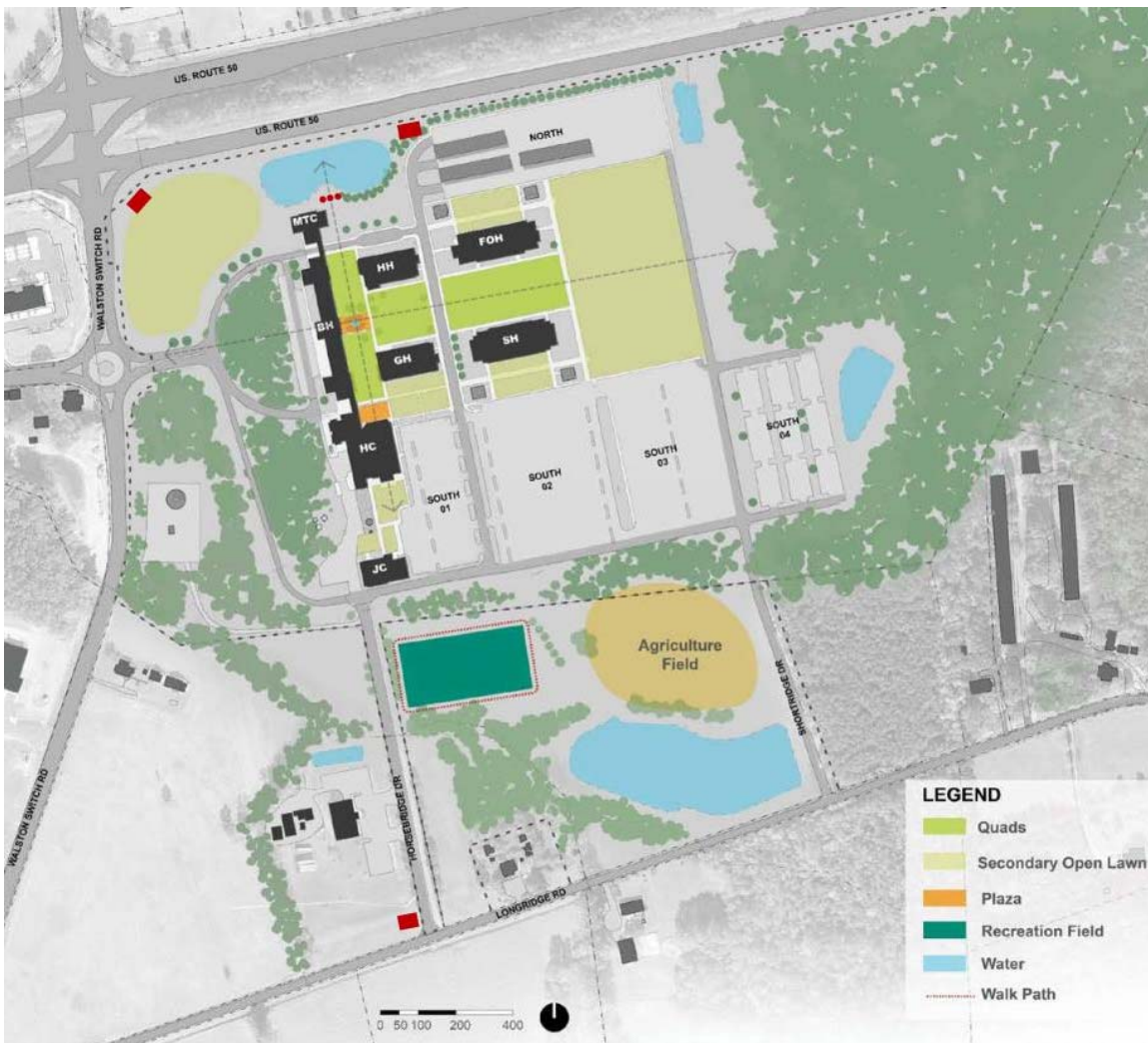
The academic core has limited flexible seating areas. Providing a variety of space types such as gardens, entry plazas, and flexible lawns for activities as well as introducing lightweight and mobile site furniture can add flexibility for daily uses such as capturing sunlight, socializing, studying and holding class outside.

Integrated storm water management plantings provide ecological services as well as aesthetic interest to the campus. These facilities are important landscape features for new development. A consistent planting

palette can help create visual consistency throughout the campus and reinforce walkways and building entries.

The untapped forest area offers opportunity for hands on learning and recreational activities.

The street trees, street lights, banners and wayfinding signs should be integrated along roadways to help communicate the Wor-Wic Community College brand, welcome visitors and heighten the sense of place.



*Open Space*

## LAND USE

### Existing Conditions

Academic and administrative/support services are concentrated in the academic core with convenient parking around the perimeter. The two quads provide open space connections between the buildings of the academic core.

General studies programs are clustered in the northeast corner of the main quad and include Maner Technology Center, Brunkhorst Hall and Henson Hall. Henson Hall provides space for math and science programs. Guerrieri Hall, Shockley Hall and Fulton-Owen Hall each house specialized programs, Eastern Shore Criminal Justice Academy, Allied health programs and Continuing Education and Workforce Development respectively.

Student services are in Brunkhorst Hall, a visually prominent and central building on the campus. Brunkhorst has a central hall that connects the visitor parking lot to the main quad. This is convenient portal to student services for both future and existing students.

Hazel Center operates as the student center equipped with a bookstore, meeting rooms, offices, study space, lounge and dining services. Hazel Center is located south of the main quad but within an easy walk to other academic buildings and parking.

The maintenance function of the campus is located outside of the day-to-day academic function of the campus on Horsebridge Drive

### Analysis

Academic and student services, critical to the daily learning experience, are clustered centrally in the academic core. All buildings are within a five-minute walk of each other and surface parking. Facilities less critical to the day-to-day operations of the campus are located appropriately outside of the academic core.

Today the campus lacks recreation and athletic facilities. The campus development plan framework will appropriately reserve space for these programs without compromising the academic core and circulation patterns.

## VEHICULAR CIRCULATION AND PARKING

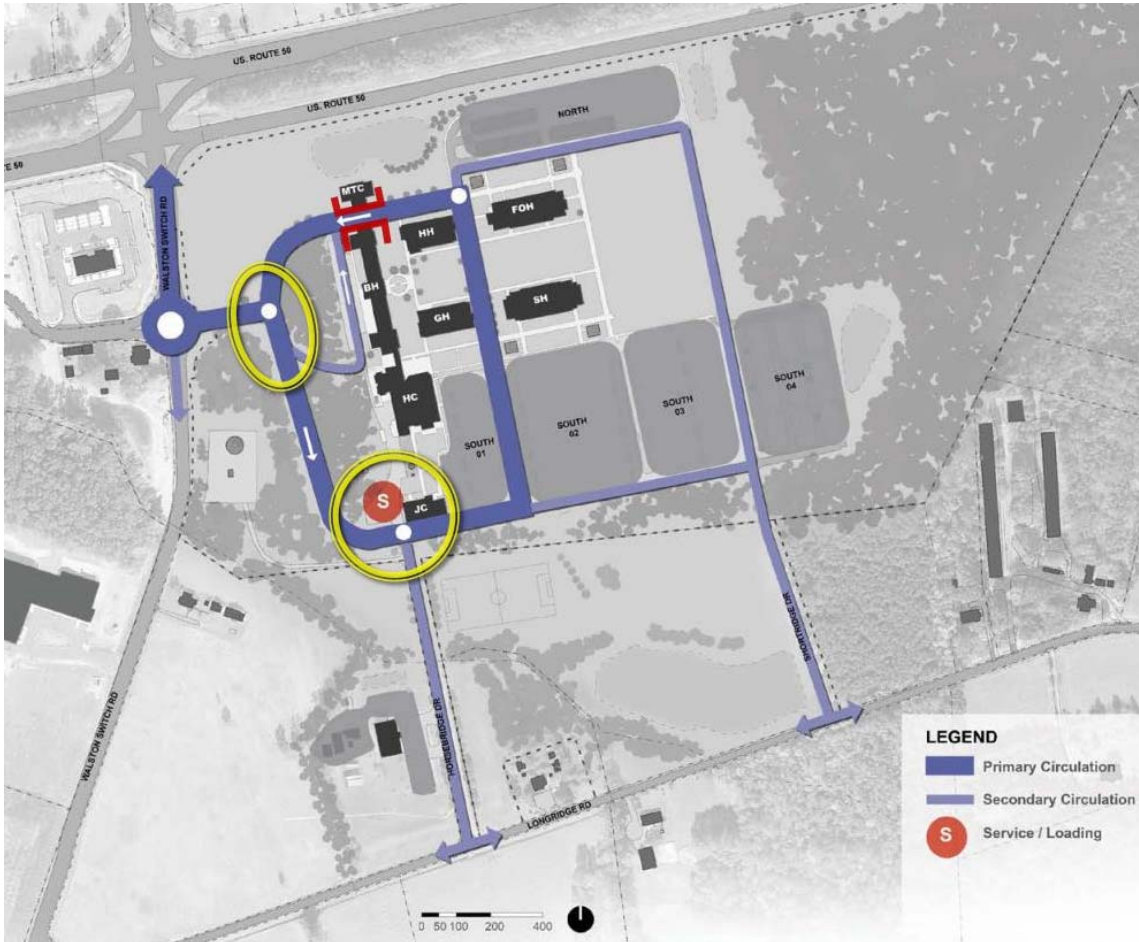
### Existing Conditions

Primary access to the campus is from US Route 50, a limited-access highway corridor connecting Salisbury to Ocean City. The signalized intersection at Walston Switch Road and US Route 50 is at the northwest corner of the campus and provides the visibility and full access to the highway. The new geo-thermal fields increase the visibility of the campus from the highway.

