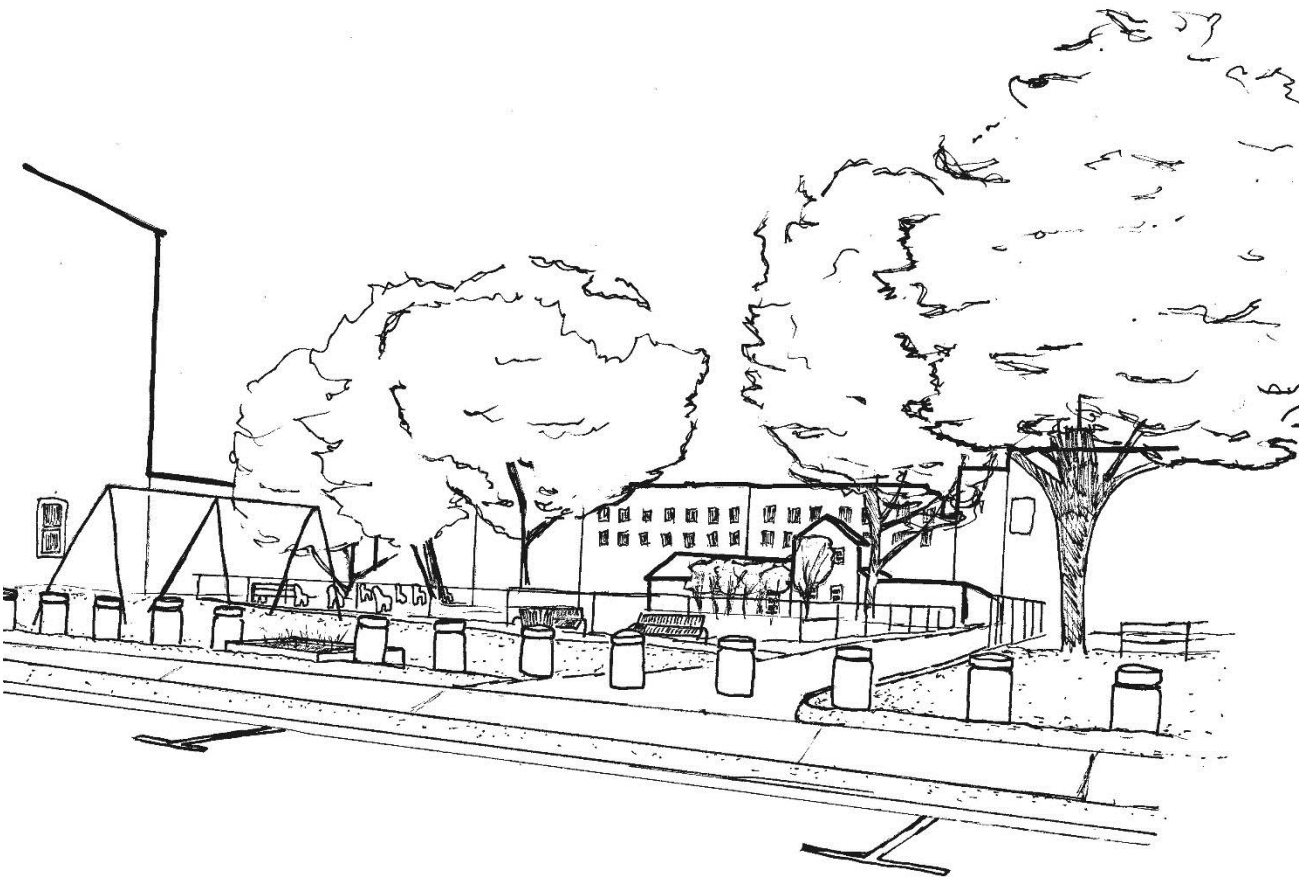
The City of Holyoke

Open Space and Recreation Plan 2019–2025



Acknowledgments

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Without them, this OSRP would not be possible.

First and foremost:
Residents of Holyoke

Special thanks to:
Andrew Smith, Director of Conservation and Sustainability

Holyoke's City Government Staff:
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Photo courtesy of The Trustees of Reservations.

Stretching from the peaks of the Mount Tom-East Mountain range to the banks of the Connecticut River, from the fields of west Holyoke to the old mill buildings and the dam, Holyoke is a city that encompasses a remarkable diversity of character. Over 35 percent of the city is now under some form of protection, preserving the natural assets like the Mount Tom-East Mountain range. It struggles with many long-term challenges including a large population living below the poverty line, the environmental hazards associated with decaying mill buildings and former industrial sites, combined sewer overflow infrastructure, and limitations in municipal staffing and funding. However, the narrative of Holyoke is changing from one of decline to one of growth. The population has expanded slowly since the 2000 census and the City is committed to investments in open space and recreation improvements. This Open Space and Recreation Plan (OSRP) documents the current needs and visions of residents and City officials and proposes specific actions to increase the overall quality of life for residents of this historic, complex, and resilient city.

