

ABSTRACT

Title of Thesis: COMMUNAL INTERGRATION: LIVING
AND LEARNING AT THE UNIVERSITY OF
MARYLAND

Dylan Thomas Spanier, Master of Architecture,
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Thesis Directed By: Peter Noonan, Professor of the Practice, School
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The University of Maryland has seen continued challenges to meet the needs of affordable housing for its students, leaving many students in fear of displacement and financial hardships. The lack of housing opportunities through the University – coupled with inflation and increasing property value – strains students’ ability to find affordable housing options within proximity to campus. This thesis aims to provide affordable housing options that enhance the quality of living and learning environments and expand upon the current living-learning program found at the University of Maryland. By establishing residential learning communities, the University will promote people to work together towards a common goal and foster a close-knit community that engages the university fabric.

COMMUNAL INTERGRATION: LIVING AND LEARNING AT THE
UNIVERSITY OF MARYLAND

by

Dylan Thomas Spanier

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Chapter 1: The Residential College System

Defining Residential Colleges and Related Terms

Established as foundations to provide support for advanced students, residential colleges first appeared at the University of Paris and Oxford University in the twelfth century.¹ From these medieval roots, the residential colleges of Oxford and Cambridge University evolved to become academic communities made up of students and faculty that shared living quarters, meals, and study. The first universities in the United States to establish residential college systems were Harvard and Yale in the 1930s.²

Residential colleges have changed throughout history and in various local contexts. As a result, there is a wide range of variance in their organizational systems and no agreement on what is meant by the phrase "residential college." The phrase can be used to describe a school that houses many of its students on campus as opposed to a school with a sizable commuter or off-campus population in the most general sense. The words residential college, living-learning center, theme house, and residential learning community can all be used interchangeably in a more constrained meaning. However, this utilization could mask significant distinctions between the traditional paradigm of residential college and regular housing.

¹ "Residential Colleges - Defining Residential Colleges and Related Terms, The Classic Residential College, Benefits of Residential Colleges," accessed April 20, 2023, <https://education.stateuniversity.com/pages/2367/Residential-Colleges.html>.

² Robert James (1959-) O'Hara, "Residential Colleges and Collegiate Universities Worldwide," accessed April 20, 2023, <https://collegiateway.org/colleges/>.

The purpose of residential colleges and the modern residence education programs is to combine classroom instruction with off campus living experiences. The degree and caliber of faculty participation set traditional residential colleges apart from other residence education programs. Faculty and students share living and working spaces in residential colleges found in prestigious institutions. Additionally, the associated and resident professors' staff manage the program.³

Although the roles, terminology, and organizational structures of colleges vary from university to university, the top American universities follow certain common trends. Residential colleges are decentralized academic organizations or groups made up of professors and student members at universities like Harvard, Yale, Princeton, and Rice. They have between 250 and 500 members. Typically, a line is formed between senior and junior college students. Faculty, renowned members of the local community, and chosen employees are all members of the senior membership. Students in their undergraduate and graduate years make up the junior membership. Residential colleges serve as mini universities within larger ones. Senior members are chosen from all departments and schools, and effort is made to ensure that each discipline is represented fairly. A college's junior members represent the complete spectrum of academic backgrounds and interests found in the institution.

³ “Residential Colleges | Yale College Undergraduate Admissions,” accessed April 20, 2023, <https://admissions.yale.edu/residential-colleges>.

The University of Maryland's Resident System

The University of Maryland has evolved drastically since its founding in 1856, when the General Assembly chartered a state agricultural school.⁴ More than 12,000 undergraduate students currently live on campus in residence halls operated by the university and apartment complexes created through a public-private partnership. There are 39 residence halls where over 9,000 undergraduate students live. Students who want to live in residence halls have a choice of four distinct living arrangements: traditional halls, semi-suites, suites, and apartments.⁵

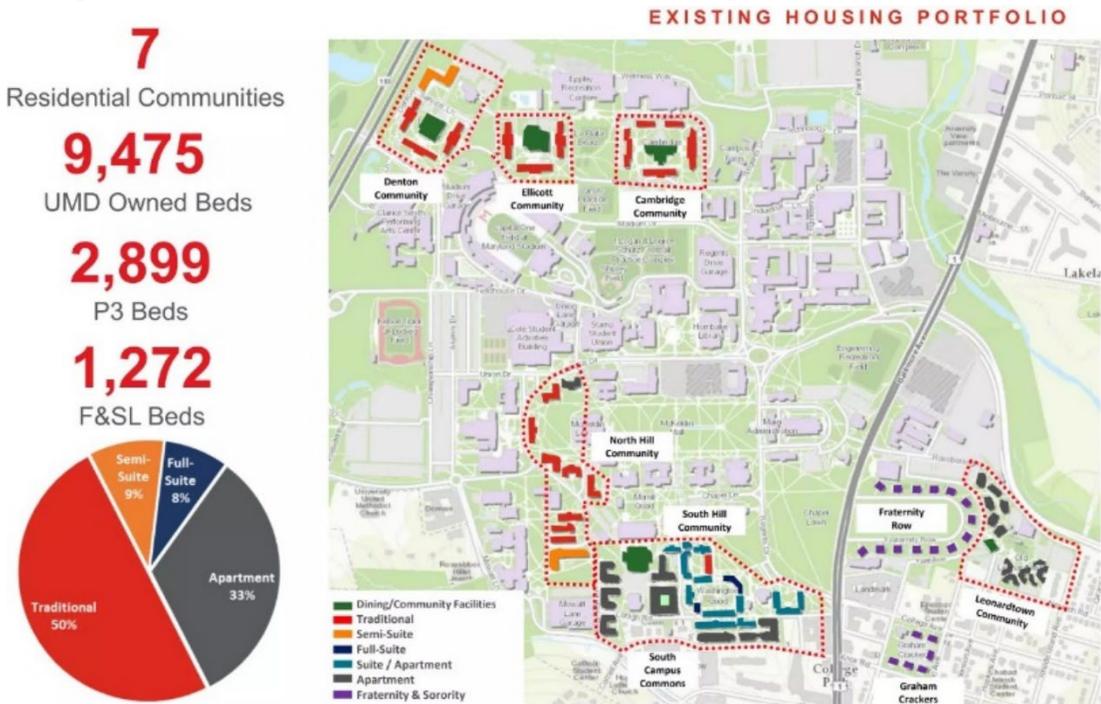


Figure 1 Existing Housing Portfolio at University of Maryland. UMD Student Housing Market Analysis

⁴ “History and Mission,” December 8, 2016, <https://www.umd.edu/history-and-mission>.

⁵ “Housing: Resident Life < University of Maryland,” accessed April 20, 2023, <https://academiccatalog.umd.edu/undergraduate/campus-administration-resources-student-services/student-programs-services/housing-resident-life/>.

The University of Maryland currently has established Living-Learning Programs (LLPs) on campus. These programs range from Honor Colleges to Advanced Cybersecurity Experience for Students (ACES).⁵ These Living-Learning Programs are residential communities that allow students to live together and connect over shared interests and academic goals.⁵ Students within the LLPs can interact with university faculty and staff by participating in social and educational activities outside of the classroom. The Living-Learning Program, however, has only been established in 16 of the 39 residential halls located on the University of Maryland’s campus.

Hall	Capacity (accessible rooms*)	Style	Gender Options Single (S), Mixed (M), Gender Inclusive (GI)	Number Sharing Bath	Floors	AC	Living-Learning Programs	Stay During Breaks	Study Lounge(s)	Special Features
Allegany	202	Suites & Apartments	S, M, GI	2.4	4	✓	✗	✓	✗	South Hill Community Center
Anne Arundel	110*	Traditional	S, M	9	3	☒	✓	✓	✓	Honors Humanities Living & Learning Center
Baltimore	95*	Suites & Apartments	S, M, GI	2.4	4	✓	✗	✓	✗	South Hill Community Center
Bel Air	117	Traditional	S, M	16	4	✓	✓	✗	✓	College Park Scholars Living & Learning Center
Calvert	123	Suites & Apartments	S, M, GI	2.4	4	✓	✗	✓	✗	South Hill Community Center
Cambridge	201*	Traditional	S, M, GI	16	4	☒	✓	✓	✗	College Park Scholars Living & Learning Center
Caroline	79	Traditional	S, M	16	3	✗	✗	✓	✓	Single and Substance Free Options
Carroll	75	Traditional	S, M	16	3	✗	✗	✓	✓	Single and Substance Free Options
Cecil	91	Traditional	S	16	4	✗	✗	✓	✓	Women Only, Limited visiting hours.
Centreville	545*	Traditional	S, M, GI	11	7	☒	✓	✓	✗	College Park Scholars Living & Learning Center
Charles	103	Suites & Apartments	S, M, GI	2.4	4	✓	✗	✓	✗	South Hill Community Center
Chestertown	120	Traditional	S, M, GI	16	4	✗	✓	✗	✓	College Park Scholars Living & Learning Center
Cumberland	490*	Traditional	S, M	13	7	☒	✓	✓	✗	College Park Scholars Living & Learning Center
Denton	529	Traditional	S, M	33	8	☒	✓	✗	✗	251 North Dining Facility
Dorchester	129*	Traditional	S, M	31	4	☒	✓	✓	✓	Honors Global Communities Living & Learning Center
Easton	550	Traditional	S, M	34	8	☒	✓	✓	✗	Carillon Communities, Fluxus Living & Learning Center, and Virtus Living & Learning Center, and BioFIRE Living & Learning Center
Elkton	548	Traditional	S, M	35	8	☒	✓	✗	✓	251 North Dining Facility
Ellicott	535*	Traditional	S, M	33	8	☒	✗	✓	✗	Gemstone Living & Learning Center
Frederick	74	Suites & Apartments	S, M, GI	2.4	4	✓	✗	✓	✗	South Hill Community Center
Garrett	72*	Suites & Apartments	S, M, GI	2.4	4	✓	✗	✓	✗	South Hill Community Center
Hagerstown	522	Traditional	S, M	33	4	✗	✗	✗	✓	Carillon Communities Living & Learning Center
Harford	107	Suites	S, M, GI	2.4	3	✓	✗	✓	✓	South Hill Community Center
Howard	34	Suites	S, M, GI	2.4	3	✓	✗	✓	✗	South Hill Community Center
Johnson-Whittle	450*	Traditional	M	35-45 per 7 restrooms	6	☒	✓	✓	✓	University Honors and Yahentamitsi Dining Hall
Kent	81	Suites & Apartments	S, M	2.4	4	✓	✗	✓	✗	South Hill Community Center
La Plata	605*	Traditional	S, M	33	9	✓	✓	✗	✓	Integrated Life Sciences Living & Learning Center
Leonardtown	396*	Apartments	S, M	3	3	✓	✗	✓	✗	Leonardtown Community Center
Montgomery	268*	Suites & Apartments	S, M, GI	2.4	4	✓	✗	✓	✗	South Hill Community Center
Oakland	709*	Semi-Suites	S, M, GI	2.4	8	☒	✓	✗	✗	251 North Dining Facility
Prince Frederick	462*	Semi-Suites; Traditional	S, M, GI	2-4, 20	7	☒	✓	✓	✓	ACES, DCC, and Interdisciplinary Business Honors Living & Learning Centers
Prince George's	66	Suites & Apartments	S, M, GI	2.4	4	✓	✗	✓	✗	South Hill Community Center
Pyon-Chen	450*	Traditional	M	35-45 per 7 restrooms	6	☒	✓	✓	✓	University Honors and Yahentamitsi Dining Hall
Queen Anne's	119*	Traditional	S, M	20	4	✓	✓	✓	✓	Jiménez-Porter Writers' House
St. Mary's	101*	Apartments	S	3-5	3	✓	✓	✓	✓	Language House
Somerset	125*	Traditional	S, M	14	3	✓	✓	✓	✓	CIVICUS Living & Learning Center
Talbot	49	Suites & Apartments	S, M, GI	2.4	3	✓	✗	✓	✗	South Hill Community Center
Washington	114	Suites & Apartments	S, M, GI	2.4	3	✓	✗	✓	✗	South Hill Community Center
Wicomico	95	Traditional	S	15	4	✗	✗	✓	✓	Single Options
Worcester	159	Traditional	S	24	4	✗	✗	✓	✓	Expanded Study Lounge

Figure 2 Halls at A Glance. Department of Resident Life - University of Maryland. Edited by Author

Housing Crisis at The University of Maryland

Although the University of Maryland has established LLPs, the University fails to meet the housing demand on its campus. While the University provides housing for roughly 12,000 of its undergraduate students, there are currently 40,709 total number of students enrolled at the University of Maryland.⁶ This makes roughly 70 percent of the total student population forced to find housing off campus options through the Off Campus Housing Databased provided through the University of Maryland. These housing options challenge students finically, as 58 percent of College Park, MD housing options are over \$2,000 a month.⁷ In doing so, students struggle financially or move farther away to find cheaper housing options.

Apartments found within the Off Campus Housing Data can be found throughout the DMV area stretching from Washington D.C. up to Baltimore.

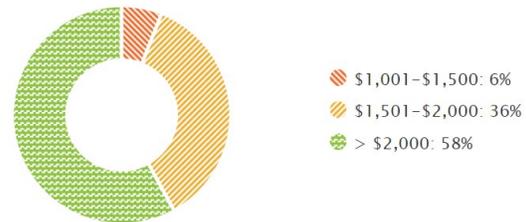


Figure 3 College Park, MD Apartment Rent Prices.
College Park, MD Rental Market Trend

⁶ “Facts and Figures,” Division of Research, accessed April 20, 2023, <https://research.umd.edu/who-we-are/facts-and-figures> | <https://research.umd.edu/>.

⁷ “Average Rent in College Park & Rent Prices by Neighborhood - RentCafe,” accessed April 20, 2023, <https://www.rentcafe.com/average-rent-market-trends/us/md/college-park/>.

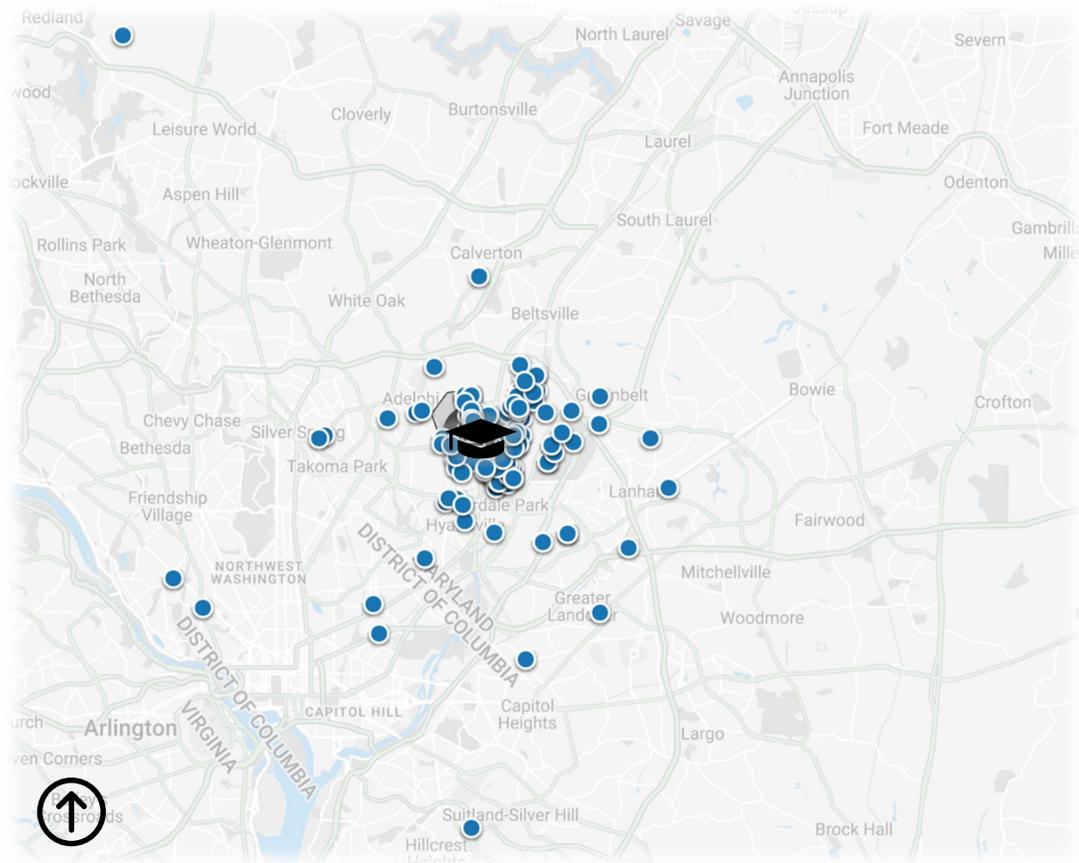


Figure 4 Off-Campus Apartment for Rent Near University of Maryland. Ochdatabse – University of Maryland. Edited by Author

By creating a Residential Learning Community, The University of Maryland could be able to promote a more on-campus residential life system rather than the commuter-based system that is currently in effect. Although the University does promote a LLPs lifestyle for some residents, it fails to meet the current enrollment which leaves a vast number of students to seek residents elsewhere. The commuter-based system fails to meet environmental sustainability, as well as social and economic equity for all the student population, both undergraduate and graduate level students.

