

## ABSTRACT

Title of Thesis:

GROWING STEWARDS – REIMAGINING A  
HISTORIC LANDSCAPE AS A VENUE FOR  
CLIMATE CHANGE AWARENESS THROUGH  
EDUCATION, ADAPTATION, AND PLAY

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Historic landscapes are an important part of our collective heritage. They provide a window to the past, offering narratives of our origins and how our relationships with nature have changed over time. Such landscapes receive historic treatments, including preservation, to ensure they are suspended in their period of significance. However, this static approach is no longer effective in protecting and communicating the heritage historic landscapes were intended to share: new approaches must be considered to contend with the dynamism of both nature and culture and ensure the health of these landscapes for generations to come. As climate change is the biggest threat to such landscapes, this thesis aims to explore how climate adaptive strategies can be responsive to both the historic and contemporary context of Meridian Hill Park: a cultural landscape that has been on the National Historic Register since 1994. It will focus specifically on providing meaningful experiences for children in the landscape, as a changing climate and environment is what they will inherit.

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by

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## **Chapter 1: Introduction**

When asked to draw a landscape from memory in our first-year design studio, each student drew a landscape they experienced during childhood. Each student shared their drawing and a story to match, recalling details from the bygone era as if they had just returned from this special place. Anecdotally, these landscapes are easier to recall than those experienced later in life and seem the most evocative in shaping our relationship with nature as adults.

This notion that childhood experiences in nature can support a sustained affinity for the landscape initiated the following thesis process. Made more urgent by the contemporary socio-environmental context of rapid urbanization, this thesis focuses specifically on expanding access to nature-based experiences for children in cities. Ensuring that they, too, can carry positive memories of landscape throughout their lifetimes while in an increasingly-urban context felt essential for this project: how do we expect emerging generations to sustain an affinity for nature and resolve in the climate crisis if they did not have meaningful experiences in nature during childhood?

For these reasons, Meridian Hill Park—interchangeably referred to as the ‘Site’ or ‘Park’ in the following chapters—in Washington, DC was selected as the venue for this thesis. The Park’s context at the crossroads of four neighborhoods in a high-density area made it an ideal location to explore child-friendly urban design strategies. Further, the Park is a historic cultural landscape that was one of the first successful examples of neoclassical park design in the US. Such cultural landscapes are often suspended in time to preserve and communicate the heritage of eras passed, but this thesis argues that historic landscapes need a new reinterpretation by those to whom we are responsible: children.

At present, there is tension between the Park's designation as a historic landscape under the auspices of the National Park Service ('NPS') and its contributions to its immediate community as a neighborhood park. NPS funding is usually directed to its parks much larger in scale; the local government has limited political and financial power over the Park, too. This tension is made worse by a changing climate, which has hastened the degradation of historic features.

NPS now understands that climate is an important part of its stewardship calculus; there are few explicit, successful examples of climate-adaptive redesigns of historic landscapes. To this end, this thesis will seek to address the following question: How can climate adaptation and education mediate Meridian Hill's tension between a National Historic Landscape and a community park? Additional questions this thesis attempts to answer include:

- I. How can city parks provide meaningful access to nature-based activities and support a rising generation of environmental stewards in an increasingly urbanized society?
- II. How can design negotiate historic preservation and contemporary culture?
- III. Both climate change and culture are best understood through a temporal scale: how can the Park's changing ecosystem be recorded over time?
- IV. Can stewardship be a potential antidote to climate grief?



## Chapter 2: Literature Review

### 2.0 Definitions

**Cultural Landscapes** in the US are a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values (*Cultural Landscapes 101*, 2021). They were formally identified and defined as a cultural resource by the National Park Service's Management Policies in 1988 (National Park Service, 2001, p. vii). The four types of non-mutually exclusive cultural landscapes are: *historic designed landscapes*, which are significant as a design or work of art; *historic sites*, which are significant for their association with a historic event, activity, or person; *historic vernacular landscape*, whose use, construction, or physical layout reflects endemic traditions, customs, or beliefs, and; *ethnographic landscapes*, which contain natural and cultural resources that associated people define as heritage resources (*Cultural Landscapes 101*, 2021).

**Cultural Landscape Report (CLR)** is the principal document outlining the treatment, management, and use of cultural landscapes. Formally developed by the Secretary of the Interior—under the direction of the National Park Service—in 1997, CLRs may address either an entire landscape, a portion of a landscape, or a particular feature in the landscape (Page et al., 1998, p. 6).

**Preservation** is “the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features, rather than extensive replacement and new construction. Exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make

properties functional is appropriate within a preservation project” (*The Secretary of the Interior’s Standards for the Treatment of Historic Properties*, 2017, p. 2).

**Climate Adaptation**, as defined by the NPS, is “a specific form of stewardship intended to determine the parameters of acceptable change more broadly—allowing more change to occur. Acceptable changes remain compatible with the preservation of landscape characteristics and character defining features to the greatest extent possible; substitutions or alterations should be designed to increase the resilience or durability of the landscape within a changing climate” (Melnick et al., 2017, p. 7).

**Climate Change** is the long-term shift in average temperatures and weather patterns (Shaftel, n.d.). While natural processes—including cyclical ocean patterns and variations in the earth’s orbit—contribute to change, the bulk of changes observed in Earth’s climate since the mid-20th century have been driven by human activity. Fossil fuel burning in particular has increased heat-trapping greenhouse gas levels in Earth’s atmosphere.

**Climate Grief** is grief one feels in response to both the real and anticipated impacts of climate disruption. This includes feelings of despair, anger, fear, guilt, sadness, yearning, and disorganization, among other emotions (Bryant, 2019).

**Climate Resilience**, as defined by the Intergovernmental Panel of Climate Change (IPCC), is the ability of social and ecological systems to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization and the capacity to adapt to stress and change (Solomon & IPCC, 2007).

**Environmental Stewardship** is the responsible use and protection of the natural environment through conservation and sustainable practices to enhance ecosystem resilience and human well-being (Clark et al., 2010, p. 3) It can include environmental education that offers

age-appropriate opportunities for participants to connect with local ecosystems and encourages them to assume active roles in managing, protecting, and caring for their environment (*National Oceanic and Atmospheric Administration*, 2022).

### 2.1 Significance of Meridian Hill Park as a Cultural Landscape

Meridian Hill Park, located in northwest Washington D.C along 16th and W Street, is a 12-acre public park. Its conception derives from the US Senate Park Commission's McMillan Report ('Report') of 1901 (National Park Service, 2001, p. ix). The first governmental plan to regulate design aesthetics, the Report identified areas of existing and proposed green spaces to revive and complement the existing Pierre L'Enfant Plan of Washington, D.C. Congress subsequently created the US Commission of Fine Arts (CFA) in 1910 to "advise the government on matters pertaining to the arts," guide the architectural vernacular in the District, and oversee the implementation of the Report (National Park Service, 2001, p. 32).

Among the first of its recommendations, the CFA urged the federal government to purchase the lots along 15th and 16th Street NW. This recommendation was in line with the Report's initial proposal to create a coordinated park system in the District. The federal government—by way of the Secretary of the Interior—ultimately acquired the lots in September 1912 and appointed landscape architect for the Department of Public Buildings and Grounds George Burnap to lead the initial design development phase. This land—designed and developed between 1912 and 1936—would eventually become Meridian Hill Park, one of the first formal public parks in the US (National Park Service, 2001, p. 32).

The architectural and planning visions put forth by the Report and CFA were primarily inspired by the contemporaneous City Beautiful movement. The movement, which emerged following the 1893 World's Columbian Exposition in Chicago, sought to transform cities from austere industrial centers to aesthetic and planned environments for its inhabitants (*City Beautiful*

*Movement*, n.d.). The Report sought to apply these design principles to the nation's capital to “reflect, in stateliness and grandeur, the United States as a world power” (National Park Service, 2001, p. 37). In concert with the Report, the CFA envisioned Meridian Hill as being “comparable to the great public gardens of Rome, Paris and other national capitals...[it] shall set a high standard in design and execution for other American cities” (National Park Service, 2001, p. 57).

The design of Meridian Hill—initiated by Burnap and subsequently completed by successors Horace Peaslee and Ferruccio Vitale—responded to the charge. The Park's neoclassical components, including strong axial forms, dramatic terracing, cascading water, and large open plazas, are evocative of Italian Renaissance and French Formal garden designs. Indeed, the Park was described as “perhaps the most ambitious and successful example of Neoclassical park design in the United States”

upon its designation as a National Historic Landmark by the federal government in 1994.(US Department of the Interior, 1994)

Though its design pulled inspiration from European counterparts,

Meridian Hill ultimately assumed a distinct American sensibility through its reinterpretation of neoclassical forms in the “context of American technology and culture” (Brabec, 2002, p. 11). This reinterpretation included the use of new exposed aggregate concrete technology by John J Earley (Yglesias, 2005, p.4). Earley's patented technology, which utilized stones from the

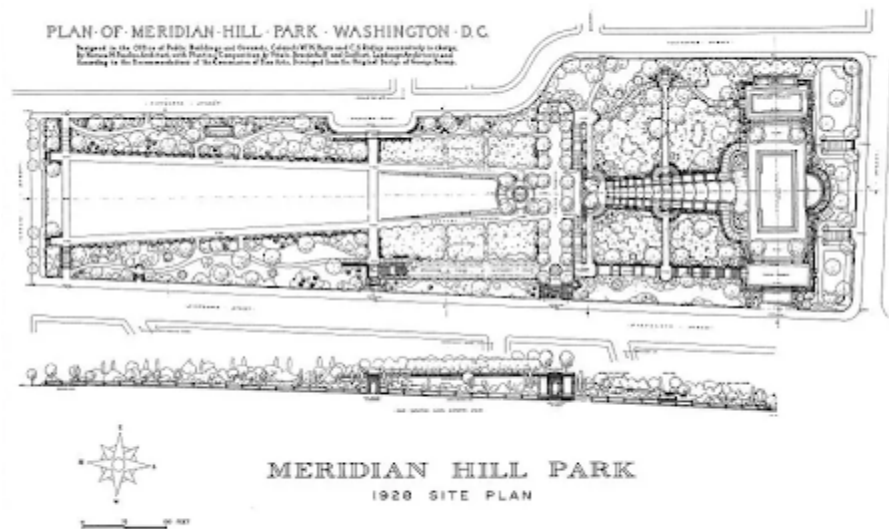


Figure 01: 1928 Site Plan for Meridian Hill Park (Source: Library of Congress)

neighboring Potomac River as the primary building material, situated Meridian Hill squarely in its geologic and geographic context.

Meridian Hill's design embodied the first nation-wide design movement that placed value on aesthetics for citizens. On the heels of the industrial revolution, it also embodied America's position at the forefront of technological advancement. The Park's 1994 designation as a National Historic Landmark—which places the period of significance between 1910 and 1936—cited the “technological achievement of the park's concrete construction” as “distinguish[ing] Meridian Hill as a nationally significant historic resource” (National Park Service, 2001, p. x). As Early's application of concrete was unprecedented for the time period, the Park arguably served as a laboratory to test new materials and technologies. Out of 2300 National Historic Landmarks, Meridian Hill is one of less than 20 historic designed landscapes that have received this designation, further demonstrating its significance in the context of American park design and construction technology.

## 2.2 Preservation of Meridian Hill Park

Meridian Hill Park eventually came under the auspices of the NPS in 1933 (National Park Service, 2001, p. 15). As a formally designed landscape, however, the Park deviated from NPS' typical oversight of natural landscapes or historic structures (National Park Service, 2001, p. 16). This apparent discord, paired with limited



Figure 02: Visitors at Meridian Hill Park, Date Unknown  
(Source: National Park Service Archives)

appropriated funding through wartime in the 1940s and 1950s, contributed to deficiencies in the

park's stewardship and its degradation in subsequent decades (National Park Service, 2001, p. 16).

Only in the late 20th century were cultural landscapes recognized by the NPS as significant to American heritage as "a record of our history, our relationship with the natural world, and our ideals of beauty and the quality of life" (National Park Service, 1994). Such landscapes were first identified as a type of cultural resource in the 1988 *NPS Management Policies* (Page et al., 1998, p. 7). In recognizing the rising importance of heritage landscapes and its role as their custodians, NPS began publishing its Cultural Landscape Reports shortly thereafter. Volumes I and II of Meridian Hill's Cultural Landscape Report—which respectively review the Park's design history and treatment approaches—were commissioned in 1995 and officially published in 1999.

Volume II of the Cultural Landscape Report in particular reviews four types of treatment options to address the Park's degradation: preservation, rehabilitation, restoration, and reconstruction. In line with the 1996 *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Land*, the Cultural Landscape Report ultimately recommended preservation for the Site. Preservation would be primarily focused on the Park's unique structural elements: hardscape, water features, retaining walls and architectural details. The Report also acknowledges that accessibility and interpretive education should be considered in the proposed treatment plan.

That said, these findings were published over 20 years ago and few changes have since been implemented. At present, much of the Park remains degraded with poor drainage; non-operational water, lighting, and sanitation features; failing vegetation; and few opportunities

for educational engagement. The NPS has recognized such failures within the Park, proposing in recent years a plan for rehabilitation of historic site features.

### 2.2.1 Scope of current preservation efforts

In 2019, the NPS submitted its final site development plans for its proposed improvements of the Park (National Capital Planning Commission, July 2019). The scope of the NPS' preservation efforts include: i) protecting historic features; ii) encouraging stewardship of natural resources; iii) balance commemorative works within the Park; and iv) improve access to, and connections between, the Park (National Capital Planning Commission, 2019). In particular, the proposal was focused on rehabilitating the architectural features of the Lower Plaza and Stair, replacing failing plantings and improving drainage throughout the Park, incorporating an ADA entrance at the Lower Plaza, and stabilizing the Buchanan Memorial.

At the time of writing, the Park remained uninhabited and in poor health. Habitation of the Park was further

hindered by accessibility

issues; in particular, only

two entrances—located on

the northern edge—remained

ADA accessible. That said,

the NPS has since

completed a first phase of rehabilitation on the Lower Plaza which includes the addition of an

ADA entrance, replacing non-original Zelkova trees with Columbia Plane trees and installing a

suspended paving system to support their growth, and the incorporation of additional plantings to

provide cooling and shelter.



