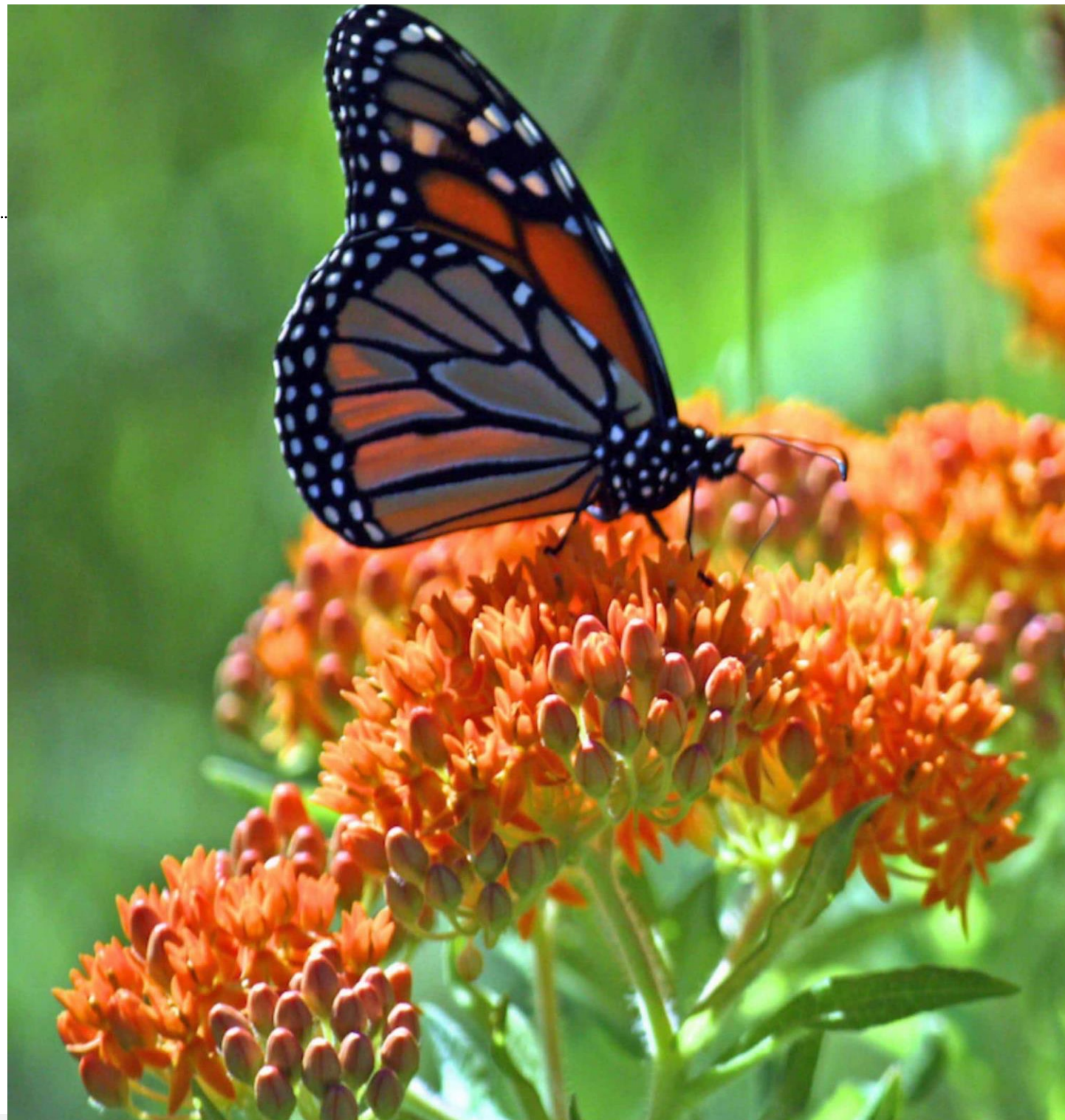


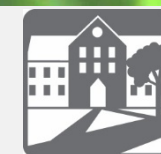
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SUSTAINABLE LANDSCAPE GUIDELINES

THE GEORGE
WASHINGTON
UNIVERSITY

WASHINGTON, DC



A Very Urban Campus



THE GEORGE WASHINGTON UNIVERSITY



GW Ecosystems Enhancement Strategy

Adopted Fall 2012

Strategic Focus Areas:

