












Figure 4.45: Georgia Ave. Treatment

**LEGEND**

- Campus Boundary
- Campus Spine
- Neighborhood Spine
- Secondary Connection
- Nodes
-  Welcome Sign
-  Planting
-  Bench
-  Gathering
-  Bike
-  Pedestrian
-  Historic Gate
-  Sidewalk/Treepit
-  Open Space/Amenities

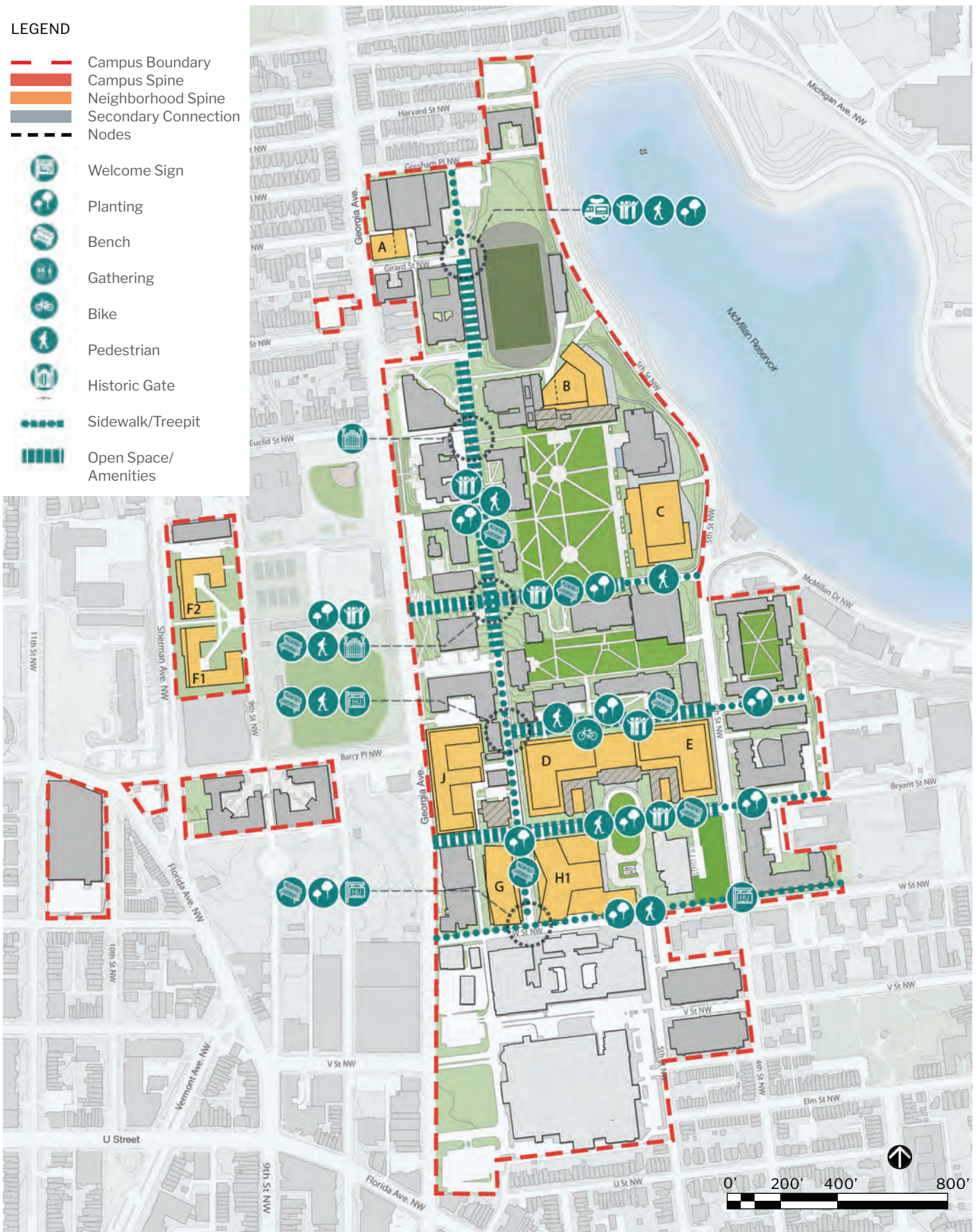


Figure 4.46: Interior Treatment



**Figure 4.47: Proposed Pervious vs. Impervious**

#### 4.4.3 Permeable Surface

- Main campus: 3,927,439 sGSF
- Existing/Proposed Building Footprints: 5,979,281 GSF (39.60%)
- Proposed Green Space: 436,693 GSF (11%)

#### 4.4.4 Sustainability Considerations

##### Vision & Purpose

Howard University is a catalyst for change within our society. It embodies the fundamentals of resilience and vision for a sustainable future through its pursuit of human development, and of improving the human condition. As a physical manifestation of such ideas, the campus should reflect these goals in its academics, infrastructure, buildings, operations, administration, and culture of engagement.

As the University prepares students for leadership amid a changing climate, it needs to infuse the student experience with sustainable thinking at every scale. The 2011 Master Plan identified a key planning principle for the University as “Embrace Sustainability.” The challenge for this updated version of the Master Plan would be to “Prioritize Sustainability” in all development, planning, and projects.

##### Summary

The sustainability guidelines include recommendations for stormwater management, carbon and energy use reduction, sustainable buildings, and recommendations for implementation.

Partnership and collaboration with the HU Office of Sustainability and other key stakeholders should be prioritized in during the design and further processing projects to implement these recommendations. This Master Plan should also consider the outcomes of the resilience planning under way by the DC Mayor’s College and University Sustainability Pledge and Second Nature.

These guidelines support previous recommendations for the University to explore the possibility of participating in the Sustainability Tracking, Assessment and Rating Systems (STARS program) developed by the Association of the Advancement of Sustainability in Higher Education (AASHE). This framework is designed specifically for Universities to implement sustainability in all sectors of higher education, from education to research to operations and administration. Even without certifying, the categories serve as a valuable framework for long range planning, measurements, and improvement.

##### Energy

- New buildings should be designed to LEED / green building code standards & be required to use energy modeling as a design tool.
- Existing buildings should be benchmarked in the Energy Star system.
- Evaluate modernization of existing central utilities for cost, flexibility, asset monitoring, and sustainability criteria.



**Table 4.20: Sustainability Wheel**

### Community

Develop & improve campus strategy for education, research, and employee development in campus sustainability strategies.

- Create more usable space for gathering.
- Prioritize projects that improve safety.
- Integrate USDOTs complete streets strategies.

### Materials

- Implement waste audit to benchmark existing waste streams and identify opportunities for improvement.
- Evaluate building materials (foundation and structure) to reduce embodied CO2 emissions.

### Ecology

- Replace turf grass with native & adaptive vegetation.
- Evaluate integrated pest management strategies.

### Resilience

- Resilience assessment to evaluate economic, social, cultural, and physical issues of risk analysis / mitigation.

### Wellness

- Sustainable food systems
- Expand or improve community garden with green house for year round use.
- Improve walk ability of campus

### Water Management

- Replace or adapt existing fixtures (lavatories, shower heads)
- Condensate capture and reuse.
- Meter & track water usage by building.
- Incorporate low-impact development strategies.

### Engagement & Administration

The primary focus of this document is on the buildings, infrastructure and built environment. It is recommended to have expand the role of the sustainability committee, office, and/or officer tasked by the administration or governing body. The University’s holistic approach to sustainability is not readily available and clear to students and there should be increased opportunity for this group to advise and implement policies and programs related to sustainability on campus and to develop a plan that includes measurable sustainability objectives and/or include the integrated concept of sustainability in the institution’s highest guiding document.

There is interest from the student body in improving the culture and awareness of sustainability issues on campus. It is recommended that the University conduct an assessment of campus sustainability culture that focuses on sustainability values, behaviors and beliefs. A strategy for campus engagement can be developed through student educators, programs for student life, research opportunities, and employee development. With student and community buy-in, the likelihood of the initiatives being accepted by most is high as the implementation will closely match the needs of the campus community.

## Curricular Enhancement

The University should support curriculum that furthers sustainable education. Howard University has a Green Teaching Certificate that is being piloted. This initiative aims to reward faculty members who are green teachers and to enable students to select green courses. Inventory of those programs should be conducted and identified improvements to programs. Majors, degree programs, minors, or concentrations should be catalogued for students to easily access as part of enrollment and recruitment.

## Emissions

With climate change being of utmost importance over the next 10 years, it is imperative that the University understand the climate impact of their campus. A first step would be to create an inventory to quantify the institution's greenhouse gas (GHG) and/or air pollutant emissions should be conducted to understand key pollutant liabilities and opportunities for improvement. A more detailed inventory to quantify the institution's Scope 1 and Scope 2 GHG emissions could also be completed to define a robust approach to addressing the Universities impact on climate change. As part of the larger GHG emissions evaluation, the University should develop a data management plan to collect and track information on grid-purchased electricity, electricity from on-site renewables, utility-provided steam and hot water, and stationary fuels and other energy products.

## Transportation & Access

The campus has a very high Walk Score with public transit available for most basic needs but safety on the campus is still a concern for students and employees. There are opportunities to improve non-car access on the campus, both for both safety, infrastructure, and sustainability.

With parking being consolidated on the campus, the streets should be reevaluated for opportunities to model USDOT's Complete Streets guidance which promote safety, comfort, and integration of transit networks. The 2011 Master Plan made many recommendations for Transportation Demand Measures (TDM) including increased access to the HU shuttle, bicycling, and pedestrian connectivity; this work should be re-evaluated and measured

to identify where additional improvements can be made.

A concerted effort to improve wayfinding on campus will lead to better utilization of spaces and a safer environment for students with better lighting of pathways, more greenspace along walking pathways and crosswalks on sections of busy streets.

## Energy

New or renovated buildings should be designed and built at minimum, in accordance with a published green building code, policy/guideline, or rating system. To meet climate change targets and progressive code development, the University should take a more proactive approach to high performance buildings with the goal of designing to Net Zero for all new projects by 2030. New projects should be required to use energy model as a design tool; when an energy model is performed, higher performance is a typical outcome. An energy model done early in the project might be rough and include many assumptions, versus a more detailed model later in the design process. It can also be used as a cost-control measure, not as an add-on for sustainability.

Existing buildings should be benchmarked in the Energy Star system to measure energy use and identify improvements. It is understood that the campus is undergoing modernization of the existing steam plant as the steam plant is fragile but stable. Assessment is being undertaken by Engie to assess the University's steam plant operations and equipment, and steam tunnel in order to inform decision making related to steam plant modernization, cost, utility Master Planning, asset monitoring, and sustainability.

The University is working to develop the largest renewable energy project of any historically black College and University. A large on-site solar plan for 1.3MW was proposed. College Hall has been outfitted with solar panels but it not clear how much of that plan has been implemented and identification of next steps.