*Figure 03: Proposed renovation of Lower Plaza, ADA entrance (Source: National Park Service, 2019)*

### 2.3 Community Stewardship and Preservation

The NPS has understood the difficulty of preserving Meridian Hill since its first Cultural Landscape Report was published. There is a tension between which culture the Park should reflect: should it be preserved as a national historic landscape in our nation's capital, or should it be maintained as a community resource for the Columbia Heights, U Street, and Adam's Morgan neighborhoods in Northwest Washington, DC? The report acknowledged this conundrum in 1999, citing "the duality between the Park's citywide importance and its function as a neighborhood park being at potential odds with its management as a cultural resource" (Friends of Meridian Hill, 1998).

NPS' lack of clarity of what type of cultural resource the Park should be since it first assumed control in 1933 has often contributed to management and stewardship shortcomings. A 1966 report commissioned by the NPS on the Park's electrical and plumbing systems noted that "everywhere one finds evidence of deliberate damage....nature has taken its toll over the years, but an irresponsible public has materially hastened the process" (National Park Service, 2001, p. 16). The lack of resources from NPS and attendance from visitors eventually enabled the Park to decline into a place for "vandalism and drug dealing" through the 1980s (Wheeler, 1990).

When asked about stewardship of the Park in 1990, a NPS supervisor in charge of overseeing Meridian Hill was quoted in the *Washington Post* as saying "nobody calls, never any complaints...nobody cares about that park" (Wheeler, 1990). A neighborhood group of volunteers—in an attempt to increase stewardship and care for what it viewed as an essential community resource—subsequently engaged in non-threatening means to patrol and patronize the Park. These efforts eventually increased Park attendance three-fold and decreased crime by 95 percent (Friends of Meridian Hill, 1998). These community-led efforts have had demonstrated



effects on the Park’s visitorship; perhaps a model of community-care and environmental stewardship can once again transform the Park into a beloved community resource.



Figure 04: Lack of environmental stewardship at the Park, 2023

### 2.3.1 Landscape Stewardship in Landscape Architecture

Ian McHarg, landscape architect and founder of the University of Pennsylvania’s (UPenn) Landscape Architecture Department, was one of the fiercest advocates for public stewardship of our natural world. McHarg argued that the ideal human is the “esteemed steward” and that humanity itself is “splendidly equipped to become the manager[s] of the biosphere; and give form to that symbiosis which is his greatest role, man the world’s steward” (McHarg, 1968, p. 227).

This stewardship, in his view, would be realized by an ecological planning method posited in his magnum opus *Design with Nature*, which overlayed different environmental data sets to identify the “highest and best use” of a landscape (McHarg, 1971). Though this overlay method would eventually become the precursor to modern geographical information systems (GIS), many designers found it too prescriptive and deterministic to accommodate for

implications of human culture. Indeed, he noted that his proposed methods “[were] explicit—where any man, assembling the same evidence, would come to the same conclusion” (McHarg, 1971).

Anne Whiston Spirn, McHarg’s eventual successor at UPenn, took on a more balanced view of environmental stewardship—one that considered its social and cultural context. For Spirn, environmental stewardship and education is rooted in an ethic of reciprocity. In her 1998 publication *The Language of Landscape*, Spirn posits that our “survival as a species depends upon adapting ourselves and our...settlements in new, life-sustaining ways, shaping contexts that acknowledge connections to air, earth, water, life, and to each other, and that help us feel and understand these connections, landscapes that are functional, sustainable, meaningful, and artful” (Spirn, 2014, p. 26).

In the spirit of Spirn, her contemporary Joan Nassauer simply defined stewardship as “literally the act of caring” in a 2011 paper titled *Care and stewardship: from home to planet* (Nassauer, 2011). In that same paper, Nassauer posits that this notion of care could provide opportunities to “engage people in planetary stewardship by connecting their responses to what they notice in everyday life with their effect on larger environmental systems” (Nassauer, 2011). This feeling of care for our immediate community, she argues “...can build in scale and impact...so as to bridge the local and the regional, if not the global” (Nassauer, 2011).

Through her broad, seminal work on cultivating care for the landscape, Nassauer supports the idea that hyperlocal interventions can have meaningful effects on broader environmental issues. This provides designers with clues on how to work across disparate scales to address the awesome environmental challenges of our times, particularly climate change. Further, it supports

the notion that no act is too small: a community park and those who care for it are still essential in the ripple effects of change.

Finally, Elizabeth K Meyer provides a language of aesthetics with which to interpret Spirn's and Nassauer's celebration of—and care for—ecosystem services. Author of *Sustaining Beauty*, which advocates for beauty as a tenet of environmental sustainability, Meyer argues that designed landscapes should “provoke those who experience them to be more aware of how their actions affect the environment, and to care enough to make changes in their actions” (Meyer, 2012). For Meyer, legibility in landscape translates into beauty and ultimately a sense of care: “beautiful, immersive, sensual experience of landscape...can prompt love, respect, care for the environment” (Meyer, 2012).

Aesthetics, however, are also an exercise of duration and education. In *Beyond Sustaining Beauty*, a reflection of her initial manifesto, Meyer notes that time is required to comprehend the beautiful: aesthetic experience “requires duration, and exists in the exchange between what one sees/experiences and what one knows...it builds a mode of intuition that combines feelings and knowledge...[producing] its own form of cognition” (Meyer, 2015).

Meyer's acknowledgement of a temporal scale is critical in understanding the human relationship to nature. Nature and culture are never static; there is a symbiosis between the two, though they change at disparate rates and scales. Education can help us comprehend such landscape dynamics, telling the “on-going story of the integration of natural and cultural systems” (Rockman et al., 2016, p. 32). Historically, cultural landscapes may have found it difficult to contend with social and environmental change due to traditional historic treatment guidelines. However, an emerging climate-focused sentiment from the NPS can help bring

interpretive education and programming to our cultural landscapes, making the changes in our landscapes, climates, and culture legible.

#### 2.4 Climate Change and Cultural Landscapes

Climate change is one of the biggest threats to cultural landscapes (Melnick et al., 2017, p. 32). Though common challenges to conservation—including insufficient management and resources (Otero, 2022)—have long been acknowledged by both the NPS and international governance bodies (e.g. IPCC, the United Nations), climate adaptive solutions have only recently come to the fore of traditional historic and cultural preservation practice.

In the US particularly, 2010 was the first year that the NPS first formally acknowledged the threat of climate change on NPS-stewarded landscapes and the need for a coordinated response in its *Climate Change Response Strategy*. In it, the then-director of the NPS stated that “climate change is fundamentally the greatest threat to the integrity of our national parks that we have ever experienced” signaling a potential paradigm shift in NPS taking a more proactive role in its landscape stewardship efforts (National Park Service, 2010).

The 2010 strategy laid out a general framework to guide the NPS in its climate action: its four components included i) science, ii) adaptation, iii) mitigation, and iv) communication, and 15 goals were established across these four themes. Goal 7, under the adaptation component, was particularly created for the climate-adaptive treatment of cultural resources. In 2016, the centennial of its founding, the NPS published a more comprehensive strategy around the 2010 report that explicitly focused on detailing best practices to address Goal 7.(Rockman et al., 2016).

The 2016 strategy is further organized into four overarching goals for cultural resource management: i) connecting impacts and information, ii) understanding the scope, iii) integrating practice, and iv) learning and sharing. Goal iii in particular incorporates education, interpretation,

and stewardship in its mandate, providing a potential framework for the Design's educational programming and stewardship activities at the Park.

#### 2.4.1 Beyond Preservation: Climate Adaptation and Stewardship

In a supplemental document titled *Climate Change and Cultural Landscapes: A Guide to Research, Planning, and Stewardship*, published by the NPS and the University of Oregon's Cultural Landscape Research Group in 2017, the NPS brings into sharp focus climate-conscious stewardship of Cultural Landscapes (Melnick et al., 2017). It states that the goal of such stewardship is to "...physically protect a cultural landscape, without [arresting] change" (Melnick et al., 2017, p. 22). This stands in contrast to traditional preservation efforts, which typically seek to suspend and maintain artifacts in the historic period in which they were created.

*Climate Change and Cultural Landscapes* also suggests a stewardship approach rooted in adaptation, which is a particular form of environmental stewardship that allows more changes to occur over time in a Cultural Landscape so as to "increase the resilience or durability of the landscape within a changing climate" (Melnick et al., 2017, p. 22).

To help execute climate-adaptive stewardship mechanisms in Cultural Landscapes, the NPS suggests identifying future partnerships to ensure long-term care of Cultural Landscape assets. In concert with Goal iv (learning and sharing) of NPS' 2016 climate strategy, this focus on climate adaptation and stewardship provides an opportunity to engage in new methods of environmental data gathering and education within cultural landscapes.

Though not explicit in the 2016 NPS strategy, new modes of information sharing can and should include insights derived from the public on public land—not just institutions. The federal government is beginning to acknowledge the power of information sharing and crowd-sourcing data amongst citizens in the digital age, having recently instituted the Citizen Science Initiative

under the The US General Services Administration (*CitizenScience.Gov*, n.d.). The aim of the initiative is “to help accelerate innovation through public participation” and mediate scales of impact (*CitizenScience.Gov*, n.d.). This mediation can help address the original conundrum faced by the NPS in regards to Meridian Hill Park: is it a national relic or a community resource?

Through data-sharing, community-driven insights from local users can inform regional or national conservation, sustainability, and environmental education efforts, and reveal broader cultural and societal trends, bridging the gap between the Park’s competing cultural contributions. Indeed, this type of citizen science can support the NPS’ mission of “stewardship science,” (Melnick et al., 2017) which considers biophysical, social and cultural inputs as critical to understanding our changing climate.

#### 2.4.2 Landscape Stewardship as an Antidote to Climate Grief

Though the NPS’ climate change frameworks have attempted to break down the remarkable task of addressing climate change in our nation’s protected landscapes at the institutional level, the immensity of climate change and its global reach can often feel debilitating to the individual. This feeling of climate grief, an increasingly popular topic among psychology researchers, can evoke a sense of helplessness, hopelessness, or even apathy for any one individual (Bryant, 2019).

Leslie Davenport, a climate psychologist, offers five tools for building resiliency in the face of climate grief. Most pertinent to this paper, her fifth recommendation on *creative expression* posits that climate grief can be “most heightened by the contemplation of how the richness of human creativity might be damaged or lost entirely—a grief based in love for the most precious expressions of our species” (Bryant, 2019). To address this, Davenport’s research

suggests shifting focus from *what have we done* (a backwards-looking, uncreative perspective) to *what can we do* (a forward-looking, creative perspective).

Environmental activist and researcher Joanna Rogers Macy shares this action-based perspective. She is quoted by indigenous ecologist Dr. Robin Wall Kimmerer as saying “that until we can grieve for our planet we cannot love it—grieving is a sign of spiritual health. But it is not enough to weep for our lost landscapes; we have to put our hands in the earth to make ourselves whole again...I choose joy over despair. Not because I have my head in the sand, but because joy is what the earth gives me daily and I must return the gift” (Kimmerer, 2013). Macy provides an ethos that both acknowledges the immensity of grief associated with environmental loss and argues that through action, we can and must still reciprocate the enduring gifts of nature—even through loss and suffering.

Robert Thayer’s *Gray World, Green Heart* specifically tackles environmental despair in the arena of landscape architecture, arguing that “we must learn the joy of working on the solutions—not to be consumed by despair over the immensity of the task—but enriched by the steps to be taken...”(Thayer, 1994, p.133). His subsequent publication *Life Place: Bioregional Thought and Practice* provides further cues to consider how design and sense of place can help address societal fractures in our communities. He notes that a “bioregional sense of place can shape...every aspect of a community’s material, political, and spiritual well-being” (Thayer, 2003). Perhaps by incorporating and communicating climate-adaptive features in public spaces, along with providing people a means to be active participants in its stewardship, can help fortify and sustain the resolve needed to face the climate crisis.

#### 2.4.3 Regional Impacts: Effects of Climate Change in Washington, D.C.

The climate crisis in Washington, DC is best evidenced by increased severe weather events, sustained heat waves, rising sea levels and higher tides, and heavy rains and flooding (Department of Energy & Environment, n.d.). The crisis is further exacerbated by urban development, which comprises nearly 80 percent of DC's surface area and impedes on the resilience and efficacy of ecosystem services (*Nature | Sustainable DC*, n.d.). In 2016, the city's Department of Energy & Environment (DEE) established a Commission on Climate Change and Resiliency (DCCCCR) to assess the impacts of climate change at the individual, neighborhood, and city scales, subsequently committing to a strategy of climate adaptation and mitigation.

The DEE defines climate adaptation as “taking actions today to prepare people, homes, communities, businesses, and infrastructure to the potential impacts of climate change” (Department of Energy & Environment, n.d.). In June 2018, the DEE published *Sustainable 2.0*, a robust roadmap to addressing climate change impacts across the three scales (individual, neighborhood, and city). While the report's design-specific implications are explored in subsequent chapters, it is essential to note that—like the NPS—the DEE explicitly recommends “improving human access to and stewardship of green space” under Goal 3 of its nature-based climate considerations. Further, it identifies nature-based play and outdoor education as a sub-goal of addressing access to stewardship opportunities across generations. A multi-generational stewardship model may serve to bridge city-specific climate goals and the NPS' implementation of climate adaptation framework, mediating the aforementioned tension of the Park as both a community asset and national relic.

#### 2.5 Children in the Landscape

Climate change is the environmental and cultural heritage of the future (Melnick et al., 2017, p. 32). As such, there is a growing case for environmental stewardship in the US on the



basis of moral obligations to younger generations. According to a recent study published by the Aspen Institute, 74 percent of adult Americans feel a “moral obligation to make the world a better place by addressing climate change not only for their own children and grandchildren, but for all children to come” (Blank, 2022).

While the sentiment advocates for adult stewardship on behalf of younger Americans, this design in particular will explore a shift in perspective: instead of just viewing children as *future* agents of change and consolidating stewardship powers among adult agents, what if young children engaged in age-appropriate means for socioecological community participation and stewardship *now* (Dominguez Contreras & Krasny, 2022)?

#### 2.5.1 Children and Environmental Stewardship

Only recently have researchers begun to shift focus from children as passive agents in the landscape to considering them as active agents of civic engagement and stewardship. The bulk of literature on environmental education for children focuses on the benefits of nature play.

