

ABSTRACT

Title of Thesis: CULTIVATING COMMUNITY HEALTH:
LINKING AGRICULTURE AND PUBLIC
SPACE THROUGH EDUCATION

 Arica Leigh Thornton, Master of Architecture,
2018

Thesis directed by: Ralph Bennett, Professor Emeritus, School of
Architecture, Planning and Preservation

Parts of Washington, DC are considered a food desert, where people have little or no access to fresh food. As small grocers, marketplaces, and food shops have closed, the remaining options are fast food and convenience store locations, full of processed food. These communities are the result of a society that has come to devalue food, treating it as a commodity instead of essential to life. Historically, society spent more time growing, harvesting, and preparing food. It was the center of social and family life. In order to feed the city in a healthy and long lasting way, agriculture needs to become the center of life again incorporated into all aspects of the urban landscape. Architecture can and should envision, plan, and design the spaces necessary for urban agriculture to succeed. By creating an educational community food center, this thesis seeks to bring people together through an understanding on the land and our dependence on it.

CULTIVATING COMMUNITY HEALTH: LINKING AGRICULTURE AND
PUBLIC SPACE THROUGH EDUCATION

by

Arica Leigh Thornton

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
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Master of Architecture
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Advisory Committee:
Professor Emeritus Ralph Bennett, Chair
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Professor Emeritus Dr. James Cohen

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Dedication

To my husband and daughter for their incredible patience and unwavering support during my graduate education.

To my family for their unconditional love and encouragement while I pursued this masters education. To my grandparents, whose endless energy and “can-do” attitude have always inspired me.

Acknowledgements

I would like to thank my Committee for their guidance throughout my thesis. A special thank you to my Thesis Chair, Ralph Bennett, for his support, patience, and continual encouragement during this process. I would also like to thank all the fellow students who have inspired me and provided support over the course of my graduate education.

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Chapter 1: Introduction

The core foundation to the thesis and design proposal is that agriculture needs to have a more integral part in our urban life in order to cities to become more resilient and sustainable. Local access to fresh food is not only good for us, its good for our communities. Urban agriculture increases food security, reduces carbon emissions because food travels less, and it contributes to the local economy, welfare, and the city's wildlife habitat. Agriculture can be incorporated into public life in order to take advantage of open land and space that is otherwise unproductive.

Chapter 2: Background

Food and cities are inextricably linked. Settlements could not, and cannot exist without a stable source of food. The first settlements, such as Jericho, combined hunting, gathering, as well as herding and harvesting of grain. People would come to the village seasonally when it was time to cultivate the harvest and leave to hunt and gather when the harvest was complete¹.



Figure 1: Arthur Avenue (1940), The Bronx, New York City. Source: Library of Congress

The importance of food meant that culture and religion were linked with agriculture. In Graeco-Roman times, cultivation and civilization are associated – both

¹ Carolyn Steel, *Hungry City: How Food Shapes Our Lives* (London: Random House, 2013)

² Steel, *Hungry City*

³ Steel, *Hungry City*

⁴ Steel, *Hungry City*, p 111-114.

⁵ Steel, *Hungry City*

culture and cultivate come from the Roman *cultus*. A steady source of food was dependent on the actions of nature, which could be a source of frustration for villages. Spiritual events and festivals centered on the agriculture and its calendar².

From ancient times prior to the industrial revolution food was grown in the city and livestock filled the streets and marketplaces (Figure 1). The industrial revolution changes the nature of both agriculture and the marketplace. Technology innovations, most importantly in grain, turn agriculture into a global venture and provide cheap ways to feed the city³. The invention of the automobile changes the city grid, suburban areas develop rapidly and grocery stores can now be located outside the city for cheaper land rent. As commerce moved to the periphery of the city, city centers gradually declined as specialty food shops and smaller markets closed. Cities were left without access to fresh food. Public market spaces that were the centers of town and socialization become abandoned and underutilized, supermarkets and shopping malls proliferate the landscape exacerbating the “death of public space”⁴.

² Steel, *Hungry City*

³ Steel, *Hungry City*

⁴ Steel, *Hungry City*, p 111-114.

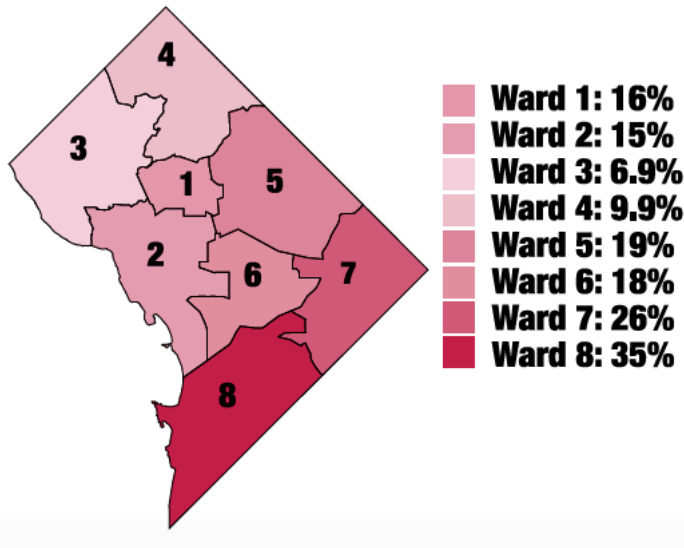


Figure 2: Poverty Prevalence by Ward (2005-2009). Source: District of Columbia, *Sustainability DC (2011)*

Presently, our society is completely dependent on supermarkets and food production at a massive scale and controlled by a few conglomerates⁵. Cities lack sufficient fresh food resources and residents without cars are left to shop at pricey convenient stores, gas stations, and fast food shops. The United States Department of Agriculture (USDA) defines these areas, where fresh food is unavailable as food deserts. Washington, D.C. had a long history as a food desert. As part of the City Beautiful movement, unsanitary aspects of city life, such as the street market and slaughterhouses, were “cleaned up” and placed out of the city. Recent urban renewal has brought grocery stores, more restaurants, and specialty markets where food is “fetishized” back to the city⁶. Specialty markets are expensive and the grocery stores are clustered in the wealthiest wards. Wards 7 and 8, the wards with the lowest

⁵ Steel, *Hungry City*

⁶ Steel, *Hungry City*

income have only 3 grocery stores combined (Figure 2). In these wards the risk of hunger still remains with 1 and 3 residents at risk⁷.

In addition to the having the lowest income, these wards have the highest unemployment and highest rates of obesity, an average of 40% (Figure 3). These areas, as shown in Figure 4, remain defined as a food desert – a community where at least 500 people and at least 33% of the residents have no car and no grocery store within a one miles radius (ten miles for a rural community)⁸. The solution for these areas has to be multi-pronged.

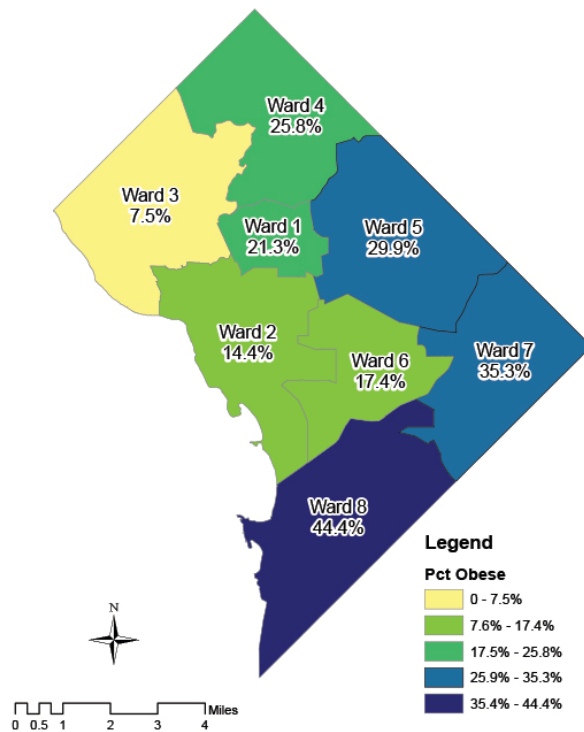


Figure 3: Obesity Prevalence by Ward (2007). Source: District of Columbia, *Community Health Needs Assessment, Volume 1 (2013)*

⁷ District of Columbia, *Sustainability DC* (2011), 28

⁸ United States Department of Agriculture, *Food Access Research Atlas*, <https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas>, 2017.

Part of that connection includes urban agriculture. Agriculture has to be brought back into the city so that there is an urban connection with food again. Importantly, strategies should connect the city with food production to provide knowledge of where food comes from; in order to reduce the distance food travels to people, and in order to provide food security. Places of urban agriculture can create a sense of place and be place for social interaction and networking.