There are significant opportunities for energy retrofits and building energy improvements of existing building stock. In 2017, the University completed an exterior LED retrofit project which not only improve efficiency but improve safety and

reduce maintenance costs. DCSEU (DC Sustainable Energy Utility) proved to be a key partner in this project. The University should define next phase projects and utilize rebate opportunity with the DCSEU for strategies such as interior lighting retrofits, HVAC retrofits, VFD fan improvements, and Energy Star Equipment to improve existing building performance.

## Campus Grounds & Open Space

Howard University's grounds and open space not only serve as natural gathering places and moments of respite for students and faculty but also create an opportunity for the University to make these spaces serve a functional purpose in its operation management. Priority should be given to project that create more usable space for gathering. Specific plans should be developed to improve the area behind the stadium, across the street from the reservoir, and behind the fence as it is largely unused and unlit space.

Where possible, turf grass should be replaced with native and adaptive vegetation. The 2011 Master Plan recommends improved stormwater management and integration of Low-Impact Development Practices. Further investigation should be done into the effectiveness of those projects, maintenance issues, and opportunities to make improvements as part of a complete streets approach to campus infrastructure. It is unclear if an integrated pest management plan has been created for the campus; a campus wide pest management plan is recommended to inform best practices for building boundaries, plant selection, and maintenance methods.

## Water

Similar to energy retrofits, the campus had tremendous opportunity to reduce water use when replacing fixtures to low-flow models or by adapting existing flow fixtures (such as aerators of lavatories and lower-flow showerheads). Opportunities to capture condensate in new facilities for reuse or find ways to recycle water for non-potable water demands, such as irrigation, should also be explored further. If it's not already, the University should collect data on potable and non-potable water use. This data can inform a larger water balance analysis identifying water

demands and sources to reduce the campus' potable water footprint.

## Waste

Where possible, waste should be diverted from the landfill. If it's not already, the University should collect data on waste diversion and recycling on campus or conduct a waste audit to benchmark current diversion rates and identify opportunities for improvement. Recycling education and signage should be evaluated and improved. The University should investigate opportunities for composting within food facilities where it can be properly managed and controlled for pests.

## Food & Purchasing

The University should have programs and initiatives to support sustainable food systems and minimize food waste. The University has an initiative with Sodexo to purchase local seasonal produce whenever possible and reduce inorganic and organic waste. Opportunities to measure, educate, and replicate this further should be explored. The University can help address food insecurity in the local area, specifically within the LeDroit-Shaw community, by supporting local community insecurity initiatives and new sources of healthy food access.

The current on-campus community garden should be expanded and include a greenhouse for year-round healthy food production that can be served in the two dining halls on campus. Cooperation with local CSAs and other farms will help in reducing the cost of healthy food options. By providing more opportunities for healthy food options on campus, there may be more upperclassmen willing to remain on the food plan.

There are opportunities to apply sustainability criteria when making procurement decisions, whether that's paper goods or cleaning supplies for the University. As those purchasing contracts are up for renewal, the University should pursue environmentally and socially preferable products where available.

## Resilience

To accurately assess how to respond to a changing education landscape, the University needs to perform an initial resilience assessment of the risks

associated to the campus. Resilience should start with an underlying evaluation of climate change risks but can also be defined more broadly to address economic, social, and cultural resilience. With ever decreasing public funding for education and research, some campuses are utilizing creative approaches to fund capital projects as well as long term maintenance. Adequately supporting the physical campus without overburdening students through tuition and fees is an increasing challenge. Higher education leaders also need to take steps to understand and increase their adaptive capacity and partner with communities to assess and enhance regional resilience.

### Financial Incentives

The District of Columbia has a number of financial incentives for pursuing sustainable building and land practices. Two programs that fit in well with the project location and planned project design is the Stormwater Retention Credit trading program and the RiverSmart Rewards program.

Projects are eligible to pursue both the Stormwater Retention Credit Trading Program and the RiverSmart program. The intent of both programs is to encourage property owners and building owners to utilize green infrastructure on site using low impact development strategies such permeable pavers, rain gardens, green roofs, shade trees, and rain barrels. The stormwater retention credit trading program is more focused on limiting impervious surfaces to focus on the volume of captured water while the RiverSmart program is centered on how these low impact development strategies can improve water quality.

### Stormwater Retention Credit Trading Program

The project is located in the Combined Sewer System (CSS) which means the project is not eligible to participate in the SRC Price Lock Program but can still participate in trading their stormwater retention credits to other CSS projects located in the district. The project is not eligible to trade with projects located in the MS4 area. Please refer to the map which shows Howard as located within the CSS region.

For more details about the program, please refer to the program on the DOEE website: <https://doee.dc.gov/src>

### RiverSmart

The project may be eligible for a number of RiverSmart Rewards based upon the strategies identified by the team for managing stormwater on site.

### Green Building Requirements (Guidance Provided Courtesy of DOEE)

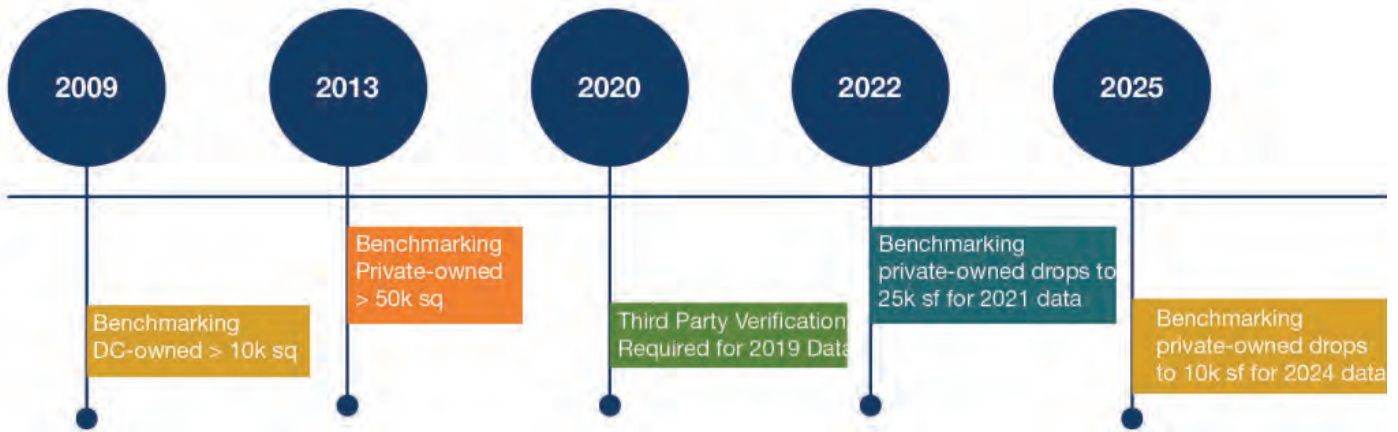
In accordance with the Green Building Act of 2006, buildings in the district must be LEED certified. The below flowchart that helps a project determine if the type and level of certification the project will need to pursue: Enterprise Green Communities, LEED Certified, LEED Silver, or LEED Gold.

All new projects, alterations or new construction, should follow the guidance provided by the following flowchart to define certification requirements.

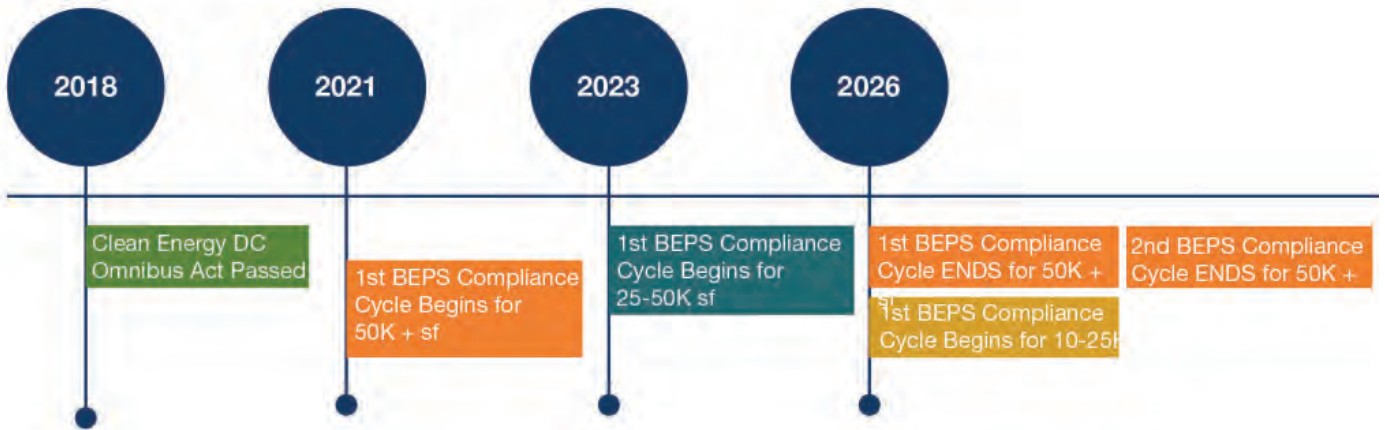
The Clean Energy DC Omnibus Act was passed in 2018 which established the District's Building Energy Performance Standards. These requirements focus primarily on energy use reduction and tracking in building operations and must be met in addition to those outlined in the Green Building Act of 2006. This new act will require new buildings to be designed for future energy requirements and may require existing buildings to be renovated to meet performance standards.

According to the Building Energy Performance Standards (BEPS), starting in 2021, privately owned buildings that are at least 50,000 SF must submit benchmarking data for the first full calendar year of data after a certificate of occupancy is secured. Publicly owned buildings that are at least 10,000 SF must submit benchmarking data for the first full calendar year of data after a certificate of occupancy is secured. This means, if a private building greater than 50,000 or a public building greater than 20,000 sf building receives its certificate of occupancy any time in 2019, it will need to submit benchmarking data for calendar year 2020 by April 1, 2021. If the project reports energy performance below a specific energy performance threshold, it will be required to improve their energy efficiency over the next 5 years. Projects below the performance threshold will be able to choose between a performance

**BENCHMARKING CHANGES**  
(Changed in Clean Energy Act)



**BEPS COMPLIANCE CYCLES**



**Table 4.21: Sustainability Benchmark**

pathway, which requires that they document a 20% reduction in energy usage over the 5-year

These benchmarking requirements are evolving and becoming more stringent over time and as outlined the graphic above.

Renovations are still regulated by the Green Construction and Energy Conservation Codes.

Non-residential tenants are required to provide the building owner (or designee) all energy and water

use data within 30 days of request, though they are not personally responsible for submitting a benchmarking report.

**4.4.5 Proposed Infrastructure & Utilities**

**Stormwater Management Strategy**

The Department of Energy and Environment (DOEE) Stormwater Management (SWM) requirements are applicable to:



A. New buildings that will disturb more than 5,000 square feet of soil and as such, these sites shall be required to retain the 1.2-inch storm event.