Traditional theories of environmental education—initially posited by Louise Chawla (professor emerita of the University of Colorado-Boulder’s environmental design program) in 1998—assumes a child’s time spent engaging in nature-based play can lead to a strong affinity for nature and, in turn, encourage pro-environmental attitudes (Chawla & Derr, 2012) and environmental stewardship as an adult (Chawla, 1998)

Emergent research conducted by Dr. Stephanie C Serriere at the University of Indiana enriches Chawla’s debate on *passive* nature-based play in environmental education by exploring benefits of *active* civic engagement on childhood stewardship. Her research suggests that when children participate in civic engagement and help improve their local context, this participation becomes the foundation for a “lifetime of civic engagement and empowerment” (Serriere, 2019)

In addition to having positive, direct experiences in nature, Chawla’s research suggests the second most important indicator of sustained stewardship in children are trusted role models (e.g. parents, grandparents, caregivers, guardians) with whom they spend time in nature and share nature-based experiences (Chawla & Derr, 2012). Rachel Carson, esteemed nature writer and environmentalist, also understood this to be true in decades prior. In *The Sense of Wonder*, posthumously published in 1964, Carson quite sentiently affirms that “if a child is to keep alive his inborn sense of wonder...he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in” (Carson & Pratt, 1965). Such wonder, Carson continues, can be the “unfailing antidote against the boredom and disenchantments of later years, the sterile preoccupation with things that are artificial, the alienation from the sources of our strength.”

#### 2.5.1.1 Three components of stewardship

Subsequent research studies conducted in the Dominican Republic in 2022 reveal promising data on the positive benefits of age-appropriate stewardship activities on lasting pro-environmentalist behaviors. Researchers there concluded that three components—reflection, non-objectification of nature, and a shared strong image of a child—may be the required inputs of stewardship programs to yield returns for both children and their communities (Dominguez Contreras & Krasny, 2022).

In addition to designing age-appropriate activities for children to engage in, there must also be an opportunity for children to reflect on those activities: such reflection enables them to connect environmental stewardship to “a broader understanding and awareness of the importance of their actions.” Sharing these reflections with a trusted adult, in turn, enables them to recognize the children’s perspectives and support them to effect change.

Stewardship programs should also instruct children about nature's agency, demonstrating nature as a teacher. This non-objectification of nature could support a shared agency between children and the landscape. Such reflection prompts to advance this agency include: How did you care for nature today? Finally, educators should have a "strong image of a child" that considers them as capable and full of potential.

#### 2.5.2 Teenagers in the Landscape

Often ignored in environmental education discourse, teenagers too have much to gain by way of social development in spending time outdoors. Patsy Owens Eubanks, professor of landscape architecture and environmental design at the University of California, argues that access to the public realm is fundamental in adolescent development (Owens, 2020). In particular, she posits that access to parks and green spaces can help develop an adolescent's sense of social responsibility. Such social responsibility, according to Owens, can be gained through participation in community decision making and service-based activities.

However, Owens' interviews of adolescent focus groups reveal that many do not feel like public parks foster a sense of belonging or responsibility within their community (Owens, 2020). When adolescents do have the opportunity to participate in civic engagement and volunteerism, it can help them develop a "pro-social identity" and find their "place" in their community (McIntosh et al., 2005). Similar to the aforementioned views on environmental education and stewardship, such identity-building for adolescents in the public realm can have life-long implications on social involvement.

#### 2.5.3 Calls for Urgency: Urbanization

At present, over 50 percent of the world's population reside in cities. By 2050, the World Bank estimates that number will increase to 70 percent. In this rapidly urbanizing world, children

and adolescents have increased access to technology and decreased access to nature (Louv, 2010) Supporting their sense of wonder, responsibility, and independence through nature-based activities in an urban context is both urgent and critical. A recent report prepared by the International Union for the Conservation of Nature and the Children and Nature Network argues that “creating nature-rich cities and urban protected areas is an essential part of a long-term strategy to care for the Earth” (Charles et al., 2018). In the absence of such a strategy, we may fail to raise emerging generations of environmental stewards essential in sustaining the fight against climate change.

## 2.6 Case Studies

In addition to the aforementioned case study on the Park’s community-led stewardship efforts of the 1990s, the following case studies demonstrate the feasibility of community stewardship, citizen science and climate education, and successful revitalization design in historic cultural landscapes.

### 2.6.1. Bryant Park: Revitalization of a Cultural Landscape

Bryant Park is a 10-acre park in Manhattan, New York. The storied park was built in 1907, coinciding with the adjacent development of the New York Public Library (The Cultural Landscape Foundation, n.d.-c). Its original Victorian design, completed by Charles Lay, Samuel Parsons Jr and Charles Lay, featured curved pathways, planting beds, and a memorial foundation dedicated to Josephine Shaw Lowell. The park fell into a period of neglect shortly thereafter and was eventually redesigned by architect Lusby Sumpson in the early 1930s.

Despite its redesign, the Park continued to decline through the mid-20th century primarily due to a lack of funding and its locale in a business district, which was only densely populated during the day (*History of Bryant Park*, n.d.). Its design also contributed to its decline:

raised above street grade and surrounded by tall fences and hedges, the Park degraded into a place for illegal activity.

The park was listed in the National Historic Register of Historic Places in 1966, predating urban planner's William H Whyte's recommendations for the Park through his esteemed *Street Life Project* (Hine, 2013). The recommendations, which included an abundance of places to sit and gather and increasing density and visual permeability, were heeded by Hanna/Olin's redesign of the Park between 1988 and 1992. The redesign—made possible by funding secured through public-private partnership the Bryant Park Restoration Corporation—reduced crime by 92 percent and doubled its annual visitors.

In addition to the Hanna/Olin redesign, programming played an essential role in revitalizing this public space. Restaurant pavilions, concession kiosks, and movable bistro chairs all serve to activate the Park and attract a variety of users into the space. While the NPS has recommended preservation for Meridian Hill Park, a treatment which does not allow for the addition of structures on site, the success of Bryant Park's architectural addition posits that structures—when applied appropriately—can be valuable tools to activate and program historic landscapes. The more users that are in a space, this paper argues, the more opportunity a design has to communicate its rich heritage through engagement and educational opportunities.

#### 2.6.2. Central Park: A Climate Laboratory

Central Park, located in New York City, is a beloved 843-acre park designed by Frederick Law Olmsted in 1858. From its inception, the Park has served as a venue for studying environmental and climatic shifts in New York: the National Weather Service has recorded New York's daily temperature from the park since 1869 (Central Park Conservancy, 2023). In accordance with the rising urgency of the climate crisis, The Central Park Conservancy—in partnership with

the Yale School of the Environment and the Natural Areas Conservancy—recently established the Central Park Climate Lab (Lab) in 2022 (Central Park Conservancy, 2022).

Utilizing data derived directly from the park, the nascent Lab aims to conduct climate research and share insights at the local, state, and national level to help urban parks contend with climate change. Some studies conducted at Central Park include measuring the cooling effects of tree canopy using bluetooth sensors attached to trees and measuring trees to determine how much carbon is being sequestered on-site. As there are presently no unified sources of information, policy recommendations, or best practices for climate adaptation in public parks, the Lab will create, consolidate, and communicate scalable adaptation strategies for other cities to leverage in their public parks system.

Most important to this thesis, the Lab considers urban parks as having a unique and essential role in addressing the climate emergency. Further, it demonstrates an innovative multiscale approach to climate cooperation by sharing its own local insights to inform parallel regional and national climate research of urban parks. As the Lab intends to soon scale its research efforts to urban parks beyond New York, this thesis considers the potential of such expansion to Meridian Hill Park.

#### 2.6.3. Brooklyn Botanic Garden: Nature-based Youth Programming

Brooklyn Botanic Garden, a cultural landscape originally designed in 1911, has been a venue for youth programming and engagement since its inception (The Cultural Landscape Foundation, n.d.-b). Its Children's Garden opened in 1914 and has since invited youth visitors to engage in gardening, outdoor classes, and nature-based activities (Brooklyn Botanic Garden, n.d.). More specifically, the Children's Garden focuses on the importance of greening the urban environment through education, sustainable practices, and stewardship. Like this paper, the

Children’s Garden considers young people as active participants in, not just spectators of, community conservation efforts.

Programming activities at the Children’s Garden are organized by age-level: younger children engage in the landscape through guided activities and investigations alongside adult partners, whereas teenagers are offered more responsibility through junior botanist, garden apprenticeship, and mentorship and teaching positions. Activities are seasonally and developmentally-appropriate, and are linked to existing youth and academic programs in the city to create a pipeline of emerging “green” talent.

This serves as a model for future youth programming at Meridian Hill Park. By connecting programming at the Park to collaborations with local schools and neighboring gardens, the Site can generate a sustained network of community steward training and environmental education opportunities. What’s more, programming completed at the youth and adolescent level can eventually feed into the city’s existing Green Corps—a workforce development program for the fields of urban forestry and agriculture, green infrastructure, and related fields—and develop a meaningful pipeline of emerging environmental stewards in Washington, DC (Washington Parks and People, 2015).

## 2.7 Summary

Caring for cultural landscapes is essential in the continuity and understanding of our shared heritage. Such landscapes “reveal aspects of our country’s origins” and demonstrate our evolving relationship with the natural world (The Cultural Landscape Foundation, n.d.). At present, however, Meridian Hill Park is doing neither successfully. The richness of its design history is not translated on site, and there are few opportunities to interpret its cultural significance. Further, the current lack of attendance at the Park renders existing interpretation efforts ineffective.

If the Cultural Landscape Foundation argues that the “ongoing care and interpretation of [cultural landscapes] improves our quality of life and deepen a sense of place and identity for future generations,” then Meridian Hill is a worthy venue to explore how such landscapes can be adapted and re-interpreted in the context of climate change, an issue that is both at the fore of contemporary culture and the heritage of future generations. Climate adaptation of cultural assets can provide communities with a tangible datum for understanding and interpreting the impacts of climate change in their locale, offer respite against such impacts, and ultimately strengthen connections to place.

The NPS also understands that maintaining Meridian Hill Park as solely a historic resource is not enough, noting that depicting it “at a particular period of time is not appropriate” (Cultural Report Volume II page 12). While the NPS’ Climate Adaption of Cultural Resources framework offers a launching point for the climate-conscious redesign of Meridian Hill, emerging local and regional climate adaptation research efforts and initiatives must also inform the Design, as these efforts have the greatest impact on the communities utilizing the Park.

Finally, we need reciprocity between humans and nature to survive. Through beauty and education, climate-adaptive changes at the Park can be made legible. Legibility, paired with stewardship and increasing communion with nature, can deepen and sustain an affinity to nature that is increasingly compromised by urbanization. Supporting this affinity in children is particularly important; their contribution runway is longer than the preceding generations, as they will be around to advance environmental and climate justice after their elders have gone.



## **Chapter 3: Site Selection, Inventory, and Analysis**

### **3.1 Site Introduction: Historic Design Intention and Usage**

Meridian Hill Park is a 12-acre public park located in Ward 1 of Washington, DC between 16th Street NW and W Street NW. As mentioned in section 2.1 above, it was built between 1912 and 1936. It was initially imagined as a regional park, “designed for use as a general congregation point, attracting visitors from all over the city, the design for which would embrace provision for a large number of people” (Minutes, 1912, 7-8). Further, it was intended to serve as a climate respite for citizens to utilize during DC’s characteristically hot and humid summers, evidenced by the Cascading Fountain and Reflecting Pool respectively located at the central and southern portions of the Park. Usage of the Park peaked in the early 1940s when the planting and lighting design were at its best, according to the National Park Service (cite).

The Park fell into a two-decade period of degradation shortly thereafter, with funding previously earmarked for public parks being re-prioritized for defense spending relating to World War II and the subsequent Cold War. By the 1960s, the Park was once again reinvigorated by community-based events, including an outdoor concert series. Following the assassination of Martin Luther King Jr, however, the Park turned from a venue of recreation to one of activism. It became a central meeting point for civil rights activists in Washington, DC, and in 1969 the Black United Front proposed to rename the Park “Malcolm X Park” to celebrate the esteemed civil rights leader. While the proposal was never officially approved by Congress—which barred the renaming due to the existence of a Presidential memorial (Buchanan) at the Park—the legacy remains today with many community members referring to the Park as “Malcolm X Park.”

Other key community activists of this time period include Josephine Butler, an esteemed champion of racial and gender equality and environmental justice (Swift, 2018). Through the 1950s and 60s, she served as a community health educator for the American Lung Association

and educated thousands of children on the impacts of air pollution before environmental justice and climate change entered into the national dialogue. Her passion for revitalizing public parks and creating safe havens for children and families culminated into—among other prominent roles—her co-chair positions at the Friends of Meridian Hill Association, the organization that led the revitalization of the Park in the 1990s. She passed away in 1997 and a building directly adjacent to the Park now stands in her honor. Operated by Washington Parks and People, the Josephine Butler Park Center is a non-profit organization that aims to grow city-wide parks based on community health and vitality by nurturing innovation and partnerships.

Butler's legacy has endured at the Park. The Park continues to serve as a community respite and is home to the famous Sunday drum circle, a community mainstay that has occurred nearly every weekend for over forty years. The Park's Upper Mall in particular is popular for passive recreation among community members. During the COVID-19 pandemic, however, attendance at the Park plummeted due to social distancing measures and rising public health concerns. It again became a venue for activism, hosting several protests on social and environmental justice through the early 2020s, and activists regularly publish posters in and around the Park to advance their cause [insert site photos here].

The Park's enduring legacy as a beloved and dynamic community asset renders it an acceptable venue to explore the topics of cultural preservation and climate change, an issue important to community members evidenced by recent activism.

## 3.2 Site Inventory and Analysis

### 3.2.1 Regional Context

Meridian Hill Park is located in Washington, DC, which is adjacent to Maryland and Virginia. It is located on the Atlantic Seaboard Fall Line, a geological escarpment where the Piedmont Plateau and Atlantic Coastal Plain meet.

### 3.2.2 Local Context

This escarpment results in dramatic topographic change along the northern quadrants of Washington, DC. Meridian Hill Park in particular is situated along this escarpment, mediating nearly 90' in grade change over the park's 12 acres (see figure XX, below).