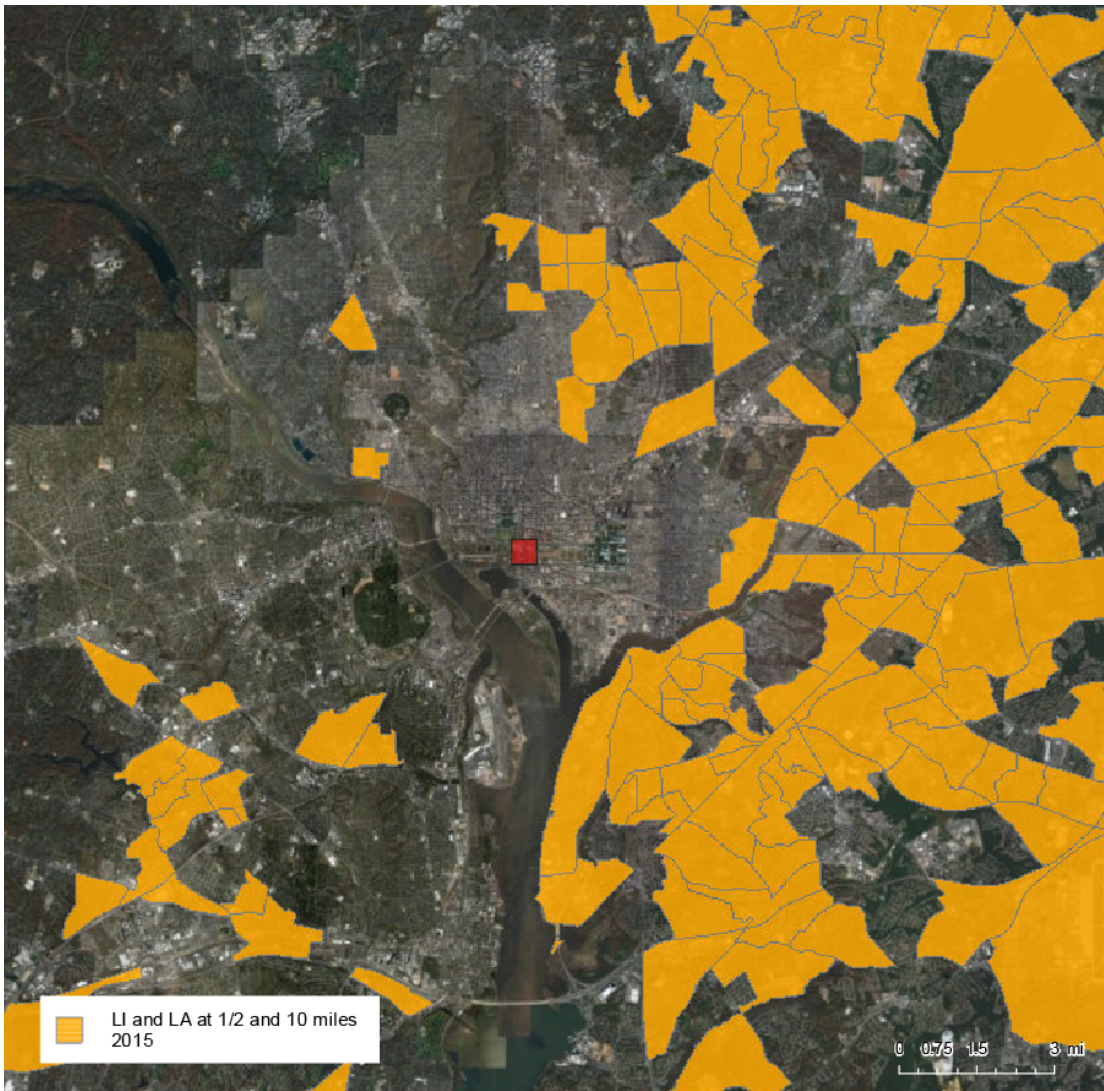
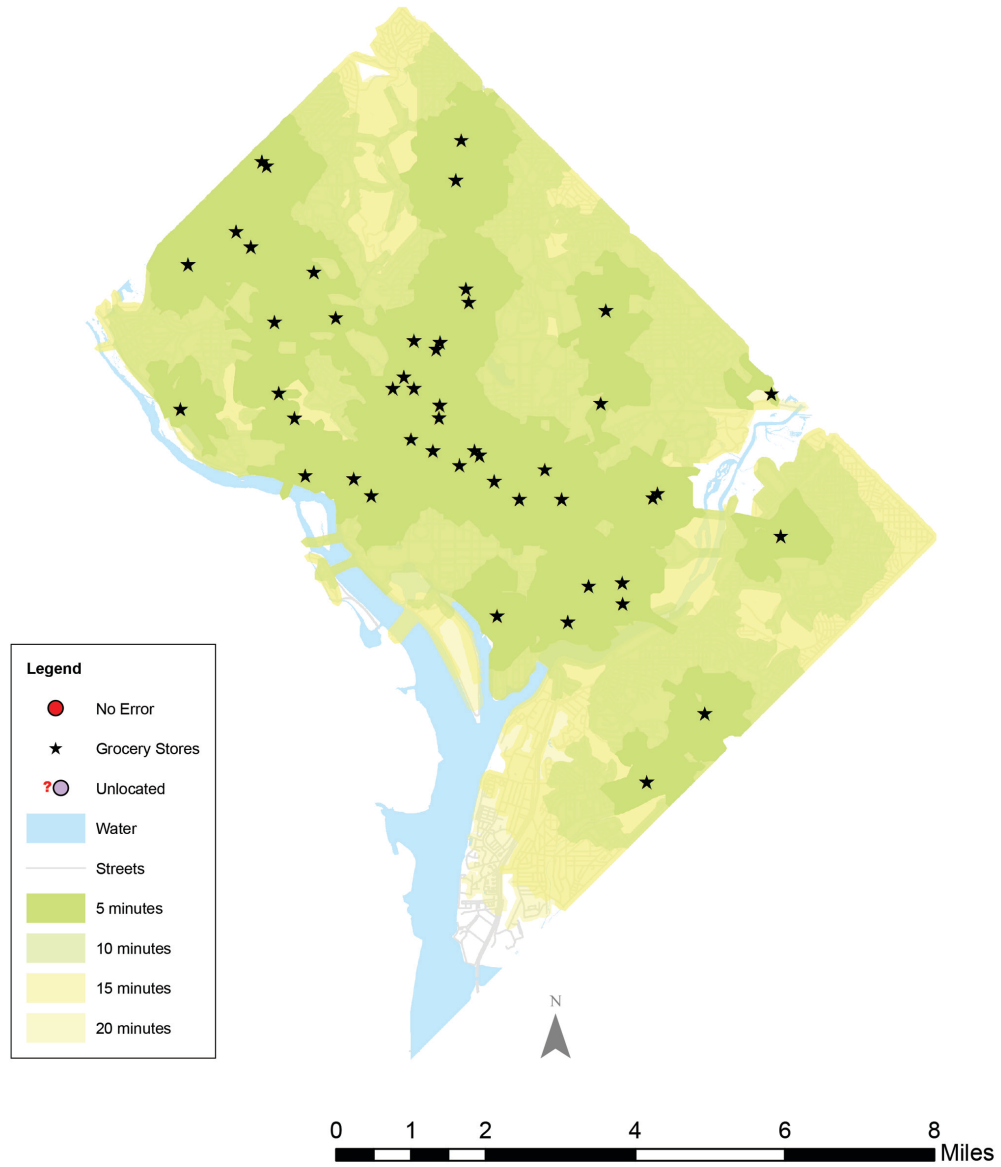


Figure 4: Food Desert Map: Low Income and Low Access more than ½ mile (urban) or 10 miles (rural), Source: USDA Economic Research Service, <https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/>.

An important question for this thesis - can the rituals of food production and consumption be apart of public space in a way that enriches and connects us to the land and each other? In order to do so, strategies should begin with education – a community food center – that incorporates growing, harvesting, preparing, cooking, and sharing. The community kitchen and table celebrate the intersection of agricultural landscape and architecture. The community food center educates the community, starting with children, about where food comes from and its role in our health and social interaction.

Chapter 3: Grocery Access Analysis

Walking Times around Grocery Stores



In order to understand food access within Washington, DC and if the local government within the five-minute walking radius set residents forth I performed a network analysis using GIS. Data came from the DC Data Catalog and U.S Census Bureau American Community Survey 5-year estimates. The results from the analysis show that 41% of residents are within a five-minute walk to grocery stores, as opposed to the 75% goal of the Sustainability DC plan.

Chapter 4: Site

Site Selection



Figure 5: Aerial Image of site, Source: Google, DigitalGlobe

The site (Figure 11) was chosen because of various aspects including size, location, and orientation to the sun. The size at 3.62 acres makes the site large enough to fit the program and have ample growing space. The location is optimal as it is across the street from an elementary school and public charter high school. In addition, it is easily accessible for public transportation. While having a preschool on site, the program also seeks to forge connections with local schools so that children may learn about how their food grows, learn how to grow food themselves, as well as

provide access to healthy food. Public transportation is necessary to serve the local population where more than 50% are without a vehicle⁹.

The site also provides a unique opportunity in that it is a large plot of land in an urban location. The block it sits on is deep; the site is 691 feet in length. Yet the typical block size in Anacostia is 525 feet in length. The front of the site sits at the beginning of the local commercial corridor and the back is in a residential neighborhood. Therefore, it has an urban edge and a country edge.

⁹ United States Census Bureau, *American Community Survey 2011-2015 5 Year Estimates*

Site Description

The site is located at 2424 Martin Luther King Jr Avenue SE, Washington, DC. It is the intersection of Martin Luther King Jr Avenue and Howard Ave SE, which leads to the Anacostia Metro Station, proceeds underneath Anacostia Freeway and leads to the currently undeveloped and abandoned area of Poplar Point along the Anacostia River (Figure 5). Adjacent to the site on the left is historic Bethlehem Baptist Church, an abandoned small grocer on the right and Thurgood Marshall Public Charter High School and Savoy Elementary across the street (Figures 6 and 7).



Figure 6: Aerial view showing the site in relation to the Anacostia River



Figure 7: Panoramic View of site



Figure 8: Thurgood Marshall Public Charter Academy



Figure 9: Previous community garden adjacent to site



Figure 10: Street view looking west on Martin Luther King Jr Ave SE



Figure 11: Street View looking east on Martin Luther King Jr Ave SE



Figure 12: Aerial view of site, Source: oblique.sanborn.com

The aerial view in Figure 12 shows the relationship of the site to the Anacostia Metro Station along Howard Road SE to the north. The back of the site leads to a residential neighborhood with single family houses lining the site on the right and multi-family homes on the left. The east side of the aerial shows the beginning of Anacostia's commercial corridor (Figure 10), leading to the historic district (Figure 12). The site is located on the Anacostia Heritage Trail with a historic marker located on the site (Figure 13). Thurgood Marshall Public Charter Academy (Figure 7) is the site of the Birney School dating back to 1889. It was the first black public school in the area, named after James Gillespie Birney, a Kentucky farmer who freed his slaves and published *The Philanthropist*, an anti-slavery newspaper in Cincinnati, Ohio. The original building was destroyed in 1914; the current building was built in 1901¹⁰.

¹⁰ "Nichols Avenue Elementary School/Old Birney School, African American Heritage Trail," Cultural Tourism DC, accessed April 24, 2017, <https://www.culturaltourismdc.org/portal/nichols-avenue-elementary-school/old-birney-school-african-american-heritage-trail>

History and Context

The Necostin Indians, who lived in the village of Nacochtank, farmed and fished the Anacostia River as many as 10,000 years ago. The trading village was located on two natural trade routes, the Potomac River and Anacostia River. The ancient village was thought by a scholar to be the most significant in the region. Unfortunately their history and culture is largely unknown due to destruction of evidence and construction of a local sewage treatment plant and runway for Bolling Air Force Base¹¹.



Figure 13: Map of Chesapeake Area, Captain John Smith, 1612

Captain John Smith discovered the village of Nacochtank in 1608 during his exploration of the region.¹² Source: National Park Service

¹¹ D.C. Historic Preservation Office, *Anacostia Historic District: Washington, D.C.*, Revised March 2007, Brochure, accessed online.

¹² D.C. Historic Preservation Office, *Anacostia Historic District*.

The arrival of English settlers in the region marked a turning point for the tribe. Disease brought from the settlers and then warfare, as a fire was set to their village for revenge of the Jamestown massacre of 1622, contributed to the decline in population.¹³ The Jamestown massacre, where 347 settlers were killed, was a response from the Powhatan tribe to settlers encroaching on their land seeking new soil for tobacco plantations.¹⁴



Figure 14: Map of the District of Columbia, G.M. Hopkins, 1887
A cropped portion of the map shows the grid of historic Uniontown and historic Barry Farms development where the Freedmen’s Bureau sold plots of lands to black families to farm and construct their own homes.¹⁵

¹³ D.C., *Anacostia Waterfront Framework Plan*, 2003, 15.

¹⁴ “Jamestown: Legacy of the Massacre of 1622.” *Americans at War*. *Encyclopedia.com*, <http://www.encyclopedia.com/defense/energy-government-and-defense-magazines/jamestown-legacy-massacre-1622>.

¹⁵ Deborah Simmons, “Barry Farm Redevelopment – finally,” *The Washington Times* (June 29, 2017). <http://www.washingtontimes.com/news/2017/jun/29/barry-farm-redevelopment-finally/>

Tobacco farming continued on the river, depleting its resources, until the Civil War. In 1854, Uniontown was created as a suburban white-only settlement for Navy Yard workers (Figure 11).¹⁶ The enclave was laid out on seventeen blocks and including an outdoor marketplace in an open space along a boulevard style street. The marketplace was forty feet wide and the length of one block (Figure 12).¹⁷ Frederick Douglass bought his Cedar Hill home in 1877 from one of the Uniontown founders, now bankrupt. The purchase meant Uniontown was no longer an exclusive community.¹⁸

Urban renewal in the 1950s and later starkly changed the area. Redevelopment occurred in the form of apartment buildings and public housing developments, replacing single-family homes and completely altering the fabric of Anacostia. Residents, primarily black, were displaced and located further east.¹⁹ The concentration of public housing, destruction of historic character and fabric, poor quality construction, and lack of services have left the community with little resources. Today, the Anacostia community is working to rebuild leveraging their history as an asset.²⁰ Change is occurring rapidly and the city has big plans to continue development in the area, as outlined in the next section.

¹⁶ D.C., *Anacostia Waterfront Framework Plan*, 2003, 15.

¹⁷ D.C. Historic Preservation Office, *Anacostia Historic District*.