Feedback from residents, community organization leaders, and City officials and commissions shows strong support for the City's existing work to protect and preserve the Mount Tom-East Mountain range and the safety of Holyoke's drinking water resources. Holyoke residents treasure the ecological value of these areas and their scenic quality and recreational use. They also expressed a strong desire to improve the quality of city parks, especially in the downtown core, often sharing their perception that many parks are unsafe, unwelcoming, or not well-cared for. Generally, residents desire safe and easy access to scenic areas not just on the range, but downtown and along the river as well. Additionally, reducing language barriers to recreational programming and outreach is critical for the large Spanish-speaking population and majority Hispanic or Latino population. While this OSRP integrates feedback from many sources, it also suggests additional outreach to underrepresented wards to ensure that this update and future planning and design efforts reflect the needs of all residents.

This plan compliments other City plans written in recent years which advocate and recommend methods for economic growth, green infrastructure implementation, increased urban tree canopy cover, bike and pedestrian pathway improvements, and the preservation and expanded use of the historic industrial downtown core. The forthcoming Community Preservation funding and Municipal Vulnerability Preparedness plans will supplement this OSRP update and will inform the City's approach to land and climate change resilience planning.

The analyses and recommendations that follow offer a guiding framework for City and community member actions relating to land protection and management, environmental hazards, park and recreational programming, maintenance, and community involvement for the coming seven years.

This Open Space and Recreation Plan envisions a future Holyoke where:

- Natural resources are protected and enjoyed by all;
- Parks and recreation facilities are safe, high quality, and enjoyed by all;
- A broad array of recreational programs and opportunities are available for people of all ages, abilities, and socioeconomic backgrounds; and
- Open space is an integral component of community development at the neighborhood, city-wide, and regional scale.

Section 2. Introduction

Photo courtesy of John Phelan.

2.1 Statement of Purpose

The 2012 Open Space and Recreation Plan tasked the City with the following: "to seize its positive momentum and chart a course forward for the next several years" (City of Holyoke 2013b 5). Holyoke has a rich history; an exceptional wealth of scenic, natural, cultural, and recreation resources; a population which has seen growth after decades of decline; and a government determined to revitalize the economic vigor of the city. The mission in 2012 is still very relevant today and this document and the proposed action plan attempt to address this moment in the history of the city's growth, the current needs of this growing population, its shifting demographics, ongoing economic revitalization efforts, and the city's existing natural resource richness.

The range of ecosystems within the city—from floodplains around the Connecticut River to the bluffs around the Mount Tom-East Mountain range—create a wealth of ecological and biological diversity uncommon for a city of Holyoke's size. The City's past planning and stewardship efforts have protected more than 35 percent of the city's total land area. The City owns 62 parks and recreation facilities, providing playgrounds, splash pads, sports fields, picnic areas, and trails to residents. The City, public and private organizations, businesses, and individual citizens work to connect residents with open space and recreational resources at their doorsteps.

Efforts taken by the City since the 2012 OSRP have greatly enhanced recreational and open space options in Holyoke. One example, Community Field, reopened in 2012 after undergoing a substantial $3.1 million renovation. The park is now open all year with a field and playscapes used in warmer weather and an outdoor, refrigerated ice skating rink for colder seasons. It also features a dog park, warming house with restrooms, picnic tables, and a pavilion.

This plan seeks to continue this momentum in open space and recreation improvements and includes updated information to further align the City's work with the current needs of Holyoke residents. It is intended to assist elected officials and citizens' groups in the decision-making and planning process, not as a rigid tool, but rather as a guide that communicates the general priorities of the community as they were expressed in 2017–2018. This document provides an inventory of land of ecological, cultural, and recreational value, including permanently protected, temporarily protected, and unprotected parcels. It examines and catalogues unmet recreational and resource protection needs and provides guidance on how the City can maximize limited resources to best meet Holyoke's open space, conservation, and recreation goals.

Open Space

Open space is a flexible term. It refers to land that is undeveloped or lightly developed which may be publicly or privately owned, open to the public or not, and used for active or passive recreation or not. This ranges from protected watershed land, to golf courses, to urban green spaces such as public parks and traffic medians.

This plan occasionally refers to public parks and open space simultaneously, at which time "open space" signifies tracts of open land that are not maintained parks.

Through adoption of this OSRP, the City is proactively working to preserve and protect its natural, cultural, and recreational resources—those aspects of Holyoke essential to quality of life, economic well-being, and the long-term ability to exist as a sustainable community able to adapt to environmental challenges and changes. Through collaboration, Holyoke's elected officials, municipal departments, and the larger community can implement the goals and strategies identified in this plan. Funding will not currently be available for all of the strategies identified, but flexibility, creativity, and broad community support can help to successfully implement the highest priorities.

