

CSO14



When a drop of water lands at the intersection of Elmwood Avenue and Niagara Street, it is joined by water from the neighborhoods of Columbus and Waterfront. During heavy wet weather the rainwater combines with sewage and overflows into the Erie Basin Marina at Combined Sewer Overflow 14 (CSO 14).

Community benefits

- Walkability
- Traffic calming
- Public Health
- Enhanced connection to the waterfront
- Expanded tree canopy
- Reduced heat island effect

CSO Basin 14 at a glance...

Green Infrastructure Opportunities

The goal for CSO Basin 14 is to manage stormwater from 13 acres of impervious surface. CSO Basin 14 is very small and is part of Buffalo's central business district. It is a high priority since it discharges to the Erie Basin Marina, which is used for recreation. Buffalo Sewer will coordinate with larger downtown planning efforts, such as the Buffalo Public Realm Plan, to incorporate green infrastructure. Almost the entire area has been surveyed. The CSO basin goal can easily be met through green infrastructure implementation on commercial properties and along roadways.

Urban Character

CSO Basin 14 is dominated by privately owned commercial property, including both building and surface parking lots, as well as city owned property. There are some open spaces within CSO Basin 14, although it is dominated by impervious surfaces.

Environmental Systems

This CSO basin discharges to the Erie Basin Marina and has the highest impervious surface coverage of any targeted CSO basin. It has a tree canopy cover similar to the rest of the City, but there are only a few isolated patches and no habitat corridors. Green roofs on commercial buildings could provide habitat patches within the City as well as possible amenity space for building tenants.

Equity Considerations

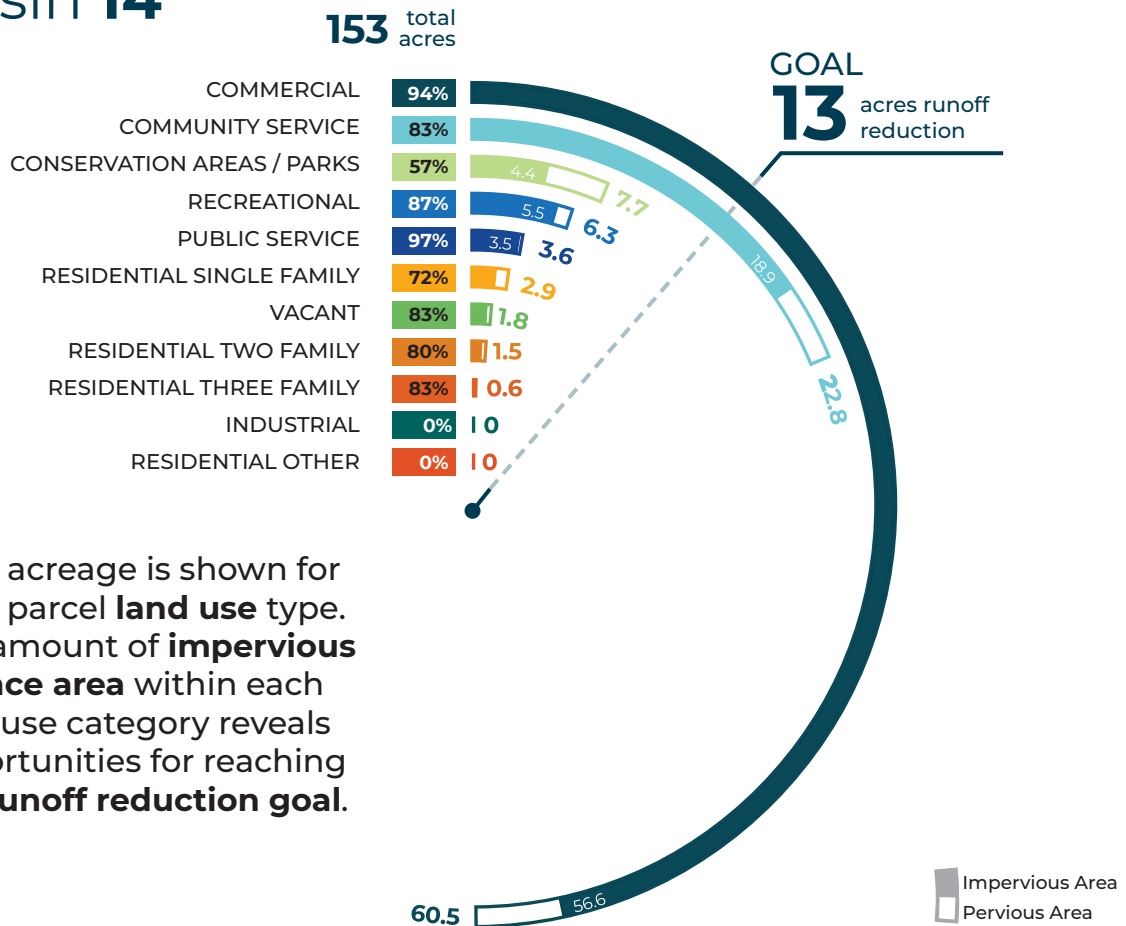
Although measures of economic vitality for CSO 14 neighborhoods, such as median household income and unemployment rate, are comparable to the City overall, there are considerable racial equity gaps. The overall unemployment rate is 7.7% among all residents, but is 15.4% among residents of color. Location and land uses indicate strategic engagement with public and private sectors is likely to be the top priority here, rather than a community-based planning process.



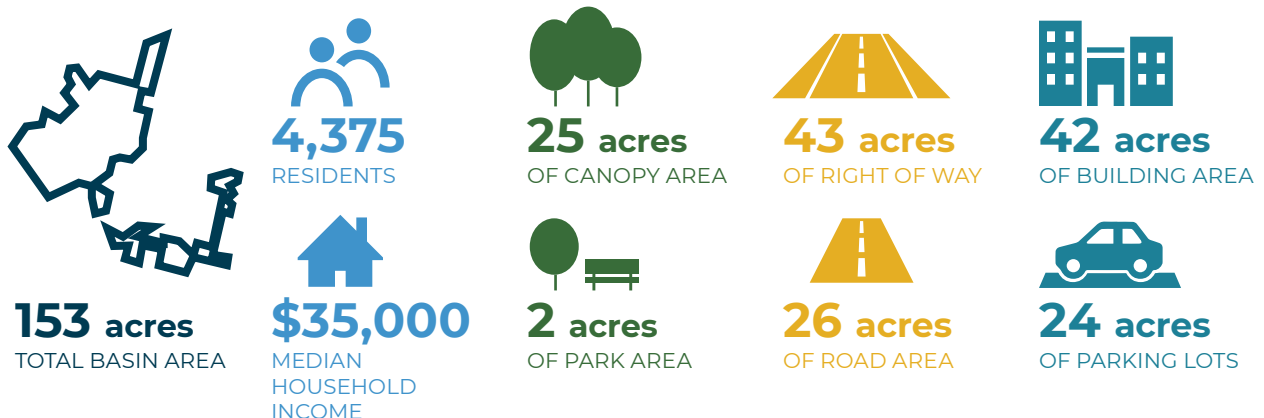
BY THE NUMBERS...

