The 11th Street Bridge Park Baseline Health Assessment

Presented to:

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A. Executive Summary

Despite Washington, DC being the capital of the United States, the differences between the city's eight geographic wards in education, income, and public resources are noteworthy. The 11th Street Bridge Park is unique in that it will link one of the more affluent regions of DC (Ward 6) to the lowest income region of the city (Ward 8). *Building Bridges across the River (BBAR) at THEARC* is a non-profit agency housed in Congress Heights that oversees the 11th Street Bridge Park in achieving the following primary goals: 1) build a healthy community in the neighborhoods surrounding the Bridge Park; 2) restore health to the Anacostia River; 3) enhance connection between the Ward 6 and Ward 8 communities; and 4) become an anchor for equitable and inclusive economic development in the surrounding communities. In that regard, BBAR formed three primary groups associated with the Bridge Park: 1) a Design Oversight Committee to inform a nation-wide design competition; 2) an Arts and Culture Committee to shape on-going programming; and 3) an Equitable Development Task Force to ensure nearby residents can continuously benefit from this new civic space. Each committee is comprised of local residents, business owners, government representatives, and faith communities. The Director of the 11th Street Bridge Park is Scott Kratz.

The built environment and urban design are now recognized as primary determinants for achieving an active and healthy lifestyle. Indeed, factors pertaining to the built environment have been linked to health and disease outcomes such as respiratory and cardiovascular health, fatal and non-fatal injuries, physical fitness, obesity, mental health, and social capital.[1,2] The "obesogenic environment" refers to conditions within a community that prevent or limit access to health promoting behaviors among people living there.[3] Such environments may have limited park space for recreation, unsafe and neglected playgrounds, poor sidewalk connectivity, and limited access to healthy food.[4] With regard to these obesogenic risk conditions, people living in low-resource neighborhoods may bear a disproportionally higher burden compared with their more affluent counterparts.1 Therefore, the health impact of any major alteration to the built environment on the surrounding community must be considered. There are 43,000 residents who live within a one-mile radius of the 11th Street Bridge Park site in Wards 6 and 8. A well-designed Bridge Park can increase access to health-promoting environmental factors, such as playgrounds, parks, walking trails, farmer's markets and grocery stores. Moreover, the Bridge Park provides a valuable opportunity for community engagement with regard to decisions affecting housing, employment, and transportation within the communities adjacent to the Bridge Park, thereby increasing the social and community capital of the area. The knowledge acquired in the development of the Bridge Park can inform new development and redevelopment throughout the Washington, DC area.

As a precursor to a Health Impact Assessment (HIA), we performed a baseline health assessment using existing data sets to describe the current health status of residents living within a half-mile walk shed of the future Bridge Park site, as well as conditions related to their built environment. A half-mile is commonly referenced by organizations such as the Trust for Public Land as the distance that people will walk to access a park.[5] It was also the threshold distance used to determine the impact area for the Atlanta Beltline Health Impact Assessment.[6] When possible, community health indicators in Wards 6 and 8 were compared to the most affluent Ward of DC (Ward 3); to a "comparison community", Ward 7, which has similar demographic and socio-economic indicators to Ward 8; to DC as a whole; and to the United States. *The goal of a future, full-scale, Bridge Park HIA is to make health a part of the decision-making process of the Bridge Park design by predicting health consequences, informing decision makers and the public about health impacts, and providing realistic recommendations to prevent or mitigate negative health outcomes.* Four values are integral to the HIA: democracy; equity; sustainable development; and the ethical use of evidence that emphasizes a rigorous structured analysis based on scientific disciplines and methodologies.[7] The HIA also explicitly considers social and environmental justice issues, adopts a multidisciplinary and participatory process, and uses both qualitative and quantitative evidence, as well as transparency in

the process.7 We identified several behavioral, environmental, and chronic disease risk factors and outcomes that we feel will be most affected by the Bridge Park, with particular attention to whether these factors affect vulnerable segments of the communities disproportionally (e.g., children, older people, minorities, low-income residents). This report contains recommendations for the Bridge Park pertaining to public policy, implementation, design, maintenance, and operations. These recommendations are intended to give decision makers, community members, designers, and project implementers strategies that can be utilized to support positive health outcomes for the populations affected by the 11th Street Bridge Park.

Data presented here indicate marked disparities in socioeconomic status, social capital, health status, the built and food environments, and in crime between the two wards (Wards 6 and 8) included within the 11th Street Bridge Park study area. Ward 8 residents assume a far greater cumulative burden of poverty, low educational attainment, unemployment, and chronic disease compared with all other wards in DC. Ward 8 also has the most children and older adults living below the poverty line. Moreover, access to health promoting factors such as healthy food or safe outdoor spaces for physical activity and play may be lower in Ward 8 than in other parts of the city. These findings present both opportunities and challenges with regard to the health impact of the Bridge Park on the surrounding communities. In particular, the health-promoting features of the Bridge Park will have a far greater potential for benefitting the residents of Ward 8; however, increasing housing and property costs could displace many current residents and small businesses from their homes and neighborhoods.

We recommend continued surveillance of these socioeconomic and health data throughout the design and construction phases of the Bridge Park and after completion, using the American Community Survey (ACS), the DC Department of Health (DOH), the DC Cancer Registry, the Behavioral Risk Factor Surveillance System (BRFSS), the Youth Risk Behavior Survey (YRBS), DC Open Data and DC Kids Count Data Tool databases. Most of these resources release data on a yearly basis. Contact with officials at the DOH and other city government agencies should be maintained in order to keep up to date on special reports and community initiatives that may be implemented, such as the Produce Plus and Play DC Playground Improvement programs mentioned later in the report. Further auditing of the built and food environments surrounding the Bridge Park is warranted and continued engagement with the public is encouraged to better understand how residents on both sides of the river wish to interact with their parks, river, and food sources. Finally, air and water quality should be monitored using data and standards provided by the Environmental Protection Agency (EPA) and the DC Department of Energy and Environment (DOEE), and Bridge Park site-specific monitoring should be implemented as well. Specific recommendations are outlined in section D.

B. Methods

B.1. Defining the Study Area

ArcGIS was used to define the study area and comparison community in terms of Ward (2012 boundaries), zip code, and census tract (2010 boundaries). Zip codes associated with military bases and government facilities were excluded from consideration. In a future HIA, we plan to use census tracts within a half-mile radius of the Bridge Park site as our sampling area (**Figure 1; red circle**). In Ward 6, three census tracts intersected with the half-mile buffer. Therefore, the three census tracts in Ward 8 having the highest proportion of land area inside the buffer were selected for inclusion in the study. Within the comparison community in Ward 7, we selected zip code 20019 because it was completely within Ward 7 and did not cross into other wards. A number was then assigned to each census tract lying entirely within zip code 20019, and a random numbers table was used to select three census tracts to be included in the comparison community (**Table 1**).

Table 1 – The 11th Street Bridge Park Study Area			
Ward	**Zip Code**	**Census Tracts**	**Neighborhood Clusters**
6	20003	72.00, 70.00, 71.00	Near Southeast, Navy Yard, Capitol Hill, Lincoln Park
8	20020	**74.01**, 74.07,75.04, **75.03**, 76.05, **76.01**	Sheridan, Barry Farm, Buena Vista; Historic Anacostia; Twining, Fairlawn, Randle Highlands, Penn Branch Fort Davis Park, Fort Dupont
7	20020,**20019**, 20002, 20003	77.03, **77.07**, 78.03, 78.04, **78.06**, 99.03, **99.04**, 99.05, 99.06, 99.07, 96.03, 78.07, 78.08, 78.09	Deanwood, Burrville, Grant Park, Lincoln Heights, Fairmont Heights, Capitol View, Marshall Heights, Benning Heights

B.2. Data Sources

Socio-demographic and economic data were obtained from the 2010-2014 American Community Survey. This survey provided 5-year estimates at the census tract level, as well as for the whole of DC and the United States. Ward level estimates for the same time period were obtained from the DC Office of Planning. Estimated self-reported prevalence of diseases and health risk factors for adults, and 2012 crude mortality rates were obtained from the 2013 DC BRFSS Annual Report. The DC Cancer Registry provided 2012 age-adjusted cancer incidence and mortality data. We specifically focused on breast, colorectal, and lung/bronchus cancers because of the important impact that environment (i.e., lifestyle) plays on the risk and prognosis of these cancers.[8] Additional BRFSS data were obtained from the DC Behavioral Risk Factor Surveillance System, and analysis was performed to estimate self-reported physical activity and nutrition behaviors for adults. Data on self-reported health behaviors among middle-school and high school students were obtained from the 2013 YRBS. YRBS data are not available at the Ward level, but only for DC and the US. We reported differences between race/ethnicity groups in DC to reflect the demographic differences in the populations of Wards 6 and 8. It is therefore important to remember that these results represent youth throughout the city and not specifically those who live within the study area and comparison community. The DC Kids Count Data Tool provided data on crime and voter participation within the neighborhood clusters surrounding the Bridge Park. Data pertaining to physical activity and food access infrastructures were obtained from DC Open Data. Air quality data were obtained from the EPA and the DOEE and water quality data were accessed through the DOEE. It is important to note that comparisons between groups and locations in this report have not been evaluated for statistical significance. Therefore, these comparisons are anecdotal and informal.

C. Results

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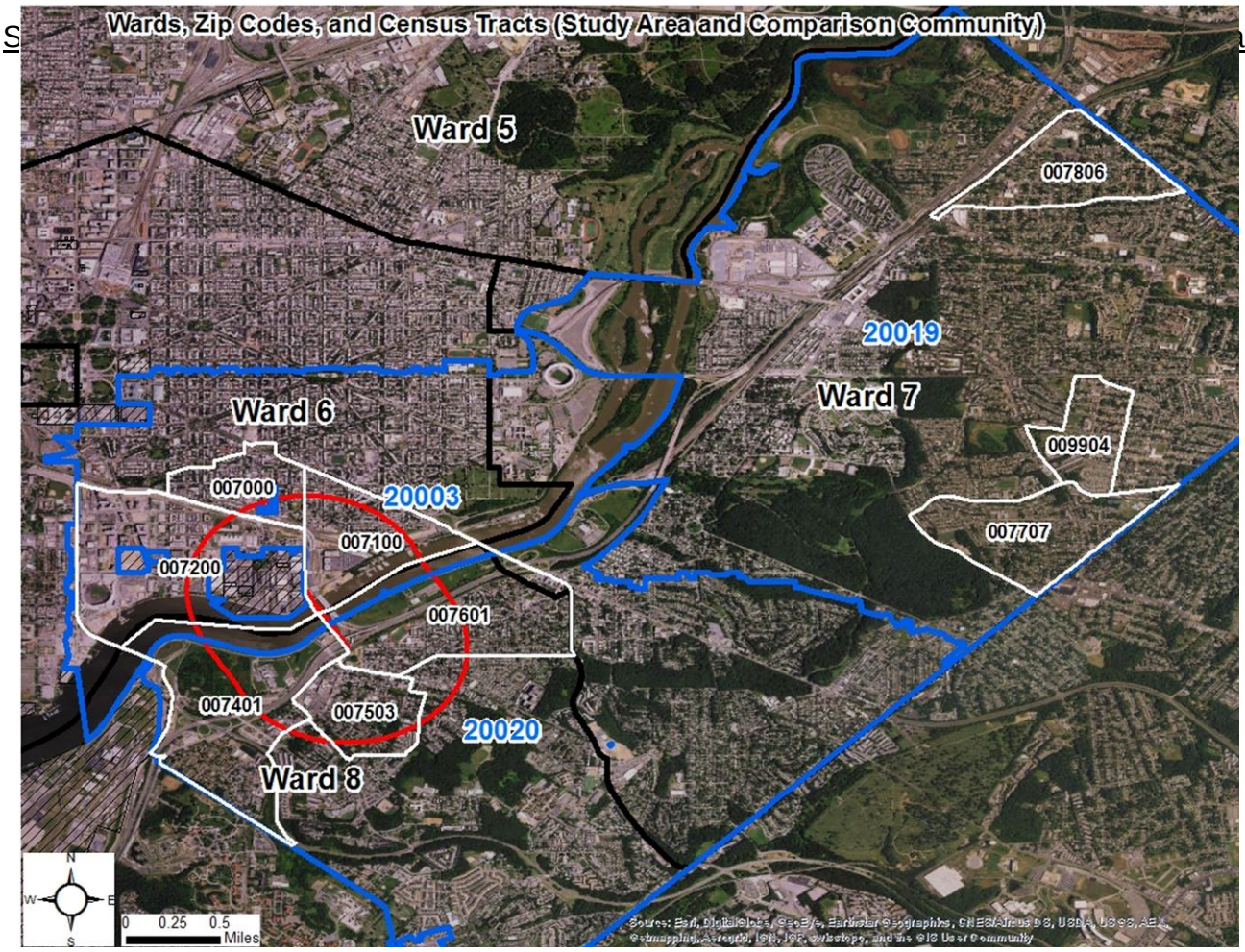

