



# Washington D.C.'s Natural and Built Environment

## Introduction

A city's environment can affect the health, well-being, and quality of life of its residents. The District of Columbia benefits from both its natural environment and the design of the city. Given the District of Columbia's geographic location it has the advantage of four seasons (but little severe weather), access to plenty of water, and a varied physical geography. The District of Columbia benefits from the fact that, as this country's capital, it was designed with a lot of park space and a law that restricts the height of the buildings in the city. In 2011, the District of Columbia initiated the Sustainable DC plan setting a goal that in "20 years the District of Columbia will be the healthiest, greenest and most livable city in the United States." The city also started a number of other initiatives to improve the natural environment, such as increasing the tree canopy and "taxing" impervious surfaces to fund the clean-up of its rivers.

While the District of Columbia has a number of advantages, it still suffers from an unequal distribution of those assets across the geography of the city.] Providing access to amenities in all wards of the city, such as large grocery stores and farmers markets, can have a significant positive impact on residents' quality of life. The challenge continues to be how to ensure that these amenities are equally distributed and accessible to residents in both low and high-income neighborhoods.



Design and Cartography: Jacob Ruttenberg  
CEE 187  
Projection: GCS\_WGS\_1984

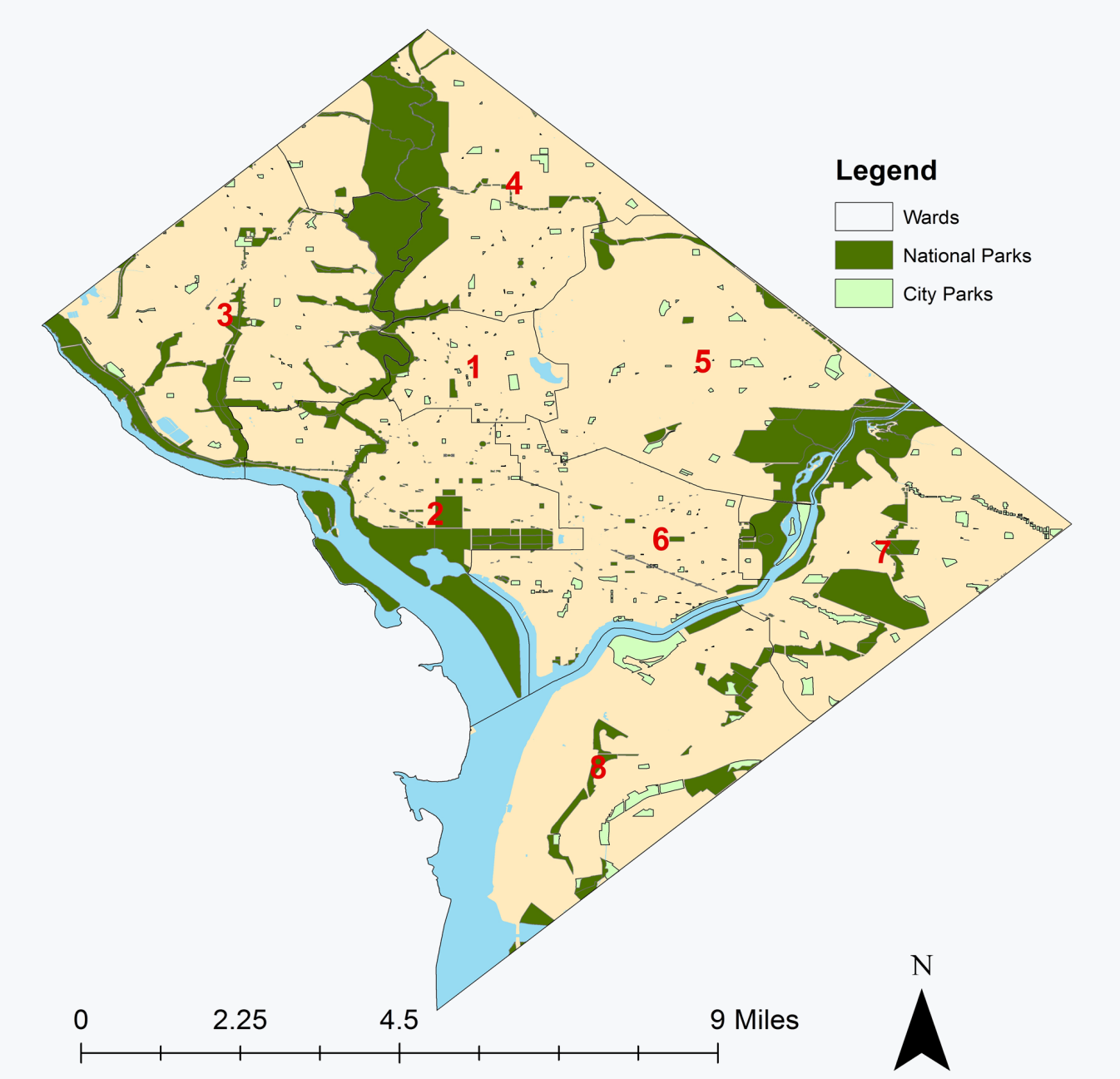
## Parks

Parks provide locations for recreation and beautify neighborhoods. Parks can also provide a sense of community to a neighborhood. The goal of an environmentally conscious city is to have all residents in all neighborhoods within a relatively short distance of a safe and well-maintained park. Unfortunately, the available data does not indicate the quality or safety of the parks in the District of Columbia, only the location and size.

Washington D.C. has 8,525 acres of park land covering 22% of the land area of the city. When a variety of factors were considered such as size of park land, access, and city investment, the District of Columbia was ranked 4<sup>th</sup> nationally by ParkScore in 2017.