B. Buildings that will be renovated (provided the cost of the sites renovation exceeds 50% of the assessed market value of the structure for the most recent year, as recorded in the real property assessment database maintained by the District of Columbia's Office of Tax and Revenue) shall be required to retain the 0.8-inch storm event.

For this study it is assumed that the 100% of the stormwater management requirement can/will be attained on-site. If this is not the case, offsite stormwater management retention credits (SRCs) will be required, and the owner will acquire these credits or agree to pay DOEE's annual in-lieu fee. Currently, there are over 1.1 million credits in the DOEE SWM Database and the 2017 average SRC price was \$2.02 per credit. The DOEE in-lieu fee is currently \$3.78 per credit. These fees or credits need to be paid/acquired every year for the life of the project.

Current designs on most buildings in the District utilize one or a combination of the following DOEE approved SWM facilities (depending on the final computations):

Intensive and/or Extensive Green Roof DOEE currently allows additional impervious area to drain to the green roof, so long as the area does not exceed the area of the green roof itself. This will help reduce the amount of green roof that is required to be installed.

Bioretention (Rain Gardens) Facilities These require more excavation and work, but they can handle a larger amount of stormwater within a smaller footprint than a Green Roof. Infiltration testing will be helpful in determining overall efficiency.

Cisterns Storm water could be used for cooling towers, and/or irrigation of grass areas and plants (but not green roofs or bioretention facilities), and/or flushing toilets, etc.

Permeable Pavers PaveDrain Blocks or similar product could provide a suitable permeable surface that provides a walkable and/or drivable surface. Pavers can also be used to collect runoff and convey it to a bioretention in a more aesthetic way than a trench or area drain.

Tree Planting and Tree Preservation DOEE allows stormwater management credit for both small and large trees

The entire Howard University Central Campus is located within the Combined Sewer System (CSS) Tunnel sewershed.

Normally, a building that needs to meet the DOEE SWM requirement will need to meet a minimum of 50% of the sites' SWM requirement on-site and the remaining requirement could be met by paying a fee to DOEE or by buying Stormwater Retention Credits (SRC's) from another project in the city which exceeded its site's requirement. Per the 2020 Stormwater Guidebook, if a building site drains to the CSS from a sewershed where CSOs will be reduced with storage tunnels (which is the entire Howard Central Campus), there is no minimum on-site SWM retention requirement. There is still the SWM detention requirements that must be met on-site, however.

Projects that use SRCs to meet their Off-site Retention Volume (Offv) for a site in the CSS areas where CSOs will be reduced with storage tunnels and that achieve less than 50% of the Stormwater Retention Volume (SWRv) on site may use SRCs for projects that are part of the same common plan of development. This means we can design a new building (or building renovation) and not meet the normal 50% of the Stormwater Management requirement at that building, as long as another part of the campus is designed to make up the difference in the SWM requirement. This provides us with the flexibility to utilize any of the below approaches on a case by case basis to maximize the design's efficiency.

Each individual site that is required to meet the DOEE SWM requirement could be designed with one or a combination of the previously mentioned SWM facilities.

OR

One site could be overdesigned and generate SRC's that could be used for a site that does not meet its onsite requirement.

**LEGEND**

- - - Campus Boundary
- - - Campus Green Space
- Proposed Buildings
- Proposed Green Roofs



**SWM OPTIONS:**

1. Intensive and Extensive Green Roofs
2. Bioretention Facilities
3. Cisterns
4. Permeable Pavers
5. Tree Planting & Tree Preservation

**Figure 4.48: Stormwater Management**

OR

A regional approach could be used to collect stormwater and have it be retained.

OR

A combination of any of the above.

#### **4.4.6 Green Area Ratio**

The Green Area Ratio (GAR) requirements are applicable to:

1. Depending on the zoning of the property, all new buildings shall be required to meet the Green Area Ratio (GAR).
2. Buildings that will be renovated (provided the cost of the sites renovation exceeds 100% of the assessed market value of the structure for the most recent year, as recorded in the real property assessment database maintained by the District of Columbia's Office of Tax and Revenue) shall be required to meet the zoning imposed Green Area Ratio (GAR).

#### **Green Area Ratio Optional SWM Strategy for Campus Green:**

##### **Cisterns to Irrigate Campus Green Space:**

An optional stormwater management program could be designed on a large scale that provides collection of storm water from not only the current landscaped area boundaries but could also capture runoff from existing adjacent university buildings. This could be achieved by the use of large underground cisterns. The stormwater is captured, filtered (through pretreatment facilities), directed to the cistern, and reused using a drip irrigation system. This collected stormwater could feed the trees, plants, and grass areas in the universities network of green spaces while reducing the demand of water utilized from DC WATER mains. It is anticipated that the storm water system will generate enough reused water annually and fulfil up to 80% of the green spaces water demand. This stormwater reuse system could hold and treat at least the first 1.2 inches of rainfall to meet applicable Department of Energy and Environment's (DOEE) stormwater management regulations.

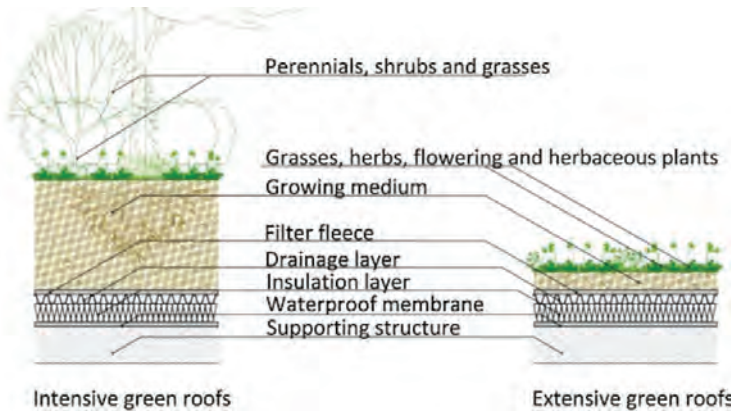


Figure 4.49: Intensive vs. Extensive Green Roofs

1

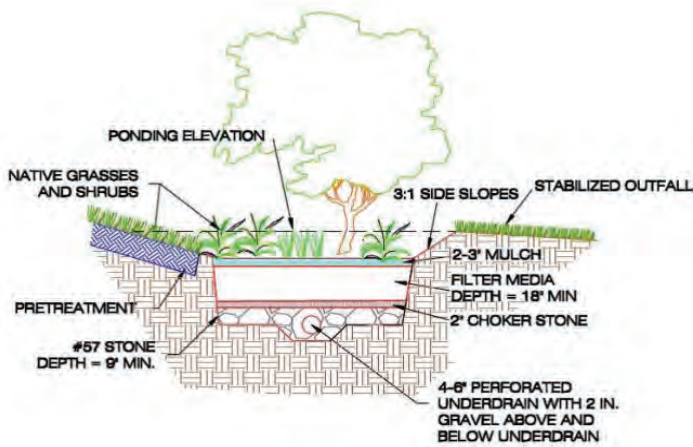


Figure 4.50: Bioretention Diagram

2

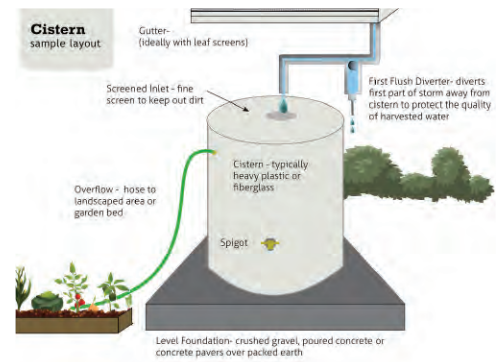


Figure 4.52: Cistern Diagram

3

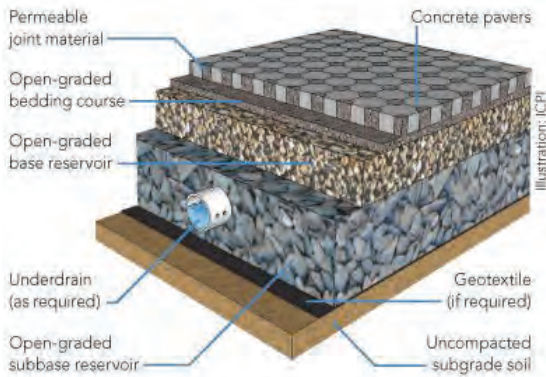


Figure 4.51: Permeable Pavers

4



Figure 4.53: Tree Planting

5

**LEGEND**

- - - Campus Boundary
- - - Campus core analysis
- core Roadway
- Peripheral Roadway
- Parking facility accessed by core roadway
- Parking facility accessed by peripheral roadway