Land Use Opportunity and Impervious Surfaces by Area

Basin 14



Basin Overview



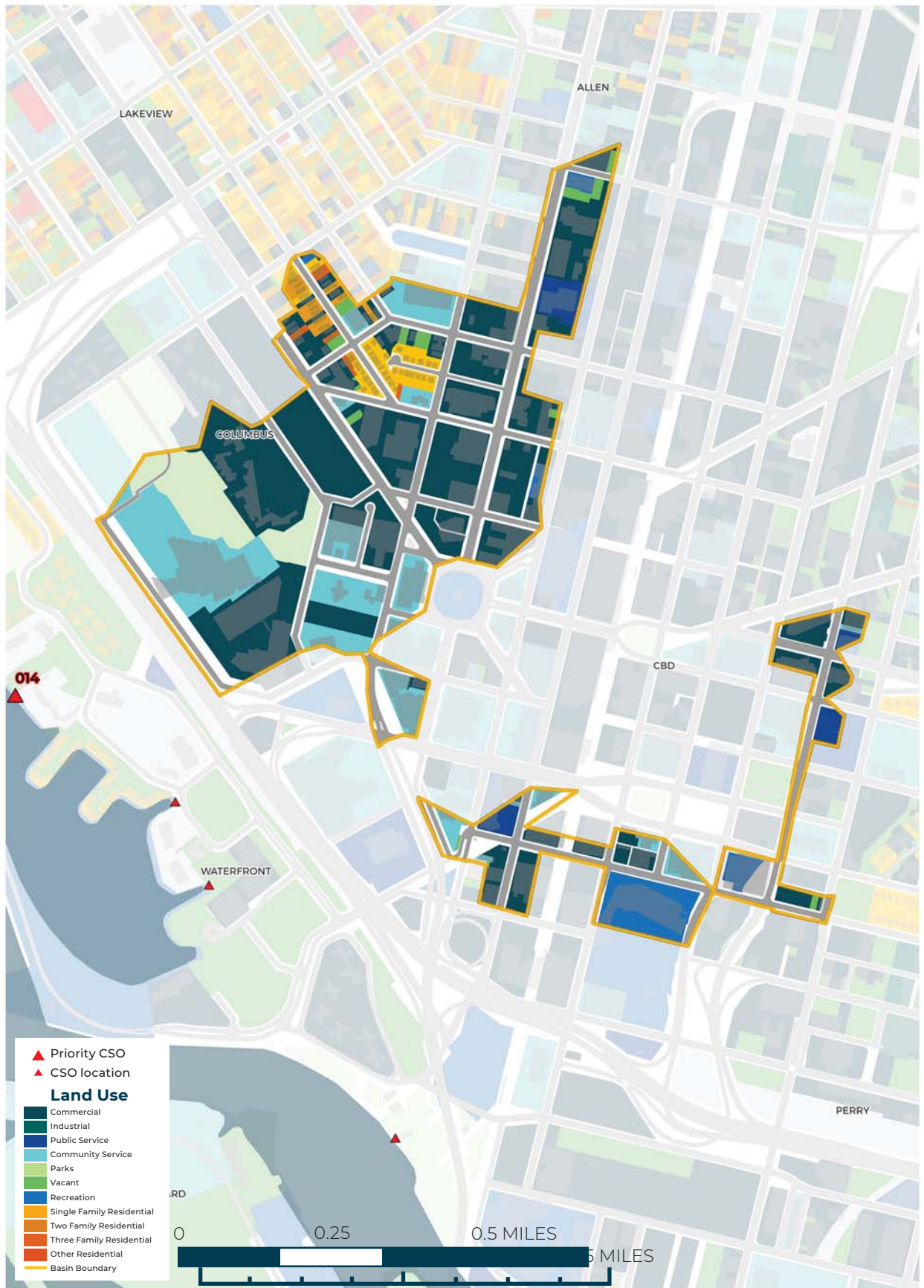
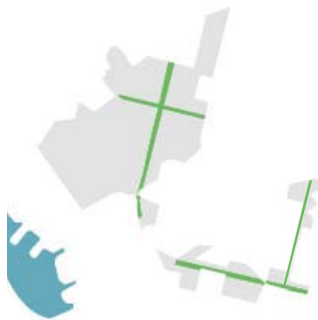


Figure 14.1: CSO Basin 14 Sites evaluated for impervious surface management through green infrastructure.

Opportunity Sites & Networks



Corridors

Because of the density in CSO Basin 14, corridors such as Elmwood Avenue, Huron, and Swan Streets present some of the largest spaces for implementing green infrastructure. These corridors also provide an opportunity for creating a green infrastructure network that connects most of the basin.



Sites

Most of the basin and many sites were found appropriate for green infrastructure retrofit. The sites naturally aggregate around the existing corridors. This analysis also indicates that a basin-wide network is possible.



Clusters and Networks

Given the small size and density of this basin, almost the entire basin could be aggregated into one or two networks, allowing for great efficiency in removal of stormwater from the system.

Key Corridors

- Elmwood Avenue
- Niagara Street
- Elm Street
- Swan Street
- Erie Street
- Huron Street

Key Institutions

- Waterfront School,
- Buffalo Bisons' Stadium
- Hutchinson Central Technical High School
- St. Anthony's of Padua RC Church

Key Commercial

- Blue Cross/Blue Shield
- Pine Harbor Apartments
- Shoreline Apartments
- Buffalo Regional Benefit Office, New Era Store.