Walston Switch Road traffic circle provides free flowing vehicular movement into the Wor-Wic Community College campus. From the traffic circle vehicular movement generally flows in a counter-clockwise rotation following a one-way campus drive south and east towards Horseridge Road, then along a two-way drive between parking lots and the center of main quad before exiting back towards Walston Switch Road along a one-way lane by Maner Technology Center. This route has confusing intersections, many pedestrian-conflict points and lacks a sense of arrival. The one-way road segments prevent drivers to correct themselves without having to loop around the campus.

Horsebridge Drive and Shortridge Drive provide two-way vehicular access south towards Longridge Road. Longridge Road connects to Walston Switch Road, approximately a ¼ of a mile south the traffic circle. These secondary access routes provide an indirect connection back to US Route 50. Horsebridge Road provides access to the Maintenance Building and is the preferred access for service vehicles and deliveries. Internally Shortridge Drive provides a second access lane between north and south parking lots. Shortridge Drive between South Parking Lot 3 and Longridge road has a narrow pavement width and lacks street lights.

The Hazel Center has loading and service on the west side of the building out of view from the parking lots and core of the campus. The dead-end service lane requires trucks to perform a three-point turn behind Jordan Center to back-into the service docks of Hazel Center. Service trucks delivering directly to buildings stop along the curb line of travel lanes obstructing vehicular and pedestrian mobility.



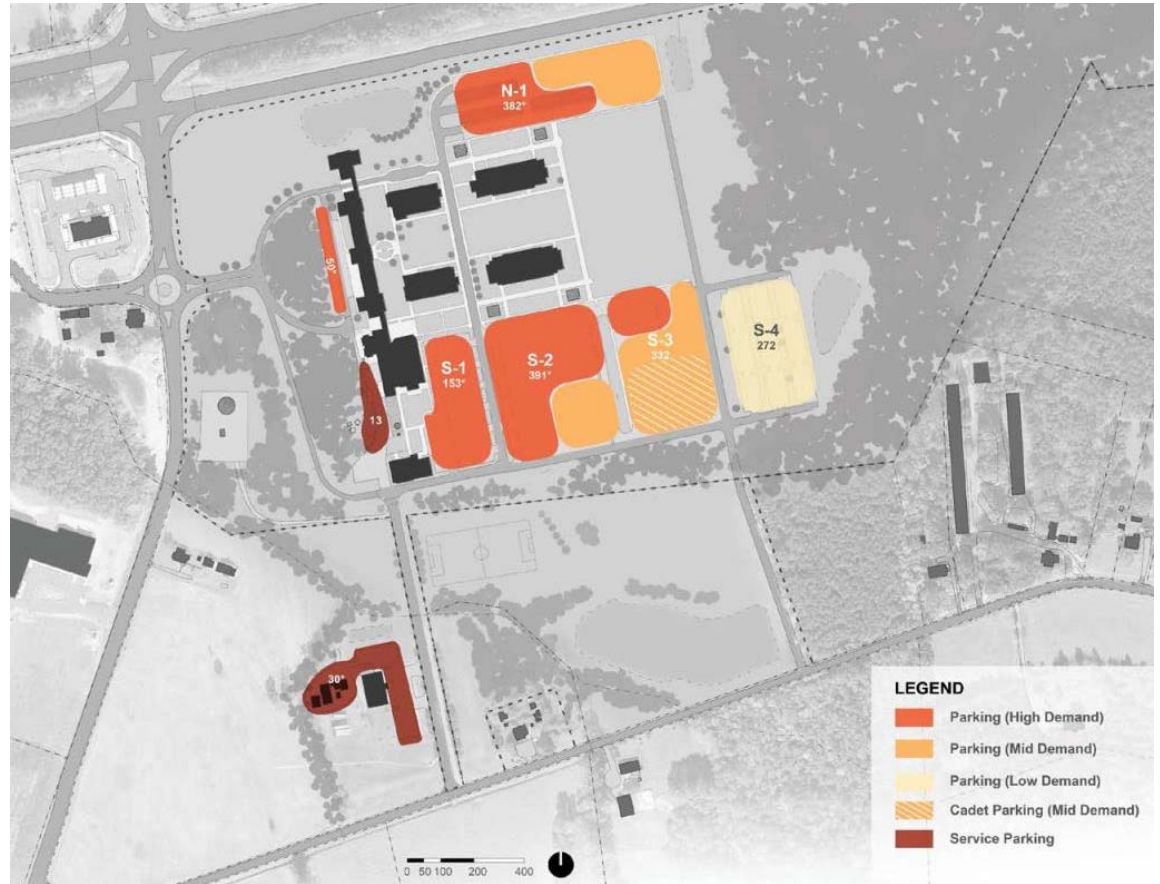
### *Vehicular Circulation*

There are 1,642 parking spaces on campus. Majority of the parking is located south of Guerrieri Hall and Shockley Hall (South Lot 1-4) with another large lot north of Fulton-Owen Hall (North Lot 1). A limited number of visitor parking is located west of Brunkhorst Hall. In general, the campus has sufficient parking capacity. South Lot 4, the most distant parking lot to the academic core, is typically empty.

### **Analysis**

Vehicular circulation through the center of the academic core poses a constant conflict with pedestrians. Removal of roadways through the campus requires a new vehicular movement pattern, a system that does not rely on egress from the northern

parking lots. Shifting the out-bound lane north of Maner Technology Center will alter the pond and scenic landscape along US Route 50. At this time direct access to US Route 50 is not permitted. Egress to Longridge Road is circuitous and may require public roadway improvements at the intersection of Walston Switch Road and Longridge Road. Access between the southern parking lots and Walston Switch Road is direct and simple but require two-way movement. Roadway improvements need a legible pathway with appropriate wayfinding and balances the efficiency of inbound and outbound movements to minimize congestion during peak hours. Expanding the pavement width and adding street lights along Shortridge Drive will improve the sense of comfort and



### *Parking Lot Utilization*

safety along this route between parking lots and Longridge Road.

Redesigning the visitor arrival sequence needs to be incorporated with the overall signage and wayfinding system starting at US Route 50. A clear, direct and even ceremonial approach will create a welcoming and memorable setting. Visitors need to be able to recirculate through the parking lot to avoid forcing traffic back towards Walston Switch Road.

Although parking capacity is sufficient for future growth, space for new parking lots need to be reserved to replace parking lost to building projects. Consideration should be given to traffic demand strategies to reduce vehicular travel demand on campus. These strategies provide cost-effective and sustainable alternatives to building new roadways and parking lots.

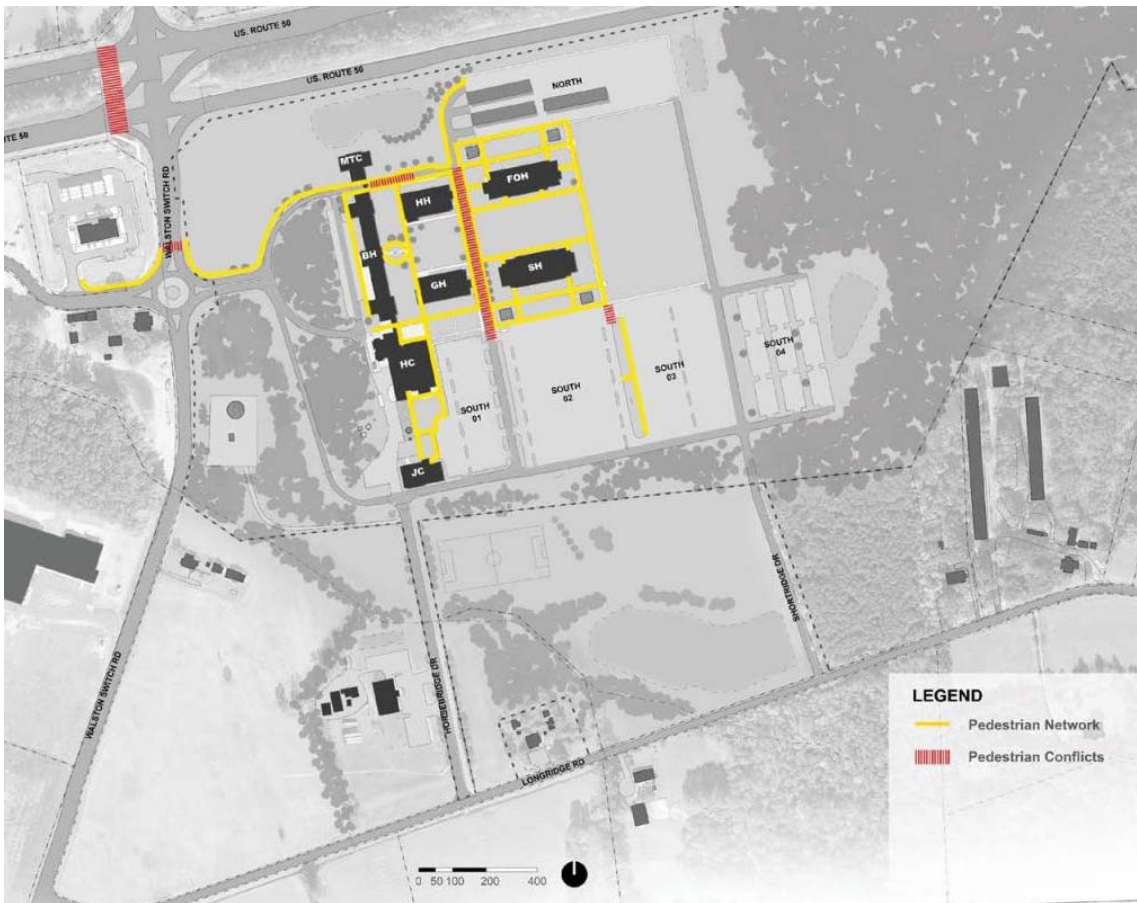
## PEDESTRIAN CIRCULATION AND TRANSIT ACCESS