Characteristics

A broad snapshot of the socio-demographic characteristics of Wards 6, 8, 7, and 3 can be observed in **Table 2**. Of interest is the stark contrast in several indicators of individual and social capital between Wards 6 and 8. Data specific to the census tracts surrounding the proposed Bridge Park and the Ward 7 comparison community are presented in **Table 3** with comparisons to DC and to the US. Within both Wards 6 and 8 we note the level of variability between census tracts in several important variables -- namely, the proportion of residents less than age 18 years, without a high school diploma, living below the poverty level, and the proportion of households using food stamps or SNAP benefits. We observed clear differences in indicators of education and income (two primary health determinants) between Wards 6 and 8. Census tract 7401 in Ward 8 (highlighted in blue), where the Barry Farm public housing complex is located, appears to be particularly vulnerable. Indeed, relative to all the other census tracts under study, to DC and to the US, this census tract

comprises a larger proportion of women, children under age 18 years, and a considerably larger proportion of residents with low educational attainment and living in poverty.

Table 2 - Socio-demographic composition of study area Wards 6 and 8, comparison community Ward 7 and Ward 3

	Ward 6	Ward 8	Ward 7	Ward 3
Population*	82,092	78,686	70,064	82,795
Median household income ($)*	90,903	31,642	34,828	109,909
Unemployment (%)*	6	14	11	3
Female-headed families (%)*	11	39	32	4
Homeownership (%)*	43	21	39	51
Voter registration in 2012 (%)**	63	56	62	66

*American Community Survey (ACS) Estimates, 2010-2014 ACS 5-Year Ward. DC Office of Planning website. Http://planning.dc.gov/page/american-community-survey-acs-estimates. Accessed May 6, 2016

**General Election November 6, 2012 Ward Registration and Turnout. DC Board of Elections website. Https://www.dcboee.org/election_info/election_results/2012/November-6-General-Election/. Accessed on April 30, 2016.

Table 3- Selected socio-demographic characteristics by Ward and Census Tract

	Ward 6 Census Tracts			Ward 8 Census Tracts			Ward 7 Census Tracts			DC	US
	7000	7100	7200	7401	7503	7601	7707	7806	9904		
Population	2,729	3,335	4,247	2,448	2,612	3,878	4,392	2,116	2,171	633,736	314,107,084
Female (%)	42.8	54.3	46.9	57.1	52.5	51.8	53.2	51.7	53.9	52.7	50.8
Median age (years)	32.3	33.1	31.1	24.5	24.8	46	33	41.4	31.2	33.7	37.4
Age distribution (%)											
< 18	10.4	21.2	7.5	39.2	36.3	17	23.5	24.5	32.8	17	23.5
18-64	79.6	68.2	84.8	53.5	56.1	67.5	60	62.2	61.9	71.7	62.8
≥ 65	10	10.5	7.8	7.4	7.7	15.5	11.5	13.3	5.2	11.3	13.7
African-American (%)	13.3	59	24.4	97.6	97.9	95.1	95.3	95.4	91.8	48.7	12.2
No High School Diploma (%)	2.5	16.1	4.3	32.8	17.4	15.2	12.6	11.4	19.2	11.1	13.6
Median Household Income ($)	112,371	65,195	106,000	14,813	30,893	37,434	47,883	34,896	33,237	69,235	53,482
Below Poverty Level (%)											
< 18	0	70.7	6.3	73.6	63.1	34.7	29.3	16.2	47.9	27.5	21.9
≥ 65	12.4	24.3	37.3	52.7	19.4	21.1	11.7	19.6	31.9	13.8	9.4
Food Stamps/SNAP (%)	1.4	20.1	8.6	75.1	36.5	32	30.8	29.4	41.7	14.1	13

Source: American Community Survey (ACS) 5-year Estimates, 2010-2014. United States Census Bureau American Fact-Finder website. Http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t. Accessed March 1, 2016.

C.2. Health and Disease Indicators

The following conditions were identified as relevant to this baseline assessment because of their association with the built environment: 1) overall health rating; 2) high cholesterol; 3) high blood pressure; 4) overweight / obesity; 5) arthritis; 6) asthma; 7) diabetes; 8) depressive disorder; 9) chronic obstructive pulmonary disease (COPD); 10) cancer; 11) stroke; 12) heart disease and heart

attack; 13) difficulty walking and climbing stairs; 14) physical activity; 15) food insecurity; and 16) limited activities due to physical, mental or emotional problems.

Table 4 - Proportion of adults self-reporting selected health conditions, by Ward, DC, and US

	Ward 3	Ward 6	Ward 7	Ward 8	DC	US
Hypertension	24.0	29.6	42.9	37.7	28.4	31.4
Obesity	12.0	22.1	35.0	42.8	22.8	29.4
Diabetes	3.1	6.5	14.5	16.0	7.8	9.7
Asthma	7.2	12.3	14.2	20.6	11.9	9.0
Heart Attack	2.3	2.9	7.3	12.3	4.1	4.3
Cancer	8.2	6.3	5.8	4.7	5.2	6.7
No physical activity*	10.5	16.1	27.7	34.5	19.5	25.3

*Other than at job over the past 30 days

Source: Garner T. Annual Health Report, Behavioral Risk Factor Surveillance System 2013. Washington, DC. District of Columbia Department of Health. http://doh.dc.gov/publication/brfss-annual-report-2013. Published June 2015. Accessed February 3, 2016.

Residents of Ward 8 were significantly more likely to rate their health as fair or poor (29.5%), compared with Ward 3 (4.2%), Ward 6 (7.9%), DC as a whole (12.8%) and the US (16.7%).[9] Similarly, Ward 8 residents reported more COPD (16.4%) than did those living in Ward 3 (5.4%), Ward 6 (3.7%), DC (5.8%), and the US (6.5%).[9] Significant differences in the proportion reporting difficulties walking or climbing stairs were also reported across the Wards. Approximately 28% of residents from Ward 8 reported difficulties, compared with 5.6% in Ward 3, 11.8% in Ward 6, and 11.7% in all of DC.9 Differences in the proportion of other selected chronic diseases and risk factors are displayed in **Table 4**. *Thus, we observed marked disparities in several indicators of health and disease between the most affluent Ward in DC (Ward 3), Ward 6, and Ward 8, which stands out as the geographic area of DC having the poorest health*.

C.3. Cancer Incidence and Mortality

Data from the DC Cancer Registry in 2012 indicate that Ward 8 had the highest age-adjusted incidence -newly diagnosed cases- for all cancers (561/100,000 residents), colorectal cancer (65/100,000 residents), and lung/bronchus cancers (97.7/100,000 residents), and the second highest incidence of breast cancer (149/100,000 residents), compared with all other Wards.[10] Ward 3 had the highest breast cancer incidence rate (179/100,000 residents) (**Table 5**).[10] With regard to cancer mortality, Ward 8 had the highest mortality from all cancers and lung/bronchus cancers, while Ward 6 had the highest mortality rate for colorectal cancer. Wards 6 and 7 also had higher mortality from all cancers compared to DC as a whole.[10] Ward 8 had lower mortality from colorectal cancer compared with Wards 6 and 7. Mortality from colorectal and lung/bronchus cancers in Wards 6, 7, and 8 was higher than DC as a whole.[10] Breast cancer mortality was lower in Wards 6,7, and 8 than DC as a whole, and well below the rate in Ward 2, the second most affluent Ward of the city.[10]

Table 5 - Age-adjusted* cancer incidence by DC ward in 2012									
Site	**Ward 1**	**Ward 2**	**Ward 3**	**Ward 4**	**Ward 5**	**Ward 6**	**Ward 7**	**Ward 8**	**DC**
All Cancers	521.1	359.0	488.3	446.8	506.4	534.7	508.1	561.0	474.9
Breast**[α]	101.2	144.6	178.7	100.8	121.8	127.6	124.0	149.3	130.3
Colorectal**[α]	51.0	18.1	27.2	39.3	40.6	46.6	48.2	65.1	39.9
Lung and Bronchus	79.8	31.0	59.1	46.4	53.6	78.1	76.1	97.7	61.2
Table 5 - Age-adjusted* cancer mortality by DC ward in 2012									
Site	**Ward 1**	**Ward 2**	**Ward 3**	**Ward 4**	**Ward 5**	**Ward 6**	**Ward 7**	**Ward 8**	**DC**
All Cancers	176.3	123.9	113.2	184.2	207	189.9	185.7	266	178.4
Breast (Females only)**[α]	~	54.5	26.0	52.8	30.4	25.3	23.2	29.8	31.1
Colorectal**[α]	9.5	~	~	13.5	12.0	20.8	18.5	17.3	12.3
Lung and Bronchus	51.1	17.8	19.2	40.5	47.3	44.1	42.8	71.3	40.0

*Rates are per 100,000 persons and are age-adjusted to the 2000 U.S. standard. **Female cases only

[α]Only invasive forms are included in rate

~ Data suppressed due to small number of cases (n < 5)

Source: District of Columbia Cancer Registry, District of Columbia Department of Health, program funded by NPCR-CDC.

Table 6- Crude mortality rates (per 100,000 residents) by Ward for selected causes of death in 2012									
Disease	**Ward 1**	**Ward 2**	**Ward 3**	**Ward 4**	**Ward 5**	**Ward 6**	**Ward 7**	**Ward 8**	**DC**
Heart Disease	133.2	85.2	129.4	231.6	361.7	204.8	307.2	260.0	205.0
Cancer	114.8	101.2	138.2	236.8	261.0	160.5	223.4	194.6	171.0
Stroke	25.1	17.3	23.6	42.9	46.4	37.9	47.0	30.7	32.6
Diabetes	10.6	6.7	1.2	33.8	35.8	19.0	41.2	42.7	22.8
Chronic Lower Respiratory Disease	14.5	8.0	26.1	33.8	19.9	24.0	41.2	17.3	22.0
Homicide/Assault	9.2	1.3	0.0	2.6	14.6	10.1	39.7	37.3	13.3
All Cause	482.8	358.1	534.0	926.5	1178.0	709.1	1098.0	859.9	735.1

Source: Garner T. Annual Health Report, Behavioral Risk Factor Surveillance System 2013. Washington, DC. District of Columbia Department of Health. http://doh.dc.gov/publication/brfss-annual-report-2013. Published June 2015; page 13. Accessed February 3, 2016.