## Washington D.C. Parks

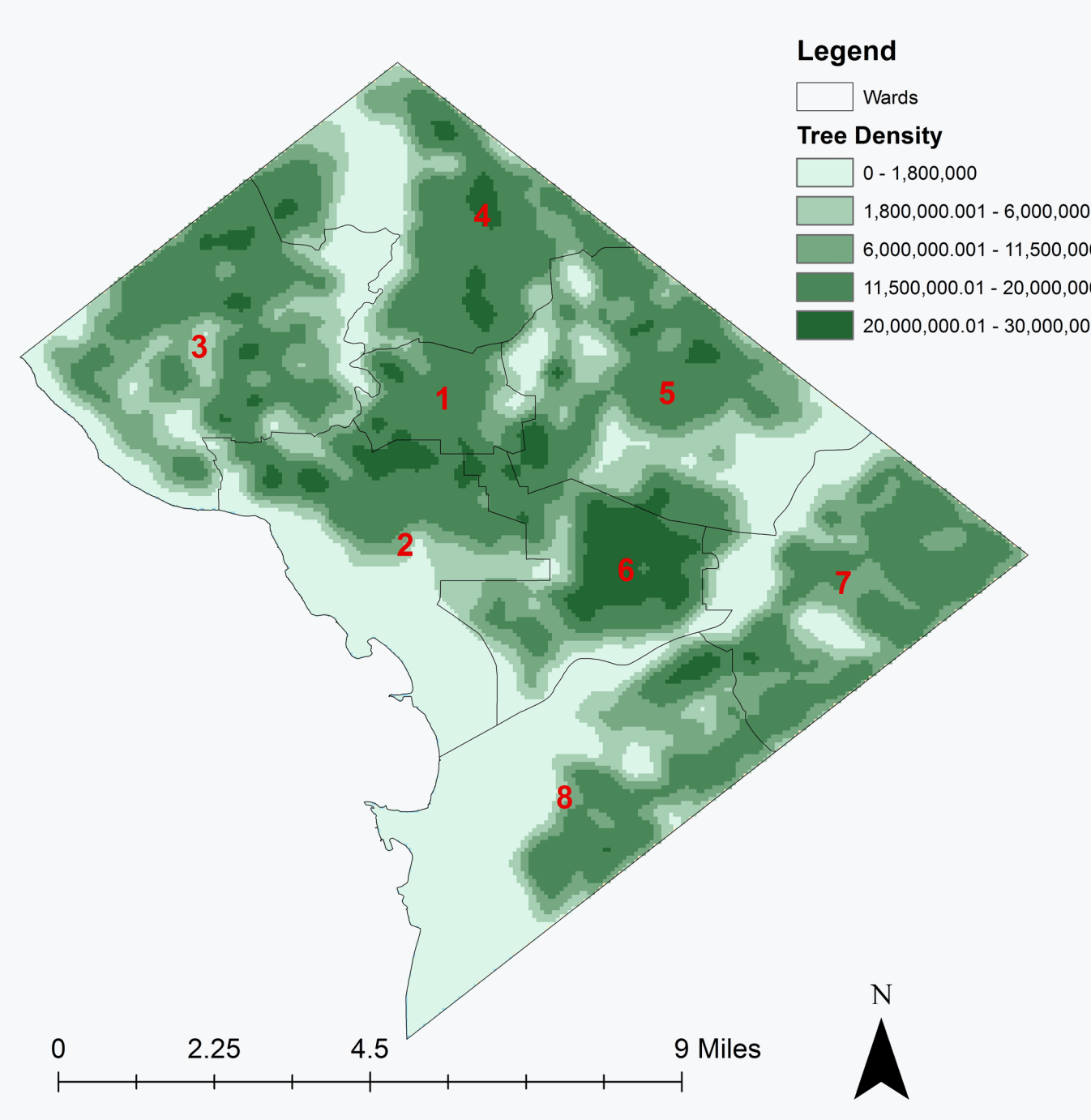


## Trees

Trees are incredibly valuable when it comes to both the natural and built environment of a major city. Trees reduce greenhouse gasses as they convert carbon dioxide to oxygen. They also filter harmful pollutants from the air, which can improve the general health of city residents and they contribute to the aesthetic appeal of neighborhoods, enhancing property values.

D.C. currently has tree canopy cover over 35% of its total land and a plan in place to increase that number to 40% by 2032. Based on an Urban Forests Effects Model (UFORE) analysis, D.C. trees remove 490 metric tons of air pollution per year. For every 5% of tree cover added to a community, storm water runoff is reduced by approximately 2%. The United States Forest Service (USFS) estimates that well-positioned trees can reduce the energy use of a conventional house by 20–25%.