### Existing Conditions

In the academic core a grid of sidewalks reinforces the strong rectilinear geometry of the quads and building layout. This robust network of sidewalks provides easy access between buildings and adjacent parking lots. The arcade along the eastern face of Brunckhorst Hall provides a sheltered connection between Maner Technology Center and Hazel Center. The campus has a tradition of covered building entrances. The campus has a few trees to provide comfort to pedestrians from the sun and heat. Pedestrian scaled lighting and wayfinding help ease navigation around campus. Typical walkways are constructed of concrete and in a few places with pavers, such as near Maner Technology Center.

The north-south access lane through the middle of the main quad burdens convenient and safe pedestrian access in the academic core. Other points of vehicular-pedestrian conflict include pedestrian routes between parking lots, between Maner Technology Center and main quad, and access to the soccer field and walking path.

There is a sidewalk from Maner Technology Center to a cross-walk across Walston Switch Road. This provides a pathway between the campus and adjacent retailers. There is no pedestrian connection across US Route 50 to provide safe access to the nearby transit center.



### Pedestrian Circulation

The campus is served by three bus lines providing connection to many of the population centers on the lower Eastern Shore. Collectively there are approximately 17 daily stops made at Brunkhorst Hall between early morning and 9:30pm. Across US Route 50 is a regional transit center with access to a more direct local bus service to Crisfield and Greyhound national bus service. There is not a safe pedestrian path across US Route 50 to link the campus with the transit center.

### Analysis

Removing vehicular access in the academic core creates an unobstructed pedestrian network. Crosswalks should be used to increase awareness of pedestrian movement across surrounding access drives and through parking lots. The maintenance of pavers, sidewalks and curb ramps should continue to be made to ensure safe durable surfaces for people of all levels of mobility.

Expanding recreational pathways around the campus offers access to exercise to improve the health and wellness of the campus community. Pathways can connect future recreational fields, park-like spaces and naturalized areas.

Bike ridership was not observed, nor does there appear to be a demand for bike use. However future development should consider providing basic bike infrastructure to encourage bike ridership.

Crisfield is one of the larger population centers without a direct bus line to the campus. Consideration should be made to study improved bus access to Crisfield, as needed.

## SUSTAINABILITY

### BACKGROUND AND ACCOMPLISHMENTS THROUGH 2018

Wor-Wic Community College has taken major and positive steps in recent years to improve its sustainability practices, energy use and carbon footprint. Following the lead of Shockley Hall in 2010-11, all the College's new buildings and major renovation projects will be designed to meet LEED Silver requirements. In 2017-2018, three acres at the NW corner of the campus were used to install a geothermal field with 270 wells now providing all of the heating and cooling needs for Brunkhorst and Maner Halls. Also in 2017-2018, a 1296 panel, 393 kilowatt photovoltaic solar array was installed in the north parking lot, expected to generate approximately 500,000 kilowatt hours per year. Going forward, the College has acquired the rights to a 10-acre site in Hebron to install another solar array, sized at approximately two megawatts.

The College property includes an expansive forest system with non-tidal wetlands providing important wildlife habitat as well as quality ground water recharge near the headwaters of tributaries of the Wicomico and Pocomoke Rivers. The growth of the campus has maintained a compact and walkable layout allowing the protection of on-site forests and hedgerows that buffer streams. Bioretention facilities that capture rain from South Parking Lot 4 demonstrate an integrative landscape approach to contain and recharge storm water locally. This approach offers ecological benefit as well as adds visual interest to the site.

Shade trees are largely absent within the developed portion of the campus. Shade trees located in and around parking lots and hardscape areas help mitigate the effects of urban heat islands to create a more balanced micro-climate.

The new three-acre geothermal field at the northwest corner of the campus, like the solar panels, demonstrates Wor-Wic's commitment to renewable energy sources. The open and highly visible field created by the geothermal project offers an opportunity to create native meadow habitat to support pollinators. Meadows and other no-mow areas around campus can help offset the need to frequently mow

grass during the growing season and reduce carbon emissions.

## MASTER PLAN RECOMMENDATIONS

All projects envisioned in the master plan are encouraged to embrace sustainability best practices. Sustainable strategies which have been incorporated into the master plan include:

- Incorporate LEED Silver level requirements for future new construction and major renovations.
- Orienting, where possible, the long axis of new buildings along an east-west axis to capture preferable solar access.
- Re-using existing buildings where possible; renovating buildings in lieu of new construction, provided the existing buildings do not present infeasible renovation possibilities
- Encouraging multi-story buildings where feasible, minimizing building footprints and corresponding additional unnecessary impervious area.
- Replace plumbing fixtures and fittings with low-flow type.
- Upgrade aging lighting throughout buildings and site with energy-efficient LED lighting, reducing energy consumption and reducing light trespass/pollution.
- Encouraging efficient and compact campus development on previously disturbed land to protect surrounding ecosystems and limit unnecessary imperviousness.
- Retaining natural wooded areas and stream buffers to maximum extent to maintain natural habitat around non-tidal wetlands and the headwaters of tributaries of the Wicomico and Pocomoke Rivers.
- Providing for integrated storm water management consistent with new State of Maryland regulations to be incorporated in each new project and throughout the campus.
- Planting with native plants and removing invasive species to enhance wildlife habitat and stability.
- Planting shade trees throughout the campus, including adjacent to roadways, in parking lots to reduce urban heat island effects, and in quads supplementing the ornamental trees along sidewalks.
- Re-plant some lawn areas as native meadow beginning with the geothermal field at the northwest corner of the campus.
- Expand surface parking only when necessary and consider developing a transportation demand management plan to develop alternative ways to reduce reliance on single-occupancy driven automobiles, reduce traffic congestion and limit the need to expand parking lots. Applicable projects may include car-share programs and priority parking for car-pooling.



## SIGNAGE

Signage forms part of a visitor's impression. Not only does each panel provide an important message, but the collective network of signs establishes the identity of the college. Each sign is an opportunity to communicate a positive image of the campus and the institution.

### EXISTING CONDITIONS

Wor-Wic Community College has a variety of signage types and styles on campus. The engraved building names on the entablatures over building entrances have a stately appearance and have become an architectural standard for the college, since the inception of the school. The legibility of the sign is dependent on the angle of the sun to create sufficient contrast. Pin letter mounted signs located near the top corner of buildings have a more effective communication quality. The dark grey letters pop with sufficient contrast against the buff masonry; however, the size could be larger to be read from a greater distance.

Other signs appear foreign and out of place, such as the directory information kiosk near the Brunkhorst visitor parking lot. This very large box sign appears oversized, perhaps because it was designed to be seen from the seat of the car. The sign content contains lots of information and the graphics color doesn't provide sufficient contrast to read from afar.

The family of black posted pedestrian directional signs and pedestrian map directories creates branding cohesion on the campus. The college colors and logo are appropriately placed, and the information is clear and graphically legible. The design of the ribbed post caps of the pedestrian signs is in keeping with the ribbed light fixture shields across the campus, a thoughtful attention to detail.

The monumental and entry signs are located at the perimeter of the campus. The monumental sign facing US Route 50 near the storm water pond (Exhibit 4) integrates form and materials of the surrounding buildings and is accentuated by flower beds and grounded by framing shrubs. The white pin letter message is simple and clearly articulated against the darker masonry. Unfortunately, the sign is placed facing parallel to the road way and consequently fails to communicate effectively to motorists speeding past.

The other monumental entry sign along Route 50 is located at the intersection of Walston Switch Road (Exhibit 5). It is oriented towards the east-bound traffic, the approach taken by visitors and commuters. The sign is not congruent with the formal architectural patterns of the campus. While the push-pin marquee sign board provides opportunities to make announcements, the sign content lacks hierarchy in letter size, and the message of the announcement becomes as important as the identity of the college. The openness of the field behind the sign is expansive and requires a larger and bolder message to help communicate to passing motorists. This location is a critical starting point for a system of wayfinding to lead guests into campus. The symmetrical piers and sign board do not imply direction.