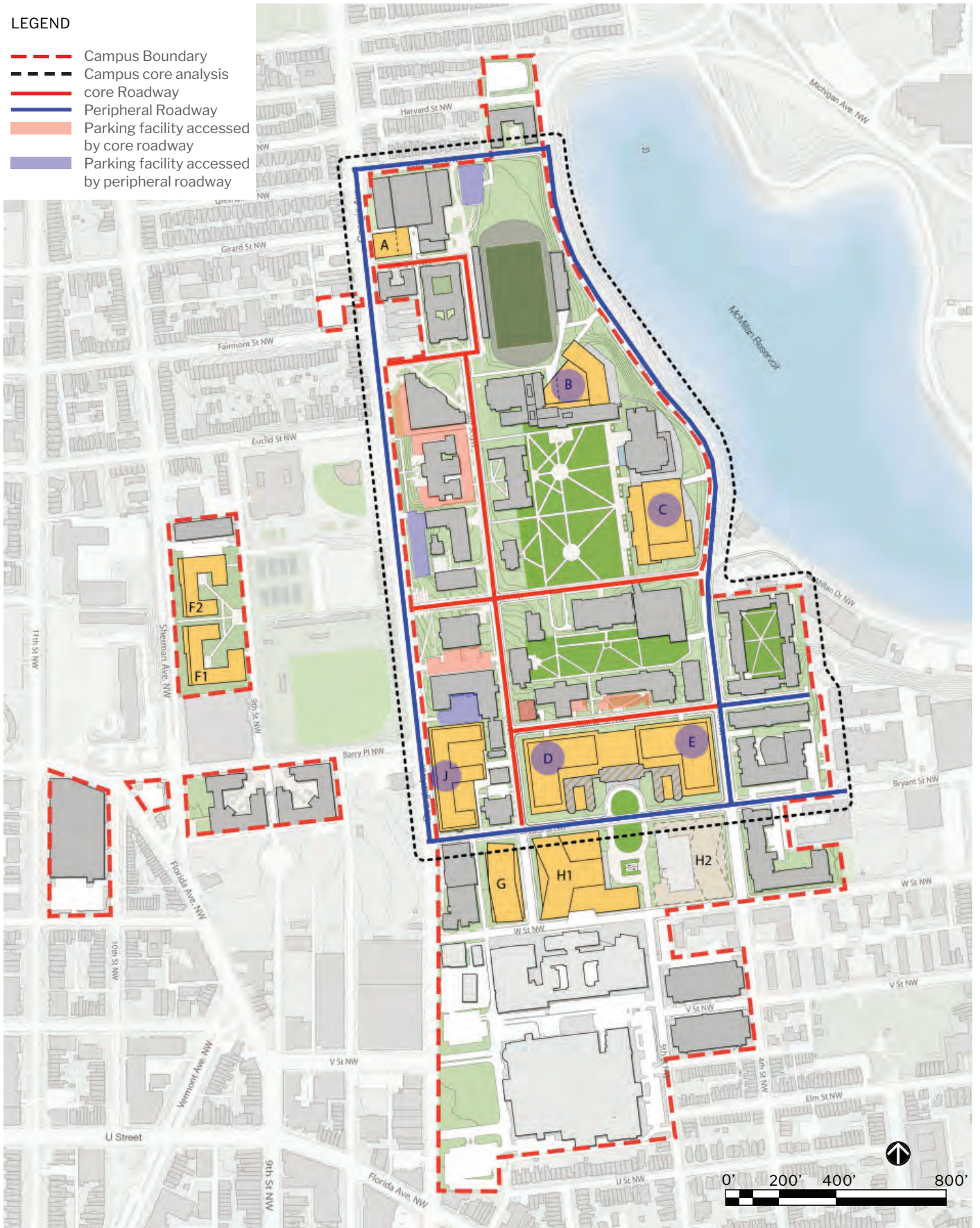


Figure 4.54: Proposed Parking by Core vs. Peripheral Access

**LEGEND**

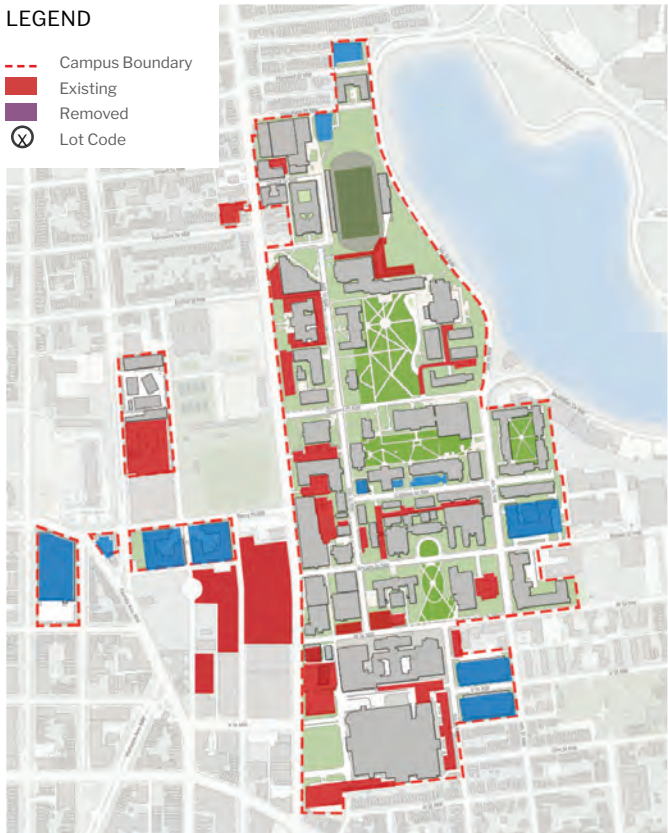
- - - Campus Boundary
- - - Campus Core Analysis
- Core Roadway
- Peripheral Roadway
- Parking facility accessed by core roadway
- Parking facility accessed by peripheral roadway



**Figure 4.55: Existing Parking by Core vs. Peripheral Access**

**LEGEND**

- - - Campus Boundary
- Existing
- Removed
- ⊗ Lot Code



**Figure 4.56: Existing and Removed Parking**

## 4.5 Transportation & Parking Strategy

### 4.5.1 Transportation Planning Principles

The Central Campus Master Plan’s transportation strategy is guided by its Planning Principles, notably of improving quality of life, improving the public realm, and enhancing physical access and connectivity. This strategy is comprised of five elements, outlined below.

#### Manage Parking Supply

##### Element 1: No net increase in parking supply.

Historical parking supply data of the campus core shows a decrease in the academic parking from approximately 2,300 to 1,960 spaces from 2011 and 2020. With the inclusion of the HU hospital parking supply, the existing parking supply in the campus core includes approximately 3,580 spaces.

As part of the 2020 Plan, parking lots will be removed from the campus core and replaced with structures on the campus periphery. Parking to be removed includes spaces located at sites planned for redevelopment, extracted parcels that fall outside of the proposed campus boundary, and portions of surface lots along Georgia Avenue between Bryant Place and Fairmont Street. On-street parking is not included in the campus supply; however, there are opportunities to improve multimodal access and facilities with the removal of on-street parking in the campus core, particularly along 6th Street.

Parking removed from the campus core is planned to be replaced with new parking on the periphery of campus. The Central Campus Master Plan aims to replace minimal parking, utilizing ongoing Transportation Demand Management (TDM) measures to reduce the campus parking demand, without constructing any net new parking. Additional parking supply and demand analyses will be performed as part of Further Processing for sites, at which point the amount of new parking and access points associated with each site will be determined.

## Pedestrian Connectivity

### Element 2: Improve pedestrian conditions and connectivity.

The Central Campus Master Plan aims to improve pedestrian conditions within the campus boundary, as well as create a porous, connective overall pedestrian network within the campus that integrates seamlessly with the surrounding neighborhoods. To this end, three pedestrian areas of focus are identified:

- In the campus core, the Plan proposes to remove a substantial amount of surface parking, replacing it with new parking facilities accessed from peripheral roads. Reducing the amount of vehicles accessing parking from campus core roadways will result in a more inviting pedestrian experience in this area.
- At the old Howard University Hospital site and other parcels recently extracted from the campus boundary, the Plan proposes working closely with the eventual developers to ensure that new public spaces along Georgia Avenue incorporate wide sidewalks and generous pedestrian facilities, and that the new street pattern at the old hospital site breaks up the existing superblock, creating a more porous, connected pedestrian network.

## Multi-modal Access

### Element 3: Increase multi-modal access and facilities in the campus core.

With the replacement of parking lots in the campus core with new parking facilities on the periphery, vehicle access points will similarly shift from the core to the periphery.

In existing conditions, most of the parking serving the campus core is accessed from core roadways like 6th Street, Howard Place, and College Street, as opposed to peripheral roadways like Georgia Avenue, Gresham Place, and 4th/5th Street. In proposed conditions, the opposite will be true. The resulting reduced vehicular activity on core roadways will make space available for multi-modal improvements like bike/scooter parking corrals, bike lanes, or curb extensions.

## Hospital Access

### Element 4: Provide safe, efficient access to the new Howard University Hospital.

The Plan proposes to develop a transportation and access scheme for the new hospital that meets the facility's needs while maintaining a safe, orderly, and pleasant environment for all modes on the roadways surrounding the hospital. This scheme, informed by transportation data collected at the old hospital site, will include ride-hailing pick-up/drop-off operations, shuttle operations, parking access, loading access, and ambulance/emergency access.

The plan recommends the conversion of Bryant Street NW and W Street NW from on-way to two-way streets between Georgia Avenue and 4th Street. On-street parking would be removed from the north and south curbs of Bryant and W streets.

## Ongoing Engagement

### Element 5: Be a good transportation neighbor.

The Plan proposes to continue Howard University's commitment to being a good neighbor to the surrounding community regarding transportation. This goal will be served by the following measures:

- Continuing and expanding the University's Transportation Demand Management (TDM) efforts, which are aimed at reducing vehicle trips to and from the campus and mitigating the impact of vehicle trips on the surrounding community;
- Carefully considering multimodal impacts when planning new vehicle access points on campus and at the new hospital.

## 4.5.2 Parking Supply

Proposed lot locations are displayed in Figure 4.57 and are delineated into three basic zones.

## 4.5.3 Loading & Access

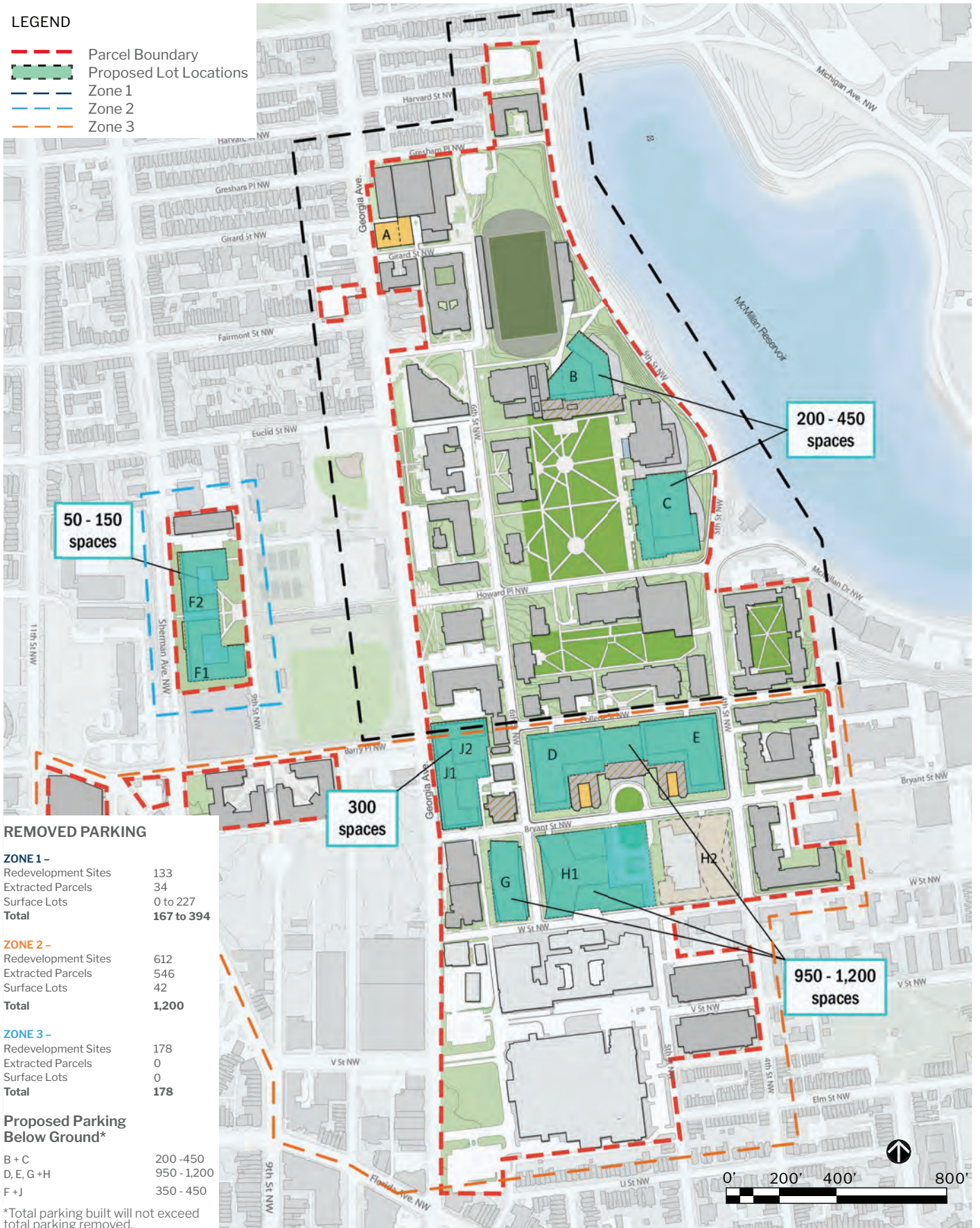
Correlated loading and access diagrams can be found on the proceeding pages (Fig. 4.58-4.59).