Key Parking Lots

- St, Anthony Parking
- City Hall
- All Pro (various locations)

CORRIDORS are networked, physically connected systems around a road or right-of-way

OPPORTUNISTIC SITES are stand alone sites with a high opportunity for green infrastructure

CLUSTERS have an anchor institution or are groups of parcels that can implement similar strategies

NETWORKS are larger systems of capture and treatment incorporating many sites

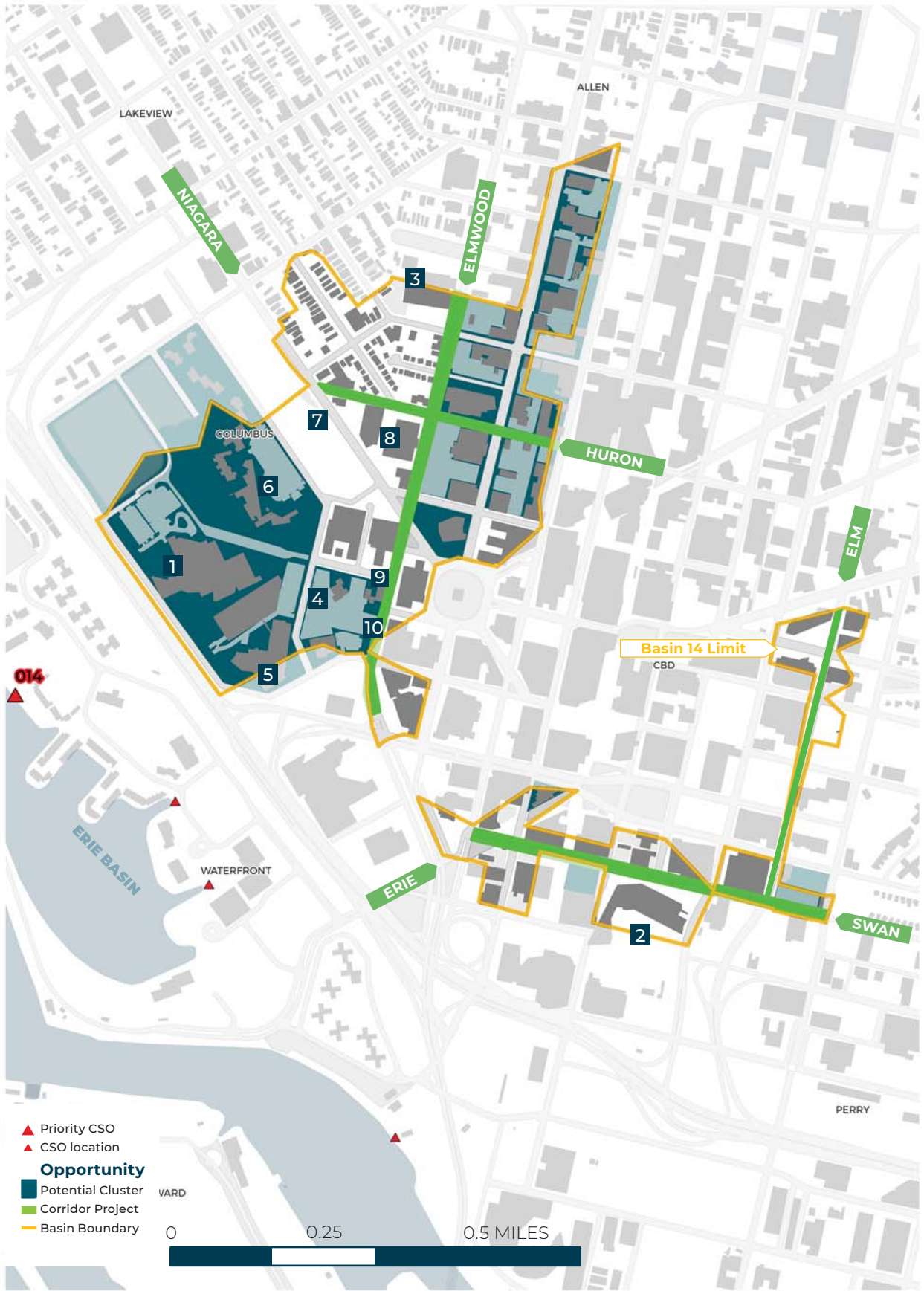


Figure 14.2: CSO Basin 14 Green Infrastructure Opportunity Sites

Green Infrastructure Opportunity

Central Business District

Many of the buildings and streets in the basin are iconic to the image of Buffalo. Green infrastructure will be important to stormwater performance and can improve neighborhood quality. These buildings and streets, in combination with the many surface parking lots present the greatest opportunity for green infrastructure. Downtown has fewer residents and more commuters than other areas of the city, resulting in an abundance of surface lots, that contribute a substantial amount of stormwater runoff. Installing bioswales around the periphery of these lots and along parking rows would result in significant runoff reduction while reducing heat island effect and increasing canopy cover. As development pressures increase, some lots are likely to be developed. Investments in open space green infrastructure here, and across the City, should be evaluated against future land use.

The surface parking lots predominantly serve commercial buildings and institutions, which represent another green infrastructure opportunity. These buildings have large footprints and maintenance budgets, making them possible candidates for green roof installations. Green roofs also help to reduce heat island effect, increase habitat, and reduce impervious runoff. Installing green roofs on rooftops visible to building occupants on upper floors can also improve the views from above. Downtown buildings are the most likely to have the extra load capacity to support green roofs.

An important time to think about green infrastructure is when properties are undergoing redevelopment. For example, the Shoreline Apartments are being redeveloped in the near future. The redevelopment will include open space that could incorporate green infrastructure that would provide amenity space for residents as well as reduce stormwater runoff.

Strategies

- Green roof retrofits
- Complete streets
- Green parking lots
- Impervious surface reduction
- Curb bump outs

Potential Partners

- City Hall
- Department of Public Works
- Waterfront School
- Hutchinson Central Technical High school
- Blue Cross Blue Shield
- St. Anthony's
- Division of Parks and Recreation



Figure 14.3: Historic Image of downtown Buffalo



Figure 14.4: Buffalo City Hall

Placemaking Opportunity with Green Infrastructure

In addition to providing stormwater benefit, green infrastructure can create beautiful and welcoming public green space for city residents. Particularly in a dense urban area the addition of street trees and green infrastructure can help to reduce urban heat island effect, calm traffic, and provide for greater walkability. Green infrastructure can also screen parking lots in the central business district, creating a strong edge and more attractive public space.