Washington, DC is currently in USDA climate hardiness zone 7 (Forest Adaptation, 2017). In a low emissions scenario, climate change is intended to advance the city's climate hardiness zone to 8 by the end of the century. In a high emissions scenario, this is expected to reach zone 9. Climate change in DC is

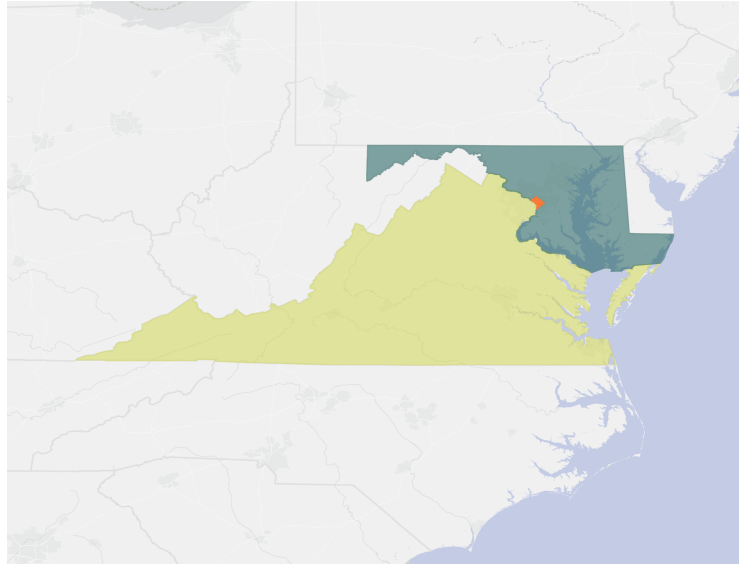


Figure 05: Regional Context (Virginia [Yellow]; Maryland [Blue]; Washington, DC [Orange])

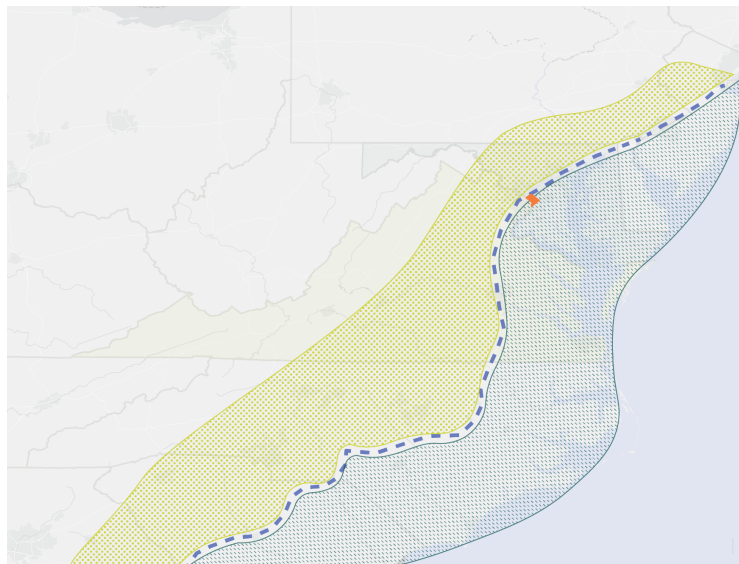


Figure 06: Regional Context (Piedmont Plateau [Yellow]; Atlantic Coastal Plain [Blue]; Fall Line [Dashed])

expected to manifest in an increased number of heat emergency days and extreme precipitation events, such as higher tides, heavy rains, flooding (Department of Energy & Environment, n.d.).

According to DC's climate risk data, which evaluates a community's social and economic vulnerability against climate change impacts, Meridian Hill Park is located in a medium risk zone (Department of Energy and Environment, 2023). Urban heat island effect and stormwater management are the two key issues affecting the Site particularly.

Three main watersheds comprise Washington, DC; Rock Creek, Anacostia, and the Potomac. These watersheds ultimately lead to the

Chesapeake Bay. Meridian Hill Park is located near the confluence of all three watersheds, as shown in figure XX below.

Meridian Hill Park is part of the Rock Creek Park System, which is managed by the National Park Service. The extent of the system is shown in figure XX below.

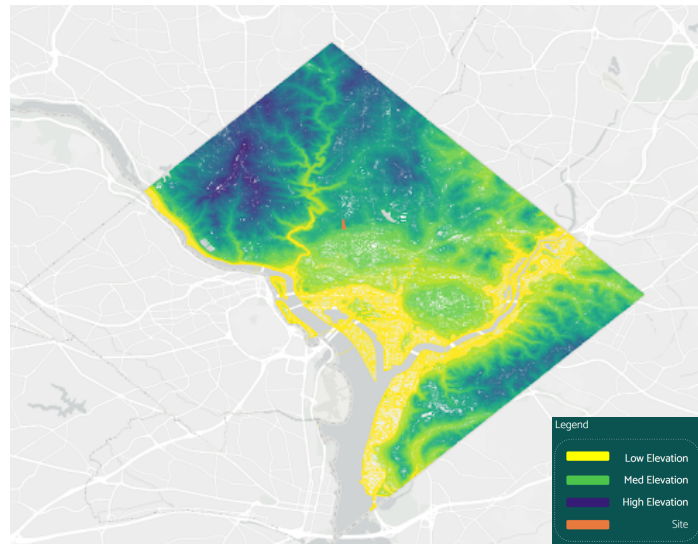


Figure 07: Washington, DC Elevation Map

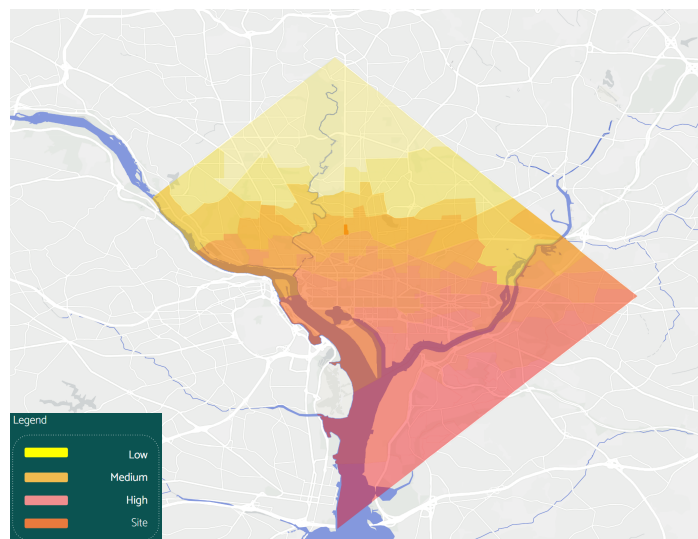


Figure 08: Washington, DC Climate Sensitivity Map

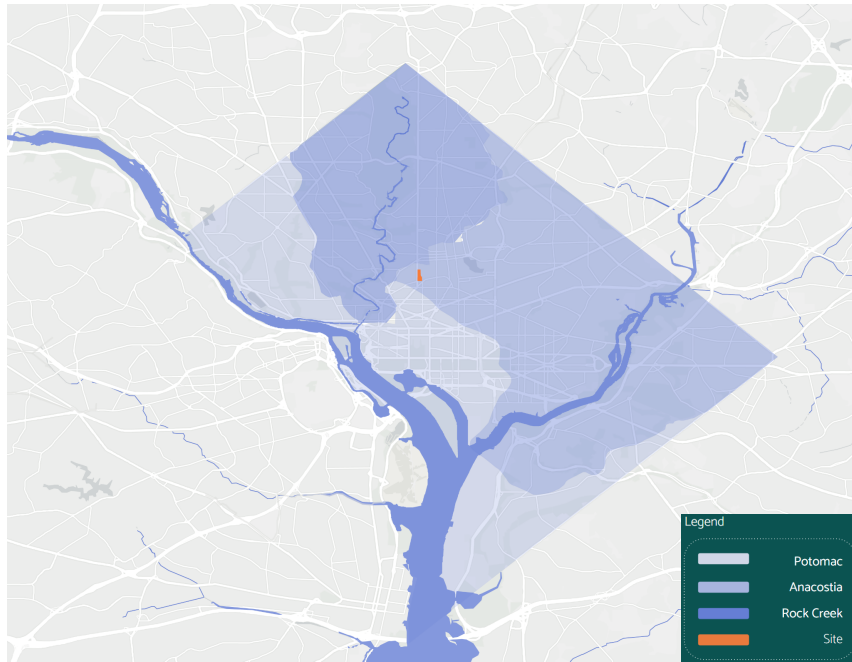


Figure 09: Washington, DC Watershed Map

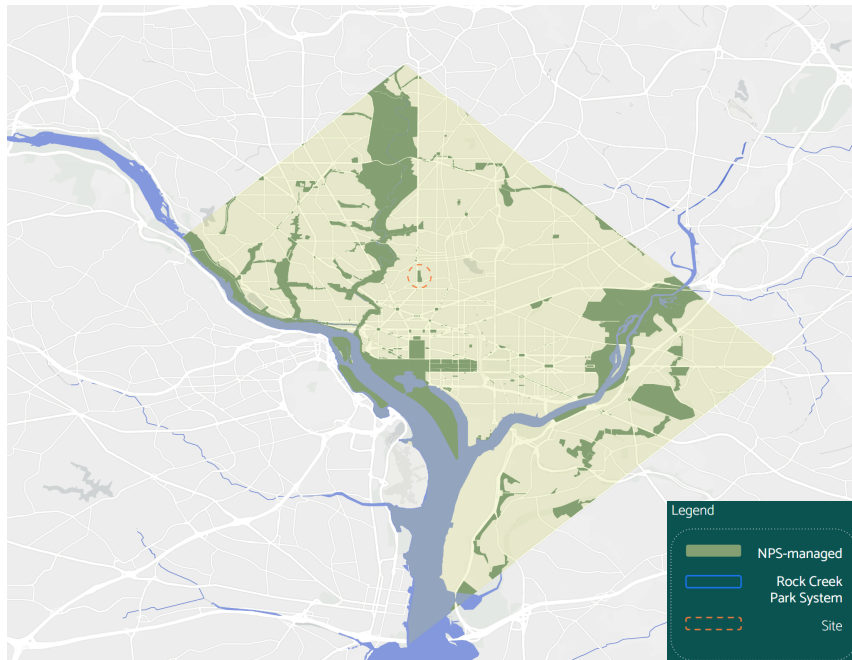


Figure 10: Washington, DC Rock Creek Park System Map

### 3.2.3 Community Context

As mentioned above, the Fall Line is situated along the Park's southern end. The steep grade changes make it imperative to manage infiltrate stormwater at the bottom of the Site, where the Park's elevation is lowest. Increasing surface permeability, filtering and retaining



stormwater on site for re-use, and adding erosion-control vegetation will all help to manage stormwater across the steep site.

The Site is situated in a community that enjoys a robust street tree canopy network. Ensuring that the Park responds to and enhances this existing network along its perimeters is also a consideration of this design.

One of the biggest challenges facing the Park is zoning. At present, the Park is surrounded by residential and institutional zoning uses, isolating it from the robust commercial activity and subsequent pedestrian traffic of the nearby U Street Corridor and Adams Morgan neighborhoods. This lack of foot traffic along the Park's immediate edges, paired with the steep pedestrian sidewalks along 15th and 16th street, results in a low density of Park visitors.

The Design will address this zoning challenge through circulation. The Park is easily accessible by several metro stations, bus routes, bike paths, and bike and scooter-share services. At present, W Street along the Park's southern

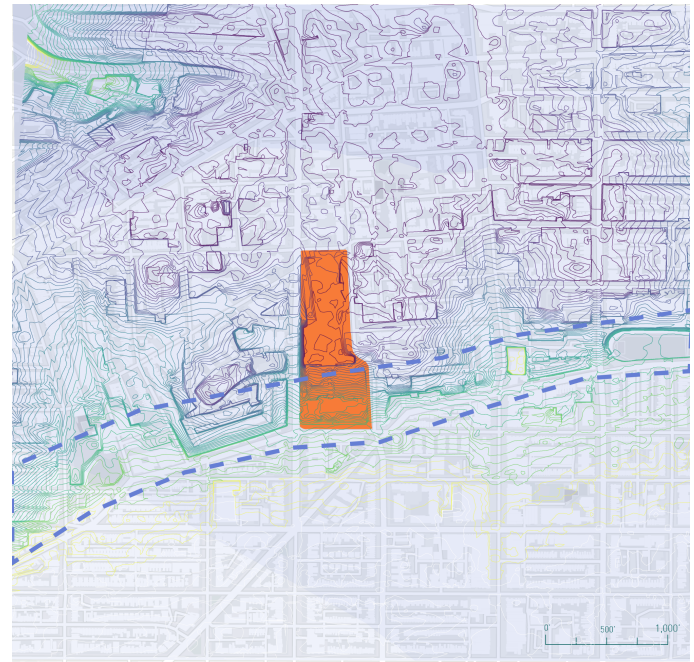


Figure 11: Fall Line at Meridian Hill Park

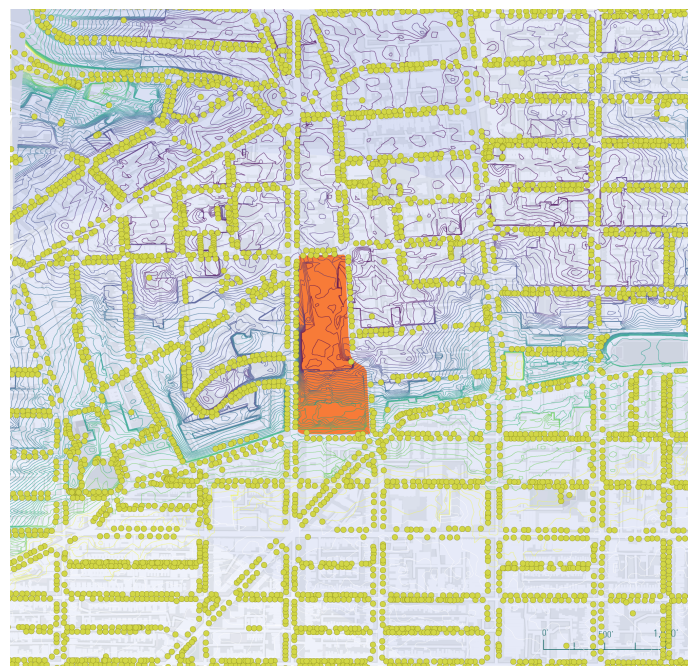


Figure 12: Tree Canopy Context

edge serves as a one-way vehicular route. Observations of W Street reveal that it is not a heavily-used route when compared to U Street or 15th and 16th Streets, which all serve as multi-lane arterial roads. The design proposes that W Street be transformed into pedestrian only, allowing for flexible commercial activity to occur on an intermittent basis and attract more visitors. For example, the street can serve as a destination for a seasonal farmer's market.