There were considerable differences in crude all-cause and disease-specific mortality rates between Wards of the city, and specifically between Wards 6 and 8 **(Table 6)**.9 Mortality rates due to heart disease, cancer, diabetes, homicide/assault, and all-causes were higher in Ward 8, while mortality due to stroke and chronic lower respiratory disease were higher in Ward 6.9 The Ward 8 crude mortality rate due to diabetes was higher than anywhere else in the city.9 Ward 5 had the highest all-cause crude mortality rate as well as mortality rates due to heart disease and cancer.9 Ward 7 had the highest mortality rates due to stroke and chronic lower respiratory diseases.9 Because the age distribution of the population varies greatly between Wards, and these crude rates are not adjusted for age, comparison of disease rates between wards should be interpreted with caution.

C.4. Physical activity

According to the 2013 DC BRFSS Annual Report, reported prevalence of no physical activity in the past 30 days among adults was significantly higher in Ward 8, relative to the other areas under study (**Table 4**). **Table 7** provides additional prevalence estimates for physical activity and dietary behaviors among adults, using data that was analyzed independently from the DC Annual Report.[11] Among adults who did report physical activity in the past month, the prevalence of activity on 3-5 days per week (approaching the US Physical Activity Guidelines[12]) was lowest in Ward 8 relative to the

other Wards, to DC as a whole, and to the US.[11] The US Physical Activity Guidelines also recommend strengthening activities on 1-2 days per week to promote health.[12] These BRFSS data indicate that the proportion of residents reporting that they meet this guideline is comparable between Wards 6 and 8 and is actually greater than what was reported across the US.[11] It is not clear, however, whether there was a mixing of leisure-time activity with occupational activity in these reported behaviors.

Table 7- 2013 Self reported physical activity and dietary behaviors among adults of Washington, DC, by ward

	Ward 3	Ward 6	Ward 7	Ward 8	DC	US
No physical activity other than on the job in past 30 days (%)*	10.5	16.1	27.7	34.5	19.5	25.3
Active on 3-5 days per week in past month (%)**	48.6	51.3	48.6	44.7	49.5	51.1
Performed strengthening activities 1-2 times per week in past month (%)**	46.9	41.4	47.5	42.4	44.7	37.9
Usually or sometimes worried or stressed about having enough money to buy nutritious meals*	6.7	12.2	17.5	28.0	11.7	Not Reported
Ate fruit or drank 100% fruit juice 3-6 times per week in past month (%)**	77.7	57.0	60.2	57.7	64.6	58.9
Ate dark green vegetables 3-6 times per week in past month (%)**	70.3	69.4	62.6	49.1	62.8	53.9
Ate orange colored vegetables 3-6 times per week in past month (%)**	44.4	37.6	33.3	38.9	38.5	33.9
Ate other types of vegetables 3-6 times per week in past month (%)**	70.8	60.4	50.4	55.6	59.9	60.2

* Garner T. Annual Health Report, Behavioral Risk Factor Surveillance System 2013. Washington, DC. District of Columbia Department of Health. http://doh.dc.gov/publication/brfss-annual-report-2013. Published June 2015; page 13. Accessed February 3, 2016.

** District of Columbia Behavioral Risk Factor Surveillance System, [2013] Center for Policy, Planning and Evaluation, District of Columbia Department of Health, and supported in part by the Centers for Disease Control and Prevention. Analyzed by Avinash Chandran.

Self-reported data from the 2013 Middle-School and High-School YRBS described the physical activity and dietary behaviors of adolescents by race/ethnicity and relative to DC and the US (**Table 8**).[13] The prevalence of no moderate-to-vigorous intensity physical activity (MVPA) on at least one day per week was considerably higher in Black and Hispanic children relative to White children in both middle- and high-school.[13,14] In fact, Black and Hispanic middle-school children were over 3-times more likely to report no physical activity than were White children.[13] Also striking in these children was the race disparity in the proportion of children who reported that they were diagnosed with asthma (17% for White children vs. 30% for Black and 23% for Hispanic children).[13] Among high school students, the race and ethnic differences in the prevalence of overweight and obesity are of considerable concern, as are differences in reported television viewing more than 3 hours per day on school days and patterns of fruit and vegetable consumption.[14]

Table 8 – Health behaviors among youth in DC by selected race and ethnicities (percentage): YRBS 2013					
	White	**Black**	**Hispanic**	**DC**	**US**
Middle School[a]					
No physical activity[1]	7.8	25.3	25.3	24.2	NA
Describe themselves as overweight	14.2	20.2	26.7	20.8	NA
Told by a doctor or nurse they have asthma	16.6	30.3	23.2	27.8	NA
High School[b]					
No physical activity[1]	14.6	28.6	30.8	27.7	15.2
Overweight[2]	9.0	17.7	19.9	17.5	16.6
Obese[3]	2.3	15.4	18.2	14.8	13.7
Told by a doctor or nurse they have asthma	20.5	32.1	28.8	31.0	21.0
>3 hours of TV on school days	8.7	44.0	38.0	40.1	32.5
Did not eat fruit in past 7 days	2.8	7.6	5.9	6.9	5.0
Did not eat vegetables in past 7 days	1.4	8.3	11.9	8.6	6.6

[1]Did not participate in at least 60 minutes of MVPA on at least one day over the past seven days. [2]≥85th percentile but <95th percentile for body mass index, based on sex- and age-specific reference data from 2000 CDC growth charts. [3]≥95th percentile for body mass index, based on sex- and age-specific reference data from 2000 CDC growth charts.
[a] Centers for Disease Control and Prevention (CDC). 1991-2013 Middle School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on April 21, 2016.
[b] Centers for Disease Control and Prevention (CDC). *1991-2013 High School Youth Risk Behavior Survey Data.* Available at http://nccd.cdc.gov/youthonline/. Accessed on April 21, 2016.

Approximately 7052 acres of the park land in DC are owned by the National Park Service[15], compared with 1063 acres owned by the DC Department of Parks and Recreation (DPR)[16]. Differences can also be observed with regard to the presence of park space, playgrounds, walking trails, and options for active commuting among the different wards. Anacostia National Park, which runs along the east bank of the Anacostia River, contributes a large amount of park land to Ward 8. Ward 8 also boasts 346 acres of DC Department of Parks and Recreation (DPR) land and 19 recreational facilities[17], compared with 90 acres and 16 facilities in Ward 6; however, it is not known how much of this land is usable and accessible for residents. Indeed, while about 53% of older residents in the Northwest quadrant of DC report visiting a park at least once/month, this proportion drops to 26% in the Southeast quadrant, which includes the study area.[18] Ward 6 has 24 miles of connected right-of-way bike lanes[19] and 50 Capital Bike Share locations,[20] compared with 3 miles of bike lanes and 9 bike shares in Ward 8. While neighborhoods like Dupont Circle in Ward 2 boast a walk score of 97 and a bike score of 92[21], Anacostia has scores of 54 and 47, respectively[22]. However, 7 playgrounds in Ward 8 have undergone major renovations through the Play DC Playground Improvement Initiative.[23] Ward 8 is tied for the most renovated playgrounds through this program with Ward 4.[24]

A closer examination of the parks, playgrounds, and recreation facilities reveals differences between the study area and comparison community census tracts in Wards 6, 7, and 8. Maps of DPR and NPS park land, DPR owned recreation facilities, DPR owned playgrounds, and DC Public Schools (DCPS) locations in these census tracts can be found in the appendices. DPR, NPS, and DCPS own and operate the majority of park space in DC, with NPS owning 74 percent, DPR owning 10 percent, and DCPS and other organizations combined owning 16 percent.[25] Tables containing

information on the various facilities, as well as cleanliness, accessibility, and activity level ratings performed on some of the parks by DC Park Rx[26] can also be found in the appendices.

DPR owns the majority of park land in all study area and comparison community census tracts.[16] The Ward 6 tracts contain about 24 acres, spread throughout the area as a series of small (less than an acre) parks, as well as larger parks.[16] Boathouse Row, running along the western shore of the Anacostia River, is the biggest park in the Ward 6 census tracts at 12 acres.[16] Across the river in the Ward 8 study area census tracts, there are fewer small parks and the majority of the 170 acres of DPR owned land is contained in Poplar Point and Anacostia Parks on the eastern shore of the river.[16] All 32 acres of DPR park land in the Ward 7 census tracts are contained in 4 mid-sized parks.[16]

Ward 6 study area census tracts contain about 3 acres of NPS owned land, most of which appears to be small pieces of land in the medians along Pennsylvania Avenue.[15] Ward 8 has approximately 60 acres of NPS park land, most of which is contained in Anacostia Park along the river and at the Fredrick Douglass Home.[15] There are also two small parks.[15] Ward 7 comparison community census tracts only have one NPS owned piece of land, less than an acre in size.[15]

The Ward 6 study area census tracts have two DPR owned recreation facilities while the Ward 8 tracts have five facilities.[17] These facilities are paired together at the Barry Farm and Anacostia Recreation Areas.[17] Comparison Community census tracts in Ward 7 contain 6 recreation facilities, grouped together at the Benning, Ridge Road, and Deanwood Recreation areas.[17] There is one DPR owned playground each in the Ward 6 and Ward 8 census tracts, respectively, and 3 in the Ward 7 census tracts.[17]

There are two DCPS schools within the Ward 6 study area census tracts, five in the Ward 8 tracts and three in the Comparison Community tracts.[27] Although the acreage and accessibility to DCPS sites are not known, school grounds might be valuable areas for recreation within neighborhoods.

DC Park Rx ratings on cleanliness, accessibility and activity levels are available for some of the parks within the study area and comparison community. The three rated parks in the Ward 6 study area census tracts received grades of Bs or Cs for both cleanliness and accessibility.[28] Two of these parks were rated as low and one as medium activity level facilities.[28] In the Ward 8 study area census tracts, three facilities received As for both cleanliness and accessibility, and were rated as medium or high for activity levels.[28] Two others received Bs or Cs for cleanliness and/or accessibility and were rated as low for activity level.[28] The two facilities rated in Ward 7 census tracts received Bs and Cs for cleanliness and accessibility and medium and high ratings for activity levels.[28]

C.5. Nutrition and Food Security

Data on selected dietary intake behaviors reported from the 2013 BRFSS, and the 2013 YBRS for middle and high-school students are highlighted in **Tables 7 and 8**. Among adults, the greatest disparities in reported fruit and vegetable consumption on 3-6 times per week over the past month were observed for dark green vegetables and for consumption of “other” vegetables, with Wards 8 and 7 reporting a lower prevalence compared with the other wards.[11] Approximately 7.6% of Black high school students living in DC report no fruit consumption in the past 7 days, compared with 5.9% among Hispanic and 2.8% among White students.[14] Similarly, 8.3% and 11.9% of Black and Hispanic students, respectively report no vegetable consumption over the past week compared with only 1.4% of their White peers.[14] As stated previously, differences in fruit and vegetable consumption among the wards and among the different race and ethnic groups of children is cause for concern. These

differences may represent cultural differences in food preferences; however, these differences may also relate to food scarcity.