Chapter 2: Transit-Oriented Development

History and Evolution

Transit-Oriented Development (TOD) revolves around the planning and constructing communities in greater density around or near transit stations. These transit stations can include bus, tram, and

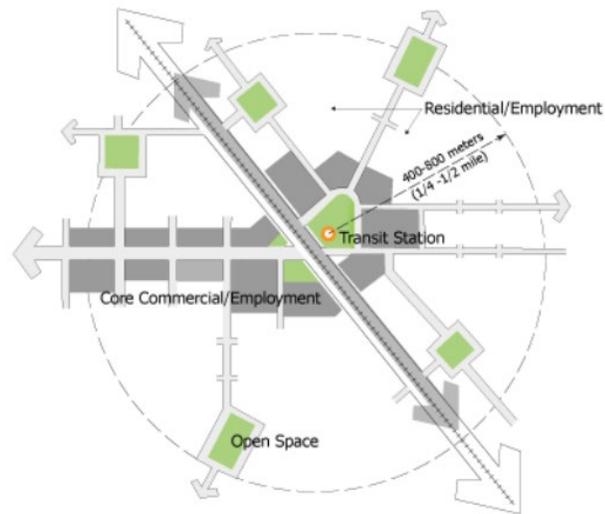


Figure 5 Transit-Oriented Development Diagram. Transit-Oriented Development Types

metro stops. The term ‘transit-oriented development’ was first introduced in 1993 by Peter Calthorpe to describe the pattern of building density, walkable, and mixed-use style communities that were found around transit stops in North America.⁸ The concept of TOD specifically helps encourages organizing growth to be compacts and transit-supportive, mixing a variety of commercial and residential spaces with walking distance to transit systems.⁹

The first urban area to utilize the ideas of TOD in the United States were the Twins Cities of Minneapolis and St. Paul Minnesota. With the creation of the Twin Cities Rapid Transit (TCRT) in 1891, Thomas Lowry quickly capitalized on the electric streetcar as the main form of public transportation.⁸ During the 1920’s, the

⁸ “Transit Oriented Development: Definition | StudySmarter,” StudySmarter US, accessed March 16, 2023, <https://www.studysmarter.us/explanations/human-geography/urban-geography/transit-oriented-development/>.

⁹ “History of Transit-Oriented Development,” Westwood Professional Services, accessed March 16, 2023, <https://westwoodps.com/recent-blog-posts/history-transit-oriented-development>.

TCRT streetcar system had over 520 miles of track within and around the Twin Cities and had over 200 million riders.⁹ The establishment of the transit system allowed Calthorpe and his associates to coin the term development-oriented transit, which referred to the creation of metro lines in certain areas to promote higher real estate development. The expansion and growth of metropolitan areas relied heavily on the efficiency of transit systems. Without a reliant transit system, growth was limited to the couple of miles that pedestrians could traverse by foot or bike. However, with the streetcar system emerging it was now possible to live outside the city and have more space, but still be able to get to work inside the city limits.⁹

With the emergence of the automobile during the 1920's, the streetcar system became obsolete and by the 1950's was replaced by buses. This shift made living in suburban areas difficult due to the lack of parking or garages. From that point on, space for parking became a major design factor for development projects.⁸ The ease of access to a car created the suburban condition we are familiar with today and quickly made highly congested cities and roadways. By 1962, President Kennedy called for the usage of mass-transit to be reestablished in urban areas. However, these new transit systems were centered around the automobile which limits the number of regular riders compared to vehicular traffic.

Before the emergence of privately owned vehicles, public streetcars and buses were the primary form of transportation in metropolitan areas. The success of transit systems in metropolitan areas is critical to the economic health and sustainable

growth.¹⁰ Transit-oriented development allows for dense, walkable, and mixed-use development that can support affordable housing and equitable communities.¹¹

Benefits Association with Transit-Oriented Development

Placing public transportation at the epicenter of community design, TOD can improve access to essential services and reduce dependence on private vehicles, thus promoting sustainable mobility and reducing our carbon emissions. Transit-oriented development begins to address social, economic, and environmental aspects of urban



Figure 6 Transit-Oriented Development. Compact Cities and TOD

¹⁰ “Transit-Oriented Development | FTA,” accessed March 16, 2023, <https://www.transit.dot.gov/TOD>.

¹¹ APTAAdmin, “Public Transportation Facts,” *American Public Transportation Association* (blog), accessed March 16, 2023, <https://www.apta.com/news-publications/public-transportation-facts/>.

development. An increase in walking, cycling, and transit use reduces the need for vehicular transportation, and therefore reduces the amount of carbon emissions which benefits the environment and improves air quality. TOD is also significantly more economically efficient than suburban sprawl because of the greater efficiency in building density and proximity to amenities. The social benefits in a higher quality of life due to placemaking elements. Public engagement and other forms of social events creates higher diversity and a better way of life.

The beneficial characteristics associated with transit-oriented development engage social, economic, and environmental challenges that face urban environments.¹² Beneficial aspects of TOD include:

- Increased opportunity for walkability. TOD shows an increase in transit use by four to 10 times, walking three to four times more, and biking one to two times more than traditional areas.¹²
- Reduction in air pollution and energy consumption. People who live in TOD areas drive 20-40 percent less and have an overall greenhouse gas emission reduction of 2.5 to 3.7 tons per year per household.¹²



Figure 7 Benefits of Transit-Oriented Development. Transit-Oriented Development Zoning Study

¹² “Why TOD,” Planning, accessed March 16, 2023, <https://planning.maryland.gov/Pages/default.aspx>.

- Compact developments, like TOD, generally sees a reduction of infrastructure costs that are five to 25 percent less than traditional urban sprawl environments.¹²
- TOD utilizes less land than the conventional, low-density environments due to its compact and high-density patterns.¹²
- By increasing pedestrian travel and emphasizing public space, transit-oriented development improves the opportunity for personal interaction. TOD increases for pedestrians and helps reduce aggressive driving and enhances a sense of place and community.¹²
- TOD provides a variety of housing options which appeals to a larger range of residents who favor alternative forms of transportation.¹²

Transit-oriented development can improve public health, creates a more sustainable community, strengthens local economies, and costs significantly less than traditional suburban sprawl.¹³ TOD communities can even reduce obesity. Research found that commuters than utilized metro systems were roughly 6.45 pounds lighter than those who drive.¹⁴ The ability for TOD to not just have profound benefits to overall human health but also the ability to reduce greenhouse gas emissions and strengthen the local economy sets transit-oriented development apart from traditional suburban sprawl.

¹³ “Transit-Oriented Development | Planning for Complete Communities in Delaware,” accessed March 16, 2023, <https://www.completecommunitiesde.org/planning/complete-streets/tod/>.

¹⁴ John M. MacDonald et al., “The Effect of Light Rail Transit on Body Mass Index and Physical Activity,” *American Journal of Preventive Medicine* 39, no. 2 (August 1, 2010): 105–12, <https://doi.org/10.1016/j.amepre.2010.03.016>.

TOD at UMD

According to the *Institute for Transportation & Development Policy* the eight principles are walk, cycle, connect, transit, mix, densify, compact, and shift.¹⁵ These design principles define the relationship between transport and land usage. They form the framework for the *TOD Standard*. The *TOD Standard* is a universal tool that can be used to evaluate and plan for neighborhood development.¹⁵ This comprehensive framework includes TOD principles, objectives, and metrics that defines a complete and inclusive urban environment for everyone.

With the emergence of the Purple Line, a light rail transit system coming to College Park, Maryland, there is an incredible opportunity to densify and reimagine the commuter-based campus system that is currently in place. By encouraging more students to live on-campus through the establishment of a residential college system, the Purple Line would allow the University of Maryland to grow in an efficient and sustainable way. With key design principles such as walk, cycle, transit, and mix already in place at the University, the Purple Line would allow the University to prioritize the residential college system and encourage its students to remain within local proximity of campus. TOD design principles such as connect, densify, and compact would become key areas of focus for the University.

Connect:

Since walking is more convenient over shorter distances, regardless of age or physical ability, laying out neighborhoods based on short and direct networks is key.

¹⁵ “TOD Standard – ITDP,” accessed March 19, 2023, <https://tod.itdp.org/what-is-tod/eight-principles-of-tod.html>.

Being able to maintain a short and direct pedestrian and cycling path network in all directions prioritizes walking and cycling over traditional forms of transportation. Walking and cycling routes are short, direct, and connected with priority for children and caregivers.¹⁶

Densify:

Designing neighborhoods where all the needed destinations are walkable within 15 minutes requires sufficient densities of residents, workers, and visitors to make public and commercial services viable. Sufficient space for activities, for living, for sunlight, and for air circulation is critical to public spaces activation and security. Density ensures enough activities to support transportation service and makes neighborhoods self-sustaining. Density also allows other principles because it promotes access to destinations to be within walking distance.¹⁶

Compact:

The ability to create compact cities allows for fewer resources, reduced travel time, and helps preserve rural land from development. Transit-oriented development allows for spatial integration in terms of the location of development, but also the coverage and integration of public transportation services. Compact works on the neighborhood and city scale through a transit system supported by density and pedestrian and cycle networks.¹⁶

Chapter 3: Sustainable Urbanism

Urban Sprawl vs. Smart Growth

Urban Sprawl:

Urban sprawl has become an increasingly common design feature in the built and urban environments in the United States and other industrialized nations. Urban sprawl in the United States dates to the 1950s with the flight to the suburbs when people wanted to live outside the city.¹⁶ This transition was due to people wanting to avoid traffic, noise, crime, and to have homes with larger square footage and yard space. As these suburban landscapes developed, cities expanded in geographic size faster than they were growing in human population.¹⁷ This ongoing trend has resulted in large metropolitan areas with low population density, interconnected by vehicular roadway networks. Residents of these metropolitan areas often find it difficult to travel short distances without the usage of their privately owned automobile due to the remote residential areas and the lack of mass transit, walkability, and bike paths.¹⁷

There is substantial evidence that urban sprawl has had many negative effects on the environment and human health.¹⁷ Since urban sprawl development pattern promotes automobile travel, there is an increased amount of air pollutants compared to that of a pattern that includes and promotes alternate forms of transportation. The unfortunate relationship between air pollution and respiratory problems, such as asthma and lung cancer, is well documented.¹⁸ This research dates to 1997 when the

¹⁶ David B. Resnik, "Urban Sprawl, Smart Growth, and Deliberative Democracy," *American Journal of Public Health* 100, no. 10 (October 2010): 1852–56, <https://doi.org/10.2105/AJPH.2009.182501>.

¹⁷ "Creating a Healthy Environment 2," n.d.

Centers for Disease Control and Prevention (CDC) found that smog pollution was responsible for 6 million asthma attacks, 159,000 visits to the emergence room for treatment of asthma attacks, and 53,000 people with asthma-related hospitalizations.¹⁸ This has caused \$582 in external health costs per capita each year and people who live in sprawled neighborhoods are two to five time more likely to be killed in car accidents than those in smart growth environments.¹⁸ Furthermore, cities that are built around the automobile

provide fewer opportunities to exercise than cities that promote people to walk or bike to school, work, and other activities.¹⁹

In addition to the growing health and environment concerned that surround urban sprawl the

economic cost is also a negative factor of urban sprawl developments.²⁰ The *Analysis of Public Policies that Unintentionally Encourage and Subsidize Sprawl* report finds that Americans living in sprawled environments have \$625 billion in extra costs.²⁰ This is directly related to the health costs from pollution, the

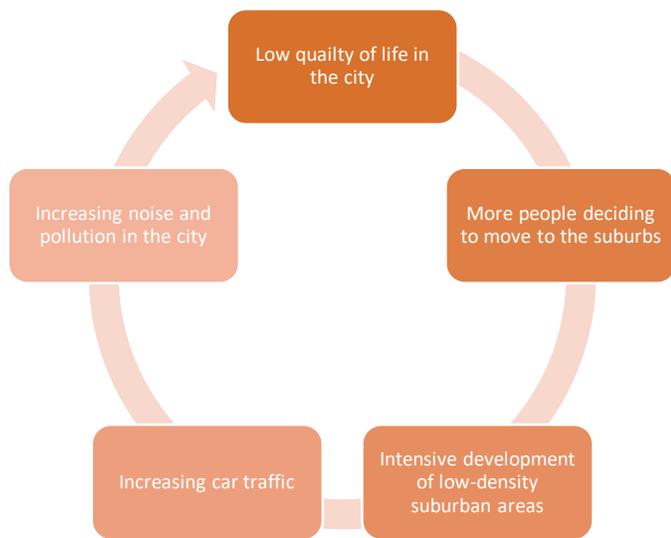


Figure 8 Why Urban Sprawl. By Author

¹⁸ “Why Smart Growth Cities Are Safer, Healthier, and Wealthier |,” *TheCityFix* (blog), March 25, 2015, <https://thecityfix.com/blog/new-climate-economy-sprawl-cities-sustainable-urban-development-helen-mountford-robin-king/>.

¹⁹ Howard Frumkin, “Urban Sprawl and Public Health.,” *Public Health Reports* 117, no. 3 (2002): 201–17.

unnecessary infrastructure spending, public services, and transportation, which can be avoided through more compact, connected, and diverse community planning.²⁰

Smart Growth:

In contrast to urban sprawl is smart growth urbanism. Smart growth is a balance between development and environmental protection. The focus for smart growth places an emphasis on how and where new development should be accomplished.²⁰ This allows the same amount of development to take

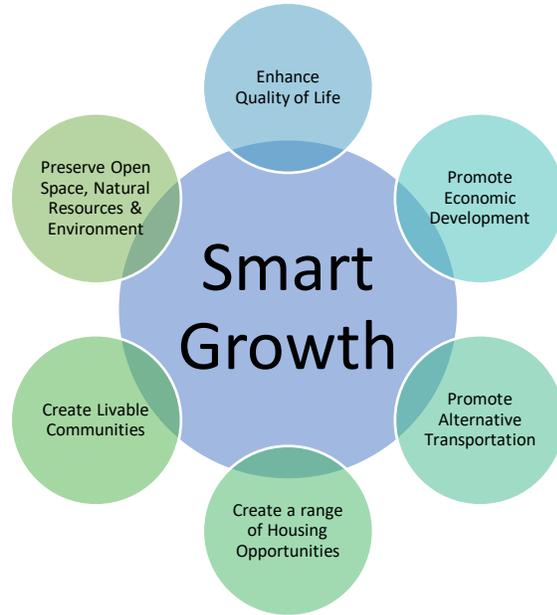


Figure 9 Smart Growth Principles. By Author

place in a controlled form of growth that utilizes a more compact design and directs the development to locations that is more effective to provide public services compared to the uncontrollable nature of urban sprawl.²¹ Under smart growth, resources, both natural and economic, are not consumed at a high rate like that of urban sprawl communities.

Conventional suburban development consists of residential based growth and often are limited to one kind of housing solution, such as the single-family detached home. On the contrary, smart growth communities offer a range of housing choices and mixed-use building typologies to create strong diversity. Instead of development

²⁰ “Economic Benefits of Smart Growth and Costs of Sprawl : ConservationTools,” accessed March 19, 2023, <https://conservationtools.org/guides/96-economic-benefits-of-smart-growth-and-costs-of-sprawl>.

that requires occupants to drive long distances between jobs, homes, and activities, smart growth development places workplace, homes, and services closer together to allow children and adults to walk or use public transit to reach their daily destinations.²¹ Other related benefits to smart growth communities includes:

- Cost of community services
- Economic benefits of biodiversity
- Economic benefits of land conservation
- Economic benefits of parks

Directing smart growth into existing communities provides a major economic benefit which creates a more effective development and revitalizes older communities.²¹

According to smartgrowth.org “communities benefit from a stronger tax base, closer proximity to a range of jobs and services, increased efficiency of already developed land and infrastructure, reduced development pressure in edge areas which preserve more open space, and, in some cases, strengthening rural communities.”²¹ Smart growth developments can strengthen existing communities and achieve a more balanced community.

By reducing per capita land consumption, infrastructure, and transportation costs, smart growth policies can deliver a major economic, social, and environmental impact. People living in smart growth communities save money on transportation which, on average, is \$5,000 less per year on transportation expense.¹⁹ Smart growth also offers easier access to schools, public services, and amenities, and encourages mixed-income communities. With every 10 percent decrease in urban sprawl, Americans are 4.1 percent more likely to climb from the lowest to highest income

quintile.¹⁹ Smart growth development is also better for the environment. Cities are responsible for roughly 70 percent of energy-related greenhouse gas emissions. According to New Climate Economy research, the implementation of transit-oriented development can reduce annual greenhouse gas emissions by roughly 600 million tons of carbon dioxide.¹⁹

Chapter 4: Site Selection and Economic Evaluation

Site Selection Criteria

With the continued challenges of urban sprawl and the growing concerns about environmental and social equity, residential colleges, and transit-oriented development (TOD) offer promising solutions. By Placing public transportation at the epicenter of community design, TOD can improve access to essential services and reduce dependence on private vehicles, thus promoting sustainable mobility and reducing our carbon emissions. The selection criteria are based on the principles of Transit-Oriented development and the Residential Learning Community system.

The framework for a Residential Learning Community system, due to the Living-Learning Program already found on-campus, makes the University of Maryland a great opportunity to enhance the on-campus living experience and to provide more on-campus housing to the UMD population. To increase the amount of housing on-campus the proximity to the University of Maryland, student population and diversity will be key criteria in the selection of the site. To successfully establish the residential learning system at the University, the chosen site needs to be in a location to increase the population density of the area and allow multiple disciplines to come together and promote educational diversity.²¹

²¹ Simone N. Tuor Sartore and Uschi Backes-Gellner, "Educational Diversity and Individual Pay: The Advantages of Combining Academic and VET Graduates in the Workplace," *Empirical Research in Vocational Education and Training* 12, no. 1 (November 10, 2020): 13, <https://doi.org/10.1186/s40461-020-00099-4>.

The University of Maryland is in another unique situation because of the addition of a light rail transit system that will go through the heart of campus. The addition of the *Purple Line* at the University will allow for growth in an efficient and sustainable way. The light rail system will also allow for quick access to amenities found in the greater District of Columbia, Maryland, and Virginia region (DMV).