In addition to circulation and zoning, another key consideration was the building context immediately surrounding the Site. The bulk of these buildings are high-density apartment buildings, ranging between five and ten stories. Perhaps most critical is a ten-story apartment building immediately adjacent to the Park's southern edge along W Street. This building casts considerable shade on the Park in the winter months, impacting the plant palette selection for that area. Also, the Design will consider ways to screen views to this building from the Site to enhance the viewshed from the lower plaza. Lastly, institutions occupying buildings adjacent to the Park were identified to help support programming needs for the proposed

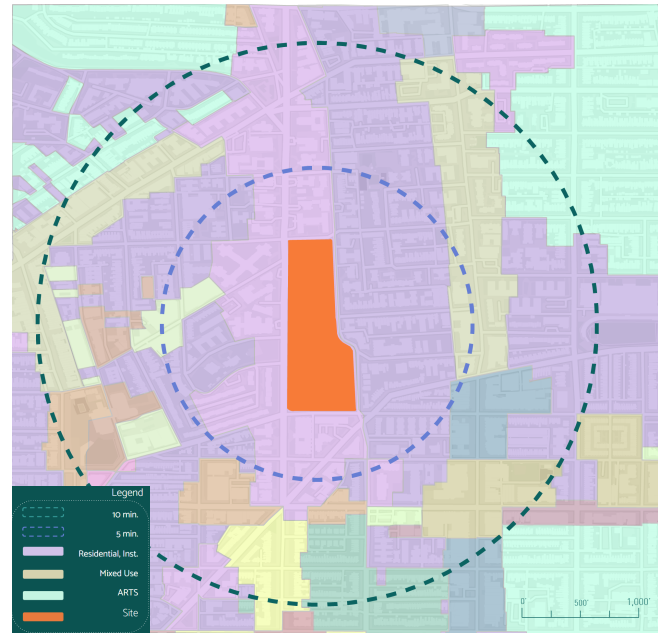


Figure 13: Community Zoning Context

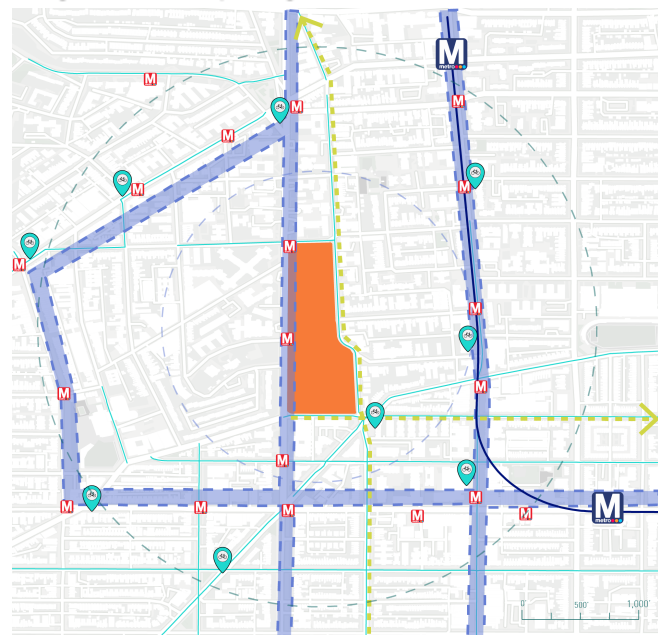


Figure 14: Community Circulation Context

design. Key institutions identified include the aforementioned Josephine Butler Parks Center, which currently serves as a community events and programming space.

Lastly, the community's sociocultural context was considered. The Park is located between the Columbia Heights, U Street, Adams Morgan, and Dupont Circle neighborhoods. According to US Census Data for Washington, DC, the neighborhoods have a combined population of 85,600 people (*2020 Census: Information and Data*, n.d.). 8,730 of this population, or around ten percent are children under 18. The median household income for the area is \$98,000.

As this thesis is primarily concerned with designing for children and adolescents, identifying nearby schools and community institutions that serve this population was crucial. There is one high school, three middle schools, three elementary schools, and seven daycare centers within a 10-minute walk to the Park. Additionally, there are two community centers and three

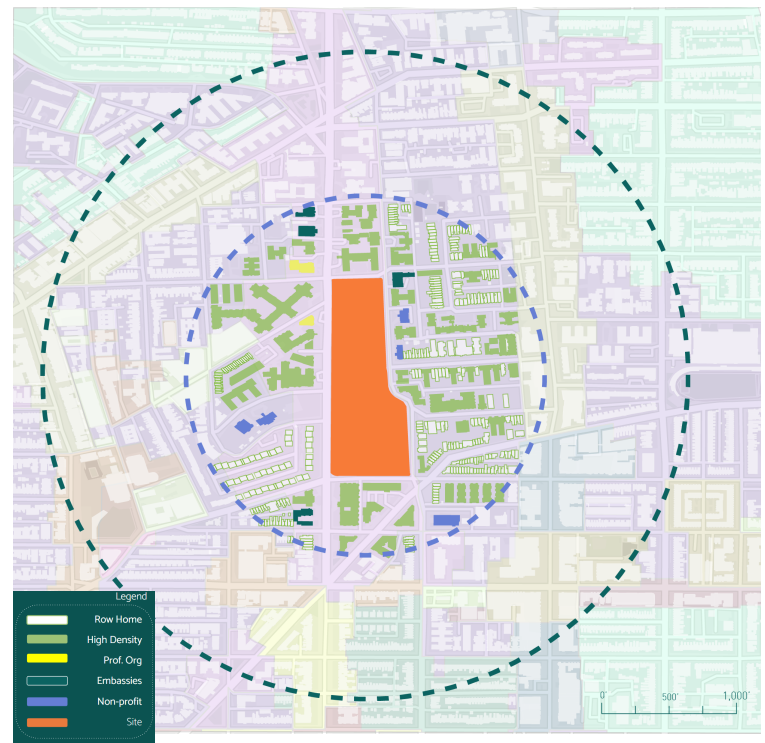


Figure 15: Community Building Context

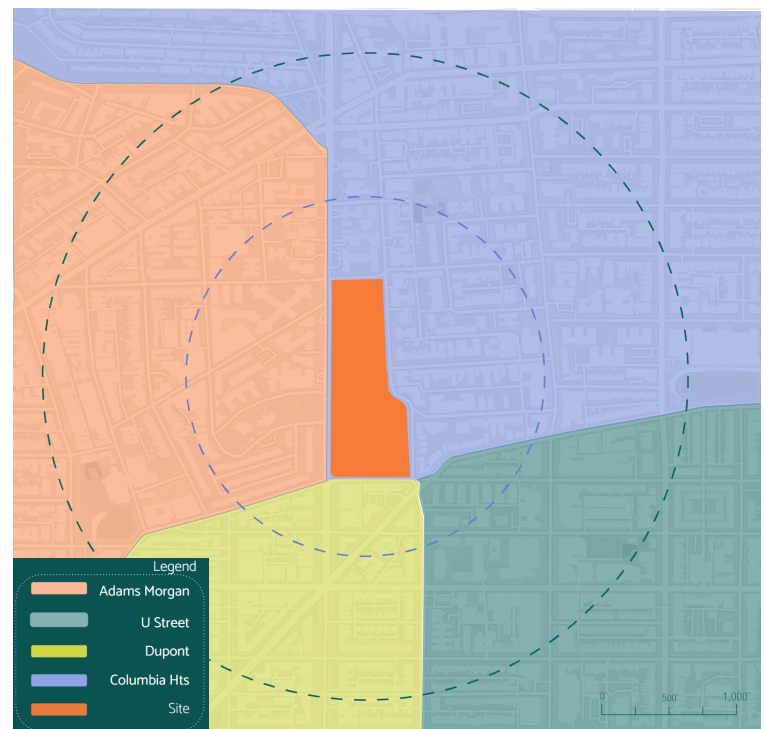


Figure 16: Neighborhood Context



community gardens within the same radius. These institutions can serve as programming partners to the Park to help enhance, support, and advance its goals across the community.

### 3.2.4 Local Context

At the Site level, one of the biggest challenges is accessibility into and around the Park. Most entrances are characterized by steep paths or stairs, and there are only three ADA entrances into the Park. Intrapark accessibility is also a challenge, with the central portion of the Park only accessible via stairs.

The Site's surfaces also pose a challenge; nearly the entire perimeter of the Park is encased by a retaining wall to mediate the steep slope of the Fall Line. Where possible, this design will evaluate areas to remove parts of the retaining wall to increase visual permeability and access into the Park.

Further, the lower plaza of the Park is primarily characterized by hardscape. As the lowest-lying area of the Park, water will

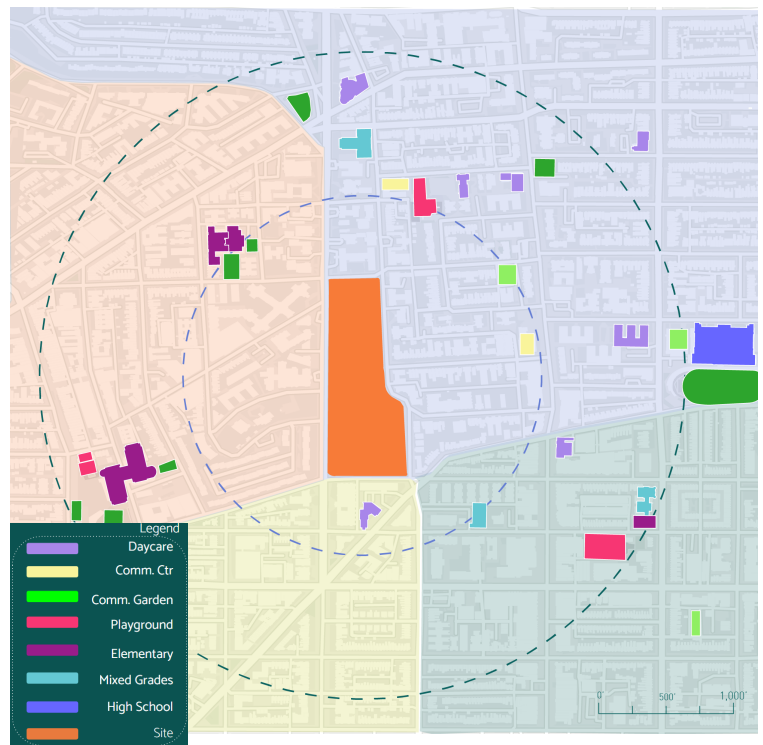


Figure 17: Community Assets

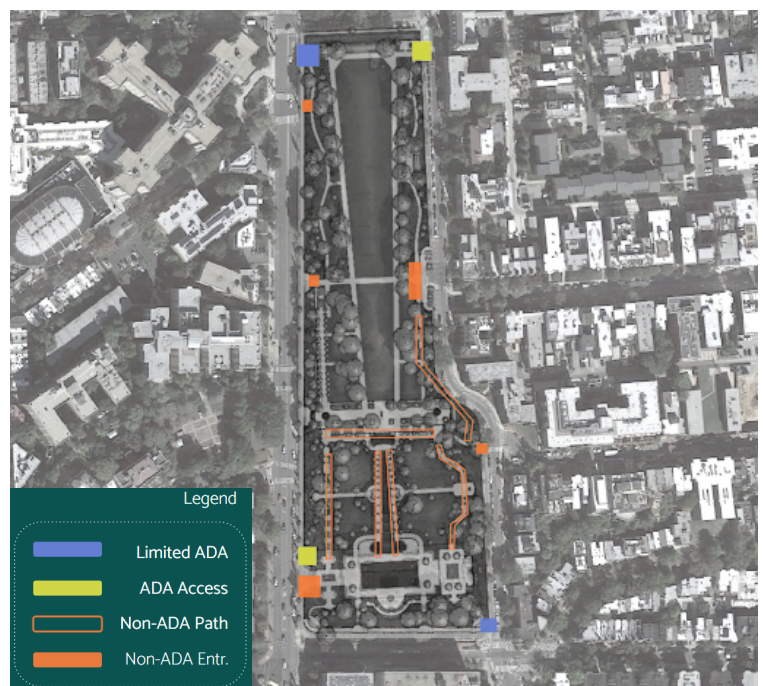


Figure 18: Site Circulation



flow towards the lower plaza. Therefore, increasing the permeability of this area is crucial to the Design.



*Figure 19: Site Entrances, Staircase on 16th St*



*Figure 20: Site Surfaces*



*Figure 21: Site Entrances, Steep Path on 15th St*



*Figure 22: Lower Plaza, Empty Fountain and Hardscape*



Though the NPS' current historic preservation guidelines do not mandate changes to the Park's hardscape, this design will thoughtfully remove and re-use the exposed aggregate concrete retaining wall to develop design features that will serve the Park's contemporary usage requirements, including benches and play features.



*Figure XX: Retaining Wall Details (Balustrades, Planters)*

This proposal argues that the need to make the Park more usable by increasing visual permeability, accessibility, and density outweighs the perceived and actual benefit of total preservation: though preservation guidelines argue that maintaining the Park in its period of significance help communicate the landscape's historic heritage to contemporary users, the reality is that the Park is failing to serve both the Park's historic and contemporary context. The history of the Park and its significance is not communicated on site, and the current maintenance regime has not inspired an affinity for environmental stewardship and care from the community.

To help better communicate the Park's heritage, historic features like the Pleaching Frames and Memorial Statues will also be reimagined in a contemporary context. Below is an inventory of key historic site features that will be considered for reinterpretation.



Figure 24: Memorial to President Buchanan (Left), Great Cascading Fountain (Right)



Figure 25: Pleaching Frames (Left), Statue of Serenity (Right)

Finally, an inventory of the site's existing vegetation was completed. Historic vegetation original to the Design, including the White Oaks at the Upper Mall and the evergreen borders of Juniper and American Holly down the Central Gardens, are still well-maintained. The naturalistic edges of the Park were also original to the Design. However, several original planting materials including Lindens, Hawthornes, and Hemlocks have been removed in recent years due to their deteriorated health.