Light posts along internal roadways are garnished with Wor-Wic branded banners helping to frame and celebrate arrival to the campus. Directional signs are provided along Campus Drive and at intersections to direct vehicles to their destinations. Visitors to admissions (Brunkhorst Hall) have limited time and distance, approximately 60 feet after making the first right hand turn onto Campus Drive, to respond to a directional sign located at the entrance road split, as shown below in Exhibit 6. A directional sign located prior to the right-hand turn onto Campus Drive could help alert visitors to make the immediate left at the road split. A roadway network that reduces the amount of turns and creates a strong visual connection to Brunkhorst Hall would eliminate the reliance on quick reaction time and multiple wayfinding signs to guide visitors.

### ANALYSIS

As described above there are sign families and styles that are working collectively to reinforce the image of the college and effectively deliver a succinct message. The pedestrian and building signage work in concert with vehicular wayfinding signs. Pedestrian wayfinding signs located at key corners at the edge of parking lots are visible and informative. Monumental signs at the perimeter need more cohesion and should be more consistent with the architectural character of the college. As the campus grows, current signage standards should continue to be integrated throughout the campus to deliver a strong and unified message from the highway to the classroom.



*Walston Switch Road – US Route 50 Monument Sign*



*US Route 50 Monument Sign*



*Entrance Road split leading to Brunkhorst lot (left) and general parking areas (straight)*



*Pedestrian Wayfinding Signage*



*Building Mounted Signage*



# CHAPTER 5: LOOKING TO THE FUTURE

## PROPOSED CAMPUS DEVELOPMENT

The Facilities Master Plan provides a vision and framework to guide future campus development to meet the needs of Wor-Wic Community College over a ten-year period as well as into future. The framework organizes individual projects to ensure the cumulative impact of these projects on the campus is greater than the sum of its parts. The proposed projects and campus organization support the mission and vision of the college. The plan builds on the strong identity and layout of the existing campus and addresses opportunities to foster greater social interactions between disciplines and people. The plan builds on the college's assets, existing utility infrastructure and circulation patterns to improve the college's capacity to grow efficiently. The compact campus form actively repositions previous developed land to honor the surrounding eastern shore ecology and rural landscape. The plan provides a realistic and flexible roadmap to implement this vision for the college.

The proposed plan is illustrated in *Exhibit 5.A-1: Campus Development Plan*.

### DESCRIPTION

The Campus Development Plan provides a long-term vision for Wor-Wic Community College demonstrating how new program elements can be accommodated to reinforce and enhance the academic setting, circulation patterns and identity of the college. Several major projects are recommended through 2027. They include:

- Applied Technology Center (40,000 GSF)
- Learning Commons (40,000 GSF)
- Wellness Center (50-80,000 GSF) and recreation fields
- Expansion of Facilities Maintenance Building (6,000 GSF)
- Widen access drive to two-way traffic from Walston Switch Road to proposed Applied Technology Building
- Future academic buildings (35,000 GSF each)

The Campus Development Plan also places three future Academic Buildings to be implemented as funds become available. These infill buildings reinforce the spatial definition of campus quads.

The development plan reflects key attributes of smart growth principles. New buildings are located on previously disturbed sites minimizing impact to sensitive environmental features, particularly the stream buffers and the expansive forest areas. Proposed buildings are generally three stories tall, an efficient use of land, and maintain the scale and character of existing campus buildings. The compact campus reinforces the college's identity and sense of place while creating a walkable environment.

Roadway improvements from Walston Switch Road enhance the sense of arrival for visitors, improve access options and eliminate cars from the academic core. A new straight alignment between the traffic circle and Brunkhorst Hall reinforces the main east-west axis of the campus and creates an intuitive pathway for visitors and transit services and expands visitor parking capacity. From that entrance road between Walston Switch Road and the new Brunkhorst lot, a reconfigured and dualized road extending to the south and around the new Applied Technology Building will provide a more direct connection to the south parking lots. The north-south campus drive between South Lots 1 and 2 extending north to the west side of the north lot will be replaced by a fire lane / pedestrian way, improving pedestrian safety while allowing access to service and emergency vehicles. Similarly, the exit road between Brunkhorst and Maner will be eliminated, also improving pedestrian safety and allowing traffic to exit the campus more directly to Walston Switch Road.

A surplus of parking accommodates current need and will support future campus growth over the next ten years. New parking will need to be provided when new buildings displace existing parking lots. Parking lot expansion is proposed south of the existing southern parking lots. As parking lots are constructed, a new access road will be expanded between Horsebridge

and Shortridge Drive to complete the roadway network and minimize congestion within the parking lots.

Landscape and open space improvements will continue to strengthen pedestrian connectivity and encourage outdoor experiences throughout the campus. Shade trees will provide an additional layer of spatial definition for quads and walkways, soften the architectural form and reduce urban heat. New building projects should create outdoor seating areas to encourage social interaction. Landscape design should integrate storm water management with consistent planting palette to reinforce the sense of place. Design standards for paving, site furniture, and site lighting are recommended, to continue to reinforce campus identity for future projects affecting these components.

## **BUILDINGS: ARCHITECTURAL CONSIDERATIONS**

Beginning with Brunkhorst Hall and the original campus master plan, the “parti” of the buildings and building placement has been a fairly rigorous, orthogonal plan. Buildings in the academic core have generally been designed in a similar language and size, at least vertically, as Brunkhorst and Maner. Spaces between the buildings and locations of building entrances have varied somewhat but, except for Brunkhorst, do not provide entry to the long sides of the buildings, resulting in expansive quads little interrupted by sidewalks. Exterior elements including windows, brick facades, louvers at the 4<sup>th</sup> level mechanical spaces, and metal roofing, are consistent from building to building. Small projects such as the planned addition to the Maintenance Building will be different from the academic buildings.

New building design should continue to borrow from the traditional architectural language of the existing academic buildings to maintain consistency throughout the campus. The architectural patterns include but are not limited to hipped roofs over a pronounced attic line, an articulated base, porches at entrances and buff color brick with white trim and details. In key locations, contemporary design elements should be welcomed to establish hierarchy of special programs, improve access to daylight and enhance visual relationships between interior and exterior spaces.

The proposed campus development plan anticipates adherence to the orthogonal grid, and proposed building footprints are also shown to be orthogonal: rectangular and “L” shaped. Future buildings should respect the existing architecture, including size, volume, and exterior materials and shapes; however, opportunities may exist to introduce certain building configurations that deviate from the grid, as may be suggested by placement of entrances, or to address considerations such as sustainability; these elements should not be the dominant basis of design. Academic buildings are generally anticipated to similar in size to the existing academic facilities, i.e. in the range of 35,000 to 50,000 gross square feet. While the existing brick surfaces create generally opaque facades, it may be very appropriate to introduce more transparency in future buildings, such as the Learning Commons or expansion to the Hazel Center.

Building interiors may incorporate double and single-loaded corridors, depending on program, floor level and building location; there is precedent for both in several of the existing academic buildings. Mechanical and electrical systems will likely be independent for each new building and may utilize separate, free-standing enclosures for cooling towers and transformers. Structural systems should be a function of utility, market conditions, schedule, and program requirements.

## **CAMPUS PLANNING**

The following paragraphs describe site recommendations for Wor-Wic Community College. The recommendations support the framework of the illustrative Campus Development Plan in Section xx of this report. The strategies and recommendations outlined below reinforce the identity of the campus, foster a sense of place, create a pedestrian friendly environment, develop an efficient circulation network that heightens the arrival experience for visitors.

### **Preservation & Opportunity Sites**

The developed portion of the college is located on about 1/3 of the overall property. The rational gridded organization of buildings and infrastructure enables growth near the core of the campus with minimal disruption to utilities, parking capacity and encroachment into sensitive environmental areas. The turfed area east of Fulton-Owen Hall and Shockley

Hall and portions of the southern parking lots are expansion opportunity sites.

### Campus Organization and Land Use

The academic core of Wor-Wic Community College is organized on a cross-axis and gridded building layout. The flat site enables the continuation of this efficient campus pattern. Future growth should continue along the east-west axis or develop along secondary north-south connections to create a complete well-connected campus.

The following are recommendations to strengthen the campus organization:

- Locate new academic buildings to physically frame and strengthen the sense of enclosure of the main quad and future quads. Architectural features, such as cupolas, towers and covered entries, should be carefully located to terminate views, activate open spaces and enhance wayfinding.
- Locate the proposed Wellness Center and recreational fields at the eastern end of the academic core to allow for additional infill growth and create open space transition with the forest area.
- Locate the Learning Commons adjacent to Hazel Center to support synergies between proposed shared student support and learning spaces with existing food service and student-oriented programs within Hazel Center. At this location the Learning Commons forms the southern edge of the new quad opposite Guierrei Hall and creates a new southern gateway into the academic core.
- Locate the Applied Technology Center south of the Jordan Center and relocate the existing access drive south of this building. This location balances functional building needs while creating a community connection to the academic core. The building has service access off of Horsebridge Drive. The 'L' shaped form and site walls screen the service yard from the entrance access drive, surface parking and from the academic core.
- Expand Facilities Maintenance Building at their current peripheral location.