## 4.5.4 Streetscape Treatment

The following conveys general themes for the two (2) roadways over which the University has private control.

**LEGEND**

- - - Parcel Boundary
- Proposed Lot Locations
- - - Zone 1
- - - Zone 2
- - - Zone 3



**REMOVED PARKING**

<b>ZONE 1 -</b>	
Redevelopment Sites	133
Extracted Parcels	34
Surface Lots	0 to 227
<b>Total</b>	<b>167 to 394</b>
<b>ZONE 2 -</b>	
Redevelopment Sites	612
Extracted Parcels	546
Surface Lots	42
<b>Total</b>	<b>1,200</b>
<b>ZONE 3 -</b>	
Redevelopment Sites	178
Extracted Parcels	0
Surface Lots	0
<b>Total</b>	<b>178</b>

**Proposed Parking Below Ground\***

B + C	200 - 450
D, E, G + H	950 - 1,200
F + J	350 - 450

\*Total parking built will not exceed total parking removed.

**Figure 4.57: Proposed Underground Parking**



**LEGEND**

- - - Campus Boundary
- ▭ Existing to Remain Parking Lot
- ▲ Vehicle Access
  
- To be removed as part of Campus Plan**
- ▭ Parking Lot
- ▲ Vehicle Access
  
- To remain during Campus Plan but be removed with hospital decommissioning**
- ▭ Parking Lot
- ▲ Vehicle Access

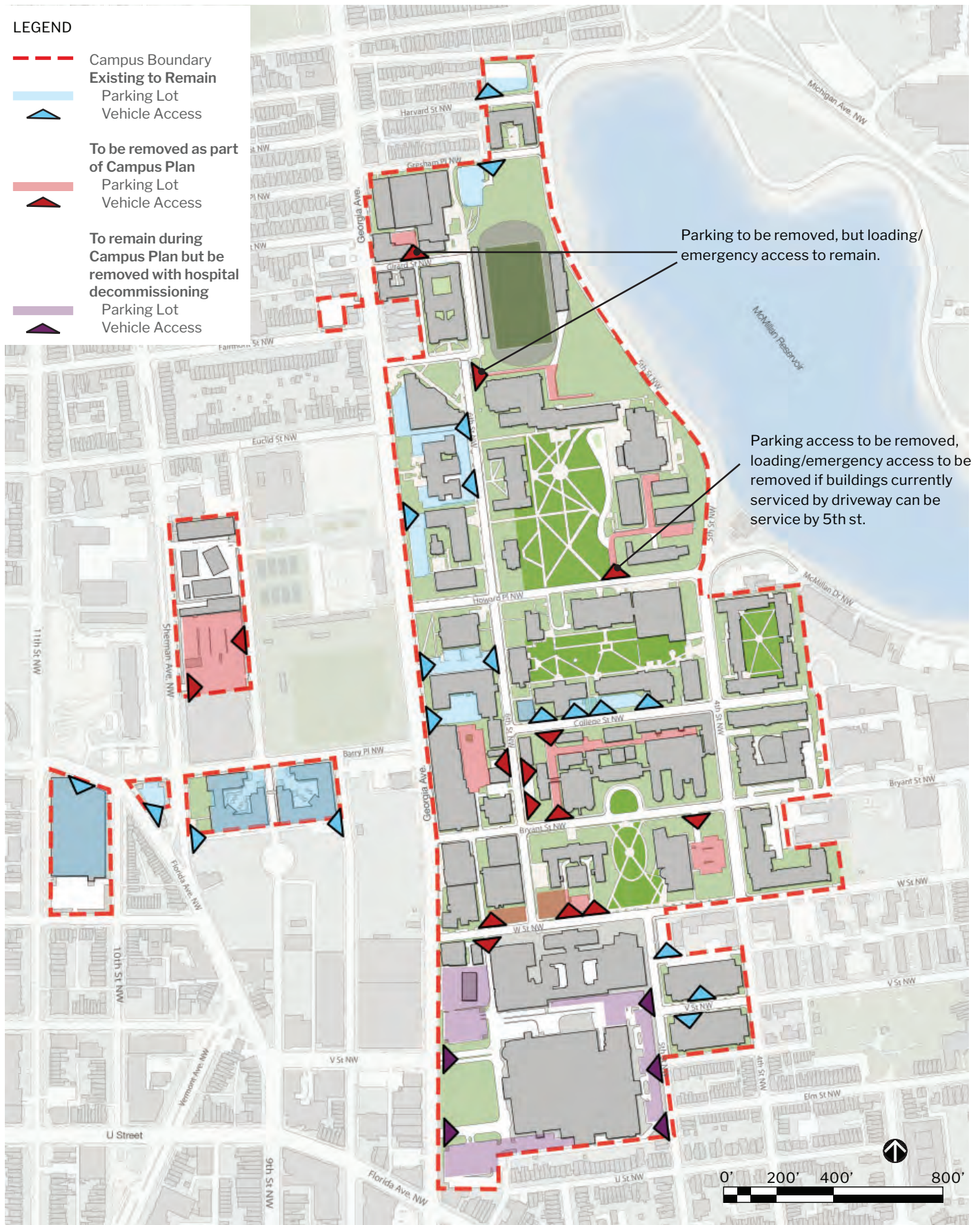
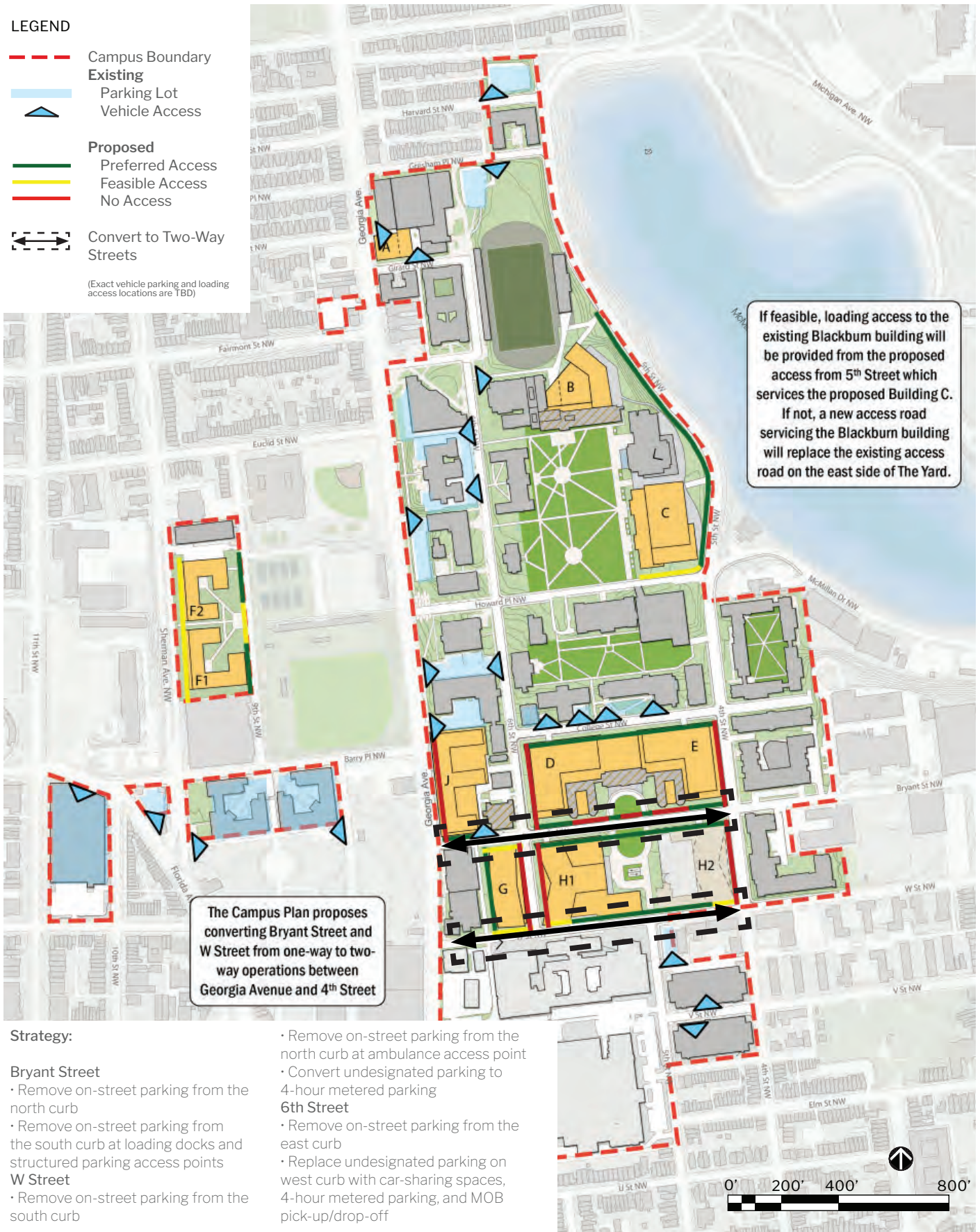


Figure 4.58: Existing Vehicle and Loading Access

**LEGEND**

- - - Campus Boundary
  - Existing**
  - ▭ Parking Lot
  - ▲ Vehicle Access
  - Proposed**
  - ▭ Preferred Access
  - ▭ Feasible Access
  - ▭ No Access
  - ▭ Convert to Two-Way Streets
- (Exact vehicle parking and loading access locations are TBD)



**Strategy:**

**Bryant Street**

- Remove on-street parking from the north curb
- Remove on-street parking from the south curb at loading docks and structured parking access points
- W Street**
- Remove on-street parking from the south curb

- Remove on-street parking from the north curb at ambulance access point
- Convert undesignated parking to 4-hour metered parking
- 6th Street**
- Remove on-street parking from the east curb
- Replace undesignated parking on west curb with car-sharing spaces, 4-hour metered parking, and MOB pick-up/drop-off