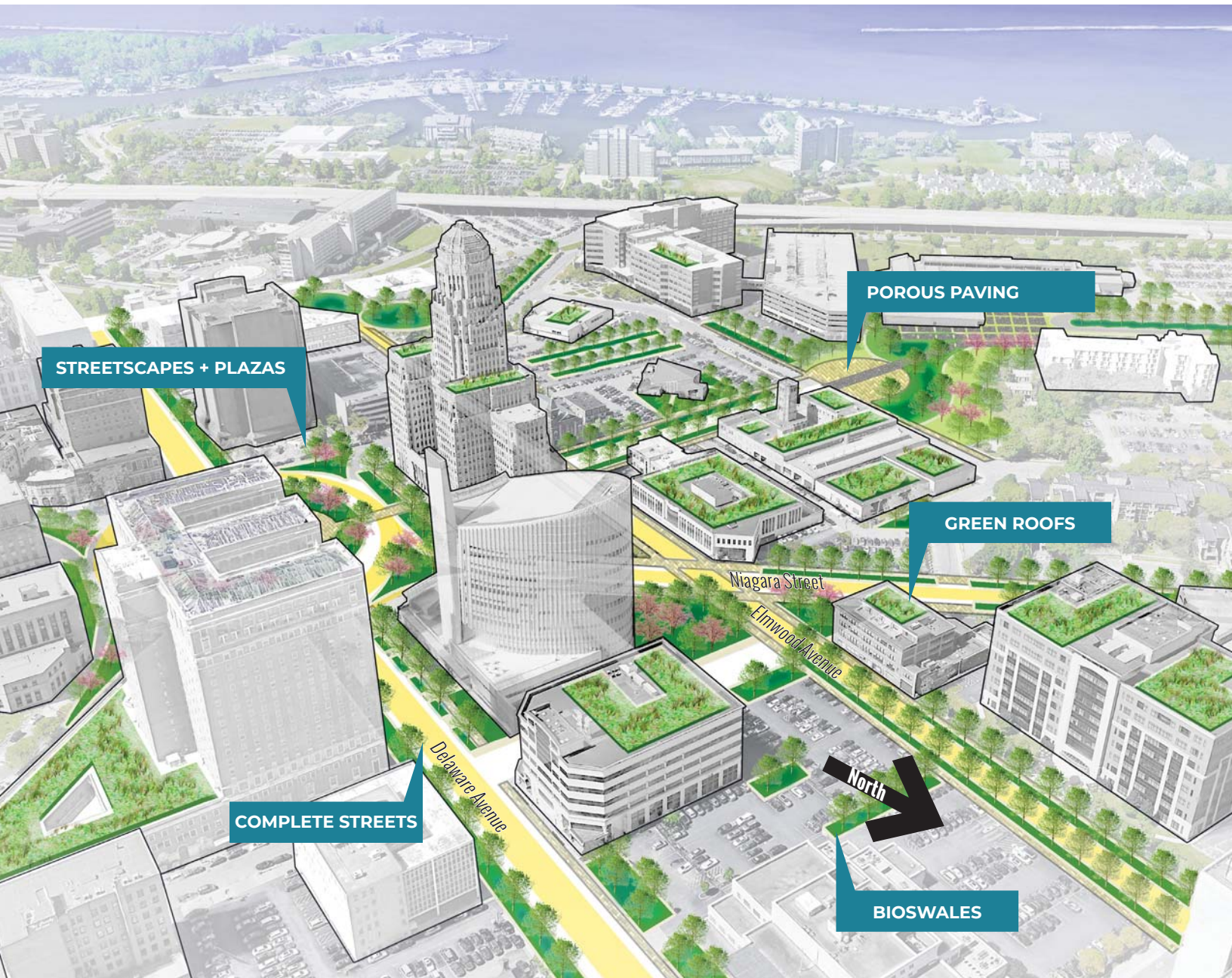


Figure 14.5: Downtown Buffalo Green Infrastructure Opportunities

ANALYSIS

Urban Character

The boundaries of CSO Basin 14 intersect with two City of Buffalo planning neighborhoods adjacent to the central business district in downtown Buffalo: Columbus and Waterfront. CSO Basin 14 also touches a number of planning areas, which green infrastructure planning and investment could support. CSO Basin 14 intersects the Local Waterfront Revitalization Program Boundary. Investment in green infrastructure in CSO 14 supports this effort to revitalize Buffalo's waterfront. Work in this basin will contribute to the Green Code's goal of improving water quality in the Erie Basin, supporting waterfront development and contributing to the momentum of Buffalo's downtown.

The urban form is characterized by large, tall office buildings, commercial uses and some large open spaces. Given the location of CSO Basin 14 neighborhoods in and around the central business district, the area is home to a mix of government offices, including Buffalo City Hall, as well as law firms and other professional services, hotels such as Embassy Suites and Westin, and numerous restaurants.

Downtown Buffalo is seeing consistently higher numbers of building permits and the heaviest commercial development per square mile compared to the other priority basins. CSO Basin 14 is experiencing the greatest overall development of all CSO basins per square mile.

Several schools are located in the area, but overall the CSO Basin 14 neighborhood area has a significantly smaller share of neighborhood groups and community institutions such as schools, religious buildings, and community centers compared to the other priority basins. This may be the only instance where it is a misnomer to characterize the priority area as a "neighborhood area." Still, the area is considered home to about 4,400 residents.

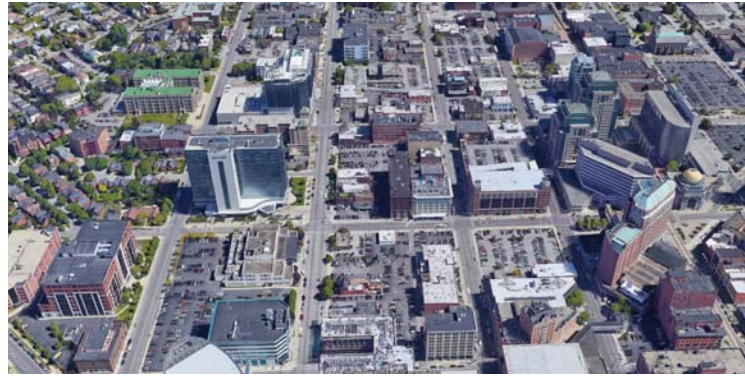


Figure 14.6: Downtown has many wide streets with many lines, Elmwood, Delaware, and Huron streets are seen here.

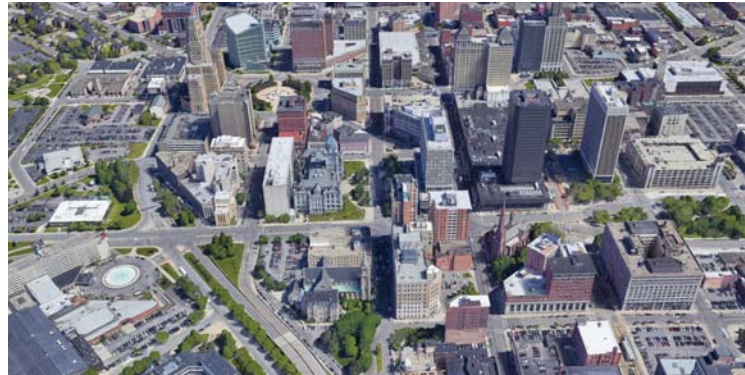


Figure 14.7: Downtown Buffalo has many high rise buildings and surface parking-lots leading to high levels of storm-water runoff.



Figure 14.8: Buffalo Bison's Baseball Stadium is one of many important cultural nodes downtown.