The University of Maryland has the unique opportunity to integrate urban spaces that are planned to bring people, activities, buildings, and public space together. TODs have great transport connections to the rest of the city and simple walking and bicycling connections between them. It entails equitable access for all people to local and regional opportunities and resources using the most cost-effective and environmentally friendly combination of transportation options while maintaining the maximum level of resilience to disruptive occurrences.²² The basis for long-term sustainability, equity, shared prosperity, and societal harmony can be established with the creation of the residential colleges and the addition of the *Purple Line* metro system.



Figure 10 Design Principles of TOD. What is TOD?

²² “What Is TOD? - Institute for Transportation and Development Policy,” July 24, 2014, <https://www.itdp.org/library/standards-and-guides/tod3-0/what-is-tod/>.

Selection Process – The University of Maryland

Location

Langley Park - University of Maryland - College Park, MD.

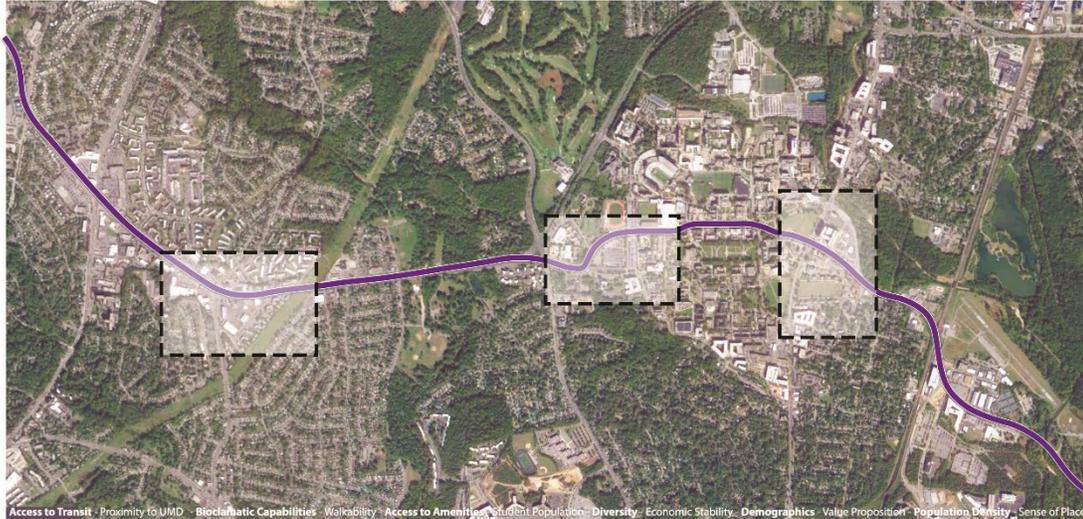


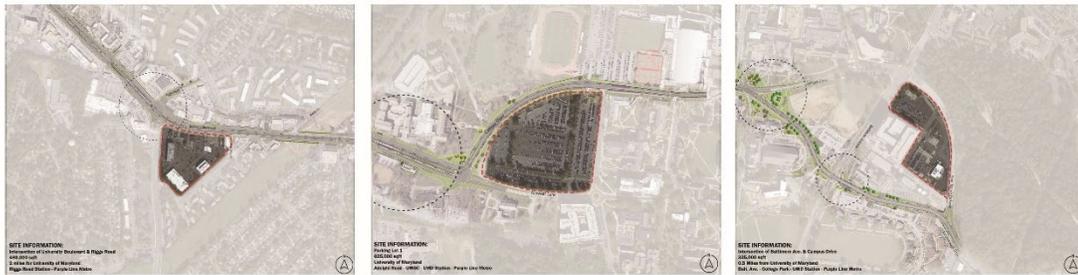
Figure 11 Purple Line & Site Locations. Drawn by Author

With the site selection criteria linked to the establishment of a Residential College system and the *Purple Line*, the proximity of the site to the University of Maryland became a key deciding factor. Other key site criteria included the ability to establish residential communities, student population and diversity, and a strong sense of place. Three sites were initially looked at and were ranked on a one to five scale, one being the lowest and five being the highest. The sites were located along the *Purple Line*²³ and were in Langley Park, Parking Lot 1 on the University of Maryland campus, and along Baltimore Ave in College Park, MD.

²³ “Frontpage,” MDOT MTA Purple Line, accessed April 23, 2023, <https://www.purplelinemd.com/>.

Site Matrix

Langley Park - University of Maryland - College Park, MD.



CLASSIFICATIONS:	UNIVERSITY BLVD. & RIGGS RD. LANGLEY PARK, MD.	PARKING LOT 1 - CAMPUS DRIVE UNIVERSITY OF MARYLAND	BALTIMORE AVE. & CAMPUS DRIVE COLLEGE PARK, MD.
ACCESS TO TRANIST	3	4	4
PROXIMITY TO UMD	1	5	4
RESIDENTIAL COLLEGES	1	3	2
WALKABILITY	3	4	4
ACCESS TO AMENITIES & JOBS	2	3	4
STUDENT POPULATION	1	5	4
DIVERSITY	2	4	3
POPULATION DENSITY	3	3	5
SENSE OF PLACE	1	4	3
	17	38	33

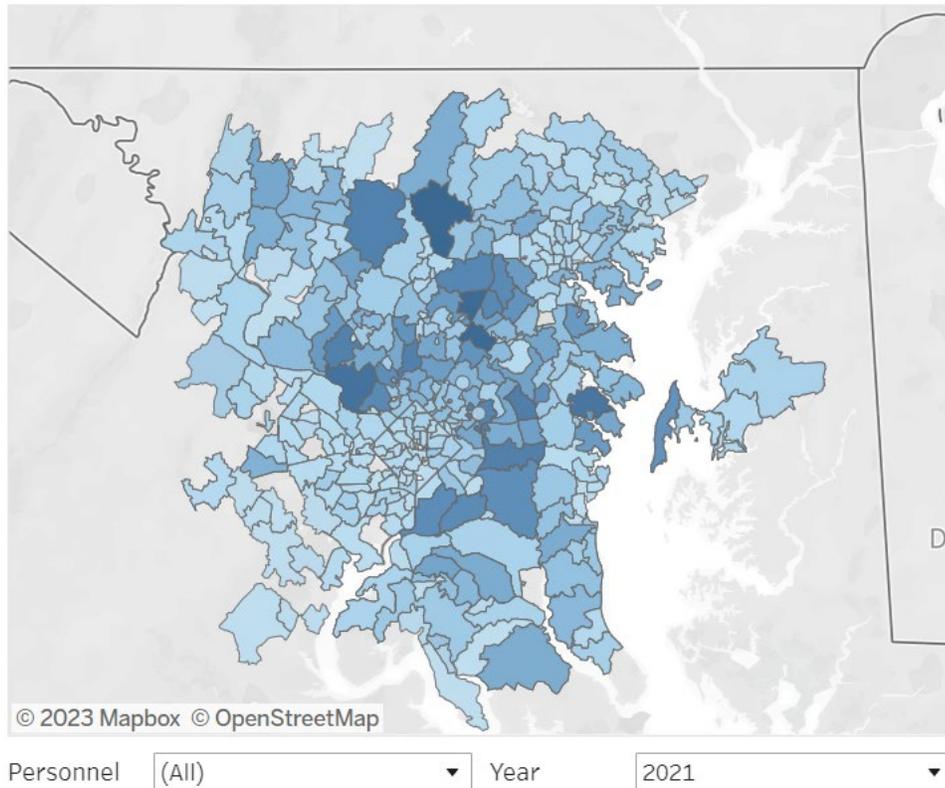
Figure 12 Site Matrix. Drawn by Author

Parking Lot 1, located along Campus Drive on the University of Maryland's campus, offers the unique opportunity to establish the relationship between both TOD and a residential learning community. This relationship can begin to allow the University of Maryland to grow in an efficient and sustainable way. With key design principles of TOD, such as walk, cycle, transit, and mix already in place at the University, the Purple Line would allow the University to prioritize the residential learning system and encourage its students to remain within the proximity of campus.

By utilizing Parking Lot 1 for the site the University would also see a reduction in overall transportation greenhouse gas emissions, which is a part of the *SustainableUMD*, the University of Maryland's way of promoting sustainable practices. The university is committed to provide practical alternatives for commuters

to minimize their transportation emissions to lessen the environmental effect of air travel and everyday commuting necessary to support UMD's programs in education, research, athletics, and services.²⁴

Annual Commuting Emissions by Zipcode



The heat map is generated using a partial dataset from DOTS containing information about registered parking permits including ZIP-Codes and vehicle type (as make, model, year). Average and annual emissions per ZIP-Code are calculated using SIMAP emissions factors and global warming potentials.

Figure 13 Annual Commuting Emissions by Zip code. Transportation Greenhouse Gas Emissions – The University of Maryland

²⁴ “Progress towards Carbon Neutrality at the University of Maryland, College Park. Highlights Greenhouse Gas Emissions Reductions, Source and Site Energy Consumption, and Carbon Offset Programming.,” Tableau Software, accessed April 23, 2023, https://public.tableau.com/views/MeasuringSustainableUMDProgressCarbonNeutrality/CN?:embed=y&:showVizHome=no&:host_url=https%3A%2F%2Fpublic.tableau.com%2F&:embed_code_version=3&:tabs=no&:toolbar=yes&:animate_transition=yes&:display_static_image=no&:display_spinner=no&:display_overlay=yes&:display_count=yes&:language=en-US&:loadOrderID=0.

Value Proposition and Economic Stability

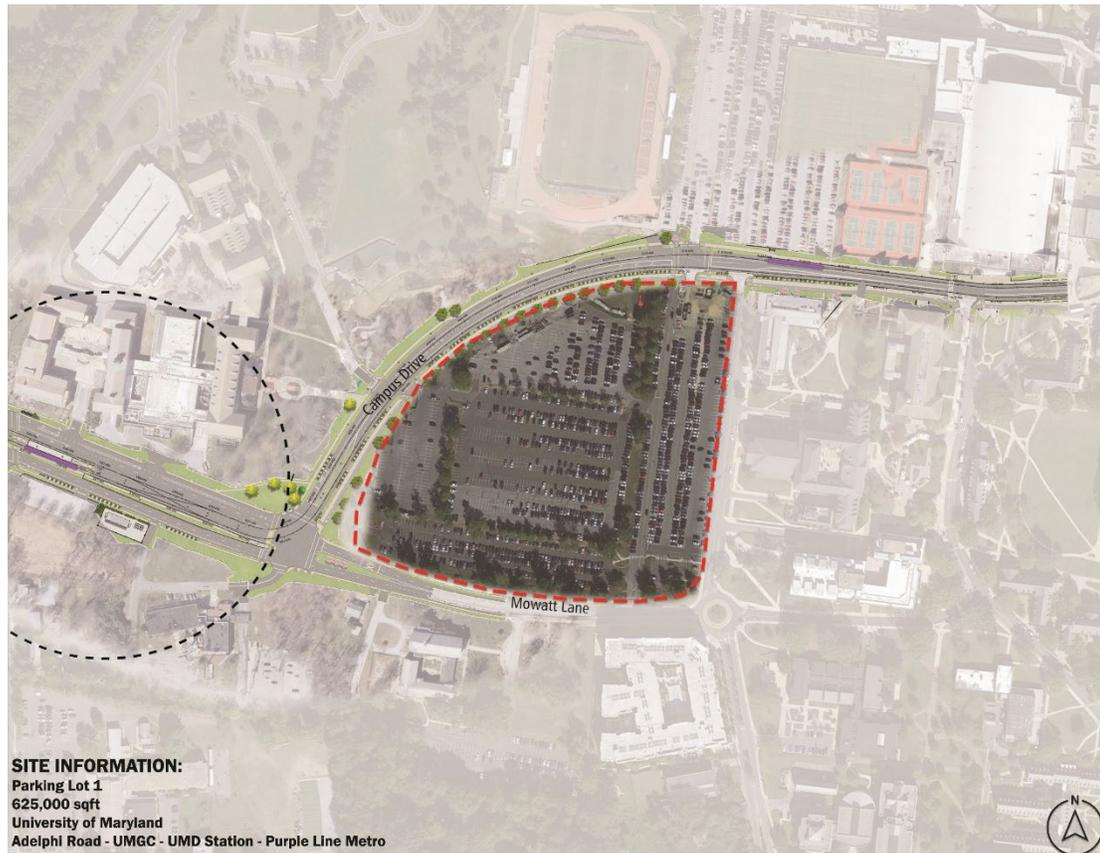


Figure 14 Parking Lot 1 - University of Maryland. By Author

The location and size of the site allows for the proposed residential community to encompass multiple disciplines within the university and create a more diverse community. This can include majors and disciplines relating to business, architecture, planning and preservation, arts and humanities, journalism, and athletics.²⁵ By combining multiple disciplines and residential communities into one site location, the University of Maryland can incentivize more educational diversity.

²⁵ “Colleges and Schools,” December 12, 2016, <https://www.umd.edu/colleges-and-schools>.

One advantage of varied groups over homogenous ones is the greater diversity of task-relevant knowledge and skills they possess.²⁶

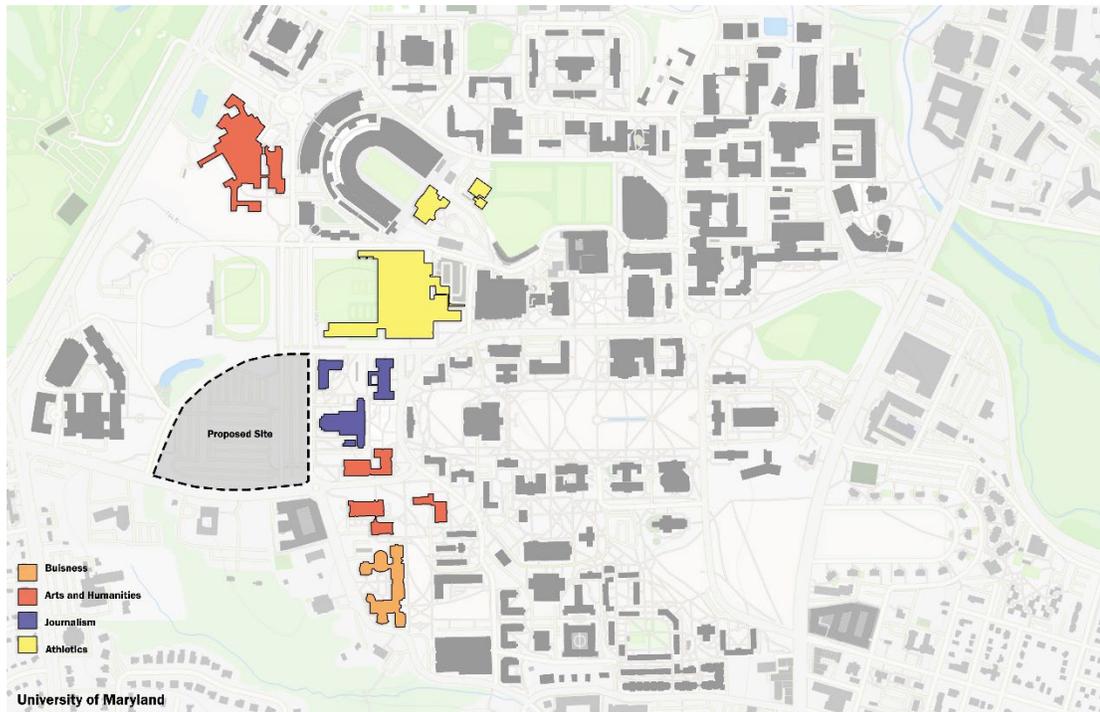


Figure 15 Potential Residential Colleges - University of Maryland. Diagram by Author

With over 9,000 students found in business, arts, humanities, and journalism related fields on campus, this site can have a major impact on providing much needed on-campus housing through the residential college system.²⁷ The breakdown of those programs is as followed (based on Fall of 2022):

- Arch. & Envntl. Design: 686 total students
- Business & Management: 4,357 total students
- Communications: 1,141 total students

²⁶ Tuor Sartore and Backes-Gellner, “Educational Diversity and Individual Pay.”

²⁷ “USM Data Journals - Statewide Headcount Enrollment Program Area by Level Report for University of Maryland, College Park- USM IRIS,” accessed April 23, 2023, <https://www.usmd.edu/IRIS/DataJournal/Enrollment/?report=Program-Area-by-Level>.

- Education: 2,149 total students
- Fine & Applied Arts: 731 total students
- Public Affairs & Serv.: 312 total students²⁸

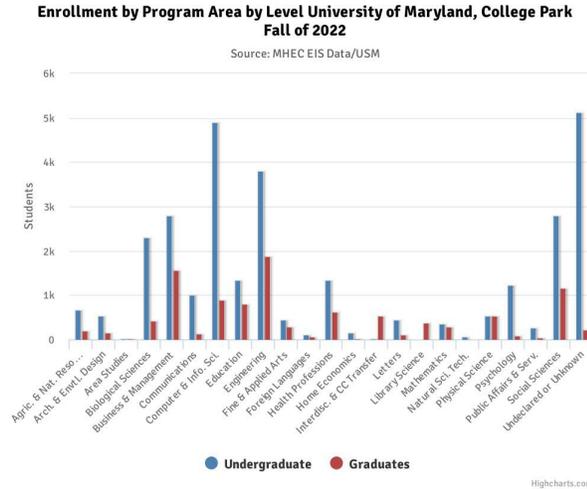


Figure 16 Enrollment by Program - University of Maryland. Statewide Headcount Enrollment Program Area by Level

With the potential to reimagine the on-campus housing system at the University of Maryland, the existing infrastructure needs to be able to provide and support an increase in students living on-campus. The removal of Parking Lot 1 will dramatically affect the number of commuter parking spaces currently available at the university. Fortunately, the university has the necessary public transit systems in place to handle the influx of on-campus residents and promote alternative forms of transportation for off-campus commuters.