A recent audit performed on food access among the different DC wards highlights the differences in the presence of supermarkets and other healthy food outlets. Whereas Ward 6 provides 10 grocery stores (ratio of 1:8,209 residents), Ward 8 has 1 grocery store (ratio of 1:78,686 residents).[29] A map indicating areas of DC that are designated "food deserts" is included as **Appendix 3.** The low availability of grocery stores is somewhat offset by a greater availability of Healthy Corner Stores in Wards 8 (n=21) and 7 (n=13), relative to Wards 6 (n=2) and 3 (n=0).[30] The prominence of farmer's markets also varies across the wards, with Ward 8 having just one, compared with four in Ward 6, two in Ward 7, and five in Ward 3.[31] Fortunately, there are a number of mobile farmer's markets funded by Arcadia that provide fresh local produce to Wards 7 and 8. Accessibility to these markets is augmented by Produce Plus. Produce Plus is run by DC Greens and funded in part by the DC DOH and provides two $5 vouchers per low-income family per week for use at farmer's markets.[32]

Table 9- Indicators of social and community capital among DC residents, by Ward and neighborhood

	Ward 6		Ward 8			Ward 7	
	Navy SE, Navy Yard	Capitol Hill, Lincoln Park	Sheridan, Barry Farm, Buena Vista	Historic Anacostia	Twining, Fairlawn, Randle Heights, Penn Branch, Fort Davis, Fort Dupont	Deanwood, Burrville, Grant Park, Lincoln Heights, Fairmont Heights	Capitol View, Marshall Heights, Benning Heights
Home Ownership (%)	46		23			41	
Unemployment (%)	8		24			20	
Violent Crime (per 1000 residents)**	3.5	6.3	19.4	25.0	13.5	26.5	18.7
Voting in 2012 (%)***	71	63	56	54	62	60	61

*American Community Survey (ACS) Estimates, 2010-2014 ACS 5-Year Ward. DC Office of Planning website. Http://planning.dc.gov/page/american-community-survey-acs-estimates. Accessed May 6, 2016

**Total Violent Crimes per 1000 Residents. DC Kids Count Data Tool 2.0 website. http://datatools.dcactionforchildren.org/. Accessed on April 30, 2016.

***General Election November 6, 2012 Ward Registration and Turnout. DC Board of Elections website. Https://www.dcboee.org/election_info/election_results/2012/November-6-General-Election/. Accessed on April 30, 2016

C.6. Indicators of Social and Community Capital

Table 9 displays selected variables often linked with individual, social, and community capital. Social justice is an important consideration of any major urban design project, and therefore we include these factors in this baseline assessment. As indicated in this table, the proportion of residents living in Ward 8 who own the house that they live in is half that of Wards 6 and 7. This has serious social justice implications with regard to increases in housing and property costs that may occur with the 11th Street Bridge Park, potentially displacing current residents from their homes and neighborhoods. Unemployment in Ward 8 is three-fold higher than in Ward 6, and this raises similar concerns with regard to the ability of this Bridge Park to create, support, and sustain small businesses that are owned by Ward 8 residents and that can provide employment to residents. The data in table 7 also indicate that Wards 8 and 7 bear a disproportionally greater burden of crime, compared with Ward 6. In 2014, the rate of violent crime in the Navy Yard neighborhood in Ward 6 was 3.5/1000 residents, compared with 25/1000 residents in the Historic Anacostia neighborhood of Ward 8. Political engagement in Ward 8 (56%) was lower than that of Ward 6 (63%) and Ward 7 (62%). *The*

Historic Anacostia neighborhood appears particularly vulnerable with regard to factors affecting safety and social capital.

C.7. Air and Water Quality

The Air Quality Index (AQI) is a metric commonly used to describe the ambient air quality for a given region by the EPA. The AQI score ranges from 0-500, with cut points for defining the level of risk for various subgroups of the population. In 2015 the Washington DC metropolitan area experienced 14 days that were either unhealthy for sensitive groups (AQI: 101-150) or were unhealthy for everyone (AQI: 151-200). The number of unhealthy days has fluctuated since 2000, with generally downward trends being observed.[33] All unhealthy days were attributed to elevated levels of ozone.[34] Most of the air quality issues in DC are due to motor vehicle emissions and to pollution drift from other states.[35] An air quality monitoring station close to the 295/Anacostia Freeway (3600 Benning Road, NE) was established in 2015.[36] The location is approximately 3.2 miles from the Bridge Park site and monitors nitric oxide, nitrogen dioxide, oxides of nitrogen and particulate matter (PM).[36] Unfortunately, there were no publically available data from this station for this report; however, future measurements could provide a good proxy measurement for the area adjacent to the Bridge Park. There is also a monitoring station at River Terrace (420 34th Street, NE) that has been operating since 1993[36] and is 3.5 miles from the Bridge Park site, making it the closest station to the Bridge Park site with data available through 2013 (**Table 10**).[37]

Table 10- Air quality data for monitoring site 110010041, River Terrace, 420 34th Street NE, Washington, DC 20019

	Standard	2009	2010	2011	2012	2013
Carbon Monoxide	9 ppm	3.8	3.1	2.3	2.5	1.9
Nitrogen Dioxide	100 ppb	63	59	55	51	49
Ozone	0.07 ppm	0.064	0.086	0.080	0.076	0.062
PM10	150 $\mu g/m^3$	46	85	42	.	.
Sulfur Dioxide	75 ppb	39	21	20	10	9.4

Source: Air Trends. United States Environmental Protection Agency website. Http://www3.epa.gov/airtrends/index.html. Accessed on April 30, 2016

The 2014 DC Water Quality Assessment reported that none of the bodies of water in the city supported aquatic life, fish consumption, or primary (i.e., swimming) uses. Some waterways supported secondary contact (wading) use.[38] More specifically, the span of the Anacostia River between the Pennsylvania Avenue Bridge and the mouth of the Potomac River (the site of the 11th Street Bridge Park) did not support swimming, fish consumption, or wading use; however, it did support navigational uses (boating, kayaking, and canoeing) and aquatic life.[38] Real time water quality monitoring can be found on the DC Department of Energy and Environment website: https://stormcentral.waterlog.com/public/dcwater. The 11th Street Bridge Park site is located between monitoring stations at the South Capitol Street Bridge and the Benning Road Bridge. **Table 11** displays sample results from these monitoring stations, as well as standards for water quality for comparison purposes.

Table 11- Anacostia River water quality data from South Capitol and Benning Road Bridges			
	Standard	**South Capitol Bridge (Downstream from 11th Street Bridge)**	**Benning Road Bridge (Upstream from 11th Street Bridge)**
Dissolved Oxygen	x < 5.0 mg/l (February-May) x <3.2 mg/l (June-January)	3.81*	7.2
River Turbidity	x > 20 NTU	36.80*	117.00*
pH	x < 6 or x > 8.5	6.9	6.4
Chlorophyll α	x > 25 µg/L	Not reported	3.8
Temperature (°C)	x > 32.2	16.5	14.0

* Not in compliance with standard

Source: Storm Central Public Networks Map. District of Columbia Department of Energy & Environment website. https://stormcentral.waterlog.com/public/dcwater. Accessed on May 6, 2016.

D. Summary and Recommendations

Data presented here indicate marked disparities in socioeconomic status, social capital, health status, the built and food environments, and in crime between the two wards (Wards 6 and 8) included within a half mile radius of the 11th Street Bridge Park site. Ward 8 residents assume a far greater cumulative burden of poverty, low educational attainment, unemployment, and chronic disease compared with all other wards in DC. Ward 8 also has the largest proportion of children and older adults living below the poverty line. Moreover, access to healthy food, and opportunities for physical activity may be lower in Ward 8 than in other parts of the city. These findings thus present both opportunities and challenges with regard to the health impact of the 11th Street Bridge Park on the surrounding communities. In particular, the health-promoting features of the Bridge Park may have a far greater potential for benefitting the residents of Ward 8; however, increasing housing and property costs could displace many current residents and small businesses from their homes and neighborhoods.

We recommend continued surveillance of these socioeconomic and health data throughout the design and construction phases of the Park and after completion, using the ACS, DOH, and BRFSS databases. Most of these data are released on a yearly basis and contact with officials at the DOH and other city government departments should be maintained in order to be updated on special reports and community initiatives that the may be implemented. Further auditing of the built and food environments surrounding the Park is warranted and continued engagement with the public is encouraged to better understand how residents on both sides of the river wish to interact with their parks, river, and food sources. Finally, air and water quality should be monitored using data and standards provided by the EPA and DOEE, and Bridge Park site-specific monitoring should be implemented as well.

D.1 Specific Recommendations

D.1.1. The proportion of homeowners living in Ward 8 is half that of Wards 6 and 7. This has serious social justice implications with regard to increases in housing and property costs that may occur with the 11th Street Bridge Park. Unemployment in Ward 8 is three-fold higher than in Ward 6, and this raises similar concerns with regard to the ability of this Bridge Park to create, support, and sustain small businesses that are owned by Ward 8 residents and that can provide employment to residents. We Recommend:

- Continued engagement with the Equitable Development Task Force to address the emerging concerns of 1) affordable housing; 2) work force development; and 3) small business development in the Ward 8 neighborhoods surrounding the Bridge Park;
- Support community activism and political engagement to address health disparities and social justice issues particularly among children and older people in Ward 8;
- Encourage voter registration and political engagement, with the Bridge Park as a site for recruitment.

D.1.2. Ward 6 has a fraction of the total park land of Ward 8 and fewer recreation centers, yet the percentage of residents reporting no physical activity is roughly half in Ward 6 compared with Ward 8. This is especially troublesome since membership to these recreational centers is free to DC residents. Related to physical inactivity is the markedly higher prevalence of obesity, diabetes, and heart disease in Ward 8 relative to Ward 6, to DC, and to the US. We recommend:

- Continued surveillance of NPS land and DPR facilities using validated audit tools to determine: 1) how much park land is useable; 2) the condition of the parks and recreation facilities; 3) the number of residents using the parks and recreation facilities; and 4) novel attributes that could influence physical activity in those outdoor spaces (e.g., age-neutral playground equipment, walking trails, interactive art, community gardens);
- Continued engagement with community members from both sides of the Bridge Park to determine: 1) their preferences for these spaces; 2) their perceptions of the parks and recreation facilities; and 3) perceived barriers and facilitators of physical activity;
- Identify ways that the 11th Street Bridge Park could activate and encourage the use of existing surrounding park space.

D.1.3. Ward 6 has many more miles of bike lanes and capital bike share locations compared with Ward 8, but fewer miles of bike trails. It is not clear how many residents in each ward actually use bike share, and the facilitators and barriers of bike share use in not known. Moreover, the actual need or desire for more bike share locations or bike lanes is not completely understood among Ward 8 residents. We recommend:

- Partner with the Department of Transportation (DOT), Capital Bike Share, Washington Area Bicycle Association, and other interested parties to conduct objective audits of the current

biking and active commuting infrastructure and determine how the Bridge Park will connect and influence existing infrastructure and commuting/leisure riding practices;

- Partner with DOT to perform neighborhood audits of sidewalk conditions and connectivity;
- Engage community members to determine: 1) their perspectives on active transport (walking or cycling) to work or to school; 2) factors (e.g., traffic congestion, safety, distance, connectivity) influencing their ability to engage in active commuting; 3) their want and need for bike lanes, bike trails, and more bike share locations.