## Washington D.C. Tree Density

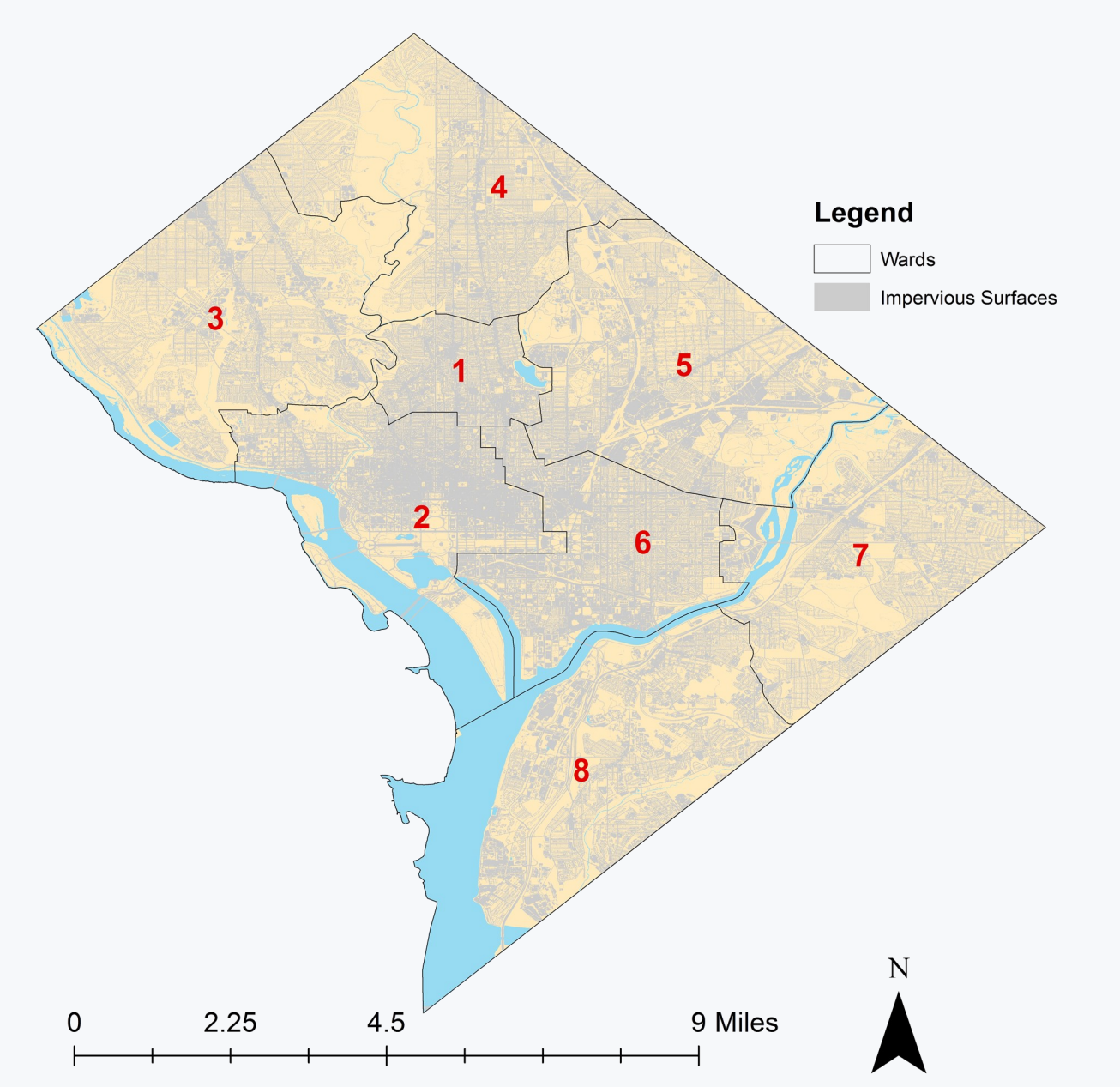


## Impervious Surfaces

Impervious surfaces can cause major environmental problems in a city. Not only can it contribute to the heat-island effect, but it can also alter the flow of storm water causing major floods.

In Washington DC in particular, impervious surfaces contribute to the pollution in the Anacostia River and Potomac Rivers, the two major rivers that are located in close proximity to the city. In an effort to defray the costs of maintaining the storm drains in the city, the city instituted the Clean Rivers Impervious Area Charge, which is a fee charged to each property owner based on the square footage of impervious surfaces on the land they own.