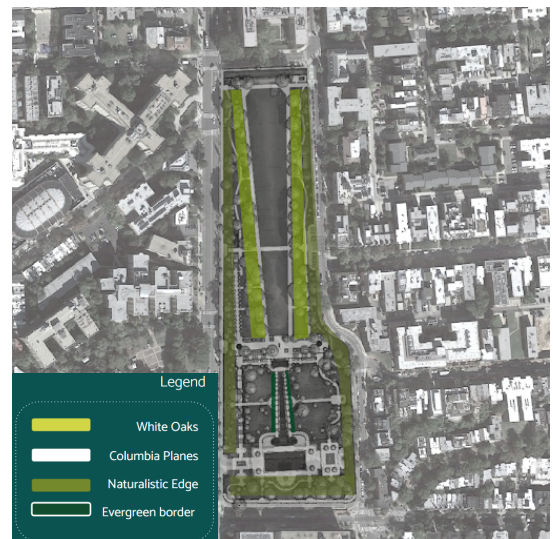


Figure 26: Existing Vegetation



The NPS acknowledged in its 2001 report that environmental stressors were a culprit in the degradation of these original species. Though preservation guidelines suggest that such materials be replaced in-kind, the NPS has instead considered species and cultivars that can better-tolerate urban site conditions, environmental stressors, and disease. For example, non-original Zelkovas at the Lower Plaza were recently replaced with Columbia Planes, which are disease-resistant and hardy up to USDA Zone 9.

The design will preserve the historic vegetation; vegetation that is failing, like the



*Figure 27: White Oaks at Upper Lawn (Left), Naturalistic Edge (Right)*

Hemlocks in the Central Garden, will also be kept and allowed to fail. This

notion of failure is an essential educational tool for climate change education: seeing what species are working *or* failing in a changing climate can be a powerful visual tool for interpreting the impacts of global warming.

Existing vegetation along the naturalistic edges, which presently comprise a vegetation mix characteristic of the Rock Creek Park Oak Forest ecotype, will be enhanced with climate adaptive species recommended by the Northern Institute of Applied Climate Science (Northern Institute of Applied Climate Science, 2021).

### 3.3 Constraints and opportunities

The leading constraints for this proposal are: existing historic preservation guidelines, existing zoning codes, and topographic challenges between the Central Gardens and Lower Plaza. As mentioned previously, the NPS maintains a narrow scope for design updates under its current preservation guidelines. Further, there are few implementations of its more recent climate adaptation of cultural landscapes guidelines released in 2016 and 2017, and it is unclear how the NPS plans to resolve tension between its historic preservation and climate adaptation guidelines.

This constraint ultimately serves as an opportunity for the proposal. The design will seek to mediate this tension by expanding the scope of preservation in the name of climate adaptation, though at present the proposal does not meet the NPS' standard for historic preservation.

While a comprehensive review of existing zoning codes and a subsequent rezoning proposal are outside the scope of this thesis, this constraint does offer an opportunity to consider street-level circulation recommendations that prioritize pedestrian and multi-modal users. Such recommendations can serve as a conversation starter for future rezoning efforts to enhance the commercial character and pedestrian experience of the Park's adjacent streets.

Lastly, the dramatic topography and subsequent circulation challenges offer an opportunity to replace non-ADA compliant circulation paths with accessible entrances, paths, and ramps into and around the Park. Such recommendations will be carefully considered and only recommended in areas where the benefit of such accessibility outweighs the historic contribution of original features.

## Chapter 4: Design Goals and Methods

### 4.1 Design Goals and Objectives

After reviewing and distilling findings from the literature review, site selection, inventory, and analysis process, four goals for the proposal emerged: i) increase density; ii) promote climate conscious stewardship; iii) reimagine historic features; and iv) placemake, playfully. For Goal 1—increase density—the following design objectives were considered:

- a) Provide enhanced accessibility into and around the Park;
- b) Increase visual permeability into the Park through clearer site lines, lighting; and
- c) Program and staff the Site to include Park Educators, Maintenance Team, and Concession Managers.

For Goal 2—promote climate conscious stewardship—the following design objectives were considered:

- a) Partner with local schools for seasonal programs and support talent development with existing Green Corps (a DC-based training program for careers in urban sustainability);
- b) Connect Park’s climate adaptive features to DC’s Sustainability Goals through educational signage;
- c) Digitize engagement tools to connect community insights with data streams at all scales; and
- d) Provide opportunities for community stewardship.

For Goal 3—reimagine historic features—the following design objectives were considered:

- a) Reveal and reinterpret original design features to connect with contemporary usage;
- b) Reinstitute historic viewsheds; and
- c) Reuse original design materials to create new site features.

Lastly, for Goal 4—placemake playfully—the following design objectives were considered:

- a) Incorporate playful, multi-generational elements across site for all to enjoy;
- b) Utilize climate adaptation features as an opportunity for creative, artful placemaking; and
- c) Design for and celebrate change with ephemeral, seasonal features.

#### 4.2 Design Methods

While the proposal seeks to be responsible to the aforementioned design goals and objectives, it must also be responsible to existing historic preservation and climate adaptation strategies. To aid in this responsibility, the following design matrix was developed to help filter, distill, and refine the Design's intent.

CULTURAL LANDSCAPE REPORT: PRESERVATION	DC CLIMATE ADAPTATION STRATEGY
<ul style="list-style-type: none"> <li>● Maintain integrity of original planting design</li> <li>● Address lighting, draining, water features</li> <li>● Add guided, self-guided tours; interpretive education</li> <li>● Program the site to attract regional visitors, sense of safety</li> </ul>	<ul style="list-style-type: none"> <li>● Increase opportunity for stewardship</li> <li>● Incorporate meadow, pollinator habitat</li> <li>● Address Urban Heat Island Effect, extreme temp days</li> <li>● Infiltrate stormwater</li> </ul>
NPS CLIMATE ADAPTATION GUIDELINES	ERIN'S ELEMENTS
<ul style="list-style-type: none"> <li>● Info-sharing with allied institutions</li> <li>● Promote climate education and stewardship</li> <li>● Incorporate citizen science and participation</li> </ul>	<ul style="list-style-type: none"> <li>● Incorporate artful, sculptural features</li> <li>● Design 'throughlines'</li> <li>● Highlight and celebrate decay</li> </ul>

Figure 28: Design Matrix

By ensuring design decisions met the criteria of at least two themes in the matrix ensured the Design responded to the core strategies undergirding the proposal.



## Chapter 5: Final Design and Program

### 5.1 Proposed Site Plan

Following the Design ideation centered on the aforementioned goals and design matrix, the following site plan was developed for the proposal.



Figure 29: Final Site Plan

Responding to the fourth eponymous theme in the matrix, the proposed design utilized design throughlines to provide spatial and programmatic definition. The leading throughlines included notions of air, earth, and the underground, which are respectively revealed in the Upper, Middle, and Lower portions of the Park. For example, the proposed Canopy Walk in the Upper Park provides users an accessible experience on a 25' elevated platform, allowing for a deeper

connection to urban canopies and the habitat that rely on them. The Central Gardens, for their part, are concerned with what is happening on the ground plane, in-line with most children's line of sight. Stones, logs, and stumps punctuate this play garden, allowing for children to crouch, sit, and engage with natural processes right beneath their feet. Lastly, the Lower Park is concerned

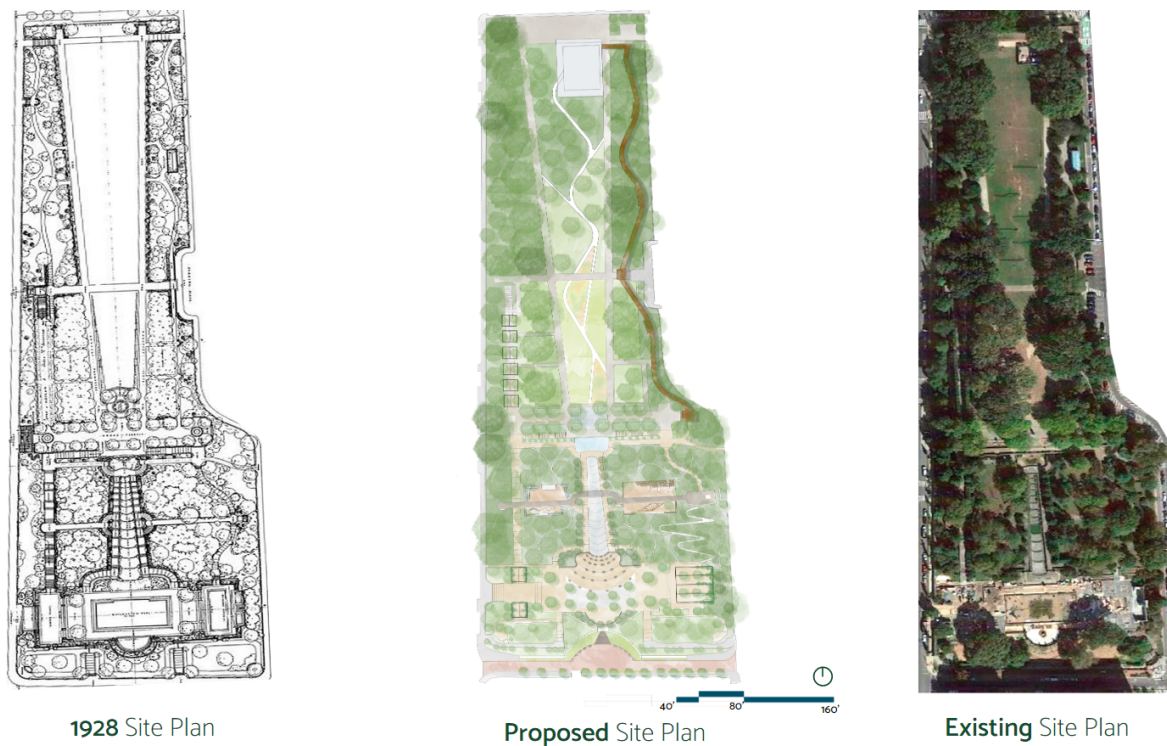


Figure 30: Final Site Plan Compared to Historic and Existing Site Plan

with hydrologic processes often hidden underground. Water filtration, capture, and reuse are celebrated at this lower level, responding to the Park's context between three major watersheds.

The Proposed Site Plan responded to both the historic 1928 site plan and the existing site conditions. For example, the tapestry gardens proposed in the 1928 plan supported the addition of vegetation in the Proposed Site Plan's central gardens. The incorporation of play also responded to the 1928 site plans proposed play area that was never realized. The existing failing

lawn at the Upper Park was addressed by the Proposed Site Plan's addition of a successional forest experience, which transforms the lawn into a dynamic and didactic trail system that guides users through meadow, understory, and early oak forest plantings.

## 5.2 Before and After Illustratives

This section will more clearly illustrate the proposals for each portion of the Park—Lower, Central, and Upper—through enlarged site plans and proposed perspectives and sections.



Figure 31: W Street Entrance

### 5.2.1 W Street Entrance

Beginning with the W Street Entrance, the Proposed Site Plan incorporates a new ADA entrance and pedestrian-only W Street experience to increase visual permeability and accessibility into the Park from the adjacent street level.





Figure 32: W Street Entrance Existing



Figure 33: W Street Entrance Proposed

Under the Proposed Design, the Lower Park has offered space back to the community with the addition of the pedestrian thoroughfare. Now there's space for weekend kiosks, open gathering space, and street performers. Incorporating performance at the street-level speaks directly to the historic use of the Park, in which it served as a venue for evening musical performances.

Visitors can also interact with urban stormwater management features directly. Such features include rain garden plantings, erosion-control vegetation, and the diversion of stormwater on the street level to existing rain gardens on the east end of the street. The new entry plaza reuses the concrete from the existing retaining wall as new seating and a staircase that meets the landing of an ADA ramp. The ramp has been graded at 8% with landings every 25', in-line with existing ADA guidelines.