Figure 14.9: Down Town Institutions: Blue Cross Blue Shield of Western New York, City Hall

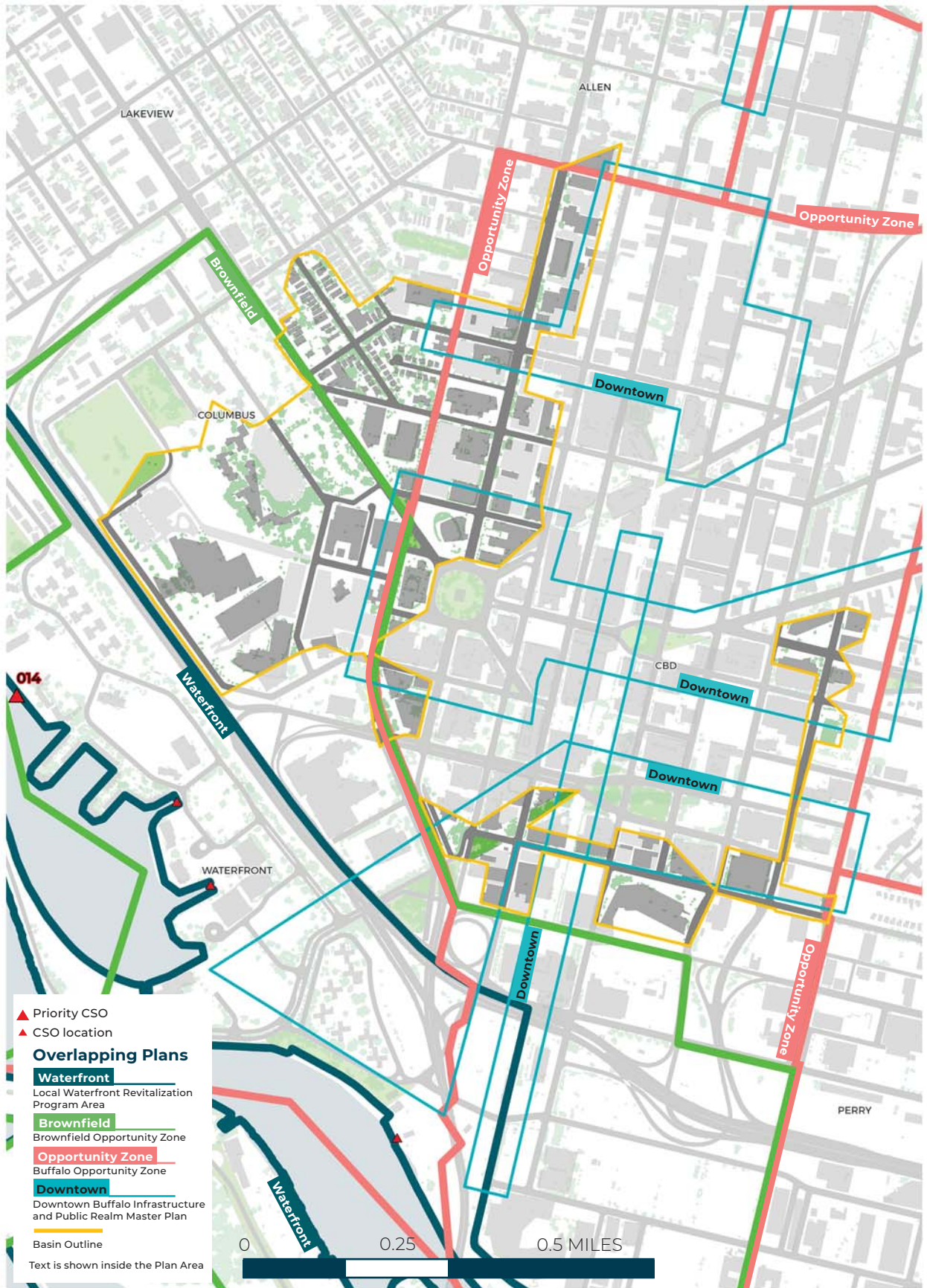


Figure 14.10: CSO Basin 14 Planning Map

ANALYSIS

Equity Analysis

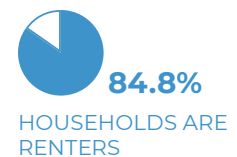
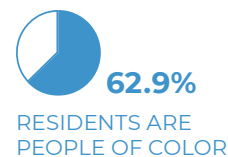
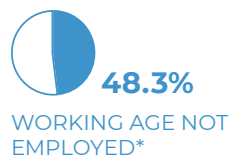
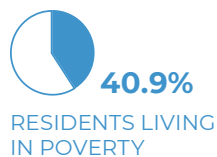
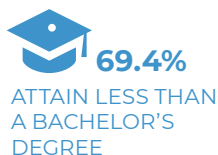
Unlike some of the other priority areas where there is a predominance of one racial or ethnic group, CSO Basin 14 neighborhood areas have significant racial and ethnic diversity with relatively similar shares of White, Black, and Hispanic or Latino residents. One in five households speak Spanish, and 9.3% are limited English speaking—more than double the city rate. While overall measures of economic vitality for CSO Basin 14 neighborhoods such as median household income and unemployment rate are comparable to the City overall, there are considerable racial equity gaps. For example, the overall unemployment rate of 7.7% among residents in the area is lower than across the City, but the unemployment rate is 15.4% among residents of color.

Given the location of CSO Basin 14 adjacent to the central business district, land uses and business mix reflect that of a downtown. The basin has high impervious surface coverage, along with a small tree canopy footprint. CSO Basin 14 also has the highest traffic volumes among targeted CSO basins, due to commuter traffic and major highways nearby. Being in the active downtown area, CSO Basin 14 has the smallest

share of vacant land cover and lowest vacancy rates of any targeted basin. The overwhelming majority (85%) of housing units are renter occupied, and there appear to be relatively few community-based organizations and neighborhood groups in the area.

While the need for green infrastructure is high based on the high percentage of impervious surfaces and presence of disadvantaged population groups, the feasibility of many green infrastructure investment options may be relatively limited, due to factors such as low owner-occupancy rates and a smaller amount of vacant land. Therefore, this is likely an area where engagement with public and private sectors may be the top priority or strategy, rather than a more community-based planning process.

Neighborhood Profile Snapshot



The data presented is for census tracts located within or that intersect the CSO basin boundaries, as an approximation of neighborhoods (see Appendix A for more details and methods)
*Includes those that are unemployed or out of the labor force.



Figure 14.11: CSO Basin 14 and GI Equity Index

ANALYSIS

Environmental Systems

Waterways

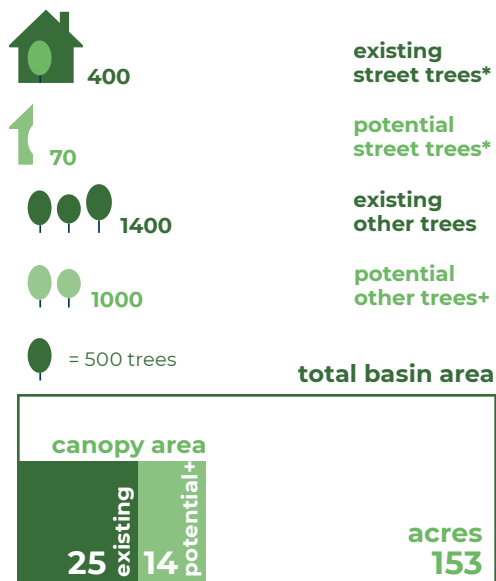
CSO Basin 14 is located along lake Erie and north of the Buffalo River. The CSO basin discharges to Erie Basin. Erie Basin's status as a highly active recreational area made this basin a priority for stormwater runoff reduction targets. Currently the I-90 expressway and private developments make the waterfront feel separate and less accessible. Using stormwater improvements to increase the downtown's feeling of connection with water could be one strategy to break down some of this perception of separation.