D.1.4. There appear to be large disparities regarding food access across the different Wards, and this is especially so in Ward 8. Whereas Ward 6 provides 10 grocery stores (ratio of 1:8,209 residents), Ward 8 has 1 grocery store (ratio of 1:78,686 residents) and a far greater portion of Ward 8 is designated as a "food desert". Although the low availability of grocery stores may be augmented by Healthy Corner Stores and by mobile farmer's markets, the 11th Street Bridge Park can leverage on the community engagement work performed thus far to increase healthy food access in the surrounding neighborhoods. We recommend:

- Increase access to healthful and affordable food outlets for Ward 8 residents by encouraging small local grocers and markets to open in the surrounding neighborhoods;
- Ensure that new food outlets in neighborhood surrounding the Bridge Park accept SNAP and WIC benefits;
- Partner with community stakeholders to plan and grow more community gardens and more school gardens;
- Encourage healthy food vendors to sell within the Park;
- Engage community members to identify nutrition habits, perceptions of nutrition availability, and facilitators and barriers to healthy eating within their community;
- Partner with community advocates, city officials, and nutrition researchers to determine use patterns of current nutrition infrastructure.

D.1.5. Because of its proximity to the 11th Street Bridge and other freeways, current air quality at the park site should be monitored to determine the amount of pollution present and how the park design might mitigate the health effects of air pollution. Water quality is currently monitored at bridges upstream and downstream from Bridge Park locations. We recommend:

- A community Environmental Task Force to partner with the EPA and DOEE to evaluate: 1) how Bridge Park design and programming may be affected by air or water pollution; 2) how the Bridge Park design and programming may affect air and water quality in the study area; 3) how the Bridge Park can promote the health of the Anacostia River;
- Continue monitoring of air pollution at current stations and employ portable monitoring devices in selected areas within the Bridge Park;
- Partner with the Department of Environmental and Occupational Health at the Milken Institute School of Public Health at GW to conduct air quality studies using portable and personal monitoring devices;
- Plant trees and shrubs through the Bridge Park and sustain urban agriculture as a natural method of air filtering.

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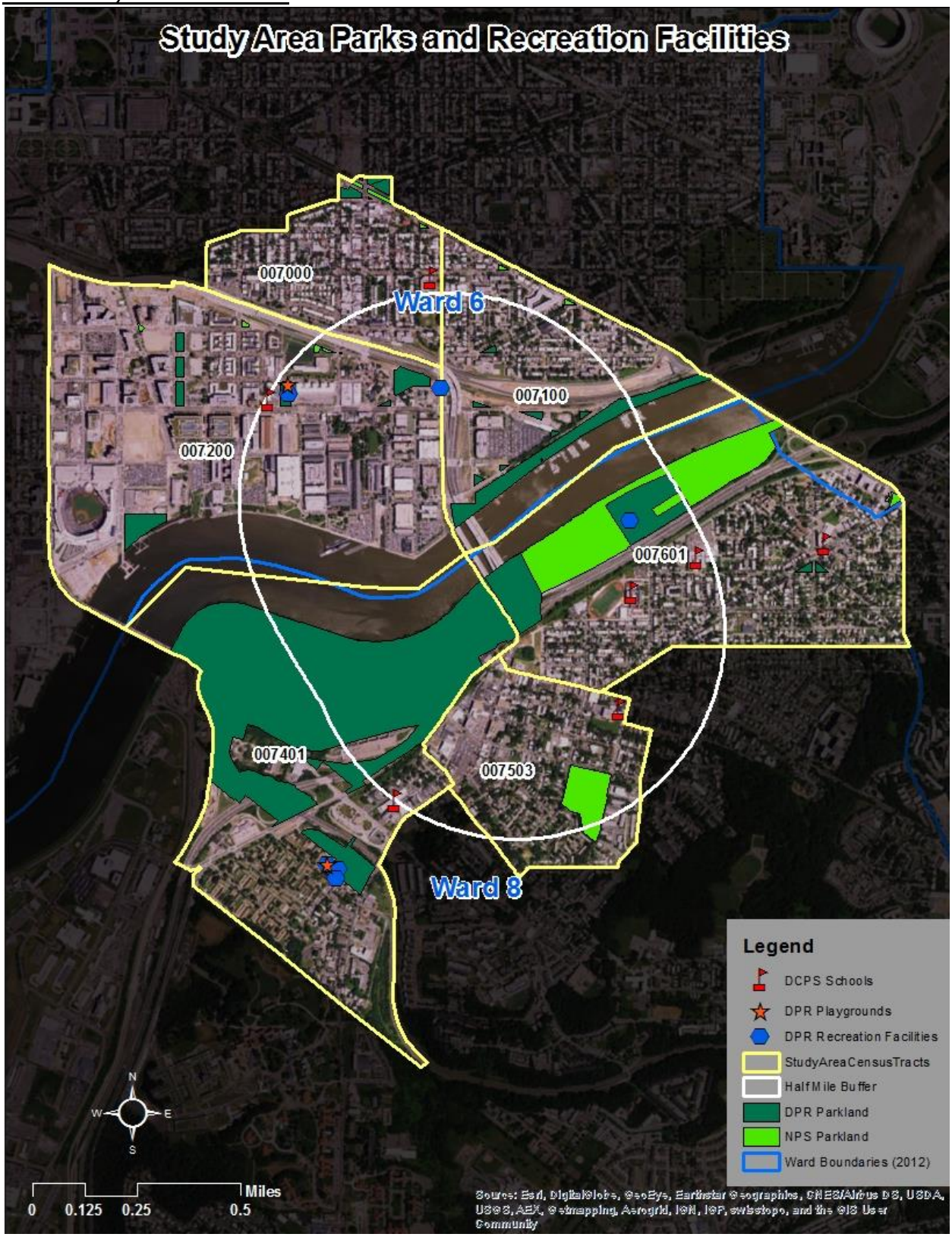
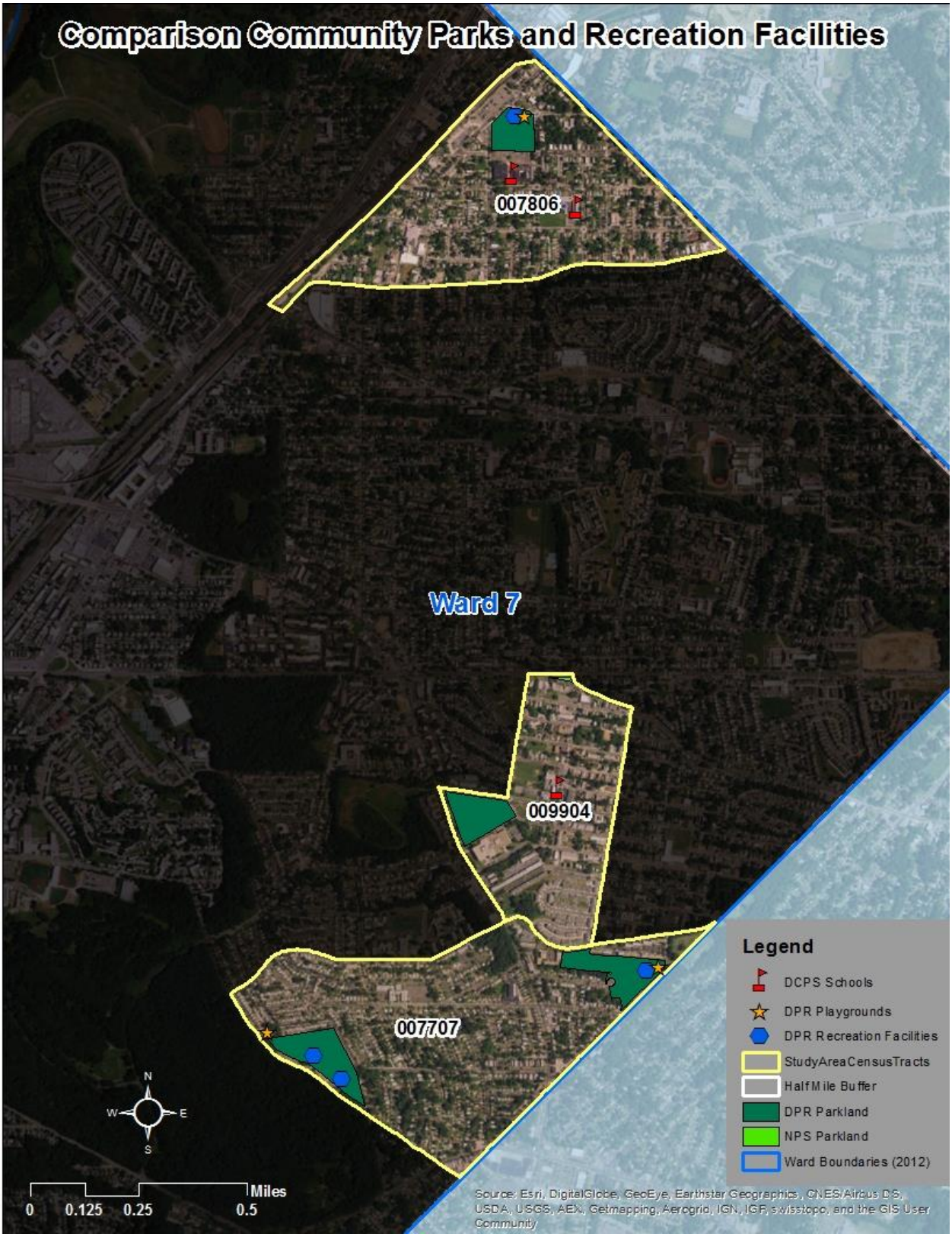
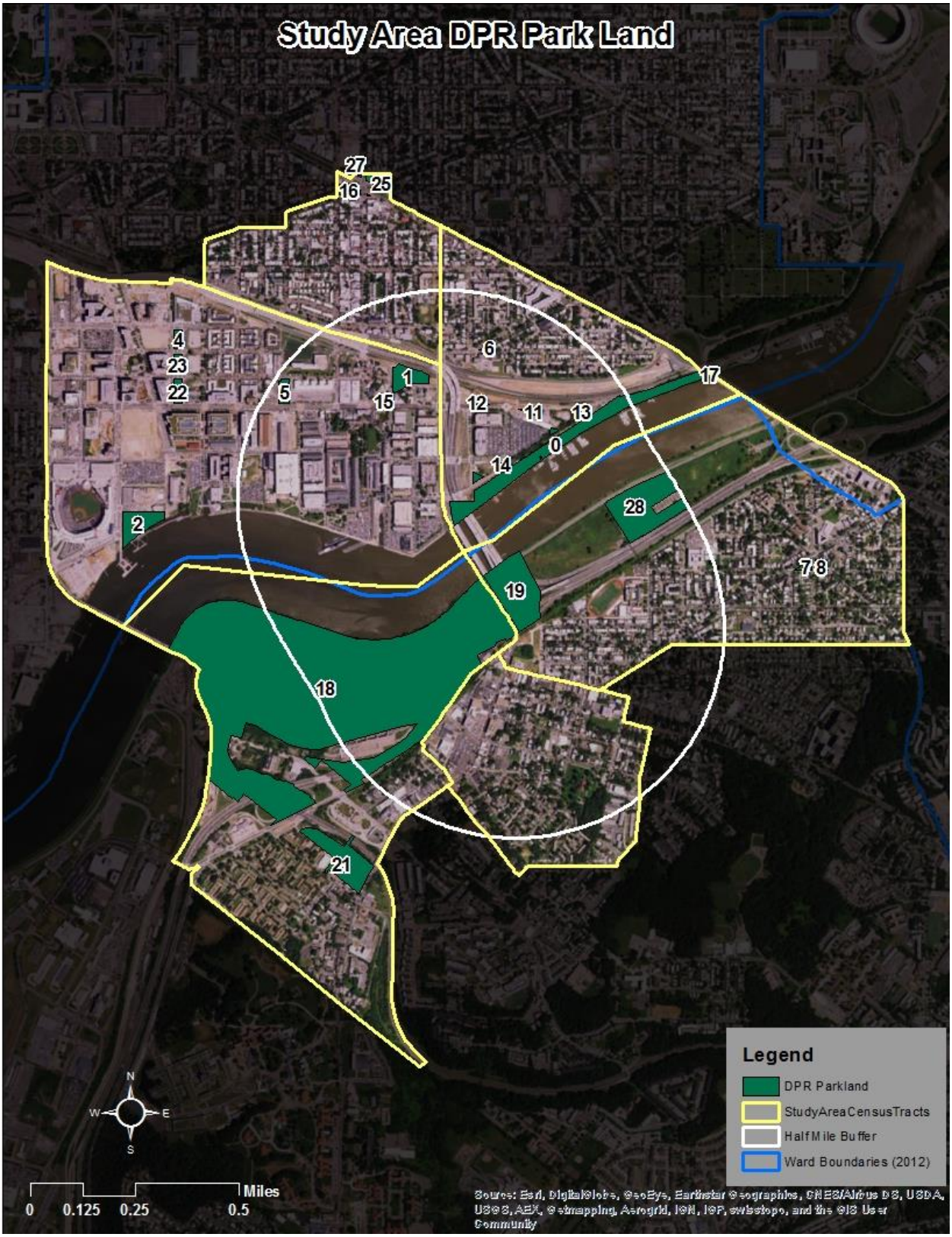
F. Appendix