¹⁸ D.C., *Anacostia Waterfront Framework Plan*, 2003, 15.

¹⁹ D.C., *Anacostia Waterfront Framework Plan*, 2003, 15.

²⁰ D.C. HPO, *Anacostia Historic District*



Figure 15: Marketplace at the center of Uniontown, 1913
The marketplace in the process of renovation was the “center of community life” in Uniontown.
²¹ Today it is an open space called Old Market House Square.

²¹ D.C. HPO, *Anacostia Historic District*

Local Planning

Significant changes are planned as outlined in the 2003 Anacostia Waterfront Plan, which affect the site locally. First, the city plans to amend with Anacostia Watershed. One of these approaches is to daylight Stickfoot Creek, shown at the bottom of Figure 14 that is currently underground and runs along Suitland Parkway, one block from the site. These environmental remediations would occur prior to development of Poplar Point (Figure 16) and redevelopment of the Anacostia Metro Station, which would bring significantly more residents to the area.

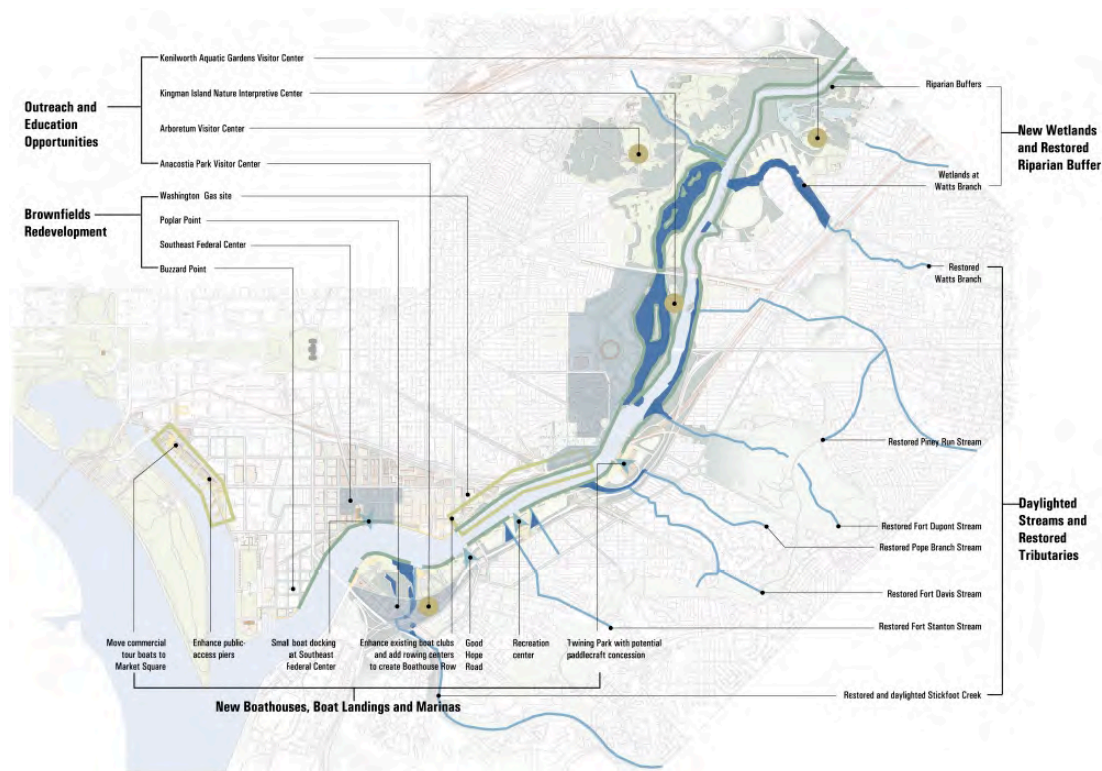


Figure 16: Environmental Initiatives Plan, Source: Anacostia Waterfront Plan 2003, District of Columbia

Transportation initiatives include adding a light rail along the Anacostia Freeway with a stop at the Anacostia Metro Station, one block northwest of the site

(Figure 15). The city also highlights potential transit oriented development of the metro station site that would increase residents and foot traffic near the site. In addition, improvements to the freeway are intended to transform the freeway to a boulevard, increasing pedestrian friendly aspects and connection to the river. Suitland Parkway and Martin Luther King Jr Ave are also to see improved pedestrian crossings.



Figure 17: New Transportation Initiatives Map, Source: 2003 Anacostia Waterfront Plan, District of Columbia



Figure 18: Poplar Point Development Idea, Source: 2003 Anacostia Waterfront Plan, District of Columbia

Chapter 5: Site Analysis



Figure 19: Existing Site Conditions

Site Survey: Drawings

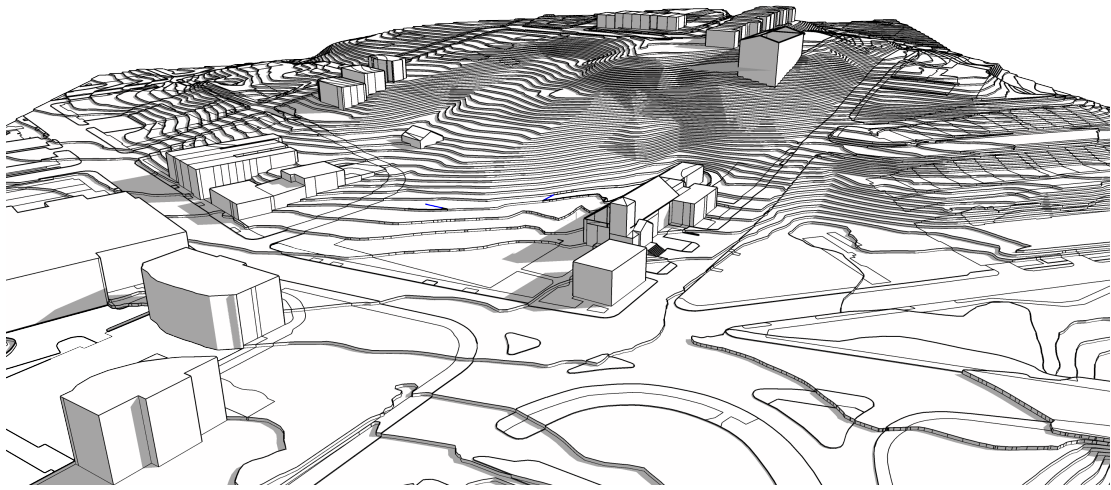


Figure 20: Site perspective looking east

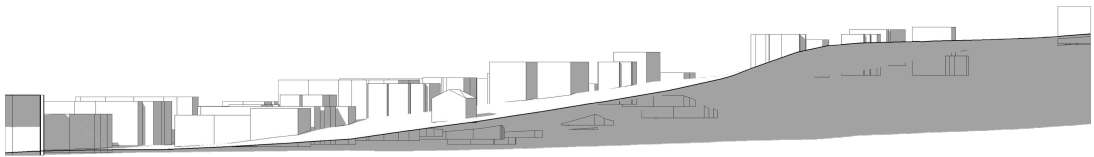


Figure 21: Site section

Site: Circulation

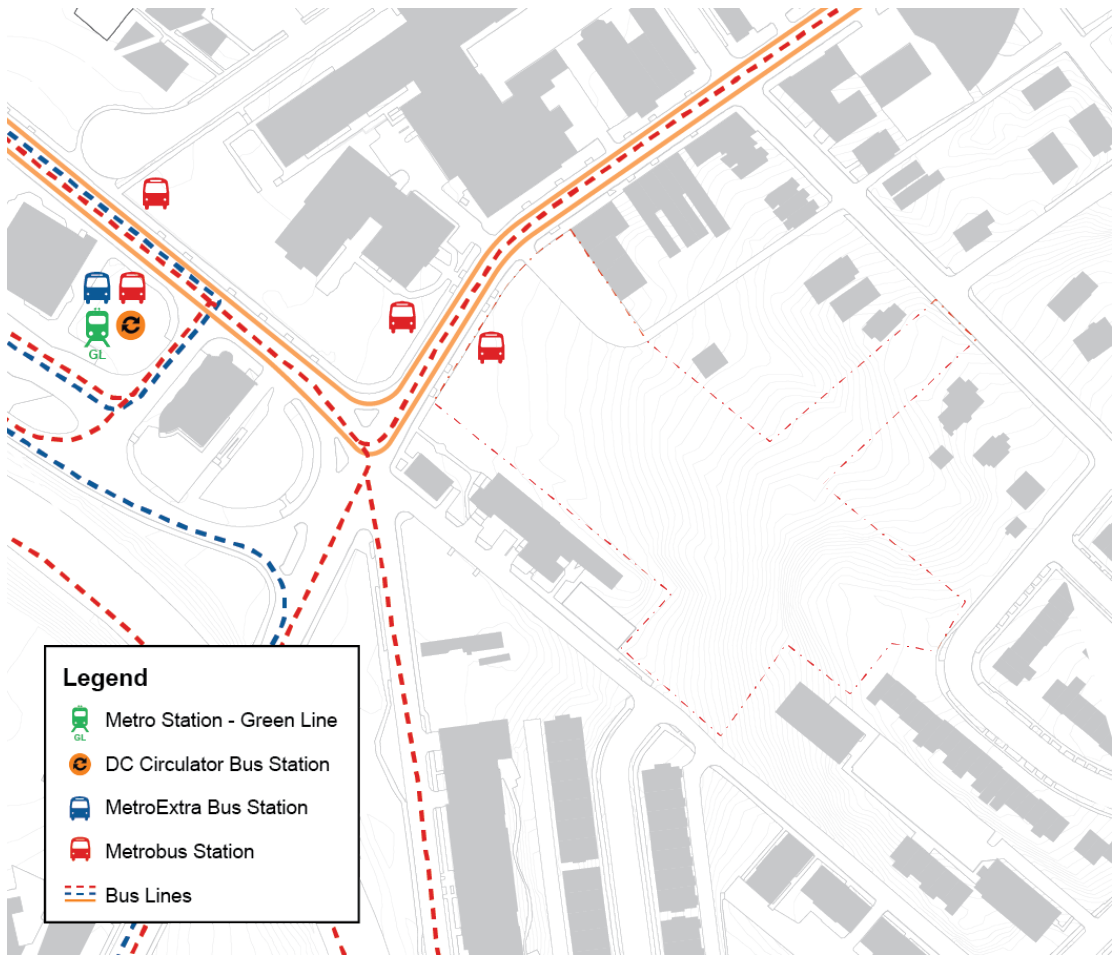


Figure 22: Circulation Diagram

The site is accessible to both to the metro and bus lines. The Anacostia Metro Station is 0.10 miles northwest from the site, located on Howard Avenue. The metro station services the green line, which enables residents to get to downtown. Multiple bus stations are located within walking distance to the site, including one at the site. The DC Circulator, an express bus with fewer stops, has a stop at the Metro Station.

Site: Land Use and Zoning

The site exists at the beginning of the main commercial corridor in Anacostia. The existing land use diagram (Figure 23) reveals the benefits to the site's location. The front part of the site on Martin Luther King Jr Avenue, borders several local institutions. Of these include: the Thurgood Marshall Academy, Savoy Elementary School, and Bethlehem Baptist Church. Retail uses begin to the right of the site. The buildings immediately adjacent are currently vacant. Their uses used to be a barbershop and small grocer. Neighborhood residents still occupy this front corner of the site during the day. On one site visit, a pop-up car wash service was setup there. During the week, the gravel area of the site adjacent to the church is used as a parking lot, presumably for commuters (Figures 7 and 8). The site itself has multiple land-use codes, as shown in Figure 24. The details of occupancy percentages, heights, setbacks, and floor area ratios are detailed in Table 1.