Tree Canopy Cover

Tree canopy cover in CSO Basin 14 is slightly higher than the City average. Some planted patches exist near parks and along wide streets, but are not pervasive. There are plantable acres and street tree planting spaces available, to further expand canopy cover in the future.

Tree Canopy Summary

NUMBER OF TREES IN BASIN



Sources: *City of Buffalo MyTreeKeeper data, +U.S. Forest Service protocol with input from the Tree Technical Advisory Committee. For detailed description of methodology, see Appendix C

Habitat Connectivity

CSO Basin 14 has a few isolated patches, but no corridors. Enhancing street tree planting in corridors is the most likely strategy to increase habitat connectivity. There are several parks or large lawns downtown that could be more heavily planted with shrubs and trees. For buildings where it is feasible, green roofs can also help to increase resting space for birds. Strategies like pollinator corridors and parking lot bioswales may also be viable techniques.



Figure 14.12: There is little urban habitat downtown, but increasing the open space network along the lake edge between Times Beach Nature Preserve to La Salle Park would be a valuable addition.

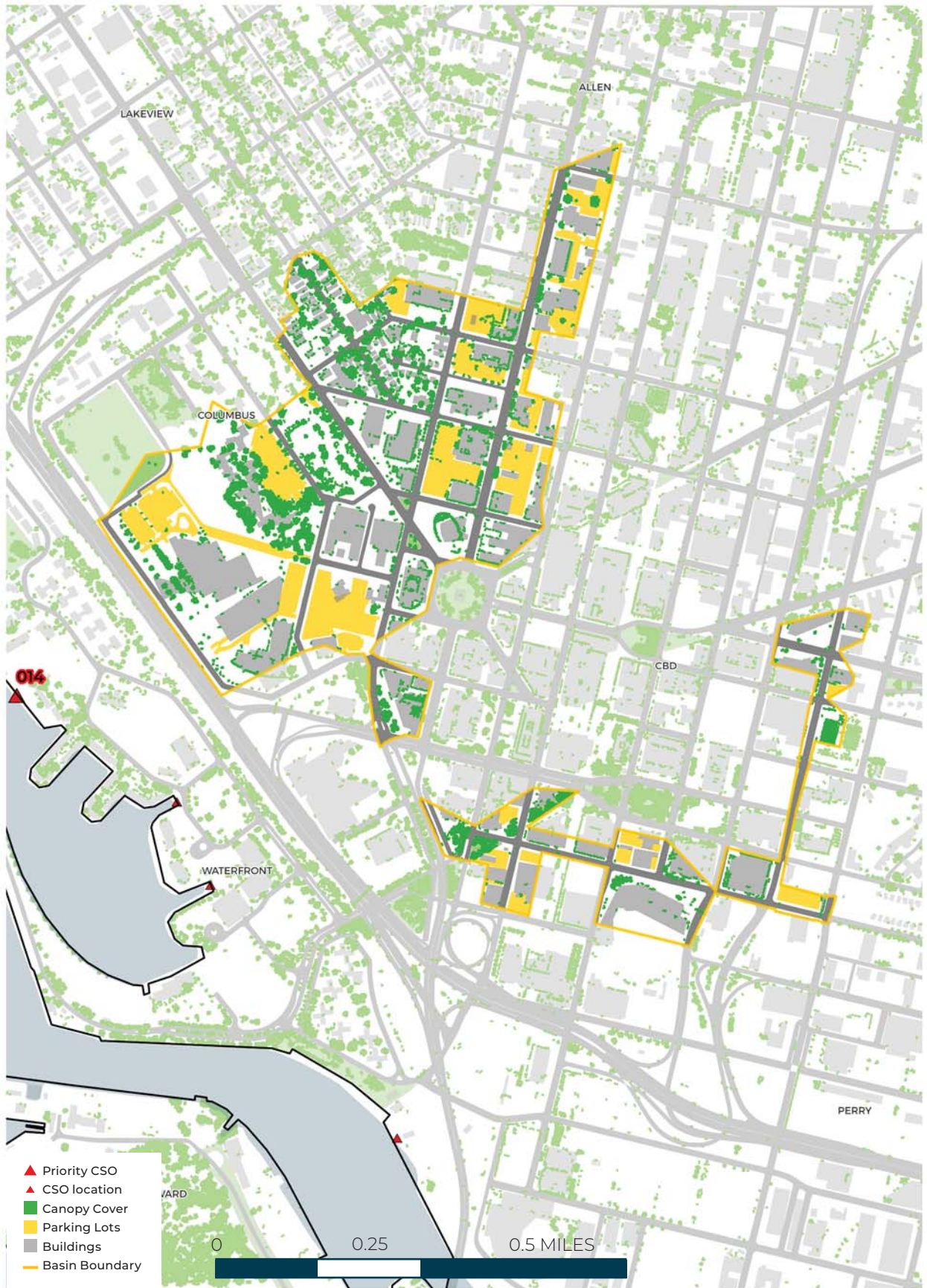


Figure 14.13: CSO Basin 14: Canopy Cover and Impervious Surfaces

ANALYSIS

Site Analysis

CSO Basin 14 is the smallest drainage area of all the priority CSO Basins and is located on the edge of the downtown region of Buffalo. The street grid is tighter here than in other areas of the City and historic buildings with large footprints occupy most of the blocks in the city center. Despite the dominance of large commercial buildings and parking surfaces, space is available for green infrastructure improvements.