- On Our Campuses
- In the Chesapeake Bay Watershed
- Across GW's Global footprint

Vision:

A future with resource systems that are healthy and thriving for all



Strengthen habitat and optimize natural space



Promote healthy air and climate



Foster clean and abundant fresh water



Support sustainable food production systems



Optimize waste decomposition and treatment



Encourage a natural urban environment that helps enhance physical, mental & social well-being

Scope of the Guidelines:

Daily and Seasonal tasks, Capital Projects, Opportunities for future projects

1.0

INTRODUCTION

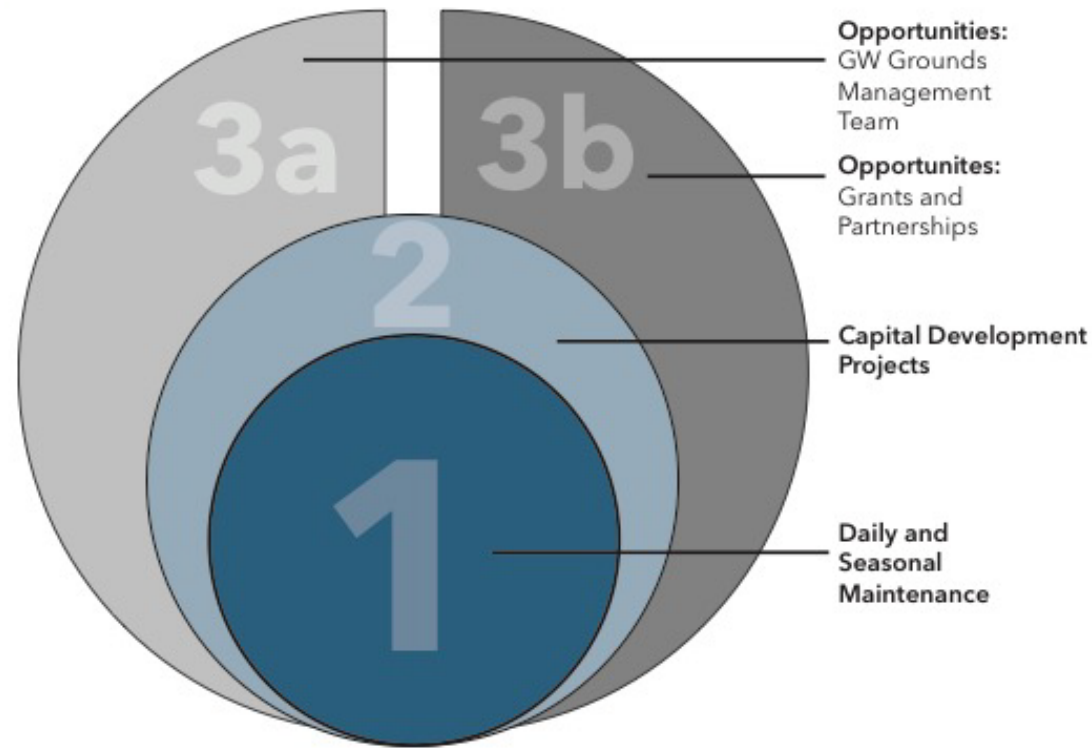
How to Use These Guidelines

1.0 INTRODUCTION

How to Use The Guidelines:

Adoption of the Sustainable Landscape Guidelines will have an impact on the Foggy Bottom campus in ever expanding ways, as illustrated in the diagram. The concentric circles identify direct Guideline application for strategic focus areas of campus development.

The Guidelines are intended as a tool to inform the decisions made by Division of Operations managers and designers. They are not prescriptive nor are they firm commitments.