Figure 23: Land Use Diagram

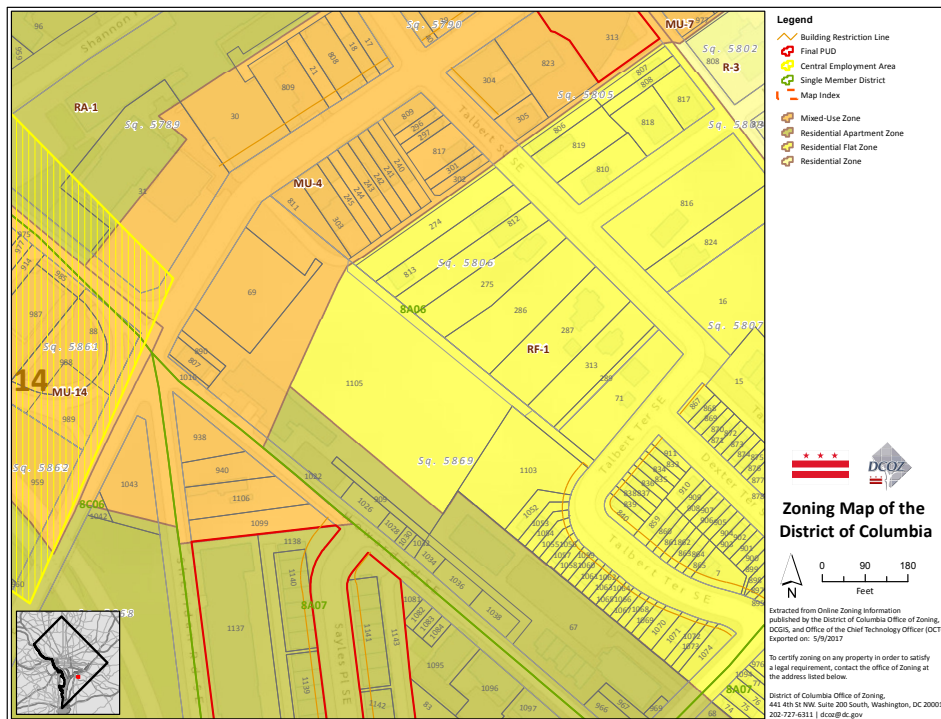


Figure 24: Zoning Map, Source: DC Office of Zoning, maps.dcoz.dc.gov.

Table 1: Maximum Occupancy, Setbacks, and Floor Area Ratios

	MU-4		RF-1	RA-1
	Non-residential	Residential		
Maximum Lot Occupancy (%)	60	60	60*	40
Maximum Height (ft)	50	50	35**	40
Rear Yard Setback (ft)	15	15	20	20
Side Setback (ft)	N/A	N/A	5 ft on tree standing sides	8
Front Setback	N/A	No lesser or greater than existing setbacks on the same block		
Maximum Floor Area Ratio	1.5	2.5	N/A	0.9

*Other non-residential structures including institutional, or church are limited to 40% lot occupancy.

**Institutional buildings have a maximum height of 90 ft, churches have a maximum of 60 ft.

Site: Climate

The District of Columbia is located in Climate Zone 4A according to the 2012 International Energy Conservation Code. The climate is moist with heating degree days (Base 65°) of less than or equal to 5400 and cooling degree days (Base 50°) of less than or equal to 4500²² (See Figure 8).

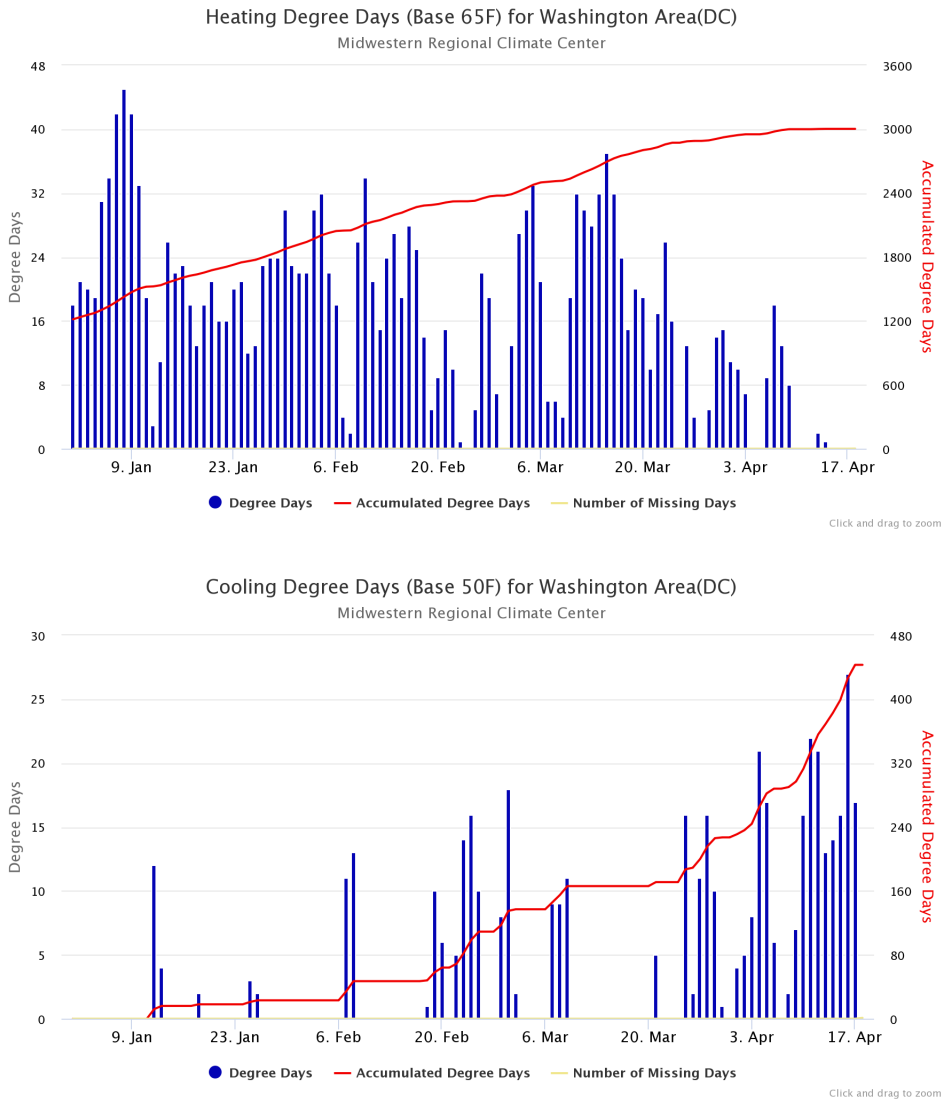


Figure 25: Source: cli-MATE MRCC Application Tools Environment, Midwestern Regional Climate Center, <http://mrcc.isws.illinois.edu/CLIMATE/Station/Daily/StnDDBTD.jsp>

²² International Code Council, *2012 International Energy Conservation Code*, Chapter 3, <https://codes.iccsafe.org/public/document/code/286/4950152>

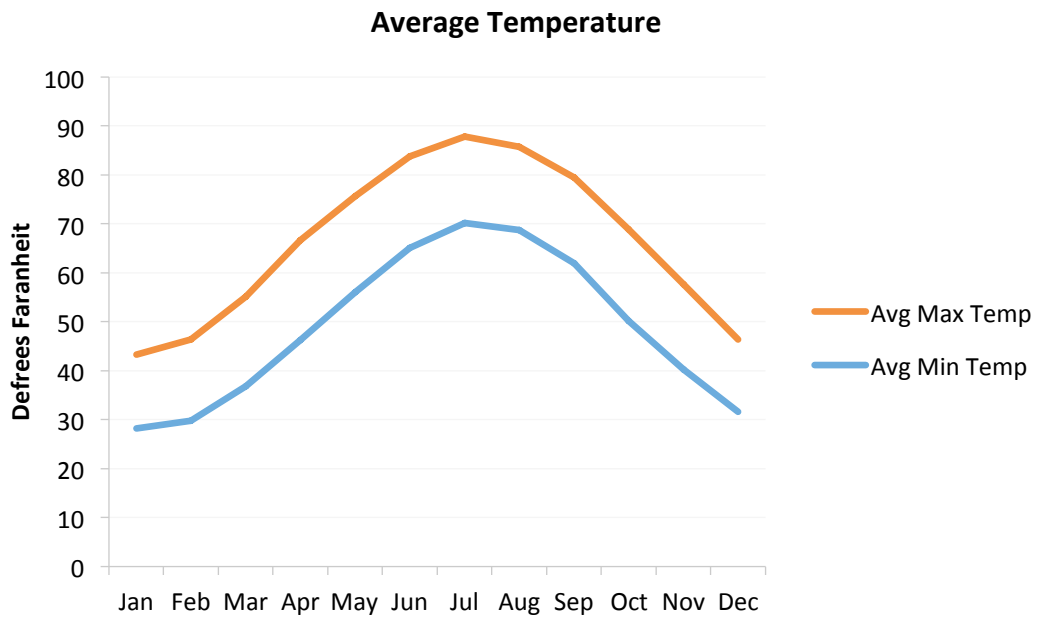


Figure 26: Average Monthly Temperatures for the District of Columbia

Regional temperatures rarely average below freezing except in the month of January. In the summer months of June, July, August, and September average maximum temperatures are about 80 degrees.

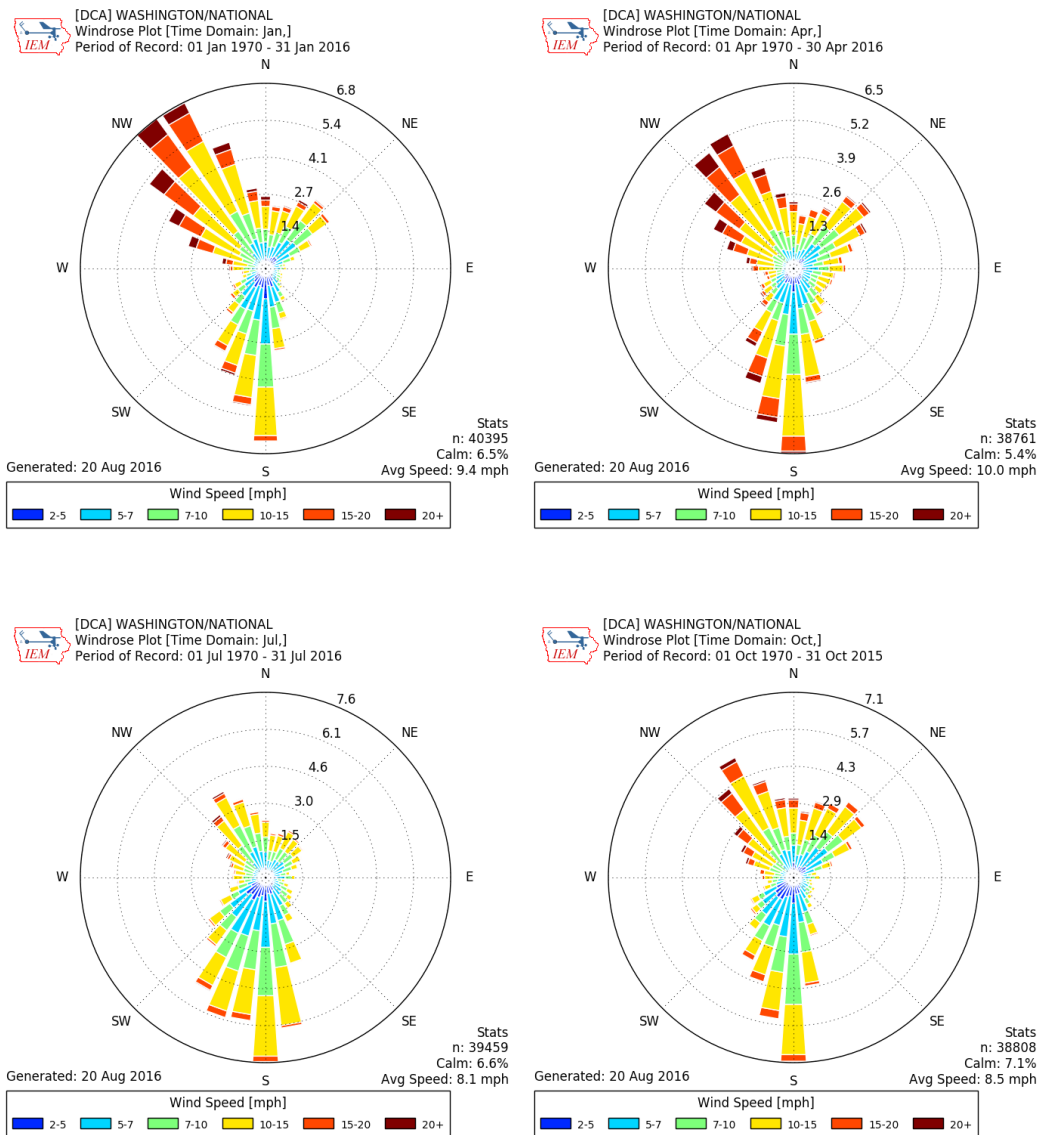


Figure 27: Wind rose diagrams for the months of January, April, July, and October. Source: Iowa State University of Science and Technology, https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=DCA&network=VA_ASOS