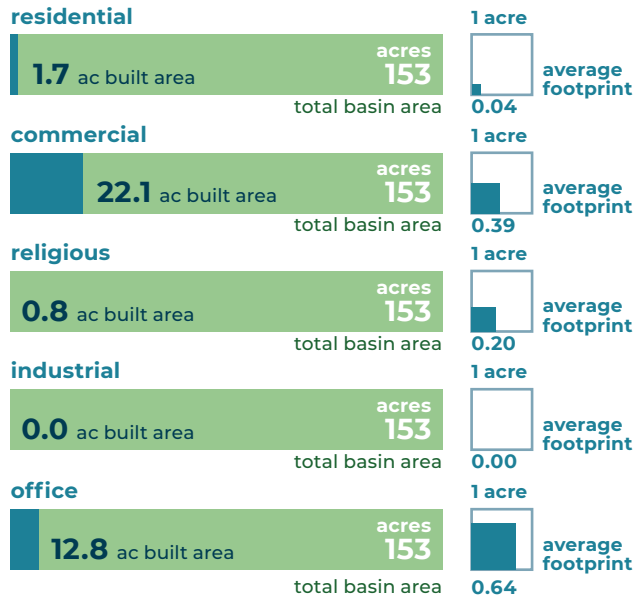
The CSO goal for impervious acres managed is also the lowest of all evaluated basins at 12.9 acres, about 8% of the total area. The greater part of the entire basin was surveyed as part of the site analysis process. Thus there is a high level of confidence that the CSO goals can be met.

Land use is mostly commercial and, to a lesser degree, city-owned land. An important advantage of city-owned land is that green infrastructure can be used to activate publicly funded public spaces. Existing public spaces include streets, sidewalks, intersections, and a larger public park to the northwest. High quality park space is limited in the downtown, so green infrastructure could benefit the existing park with additional plantings, and improved sidewalks or paved surfaces. These improvements could capture water and be welcoming for visitors representing Buffalo as a high functioning and sustainable city.

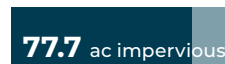
Opportunities for partnerships with top property owners could have a big impact on limiting impervious surfaces. Blue Cross/Blue Shield, Waterfront School, and the Buffalo Bisons' Stadium are top candidates for green infrastructure improvements.

Built Area by Land Use

Full Basin Area, GIS sources: Erie County data, Buffalo Sewer Authority data



The site analysis reviewed **59% of the basin and found 25.5 acres of potential drainage area.**



of the sites were suitable for green infrastructure.



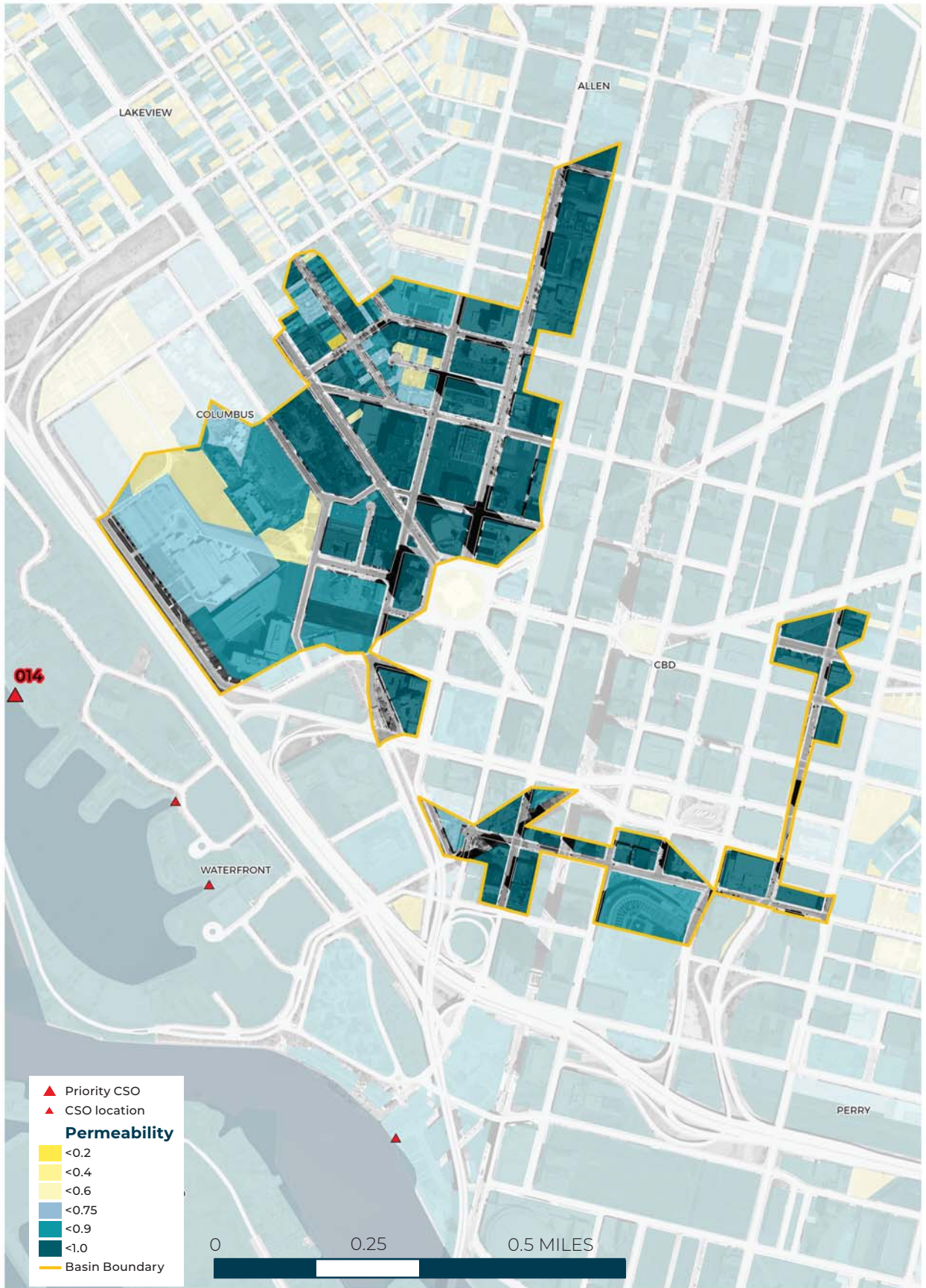


Figure 14.14: CSO Basin 14: Percent Impervious cover by Parcel

Site Analysis: Surveyed Properties

Surveyed Properties by Land Use and Ownership

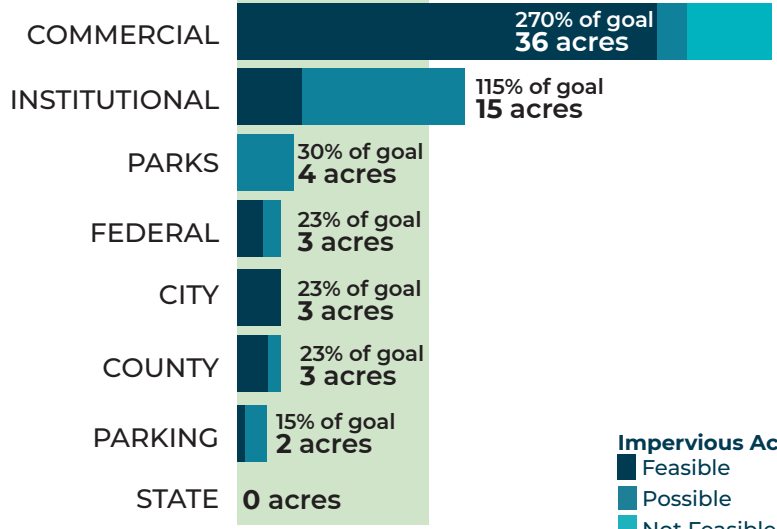
GIS sources: Erie County data, Buffalo Sewer Authority data



Figure 14.15: Examples of sites surveyed.