**Figure 4.59: Proposed Vehicle and Loading Access**

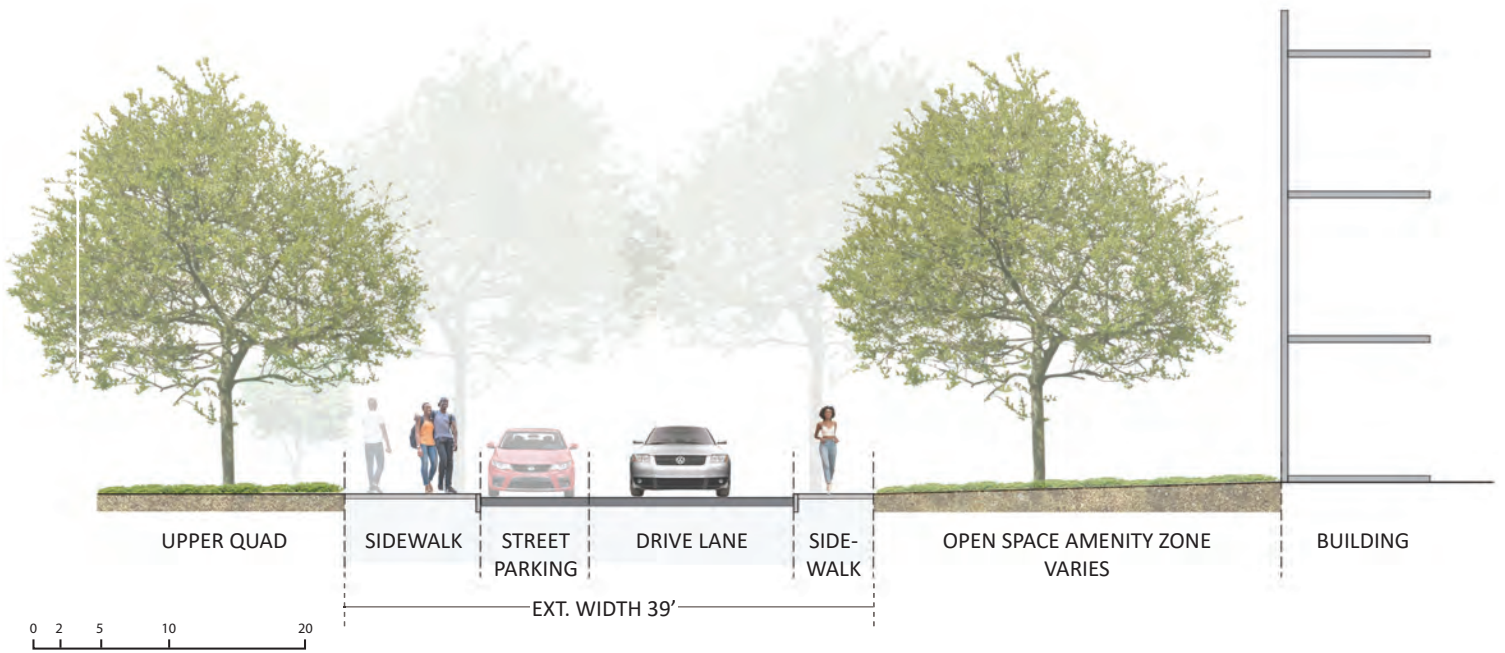


Figure 4.60: Howard Pl. Existing

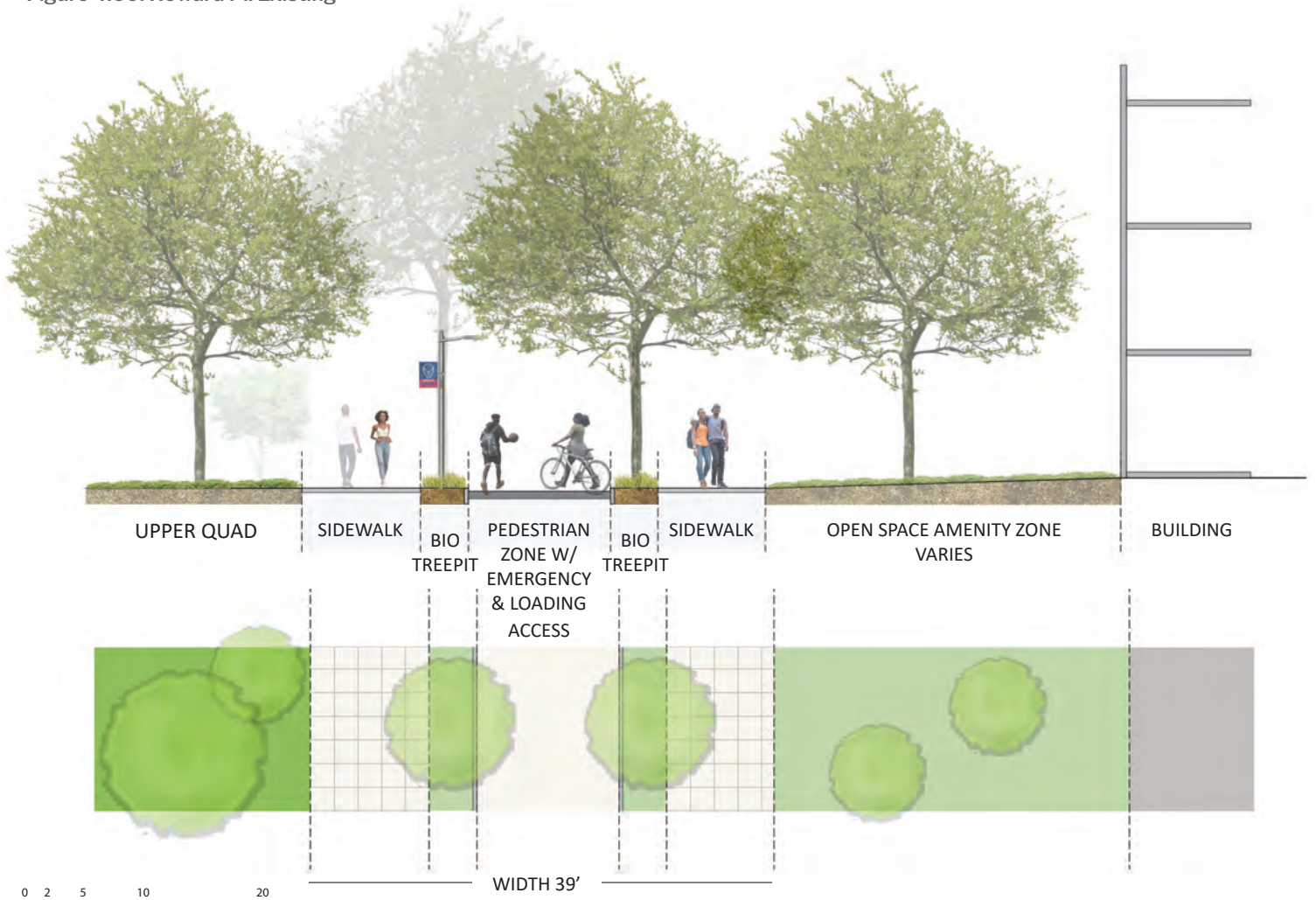


Figure 4.61: Howard Pl. Proposed

## Howard Place

Howard Place between 6th Street and 4th Street is envisioned as a pedestrian plaza drive that extends the environment of the Upper Quad. Special paving material should be integrated to distinguish the area as a pedestrian priority zone over vehicular traffic. Paving joint lines may take inspiration from the Upper Quad sidewalk paving patterns. The new plaza will facilitate pedestrian, bicycle and scooter movements, while accommodating delivery and emergency vehicle access.

Stormwater runoff from the plaza drive can be captured in several ways, including recessed low impact development (LID) tree pit planters aligning both sides of the plaza drive. The continuous below grade tree pits could have sidewalk crossings to promote pedestrian circulation throughout the plaza. Raised curbs or tree pit fences could be used to mitigate the tree pit LID drop-off hazard from the sidewalk and the plaza. New trees should be large species canopy trees.

Wider sidewalks on both sides of the plaza could accommodate additional pedestrian movement. The open space areas offer opportunities for expanded planting and furnishings such as bike



Figure 4.62: Tree Pit Bioretention



Figure 4.63: Continuous Tree Pit



Figure 4.64: Bryant St. Existing

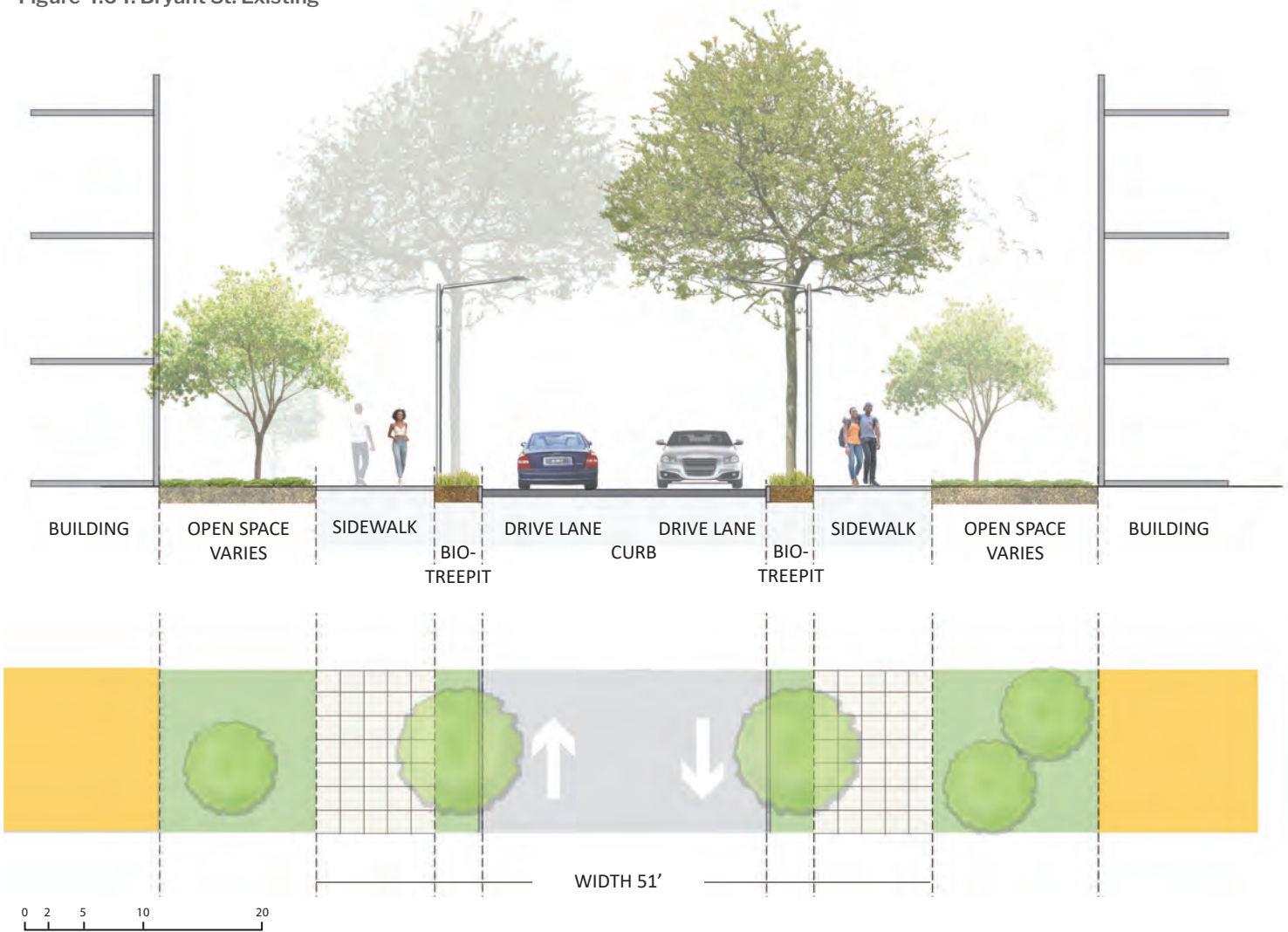


Figure 4.65: Bryant St. Proposed



Figure 4.66: Continuous Tree Pit - Lid Planter

rack, benches, site lighting and monuments.