²⁸ “USM Data Journals - Statewide Headcount Enrollment Program Area by Level Report for University of Maryland, College Park- USM IRIS.”

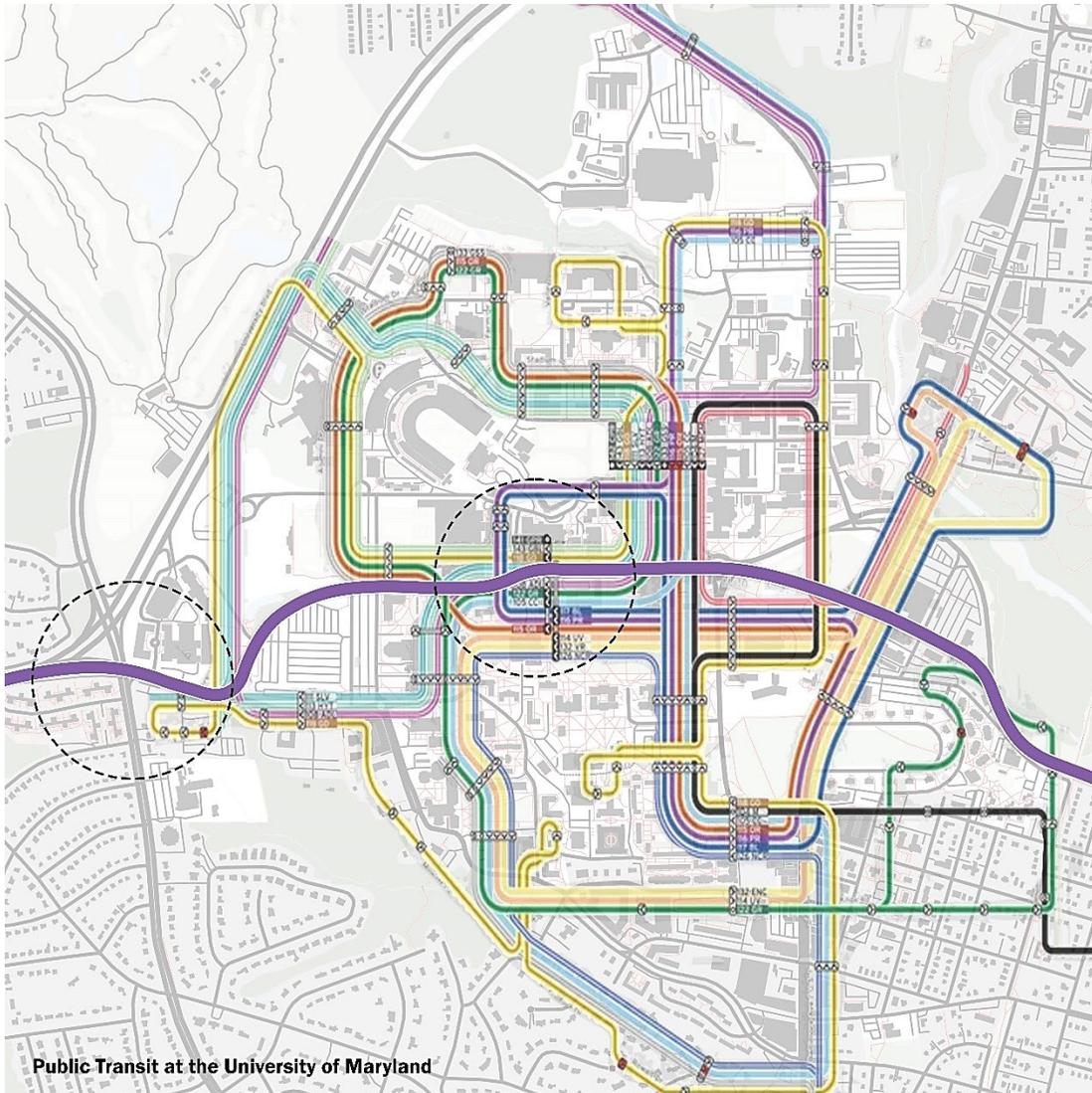


Figure 17 Public Transit Map - University of Maryland. Diagram by Author

With the addition of the *Purple Line* and the existing metro system at the University of Maryland²⁹, the campus can begin to establish an on-campus Residential Learning Community system and promote sustainable mobility on its campus. The relationship between the residential community and TOD can become a blueprint for university expansion in the future.

²⁹ “Shuttle-UM | UMD DOTS,” accessed April 23, 2023, <https://transportation.umd.edu/shuttle-um#schedules>.

Chapter 5: Purple Line Growth and Reimagining the University of Maryland

Alignment and Opportunity for Growth

The Purple route is a 16-mile light rail route that will connect New Carrollton in Prince George's County to Bethesda in Montgomery County. It will offer a direct link to the Bethesda, Silver Spring, College Park, and New Carrollton Metrorail Red, Green, and Orange Lines. The MARC, Amtrak, and regional transit systems will all be accessible from the Purple Line.³⁰ The addition of the Purple Line can will have a major shift to the upper DMV area, this includes the University of Maryland and the surrounding College Park, Md area.

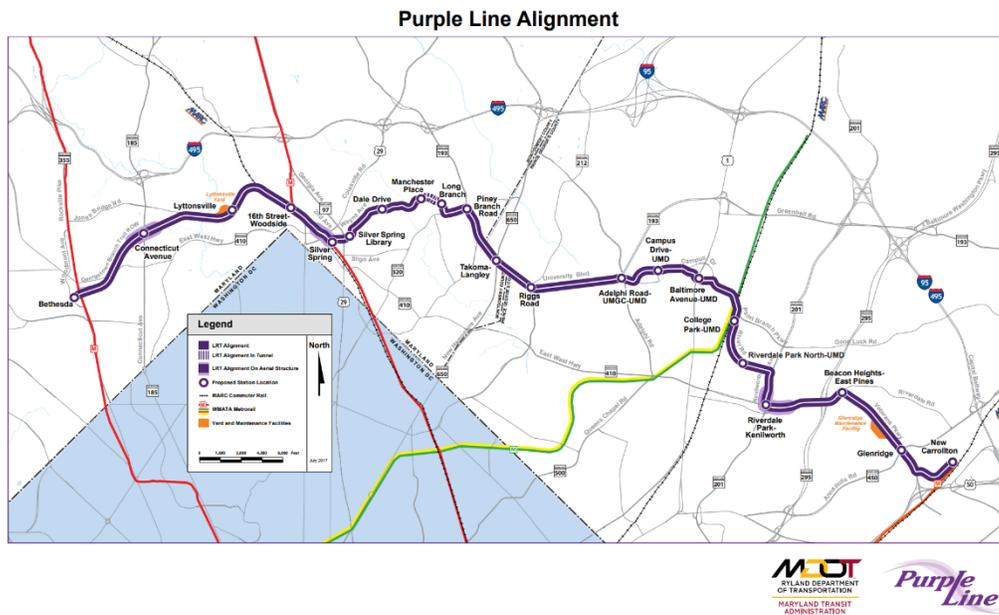


Figure 18 Purple Line Alignment. Purple Line MD

³⁰ “Overview,” MDOT MTA Purple Line, accessed May 21, 2023, <https://purplelinemd.com/about-the-project/overview>.

The Purple Line will provide both environmental benefits, as well as economic benefits to the area. This new light rail network will provide rapid and reliable east-west travel and will connect to the greater DC Metro network with its connection to the Green, Orange and Red metro lines (as seen in figure 18). Since the Purple will be able to provide access to the regional Metrorail system, the addition of the Purple Line will be able to provide and connect people jobs, entertainment, as well as the University of Maryland. With the promotion of Transit-Oriented Development, the Purple Line will have a major impact on the environment as well. The light rail metro system is estimated to reduce the amount of privately owner vehicular travel by nearly 17,000 cars, which translates into nearly saving roughly 1 million gallons of gas within the first 20 years.³¹ Due to the Purple Line being electrically powered there will be no air emissions going into the immediate environment. Lastly, the Metro Line utilizes existing roadways to minimize the effects on land and water resources.

³¹ "Overview."



Figure 19 University of Maryland Figure Ground Diagram. Diagram by Author

The Maryland Department of Transportation's Maryland Transit Administration (MDOT MTA) is the owner of the Purple Line. Purple Line Transit Partners (PLTP), a partner from the private sector, was chosen by MDOT MTA in the spring of 2016 to design, construct, manage, and maintain the light rail system for 35 years. The Maryland Department of Transportation State Highway Administration (MDOT SHA), the Washington Metropolitan Area Transit Authority, Montgomery and Prince George's counties, the Maryland-National Capital Park and Planning Commission, and local municipalities in the project area are all members of the team that supports and closely coordinates the MDOT MTA as the project lead.³²

The University of Maryland is an area that will look to be drastically affected by the Purple Line Metro System following its completion. “The Purple Line will bring significant advantages to the university, including improving the way we get

³² “Overview.”

around; better connecting campus to the local area and broader region; adding bike lanes; and reducing the need for cars,” said Vice President and Chief Administrative Officer Carlo Colella.³³ The Metro Line will have a direct relationship with the university's strategy to combat climate change by reducing campus-related greenhouse gas emissions. Within ten years of operation, the Purple Line is anticipated to deliver 4,000 daily trips for students, employees, and visitors, as well as 27,000 new transit journeys in the Washington, D.C., region.³⁴ Other forms of transportation will also see growth besides rail. Bike lanes will be created on Campus

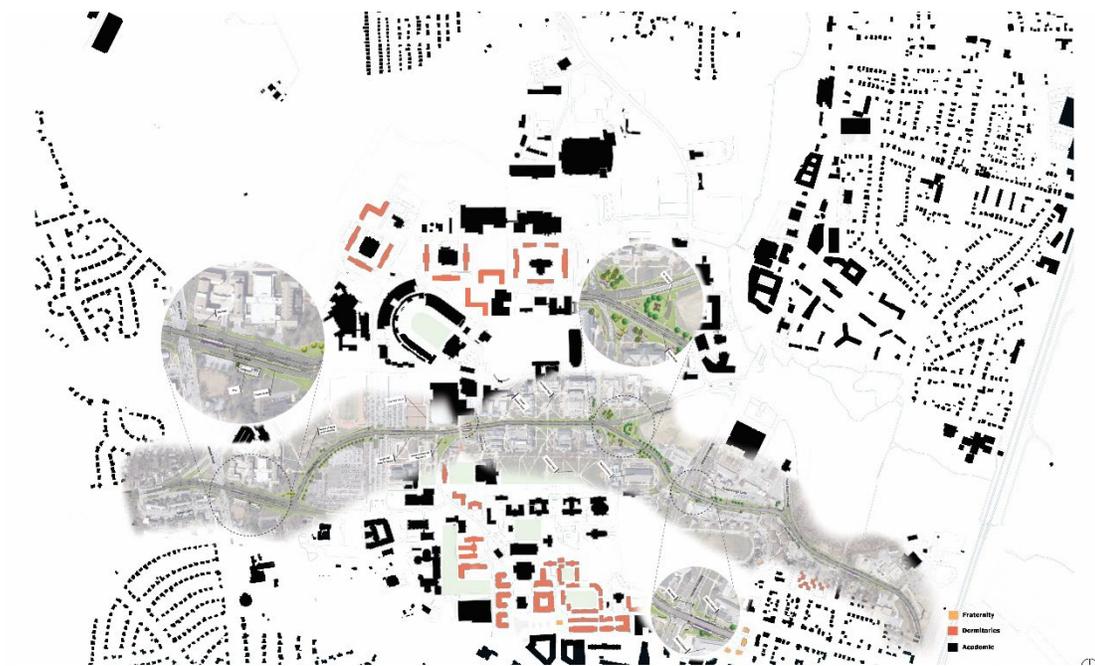


Figure 20 Purple Line Development. The University of Maryland. Diagram by Author

Drive from the University of Maryland Global Campus on Adelphi Road to Baltimore Avenue as part of the Purple Line project. Further minimizing the need for driving on campus, the 10-foot-wide, two-directional road will increase safety for bikes and micro transit users.

³³ “The Promise (and Pain) of the Purple Line,” Maryland Today, April 18, 2023, <https://today.umd.edu/the-promise-and-pain-of-the-purple-line>.

³⁴ “The Promise (and Pain) of the Purple Line.”

With the addition of the transit system, set to be completed 2026, the University of Maryland can begin reimagining how the campus is visited daily. The Purple Line will be crucial in luring companies and enhancing access to the university and the surrounding region as UMD pursues its greater College Park program, a \$2 billion public-private collaboration that aspires to rank the city among the nation's top college towns. The institution has already considered the new line's vicinity when developing new structures, and it's possible that housing, restaurants, and retail will



Figure 21 Purple Line Metro Station - College Park, UMD. Purple Line Stations

soon do the same. According to Ken Ulman, president of the Terrapin Development Company and the university's chief strategic officer for economic development, the cooperation between UMD and its fundraising arm, which oversees multiple College Park projects, aims to maximize the impact of the Purple Line's close-by stops.³⁵

³⁵ "Stations," MDOT MTA Purple Line, accessed May 21, 2023, <https://www.purplelinemd.com/about-the-project/stations>.

Master Planning at the University of Maryland

With the emergence of the Purple Line in the College Park and University of Maryland area, the number of master plans can be seen through both the University as well as outside development companies. The University of Maryland finds itself at the epicenter for economic development and is set to see an increase in density through mixed-used development, including retail, restaurants, and a much-needed increase in available housing for the area. This opportunity is directly linked to transit-oriented development as well as smart growth and can allow the University of Maryland to promote sustainable mobility and follow a model of sustainable growth.

The University of Maryland is fully committed to promoting and reducing the environmental impact of its campus. SustainableUMD, The University of Maryland's mission to promote sustainability, highlights the goal of "reducing transportation related emissions through expanding public transportation, increased local housing, administrative controls, incentives, technology and market-based offsets."³⁶ The University is also committed to achieving carbon neutrality by 2025 and reducing the overall amount of greenhouse gas emissions. These ideas can be seen through master plans of College Park and the University of Maryland, which so a high amount of density is beginning to be instilled throughout the area.

³⁶ "Progress towards Sustainable Development and Smart Growth at the University of Maryland. Highlights Green Buildings, Alternative Transportation, and Biodiversity.," Tableau Software, accessed May 21, 2023, https://public.tableau.com/views/MeasuringSustainableUMDProgressSmartGrowthAlternate/SmartGrowth?:embed=y&:showVizHome=no&:host_url=https%3A%2F%2Fpublic.tableau.com%2F&:embed_code_version=3&:tabs=no&:toolbar=yes&:animate_transition=yes&:display_static_image=no&:display_spinner=no&:display_overlay=yes&:display_count=yes&:language=en-US&:loadOrderID=0.

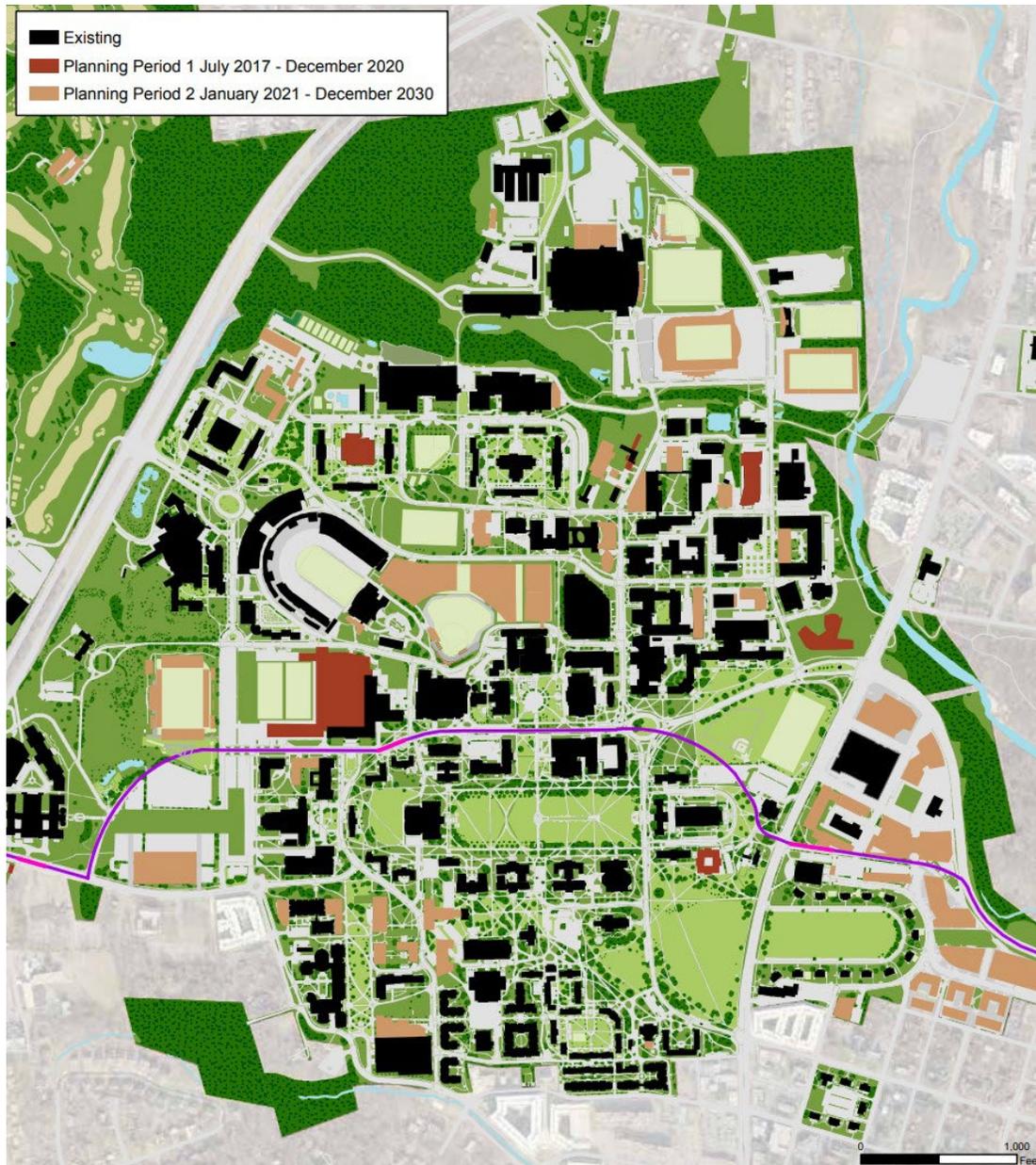


Figure 22 University of Maryland 2030 Master Plan. UMD Facilities Management

The University of Maryland, in coordination with facilities management, is set to see a high level of density come to the University.³⁷ With their public-private partnership with Terrapin Development Company, the University of Maryland looks to maximize the amount of density that can be found along the Purple Line

³⁷ “Facilities Master Plan | Facilities Management,” accessed May 21, 2023, <https://facilities.umd.edu/facilities-master-plan>.

infrastructure. Facilities Management’s goal is to provide a physical planning framework that will encourage future stewardship, orderly expansion, effective use of capital and operational resources, and appropriate use of available land in accordance with the institution's strategic plan, purpose, and values. They also aim to provide a comprehensive plan that integrates multi-modal transportation circulation to improve campus facility connections and the University's surrounding communities.³⁸ These goals are directly related to the Purple Line and smart growth development.