CSO14

GOAL
13 acres runoff reduction



Impervious Acres
■ Feasible
■ Possible
■ Not Feasible

LARGEST PROPERTY OWNERS BY LAND USE AND OWNERSHIP

COMMERCIAL
 Blue Cross/Blue Shield of WNY
 6.0 Imperv. acres
 New Era Store
 2.4 Imperv. acres
 Delaware North Building
 1.7 Imperv. acres
 Embassy Suites by Hilton
 1.6 Imperv. acres
 The Benchmark Group
 1.6 Imperv. acres

INSTITUTIONAL
 AllPro Parking Lot (Elmwood)
 1.4 Imperv. acres
 St. Anthony's Parking
 1.2 Imperv. acres
 Lot 23 Parking
 0.6 Imperv. acres
 Swan Street Parking
 0.5 Imperv. acres

SURVEY NOTE:
 The survey team reviewed most sites intersecting the perimeter of the basin resulting in a surveyed area greater than the basin area. This is reflected in the survey summary numbers on this page.

Many different types of parking lots were surveyed in CSO Basin 14, including open lots and parking adjacent to a building.

From this, the team was able to discern if green infrastructure locations can address urban issues such as walkability and make recommendations for bioswales and tree pits to provide shade and make comfortable outdoor rooms. These recommendations are discussed on the opportunity pages.

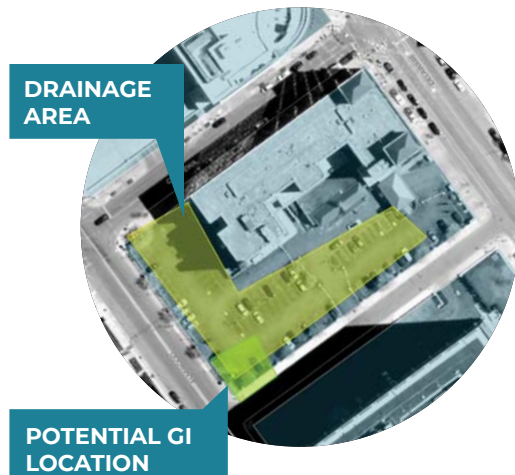




Figure 14.16: CSO Basin 14: Sites analyzed showing parcels, drainage areas and potential green infrastructure.



Figure 14.17: CSO Basin 14: Basin outline on aerial

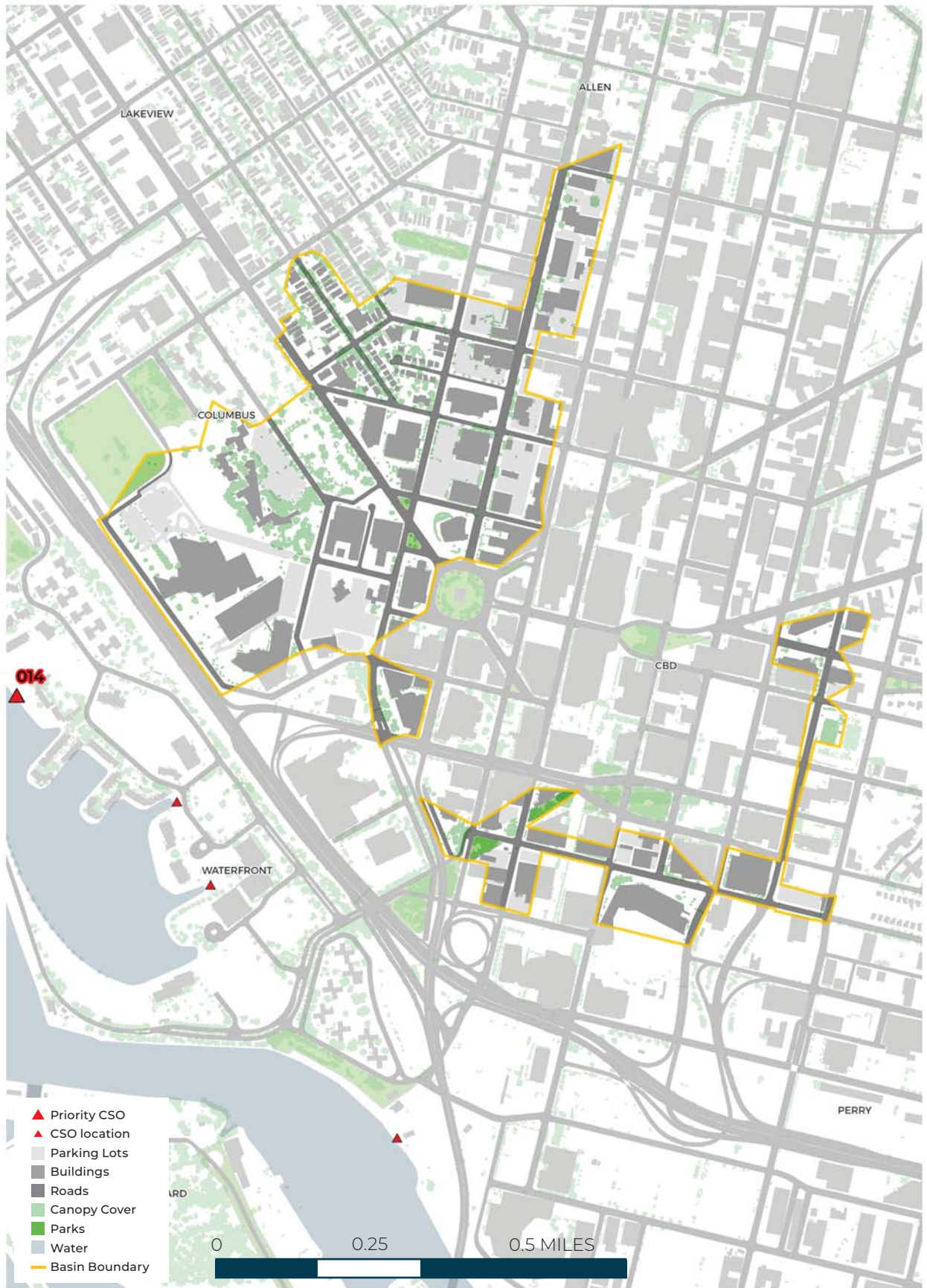


Figure 14.18: CSO Basin 14 Map of Built Environment and Tree Canopy