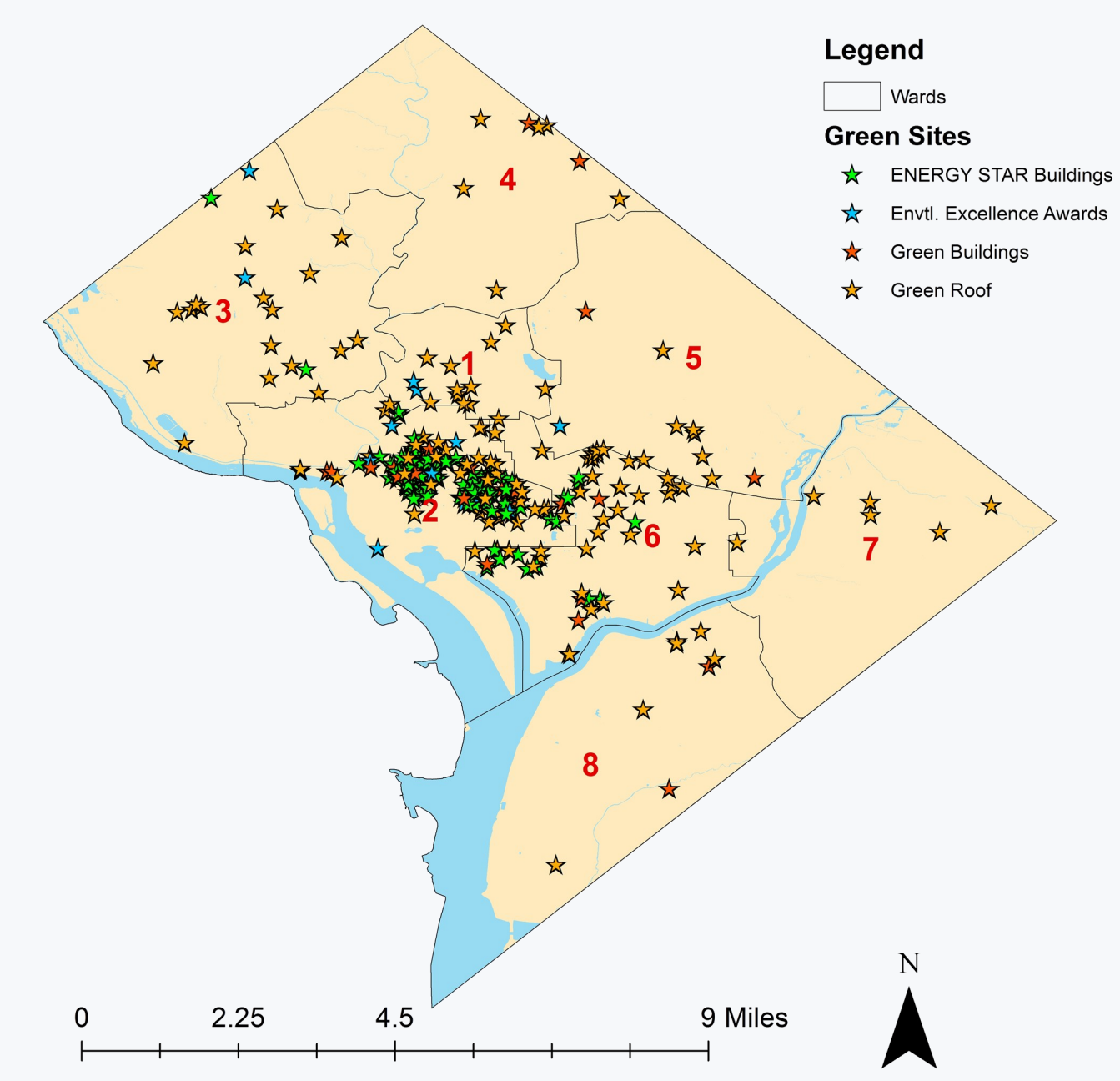
## Washington D.C. Impervious Surfaces



## Green Buildings

Green buildings use less energy, consume fewer natural resources, such as water and forest products, and emit fewer pollutants into the environment. The District of Columbia is a national leader in green building, which supports the vision set forth in the Sustainable DC Plan. Part of this plan is the Green Buildings Act that mandates that all non-residential public buildings meet the "Silver" level or higher LEED certification and that all District owned or financed residential projects meet or exceed the Enterprise's Green Communities standard. In August of this year, the District of Columbia was named the first LEED for Cities Platinum City on the World.