The University of Maryland is not the only preparing for the large amount of density that will soon flood the area following the completion of the Purple Line. As early as May of 2013, The Purple Line conducted a TOD study which aimed to determine future market-supportable development along segments of the proposed Purple Line by investigating the region's historical demographic, economic, and real estate market patterns as well as regional projections. A new market reality is brought about by the region's economic outlook, rival urban and suburban hubs, and efforts to add significant new residential and commercial development at the University of Maryland's M Square Research Park site.³⁹

³⁸ “Facilities Master Plan | Facilities Management.”

³⁹ “PurpleLineTODStudy.Pdf,” accessed May 21, 2023, <https://purplelinemd.com/component/jdownloads/?task=download.send&id=53&catid=16&m=0&Itemid=108>.

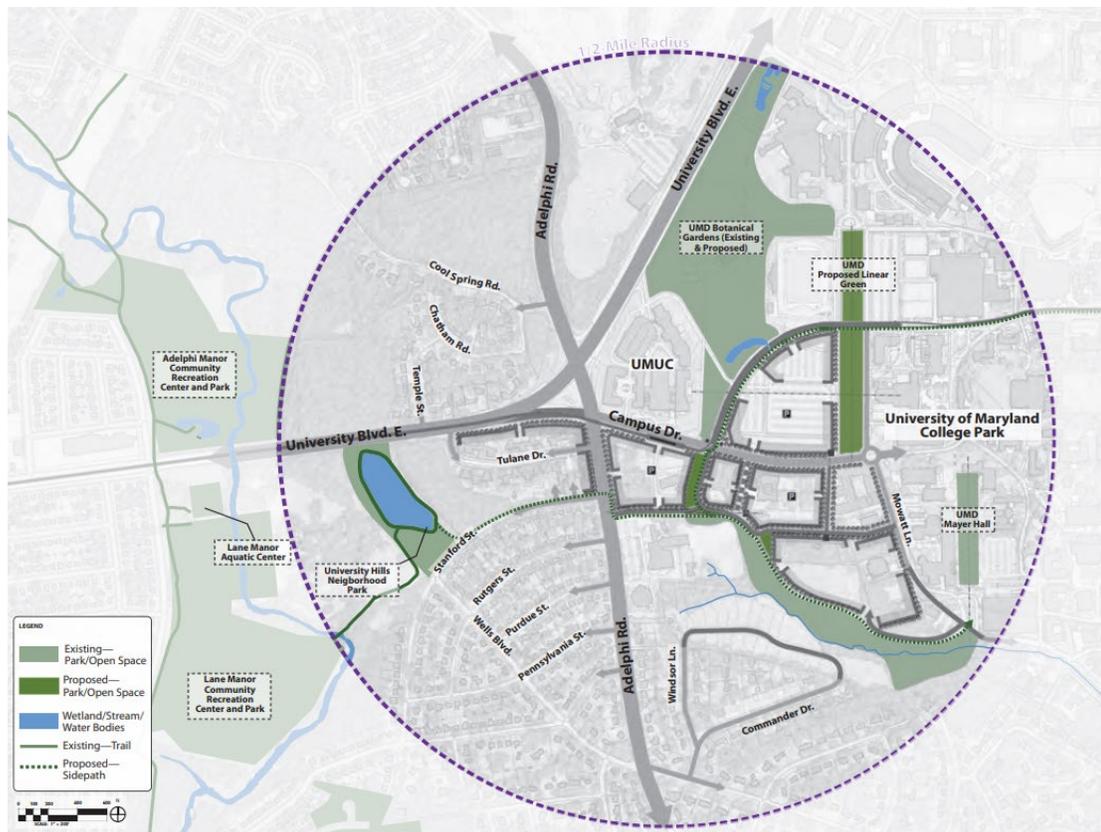


Figure 23 West Campus Analysis. Purple Line TOD Study. Analysis by Design Collective

The Purple Line Transit-Oriented Development Study reveals four- to five-story buildings with multifamily residences and ground-floor shops facing Campus Drive. Ground floor shops should first be centered close to the rail stop because there might not be as much demand for it. Once the life spans of the current structures are achieved and/or market demand increases, additional residential properties west of Adelphi Road are suggested as redevelopment locations for residential multifamily apartments or townhouses. Based on the objectives of the University of Maryland's Facilities Master Plan, institutional mixed-use development is proposed to the north of Campus Drive. Where none now exist, placing new residential construction close

to the station as well as shops and restaurants will help make the region into a bustling western entrance for the University of Maryland.⁴⁰

The West Campus Purple Line TOD Study was further examined in June 2022 by the Prince George’s County Planning Department. The 2022 *Approved Adelphi Road-UMGC-UMD Purple Line Station Area Section Plan* envisions a brand-new, walkable, mixed-use community that offers additional housing options for University of Maryland, College Park students, staff, and alumni, as well as other potential residents who seek the regional connectedness made possible by the Purple Line.⁴¹

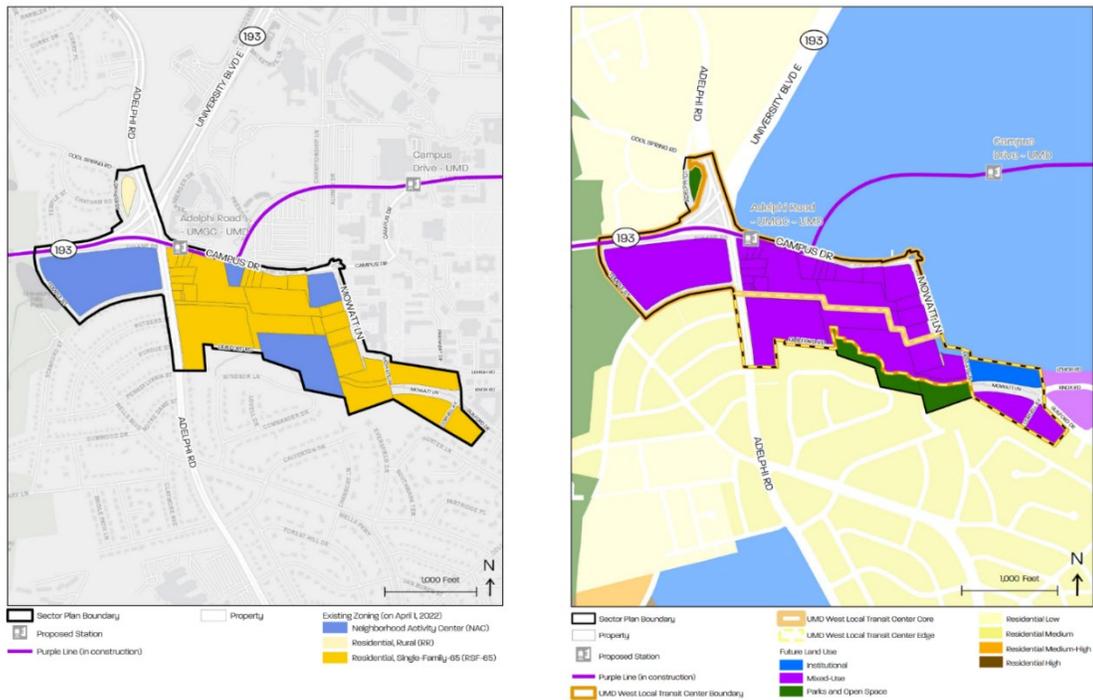


Figure 24 Existing Zoning (April 1, 2022). Proposed Zoning. Purple Line Station Area Plan

⁴⁰ “PurpleLineTODStudy.Pdf.”

⁴¹ “Approved Adelphi Road-UMGC-UMD Purple Line Station Area Sector Plan and Sectional Map Amendment by Maryland-National Capital Park & Planning Commission - Issuu,” September 27, 2022, https://issuu.com/mnccppc/docs/approvedadelphiplan_final.



Figure 25 Master Plan Proposal for Western Campus. Purple Line Station Area Plan. Designed by Stantec Architecture, Inc.

This proposal will establish a western gateway to the University of Maryland and provide housing opportunities for students, however it currently lacks an established Residential Learning Community system, or Living Learning Program, that the University of Maryland has begun to promote throughout its campus. This furthers the argument for the removal of Parking Lot 1 found on the University of Maryland’s campus and continue to develop the area along the Purple Line, promoting mixed-use development for students, faculty, and other regional residents.

Design Collective, a multi-disciplinary and award-winning design firm, has also proposed *The Purple Line Corridor Access Study*. This study is a thorough plan for transit-oriented development that covers the station sites for the planned Purple Line light rail route. The research focuses on five Purple Line station sites in Prince

George's County, including Beacon Heights (Riverdale Road), M-Square (River Road), College Park-UMD, and UMD-West Campus.⁴²

Each station area was studied to develop a plan that addresses future land use, TOD opportunities and constraints, economic feasibility, and fiscal impact of any development, planning, and policy options to attract development, infrastructure and service needs assessment, preliminary concepts for station area development, opportunities for community revitalization and reinvestment, and plan implementation strategies. The team has proposed a proposal based on substantial community participation that will assist Prince George's County in developing transit-oriented, pedestrian-friendly mixed-use projects at the five selected Purple Line stations.⁴³



Figure 26 Purple Line Corridor Access Study. MNCPPC - Purple Line. Designed by Design Collective

⁴² “MNCPPC - Purple Line,” Design Collective, accessed May 21, 2023, <https://www.designcollective.com/portfolio/project/mncppc-purple-line/>.

⁴³ “MNCPPC - Purple Line.”

The combination of these master plan proposals shows a drastic shift in density as the Purple Line comes to the University of Maryland, College Park area. This is a direct relationship between transit-oriented development and smart growth. With the implementation of a Residential Learning Community system at the University, these proposed developments can have an immediate impact in how students and faculty interact with one another and change their academic experience at the University.



Figure 27 University of Maryland 2050 Study in Relation to Master Plan Proposals. Diagram by Author

Chapter 6: Case Study Analysis

Establishment of an Ideology

“Residence halls are not mute containers for the temporary storage of youthful bodies and emergent minds. Dormitories constitute historical evidence of the educational ideals of the people who built them. The varied designs of residence halls reflect changes in student life, as well as college officials’ evolving aspirations for their institutions, the students themselves, and society at large.”⁴⁴

Carla Yanni, Living on Campus

Many American colleges can trace their architectural roots back to medieval monasteries, which were the forerunners of the Oxford and Cambridge quadrangles.



Figure 28 Oxford and the University of Maryland Comparison. By Author

Monasteries served as centers for research, education, and the creation of knowledge.

A monastery's physical structure frequently had a rectangular outside area that was

⁴⁴ Carla Yanni, *Living on Campus: An Architectural History of the American Dormitory* (Minneapolis: University of Minnesota Press, 2019).

walled off from the nearby town or countryside. Oxford and Cambridge came to dominate notions about the ideal architectural design for American institutions starting in the seventeenth century. They were weirdly the exception, not the rule, among the oldest institutions, housing nearly all its students. The structures at Oxford and Cambridge were built in a variety of architectural styles, but they were typically three or four stories tall and had the shape of interconnected square donuts.⁴⁵

The English concept that professors should live with students to foster a culture of nonstop academic discussion caught the attention of college authorities, according to education historian Alex Duke.⁴⁶ Americans would soon reimagine the British system to meet their own requirements. Yale and Harvard's residential



Figure 29 Yale and the University of Maryland Comparison. By Author

colleges, established around 1930, were more elegant than their English counterparts but maintained their ideology.

⁴⁵ Yanni.

⁴⁶ Yanni.

Residence halls are as vital now as they have always been, despite the widespread belief that distance study would render them obsolete. The combination of disparate forces in recent years (university corporatization, growing inequality in society at large, and the rise of online learning) possibly doomed the residence hall, yet a survey of current practices in higher education indicates the opposite trend: colleges are building ever more elaborate residence halls, some of are beginning to mimic hotels rather than dormitories that instill communal relations between students and faculty.⁴⁷



Figure 30 Program Analysis - Sojourner Truth Apartments at the Yard - Rutgers University. By Author

⁴⁷ “The Evolution of the College Dorm Chronicles How Colleges Became Less White and Male | History| Smithsonian Magazine,” accessed May 22, 2023, <https://www.smithsonianmag.com/history/history-college-dorms-180971457/>.



Figure 32 Program Analysis - Sojourner Truth Apartments at the Yard - Rutgers University. By Author

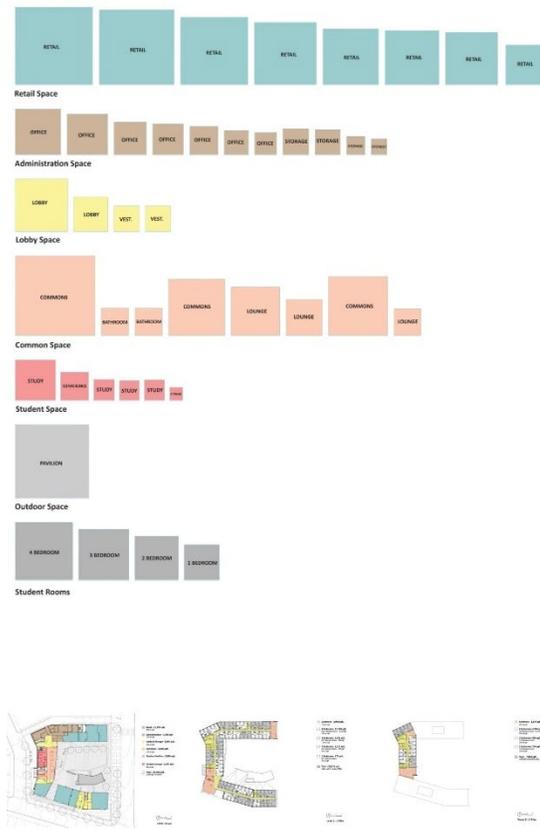


Figure 31 Mixed-Use Programming. By Author

Although many new college housing projects form a strong programmatic diversification, residential housing like Sojourner Truth Apartments at the Yard found at Rutgers University lack the structure that is found within a residential learning system or Living-Learning Programs. Buildings like the Sojourner Truth Apartments are much like those being proposed and built around the University of Maryland's

campus as established and discussed in the pervious chapter. This results in the cost of living in a dormitory being more than the cost of living at home. Less wealthy students commute and work part-time jobs. Others take their lessons online and thus have no opportunities for significant networking. Housing discrepancies aggravate socioeconomic gaps between the poorest and richest kids. Members in the latter group spend their undergraduate years cultivating future career ties.⁴⁸

America Modernizes the Residential College System

In college architecture, there are primarily two definitions of the word quadrangle. In one usage, it alludes to a group of boxy buildings positioned around a rectangular open area. However, the single structure in the shape of a rectangular donut makes this quadrangle unique. The courtyard of a monastery or an Italian Renaissance mansion typically takes on this design. Quadrangles of this sort can occasionally be connected to one another in series, as in the classic form seen in the medieval universities of Oxford and Cambridge.⁴⁹

Under the direction of President James Angell, a group of Yale academics and administrators suggested a new method of educating undergraduates in 1925 that would reconnect professors and students to the way they had been in the colonial Yale era. Given that Oxford and Cambridge were residential colleges with long-standing traditions, there was a clear connection to medieval England.

⁴⁸ Yanni, *Living on Campus*.

⁴⁹ Yanni.

The individuals who supported residential institutions in the US regularly traveled to England. The square doughnut plan's compactness also encouraged a sense of community among the residents of the college.⁵⁰

Other proponents of the residential college idea believe that the people who are brought together under the direction of an adult who is dedicated to fostering undergraduates are more significant than the physical residence. It is important to note that in the context of university planning today, the size of the effort to construct Yale's residential colleges is virtually unfathomable.⁵¹ Yale would begin establishing and creating its college system in 1930 and seven residential colleges were open by 1933.⁵²



Figure 33 Grace Hopper College - Yale University. Photograph by Peter A. Juley. Living on Campus.