### Bryant Street

Bryant Street between 6th Street and 4th Street is envisioned as a two-way street for vehicular traffic. All mid-block crossings should have a special paving material that alerts all modes of traffic to slow down when crossing. This will also reinforce the connection between the new hospital plaza drive and the existing entry drive on the north side of Bryant.

As elsewhere, stormwater runoff from the road and sidewalks can be captured in the continuous recessed low impact development (LID) tree pit planters aligning both sides of the street. Planted Bioswales located in the round about planting areas will also capture roadway runoff. The street trees should be a large canopy species.

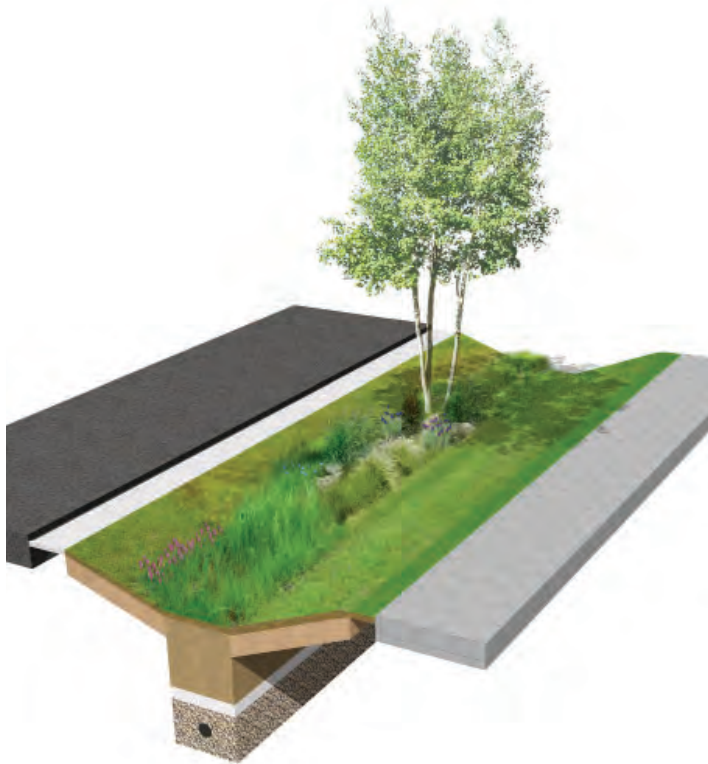


Figure 4.67: Planting Bio Swale at Hospital Service Drive



Figure 4.68: Georgia Avenue at the Mackey Building

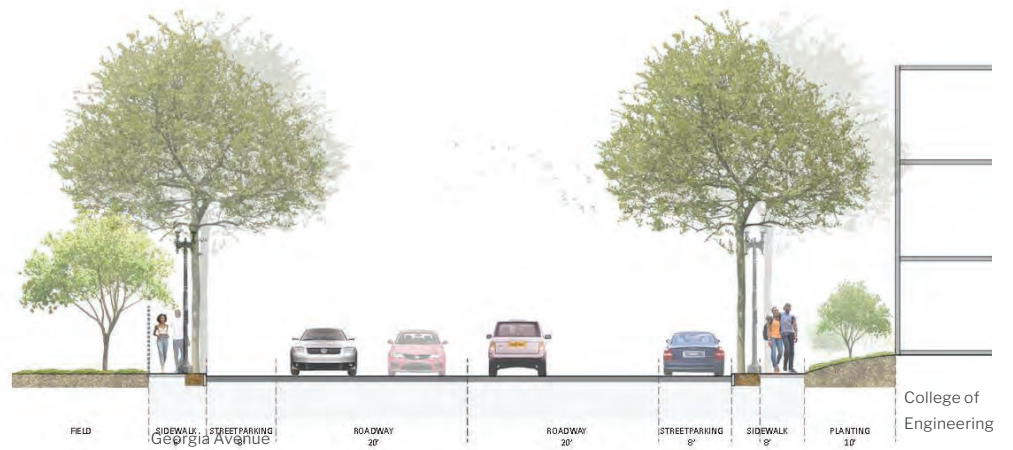


Figure 4.69: Georgia Avenue at Downing Hall

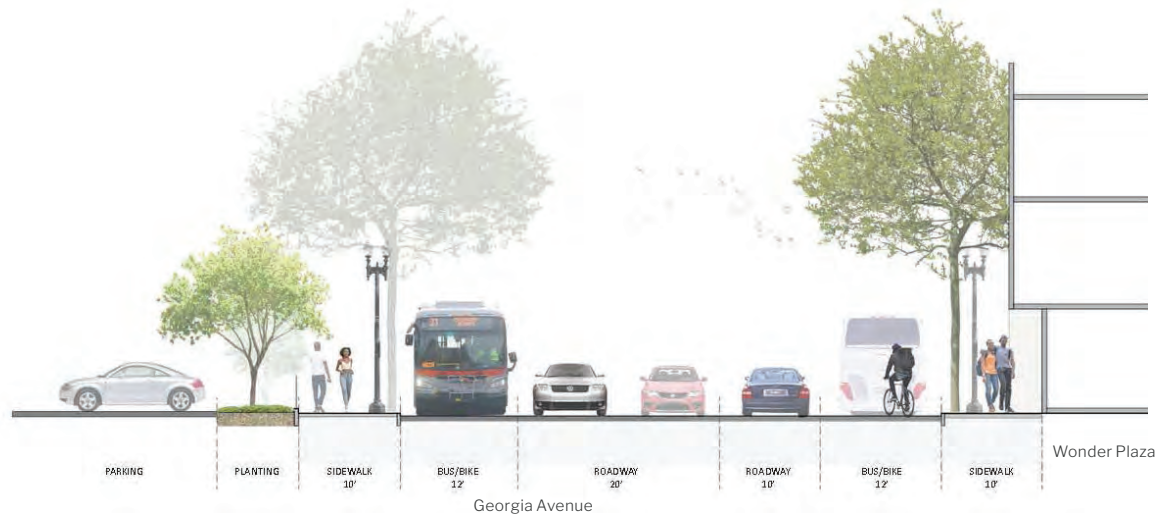


Figure 4.70: Georgia Avenue at Wonder Plaza



Figure 4.71: Georgia Avenue at the Miner Building







Figure 4.72: Campus and Building Identification Signs

#### 4.5.5 Signage & Wayfinding

The University is in the final stages of a process to plan and design a signage and wayfinding system for Howard University in Washington, DC and Maryland. The signage system is split into vehicular and pedestrian wayfinding.

Some wayfinding solutions and locations may require coordination with regulatory agencies regarding placement in public space. Figures 4.70 through 4.72 demonstrate the signage system, and the proposed placement of signs, by sign type.

#### LEGEND

##### SIGNS:

- Campus Identification
- Vehicular Wayfinding
- Parking Identification
- Shuttle Bus Identification
- Orientation
- Pedestrian Wayfinding
- Building Identification



Figure 4.73: Vehicular, Parking and Shuttles Identification Signs



Figure 4.74: Orientation and Pedestrian Wayfinding Signs

Vehicular sign types include:

- Campus gateways (CID)
- Vehicular directional (VDR)
- Parking lot identification (PID)

Pedestrian sign types include:

- Shuttle bus stop identification (STB)
- Pedestrian digital kiosks (KSK)
- Pedestrian directional (PDR)
- Building identification (BLD)



Figure 4.75: Elevations of Proposed Orientation and Pedestrian Wayfinding Signs

### 4.5.6 Comprehensive Transportation Review

Through coordination with the District Department of Transportation (DDOT), a full Comprehensive Transportation Review (CTR) will be submitted as an addendum to the Central Campus Master Plan. The CTR will contain an in-depth analysis of the plan on all modes of transportation and will include a set of action items that HU will commit to help achieve the transportation goals of the plan. This includes specific measures to mitigate any impacts identified in the analysis and a list of transportation items to be detailed in the Further Processing of the plan's development sites.

### 4.5.7 Transportation Demand Management

A Transportation Demand Management (TDM) plan will be incorporated into the CTR, addressing the University's progress on goals and commitments set in its 2012 TDM plan, as well as proposing new TDM efforts to build upon this progress.

The 2012 TDM plan included actions whose goal is enhancing multimodal, non-vehicular transportation options in and around the Howard University campus. These actions included increasing parking rates, improving HU shuttles, funding a Capital Bikeshare station, conducting annual TDM and parking surveys, and others.

The forthcoming TDM plan update will build upon these actions and propose new actions that enhance multimodal transportation as guided by the preceding Master Plan principles.

## 4.6 Implementation Considerations

### 4.6.1 Overview of Action-Based Sequencing

The future campus development program includes a mixture of new construction, the repair and renovation of existing buildings, and the decommissioning, preservation, and demolition of select facilities. The Campus Plan describes the proposed developments as a categorization of specific and conditional actions tied to Howard's priorities, rather than a specific timeline. The 2020 HU CC planning will be addressed as two sequential periods over a ten-year timeline: Period 1 includes years 2021 through 2025, while the years 2026 through 2030 make up the second planning period. The proposed actions that would occur over the ten-year timeline are described

below and are tagged with their respective planning periods.

### 4.6.2 Modernizing the Power Plant

The highest priority project for Howard is the overhaul and modernization of the existing steam plant and associated utility distribution system. In 2018, extreme winter weather caused a plant failure and tunnel ruptures which resulted in damage to the system and some campus facilities. Since this time, most of the campus has been fed by a series of temporary boilers. The rehabilitation of the plant is critical to ensure that mission-critical buildings are not damaged and taken off-line in the future. Another important and related factor is the remediation and renovation of Douglass Hall, which was substantially impacted by the incident.