## W Street Entrance Existing

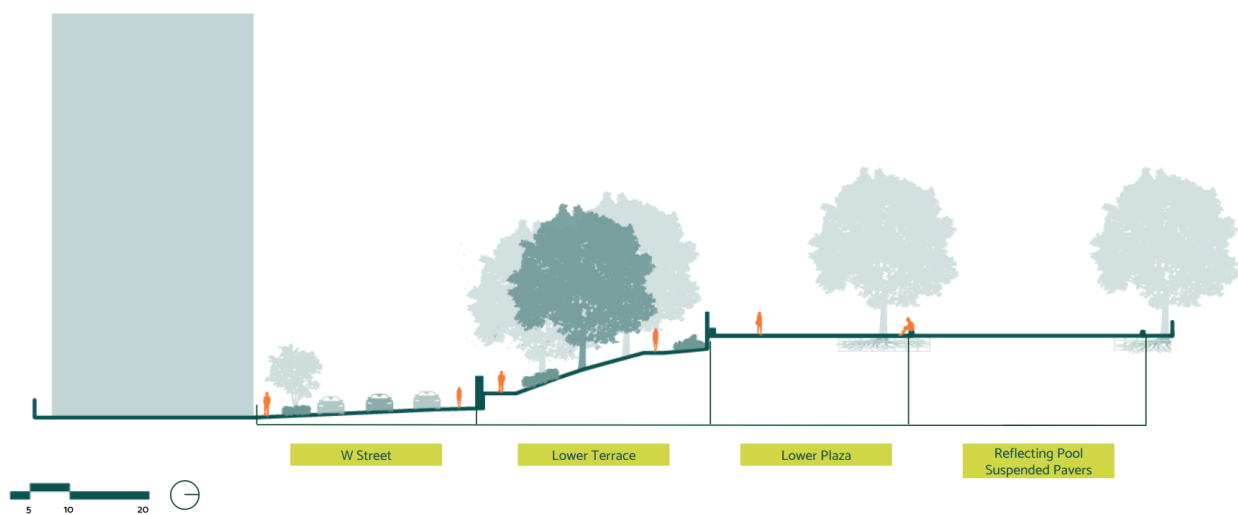


Figure 34: W Street Entrance Existing Section



## W Street Entrance Proposed

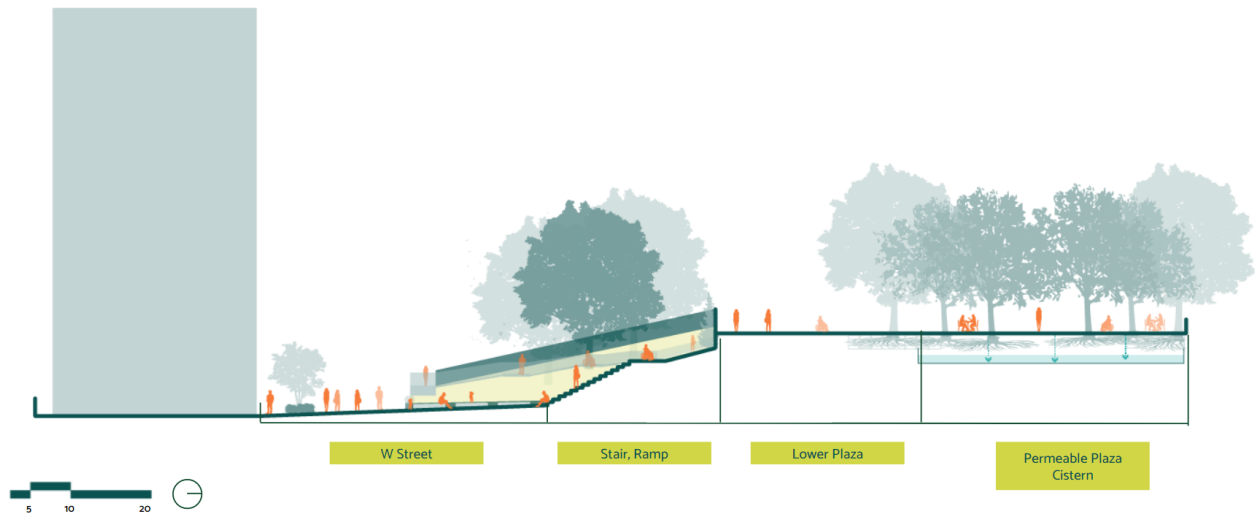


Figure 35: W Street Entrance Proposed Section

### 5.2.2 Lower Plaza

The Lower Plaza is concerned with the redesign of two prominent historic features: the Buchanan Memorial and the Great Cascade Fountain and Reflecting Pool.

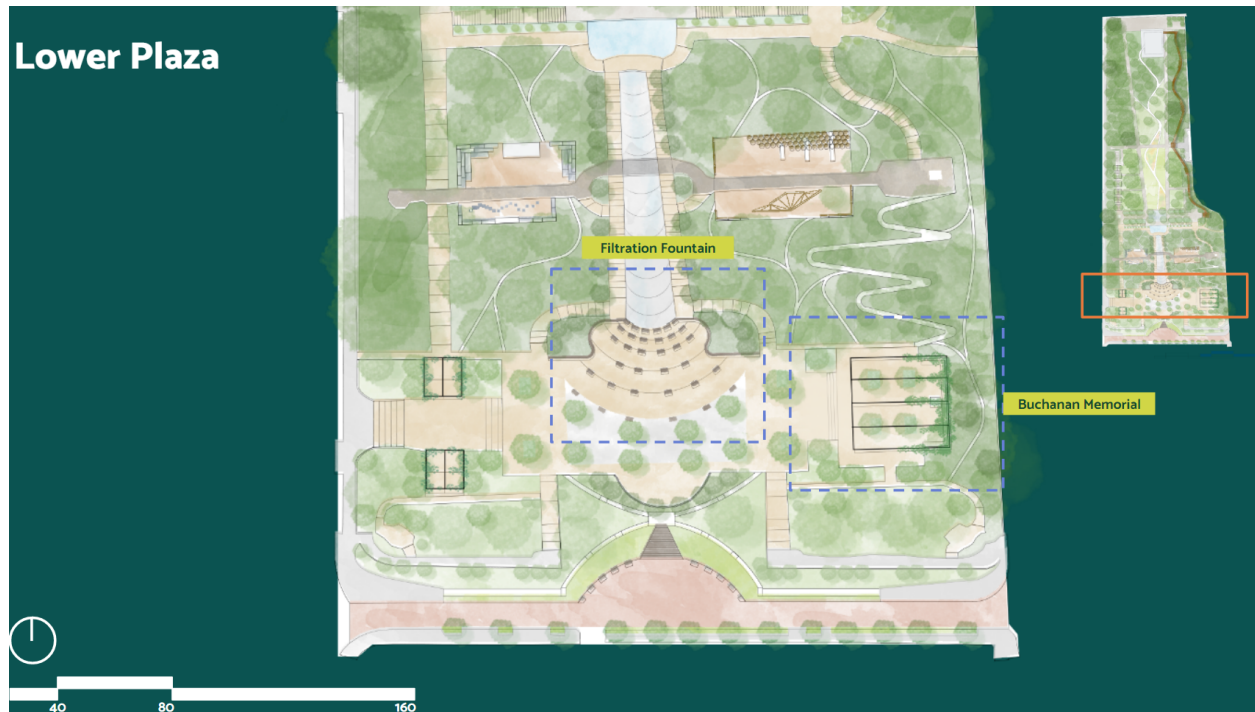


Figure 36: Lower Plaza Proposed Site Plan





Figure 37: Buchanan Memorial Existing



Figure 38: Buchanan Memorial Proposed



Buchanan has been recontextualized with a pleaching frame, an original design feature that was only recently installed at the Park's upper mall. It serves as a placemaking device, allowing visitors to experience native vines like trumpet honeysuckle, wild passionflower, and American wisteria. It also frames the existing plane trees and offer much-needed shade at the central crushed stone seating area, which increases permeability of the hardscape plaza.



Figure 39: Great Cascade Existing



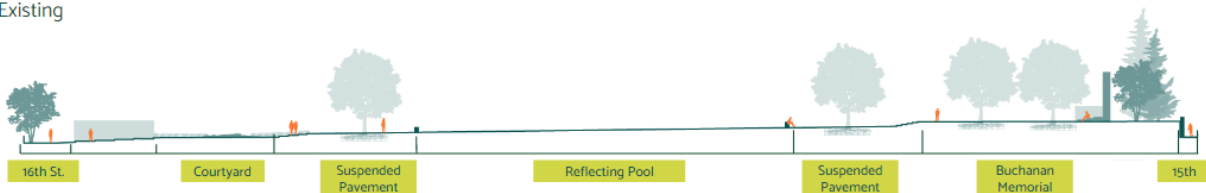
Figure 40: Great Cascade Proposed



The empty cascading fountains will now be filled with stones to help filter rainwater collected by a cistern at the top of the fountain. Some of that water will then be used to create a cooling mist feature while also serving as a beautiful ephemeral sculptural feature in the summer months. Making the fountains a community cooling feature speaks directly to the Park's original intent as a climate respite while also serving as a contemporary educational tool for urban stormwater management. Lastly, the retaining wall edited out from the proposed W Street entrance is reused here as a playful seating element that can be enjoyed throughout the seasons.

## Lower Plaza

Existing



Proposed

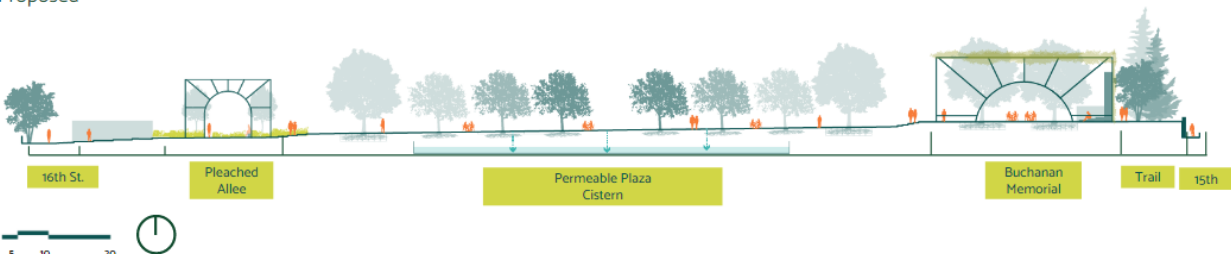


Figure 41: Lower Plaza Sections: Existing and Proposed

In addition to reimagining two historic features, the Lower Plaza added additional pleaching frames near the 16th Street entrance—these frames remain on axis with the original frames at the Upper Park and serve as an additional placemaking device for users seeking additional seating and shade in warmer months. The reflecting pool has been transformed into a permeable crushed stone plaza with a cistern beneath to help capture, store, and reuse up to 20,000 cubic square feet of water. Climate-adaptive shade trees, like American Hophornbeam

and Ironwood, have been added to the Plaza to frame views of the Buchanan Memorial and provide additional canopy cover over a new flexible seating area.

### 5.2.3 Central Gardens

The Central Gardens of the Park have been transformed into an accessible play zone. Stairs on the eastern edge of the gardens have been replaced with an ADA forest trail, which has been graded at 5 percent to ensure ADA compliance and connectivity between the Lower Plaza and the Central Gardens.

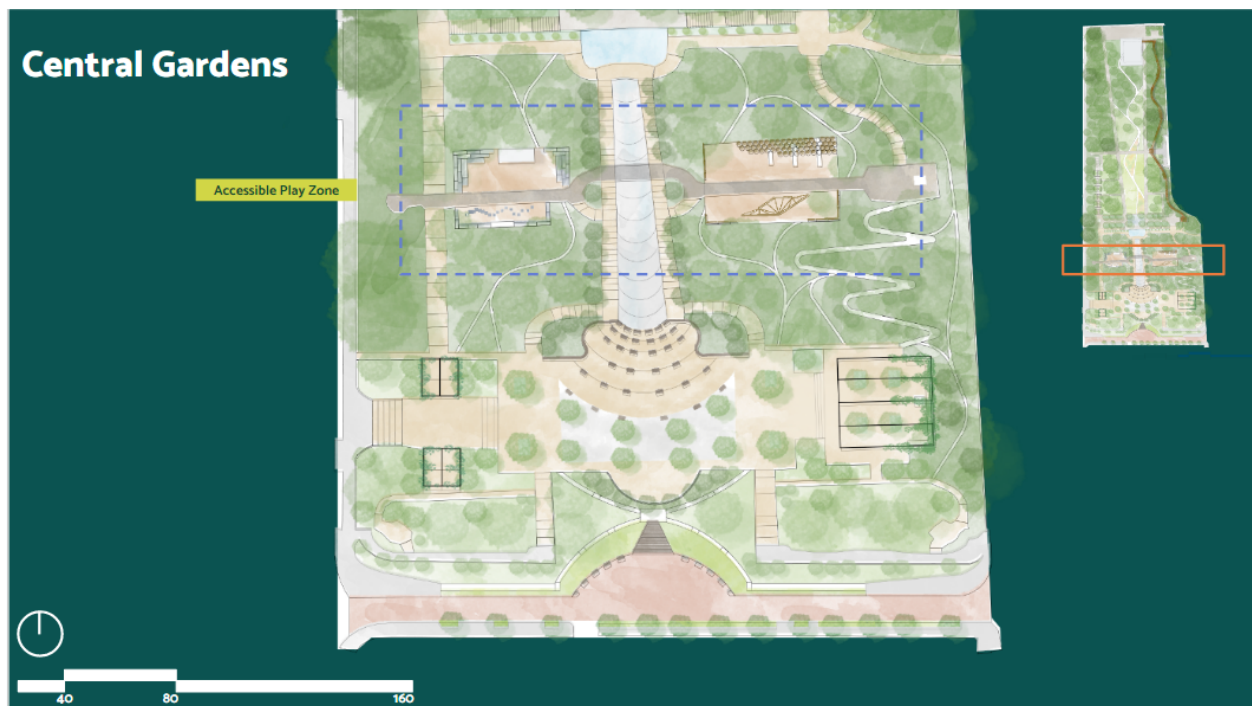


Figure 42: Central Gardens Proposed Site Plan





Figure 43: Central Gardens, West Existing



Figure 44: Central Gardens, West Proposed

The western Central Garden has put the historic statue of Serenity in a new context. She now oversees the stone garden which serves as a destination for reflection and contemplation for emerging stewards – an essential component of successful stewardship programs. The exposed aggregate concrete has again been reused as seating, and the balustrade details have been reimagined as “balancing beam” benches to offer opportunities for sitting and playing. Classrooms can also utilize this space for outdoor education activities. The garden has been revegetated with a robust understory that visitors can experience with smaller, auxiliary forest trails beyond.





Figure 45: Central Gardens, East Existing



Figure 46: Central Gardens, East Proposed



This eastern Central Garden is now a dedicated nature play destination. A sculptural feature made out of reclaimed wood offers a variety of challenges for children to climb, touch, and swing on. This and other organic play features in the Garden would be built in coordination with the city's Urban Wood Reuse Program, an initiative managed by the District's Urban Forestry Division to reuse salvaged wood as site features for playgrounds and schools (*Urban Wood Reuse*, n.d.) Other natural elements, like wood stumps and logs from trees that have failed onsite, will also go in this play garden, as children would have lots to gain from interacting with these materials as they are reclaimed by nature. Like the western Garden, short trails have been added along with trail portals to support one's sense of wonder while walking through the woods.