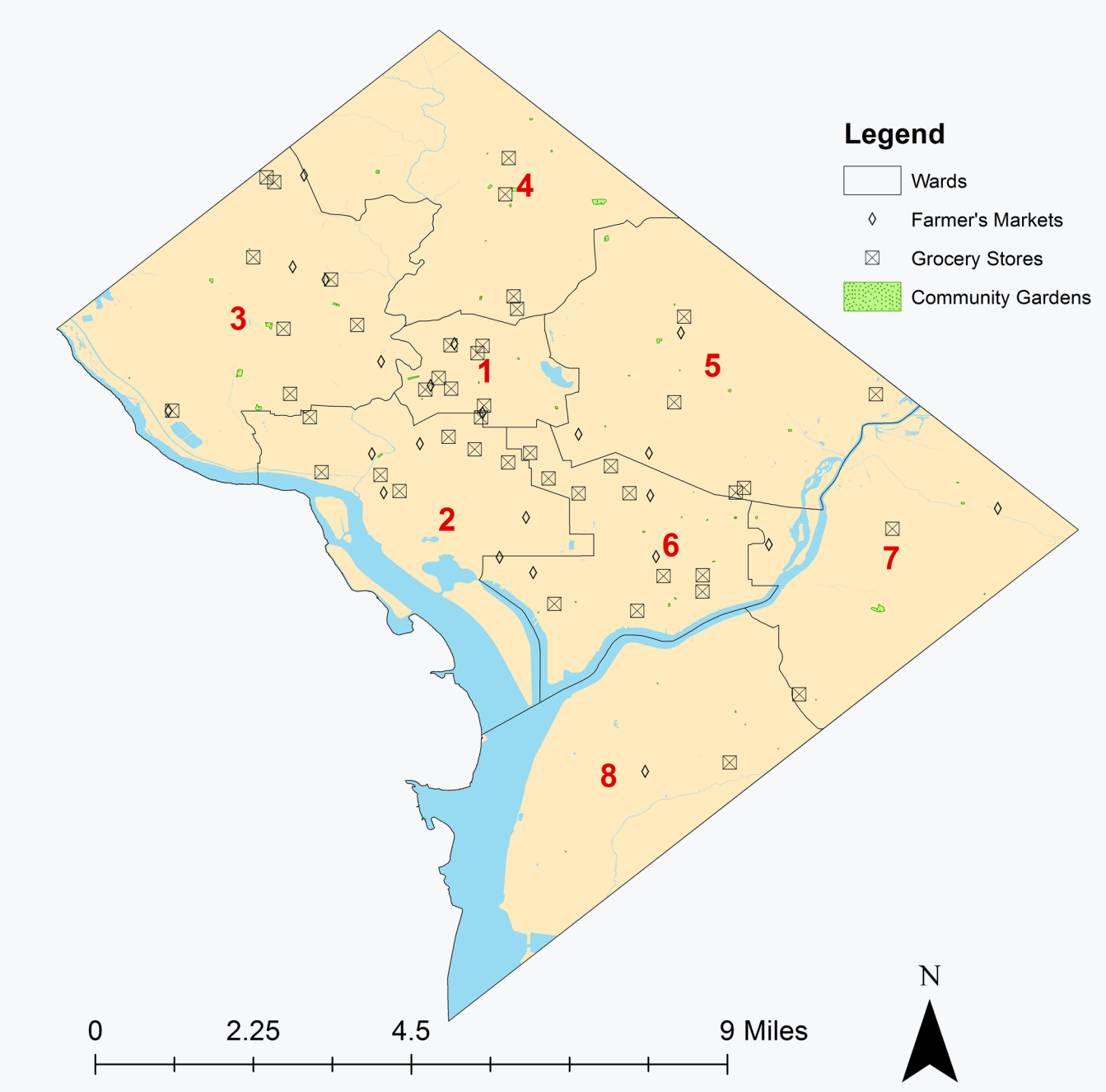
## Washington D.C. Green Buildings



## Food Sources

Food deserts can be described as geographic areas where residents' access to affordable, healthy food options are restricted or nonexistent due to the absence of grocery stores or other food options (such as a farmer's market) within convenient travelling distance. A DC Policy Center estimated that 11.3% of the district is currently in a food desert. Ward 7 is down to two grocery stores and Ward 8 is down to one. This remains a continuing issue for a city that is making great strides in other areas.

## Washington D.C. Food Sources



Sources: <https://pixabay.com/en/flag-washington-dc-28572/>, <http://opendata.dc.gov/>, <https://pixabay.com/en/washington-monument-cherry-trees-816642/>, [https://en.wikipedia.org/wiki/National\\_Park\\_Service](https://en.wikipedia.org/wiki/National_Park_Service), [https://commons.wikimedia.org/wiki/File:LEED\\_Certified\\_Gold.jpg](https://commons.wikimedia.org/wiki/File:LEED_Certified_Gold.jpg)