### Open Space and Campus Landscape

Campus open spaces knit buildings and facilities together into a unified campus environment, allowing for learning and discovery to happen in a variety of spaces throughout and creating a collegiate image for the institution. Successful open spaces within a campus require both architectural and landscape definition. The landscape reinforces the campus image and provides comforts, such as shade, to those using the campus. The following recommendations improve open space and landscape throughout the campus:

- Future campus development should continue to strengthen the primary east-west axis and sequence of open spaces.
- Enhance the main quad by planting a consistent family of shade trees and landscape areas to soften the architectural form and create a rich layer of color and shade.
- Develop active open space experiences anchored by Hazel Center and the proposed Learning Commons, such as but not limited to plazas, outdoor classrooms and flexible lawns.
- Distinguish unique spaces and building entrance areas with special planting, providing for seasonal interest and smells.
- Position building entries to help activate seating areas and open spaces.
- Throughout the campus provide a variety of seating opportunities to encourage community interaction. Use landscape design to frame seating areas. Encourage the use of portable chairs and tables to provide more flexibility to adapt campus spaces to individual needs and comforts.
- Protect and enhance buffers to existing forests, wetlands and streams.
- Encourage the use of native and adaptive plants and prohibit the use of invasive species.
- Implement a streetscape design, including street trees, street lighting and campus signs and banners, to reinforce the campus identity along internal access drives and along surrounding public roads.
- Maintain visual connectedness throughout the campus, particularly from the parking areas into the academic core. Limb up canopy trees and maintain low shrubs/groundcovers to maintain sightlines.

## Access and Vehicular Circulation

Creating a convenient and safe pedestrian environment is a priority to improving the quality of the campus experience. Vehicular access lanes will need to be relocated outside of the academic core to create a safe pedestrian academic core. An improved southern two-way vehicular corridor will provide convenient vehicular access between Walston Switch Road, Horsebridge Drive, Shortridge Drive and parking areas. A clear, intuitive and appropriately signed procession into the campus will heighten the sense of arrival and experience. The arrival sequence should be supported by a cohesive signage, landscape and site lighting strategy.

- Transform the roadway between South Lot 2 and North Lot 1 and the roadway between Brunkhorst visitor lot and North Lot 1 into a pedestrian walkway with the durable surfaces and sized to handle emergency responders and maintenance service vehicles.
- Develop a more direct and highly visible visitor and bus drop-off on the west side of Brunkhorst Hall. Provide an armature of street trees, banners and light posts, signage as well as ground level focal planting areas to accentuate the arrival to the campus front door.
- Upgrade the existing one-way access lane into a two-way roadway from the 'T' intersection west of Bronkhurst Hall south to Horsebridge Drive. Extend the access road south of the proposed Applied Technology Center to maintain the corridor on the outside of the parking and pedestrian areas. Provide adequate site lighting, wayfinding signs and banners to enhance the commuter experience. To improve ingress movement from the traffic circle, install a free-right turn at the 'T' intersection. All other approaches to this 'T' intersection should be controlled by a stop sign to allow for consistent and even flow through this intersection.
- Explore a second gateway connection to Walston Switch Road south of the existing water tower to the Horsebridge Drive. An internal traffic circle at the intersection of the upgraded access lane and this second gateway drive allows constant flow to both access points on Walston Switch Road.
- Maintain Horsebridge Drive as a service road to minimize congestion with daily commuters.

- As the campus grows extend vehicular access between Horsebridge Drive and Shortridge Drive along the southern edge of proposed parking lots. This reduces unnecessary congestion within parking lots and pedestrian conflicts near the academic core.
- Maintain Shortridge Drive alignment between Longridge Road and North Parking Lot. This may be a viable access road to US Route 50 if the opportunity should arise.
- Improve vehicular safety along Shortridge Drive between South Lot 3 and Longridge Road. Improvements include widening pavement and installing street lights.

## Parking

In general, the current supply of 1,628 parking spaces can support the future allowance of 1,642 parking spaces permitted under the project growth through 2027. The campus development plan identifies replacement parking lots to maintain parking inventory as buildings and site improvements remove parking lots, such as South Lot 1. Recommendations for developing parking include the following:

- Incrementally construct three parking lots south of South Lot 2 through South Lot 4 as needed. This provides 450 replacement parking spaces.
- Expand visitor parking on either side of the visitor drop-off loop. The parking lots should be internally connected to allow visitors to circulate around the lot without having to exit the area near Bronkhurst Hall.
- Integrate shade trees and integrative storm water management to enhance the landscape quality of future parking lots.
- Organize parking lots to provide safe pedestrian pathways leading towards the academic core.

## Pedestrian and Transit Circulation

As the campus continues to grow, continue to create stronger and clearer connections between buildings and spaces of the academic core as well as to the proposed athletic fields. Sidewalk upgrades and expansion should be supplemented with pedestrian features such as site lighting, benches, enhanced cross-walks and shade trees. The following recommendations will help to enhance the pedestrian experience:

- Replace closed roadways internal to the academic core into hardscape plazas or wide walkways.
  - Provide sidewalk corridors, pedestrian level lighting and cross walks through parking lots to create safe routes between vehicles and the academic core.
  - Improve pathway and sidewalk connections between the academic core, parking lots and future recreation fields. Install pedestrian site lighting that balances pedestrian safety and light trespass.
  - Explore the development of a perimeter campus walking path with connections around and with the academic core to promote recreation and health. Install seating areas, mile markers, path signs and site lighting as needed.
  - Implement bike racks, storage and a repair station with the proposed Wellness Center. Additionally, provide shower and locker facilities to support future bike commuter needs.
  - Maintain a bus stop with appropriate signage at the visitor drop-off loop west of Brunkhorst Hall. Provide seating nearby to comfort waiting transit riders.
- improvements. These signs should include directional signs, and parking identification.
  - Building mounted signs are a part of the architectural character of the campus and should be continued with future buildings.
  - The directory sign between Hazel Center and Brunkhorst Hall should be replaced with a directory sign in keeping with the aesthetics of pedestrian wayfinding sign palette or designed to be integrated with the architectural language of surrounding buildings. This new directory sign should be incorporated into the proposed new visitors parking lot west of and adjacent to Brunkhorst Hall.
  - Where possible, expand the use of banners along public rights at the perimeter of campus.

## Signage

The collective network of signs establishes the identity of the college. Each sign is an opportunity to communicate a positive image of the campus and the institution. The following recommendations are intended to improve the wayfinding experience and identity of the campus:

- Continue to implement consistent signage standards with future projects, ensuring the unity of all signs through the campus both external and internal to buildings.
- Design and implement a gateway monument sign at the US Route 50 and Walston Switch Road at clearly articulates the identity of the college and is appropriately scaled. The sign has an opportunity to express asymmetry to suggest directionality, helping people navigate toward the campus entrance. Consider a palette of monument signs to be replicated at existing and proposed gateway entrances. Continue to implement vehicular wayfinding signs to coordinate with proposed roadway



*Proposed Campus Development Aerial View Looking Northeast*





Existing Buildings

- BH Brunkhorst Hall
- MTC Maner Technology Center
- HC Hazel Center
- HH Henson Hall
- GH Guerrieri Hall
- JC Jordan Center
- MB Maintenance Building
- FOH Fulton-Owen Hall
- SH Shockley Hall



Proposed Buildings

- A Applied Technology Center
- B Learning Commons
- C Wellness Center
- D Future Academic Buildings
- E Maintenance Building Expansion

*Proposed Gateway Sign at night*

## PROPOSED CAPITAL PROJECTS

New buildings, additions and renovations are needed to accommodate growth in all departments and functions and services. Proposed capital projects include:

1. New Applied Technology Center and Related Roadway Improvements\*
2. Landscape and site furnishings improvements\*
3. Gateway signage and landscaping at the US 50 – Walston Switch Road intersection\*
4. New Learning Commons\*
5. Re-configure and Expand Brunkhorst Parking Lot\*
6. Renovate Brunkhorst Hall
7. Expand Maintenance Building
8. New Wellness / Physical Education Center
9. Renovate Henson Hall
10. Renovate Guerrieri Hall
11. Expand and Renovate Hazel Center
12. Additional academic buildings
13. Additional parking

\*Short Term – through 2024

### Proposed Projects

#### 1. New Applied Technology Center and Related Roadway Improvements

Estimated size: 40,000 GSF. This new facility will support credit occupational programs under the occupational education division, with emphasis on the applied technology field such as industrial technology, supply chain management and alternative energy, and current and additional continuing education and workforce development courses in the areas of alternative energy, transportation and industrial trades.

Continuing education and workforce development coursework can expand into credit programs as workforce demand dictates. The building will include a maker space multipurpose laboratory that will create an environment that promotes innovation and exploration. Students and community members will be able to access tools and materials for use on self-directed projects to include prototyping concepts, project work and knowledge development.