TYPES OF LANDSCAPE OPPORTUNITIES

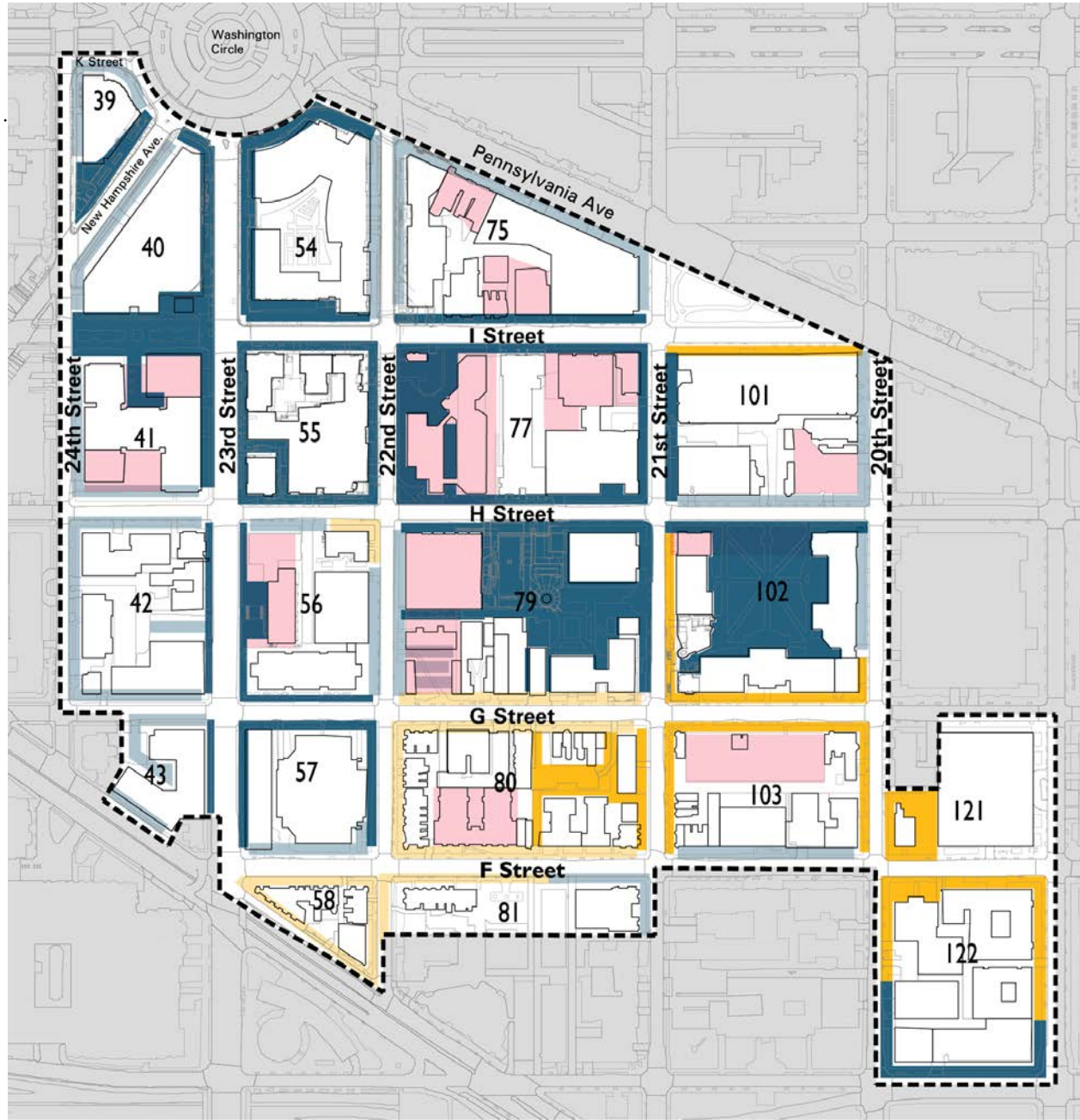
1. Daily and Seasonal Maintenance: Daily and Seasonal Maintenance is at the heart of the diagram and is the main purpose of the Guidelines. The Guidelines provide a framework for maintenance tasks, which will help move the campus forward towards a stable, resilient and sustainable future.

2. Capital Development Projects: The Guidelines will provide a framework for project designers and site work of all Capital Development Projects on campus. Capital Development Projects are defined as new facilities to be built on development sites identified in the GW 2007 Foggy Bottom Campus Plan.

3. Opportunities: The Guidelines identify opportunities on campus that are outside of New Development sites and routine maintenance areas. These opportunities have the potential to contribute dramatically to a healthy ecosystem, and a productive and sustainable campus.