2.2 Planning Process and Public Participation

This plan updates and builds off of earlier OSRPs (1999, 2005, and 2012) and on other community assessments and planning documents, including but not limited to: *City of Holyoke Natural Hazards Mitigation Plan Update* (Holyoke Hazard Mitigation Planning Committee. 2016), *Connect. Construct. Create. A Plan for the Revitalization of Center City Holyoke* (Devoe et al. 2012), *Community Based Assessment of Urban Forestry Conditions* (Davey Resource Group 2014), *Holyoke Bike Network Plan* (PVPC 2016), and the *Holyoke Community Report 2017* (Montenegro-Menezes and Stromsten 2017). This OSRP was written under the direction of Conservation and Sustainability Director Andrew Smith.

The public outreach process to gather data for this update began in 2017. A survey was disseminated in English and Spanish online through the City's website and social media, to teachers at Holyoke High School and Holyoke Community College (HCC), to various community organizations, and via printed inserts in Easter eggs at the 2017 Parks and Recreation Easter egg hunt. The survey remained open through March 2018 and 151 residents of Holyoke submitted responses (there were no Spanish-language responses), most of which were collected in early 2017.

In 2018, the City contracted with three graduate students—Tamsin Flanders, Taurean Gagnon, and Alison Maurer—at the Conway School to complete the public participation process and to draft the OSRP update. Their process began by interviewing City officials from Planning and Economic Development, Parks and Recreation, and the Conservation Commission to understand their priorities and the status of actions proposed in the 2012 OSRP. Feedback from Mayor Alex Morse and from the Department of Public Works (DPW) given during the Community Preservation Act planning process also inform the plan.

Andrew Smith held a public meeting in April 2017 and with the Conway team hosted a second in February 2018. The first meeting was held at Wistariahurst Museum, attended by 20 people and feedback was collected about open space needs in Wards 1 and 2, bike and pedestrian concerns, city forestry goals, and parks improvements. In February 2018, the Holyoke Public Library provided space to the team for a tabling event to gather input for the OSRP action plan and to promote the public meeting. The second public meeting, held at the Holyoke Health Center with an attendance of six people, presented a draft action plan for discussion. Attendees included two city councilors and a mix of longtime and new residents.

Above: Taurean Gagnon from the Conway School and local resident Oscar look over materials prepared for the meeting. Photo by Tamsin Flanders.

Below: Community meeting attendees discuss the recommendations of the OSRP on February 28th, 2018, at the Holyoke Health Center. Photo by Taurean Gagnon.

2.3 Enhanced Outreach and Public Participation

The OSRP update team selected the Holyoke Public Library and the Holyoke Health Center as prime locations for outreach events, hoping that the position in the center of downtown would reduce access barriers to residents living in Holyoke's Environmental Justice area (see section 3.3.2). Childcare and Spanish translation were provided and noted in the events' advertising. All advertisements and survey/questionnaire materials were written in English and Spanish.

To supplement these events, the Conway students reached out to targeted community organizations such as Holyoke Rows, The Trustees of Reservations (The Trustees), and the Care Center to speak with community leaders about their perceptions of Holyoke residents' needs. These community leaders shared information about how their constituents use open space and recreational opportunities and where the gaps or needs might be. While there was limited direct feedback from residents in the Environmental Justice area of Holyoke, these non-profit leaders and the city councilors in attendance at February's public meeting were able to provide valuable information about their communities that was applied to the development of this document.

There is room for improvement in how feedback is collected to ensure it represents a full cross-section of Holyoke. Survey responses came primarily from residents in the Highlands and Elmwood neighborhoods. The resulting lack of input from the lower wards on specific open space and recreation perspectives and requests asked for in this questionnaire suggests that other means of gathering detailed information about resident needs is necessary. The City employee(s) or committee responsible for the monitoring and implementation of this plan should consider continuing public outreach efforts to increase representation from the lower wards and to assess if their feedback necessitates adjustment of the document's action plan at a later date.

Section 3. Community Setting

Photo courtesy of Paul Cooper.

3.1 Regional Context

Situated in the center of Hampden County, Holyoke is closely tied to the region through transportation infrastructure and natural and scenic resources that extend beyond city boundaries and are enjoyed by surrounding towns. One of the largest cities in the area, Holyoke plays an important role in regional planning efforts that impact the Pioneer Valley as a whole.

Holyoke, Massachusetts, is a small, post-industrial mill city (22.8 square miles) located in the western portion of the state along the Connecticut River. Part of Hampden County, it is the third largest town by population in the county following Springfield and Chicopee. The city sits to the west of Chicopee and Springfield and east of Westfield, Southampton, and Easthampton. Northampton borders Holyoke to the north and West Springfield is directly south (see Map 1).