F.1. Maps of Park and Recreation Facilities in the Study Area and Comparison Community Census Tracts



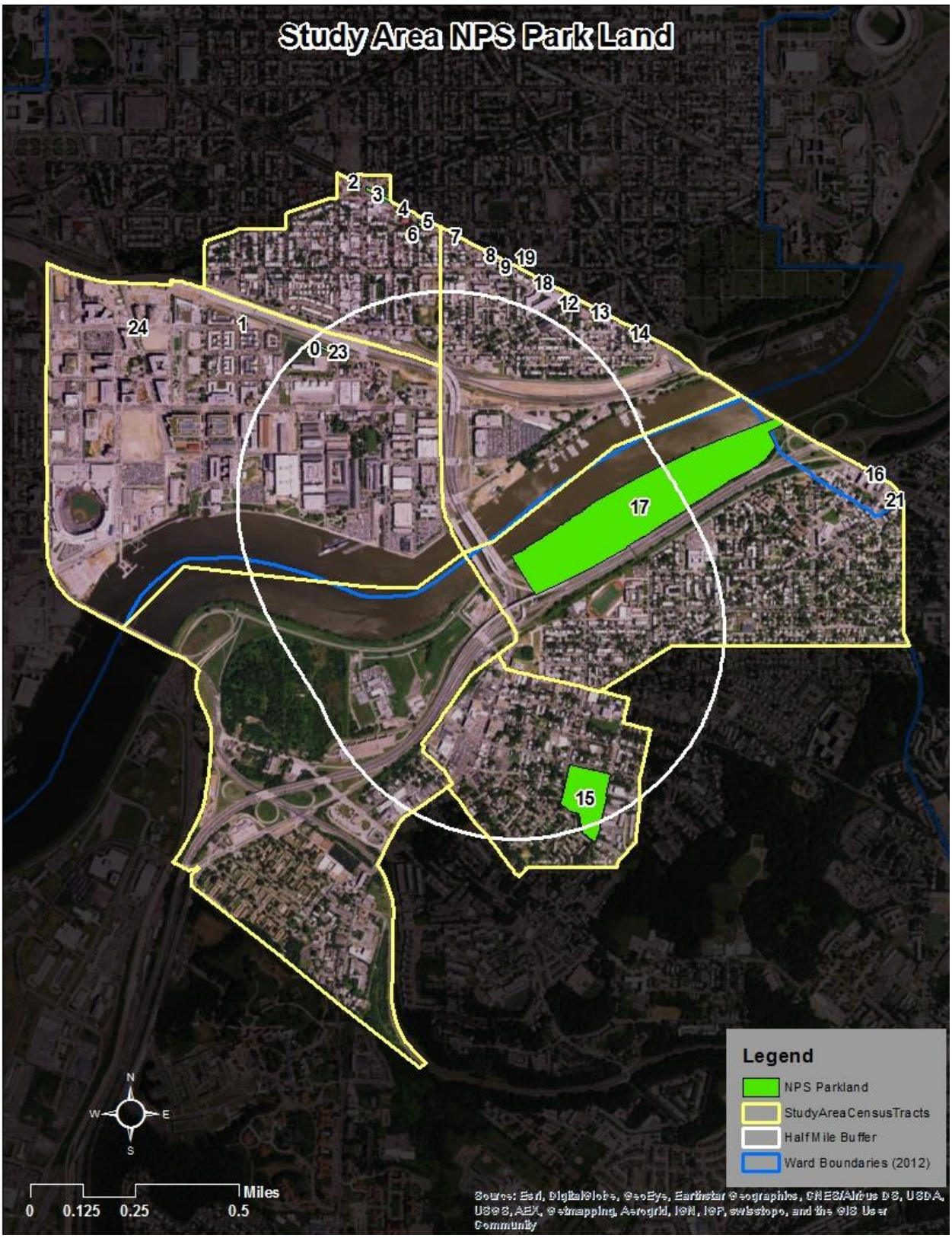

Comparison Community Parks and Recreation Facilities
007806
Ward 7
009904
007707
Legend
DCPS Schools
DPR Playgrounds
DPR Recreation Facilities
StudyAreaCensusTracts
HalfMile Buffer
DPR Parkland
NPS Parkland
Ward Boundaries (2012)
N
W
E
S
Miles
0
0.125
0.25
0.5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


Study Area DPR Park Land
27
16
25
4
23
22
5
1
15
6
12
11
13
17
0
14
28
2
7 8
19
18
21
Legend
DPR Parkland
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
Miles
0
0.125
0.25
0.5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Comparison Community DPR Park Land
3
24
20
9
Legend
DPR Parkland
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
Miles
0
0.125
0.25
0.5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

DPR Park Land in Study Area and Comparison Community Census Tracts					
Map ID	Ward	Name	Address	Acres	Park Rx Page
0	6	Boathouse Row	Anacostia River (Both Banks) between John Phillip Sousa & 11th St. Bridges, SE	12.9	
1	6	Virginia Avenue	L St., between 9th and 11th Sts., SE	2.4	http://dcparkrx.org/view.php?id=278
2	6	Diamond Teague Park	Potomac Ave. and 1st St., SE	3.1	
3	7	Deanwood	49th and Quarles Sts., NE	5.6	
4	6	Canal Park	2nd St., between K and I Sts., SE	0.5	http://dcparkrx.org/view.php?id=283
5	6	Joy Evans	6th St., between L and M Sts., SE	1.0	http://dcparkrx.org/view.php?id=133
6	6		Potomac Ave. and K Street, SE	0.2	
7	8		Minnesota Ave., between 22nd & Q Sts., SE	0.3	
8	8		Naylor Rd., between 22nd & Q Sts., SE	0.2	
9	7	Ridge	Ridge Rd. and Burns St., SE	10.1	http://dcparkrx.org/view.php?id=214
10	6	Triangle	Water St., south of M St., SE	0.1	
11	6	Triangle	Virginia Ave. and south of M St., SE	0.4	
12	6	Triangle	Virginia Ave., Between 12th & M Sts., SE	0.2	
13	6	Triangle	Water St., Between 14th & M Sts., SE	0.2	
14	6	Triangle	Water & N Sts., east Of 12th st., SE	0.1	
15	6	Triangle	Potomac Ave SE, 9th Street SE, and M Street SE	0.2	
16	6	Triangle	South Carolina and Pennsylvania Aves., to 7th, 8th and D Sts., SE	0.7	
17	6	Boathouse Row	Anacostia River (East Bank) between Railroad & John Phillip Sousa Bridges, SE	0.0	
18	8	Poplar Point	South Capitol Street, I-295, 11th St. & Frederick Douglass Memorial Bridges, SE	143.5	http://dcparkrx.org/view.php?id=13
19	8	Poplar Point	Anacostia River (Both Banks) between John Phillip Sousa & 11th St. Bridges, SE	9.4	
20	7	Benning Park	Benning Rd., north of Hanna Pl. & Southern Ave., SE	8.9	http://dcparkrx.org/view.php?id=33
21	8	Barry Farms Playground	Martin Luther King Jr. Blvd., between Howard & Summer Rds., SE	6.5	http://dcparkrx.org/view.php?id=25
22	6	Canal Park	2nd St., between M and L Sts., SE	0.7	http://dcparkrx.org/view.php?id=283
23	6	Canal Park	2nd St., between K and L Sts., SE	0.6	http://dcparkrx.org/view.php?id=283
24	7	Fletcher-Johnson	Benning Rd., C St., and St Louis St. SE	7.5	
25	6	Triangle	Pennsylvania Ave., between 8th, 9th St. and South Carolina Ave., SE	0.9	
26	6	Triangle	Pennsylvania Ave., east of 8th St., SE	0.0	
27	6	Triangle	Pennsylvania Ave., west of 8th and D Sts., SE	0.0	
28	8	Anacostia Recreation Center	1800 Anacostia Drive SE	10.9	http://dcparkrx.org/view.php?id=9

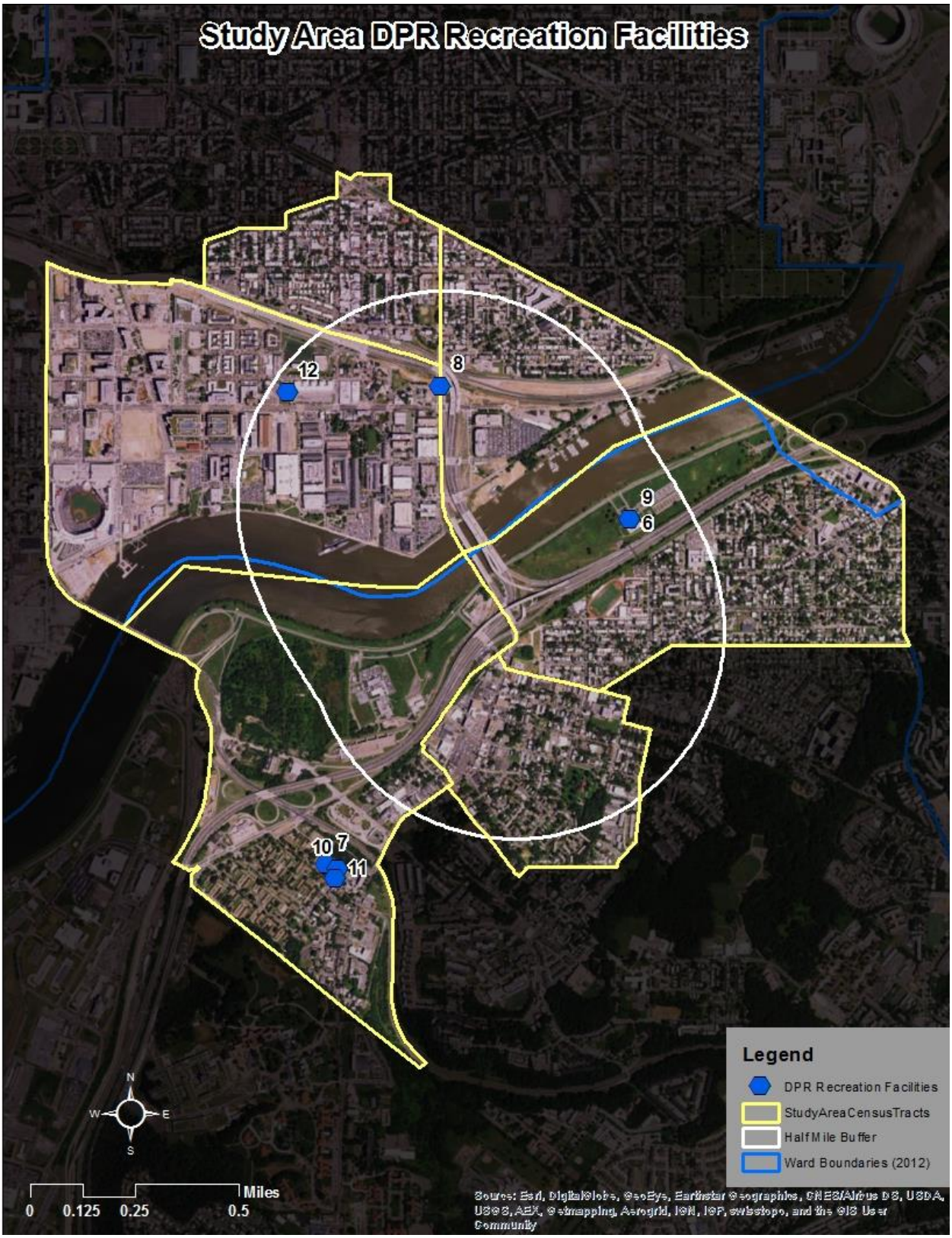
Source: Parks and Recreation Areas. District of Columbia Open Data website. http://opendata.dc.gov/datasets/287eaa2ecbff4d699762bbc6795ffdca_9. Accessed April 27, 2016.