⁵⁰ Yanni.

⁵¹ Yanni.

⁵² “Residential Colleges | Yale College Undergraduate Admissions,” accessed May 22, 2023, <https://admissions.yale.edu/residential-colleges>.

One of the original residential colleges established on Yale's campus was Grace Hopper College, which was designed by John Russell Pope. The outer walls facing the city were gray and brown stone with rough textures, the exterior walls facing the courtyard were variegated brick.



Figure 34 Grace Hopper College Plan - Yale University. Photograph by Peter A. Juley. *Living on Campus*. Diagram by Author

The classic Oxbridge mode was conveyed by big rectangular windows and pleasant yellow coloring facing the street. Grace Hopper College, which was renamed in 2017, is a four-story structure with a steeply pitched slate roof. Students lived with other freshmen throughout their first year, then moved physically into their residential colleges at the start of their sophomore year, with which they stayed linked until graduation. The architecture included various common areas and lounges so that students may relax in one other's company. At Yale, the establishment of the residential colleges was administered at the highest level: the president, the donor, the provost, and the members of the Yale Corporation (the university's governing body, equivalent to the boards of trustees at other universities) were all deeply involved.

The goal of the residential colleges was to place scholars in positions where they could directly care for students; these professors would take on the pastoral role

played by their English forefathers, and Yale lessened the importance of the stereotypical dean of men: a disciplinarian with a coach's cajoling personality.⁵³

The University of Maryland and Residential Communities

Throughout its storied history, which started in 1856 with the establishment of Maryland State College of Agriculture, the University of Maryland has undergone many levels of development and change. As the campus grew in scale and attendance, the University provided its first residential dormitory in the early 1900's (Calvert Hall).⁵⁴ Following the establishment Yale and Harvard Universities during



Figure 35 Figure Ground Analysis - The University of Maryland. Diagram by Author

the 1930s, the University of Maryland has its first established representation of a residential quadrangle. These residential halls and quads can be seen completed by the end of the 1940's.⁵⁵

⁵³ Yanni, *Living on Campus*.

⁵⁴ "South Hill Community," Department of Resident Life | University of Maryland, accessed May 22, 2023, https://reslife.umd.edu/halls/south_hill | <https://reslife.umd.edu/>.

⁵⁵ "From MAC to UMD," accessed April 26, 2023, <https://uofmd.maps.arcgis.com/apps/Cascade/index.html?appid=1bc4bd27ad6b47f1803509164c5bf7f0>.



1948 - 49
 Figure 36 Residential Quadrangle - University of Maryland. Diagram by Author

The South Hill Community still serves as a primary form of undergraduate housing at the University of Maryland, which is made up of nine residential structures and formulates two quads for the residents. South Hill Community houses roughly 800 undergraduate students throughout the school year, which makes up roughly 2% of the entire University of Maryland’s total campus population.⁵⁶

⁵⁶ “South Hill Community.”

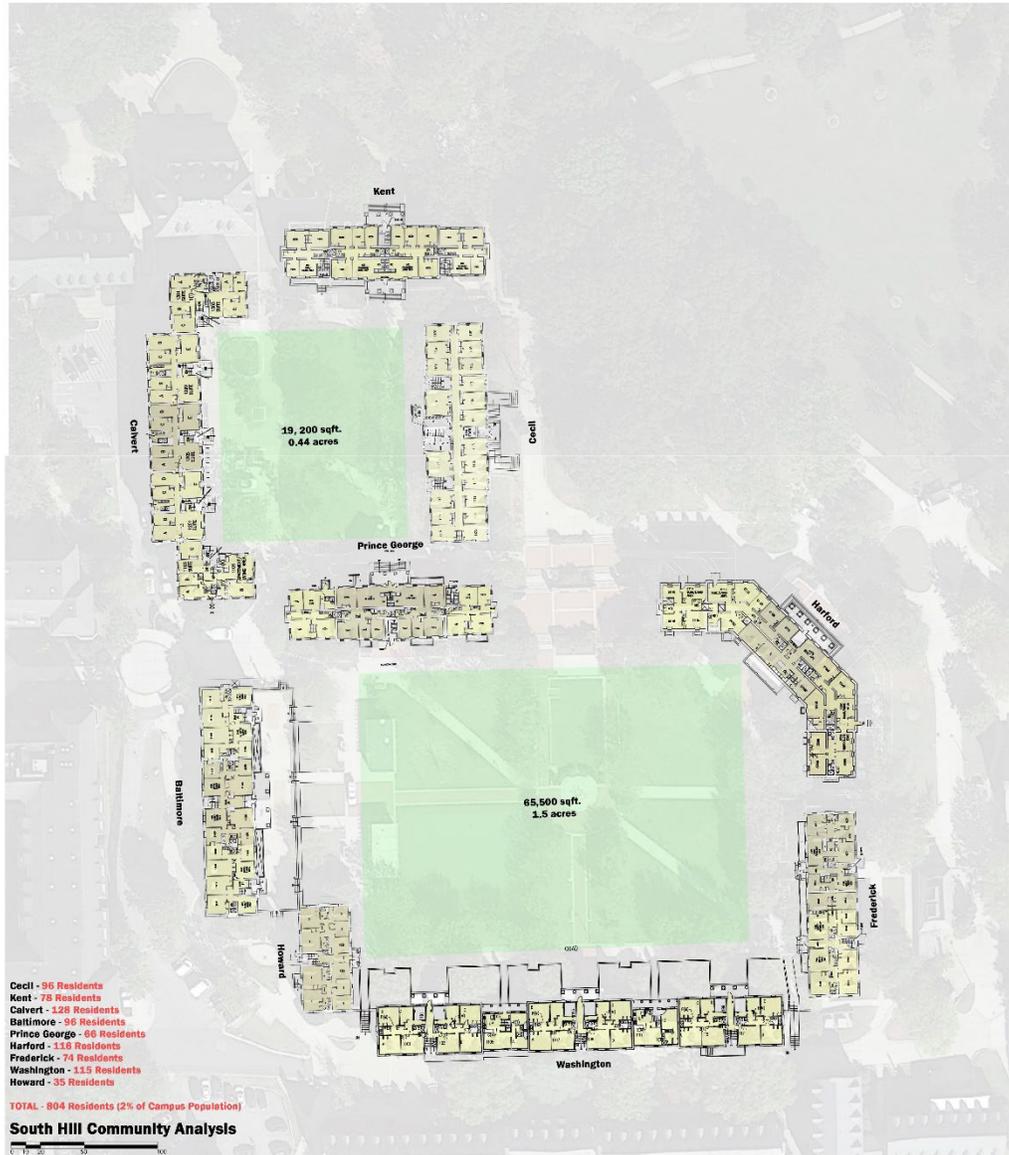


Figure 37 South Hill Community - The University of Maryland. Facilities Management UMD. Diagram by Author

Although the South Hill Community represents the architectural expression of a quadrangle, it has no established residential college system like Oxford, Yale, or Harvard. Even though the University of Maryland has established Living-Learning Programs found on nearly half of the campus, none of buildings found within the South Hill Community is recognized under the program. Committed to the

architectural expression of the quadrangle, the University of Maryland continues to develop housing communities where housing structures formed quadrangles. These can be seen though the development of Cambridge, Ellicott, and Denton Communities located on the northern part of campus, which were established by the end of the 1970's.⁵⁷



Figure 38 Residential Community Expansion - The University of Maryland. Diagram by Author

Unfortunately, the University of Maryland has turned away from the design ideology of the residential quadrangle and has focused on public-private partnerships which provide high density mixed-use developments. This is a direct correlation between the Purple Line, Smart Growth urbanism, and the continued level of master plan development that is set in the College Park, MD area. However, if the University

⁵⁷ "From MAC to UMD."

of Maryland could establish the Living-Learning Programs within the new proposed development, students could begin to forge meaningful communal relationships with other students interacting with the faculty. This is the core ideal of the original residential college system found at Oxford and Cambridge, which focused on fostering a culture of nonstop academic discussion.⁵⁸

⁵⁸ Yanni, *Living on Campus*.

Chapter 7: Addressing the Problem

Current Housing Situation at The University of Maryland

Since 2009, The University of Maryland has been all out of on-campus housing, which has forced students to live miles away from the campus.⁵⁹ The university has looked to combat its housing shortages by relying on its public-private partnerships and investing hundreds of millions of dollars into College Park’s Route 1.⁶⁰ These investments include but are not limited to:

- University View II (517-beds)
- The Landmark College Park (850-beds)
- Monument Village (235-beds)
- Terrapin Row (445-unit, seven building student housing project)

This investment into the College Park Route 1 corridor is step towards creating a “premier college town” and an attempt to build a “vibrant transit-oriented

University of Maryland Addresses Housing Shortage in Big Way

August 11, 2015 | Catie Dixon, Bisnow Managing Editor



Figure 39 Bisnow Article Headline – UMD Addresses Housing Shortage, by Catie Dixon

⁵⁹ “University of Maryland Addresses Housing Shortage in Big Way,” Bisnow, accessed December 19, 2023, <https://www.bisnow.com/national/news/student-housing/university-of-maryland-bulking-up-housing-surrounding-community-48856>.

⁶⁰ “University of Maryland Addresses Housing Shortage in Big Way.”

development” with the Purple Line coming to campus as stated by University of Maryland Vice President Carlo Colella.⁶¹

Unfortunately, recent University of Maryland studies found that rents along the Purple Line increased quickly after construction began, which could potentially displace many low-income households before trains even have begun running.⁶² By utilizing property data and annual rental housing surveys in Montgomery County, researchers examined rents for studio, one-bedroom, and multi-bedroom units located one mile or more from proposed stations and a half-mile from proposed stations around the time of the project's initial announcement and soon after construction began, noting larger increases in rental prices for units near proposed stations.⁶³ This should be very concerning for students as they look to find housing options located near the University of Maryland’s campus because of the university’s commitment to developing housing along the Route 1 corridor rather than providing more owned and operated on-campus housing options.

Average rent in College Park, MD

Last updated July 2023

 Average Rent	 Average Apartment Size
\$2,571	930 sq. ft.

What is the average apartment size in College Park?

> The average size for a College Park, MD apartment is 930 square feet, but this number varies greatly depending on unit type, with cheap and luxury alternatives for houses and apartments alike. Studio apartments are the smallest and most affordable, 1-bedroom apartments are closer to the average, while 2-bedroom apartments and 3-bedroom apartments offer a more generous square footage.

Figure 40 College Park, MD Rental Market Trends - Average rent in College Park, MD, by RentCafe

⁶¹ “University of Maryland Addresses Housing Shortage in Big Way.”

⁶² “Rents Already Rising Along Purple Line, UMD Study Finds,” Maryland Today, April 26, 2023, <https://today.umd.edu/rents-already-rising-along-purple-line-umd-study-finds>.

⁶³ “Rents Already Rising Along Purple Line, UMD Study Finds.”

The current state of on-campus housing at the university has seen recent challenges as well and is failing to provide housing for incoming freshman students. A recent article in *The Diamondback* highlighted a higher confirmation rate of incoming freshman and spurred housing stress among the incoming students. The

University of Maryland resident life department issued an email in June of 2023 stating that there has been a significant surge in on-campus housing inquiries.⁶⁴ Due to the higher influx of students, the university converted dorm lounges into student rooms. Safiyah Fatima, an incoming freshman computer engineering student, said she was thinking about traveling to this university from her house, which is roughly an hour distant and out of state. She said that living in an off-campus housing or apartment complex would have been too expensive.⁶⁵ Some prospective students at the university indicated that, while they were able to acquire lodging, the university's higher-than-expected confirmation rate — and the housing uncertainty it produced — was stressful.

High confirmation rate for incoming UMD freshmen spurs housing stress among students

Fiona Roy · August 1, 2023

Share Tweet F-mail



Hyon-Chen Hall and La Plata Hall, student dormitories in the Heritage and Elliott communities, on April 23, 2021. (Giuseppe LoPiccolo/The Diamondback)

Figure 41 The Diamondback Article Headline - High confirmation rate spurs housing stress, by Fiona Roy

⁶⁴ “High Confirmation Rate for Incoming UMD Freshmen Spurs Housing Stress among Students,” *The Diamondback*, August 1, 2023, <https://dbknews.com/2023/08/01/incoming-freshmen-on-campus-housing-capacity/>.

⁶⁵ “High Confirmation Rate for Incoming UMD Freshmen Spurs Housing Stress among Students.”

The tension between the university and the student body to provide more on-campus housing was met head on with the Guilford Woods development plan. This project was the University of Maryland attempt to provide more affordable graduate level housing near campus. The Guilford Woods development plan addressed the issue of housing, but major



Guilford Woods site as it is now (top) and with proposed development (bottom).

Figure 42 Guilford Woods Development Proposal - Save Guilford Woods

environmental concerns quickly rose to the forefront. These specific concerns included lack of sustainable development and increased campus sprawl, deforestation and decrease in tree canopy, removal of ecosystems, and its inconsistency with the current University of Maryland Facilities Master Planning.⁶⁶

As tensions and concerns continued to rise, University students took to McKeldin Mall to show their growing concerns on the environmental impact the Guilford Wood Development would have on the forested area on the Southwest side of campus. A Project that would have resulted in the removal of nearly 1,000 trees from campus was placed on pause by university officials.⁶⁷

⁶⁶ “Development Plan – Save Guilford Woods,” accessed December 19, 2023, <https://saveguilfordwoods.wordpress.com/proposed-development/>.

⁶⁷ “University of Maryland Officials to Pause Controversial Western Gateway Housing Project - The Washington Post,” accessed December 19, 2023, <https://www.washingtonpost.com/education/2021/10/29/umd-pause-western-gateway-guilford-woods/>.

University of Maryland officials to pause controversial graduate student housing project

Officials will explore building much-needed affordable graduate student housing in a residential community that was taken offline during the spring.



The University of Maryland will pause its efforts on a housing development that sought to bring affordable graduate student housing to campus, but threatened the removal about 1,000 trees from campus, student activists said. (Astrid Riecken/For The Washington Post)

Figure 43 Guilford Woods Protest - UMD Officials pause controversial graduate housing project - The Washington Post, by Lauren Lumpkin

As a result of weeks of backlash, leaders at the University of Maryland paused the controversial housing development project and were looking for other solutions that met the housing need but would also be a more sustainable solution for the campus and surrounding ecosystems. “It remains our priority to provide housing options that are located with easy access to campus and to public transportation, including the forthcoming Purple Line,” President Pines said.⁶⁸ With the commitment from the university to still provide housing options, possible alternate sites were proposed to the university.



Guilford Woods (green) and several more desirable locations for graduate housing (blue) close to the University of Maryland campus (red)

Figure 44 Proposed Alternate Site Locations – Save Guilford Woods

⁶⁸ “University of Maryland Officials to Pause Controversial Western Gateway Housing Project - The Washington Post.”

One of the possible solutions was to develop Parking Lot 1, which was still located on the western side of campus but had a more positive impact on the surrounding environment. The development of Parking Lot 1 has many advantages which includes a sustainable approach to urbanism by converting existing parking surface to housing, improvement in stormwater runoff, convenience of living on-campus, and transit access with the upcoming Purple Line Metro which reduces the need for high parking demand at this location.⁶⁹

Strategic Implementation

Parking Lot 1, found on the western portion of the University of Maryland would become the site for an Academic Village that will be owned and operated by the University of Maryland’s Facilities Management and Resident Life. The location of Parking Lot 1 falls on the main north-south axis of UMD Global Campus, Tawes Quad, McKeldin Library and Mall, as well as the Reckord Armory which can be seen in figure 45. The transition from a surface parking lot into an academic village would result in the removal of 1,580

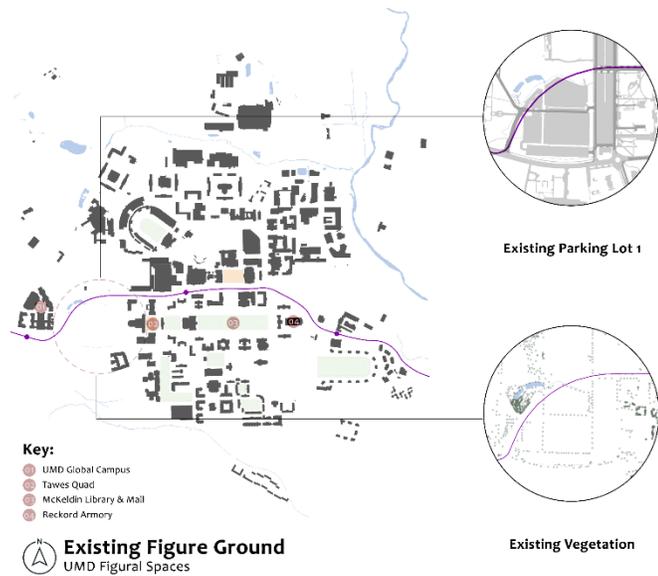


Figure 45 Existing UMD Figure Ground - Existing Conditions and Figural Space. By Author

⁶⁹ “Development Plan – Save Guilford Woods.”

parking spaces and with the understanding that the trees removed from the site would be placed back within the community.



Figure 46 Site Transformation Diagram – Parking Lot 1. By Author

Early design transformations of Parking Lot 1 focused on the creation of both natural and built environments, which was critical for improving stormwater management of the current site. As a result, bioswales would be placed along the southern portion of the site following the Campus Drive corridor. Another key design decision was to extend McKeldin Mall to form a communal lawn in the center of the site and give each community its own courtyard, which was a response to the quadrangle from the original residential college system found at Universities like

Oxford and Yale and expanding on the South Hill Community found at University of Maryland. This process led to several conceptual planning of Parking Lot 1 and the surround context that recognized the importance of establishing both mixed use development that responded to the Purple Line Metro system and well as the creation of residential communities that engaged with the University of Maryland’s existing campus fabric, as seen in figure 47.