The maker space laboratory will also be used as a learning laboratory to support current credit programs and non-credit courses and will promote entrepreneurship and increase technical skills. A resource center, several specialized industrial laboratories, a computer laboratory, several classrooms, student study spaces, a conference room, and offices to accommodate credit and non-credit staff who support these programs will also be housed in this proposed building.

The college's information technology department will move from Shockley Hall (formerly the allied health building) to the proposed new building. The college's central IT server room will remain on the fourth floor of Shockley Hall. The IT suite in Shockley Hall is at maximum capacity with no room for future IT employees and no available space to stage or store IT equipment. The allied health department, also located on the third floor of Shockley Hall, is also in need of space in order to grow its program offerings. To accommodate staffing for the new allied health programs, the department will expand into the IT suite in Shockley Hall after IT is relocated to the new building.

Roadway enhancements to the campus student entrance road which will be impacted by the proposed location for the Applied Technology Building are included with this project. These improvements are necessary to improve traffic and pedestrian safety, reduce congestion and back-ups, and better integrate access to and egress from the campus. In addition, improving way-finding and extending utilities to serve future buildings will be a resultant benefit. In addition, a paved yard is anticipated to facilitate deliveries and storage of materials for use in courses within the building. Refer to Section 5-C for additional description of related planned campus vehicular and pedestrian improvements.

## **2. Landscape and Site Furnishings and Improvements**

This short- and long-term project will replace aging and inflexible fixed seating and tables with movable, lightweight replacements, also introducing a landscape program to introduce larger deciduous trees to both define and enhance spaces and help define the campus as more collegiate; and replace certain open grass areas with native meadow plantings, also improving wildlife habitat.

## **3. Gateway Signage and Landscaping**

This project at the intersection of US Route 50 and Walston Switch Road will better address traffic and travelers on eastbound Route 50, improve way-finding, and enhance branding the College. If combined with conversion of the geo-thermal field grass to meadow, each element will be able to enhance the other.

## **4. New Learning Commons**

Estimated size: 40,000 SF. A major shift for the College, this project will consolidate library services to more of a hub strategy. It is envisioned as a true learning center serving as a learning center to supplement the learning experience of classrooms and labs, also encouraging group study and collaboration.

The new building would include a resource center and office space for library services staff, centralizing the existing resource centers by relocating the largest center on campus from Brunkhorst Hall and eliminating the smaller centers in other buildings.

Tutoring services, TRIO support services (laboratory and office space), Veterans services (laboratory, lounge and offices), the testing center, mathematics laboratory, reading and writing center service, and offices for student services staff whose job responsibilities include student development and success will relocate from Brunkhorst Hall to this proposed building.

Moving functions from Brunkhorst allows the students to interact with students from other majors, frees up space in Brunkhorst Hall on the 2nd and 3rd floors to create additional faculty offices, converts some spaces back to laboratories and classrooms, and relocates some of the business office functions, HR, marketing and development from the Brunkhorst Hall first floor to enlarge and create a "one stop" student services admissions/registration office in that first floor space. The counseling and disability services office suite with an assistive technology lab/testing site will move from the first floor of the Maner Technology Center, and a computer laboratory will move from Fulton-Owen Hall. The proposed new building will also include large study spaces and group study rooms.

#### **5. Re-configure and Expand Brunkhorst Parking Lot**

This project will reconfigure and expand the Visitors / Brunkhorst Parking Lot and corresponding access and egress. The existing Brunkhorst lot is frequently full, and visitors often must drive through the lot to find spaces elsewhere in other general parking lots. In addition to providing more visitor and handicapped parking where it is convenient and proximate to related campus destinations, reconfiguring and expanding the lot will facilitate more intuitive way-finding for visitors while opening views to Brunkhorst, the recognized identity for the campus. This project may be undertaken in conjunction with the proposed Renovation of Brunkhorst Hall.

#### **6. Renovate Brunkhorst Hall**

58,879 GSF. Given its age and despite the College's efforts to update internal spaces and improve heating and cooling efficiency in recent years, it will soon be time for a comprehensive renovation to this first building of the campus. Opportunities will be to update other building systems, improve classroom and office areas, re-purpose the space now occupied by library services, and expand and improve student services. Consideration should be given to converting the north-south arcade to interior space, extending the exterior first floor envelope to the east and allowing student services to expand, offering a wider and more flexible footprint. See related narrative under *4. New Learning Commons* above.

#### **7. Expand Maintenance Building**

Expand by 6,000 GSF, permitting demolition of temporary buildings. The need already exists for more storage and central services space, especially for vehicle and equipment storage and repair, secure receiving/mailroom and temporary storage functions, and additional general storage. At least partial renovation of the existing 6,032 GSF building will need to be part of this project.

#### **8. New Wellness / Physical Education Center**

Estimated Size: 50,000-80,000 GSF depending on program. In another major shift for the College, this project acknowledges the need for related spaces for students and the rest of the College community. More than a gym, the extent of programmed spaces will need to be discussed, weighed and defined by the College before undertaking a program; however, as envisioned in this report, the building, shown to be located east of the primary north-south campus drive, would include spaces supporting physical education and recreation functions, as well as those which may support or relate to current and/or future Allied Health programs – the *Wellness* aspect.

Improved (pleasant, more frequent, relief from academic endeavors) interface between students and others is anticipated to be an additional benefit from this facility. New, adjacent sports fields would complement the building. Spaces may include the following: gym (and auxiliary gym) – flexible for multiple events, and with seating; dance/aerobics; weight training; fitness; pool; multi-purpose spaces; locker rooms; offices; classrooms; student lounge; and support spaces.

#### **9. Renovate Henson Hall**

34,500 GSF. Comprehensive renovation for classrooms, faculty offices and related support spaces.

#### **10. Renovate Guerrieri Hall**

38,000 GSF. Comprehensive renovation for Criminal Justice programs, including re-purposing of existing small gym.

#### **11. Expand and Renovate Hazel Center (long term)**

Add 15,000 GSF. Extent of renovation to be determined. Expand to accommodate larger student population. Expand dining and informal student spaces such as lounges and game rooms to be more accessible and to offer more choices of quiet and active experiences.

#### **12. Additional Academic Buildings (long term)**

As justified and needed. Sizes to be determined, but anticipated to be similar order of magnitude as existing academic buildings (35,000-50,000 GSF)

#### **13. Additional Parking (long term)**

As justified and needed. Extent to be determined, based on enrollment and modes of transportation. See campus development plan for location and relative size.



**Existing Buildings**

- BH Brunkhorst Hall
- MTC Maner Technology Center
- HC Hazel Center
- HH Henson Hall
- GH Guerrieri Hall
- JC Jordan Center
- MB Maintenance Building
- FOH Fulton-Owen Hall
- SH Shockley Hall

**Short Term - Through 2024**

- 1 New Applied Technology Center and Related Roadway Improvements
- 2 Landscape and site furnishings improvements
- 3 Gateway signage and landscaping at the US 50 – Walston Switch Road intersection
- 4 New Learning Commons
- 5 Re-configure and expand Brunkhorst Hall Parking Lot

*Short Term Projects Through 2024*



**Existing Buildings**

- BH Brunkhorst Hall
- MTC Maner Technology Center
- HC Hazel Center
- HH Henson Hall
- GH Guerrieri Hall
- JC Jordan Center
- MB Maintenance Building
- FOH Fulton-Owen Hall
- SH Shockley Hall

**Long Term**

- ⑥ Renovate Brunkhorst Hall
- ⑦ Expand Maintenance Building
- ⑧ New Wellness / Physical Education Center
- ⑨ Renovate Henson Hall
- ⑩ Renovate Guerrieri Hall
- ⑪ Expand and renovate Hazel Center
- ⑫ Additional academic buildings
- ⑬ Additional parking

*Long Term Projects Beyond 2024*



# CHAPTER 6: APPENDIX

## TEN-YEAR CAPITAL IMPROVEMENT PLAN

The college has identified the costs associated with the 10-year development plan. These are summarized below. Each building project must accommodate some of the associated campus infrastructure costs (see Other Site Improvements and Infrastructure, below).

### BH/MTC RENOVATION

The college is 99% complete in replacing the current 24-year-old HVAC system in Brunkhorst Hall and the Maner Technology Center. An unexpected programming issue has occurred with the energy recovery ventilators (ERVs). The expected completion date is September 2019.

This project included the removal of the nonfunctional ice storage system and the replacement of two reciprocal 100-ton chillers and the nine air handlers with an energy-efficient geothermal system. The replacement is a higher efficiency system reducing operating costs and replacing equipment that has reached its life expectancy.

The first floor of the Maner Technology Center and a small segment of the first floor of Brunkhorst Hall and the Hazel Center have been renovated. The Maner Technology Center renovation expanded the size of the board room to allow additional public access to board meetings and added space for an additional administrative office in the executive suite (this portion of the project was not funded by the State). The first floor restrooms in the Maner Technology Center, the

only restrooms in the building, were also renovated. The institutional advancement department moved to Brunkhorst Hall to make room for the expansion of the executive suite noted above. In Brunkhorst Hall, the office suite vacated by the informational technology department in 2011 was renovated to move the institutional advancement department in there upon their departure from MTC. A set of bathrooms in the Hazel Center were renovated as part of this project.