Study Area NPS Park Land
2
3
4
5
6
7
8
9
19
18
12
13
14
24
1
0
23
16
21
17
15
Legend
NPS Parkland
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
Miles
0
0.125
0.25
0.5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Comparison Community NPS Park Land
22
Legend
NPS Parkland
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
Miles
0
0.125
0.25
0.5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NPS Park Land in Study Area and Comparison Community Census Tracts					
Map ID	Ward	Name	Location	Acres	Park Rx Page
0	6	Triangle	Virginia Ave., Between West Side Of 7th & K Sts., SE	0.2	
1	6	Triangle	Virginia Ave., & I St. To 4th & 5th Sts., SE	0.1	
2	6	Center Parking	Pennsylvania Ave., Between 7th & 8th Sts., SE	0.2	
3	6	Center Parking	Pennsylvania Ave., Between 8th & 9th Sts.SE	0.3	
4	6	Center Parking	Pennsylvania Ave., Between 9th & 10th Sts.SE	0.1	
5	6	Center Parking	Pennsylvania Ave., Between 10th & 11th Sts., SE	0.1	
6	6	Triangle	Pennsylvania Ave., Between 10th & E Sts., SE	0.1	
7	6	Center Parking	Pennsylvania Ave., Between 11th & 12th Sts., SE	0.2	
8	6	Center Parking	Pennsylvania Ave., Between 12th & 13th Sts., SE	0.3	
9	6	Triangle	Pennsylvania Ave., Between 13th & G Sts., SE	0.1	
10	6	Triangle	Pennsylvania Ave., Between Potomac & 14th Sts., SE	0.0	
11	6	Triangle	South Side Pennsylvania Ave. At Potomac Ave., SE	0.1	
12	6	Center Parking	Pennsylvania Ave & Potomac Aves., SE	0.1	
13	6	Center Parking	Pennsylvania Ave., Between 14th & 15th Sts., SE	0.2	
14	6	Center Parking	Pennsylvania Ave., Between 15th & 16th Sts., SE	0.3	
15	8	Frederick Douglass Home	1411 W St., SE	8.5	
16	8	Twining Square	Pennsylvania Ave., Between Minnesota Ave. & 25th St., SE	0.2	
17	8	Anacostia Park, Section D	Anacostia River, Between Sousa & 11th St. Bridges,	50.3	http://dcparkrx.org/view.php?id=9
18	6	Triangle	Pennsylvania Ave., Between Potomac & 14th sts., SE	0.2	
19	6	Center Parking	Pennsylvania Ave., Between 13th & 14th Sts., SE	0.1	
20	6	Center Parking	Pennsylvania Ave., East Of Prout St., SE	0.1	
21	8	Center Parking	Pennsylvania Ave., West Of Minnesota., SE	0.3	
22	7	Triangle	Central Ave., Between 50th & East Capitol Sts., SE	0.2	
23	6	Triangle	Virginia Ave., Between West Side Of 7th & K Sts., SE	0.0	
24	6		1901 Washington Ave. (Canal St.) & New Jersey Ave., SE	0.1	

Source: National Parks by Name. District of Columbia Open Data website. http://opendata.dc.gov/datasets/98aee40a55384ddc8f1f1ea4088cdde9_8. Published March 11, 2014. Accessed April 27, 2016.

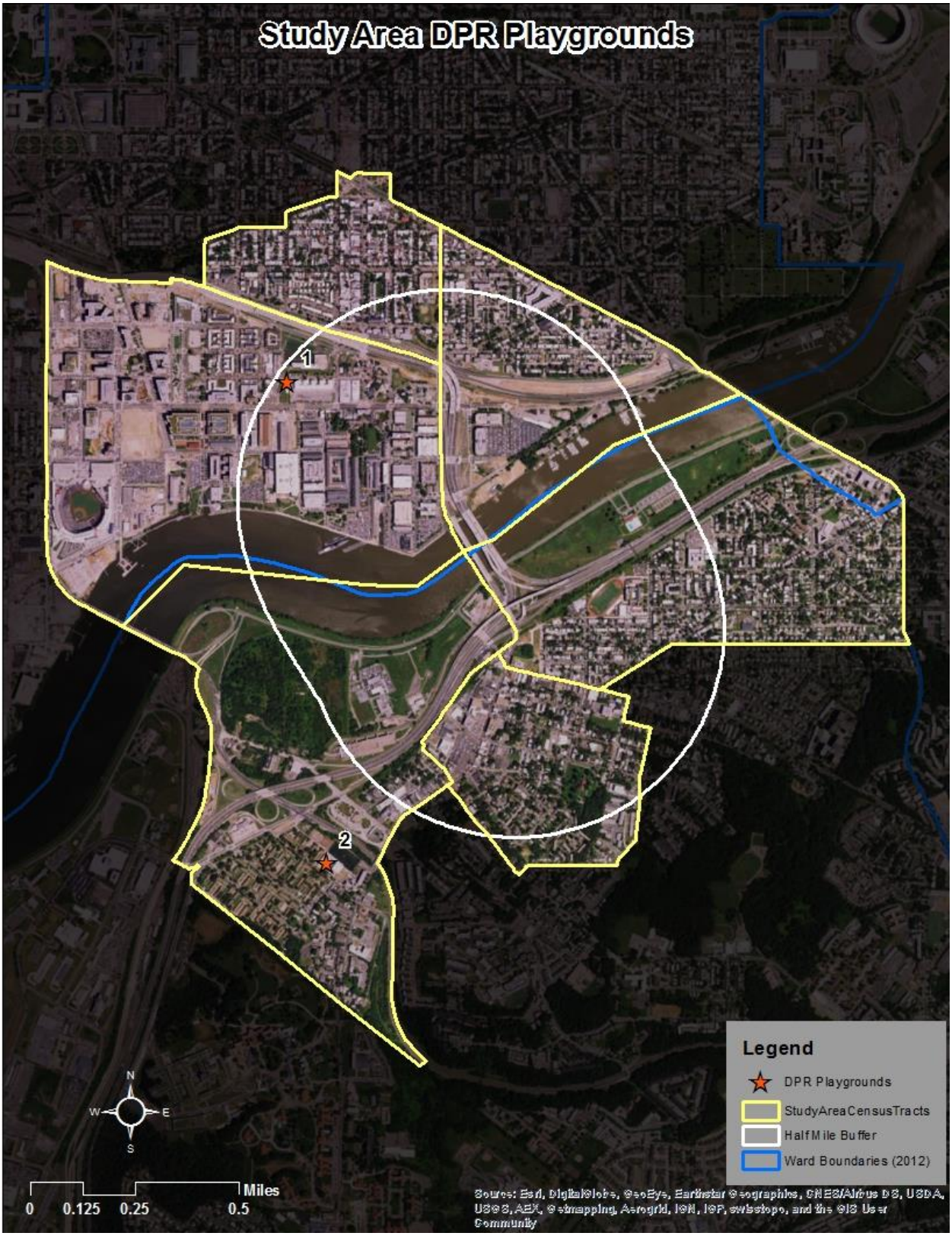

Study Area DPR Recreation Facilities
12
8
9
6
10
7
11
Legend
DPR Recreation Facilities
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
Miles
0
0.125
0.25
0.5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Comparison Community DPR Recreation Facilities
4
3
5
0
1
2
Legend
DPR Recreation Facilities
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
0
0.125
0.25
0.5
Miles
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Recreation Facilities in Study Area and Comparison Community Census Tracts

FID	Name	Ward	Address	Pool	Fitness Center	Park Rx Page
0	Benning Park Community Center	7	SOUTHERN AVE. AND FABLE ST., SE	outdoor	Fitness Room	http://dcparkrx.org/view.php?id=33
1	Ridge Road Recreation Center	7	810 RIDGE ROAD SE	outdoor	No	http://dcparkrx.org/view.php?id=214
2	Ridge Road Pool	7	RIDGE RD AND BURNS ST SE	outdoor	No	http://dcparkrx.org/view.php?id=214
3	Deanwood Recreation Center	7	1350 49TH STREET NE	indoor	Fitness Room	
4	Deanwood Aquatic Center	7	1350 49TH STREET NE	indoor	No	
5	Benning Park Pool	7	SOUTHERN AVE. AND FABLE ST., SE	outdoor	No	http://dcparkrx.org/view.php?id=33
6	Anacostia Recreation Center	8	1800 ANACOSTIA DRIVE SE	outdoor	Fitness Room	Yes (Anacostia Park Section D)
7	Barry Farm Recreation Center	8	1230 SUMNER ROAD SE	none	Fitness Room	http://dcparkrx.org/view.php?id=25
8	Virginia Avenue	6	L STREET SE AND 11TH STREET SE	none	No	
9	Anacostia Pool	8	1800 ANACOSTIA DRIVE SE	outdoor	No	Yes (Anacostia Park Section D)
10	Barry Farm Aquatic Center	8	1230 SUMNER ROAD SE	indoor	No	
11	Barry Farm Children's Pool	8	1230 SUMNER ROAD SE	walk to learn	No	
12	Lincoln Capper Children's Pool	6	500 L ST SE	child	No	