Winds come from the northwest and south the majority of time in the winter and spring months. These months can get wind speeds over 20 miles per hour. A similar percentage of winds come from the south but are mostly in the 10-15 miles per hour range, occasionally reaching speeds of over 15 miles per hour. Winds are predominantly from the south in the summer and fall months. The summer has the

calmest winds, mostly below 15 miles per hour. In the fall, over 20 mile per hour winds can occur from the northwest but they are not frequent.

Average Monthly Precipitation (1981-2010)

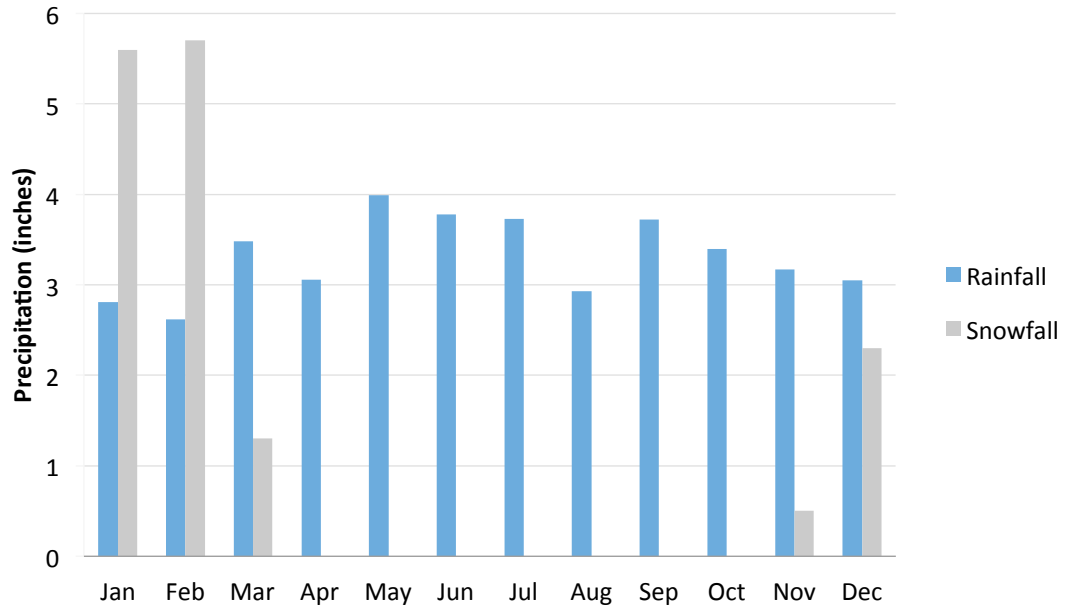


Figure 28: Source – National Oceanic and Atmospheric Administration, U.S. Department of Commerce, www.ncdc.noaa.gov

Site: Solar Access

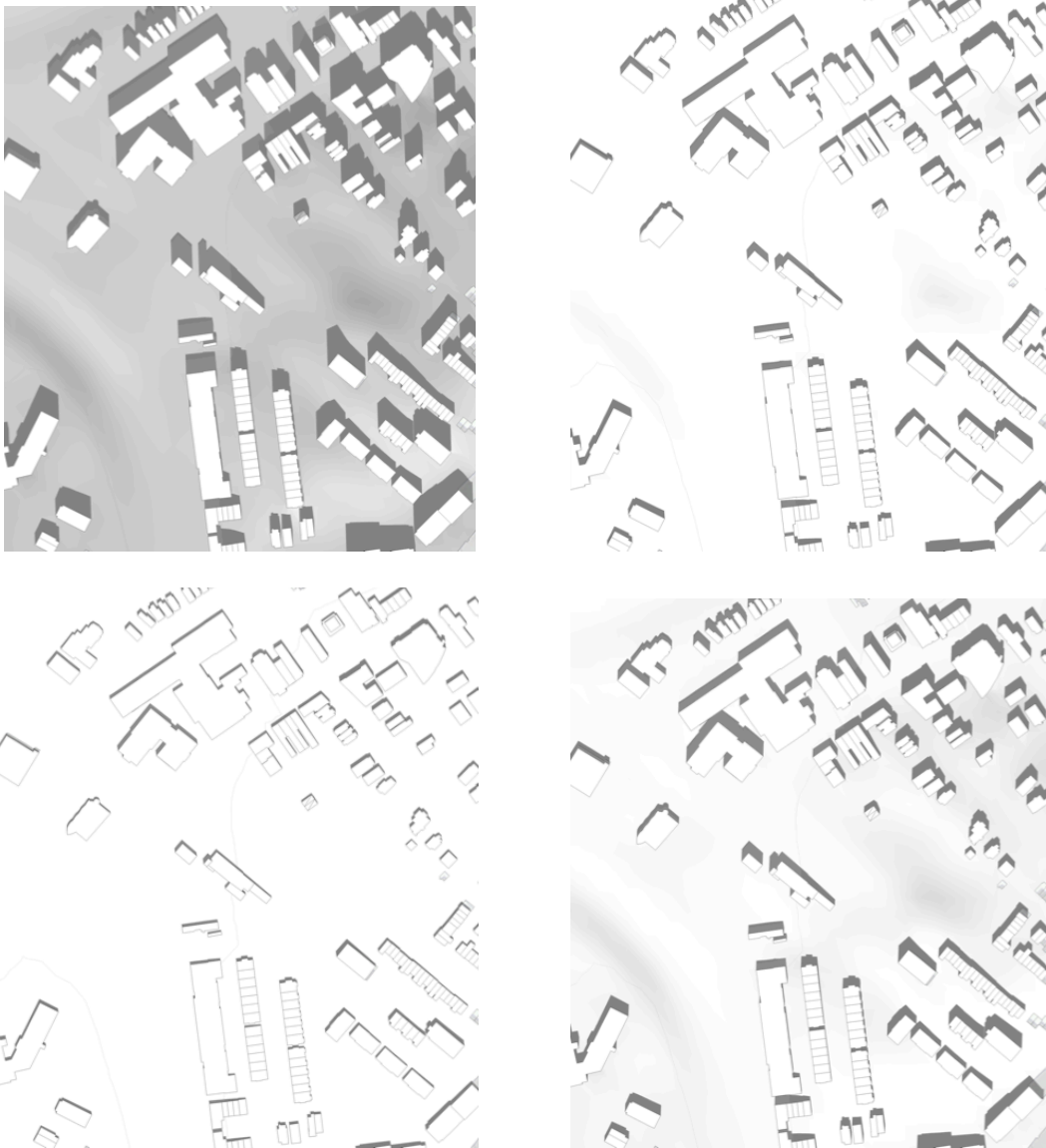


Figure 29: Solar Exposure at Noon for the months of January, April, July, and October

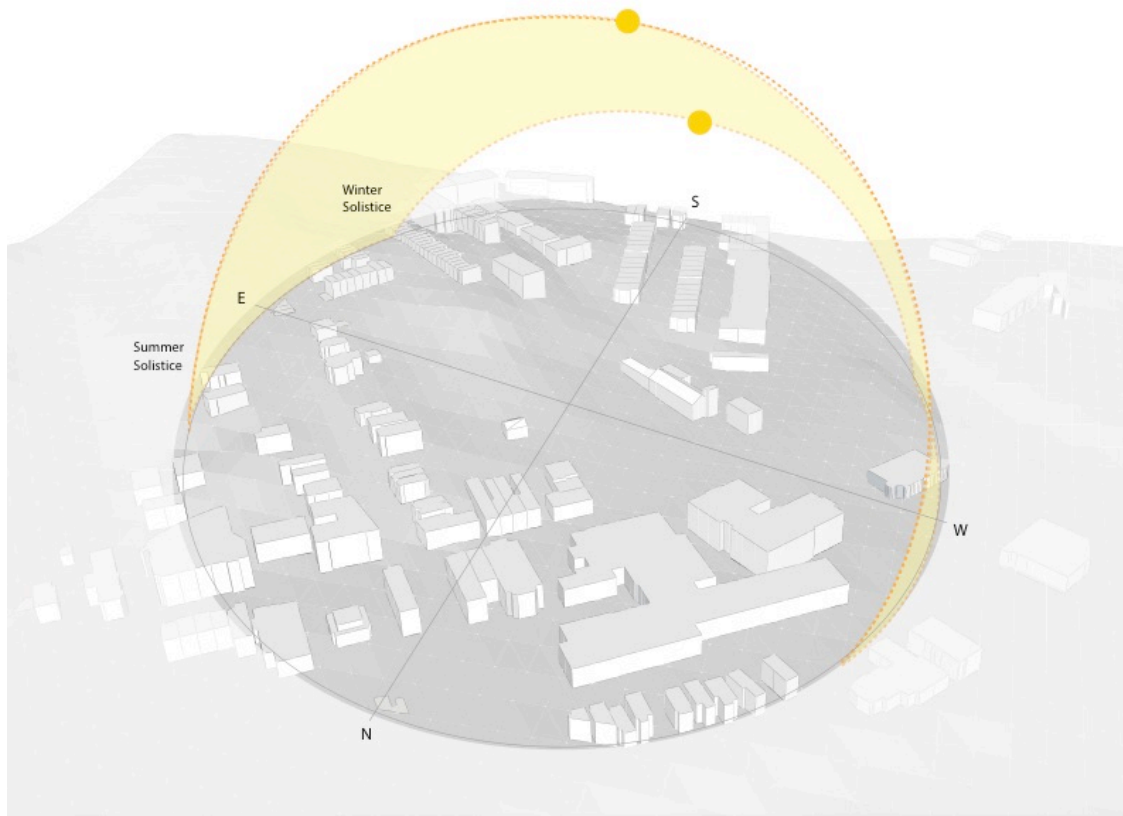


Figure 30: Sun path diagram

The position of the buildings adjacent to the site and the steep topography give the site good solar exposure, advantageous for urban agriculture, as well as sustainable strategies for harnessing energy.

Site: Contour/Slope



Figure 31: Topography and Slope Diagram

The site has steep terrain; special considerations for accessibility will need to be considered. Terraced farming will also need to be employed. However, this type of

farming can be beneficial to sensitive roots by protecting them from the cold over night and also increases efficiency of water usage²³.