The University has engaged partners to assess the steam plant operations, equipment, and steam tunnel to inform decision making related to steam plant modernization, cost, utility master planning,

#### LEGEND





- 4.6.2 - Power Plant
-  Campus Boundary
-  Existing Buildings
-  Renovate: # 23, 48
-  Decommission: # 11, 17, 56, 216



Figure 4.76: Power Plant

asset monitoring, and sustainability. Current concepts include modernization and transition to a combined heat and power (CHP) plant, to include a replacement of tunnel infrastructure. Since its completion in the 1934, the Power Plant (48) has been limited to steam production. This would enable the facility to live up to its original namesake.

### 4.6.3 Advancing Healthcare, Health Sciences and STEM

#### 4.6.3.1 Building a New Howard Hospital & MOB

To realize the new HU Hospital, the University would first need to demolish the vacant Freedmen’s Annex I and II (11 & 17) that currently occupy the proposed hospital site. The two facilities have significant damage resulting from the 2018 steam tunnel rupture, which rendered them uninhabitable. Optimally, the University would have also modernized the Power Plant in order to service the new development.

The proposed MOB site is currently home to two facilities, the PFM Storage Building (56) to the north and the Old PFM/ISES building (216) to the south.

The University would decommission/demolish these buildings to enable the construction of the MOB. Both the HU Hospital and the Medical Office Building are programmed to have below-grade structures parking, with the number of spaces determined within the project design phase of the facilities.

Once the new HUH and MOB are near complete, facilities at the existing HUH site (Bldgs. 19, 37, 66, 71, and 163) can begin a decommissioning and migration process, leading to their eventual demolition.

Green space displaced by the new H1 will be replaced with green space enhancements east of the Stokes Library, during Phase 1 (first 5 years). Should H2 move forward, this green space shall be replaced elsewhere in proximity to the LeDroit Park. Beyond the 10-year planning period, the construction of a new “future expansion” of the Hospital would require the demolition of the Stokes Health Sciences Library (200).

#### 4.6.3.1 – Healthcare Precinct

- Campus Boundary
- Existing Buildings
- Renovate: # 47
- Decommission: # 19, 37, 66, 71, 163
- Demolition: # 11,17, 56, 216
- New: # G, H1



Figure 4.77: Healthcare ‘Precinct’

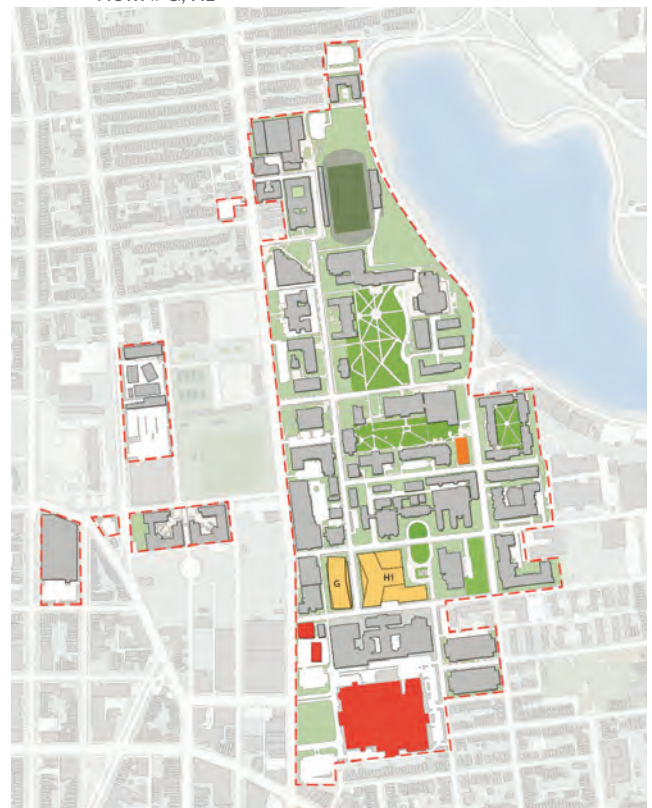


Figure 4.78: Healthcare ‘Precinct’

### 4.6.3.2 Achieving New Health Sciences and STEM

#### Swing-Space for the C.B. Powell Site

The Freedmen’s Hospital, now the C.B Powell Building (13) includes the facility’s central area and two wings to both the east and west. The historically significant building will be an integral part of the proposed new Health Sciences Complex (HSC) and STEM Center. For the two structures to occupy the areas to the west, north and east of C.B. Powell, building 13 will need extensive renovations to function as part of the future interdisciplinary academic complex. As a result, the University will need to identify on and off-campus swing-space solutions for the temporary relocation of the programmatic functions that currently occupy the C.B. Powell site, including the School of Communications and WHUR (49).

#### A New Center for Arts & Communications

The proposed Arts & Communications facility will occupy a vacant green site directly east of the Cramton Auditorium (20), and north of Childers Hall (28). The new facility will house the School of Communications that currently occupy facilities slated for demolition located on the C. B. Powell site. The new facility will also house the architecture program, which will enable the University to renovate or potentially decommission/ demolish the Mackey Building (3). Once complete, fine and performing arts programs will temporarily relocate to the new facility to perform a renovation of Childers Hall to suit the Center’s interdisciplinary paradigm.

#### The Health Sciences Complex

The site for the new Health Sciences Complex (HSC) is adjacent to the C. B. Powell Building, north and west of the facility. Before the construction of the HSC can begin, the University will need to relocate any remaining programs located within the Laser Chemistry Building (4), People Soft Work Site (30), and the Mental Health Center (700), and decommission/demolish the three structures.

Once the HSC is completed and occupied, the University may decommission/demolish the former buildings that housed health sciences schools and colleges (Bldgs. 22, 27, 45, 47, and 51).



Figure 4.79: Health Science + STEM ‘Precinct’



Figure 4.80: Health Science + STEM ‘Precinct’

## The STEM Center

The site for the proposed STEM Center is also adjacent to the C. B. Powell Building, north and east of the facility. Similar to the HSC development, the University will need to relocate any remaining programs that occupy buildings slated for demolition, which includes: Freedmen’s Annex III (31) and WHUT (54).

Once completed and occupied, the University may renovate or decommission/demolish the former buildings that housed relocated STEM programs, (Bldgs. 7, 15, 16, 26, and 55).

### 4.6.3.2 – Healthcare Precinct

- Campus Boundary
- Existing Buildings
- Renovate: # 3, 13, 7, 15, 16, 26, 55
- Decommission: # 4, 13, 30, 31, 49, 54, 700
- Demolition: # 4, 13, 30, 31, 49, 54, 700  
# 22, 27, 45, 51
- New: # B, D & E



Figure 4.82: Health Science + STEM ‘Precinct’



Figure 4.81: Health Science + STEM ‘Precinct’



Figure 4.83: Apartment-Style Residences Part 1

### 4.6.4 Apartment-Style Residences (Ph 1/2)

The site for the development of the first phase of the new student residences is currently the Banneker surface parking lot, located along Sherman Avenue NW. Construction of Phase I will result in the loss of 178 parking spaces from the HU inventory.

The site for the development of the second phase of the new student residences is north of the Banneker surface parking lot between the Doors & Moore and Harrison Brothers buildings (400 & 401). The area is currently occupied by three temporary modular facilities – Banneker North Modular Buildings A, B, and C – used for academic and support functions. Development of phase 2 of the Residences is contingent on the relocation or demolition of the modular units, which is contingent upon the University’s overall swing space requirements over the 10-year planning period.

**LEGEND**

**4.6.4 – Apartment Style Residences**

- Campus Boundary
- Existing Buildings
- Decommission: Modular @ Banneker
- Demolition: Modular @ Banneker
- New: # F1, F2



Figure 4.85: Apartment-Style Residences



Figure 4.84: Apartment-Style Residences



Figure 4.86: Apartment-Style Residences Part 2

### 4.6.5 Howard University Union (Ph2)

The proposed HU Union building will front the eastern edge of the Yard, directly south of the Blackburn University Center (57) and north of the Undergraduate Library (61). Four academic facilities currently occupy the proposed site, including: the Center for Academic Reinforcement (24), the School of Education (25), HU Middle School (40), and Locke Hall (44).

Although the University needs to demolish the four facilities to make way for the new Student Union, this effort cannot be undertaken until the Miner Building (14) is renovated, and the new STEM and Arts & Communications Centers (E & B) are completed and occupied.

The Student Health Center unit currently located in the Medical Arts Building (163) may relocate into the new Union building, which will allow the University to decommission/demolish Building 163. While hosting this function within the Union would be optimal, the student clinic may also relocate to the new HUH/MOB or new Recreation Center sites.

Once constructed, campus recreation and academic functions from Burr Gymnasium will be housed in this facility. This will enable the University to relocate athletic functions currently housed in the Bank Building (59) to Burr.



Figure 4.87: Student Union



Figure 4.88: Student Union

#### 4.6.5 - Union

- - - Campus Boundary
- Existing Buildings
- Renovate: # 14
- Decommission: # 59
- Demolition: 24, 25, 40, 44
- New: # C





Figure 4.89: Union

#### 4.6.6 Intercollegiate Athletics Annex (Ph 2)

The new Athletics Annex building will be adjacent to the Burr Gymnasium and occupy the site of the existing University Warehouse #2 (59), also known as the Bank Building. The new facility will programmatically function as an extension of Burr as it transitions from a Recreation and Athletics Gymnasium into an Intercollegiate Athletics facility. However, Building 59 currently houses several functions that require relocation in order to raze.

#### LEGEND

##### 4.6.6 – Athletics

- Renovate: # 8
- Decommission: # 59
- Demolition: 59
- New: # A



Figure 4.90: Athletics



Figure 4.91: Athletics

The University will relocate recreation and academic functions from Burr to other appropriate campus facilities, including the new HU Student Union. Hence, the Athletics Annex cannot commence until the Fusion facility is completed and occupied, as it will house recreation programs relocated from Burr. Once the Union project is complete, the newly vacated swing space in Burr can be used to house selected programs from Building 59. This will allow Howard to decommission/demolish Building 59 with minimal economic and operational impact.

#### 4.6.7 Fusion Building (Ph1)

The new mixed-use recreation center and Student housing “Fusion” building will occupy the current Wonder Plaza site at the corner of Georgia Avenue and Bryant Street NW. The new facility will house a broad array of recreation and wellness facilities, an improved iLab and additional learning environments, retail, and student housing. The existing Wonder Plaza building will need to be razed or selectively demolished to make way for this important campus, and community serving facility. The University will explore possible ways to retain some key facade elements.

Once the building is completed Howard will have a permanent home for the recreation functions that will vacate the Burr Gymnasium.

#### 4.6.6 – Fusion Building

- Decommission: Wonder Plaza
- Demolition: Wonder Plaza
- New: # F



Figure 4.92: Fusion Building



Figure 4.93: Fusion Building