Outdated Brunkhorst Hall and Maner Technology Center elevator controllers, limit switches, fixtures, electrical wiring, pit lighting and cab lighting were replaced. The wall finishes and flooring were also updated in each cab. The controllers in these two elevators were obsolete and experiencing reliability issues.

### APPLIED TECHNOLOGY CENTER

The college proposes to build a 40,000 GSF applied technology center on the college campus. The applied technology center will be located toward the southwest edge of the campus, south of the Jordan Center, and in the approximate location of our existing soccer/recreational field.

This new facility will support credit occupational programs under the occupational education division, with emphasis on the applied technology field such as industrial technology, supply chain management and alternative energy, and current and additional continuing education and workforce development courses in the areas of alternative energy,

PROJECT	TOTAL COST	STATE FUNDING	LOCAL FUNDING	COMPLETION DATE
BH/MTC RENOVATION	\$8,571,000	\$6,074,000	\$2,497,000	9/2019
APPLIED TECHNOLOGY CENTER	\$35,728,275	\$26,796,207	\$8,932,068	6/2023
LEARNING COMMONS	\$38,000,000	\$28,500,000	\$9,500,000	6/2026

transportation and industrial trades. Continuing education and workforce development coursework can expand into credit programs as workforce demand dictates. The building will include a maker space multipurpose laboratory that will create an environment that promotes innovation and exploration. Students and community members will be able to access tools and materials for use on self-directed projects to include prototyping concepts, project work and knowledge development. The maker space laboratory will also be used as a learning laboratory to support current credit programs and non-credit courses and will promote entrepreneurship and increase technical skills. A resource center, several specialized industrial laboratories, a computer laboratory, several classrooms, student study spaces, a conference room, and offices to accommodate credit and non-credit staff who support these programs will also be housed in this proposed building.

The college's information technology department will move from Shockley Hall (formerly the Allied Health Building) to the proposed new building. The college's central IT server room will remain on the fourth floor of Shockley Hall. The IT suite in Shockley Hall is at maximum capacity with no room for future IT employees and no available space to stage or store IT equipment. The allied health department, also located on the third floor of Shockley Hall, is also in need of space in order to grow its program offerings. To accommodate staffing for the new allied health programs, the department will expand into the IT suite in Shockley Hall after IT is relocated to the new building.

Roadway enhancements to the campus student entrance road which will be impacted by the proposed location for the Applied Technology Center are included with this project. These improvements are necessary to improve traffic and pedestrian safety, reduce congestion and back-ups, and better integrate access to and egress from the campus. In addition, improving way-finding and extending utilities to serve future buildings will be a resultant benefit. In addition, a paved yard is anticipated to facilitate deliveries and storage of materials for use in courses within the building.

## LEARNING COMMONS

The college proposes to build a 40,000 GSF learning commons on the college campus. The learning commons will be located to the east of the Hazel Center, and in the location of a portion of our existing South 1 parking lot.

This building is a major shift for the College, proposing to consolidate library services to more of a hub strategy. It is envisioned as a true learning center serving to supplement the learning experience of classrooms and labs, and encouraging group study and collaboration. The new building would include a resource center and office space for library services staff, centralizing the existing resource centers by relocating the largest center on campus from Brunkhorst Hall and eliminating the smaller centers in other buildings. Tutoring services, TRIO support services (laboratory and office space), Veterans services (laboratory, lounge and offices), the testing center, mathematics laboratory, reading and writing center service, and offices for student services staff whose job responsibilities include student development and success will relocate from Brunkhorst Hall to this proposed building. Moving functions from Brunkhorst allows the students to interact with students from other majors, frees up space in Brunkhorst Hall on the 2nd and 3rd floors to create additional faculty offices, converts some spaces back to laboratories and classrooms, and relocates some of the business office functions, HR, marketing and development from the Brunkhorst Hall first floor to enlarge and create a "one stop" student services admissions/registration office in that first floor space. The counseling and disability services office suite with an assistive technology lab/testing site will move from the first floor of the Maner Technology Center, and a computer laboratory will move from Fulton-Owen Hall. The proposed new building will also include large study spaces and group study rooms.

Additional parking will need to be considered before the start of, or as part of the learning commons project since the building will reside on part of our existing South 1 parking lot.

## **OTHER SITE IMPROVEMENTS AND INFRASTRUCTURE**

The campus development plan proposes major changes to the vehicular circulation and parking, as a long-term strategy to improve campus safety by minimizing and, where possible, eliminating pedestrian-vehicular conflicts. These improvements will be implemented in a phased sequence during the development of building projects over the next 10 years and beyond. It is recommended that the site improvement and infrastructure projects be developed as part of related/proximate building projects in a

phased sequence, keeping access to parking and servicing of buildings during the development and construction of these projects and not eliminating any parking until parking replacement and expansion is in place. Costs for the site improvements have not been developed.

Site utilities and storm water management are integral to this part of the campus development. The water and sanitary sewer mains need to be designed and constructed in a way that will allow for future expansion.

## FACILITIES RENEWAL PROJECTS

RECOMMENDATIONS		
High Priority		
Campus/Building	Recommendation	Discipline
Campus Wide	Remove and replace large deteriorated paved areas in parking lots and driveways	Hardscape
Jordan Center	Resurface and repair and provide new equipment for the playground	Hardscape and Site Furnishings
Adjacent to Hazel and fountain	New, movable tables and chairs	Site Furnishings
Route 50 Intersection	New gateway sign at NW corner of campus	Signage
Campus Wide	Re-roof and flash low roofs (generally occurs at building corners)	Architectural
Shockley Hall	Renovate IT suite after move to planned Applied Technology Building	Architectural, MEP
Campus Wide	Install a new electric vertical in-line fire pump that is designed to meet the sprinkler demands of the existing seven (7) buildings that are currently served by the diesel fire pump. Connect the new electric vertical in-line fire pump to the campus elevated water tower to eliminate the need for the ground suction storage tank. Remove the existing diesel-fired fire pump, fire pump controller, ground suction storage tank, jockey pump, and all associated piping. Remove the 32,000-gallon ground suction storage tank and all associated piping. Provide generator backup if/when fire pump is replaced with vertical in-line electric fire pump. Note: To eliminate the need for a fire pump would require the sprinkler system in each of the seven (7) buildings to be replaced with new fire protection piping with larger pipes.	Fire Protection
Campus Wide	Replace fire alarm systems with network capability. A networked campus fire alarm system is preferred to report to the Security Office in the Allied Health Building. Evaluate with input from Campus Security the necessity for upgrading fire alarm systems to voice evacuation type in order to provide greater ability to evacuate and direct building occupants in the event of an emergency or other hazardous situations.	Fire Alarm
Campus Wide	Provide cover plates on any exposed bussing in service switchboards.	Electrical
Campus Wide	Provide labels identifying all breakers in MTC and FOH service switchboards as service entrance disconnects. Provide placards on MTC and HC switchboards identifying locations of both and portions of buildings they each serve.	Electrical
Campus Wide	Replace intrusion detection systems with a networked campus system.	Security System
Brunkhorst Hall	Complete final resolution of control issues with new ERV units.	HVAC
Brunkhorst Hall	Install thermal expansion tanks at all water heaters.	Plumbing
Maner Tech Center	Complete final resolution of control issues with new ERV units.	HVAC
Maner Tech Center	Install thermal expansion tank at water heater.	Plumbing
Hazel Center	Replace existing boilers with condensing boilers sized for the current and future expected loads.	HVAC
Hazel Center	Replace boiler primary pumps, secondary pumps, air separator, expansion tank, make-up water valve train, and all boiler controls.	HVAC
Hazel Center	Replace ventilation system in the boiler room.	HVAC

Hazel Center	Replace heating system in the boiler room.	HVAC
Hazel Center	Temporarily repair and/or replace chiller.	HVAC
Hazel Center	Replace walk-in box refrigeration systems.	HVAC
Hazel Center	Install new air flow monitoring stations at all air handling units and return air fans.	HVAC
Henson Hall	Replace the entire automatic temperature control system	HVAC
Henson Hall	Provide label on the main switchboard indicating the location of the service disconnect in the exterior switchboard.	Electrical
Guerrieri Hall	Replace chiller.	HVAC
Guerrieri Hall	Replace the entire automatic temperature control system except the Jace.	HVAC
Guerrieri Hall	Replace suspect transformer TPD1.	Electrical
Guerrieri Hall	Provide label on the main switchboard indicating the location of the service disconnect in the exterior switchboard.	Electrical
Jordan Center	Perform a feasibility study to determine the appropriate HVAC system for replacing the existing HVAC systems.	HVAC
Jordan Center	Replace all HVAC systems.	HVAC
Maintenance Building	Perform a feasibility study to determine the appropriate HVAC system for replacing the existing HVAC systems.	HVAC
Maintenance Building	Replace all HVAC systems.	HVAC
Maintenance Building	Install a thermal expansion tank at the water heater.	Plumbing
Fulton Owen Hall	Repair or replace slide valve serving chiller.	HVAC
Fulton Owen Hall	Provide label on the main switchboard indicating the location of the service disconnect in the exterior switchboard.	Electrical
Shockley Hall	Retro-commission the energy recovery wheels.	HVAC
Shockley Hall	The computer room unit shall be programmed to be the primary cooling source for the computer room with the air handling unit economizers as the back-up.	HVAC
Shockley Hall	Retro-commission the air handling unit and the energy recovery wheels.	HVAC
Shockley Hall	Perform a feasibility study to determine if the existing boilers are oversized and take appropriate action	HVAC
<b>Medium Priority</b>		
Campus Wide	Re-paint cross-walks; re-stripe parking spaces	Hardscape
Campus Wide	Close N-S driveway between North Lot and South Lots 1-2	Hardscape
Campus Wide	Sidewalks, curbs, pavers: repair and replace deteriorated and ponding areas and sections	Hardscape
Campus Wide	Patch small deteriorated areas of parking lots and driveways	Hardscape
Campus Wide	Introduce meadow in geo-thermal field; consider other areas to reduce lawn maintenance	Landscaping
Campus Wide	Plant shade trees near seating areas and in quads	Landscaping
Campus Wide	Replace soccer field	Landscaping
Campus Wide	Provide rooftop fall protection, particularly for sloped standing seam metal roofs	Architectural