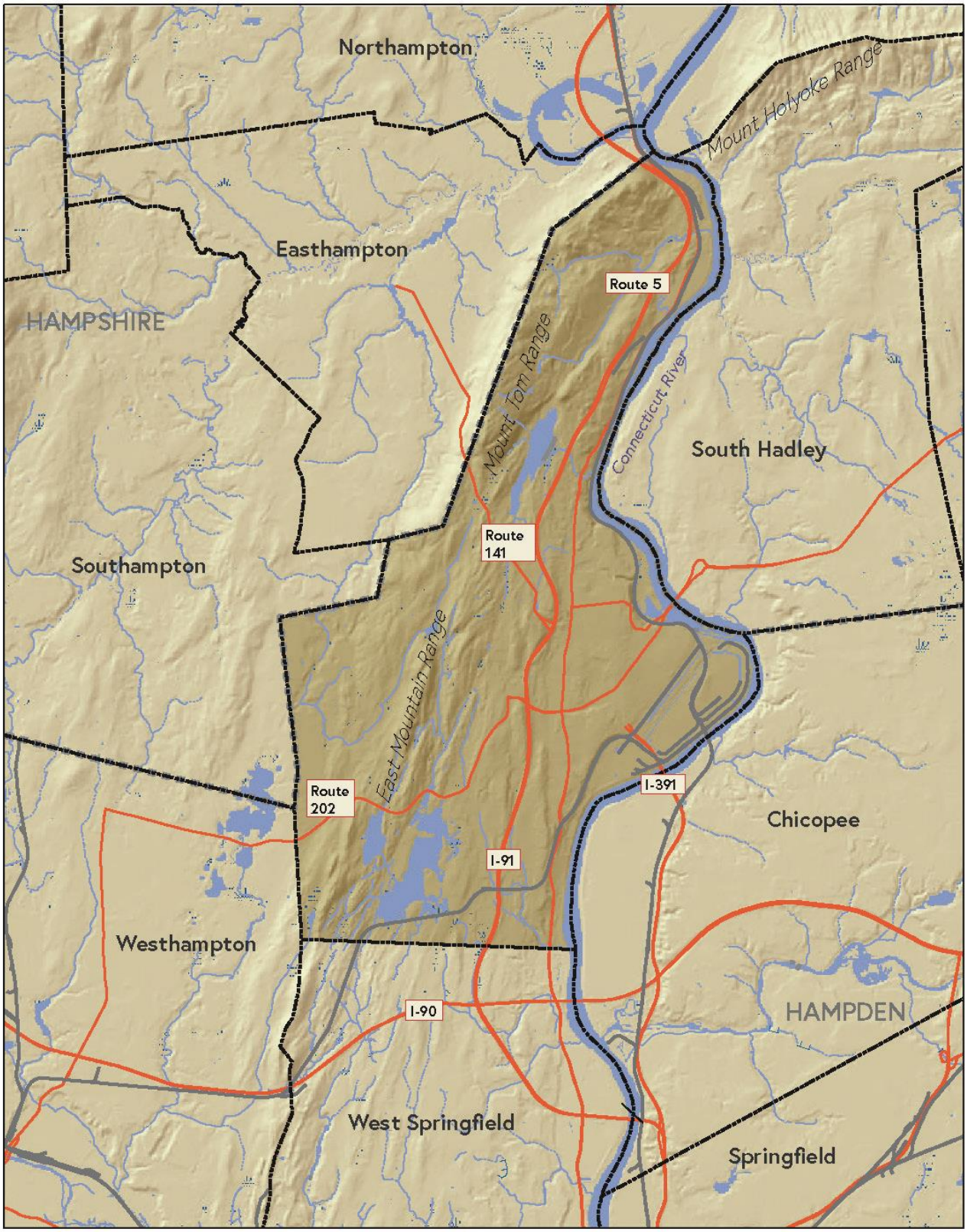
Holyoke lies in the basin of the Connecticut River Valley, in the center of what is known as the Pioneer Valley. A unique volcanic mountain range, referred to here as the Mount Tom-East Mountain range, runs southwest to northeast through the length of Holyoke, continuing east of the river as the Holyoke Range. Hills rise gradually in both directions beyond the valley floor, forming the Berkshire Plateau to the west and the Worcester Plateau to the east.

Interstate 91 cuts north–south through the city just east of the Mount Tom-East Mountain range and intersects with east–west running highways 141 and 202 and finally with Interstate 90 just south of the city boundary. The intersection of Interstates 91 and 90 lies close to the Holyoke Mall, a large shopping center in southern Holyoke that draws consumers from the greater region.