²³ Cynthia Graber, “Farming Like the Incas”, Smithsonian.com, September 6, 2011. <http://www.smithsonianmag.com/history/farming-like-the-incas-70263217/>. Accessed May 6, 2017.

Site: Environmental



Figure 32: Sewer Shed and Wetland Diagram

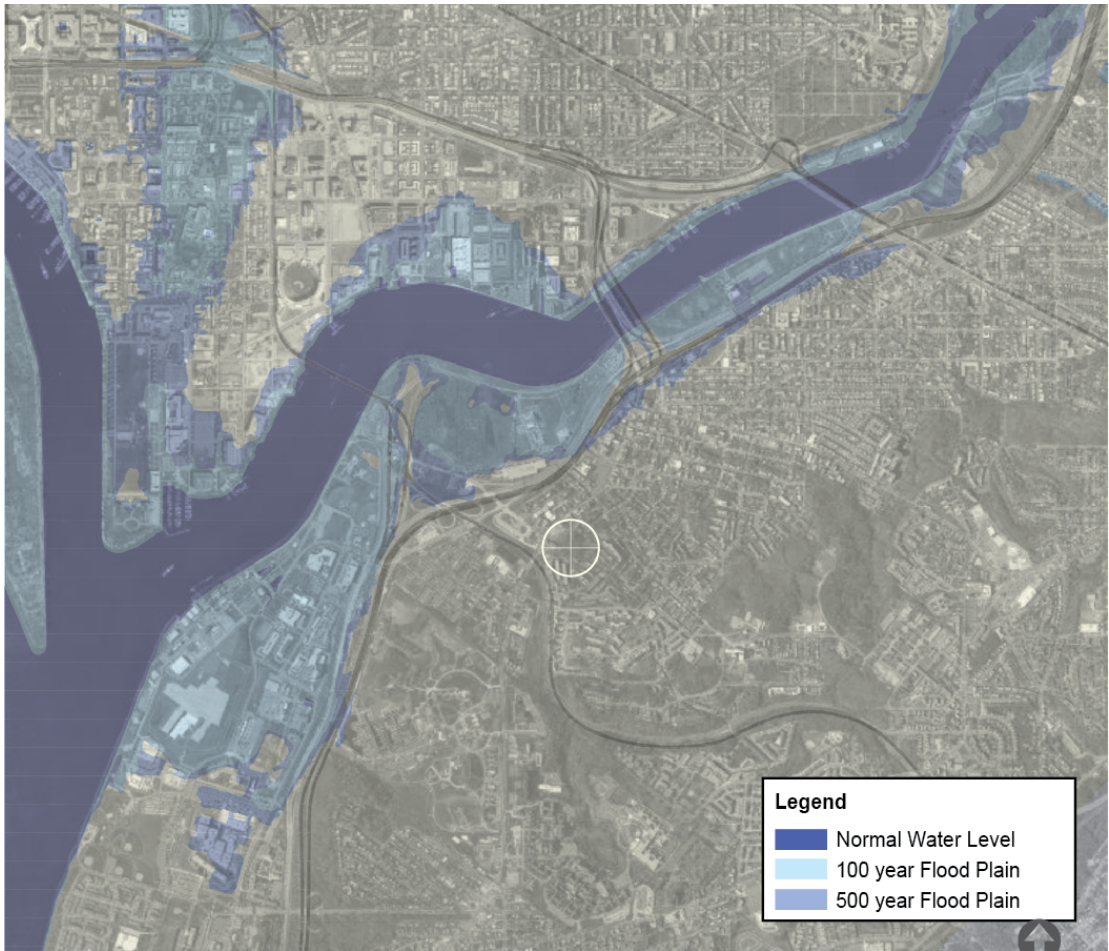


Figure 33: Floodplain Diagram

Site: Soil Conditions

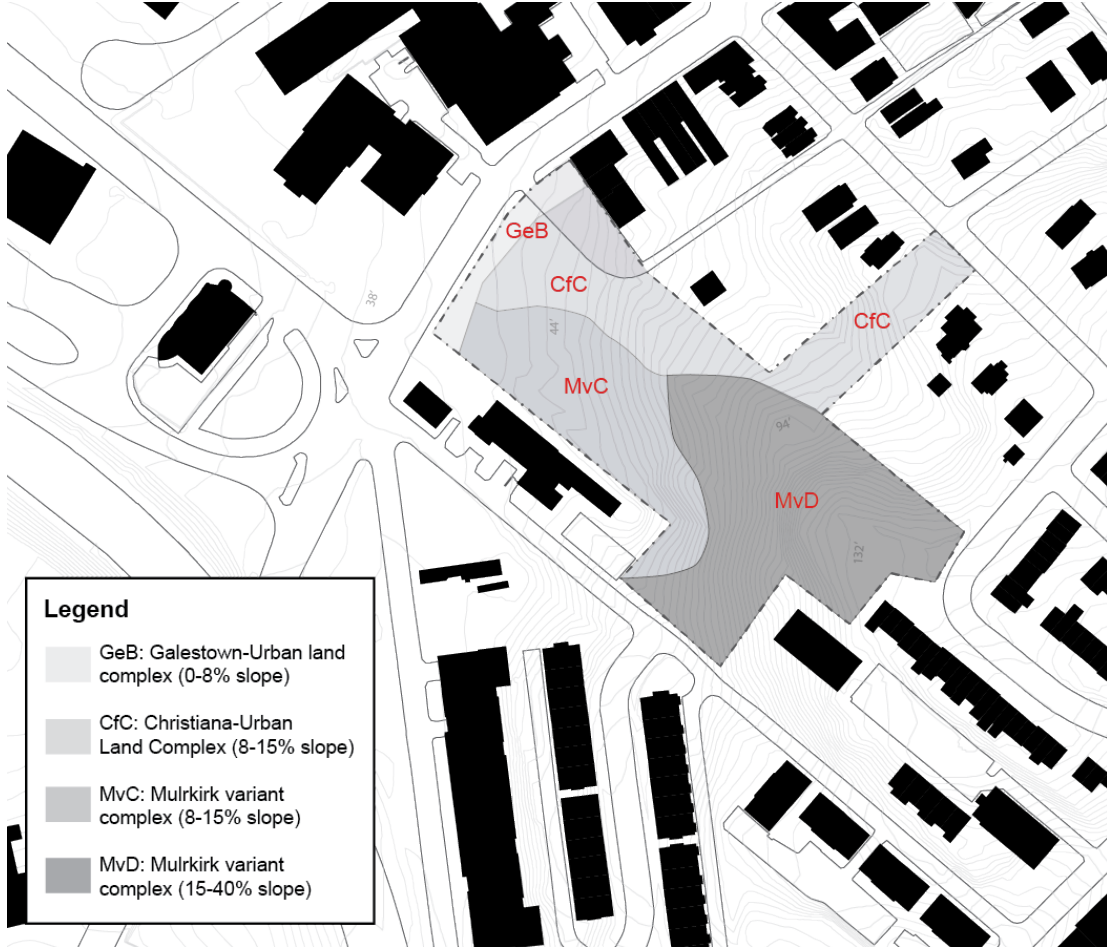


Figure 34: Soil Survey Diagram

The portion of the site that will be used for growing is within the Mulrirk variant complex soil type. This soil type has some concern for run-off. As agriculture can cause run-off issues, and has historically been an issue in the Anacostia region, stormwater management will need to be a major design component.

Site: Interpretations



Figure 35: CORRIDOR: Roadways and natural features create division

This diagram shows how roadways and natural features divide areas in the city. The Anacostia River is a natural barrier between Southwest and Southeast D.C. The additional layers of freeways and military sites serve as barriers between residents, the waterfront, and neighborhoods within Southeast quadrant.



Figure 36: MATRIX: The city matrix becomes unclear as you travel south

The northern part of Anacostia has a clear pattern and grid of streets that begins to shift as you move south as well as along the river. The site is along a invisible line that seems to divide the grid layout of Anacostia to the areas of Hillsdale and St. Elizabeth's to the south.

Chapter 6: Program

Precedent Analysis

The following projects will serve as precedents for program analysis:

The Commons at Stanton Square



Figure 37: Master Plan of Stanton Square and Commons, Source: National Capital Planning Commission

The Commons is a project designed by Perkins Eastman and Torti Gallas located on a 3-acre site comprised of two non-profit organizations. The focus of this thesis is on Martha's Table, an organization that provides services for the community such as distributing healthy meals to the homeless, education on healthy eating and living, day care²⁴. The program was divided into three themes that connect to "The

²⁴ Martha's Table, <http://marthastable.org/>

Hub” with administrative and facility management spaces²⁵. The following is a list of program spaces and sizes.

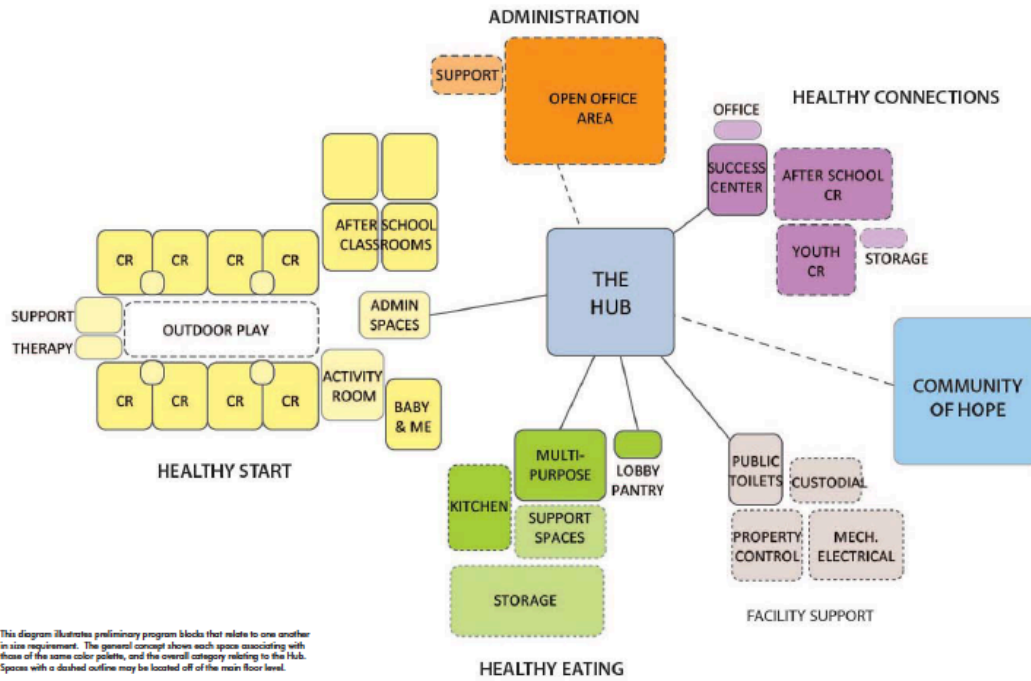


Figure 38: Diagram of Program Adjacencies, Source: Perkins Eastman, 2017

²⁵ Perkins Eastman, “The Commons of Stanton Square: Programming” (2017?), 2.01

Program List:

Healthy Start	11,869 sf
• Classrooms	5440 sf (8 rooms at 680 sf)
• Children’s Toilets	320 sf (4 rooms at 80 sf)
• After School Classrooms	2720 sf (4 rooms at 680 sf)
• Baby & Me	725 sf
• Support Spaces	1550 sf
• Administrative Spaces	1235 sf
Healthy Connections	3220 sf
• After school classrooms	2600 sf (4 rooms at 650 sf)
• Success Center	520 sf
• Support	300 sf
Healthy Eating	6060 sf
• Community Kitchen	800 sf
• Multi-purpose Food Prep Area	1200 sf
• Dry Storage	800 sf
• Cold Storage	450 sf
• Warehouse	1200 sf
• Lobby Pantry	250 sf
• Support Spaces	1160 sf
The Hub	720 sf
• Lobby	400 sf
• Vestibule	140 sf
Administration and Staff Spaces	4573 sf
• Open Offices	3635 sf
• Program Support	720 sf
Facility Management and Support Spaces	3808 sf
• Facilities Management	828 sf
• Property Control	680 sf
• Mechanical & Custodial	2300 sf
Total	39,172 sf

Artscape Wychwood Barns, Toronto, Ontario



Figure 39: Aerial image of Artscape Wychwood Barns, Source: Google Earth, 2017.