Figure 47 Conceptual Master Plan - Parking Lot 1 and Campus Drive Corridor. By Author

These initial site transformation exercises were critical in the overall design of the *West Campus Village* and the creation of the academic communities, which are based on a multi-disciplinary approach for networking and diverse learning.

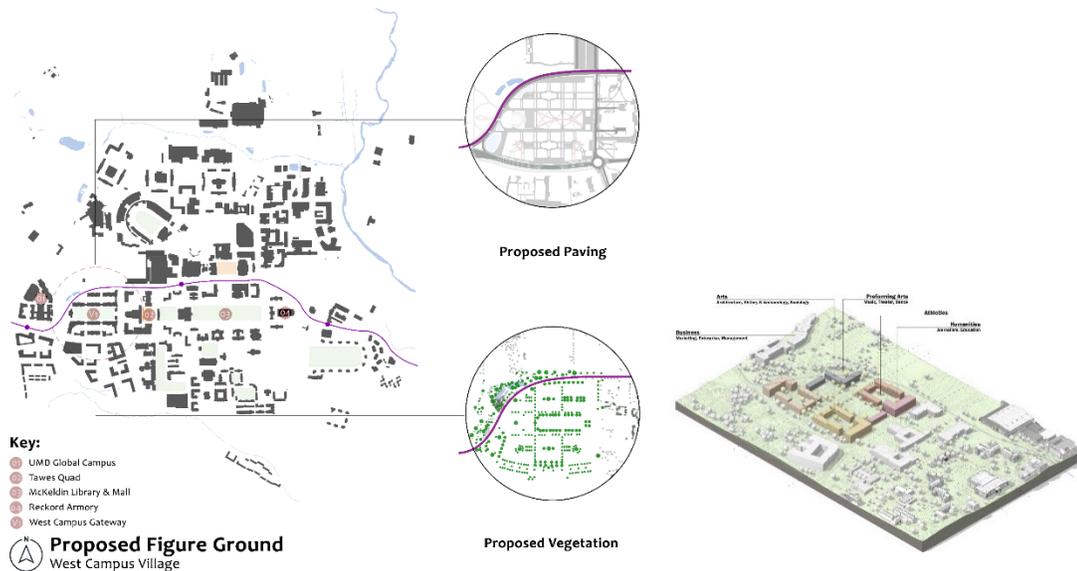
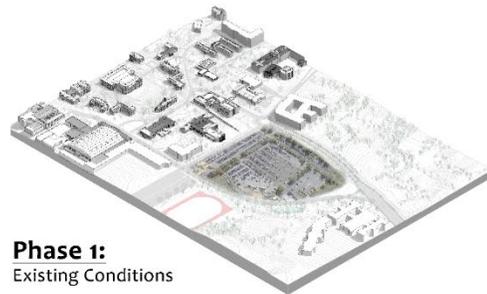


Figure 49 Proposed UMD Figure Ground - West Campus Village and Surrounding Development. By Author

Figure 48 Multi-Disciplinary Conceptual Approach to Community Development. By Author

Chapter 8: Building a Better Tomorrow at The University of Maryland

Design Proposal – The West Campus Village



Phase 1:
Existing Conditions



Phase 2:
UMD Modifications &
Purple Line



Phase 3:
McKeldin Extension &
Village Formation



Phase 4:
Building Development &
Future Planning

Figure 50 Parking Lot 1 Phasing Diagram - West Campus Village UMD. Drawn by Author

The design proposal for Parking Lot 1 would happen in four strategic phases as seen in Figure 50. The first Phase would focus on the removal of the surface parking lot, which includes the removal of 1,580 parking spots, and adding bike lines along the Campus Drive corridor. With the removal of the surface parking, Phase 2 would include the addition of the Purple Line Metro as well as campus modifications to the Architecture and Art-Sociology Buildings. The next phase, Phase 3, would focus on the formation of the overall West Campus Village in relation to the axis found through UMD Global Campus, Tawes, McKeldin, and Reckord Amory, as seen in Figure 51. Phase 4 would focus on

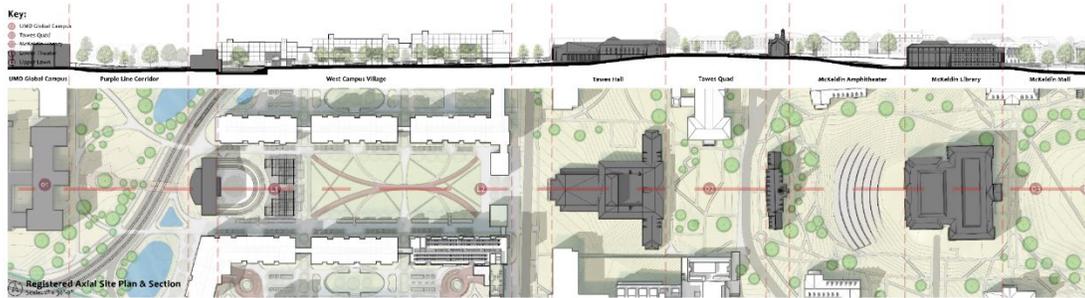


Figure 51 Register Axial Site Plan & Section - West Campus Village. Drawn by Author

building development and recognizing future development that may happen along the Purple Line and Campus Drive. The Future development being shown for this design proposal utilized master planning through the Prince George’s County Planning Department and was designed by Stantec Architecture, Inc.⁷⁰ The overall master planning was done in relation to the Purple Line Metro station found on Campus Drive and can be seen in Figure 25.

The overall proposal established six academic communities within the overall village design. Other spaces, such as the Lower Theater and Upper Lawn, plazas and courtyard spaces were also created for outdoor collaboration and social networking.

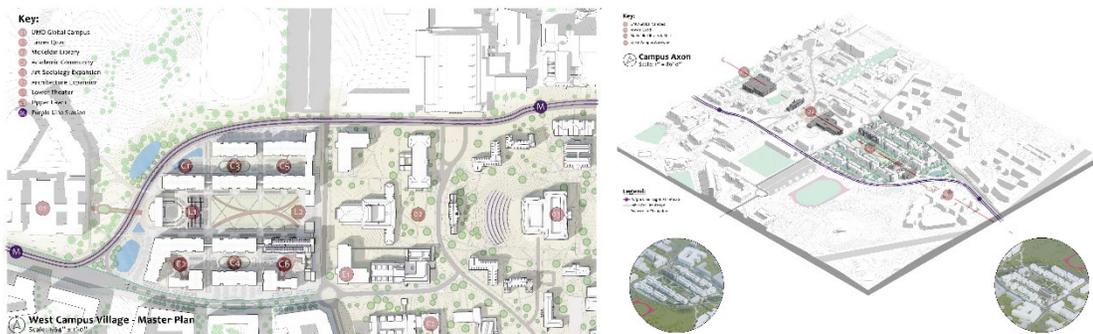


Figure 52 West Campus Village - Overall Master Plan & Axon. Drawn by Author

⁷⁰ “ARSP-JPH-Backup-PPT---FINAL---01-18-2022.Pdf,” accessed April 26, 2023, <https://www.pgparcs.com/DocumentCenter/View/19953/ARSP-JPH-Backup-PPT---FINAL---01-18-2022>.

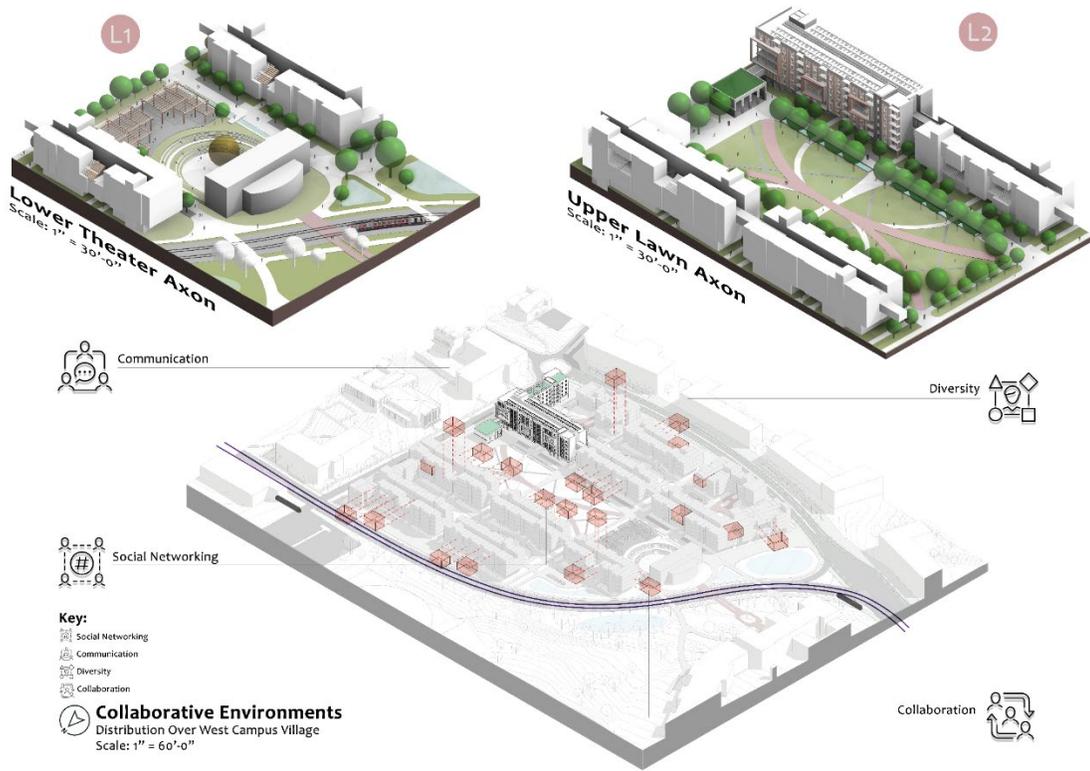


Figure 53 Upper Lawn & Lower Theater Axon Diagrams - Collaborative Environments Diagram. Drawn by Author



Figure 54 Conceptual Renderings - Lower Theater & Upper Lawn. Rendered by Author

These collaborative environments would also be integrated into the building design, as seen in Figure 53, and would allow residents to conduct more focused collaboration, research and development within their living environments and would be developed further in the building design.

Moving towards building development and design (the southeastern portion of the site and located in Academic Community 6), it was important to design the courtyard and transitional point from exterior to interior. The exterior courtyard spaces became known as the Communal Corridor because it acts as the exterior connection between the three academic communities and forms an internal plaza space found within the three communities of West Campus Village South.

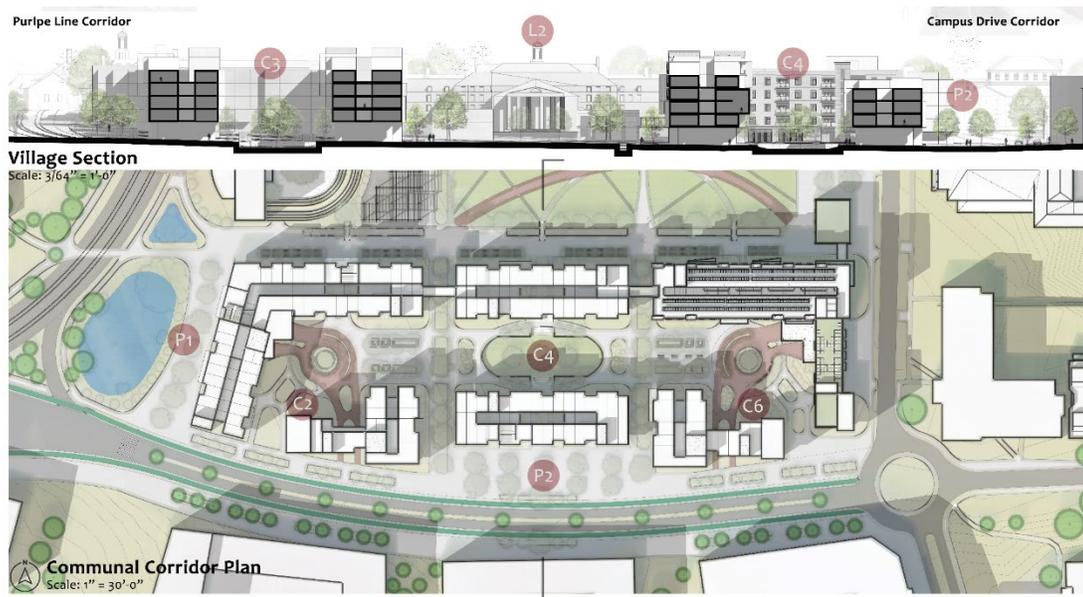


Figure 55 Communal Corridor Plan & Village Section – Conceptual Renderings. Drawn and Rendered by Author

The Communal Corridor was designed to host a variety of group settings, which would range in group scale. The southern portion of the site, along Campus drive (seen in Figure 55 and 56), also included bioswales to help with stormwater runoff

and management. This was a major concern with Guilford Woods development plan and should be addressed with the West Campus Village design proposal.

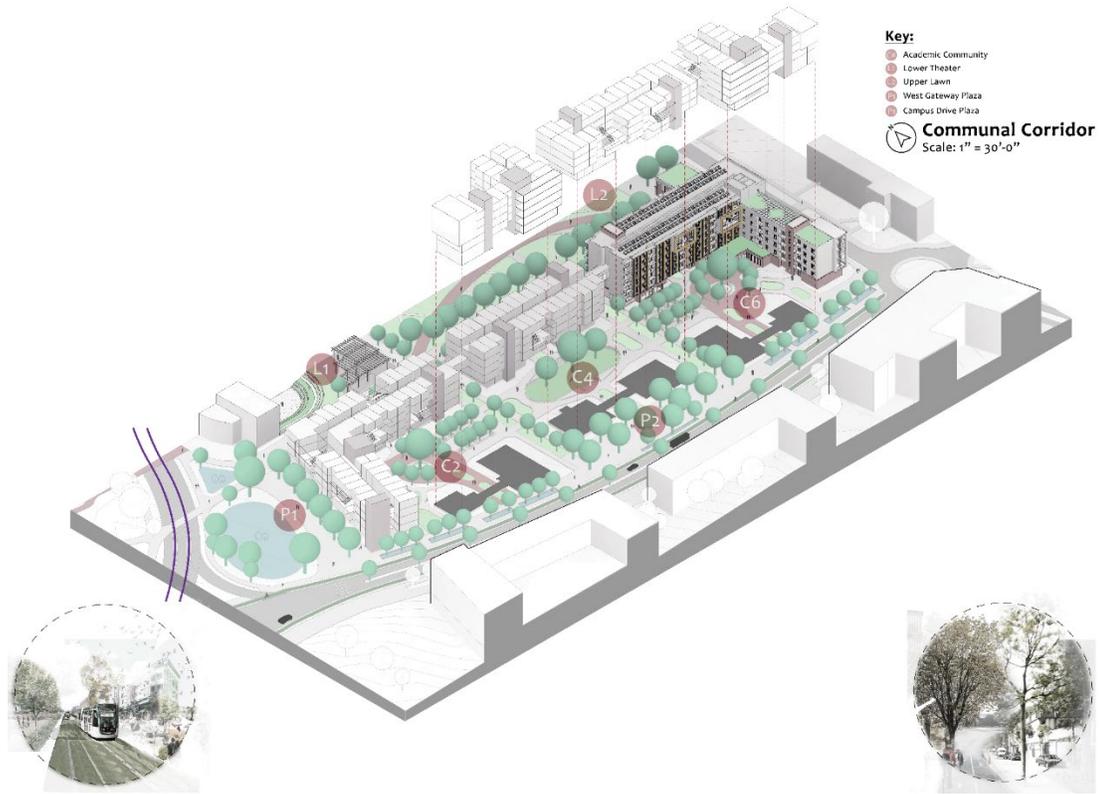


Figure 56 West Campus Village Communal Corridor Axon Diagram – Communal Plaza & Bioswale Design. Drawn and Rendered by Author

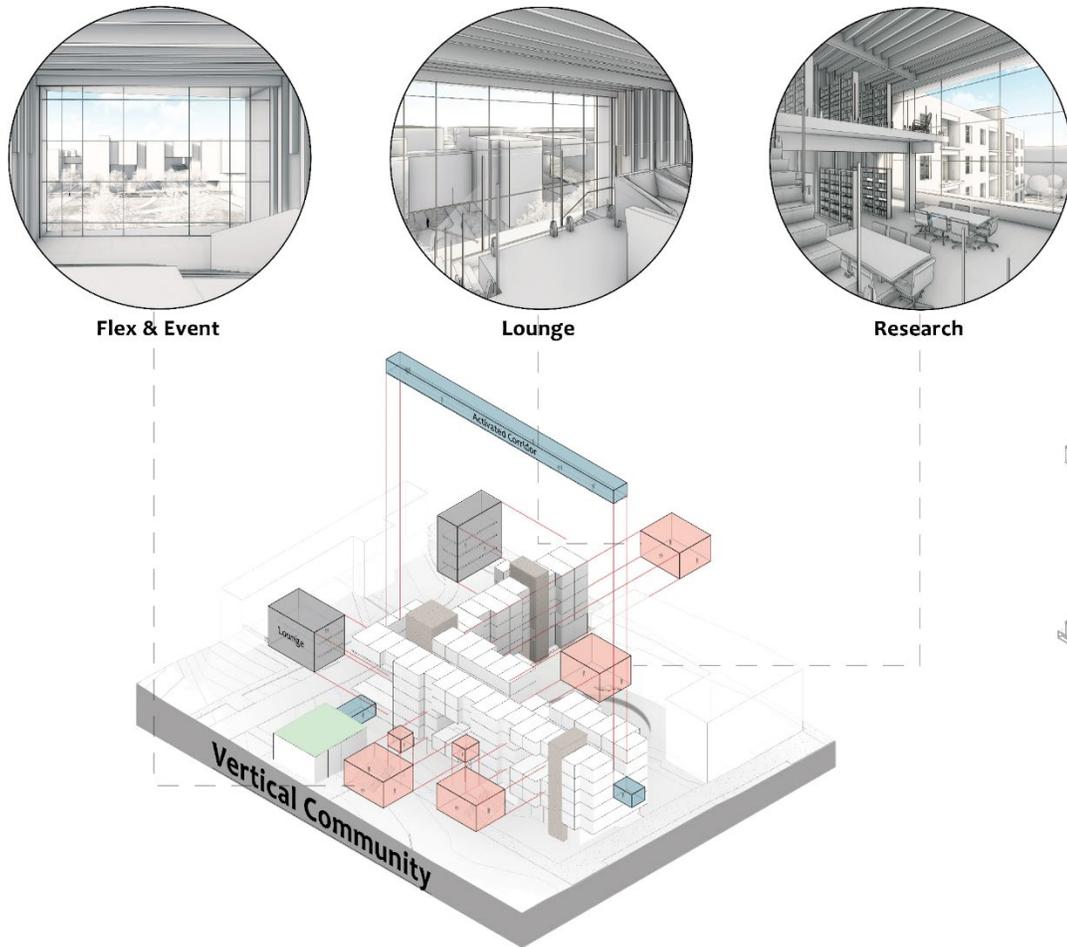
The next stage of design focused on building development and providing academic and collaborative environments in the overall housing options that would be provided at West Campus Village. The buildings themselves would be constructed of mass timber and would incorporate a variety of other materials including brick, white metal panels, and Kalwall. The ground floor would include more traditional classroom and seminar spaces that can be utilized by the University of Maryland to host regularly scheduled classes as needed. The ground floor also includes an administration wing for professors, bike storage, community lounge and flex space.