By car, Holyoke is just an hour and a half away from Boston, three hours from New York, and thirty minutes north of the Bradley International Airport. Amtrak's Vermonter line connects Holyoke to Washington, D.C., Philadelphia, New York City, and up to northern Vermont, while the Pioneer Valley Transit Authority locally serves residents and twenty-three other towns in the vicinity. Finally, the New England National Scenic Trail runs along the tops of Mount Tom and East Mountain, tying Holyoke and its scenic resources with forty-one communities from Connecticut to the New Hampshire border.

Holyoke is home to environmental resources ecologically and recreationally significant to the region, including the Connecticut River, the Mount Tom-East Mountain range, and the Barnes Aquifer. The Mount Tom State Reservation is used by many throughout the region and beloved by Holyoke residents. The park offers twenty-two miles of hiking trails and spectacular views from its peaks. The mountain range is also habitat for 59 rare and endangered plants and animals (see Appendix C), one of the most significant concentrations of rare species in western Massachusetts (NHESP 2018). This forested mountainous area is an important wildlife corridor, offering the region's residents both a valuable passive recreational opportunity and the chance to visit diverse and important ecological settings not available in many comparable metropolitan areas.

The Barnes Aquifer, which underlies most of west Holyoke as well as parts of several other towns, is an important public drinking water source for Easthampton, Southampton, and Westfield. In 1988, a few years after contamination was first detected in public wells (see section 4.3.3), Holyoke joined with Easthampton, Southampton, and Westfield to form the Barnes Aquifer Protection Advisory Committee (BAPAC). This group is charged with coordinating water protection efforts among the municipalities to ensure a safe and plentiful regional water supply.



HOLYOKE & SURROUNDING CONTEXT

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

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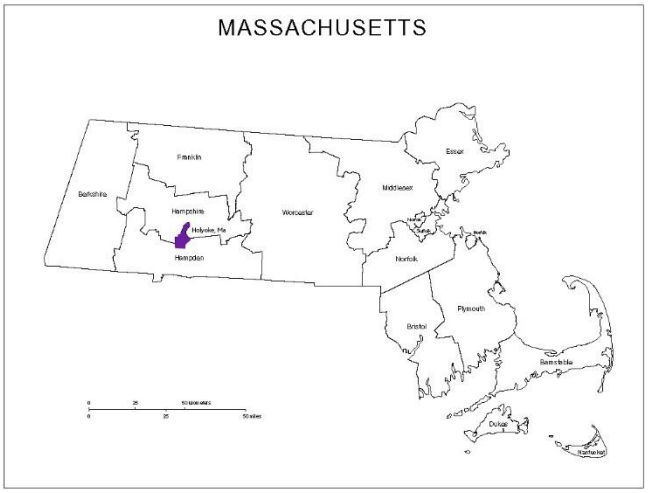


The city is split between two watersheds. The southwestern corner drains to the Westfield River while the rest of the city drains to the Connecticut River basin. It is also the source of several brooks and streams that discharge into surrounding towns. Tannery Brook, for example, has its headwaters in Holyoke but discharges on the Holyoke/West Springfield line. Development decisions in the Tannery Brook watershed in Holyoke have a downstream impact on the Connecticut River and neighboring towns (see section 4.7.3). Paucatuck Brook serves as the source for both Ashley Reservoir and West Springfield's Bear Hole surface water reservoir. The reservoirs in Holyoke, as well as the Tighe-Carmody Reservoir in Southampton serve as the city's drinking water supply, and one reservoir in Holyoke acts as a backup supply source for West Springfield. As a result, ensuring their ongoing clean water supply and protection from potential encroaching development requires collaboration and communication across town lines.

Many regional planning initiatives underway today are relevant to Holyoke and the city's open space and recreation needs. These projects include transportation network planning, open space conservation on a regional scale, and green infrastructure planning. The Pioneer Valley Planning Commission (PVPC) conducts the majority of regional planning efforts that affect Holyoke. PVPC, a public-sector agency sponsored by municipal governments, serves towns in Hampshire and Hampden counties in an attempt to increase communication and coordination of planning to benefit residents' quality of life. While many of PVPC's planning efforts are still current in Holyoke, one focus of the commission recently has been to coordinate the implementation of the ValleyBike Share—bringing residents of Holyoke the opportunity to use publicly owned bikes free of cost within a five-town network. Holyoke is a hub for many of these regional coordinated efforts. The future of this city is tied into the future of the region.

Map 1: HOLYOKE & SURROUNDING CONTEXT

The Mount Tom-East Mountain range and Connecticut River anchor Holyoke into the broader natural landscape of the Connecticut River Valley. Three interstates, a few state highways, and an active train line tie Holyoke into the regional social and economic fabric.