Design Aesthetic



DESIGN PRINCIPLES

Create a **hierarchical system of places** with corresponding landscape recommendations that enhance the context, use and visibility of each space. (See Chapter 3.0)

Provide a vocabulary of standardized University plant lists to establish a **unified campus landscape aesthetic**. (See Chapter 3.0)

Maintain **existing trees** and facilitate healthy growth and ease of maintenance. (See Chapter 4.0)

Establish a **tree canopy coverage plan that promotes** the physical enjoyment of the GW community and the ecological functions of wildlife habitat, biodiversity, and clean air that benefit the greater ecosystem. (See Chapter 4.0)

Improve green places on campus to **enhance the outdoor experience** for all users, increasing quality of life health and well-being. (See Chapter 5.0)

Identify places where **stormwater mitigation** opportunities can be pursued. (See Chapter 5.0)

HIGH -IMPACT CONTEMPORARY

Function: Tough, resilient plantings that maintain their form in winter and withstand constant foot traffic and ice-melt.
Aesthetic: Layered landscape with all-season interest. Large, bold plant masses match building scale. Annual displays at major intersections and special focal points.



Plants attract pollinators and strong color blocks

HIGH -IMPACT TRADITIONAL

Function: Tough, resilient plantings that maintain their form in winter and withstand constant foot traffic and ice-melt.
Aesthetic: Layered landscape with all-season interest. Little to no symmetry in front of buildings with traditional style gardens. Annual and perennial displays in traditional clusters.



Annual display at University Yard

LOW -IMPACT CONTEMPORARY

Function: Layered landscape with simple, structured plantings at a residential scale. Resilient plants withstand urban conditions and prevent erosion.
Aesthetic: Inspired by native plant communities these small garden spaces provide opportunities to plant flowering pollinators. Incorporate benches and seat walls for students to gather.



Bulbs provide early season interest and are reused from year to year

LOW -IMPACT TRADITIONAL

Function: Layered landscape with simple, structured plantings at residential scale. Resilient plant materials withstand urban conditions and prevent erosion.
Aesthetic: Inspired by native plant communities, these small garden spaces provide opportunities to plant flowering pollinators. Incorporate seating behind low screening hedges at residential townhouses.