The second through sixth floors would primarily be housing units with the integration of communal spaces that can be used by the residents, or university if necessary.



Figure 57 Ground & Third Floor Plans - Building Section & South Elevation – Academic Community 6 Building Development. Drawn by Author

Within the building design, the collaborative environments (seen in Figure 53 and 57) begin to create an architectural expression on the façade of the building. These double height collaborative environments establish hierarchy in elevation and begin to incorporate a vertical community into the design proposal. This vertical community is highlighted by the collaborative environments, but also the ground floor event space and the activated corridor, which can be used by the residents as a linear gallery or exhibition space and can be seen in Figure 58.



*Figure 58 Building Development & Vertical Communities- Incorporation of Collaborative Environments.
Diagram by Author*

The collaborative environments found with the building can be used in a variety of different ways. These spaces can be utilized as a research base area where you have more of a library setting. They could also be used as a quiet study area, or a lounge, where smaller groups of people can work with one another. The university could also utilize these spaces and host events or smaller lectures in the flex space as seen in Figure 58.

In total, this housing development, part of Academic Community 6, would be able to house 209 students. Undergraduate residents would have the ability to be housed in a 4-person or a 6-person suite. There is also a Resident Assistant (RA) suite (one suite per floor) that could be rented by a graduate student and serve as a mentor to the undergraduate students located on their floor. In total there are 42 total 4-person suites, an addition six 6-person suites, and five total RA suites. This makes for a total of 53 units being offered in the building.

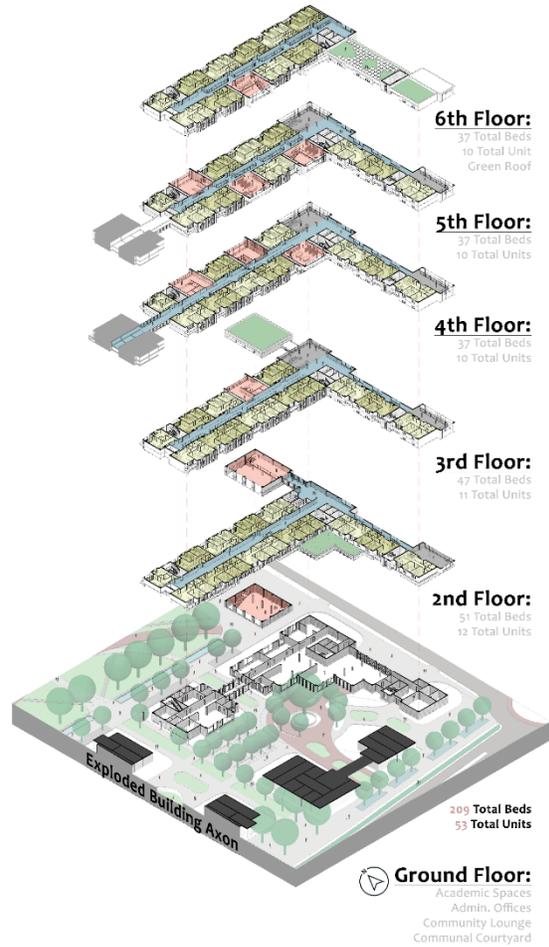


Figure 59 Exploded Building Axon - Vertical Community Integration. Drawn by Author



Figure 60 Typical Residential Unit Layouts - Drawn by Author

Conclusion



Figure 61 Academic Community 6 - Conceptual Rendering. Rendered by Author

In total, the West Campus Village would be able to house 1,500 total students across all six Academic Communities. Throughout the design process across key questions that would help influence the design overall. Those questions were framed around how architecture can help influence the ways we live, but also how people learn from one another. The variety of scales that were designed during this process, from the dorm room and suite design, and up to the Upper Lawn are intended to host a variety of scales of people to influence the social networking and collaboration opportunities. From smaller group settings to larger community driven events, there are spaces waiting to be utilized by residents and the University of Maryland.

This thesis aimed to establish Residential Learning Communities that encouraged people to work together towards a common goal and foster a close-knit community that engaged the university's existing fabric. In the end, the design proposal of West Campus Village used a multi-disciplinary approach to encourage strong diversity within the communities and to allow for strong social networking and collaboration between residents. This stemmed from the idea that people learn just as

much from their peers outside the classroom as they do from their professors inside the classroom.

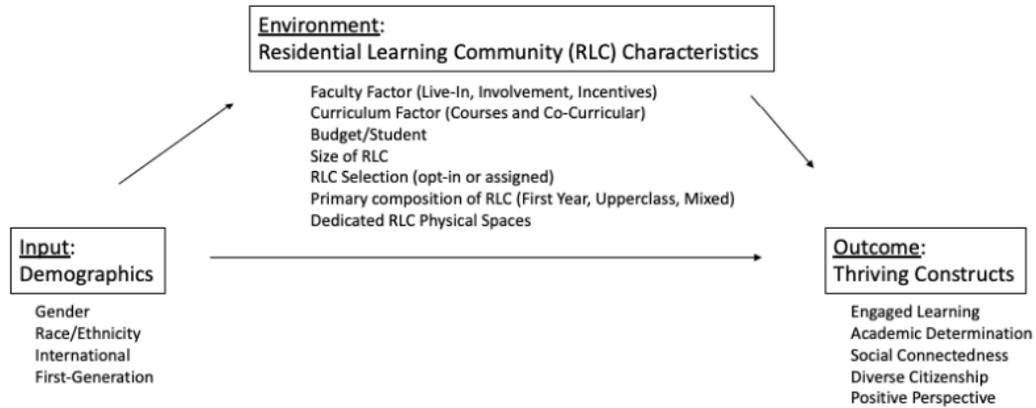


Figure 62 Residential Learning Communities Diagram - Retrieved from *Thriving in Residential Learning Communities*

The West Campus Village proposal provides solutions to several of the overarching issues that the University of Maryland looks to address. First, the Purple Line Metro system allows the university to begin to transition away from vehicular transportation to more sustainable alternatives and the removal of larger surface parking lots. The West Campus Village also addresses the issue of underclassmen on-campus housing that the university has seen in recent years due to higher number of incoming students. Finally, the design proposal addresses several environmental issues including heat island effect, stormwater management, and carbon emission. All in all, the West Campus Village proposal serves as a precedent for the University of Maryland as the university moves towards a more sustainable future.



Figure 63 West Campus Village Section Perspective - North South Section. Drawn by Author

Bibliography

- “Approved Adelphi Road-UMGC-UMD Purple Line Station Area Sector Plan and Sectional Map Amendment by Maryland-National Capital Park & Planning Commission - Issuu,” September 27, 2022.
https://issuu.com/mncppc/docs/approvedadelphiplan_final.
- APTAdmin. “Public Transportation Facts.” *American Public Transportation Association* (blog). Accessed March 16, 2023. <https://www.apta.com/news-publications/public-transportation-facts/>.
- “ARSP-JPH-Backup-PPT---FINAL---01-18-2022.Pdf.” Accessed April 26, 2023.
<https://www.pgparcs.com/DocumentCenter/View/19953/ARSP-JPH-Backup-PPT---FINAL---01-18-2022>.
- “Average Rent in College Park & Rent Prices by Neighborhood - RentCafe.” Accessed April 20, 2023. <https://www.rentcafe.com/average-rent-market-trends/us/md/college-park/>.
- Bisnow. “University of Maryland Addresses Housing Shortage in Big Way.” Accessed December 19, 2023. <https://www.bisnow.com/national/news/student-housing/university-of-maryland-bulking-up-housing-surrounding-community-48856>.
- “Colleges and Schools,” December 12, 2016. <https://www.umd.edu/colleges-and-schools>.
- “Creating a Healthy Environment 2,” n.d.
Department of Resident Life | University of Maryland. “South Hill Community.” Accessed May 22, 2023. https://reslife.umd.edu/halls/south_hill | <https://reslife.umd.edu/>.
- Design Collective. “MNCPPC - Purple Line.” Accessed May 21, 2023.
<https://www.designcollective.com/portfolio/project/mncppc-purple-line/>.
- “Development Plan – Save Guilford Woods.” Accessed December 19, 2023.
<https://saveguilfordwoods.wordpress.com/proposed-development/>.
- Division of Research. “Facts and Figures.” Accessed April 20, 2023.
<https://research.umd.edu/who-we-are/facts-and-figures> | <https://research.umd.edu/>.
- “Economic Benefits of Smart Growth and Costs of Sprawl : ConservationTools.” Accessed March 19, 2023. <https://conservationtools.org/guides/96-economic-benefits-of-smart-growth-and-costs-of-sprawl>.
- “Facilities Master Plan | Facilities Management.” Accessed May 21, 2023.
<https://facilities.umd.edu/facilities-master-plan>.
- “From MAC to UMD.” Accessed April 26, 2023.
<https://uofmd.maps.arcgis.com/apps/Cascade/index.html?appid=1bc4bd27ad6b47f1803509164c5bf7f0>.
- Frumkin, Howard. “Urban Sprawl and Public Health.” *Public Health Reports* 117, no. 3 (2002): 201–17.
- “History and Mission,” December 8, 2016. <https://www.umd.edu/history-and-mission>.
- “Housing: Resident Life < University of Maryland.” Accessed April 20, 2023.
<https://academiccatalog.umd.edu/undergraduate/campus-administration-resources-student-services/student-programs-services/housing-resident-life/>.

“Jdownloads.Pdf.” Accessed May 21, 2023.
<https://purplelinemd.com/component/jdownloads/?task=download.send&id=53&catid=16&m=0&Itemid=108>.

MacDonald, John M., Robert J. Stokes, Deborah A. Cohen, Aaron Kofner, and Greg K. Ridgeway. “The Effect of Light Rail Transit on Body Mass Index and Physical Activity.” *American Journal of Preventive Medicine* 39, no. 2 (August 1, 2010): 105–12. <https://doi.org/10.1016/j.amepre.2010.03.016>.

Maryland Today. “Rents Already Rising Along Purple Line, UMD Study Finds,” April 26, 2023. <https://today.umd.edu/rents-already-rising-along-purple-line-umd-study-finds>.

Maryland Today. “The Promise (and Pain) of the Purple Line,” April 18, 2023. <https://today.umd.edu/the-promise-and-pain-of-the-purple-line>.

MDOT MTA Purple Line. “Frontpage.” Accessed April 23, 2023. <https://www.purplelinemd.com/>.

MDOT MTA Purple Line. “Overview.” Accessed May 21, 2023. <https://purplelinemd.com/about-the-project/overview>.

MDOT MTA Purple Line. “Stations.” Accessed May 21, 2023. <https://www.purplelinemd.com/about-the-project/stations>.

O’Hara, Robert James (1959-). “Residential Colleges and Collegiate Universities Worldwide.” Accessed April 20, 2023. <https://collegiateway.org/colleges/>.

Planning. “Why TOD.” Accessed March 16, 2023. <https://planning.maryland.gov/Pages/default.aspx>.

“Residential Colleges | Yale College Undergraduate Admissions.” Accessed April 20, 2023. <https://admissions.yale.edu/residential-colleges>.

“Residential Colleges | Yale College Undergraduate Admissions.” Accessed May 22, 2023. <https://admissions.yale.edu/residential-colleges>.

“Residential Colleges - Defining Residential Colleges and Related Terms, The Classic Residential College, Benefits of Residential Colleges.” Accessed April 20, 2023. <https://education.stateuniversity.com/pages/2367/Residential-Colleges.html>.

Resnik, David B. “Urban Sprawl, Smart Growth, and Deliberative Democracy.” *American Journal of Public Health* 100, no. 10 (October 2010): 1852–56. <https://doi.org/10.2105/AJPH.2009.182501>.

“Shuttle-UM | UMD DOTS.” Accessed April 23, 2023. <https://transportation.umd.edu/shuttle-um#schedules>.

StudySmarter US. “Transit Oriented Development: Definition | StudySmarter.” Accessed March 16, 2023. <https://www.studysmarter.us/explanations/human-geography/urban-geography/transit-oriented-development/>.

Tableau Software. “Progress towards Carbon Neutrality at the University of Maryland, College Park. Highlights Greenhouse Gas Emissions Reductions, Source and Site Energy Consumption, and Carbon Offset Programming.” Accessed April 23, 2023. https://public.tableau.com/views/MeasuringSustainableUMDProgressCarbonNeutrality/CN?:embed=y&:showVizHome=no&:host_url=https%3A%2F%2Fpublic.tableau.com%2F&:embed_code_version=3&:tabs=no&:toolbar=yes&:animate_transition=yes&:display_static_image=no&:display_spinner=no&:display_overlay=yes&:display_count=yes&:language=en-US&:loadOrderID=0.

Tableau Software. “Progress towards Sustainable Development and Smart Growth at the University of Maryland. Highlights Green Buildings, Alternative Transportation, and Biodiversity.” Accessed May 21, 2023.
https://public.tableau.com/views/MeasuringSustainableUMDProgressSmartGrowthAlternate/SmartGrowth?:embed=y&:showVizHome=no&:host_url=https%3A%2F%2Fpublic.tableau.com%2F&:embed_code_version=3&:tabs=no&:toolbar=yes&:animate_transition=yes&:display_static_image=no&:display_spinner=no&:display_overlay=yes&:display_count=yes&:language=en-US&:loadOrderID=0.

The Diamondback. “High Confirmation Rate for Incoming UMD Freshmen Spurs Housing Stress among Students,” August 1, 2023.
<https://dbknews.com/2023/08/01/incoming-freshmen-on-campus-housing-capacity/>.

“The Evolution of the College Dorm Chronicles How Colleges Became Less White and Male | History | Smithsonian Magazine.” Accessed May 22, 2023.
<https://www.smithsonianmag.com/history/history-college-dorms-180971457/>.

TheCityFix. “Why Smart Growth Cities Are Safer, Healthier, and Wealthier |,” March 25, 2015. <https://thecityfix.com/blog/new-climate-economy-sprawl-cities-sustainable-urban-development-helen-mountford-robin-king/>.

“TOD Standard – ITDP.” Accessed March 19, 2023. <https://tod.itdp.org/what-is-tod/eight-principles-of-tod.html>.

“Transit-Oriented Development | FTA.” Accessed March 16, 2023.
<https://www.transit.dot.gov/TOD>.

“Transit-Oriented Development | Planning for Complete Communities in Delaware.” Accessed March 16, 2023.
<https://www.completecommunitiesde.org/planning/complete-streets/tod/>.

Tuor Sartore, Simone N., and Uschi Backes-Gellner. “Educational Diversity and Individual Pay: The Advantages of Combining Academic and VET Graduates in the Workplace.” *Empirical Research in Vocational Education and Training* 12, no. 1 (November 10, 2020): 13. <https://doi.org/10.1186/s40461-020-00099-4>.

“University of Maryland Officials to Pause Controversial Western Gateway Housing Project - The Washington Post.” Accessed December 19, 2023.
<https://www.washingtonpost.com/education/2021/10/29/umd-pause-western-gateway-guilford-woods/>.

“USM Data Journals - Statewide Headcount Enrollment Program Area by Level Report for University of Maryland, College Park- USM IRIS.” Accessed April 23, 2023. <https://www.usmd.edu/IRIS/DataJournal/Enrollment/?report=Program-Area-by-Level>.

Westwood Professional Services. “History of Transit-Oriented Development.” Accessed March 16, 2023. <https://westwoodps.com/recent-blog-posts/history-transit-oriented-development>.

“What Is TOD? - Institute for Transportation and Development Policy,” July 24, 2014. <https://www.itdp.org/library/standards-and-guides/tod3-0/what-is-tod/>.

Yanni, Carla. *Living on Campus: An Architectural History of the American Dormitory*. Minneapolis: University of Minnesota Press, 2019.