- Major Roads
- Railroad
- Town Boundary
- County Boundary
- Waterways and Water Bodies

3.2 History of Holyoke

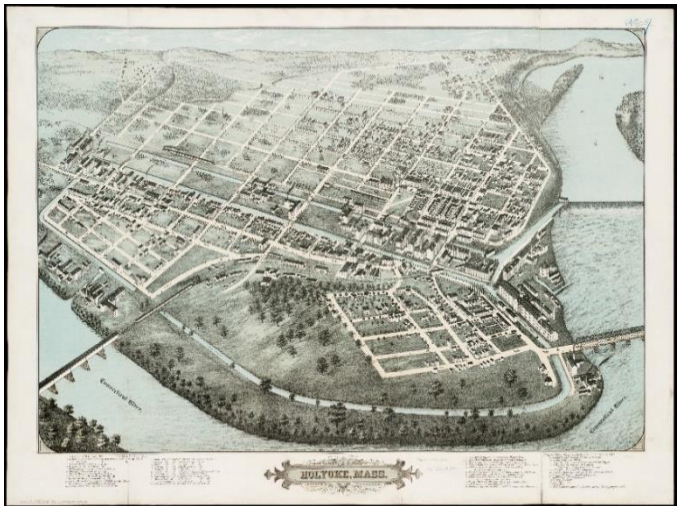
Holyoke's position on the Connecticut River made it an ideal location for water-powered industrial development in the mid-1800s. The city experienced a boom in the late 1800s and early 1900s accompanied by dramatic population growth, especially from immigrant groups seeking employment opportunities in the mills. The legacy of this history remains visible today in the city layout, the land use patterns, and in the types of open space and parks in the industrial downtown.

Before European settlement, the Algonquin and Iroquois tribes hunted and fished the area that eventually became Holyoke. A north–south trail along the eastern base of the mountain range ran along the site of present-day Northampton Street.

English immigrants from Connecticut settled in what is now West Springfield and its third parish, or "Ireland Parish," became Holyoke in 1735. Holyoke was incorporated as a town in 1850 and later as a city in 1873.

Land use in Holyoke was primarily agricultural, though there were several small mills and tanneries in the 1700s. The slow settlement of Holyoke accelerated in the mid-1800s, with the coming of the railroad in 1845 and the building of the Connecticut River dam. The first of several dams was constructed in 1848 by a group of Boston investors to take advantage of the 57-foot drop in the elevation of the river. The water power created by the dam was transferred to industrial sites through an extensive 7.5-mile series of hand-dug canals and raceways that powered more than 25 mills at one point.

Owners of the dam—the Hadley Falls Co.—planned out gridded streets, factory worker housing, city parks, and lots for grander homes for factory owners. This made Holyoke the first planned industrial city in the United States. Though originally intended for textiles, the Civil War cut off the supply of raw cotton to the North and the mills shifted to paper production. At peak production, the mills produced more paper than any other city in the world earning Holyoke the moniker "The Paper City." As a result of the industry's success, the population of Holyoke grew by an astounding factor of ten in the last half of the 1800s, from 3,245 in 1850 to 35,637 in 1890. Though few mills remain active today, the dam, canals, and industrial and commercial architecture remain. The mills, canals, grid layout, and mixed-use development make Holyoke's industrial history an important piece of the city's twenty-first century identity.

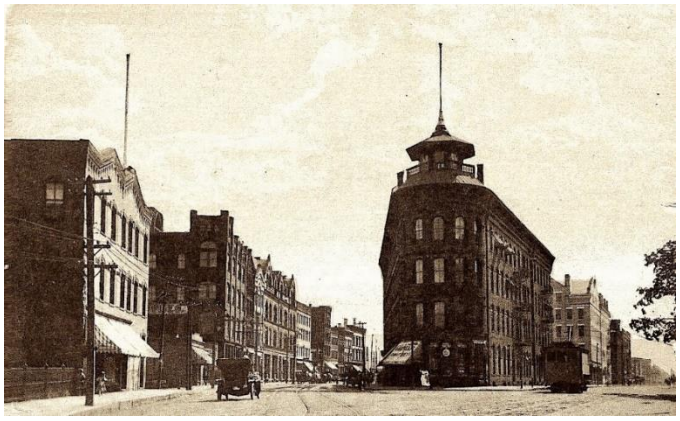


The original city layout, with three canals and grid street system, made Holyoke the first planned industrial city in the US. Photo courtesy of the Holyoke Library.