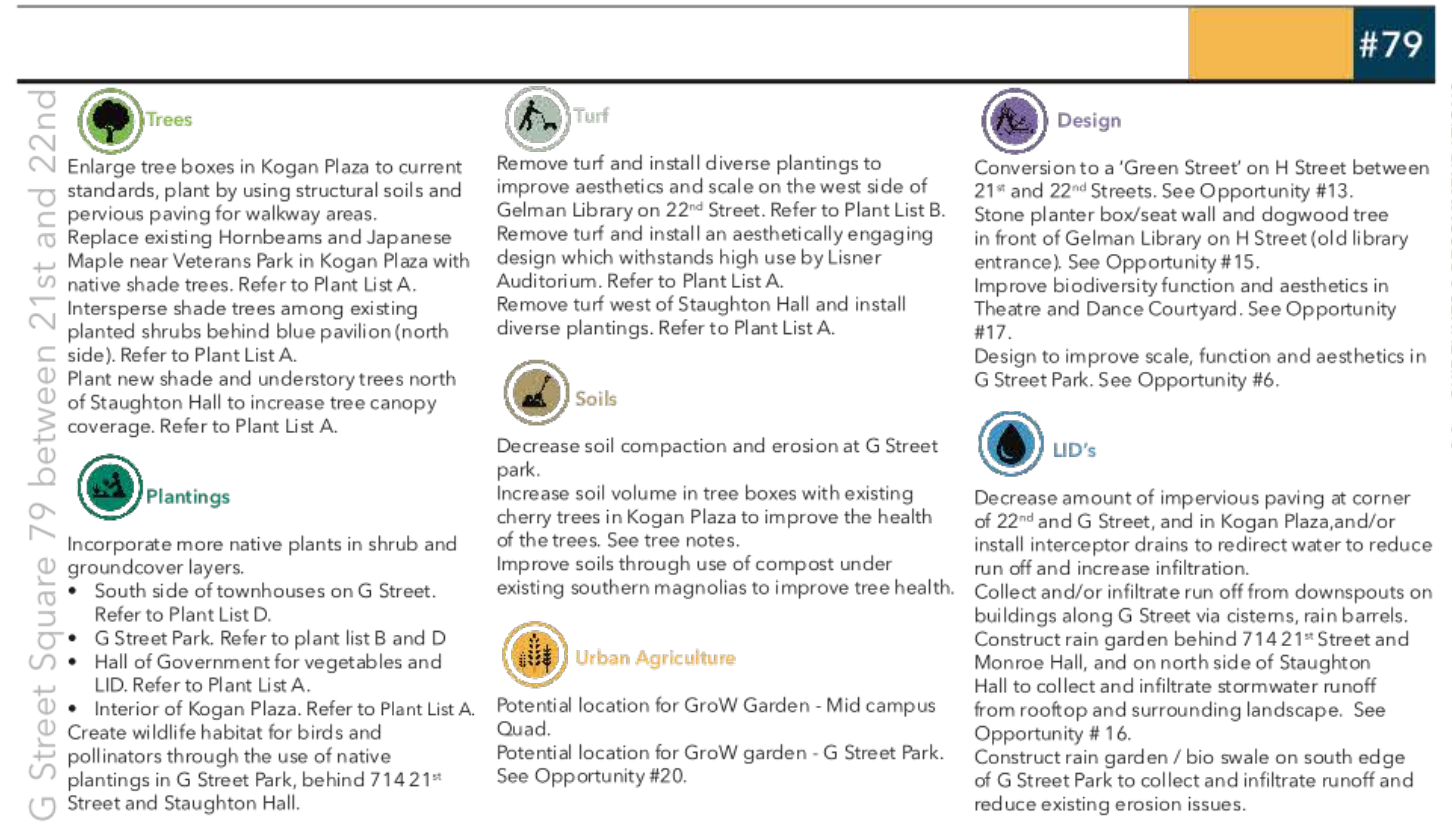
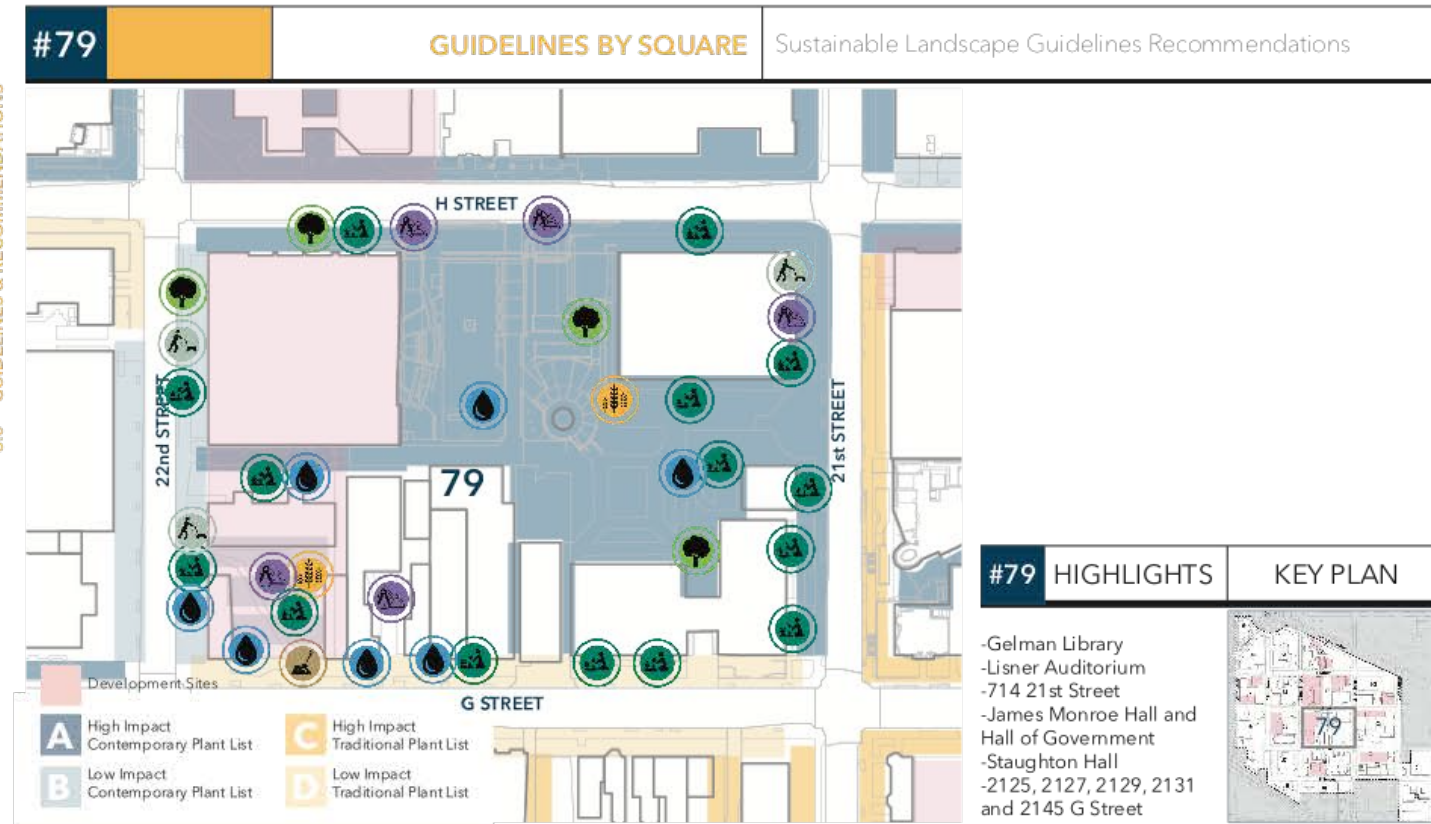