Artscape Wychwood Barns is a brownfield site that was redeveloped into new community uses that combines art and environment on one site. Existing on the site were the Wychwood Car Barns from the early 20th century²⁶. Each barn was redeveloped into a different programmatic focus including live/work artist spaces, artist studios, non-profit office space, children’s theatre, and community food center. The site is located on 5 acres, with five barns total (Barn 5 was partially demolished)²⁷. The community food center is located in the “Green Barn”, Barn 4. Estimated program size was calculated from plans of the project.

²⁶ Joe Lobko, “Toronto Brownfield Redux: Artscape Wychwood Barns and Evergreen Brick Works” ICOMOS Symposium (Paris, 2011), 2

²⁷ Joe Lobko, 2

Program List:

Barn 1: Studio Barn	13,700 sf
• 26 live/work units	8160 sf
• 15 studios	4800 sf
• Community Gallery	690 sf
• Bathroom	50 sf
Barn 2: Covered Street	7000 sf
• Function space	7000 sf
Barn 3:	7000 sf
• Non-profit office spaces	3240 sf
• Children's Theatre	1980 sf
• Lobby	780 sf
• Bathrooms	910 sf
Barn 4: The Stop Community Food Center Green Barn	9670 sf
• Kitchen	800 sf
• Greenhouse	6500 sf
• Sheltered outdoor garden	2300 sf
• Bathroom	70 sf
City of Toronto Wychwood Barns Park	4 acres (174,240 sf)
• Barn 5	0.22 acre (9670 sf)
• Play area	0.34 acre (15,000 sf)
• The Meadow	1.26 acre (55,000 sf)
• Dog area	0.38 acre (16,700 sf)
• Beach volleyball	0.10 acre (4200 sf)
• Circulation	1.70 acre (74,000 sf)
Building Total	37,000 sf

Bread for the City, Washington, DC (including off-site orchard in Beltsville, MD)



Figure 40: Aerial Image of Bread for the City, Source: Google, DigitalGlobe

Bread for the City is a non-profit organization that serves people in need with two locations in Washington, DC. Program ranges from a food and clothing pantry to medical services²⁸. The majority of their food is supplied through donations of leftover produce from local farmers markets and community supported agriculture boxes²⁹. Recently, they have been venturing into food production in order to feed more people. Their orchard in Beltsville, Maryland has over 2,500 fruit trees on a 2.75 acre site. They are able to produce 45,000 lbs of fruit each year. In addition to

²⁸ “Bread for the City”, <http://www.breadforthecity.org>.

²⁹ “Glean for the City: a project of Bread for the City” Bread for the City, accessed April 3, 2017, <http://www.breadforthecity.org/gleanforthecity/>

supplying food, they provide classes/workshops in cooking and agriculture³⁰. An important aspect to their program, as is also seen with The Commons at Stanton Square, is the entrance space where people can wait for services off the street. The following program list is for the location in the Shaw neighborhood.

Program List:

Food Services	2900 sf
• Food Pantry	1300 sf
• Waiting Room + Entrance Lobby	1300 sf
• Kitchen	300 sf
• Rooftop garden	2250 sf
• Offsite Orchard	119,790 sf (2.75 acres)
Social Services	2816 sf
• Counseling private rooms	630 sf (7 rooms at 90 sf)
• Social services	1100 sf
• Legal counseling	1600 sf
• Development Counseling	1216 sf
Health Services	4200 sf
• Medical private rooms	2200 sf (18 rooms at 120 sf)
• Doctor’s office/lounge	500 sf
• Waiting room	1100 sf
• Reception/Enrollment	400 sf
Administration and Support	7875 sf
• Flexible Meeting Room	1300 sf
• Private office	970 sf
• Entry	205 sf
• Fire stair	300 sf
• Stair and elevator	500 sf
• Bathroom	900 sf
• Storage	300 sf
• Circulation	3400 sf
Building Total	17,541 sf

³⁰ “City Orchard: a Bread for the City Project!” Bread for the City, accessed April 3, 2017, <http://www.breadforthecity.org/get-involved/orchard/>, paragraph 1

Program Objectives

The program has three themes, growing, cooking, and eating that are centered around the idea of education. Elements of teaching will be woven through each theme (See Figure 29). The main programmatic elements are the urban farm, preschool, community teaching kitchen and table. The central space under the umbrella of teaching will be the main entry into the space along with a library and learning space that educates about the urban farm and its processes. Additionally, there will be a small market for the sales of produce, as well as grains, dairy, and protein from local farms.

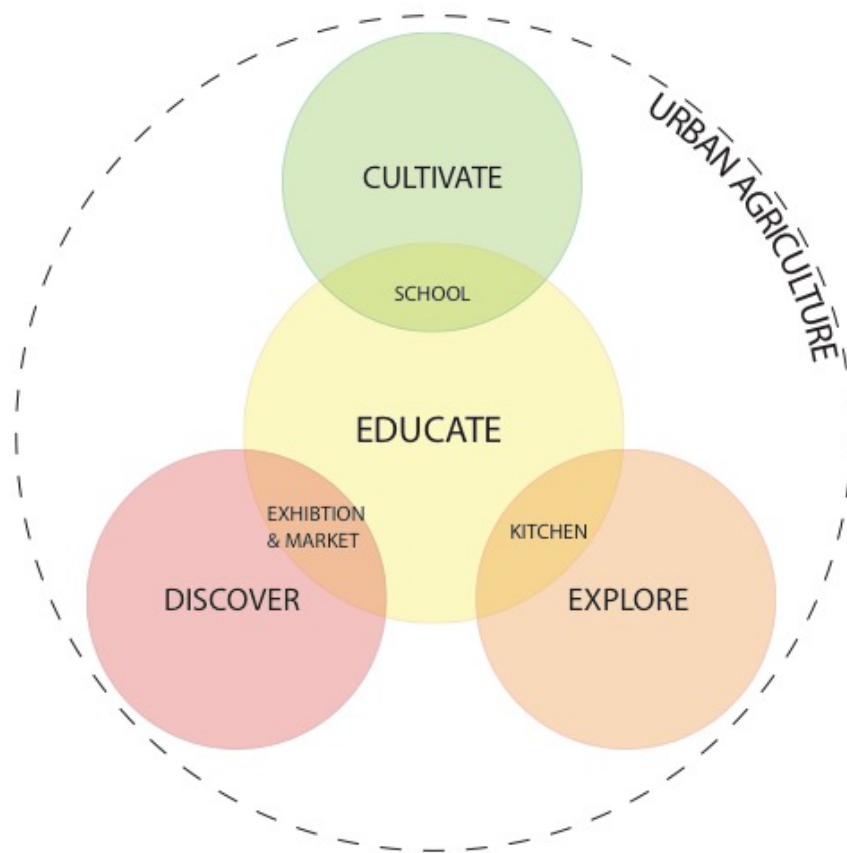


Figure 41: Program Themes

Under the theme of growing, a preschool will be created on site that will be heavily connected to agriculture and connect children to different types of plants and elements of natural processes. By having a school on a farm, an understanding of sustainability and protection of our resources and food systems can begin from a young age, as well as foster and develop children's curiosity, compassion, and patience.³¹

The themes of cooking and teaching are present in the community teaching kitchen where residents can learn how to prepare and cook the food they see in the garden. Residents may be unfamiliar with some fruits and vegetables, this kitchen is a open, fostering community for people to become familiar and comfortable with a range of food and learn quick and healthy ways of cooking for their families. Households that have a small or unequipped kitchen or wish to cook in a social environment will be able to prepare meals together, fostering community and encouraging a new avenue for the sharing of information around healthy cooking and eating.

Highly connected to the theme of cooking is the theme of eating. These two elements of program will be integrated into one communal space. The kitchen and table are where the intersection of agricultural landscape and architecture occur. The table will be specially emphasized, however, as it is the culmination of the food process. It is a celebrated space where social interaction between community members, farmers, and educators occurs.

³¹ Studio Gang, "Academy for Global Citizenship"
<http://studiogang.com/project/academy-for-global-citizenship>



Figure 42: Seasonal growing capabilities in the DC region, Source: https://osse.dc.gov/sites/default/files/dc/sites/osse/service_content/attachments/DCF2S%20seasonality%20chart%202013-web.pdf

The urban farm provides opportunities of teaching through workshops and classes focused on how food grows, composting, and how to start a small garden. The farm can be in production 9 of the 12 months during the year (Figure 30). A greenhouse will also be used to extend the growing season. The farm demonstrates our connection to land and an understanding of where our food comes from.

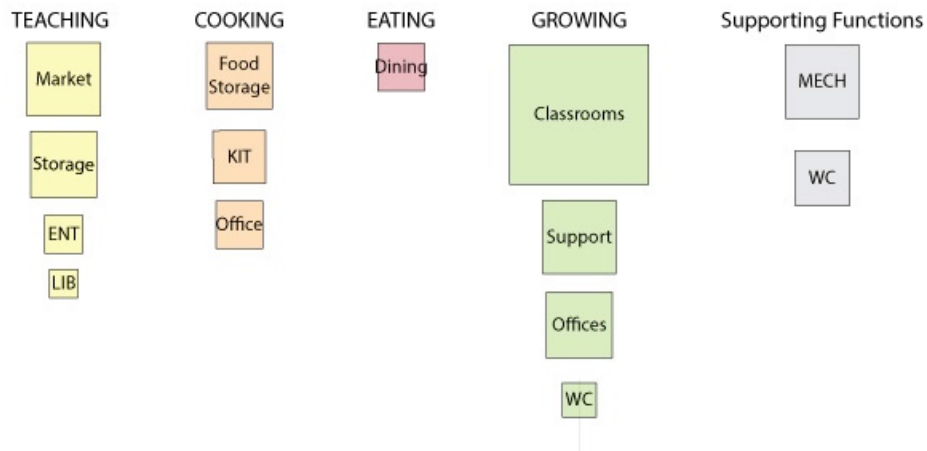


Figure 43: Diagram of building program

Program List:

Teaching	3500 sf
• Entry	400 sf
• Library/Learning Space	400 sf
• Market	1500 sf
• Storage	1200 sf
Cooking	3150 sf
• Kitchen	800 sf
• Offices/Support	1100 sf
• Food Storage	1250 sf
Eating	750 sf
• Dining	750 sf
Growing	8000 sf
• Classrooms	5000 sf
• Support	1500 sf
• Offices	1200 sf
• Toilets	300 sf
Supporting Functions	1800 sf
• Mechanical	1500 sf
• Toilets	300 sf
Farm	8100 sf
• Greenhouse	8000 sf
• Toolshed	100 sf
Total	17,200 sf

Chapter 5: Schematic Design

To begin the schematic design phase a series of scale overlays were completed in order to compare the site to historical gardens. These gardens have different path and terrace sequences that can be considered for the design of the site and its urban farm landscape.

Paths such as in Villa Lante are organized on a central axis. Parc Guell is initially organized on a centralized axis until it reaches the market spaces at which point it has a radial order. The surrounding paths are more romantic as they move through the landscape. Woodlands Cemetery has a path where the garden and buildings are organized off the path. The view is focused on the path and the landscape, the terraces and the building at the end of the sequence reveal themselves as you move along the path.