The rapid population growth in the city was supported, in large part, by immigration from foreign countries seeking employment and a better life. Spurred by the potato famine in 1847, Irish immigrants came to build the canals and work in the early cotton mills; by 1855 they constituted 35 percent of the city's residents. Between 1875 and 1900, most immigrants were French-Canadians, arriving to work in the mills. Poles arrived in the 1890s, followed by German immigrants, who came mostly between 1900 and 1910. Others, including Russians, Orthodox Jews, and Greeks, arrived around 1900 as well. Since the 1960s, an influx of immigrants from Puerto

Rico have settled in the city and now make up 46 percent of the Holyoke's population (see section 3.3 for more information about current city demographics).

With industrial expansion came commercial development centered around High and Maple Streets. Residential development fanned out from the city center north and west into the Highlands, Oakdale, and Elmwood neighborhoods. The buildings in these neighborhoods were single-, two-, and three-family homes, while the neighborhoods immediately adjacent to the mills and downtown (South Holyoke, The Flats, Churchill, and Downtown/Prospect Heights) included many multi-family apartment buildings. West of East Mountain, development was primarily single-family residential with some agricultural land use.

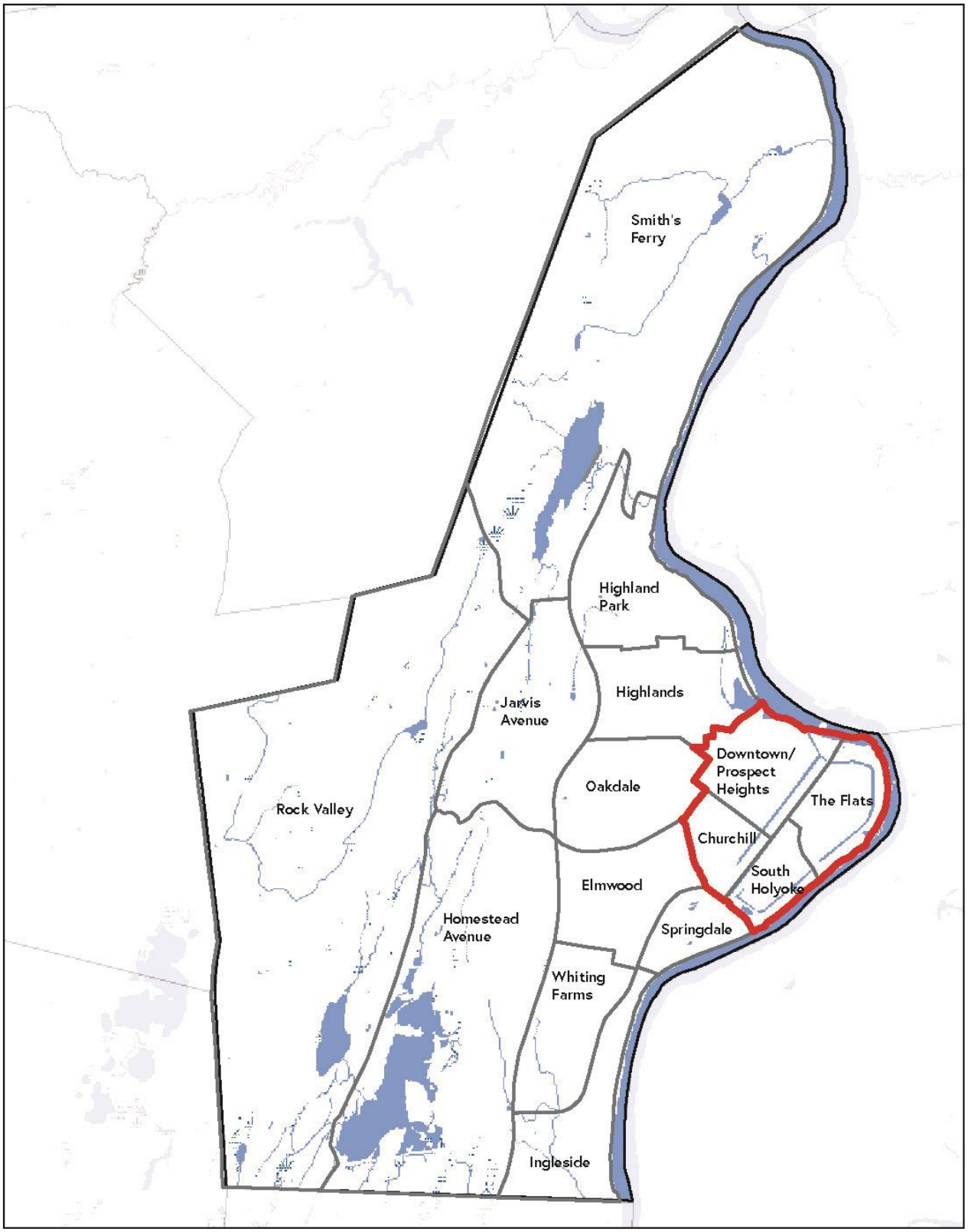


Open space development in the downtown was comprised of small urban parks that served the waves of immigrants. Pocket parks and other community spaces were adjacent to densely settled neighborhoods. Larger parks such as Pulaski and Veteran's Park, became spaces for larger gatherings. Carriage roads and alleyways provided easy mobility for pedestrians and carriages and are woven throughout the developed city. These roads and alleyways still exist today for municipal purpose (for example, trash pickup) and offer unique open space within residential neighborhoods.