Campus Wide	Investigate and provide lounge seating in selected areas suitable for study and to encourage student interaction and collaboration	Architectural, Interiors
Campus Wide	For buildings with oversized boiler/chiller plants studies should be performed to verify the extent of the same.	HVAC
Campus Wide	Retro-commission all HVAC systems	HVAC
Campus Wide	Replace lighting systems with LED type fixtures and provide automatic lighting controls. As retrofit lighting systems reach the end of their anticipated useful life of 25-30 years, replace with LED type fixtures.	Electrical
Campus Wide	Provide emergency generator(s) for emergency egress lighting on new/renovation projects. An emergency generator is also recommended to provide standby power if the existing diesel fire pump is replaced with electric.	Electrical
Brunkhorst Hall	Renovate Library Services suite	Architectural, MEP
Brunkhorst Hall Fountain	Replace plumbing and filtration.	Site Improvements
Hazel Center	Replace the chiller with a properly sized chiller for the current and future expected loads.	HVAC
Hazel Center	Replace the chilled water pumps.	HVAC
Hazel Center	Perform a feasibility study to determine the proper size chiller for the current cooling loads	HVAC
Hazel Center	Test all kitchen make-up air unit and hood exhaust fans and take the appropriate action to return operation to design parameters.	HVAC
Hazel Center	Clean all air handling units/make-up air units/VAV box coils, fan wheels, and casings.	HVAC
Henson Hall	Install coalescing air separators on the chilled water/heating water systems.	HVAC
Henson Hall	Clean all air handling unit/make-up air unit/VAV box coils, fan wheels, and casings.	HVAC
Henson Hall	Replace all VAV boxes.	HVAC
Guerrieri Hall	Install coalescing air separators on the chilled water/heating water systems.	HVAC
Guerrieri Hall	Clean all air handling unit/make-up air unit/VAV box coils, fan wheels, and casings.	HVAC
Guerrieri Hall	Replace all VAV boxes.	HVAC
Jordan Center	Introduce lounge furniture at main entry	Architectural, Interiors
Fulton Owen Hall	Check air charge pressure on chilled/heating water expansion tanks.	HVAC
Fulton Owen Hall	Install coalescing air separator on the chilled water/heating water systems.	HVAC
Fulton Owen Hall	Replace walk-in box refrigeration systems.	HVAC
Fulton Owen Hall	Clean all air handling units/make-up air units/VAV box coils, fan wheels, and casings.	HVAC
Shockley Hall	Install an automatic glycol feeder and propylene glycol in the chilled water system.	HVAC
Shockley Hall	Install a new ATC system front end with graphics.	HVAC

<b>Low Priority</b>		
Campus Wide	Due to the amount of land and existing and future parking lots, the College should consider implementing geothermal systems for all future buildings. The geothermal bore-fields could be located under green spaces and/or parking lots. The use of geothermal for heating/cooling future buildings would reduce operating costs substantially. In addition, the need for exterior mechanical yards and the noise associated with exterior chillers would be eliminated.	HVAC
Campus Wide	If future buildings are not heated with geothermal then all new boilers should be condensing type with low temperature distribution systems.	HVAC
Campus Wide	All existing buildings that are not currently monitoring potable water usage should be retrofitted with local water meters that can be interfaced to each building's automatic temperature control system.	Plumbing
Campus Wide	All future buildings should be designed to incorporate water meters with pulse meters to monitor each future building's potable water consumption.	Plumbing
Campus Wide	Water consumption for all existing and new buildings should be trended and tabulated to identify unusual water usage and/or leaks.	Plumbing
Campus Wide	Continue replacement of all exterior HID fixtures with energy efficient LED type.	Electrical
Campus Wide	Remove shrubbery around exterior electrical equipment noted above. Replace with removable bollards/screening.	Electrical
Campus Wide	Provide sub-meters on the electrical distribution system, configured as required to capture electric usage and peak demand load information for each building, tied into the campus building management system.	Electrical
Brunkhorst Hall	Remove the abandoned ice storage vaults, concrete piers, piping, supports, and cooling towers in the South Mechanical Yard.	HVAC
Brunkhorst Hall	Test glycol system serving the chilled water system and take appropriate action.	HVAC
Brunkhorst Hall	When electric water heaters are replaced consider utilizing heat pump type water heaters to reduce operating costs.	Plumbing
Brunkhorst Hall	When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.	Plumbing
Brunkhorst Hall	Provide surge protection device on main distribution panel(s) inside the building.	Electrical
Maner Tech Center	Replace existing water heat with heat pump water heater.	Plumbing
Maner Tech Center	When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.	Plumbing
Maner Tech Center	Provide surge protection device on main distribution panel(s) inside the building.	Electrical
Hazel Center	Test glycol system serving the chilled water system and take appropriate action.	HVAC
Hazel Center	Install an additional domestic water heater to provide redundancy for the domestic hot water system.	Plumbing
Hazel Center	When plumbing fixture flush valves/aerators fail, replace with high efficiency low flow type.	Plumbing
Hazel Center	Provide automatic lighting controls and retrofit/replace fluorescent fixtures with LED lighting fixtures for additional energy savings.	Electrical
Hazel Center	Provide individual starters for the fans served by the MCC and remove the equipment to free up space in the mechanical room.	Electrical
Hazel Center	Remove abandoned generator.	Electrical
Henson Hall	Convert the heating water/chilled water systems to variable speed systems.	HVAC
Henson Hall	Test glycol system serving the chilled water system and take appropriate action.	HVAC

Henson Hall	Replace all control valves with 2-way pressure independent control valves.	HVAC
Henson Hall	Install an additional domestic water heater to provide redundancy for the domestic hot water system.	Plumbing
Henson Hall	Install new water closets / flush valves with low flow type.	Plumbing
Henson Hall	Install new electric watercoolers with bottle filling stations.	Plumbing
Henson Hall	When any plumbing fixture flush valves/aerators fail, replace with high performance low flow type.	Plumbing
Henson Hall	Provide surge protection device on main distribution panel inside the building.	Electrical
Guerrieri Hall	Convert the heating water/chilled water systems to variable speed systems.	HVAC
Guerrieri Hall	Test glycol system serving the chilled water system and take appropriate action.	HVAC
Guerrieri Hall	Replace all control valves with 2-way pressure independent control valves. (Control valves shall remain 3-way type if pumping systems are not converted to variable volume type).	HVAC
Guerrieri Hall	Install an additional domestic water heater to provide redundancy for the domestic hot water system.	Plumbing
Guerrieri Hall	When any plumbing fixture flush valves/aerators fail, replace with high performance low flow type.	Plumbing
Guerrieri Hall	Install new electrical water coolers with bottle filling stations.	Plumbing
Guerrieri Hall	Provide surge protection device on main distribution panel inside the building.	Electrical
Jordan Center	When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.	Plumbing
Jordan Center	When water heater fails, replace with heat pump type water heater to reduce operating costs.	Plumbing
Maintenance Building	Investigate Vehicle Bay ventilation system and take appropriate action.	HVAC
Maintenance Building	Carbon monoxide detection system should be installed with Vehicle Bay ventilation system.	HVAC
Maintenance Building	When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.	Plumbing
Maintenance Building	Install emergency shower with thermostatic mixing valve in Vehicle Bay.	Plumbing
Fulton Owen Hall	Perform a feasibility study to determine if converting the Culinary Lab make-up air/exhaust systems from constant air volume to variable air volume is worth the investment.	HVAC
Fulton Owen Hall	Test glycol system serving the chilled water system and take appropriate action.	HVAC
Fulton Owen Hall	Install an additional domestic water heater to provide redundancy for the domestic hot water system.	Plumbing
Fulton Owen Hall	When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.	Plumbing
Shockley Hall	Remove steam humidification system and all piping and manifolds.	HVAC
Shockley Hall	Install an additional domestic water heater to provide redundancy for the domestic hot water system.	Plumbing
Shockley Hall	When plumbing fixture flush valves/aerators fail, replace with high performance low flow type.	Plumbing
Shockley Hall	Address NEC code requirements.	Electrical