Front yards at residential campus

















Detailed Guidelines

Square-by-Square recommendations for daily and seasonal maintenance and enhancements




Referenced back to Ecosystem Enhancement Strategy

Landscape enhancements linked back to measurable targets

GUIDELINES BY SQUARE		Sustainable Landscape Guidelines Recommendations		
	CATEGORY	GENERAL RECOMMENDATIONS	ECOSYSTEM ENHANCEMENT STRATEGY (EES) GOALS AND TARGETS:	ADDITIONAL INFORMATION
MAINTENANCE	 TREES	Plant native shade trees	Target 2.1: Enhance tree canopy and green cover to increase sequestration potential and outdoor air filtration capacity Target 2.1A: Offset sq. ft. /acreage loss of existing tree canopy and green cover from natural causes or development with new plantings. (Increase native tree canopy coverage)	TREES: Chapter 4.0 GW's Urban Tree Canopy 
	 PLANTINGS	Diversify plantings	Target 1.2: Enhance campus biological richness/diversity. Target 1.2A: Create habitat friendly spaces that promote non-invasive plants	PLANTINGS: Plant lists at the end of Chapter 3.0 
	 TURF	Grass to Gardens initiative (G2G)	Target 1.2: Enhance the biological richness/diversity of the campus.	TURF: Plant lists at the end of Chapter 3.0 
	 SOILS	Improve soil conditions	Target 1.2: Enhance the biological richness/diversity of the campus.	SOILS: Soil notes in Appendix D 
PLANNING	 URBAN AGRICULTURE	Increase urban agriculture/edible landscape	Target 4.1: Produce food on campus	URBAN AGRICULTURE: Opportunities in Chapters 5.0 and 6.0 
	 DESIGN	Improve campus wide unifying themes, overall aesthetics, user experience, circulation and plantings	Target 1.2A: Create habitat friendly spaces that promote non-invasive plants	DESIGN: Opportunities in Chapters 5.0 and 6.0 
	 LOW IMPACT DEVELOPMENT (LID)	Install BMP's as appropriate such as rain gardens, pervious paving, rainwater harvesting	Target 3.2: 10% absolute increase in permeable space over 10 years from FY11 baseline. Target 3.3: Retained stormwater reuse for greywater systems, cooling towers, and irrigation by 2021. Target 3.4: Encourage watershed replenishment projects that qualify for water quality trading schemes. Projects will decrease erosion, improve stormwater infiltration and improve water quality.	LOW IMPACT DEVELOPMENT: Concept ideas in Chapters 5.0 and 6.0 



Opportunities Identified



4.0 TREES

Trees play a vital role in creating a regenerative campus landscape because they provide such a rich variety of ecosystem services. This chapter provides guidance on maintaining and enriching the tree canopy on Foggy Bottom campus. It also places the Guidelines for tree planting on campus in the context of GW's Ecosystem Enhancement Strategy, as well as the District of Columbia's stated goal of reaching 40% tree canopy coverage.

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5.0 SUSTAINABLE DESIGN OPPORTUNITIES

Carefully chosen incremental landscape improvements can have wide repercussions for advancing a healthy and sustainable campus environment. This chapter provides ideas for projects that are easily undertaken within an annual operating budget, and that can increase learning, usage and enjoyment of the outdoor spaces on GW campus. Additionally, the chapter provides seeds of ideas for larger projects that can be adopted by student groups or classes, developed and submitted for competitions or grant funding.

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6.0 COMMUNITY INVOLVEMENT AND OUTREACH

This chapter suggests a number of potential activities that foster engagement with the Foggy Bottom community. The activities can be adopted and adapted by staff, students or faculty for volunteering, community outreach or educational projects.