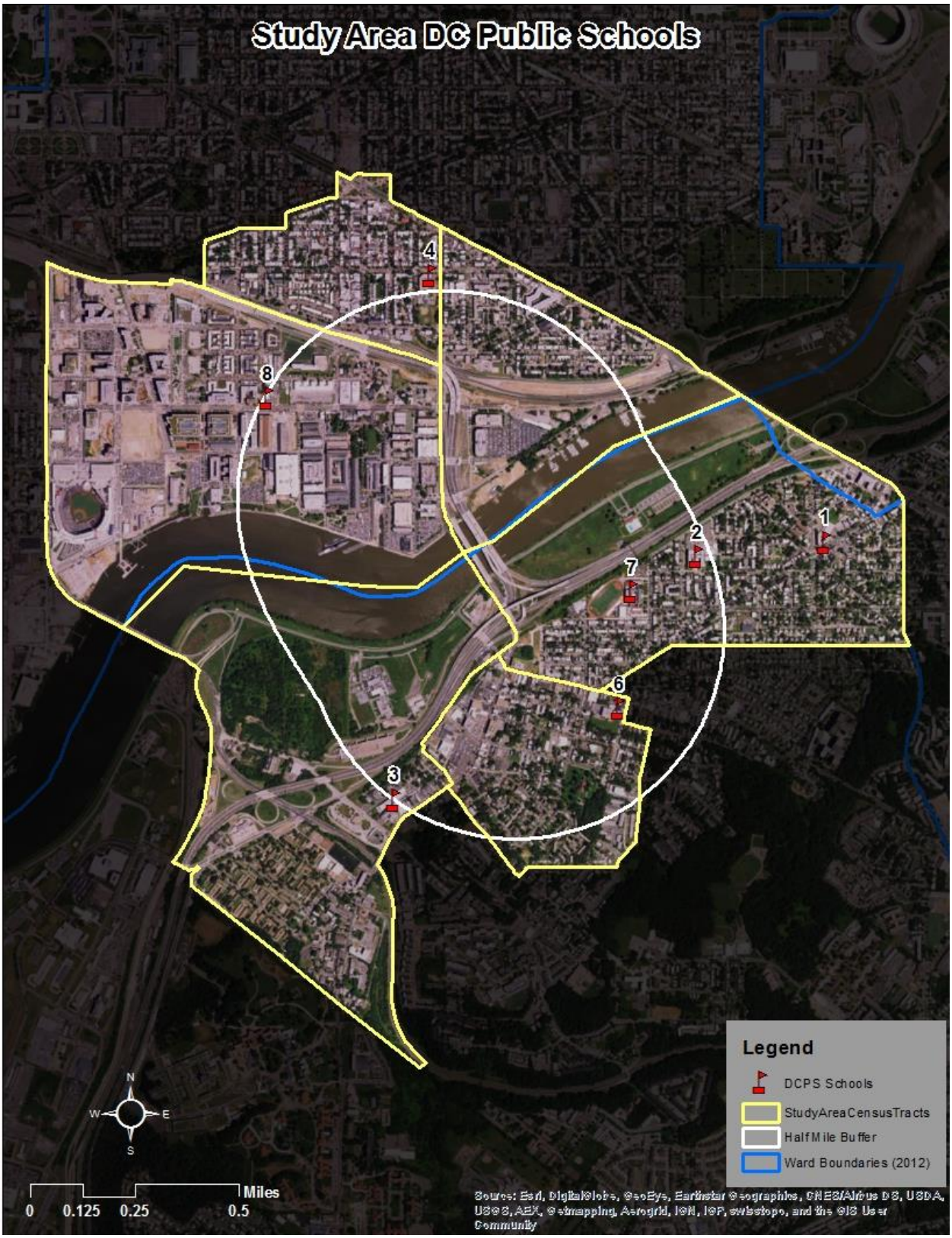
Source: Recreation Facilities. District of Columbia Open Data website. http://opendata.dc.gov/datasets/7122c1c815314588abe5c1864da8a355_3. Published December 26, 2013. Accessed April 27, 2016.


Study Area DPR Playgrounds
1
2
Legend
DPR Playgrounds
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
0
0.125
0.25
0.5
Miles
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Comparison Community DPR Playgrounds
3
4
0
Legend
DPR Playgrounds
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
0
0.125
0.25
0.5
Miles
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

nity Census Tracts		
	Address	Park Rx Page
	800 Ridge Road, SE	http://dcparkrx.org/view.php?id=214
	555 L Street SE	http://dcparkrx.org/view.php?id=133
	1230 Sumner Rd, SE	http://dcparkrx.org/view.php?id=25
	1350 49th Street, NE	
		http://dcparkrx.org/view.php?id=33

site. http://opendata.dc.gov/datasets/661a67b1feaa4493b8a7ffb5642614d6_2. Accessed May 2, 2016


Study Area DC Public Schools
1
2
3
4
6
7
8
Legend
DCPS Schools
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
Miles
0
0.125
0.25
0.5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Comparison Community DC Public Schools
9
5
0
Legend
DCPS Schools
StudyAreaCensusTracts
HalfMile Buffer
Ward Boundaries (2012)
N
W
E
S
Miles
0
0.125
0.25
0.5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

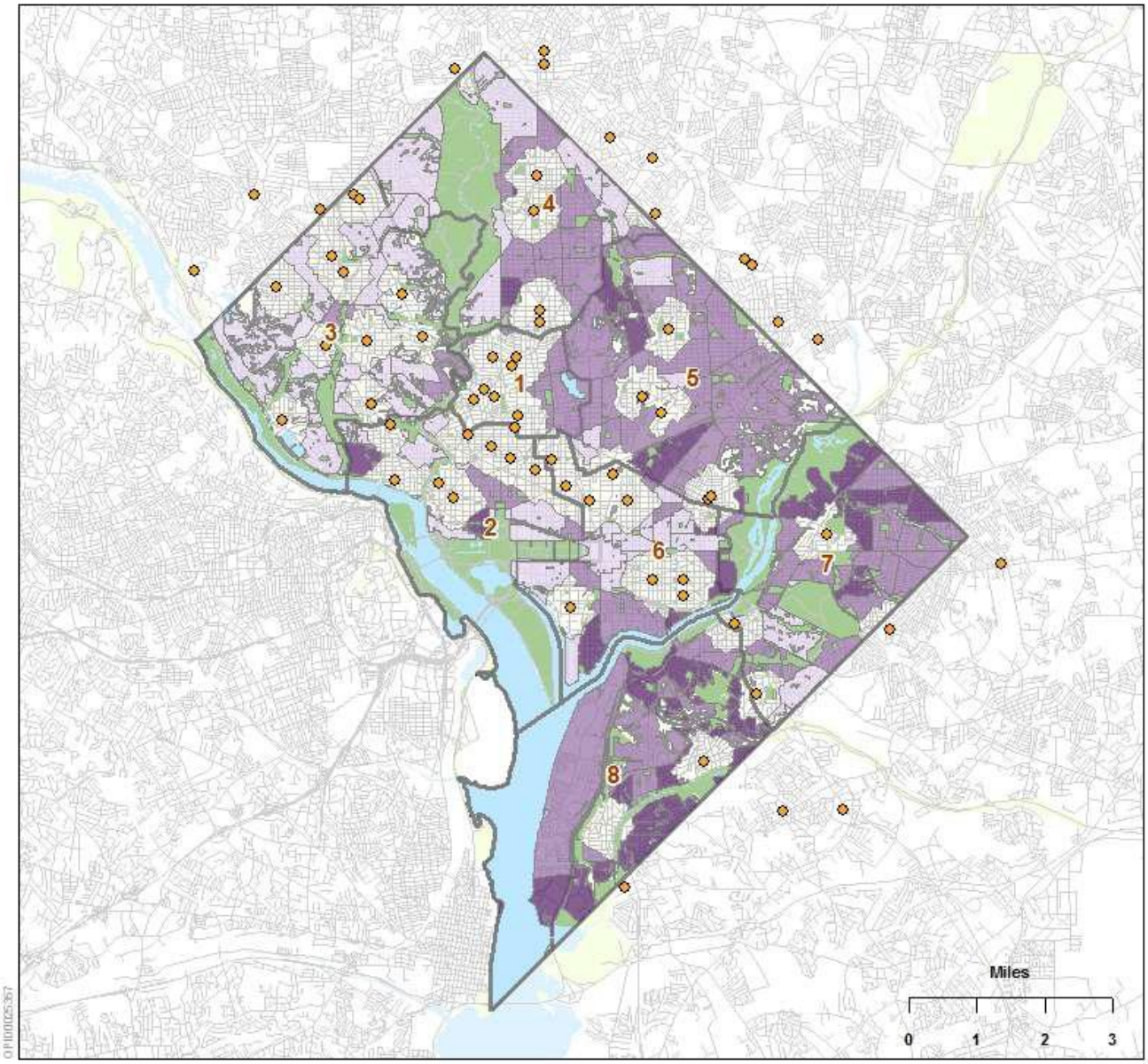
DC Public Schools in Study Area and Comparison Community Census Tracts				
Map ID	Ward	Name	Address	Park Rx Page
0	7	Nalle Elementary School	219 50TH STREET SE	
1	8	Orr Elementary School	2200 MINNESOTA AVENUE SE	http://dcparkrx.org/view.php?id=189
2	8	Kramer Middle School	1700 Q STREET SE	http://dcparkrx.org/view.php?id=143
3	8	Savoy Elementary School	2400 SHANNON PLACE SE	
4	6	Tyler Elementary School	1001 G STREET SE	
5	7	Houston Elementary School	1100 50TH PLACE NE	
6	8	Ketcham Elementary School	1919 15TH STREET SE	http://dcparkrx.org/view.php?id=138
7	8	Anacostia High School	1601 16TH STREET SE	
8	6	Van Ness Elementary School	1150 5TH STREET SE	
9	7	Empowering Males High School	4800 MEADE STREET NE	

Source: Public Schools. District of Columbia Open Data website. http://opendata.dc.gov/datasets/98aee40a55384ddc8f1f1ea4088cdde9_8. Published March 11, 2014. Accessed March 30, 2016.

Park Rx Pages in Study Area and Comparison Community					
Park Name	Ward	Cleanliness	Accessibility	Activity Level	Webpage
Virginia Avenue	6	B	C	Low	http://dcparkrx.org/view.php?id=278
Canal Park	6	B	B	Medium	http://dcparkrx.org/view.php?id=283
Anacostia Park, Section D	8	A	A	High	http://dcparkrx.org/view.php?id=9
Joy Evans	6	C	C	Low	http://dcparkrx.org/view.php?id=133
Ridge Road Recreation Center	7	B	C	High	http://dcparkrx.org/view.php?id=214
Anacostia Park: Section C (Poplar Point?)	8	A	A	Medium	http://dcparkrx.org/view.php?id=13
Benning Park and Recreation Center	7	B	B	Medium	http://dcparkrx.org/view.php?id=33
Barry Farm Center	8	B	B	High	http://dcparkrx.org/view.php?id=25
Orr Elementary School	8	A	A	Medium	http://dcparkrx.org/view.php?id=189
Kramer Middle School	8	B	C	Medium	http://dcparkrx.org/view.php?id=143
Ketcham Recreation Center	8	C	C	Medium	http://dcparkrx.org/view.php?id=138

Source: What is Park Rx? DC Park Rx website. http://dcparkrx.org/. Accessed May 22, 2016.

F.2. Map of Food Deserts in Washington, DC



August 2014 Food Desert Locations with DC Grocery Stores

Data Sources:

Food Access: DC Office of Planning
Tract Population: 2008-2012 American Community Survey (Tracts)
Poverty Information: 2008-2012 American Community Survey (Tracts)

Definitions:

Insufficient Food Access: Greater than a 10 minute walk to any grocery store
Low Poverty: 0-20% of population acre with income below 185% of the poverty level
Moderate Poverty: 20-50% of population with income below 185% of the poverty level
High Poverty: 50%+ of population with income below 185% of the poverty level

% Poverty by Census Tracts

- 0 - 20%
- 20% - 50%
- 50% +
- Large Grocery Stores in MD VA
- DC Large Grocery Stores
- 2012 Wards
- Street Centerlines

Government of the District of Columbia

Office of Planning ~ April 10, 2014

This map was created for planning purposes from a variety of sources. It is neither a survey nor a legal document. Information provided by other agencies should be verified with them where appropriate.