## Central Garden

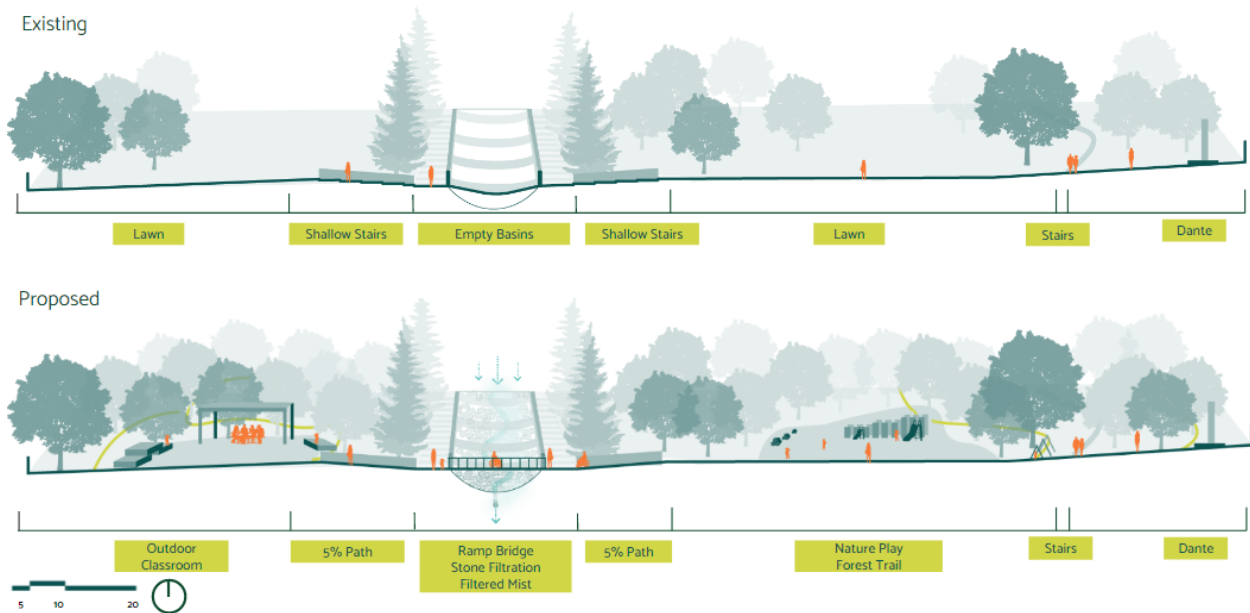


Figure 47: Central Gardens Section, Existing and Proposed

The proposed section of the Central Garden demonstrates the improved connectivity and accessibility between the eastern and western garden areas. A shallow staircase on either side of the fountain basins have been regraded as a 5 percent path, and a bridge has been installed over the new filtration fountain to connect the two sides of the Central Gardens. This allows for users

of all mobilities to experience this formerly ADA-inaccessible area while allowing for people to experience the filtration fountain more closely.

#### 5.2.4 Upper Mall

The Upper Park, which sits 20' above the Central Garden, can only be accessed within the Park by stairs or a steep path on the eastern edge. ADA accessibility for this area is only available at the Park's entrances on the north and northeastern edges.



Figure 48: Upper Mall, Proposed Site Plan





Figure 49: Upper Mall, Existing



Figure 50: Upper Mall, Proposed



The lawn at the Upper Mall has been replaced with a successional forest trail experience, which walks users through meadow, understory, and early oak forest plantings and utilizes a similar planting palette to the Rock Creek forest system. The existing lawns on either side of the central lawns will remain and be allowed to fail over time. This would make the existing pathways an educational datum for climate change awareness: on one side they see a biodiverse habitat that invites wildlife, on the other they will see a failing monoculture.

Interpretative signage has also been placed throughout the Park. These educational elements contain QR codes that link users to relevant mobile apps where they can upload site photos from key locations across the Park. The NPS' can leverage this photographic data from their existing app and help local and regional partners track ecological changes over time. It also helps to memorialize the Park, enabling users to view its changes over time. As Meyer noted in *Beyond Sustaining Beauty*, time is required to comprehend beauty and this temporal, digital experience will allow users to interpret what they see in the context of a changing climate (Meyer, 2015).

### 5.2.5 Canopy Walk

The proposed canopy walk, which is elevated 25', replaces a non-ADA path in the same composition on the ground-plane.

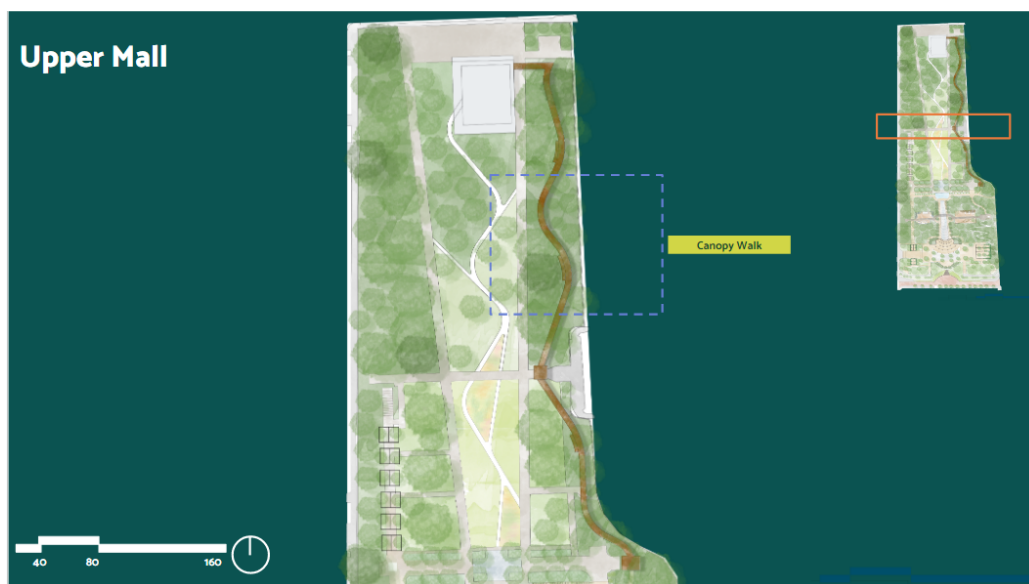


Figure 51: Upper Mall Proposed Site Plan, Canopy Walk



Figure 52: Canopy Walk Proposed

The accessible canopy walk will now get users into the trees, allowing for a unique perspective on urban forests and the wildlife they attract. The 25' elevation of the walk also helps to re-institutes the historic viewshed to the Washington Monument at a viewing platform terminating at the path's southern edge.

### 5.2.6 Euclid Street Entrance

Finally, Euclid Street now provides a new accessible entry point into the Park and again encourages visitors into the Park by opening up site lines and increasing visual permeability between the street and park edges.



Figure 53: Upper Mall Proposed Site Plan, Euclid Street Entrance





Figure 54: Euclid Street Entrance, Existing



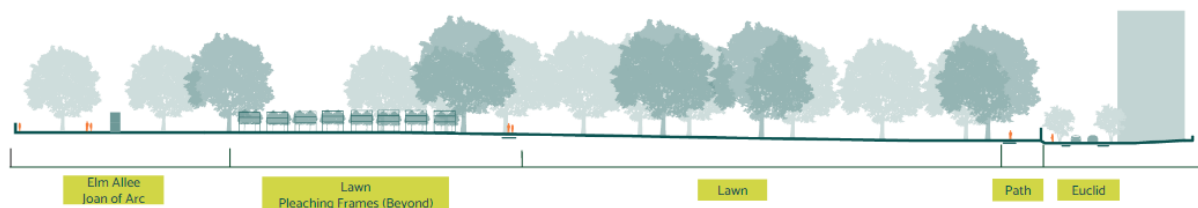
Figure 55: Euclid Street Entrance, Proposed

The warm glow of a proposed learning pavilion, along with additional lighting across the Park, will serve as critical safety and wayfinding elements for this Park’s northern entrance. Such visibility in the evening is essential as we face a warming climate: keeping Park’s open later into the evening is often safer for users during the high heat of summer. Later hours encourage visitors to get outside when evening temperatures are cooler than daytime highs (Hersher, 2022).

While detailed architectural considerations are beyond the scope of this inquiry, the pavilion itself is imagined as a passive heating and cooling two-story building that features a cafe and info center on the first floor, classroom and research space on the second floor, and an experimental garden on the rooftop. In the summer, it will also serve as a cooling center as DC is attempting to expand access to such services across the city. Lastly, it serves as the only access point to canopy walk via elevator, making it accessible to all users.

## Upper Mall

Existing



Proposed

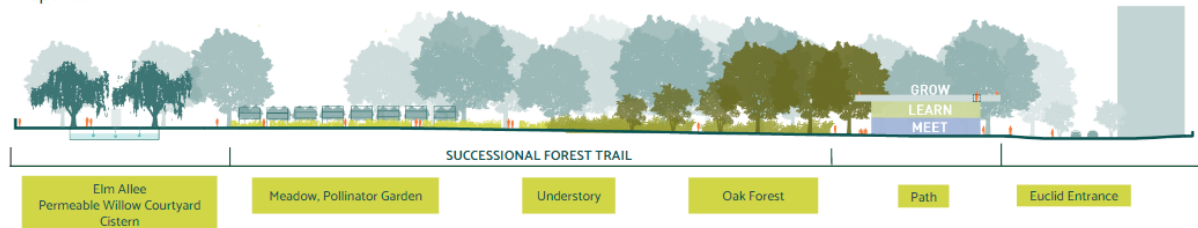


Figure 56: Upper Mall Section, Existing and Proposed

As shown in the above south-north proposed section, the impervious surface beneath the historic Joan of Arc statue has been replaced with permeable crushed stone material over a cistern that can collect up to 7,500 cubic feet of water. The cistern is located at the high point of the Park, allowing the use of gravity-fed irrigation to recirculate the water around the Park. Willows have also been added to the plaza area for additional shade, and Joan of Arc has been moved west to help celebrate the west-east axis connection of the existing Elm allee.

### 5.3 Planting Selection

While a dedicated planting design plan is outside the scope of this inquiry, a sample planting palette comprising historic and new species was developed to create seasonal interest for both humans and wildlife utilizing the Park while responding to the changing climate. Original species including Shumard Oaks, White Oaks, Southern Magnolias, and several species of Juniper will continue to provide a strong, architectonic backdrop to the Park that is original to the Design.

Newer shade tree additions recommended by the Northern Institute for Applied Climate Science include American Hophornbeam and Sourwoods. Though non-native, these species are estimated to succeed under a high-emissions scenario that may see the city's USDA zone at 9 by the end of the century. Other understory shrubs that have high aesthetic and habitat value include Allegheny Serviceberry and Spicebush, while native grasses like Little Bluestem and flowering plants like Milkweed will provide habitat and food for pollinators.



## Sample Planting Palette



*Figure 57: Seasonal Sample Planting Palette*

### 5.3 Proposed Programming

The aforementioned research contributions of Chawla, Serriere, and Owens, paired with the poignant lived experiences of Carson, inform multigenerational programming for the Design. The programming will consider ways to provide various entries to nature-based engagement for children—from play to stewardship—while incorporating intergenerational experiences through adolescent agency building (internship and youth-led volunteering) and broader community engagement exercises (school partnerships, interpretive group-based activities/tours).

Like the Brooklyn Bridge Botanic Garden, the Park will seek ways to intentionally engage and support an emerging generation of sustainability professionals through a partnership with Washington, DC's existing Green Corps, managed by Washington Parks & People. This is a city-wide program that helps train people from underserved communities to contribute to positive environmental justice and economic renewal outcomes through workforce development.



This Park and its partnering schools can serve as a feeder to such programs: students who attend sponsored programming at the Park in middle school, for example, may be eligible for longer-term internships at the Park and other DC locations through Green Corps through their high school programs. Allowing the Park to plug into existing vocational programs will allow its ethos of stewardship development to translate into meaningful careers for much-needed professionals in the urban sustainability industries.

## Chapter 6: Conclusion

### 6.1 Limitations

This proposal faces several considerable limitations. The first is the limited technical documentation available from the Park's original construction. In the absence of such documents, assumptions had to be made about the functionality of key historic elements including the cascading fountains, and the accuracy of elevation data. The validity of such assumptions would determine the true feasibility of the proposed design, specifically the filtration fountain and cistern designs, and ADA entrances.

The second limitation is the Park's period of significance (1910-1936) noted in its 1976 designation to the National Register of Historic Places. This period of significance highlights the Design and construction period. As mentioned previously, the exposed aggregate mix—expertly developed by Earley at the time of construction—has been used across the Site and its retaining wall perimeter. Making edits to this original character-defining design feature is not approved in the current historic preservation mandate.

Navigating both local and federal bureaucracy to identify consistent funding and maintenance mechanisms for the Park is also a serious constraint. Unlike Bryant Park, which created a private-public partnership with businesses adjacent to the Site to support its maintenance and programming regime, Meridian Hill Park is surrounded by residential and institutional use. While private funding partners could be identified in nearby commercial areas, like the U Street Corridor and Adams Morgan, government support would be the primary source of the Park's budget. The NPS may not see the immediate value of funding such a budget for a community park, especially when larger, more prolific landscapes under its purview like Yellowstone and Yosemite National Parks face more robust threats.

Lastly, the data surrounding the long-term effects of nature-based educational programming on a child's sustained environmental stewardship practice is nascent. In the absence of such data, it may be difficult to get buy-in to fund and develop a Park designed specifically for children to engage in environmental stewardship. It is also difficult to capture data around the broader efficacy of community stewardship in reducing negative feelings associated with climate-related grief. While a subquestion of this investigation aimed to consider stewardship as a potential antidote to climate grief, capturing the emotional impacts of such stewardship over time is outside the scope of this thesis. Nascent research in this topic is emerging, but a demonstrative correlation between the two phenomena remains unclear.

## 6.2 Future considerations

While this thesis is in many ways a creative, conceptual exercise, it was pursued in the hopes of contributing to emerging conversations around the future of historic cultural landscapes. Meridian Hill Park, in particular, is arriving at an inflection point that landscape historian J.B. Jackson describes as an “incentive” in *The Necessity for Ruins* (Jackson, 1980, p. 102). Given the Park's most recent period of decline, Jackson argues that such a decline may “provide the incentive for restoration, and for a return to origins...there has to be an interim of death or rejection before there can be renewal and reform.” This thesis serves as a creative offering to the Park's hopeful renewal.

This thesis argues that any proposed renewal of the Park must consider and respond to the dynamism of both climate change and contemporary culture. A future redesign effort of the Park should also engage in community-based co-design methods. While engaging the community in participatory design methods was outside the scope of this particular project, it rightly deserves a place in the planning calculus of any community park: being able to contribute

to one's immediate community and environmental context may sustain hyperlocal resolve in the face of climate change (Nassauer, 2011).

### 6.3 Significance

Admittedly, this proposal deliberately deviates from accepted historic preservation standards. The deviation was necessary to demonstrate why historic, cultural landscapes can no longer be static and suspended in time: such landscapes must contend with a changing climate and contemporary culture. In this way, climate adaptation *is* preservation. The adaptation of cultural assets can extend their longevity, heritage, and contributions to the present and future.

Climate change, in particular, *is* a part of contemporary culture. How powerful for a cultural landscape to adapt to this context and help activate, inspire, and sustain our resolve in the climate crisis. Lastly, children are an indicator species in urban populations (Cities Alive, 2017). Designing a better environment for children results in a better environment *for all*.

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