Villa Gamberaia and Villa D'Este have both strong axis and cross axis. However, Villa Gamberaia emphasizes a long axis with the estate buildings and garden organized along this axis and then on the cross axis another terrace garden exists on a hill above. Villa D'Este terraces down from the estate to the gardens, it is not a long and narrow site compared to the thesis site and other gardens. However, the sequence of the path stepping down through the terraces with diagonal paths crossing over the main axis and then the use of a strong cross axis can be used for precedent and design strategies. Dumbarton Oaks is also a terraced garden to consider as it responds to terracing through the use of topography. Some terraces are on axis while others are off axis as you move through the path sequence descending the hill.



Villa D'Este



Dumbarton Oaks



Villa Gamberaia



Parc Guell



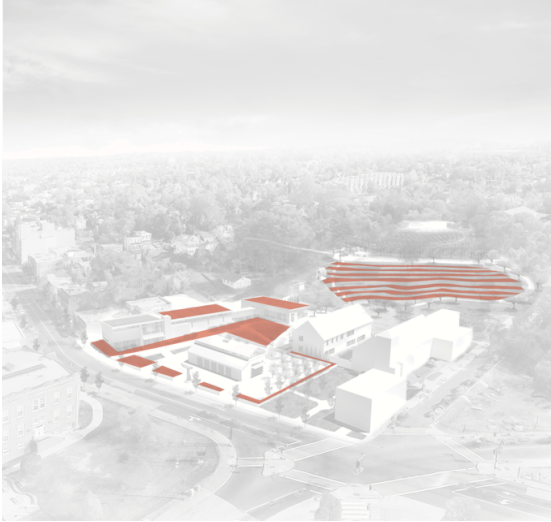
Villa Lante



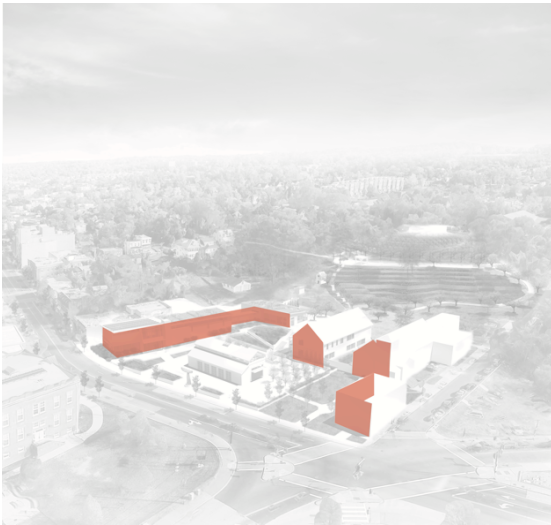
Woodlands



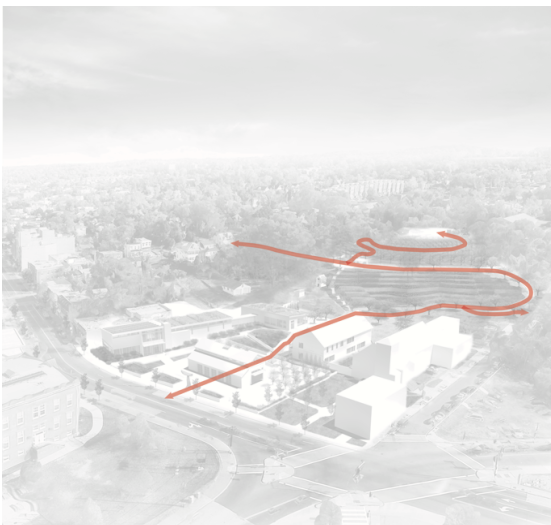
Figure 44: Scale Overlays



Stormwater Management



Define Public Space



Make Connections

Figure 45: Design Strategies

Chapter 6: Design Proposal

The design proposed for the site incorporates public space while still allowing for a large agricultural area. The main strategy is likened to town and country where the primary buildings line the street creating an edge to the “backyard”. Additionally, it was important to incorporate the buildings adjacent to the site in order to make the space feel cohesive. The initial design move was to place the nursery school adjacent to the church. By doing this, an edge is created where the existing setback is and provides the opportunity to define a public plaza. By placing the market in the center of the square it emphasizes the sites connection to food and recalls the market square typology. As there is little public space along Martin Luther King Jr Avenue currently, the plaza provides much needed public space for local residents and users of the site. An allée of native juneberry trees shades the plaza; the tree produces a fruit that tastes like blueberries that links to the site’s agricultural nature. The trees also express the seasons of agriculture and harvest, as it changes from flowers in spring, to fruit in summer, to red leaves in fall.³²

³² University of Minnesota Extension, “Serviceberry or Juneberry (Amelanchier spp.)” <http://www.extension.umn.edu/garden/yard-garden/trees-shrubs/serviceberry-juneberry/>.



Figure 46: Site plan

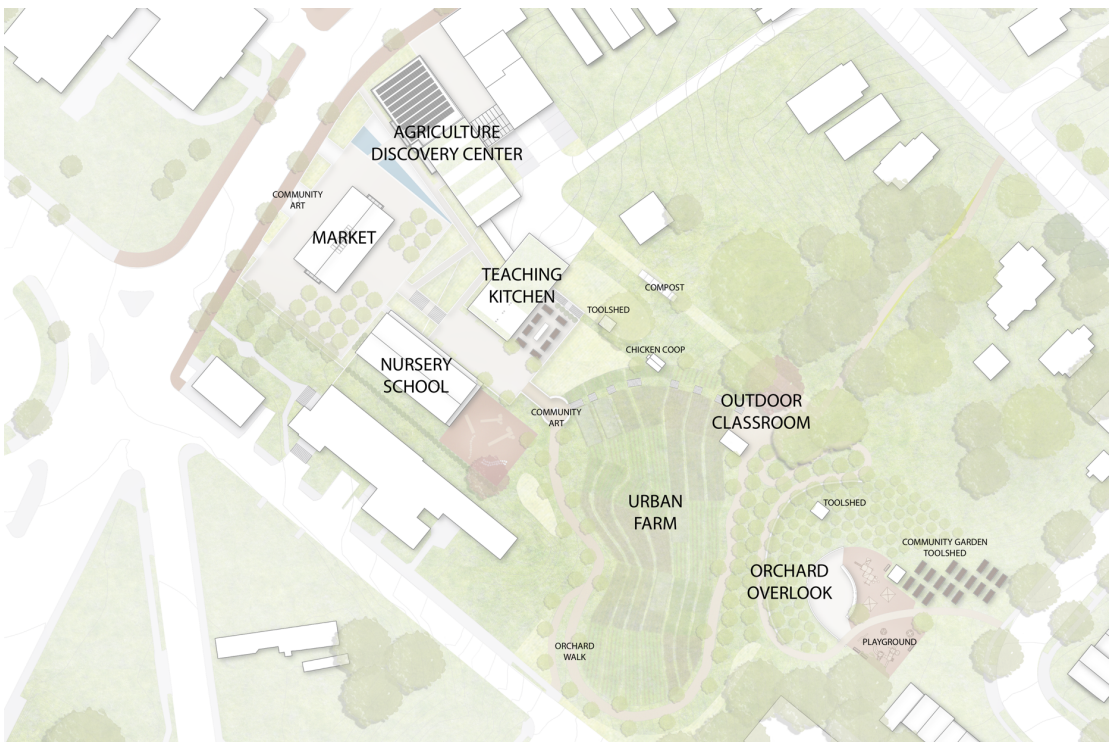


Figure 47: Places Diagram



Figure 48: Ground Floor



Figure 49: First Floor



Figure 50: Aerial of Site



Figure 51: WEST APPROACH, View to Market



Figure 52: North Approach, View to Discovery Gardens



Figure 53: Discovery Center Exhibition Space



Figure 54: Discovery Center Alley Space

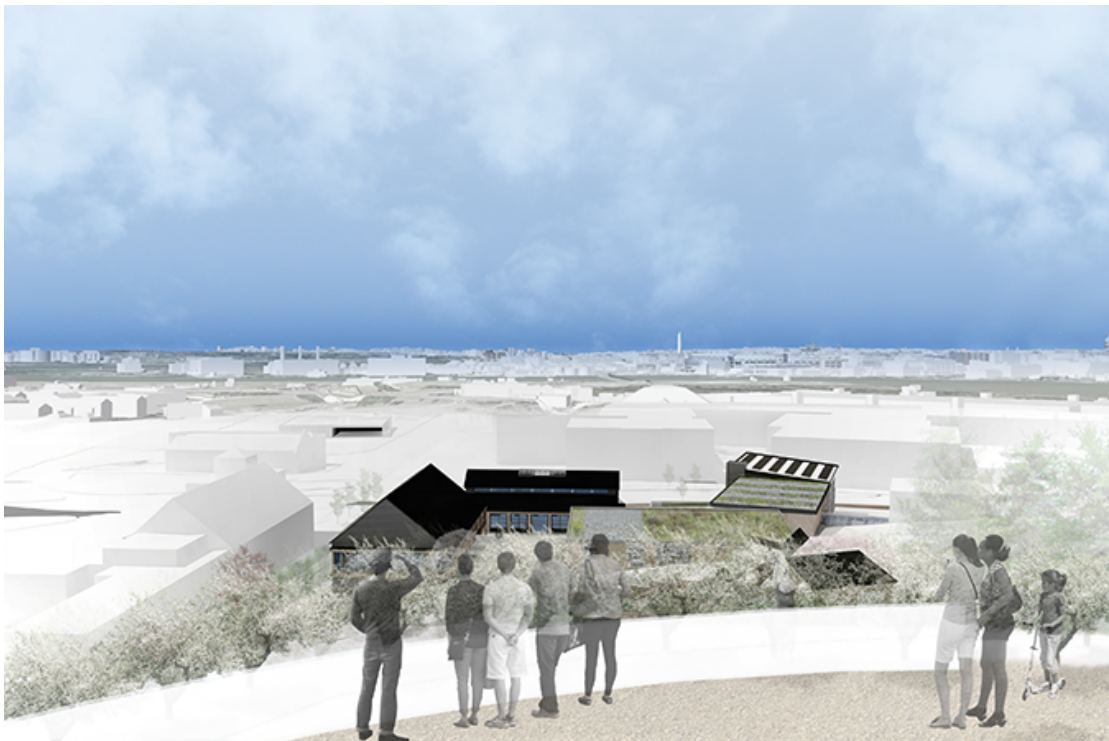


Figure 55: ORCHARD OVERLOOK, View to Washington Monument

Chapter 7: Conclusion

The design proposal is successful in demonstrating how agriculture and public space could be linked to provide a valuable amenity to the community. Though the proposal is not a solution to the food access issue, it could be a part of the solution. The community would have many opportunities to learn about where produce and grains come from, what it looks like, how to grow it, harvest it, and prepare it. Additionally, the site provides the opportunity to enhance social networks and the community's connections to each other. The market and plaza, which provides a space for farmers markets reaches out to the larger local food network and enables the community to have access to greater variety. The design also alleviates the varying angles and placement of buildings surrounding the site and cohesively exists within the context.

Some concerns brought up are whether the market building was set too far back from the street, thus not engaging with the street life enough. Additional comments were made in reference to the kitchen. The initial proposal sought to make the path to the kitchen a sequential experience, however, this may sacrifice the connection to the street, its users, and the market. The main concerns in reference to these ideas were about the stormwater retention areas that surround the plaza and whether they created too much of a barrier to the street. These discussions bring up an important aspect of the balance between environmental protection and the urban experience, an opportunity for further investigation.

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