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TREES Sustainability and Trees

SUSTAINABILITY AND TREES

Trees play a vital role in sustainability because they provide such a wide array of ecosystem services. In an urban setting like the Foggy Bottom Campus, tall trees with large crowns, called overstory or shade trees, provide the shade from the summer sun for buildings, sidewalks and natural spaces, which helps reduce the Urban Heat Island effect in the city. Smaller trees can flourish under shade trees as understory trees. Understory trees often produce flowers that add to the beauty and aesthetic interest of the campus. Both types of trees are necessary, as they filter air, improve water quality, sequester carbon, and provide wildlife habitat and corridors for wildlife movement.

Trees perform all of these functions for very low cost over their lifetime. However, they often go unnoticed even as they greatly contribute silently and steadfastly to the natural spaces around them. Trees can play an important role in the four GW Ecosystems Enhancement Strategy focus areas (addressed later in this chapter). For these reasons, trees and their preservation should be a primary goal of the Sustainable Landscapes Guidelines.

This chapter provides guidance for the maintenance and enhancement of GW's tree canopy coverage in each of the strategic focus areas for campus development identified in Chapter 1.0. It provides recommendations for the continuing partnership with Casey Trees, and places the guidelines for campus tree planting on campus in the context of the GW Ecosystem Enhancement Strategy.




In their natural settings, both shade and flowering trees grow together, virtually doubling the ecosystem benefits in the same space.

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16. KOGAN PLAZA STORMWATER
SQUARE 79

As the preeminent gathering and festival space for GW's Foggy Bottom campus, Kogan Plaza can also play a central role in projecting the image of a healthy, sustainable campus that engages constituents in all aspects of sustainability. The plaza is an excellent site for creative thinking about stormwater mitigation and reuse. It can continue to be studied as an urban regenerative landscape and submitted for competitive Climate Change contests. **Potential Partners:** candidate for EPA's Campus Rain Works Challenge




16. KOGAN PLAZA

Advantages:

- Demonstrating GW's commitment to Sustainability as a core belief on our campus
- Advancing GW's commitment to being a leader in Sustainable DC's initiatives
- Providing a learning tool for the artful retention and reuse of stormwater

17. THEATER AND DANCE COURTYARD
SQUARE 79

This is a little garden space on G Street NW, between the firehouse and the GW Deli. There is great potential for making this a charming treasure of a garden for the use of the academic programs that inhabit the buildings surrounding it. **Potential Partners:** EPA competitions and grants



17. ARTS COURTYARD

Advantages:

- Turning a little-used space into an amenity for program use, such as an outdoor classroom or performance space for the Theater and Dance studios.
- Demonstrating the reuse of stormwater
- Demonstrating the use of native and pollinator-attracting plants

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3. Develop Educational Programming for School Without Walls (SWW)

There are great partnership and mentorship opportunities for GW students who wish to engage with high schoolers at the School Without Walls. These opportunities can enhance the close relationship that already exists between GW and the School Without Walls.

GW can help by:

- Developing and implementing student stewardship programs that satisfy community service requirements
- Offering work opportunities in the GW GroW Gardens, and volunteering at preferred environmental organizations such as Casey Trees and the Dumbarton Oaks Park Conservancy
- Environmental Stewardship on Campus
 - Curriculum Development for in-class education
 - Living Labs on Campus, using specific planting beds in Square 80 Plaza
 - Understand Sustainable Features on Campus
 - Office of Sustainability Summer Internship(s) focusing on Core Urban Environmental Issues

4. Broaden the scope of GW's GroW Gardens

Building on the success of GW's first community garden on H Street, programming can be developed that bridges Public Health issues with Biology, Plant Science, Nutrition and the Humanities.

GW can help by:

- Working with GroW Gardens leadership & Sustainable Landscapes Program to create new educational programs such as the following:
 - GW Community and community based educational workshops on food security and healthy living
 - GroWing Vegetables 101
 - Cooking with vegetables, healthy eating on campus

5. Foggy Bottom Garden Club Partnership

Investigate the potential to partner with a local Garden Club to engage the community in our efforts at creating a sustainable landscape. Neighbors that find a hospitable, dynamic and attractive landscape on campus will feel more secure and comfortable as they interact with GW.

GW can help by:

- Creating small scale seating areas for the enjoyment of students and neighbors
- Offering adopt-a-garden opportunities for maintenance of small gardens
- Providing student-led workshops for neighbors on topics like container gardening, food production, and nutrition.




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