Above: Race and Main Street were part of the commercial center in the late nineteenth century, including the original Flatiron building seen on the right. Photo courtesy of Jim and Russ Birchall.

Below: Now Carlos Vega Park, Hamilton Park once featured large garden beds and a place of Victorian leisure. Photo courtesy of Jim and Russ Birchall.

Today, Holyoke strongly reflects its industrial and cultural history, with many of the mills and associated housing still standing in and near the downtown. The city's layout still follows, in large part, the original plan proposed by its first developers. Recent redevelopment and infill has been focused in much of the area between the downtown and the mountains across eastern Holyoke where lots are larger and more suburban. Though some remain in use, many of the retired mill buildings and supporting infrastructure either stand vacant today or have been removed. Current residents advocate for redevelopment in the urban core, promoting its historical density, bringing in new economic opportunities, and improving quality of life for Holyoke residents.



NEIGHBORHOODS

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

3.3 Population Characteristics

While Holyoke has experienced decades of economic and population decline, the 2010 census and 2016 American Community Survey estimates suggest that the city may be growing. Population and demographic data reveal the downtown core to be denser, younger, and the center of a designated Environmental Justice area—residents who are most vulnerable to environmental hazards and who may have the greatest need for safe and accessible open space and recreation opportunities.

3.3.1 Demographics

Table 3.3.1: Total Population

Census Year	Population	Percent Change
1850	3,245	
1860	4,997	+54%
1870	10,733	+114.8%
1880	21,915	+104.2%
1890	35,637	+62.6%
1900	45,712	+28.3%
1910	57,730	+26.3%
1920	60,203	+4.3%
1930	56,537	-6.1%
1940	53,750	-4.9%
1950	54,661	+1.7%
1960	52,689	-3.6%
1970	50,112	-4.9%
1980	44,678	-10.8%
1990	43,704	-2.2%
2000	39,838	-8.8%
2010	39,880	+.1%
2016	40,280	+1.0%

After peaking in 1920, industry began to leave Holyoke and the city's population experienced consistent decline for many decades. However, the 2010 census and subsequent 2016 American Community Survey (US Census Bureau) estimates show a change in the declining trend which dominated the 1900s (see Table 3.3.1). The 2010 Federal Census Data noted a population increase for the first time since 1950 and the 2016 ACS now estimates Holyoke's population at 40,280. City initiatives to attract business and capitalize on Holyoke's urban, rural, and scenic amenities have the potential to increase this population growth trend (see section 3.4.3 for more about the city's Urban Renewal Plan).

Most of Holyoke's 40,280 residents live east of Mount Tom and East Mountain forming a densely populated residential community (see Map 3). In contrast, the western portion of the city is lightly developed and suburban to rural. The population density throughout the city averages 3.9 people per acre and ranges from 0.14 to 17.8 people per acre. In the east, population density is highest in the Churchill neighborhood where residential development strongly dominates. The mixed-use neighborhoods that form the rest of the downtown area follow in density: Downtown/Prospect Heights, The Flats, and South Holyoke. Oakdale, Elmwood and the Highlands, west and north of Churchill, are also relatively densely populated. The Jarvis, Homestead, Ingleside, and Springdale neighborhoods, found west and south of the city center, are slightly more suburbanized and less dense. Rock Valley in the west and Smith's Ferry in the north, partially occupied by

Map 2: NEIGHBORHOODS

Holyoke's 15 neighborhoods range from small and dense around the historic downtown, to moderately-sized in the center of the city, to large in the west and around the mountains. History, demographics, and land use patterns are distinct from one another in each neighborhood.

Neighborhood Boundaries

Downton Boundary

Holyoke Wards

A map of the ward boundaries can be found at:
Holyoke.org/ordinances-maps

Table 3.3.2: Population by Age

Age	1960	1970	1980	1990	2000	2010	2016
Under 5	10%	8.5%	7.1%	9.4%	7.9%	7.7%	8.2%
5–14	16.7%	18.4%	15%	15.6%	16.8%	13.8%	11.7%
15–24	11.7%	15.8%	17.6%	14.5%	13.6%	15.1%	14.5%
25–64	47.7%	42.4%	42.7%	43.7%	46%	49.3%	52%
65 and over	13.9%	15.2%	17.6%	16.8%	15.6%	14.2%	13.6%

Table 3:3.3: Population by Race/Ethnicity

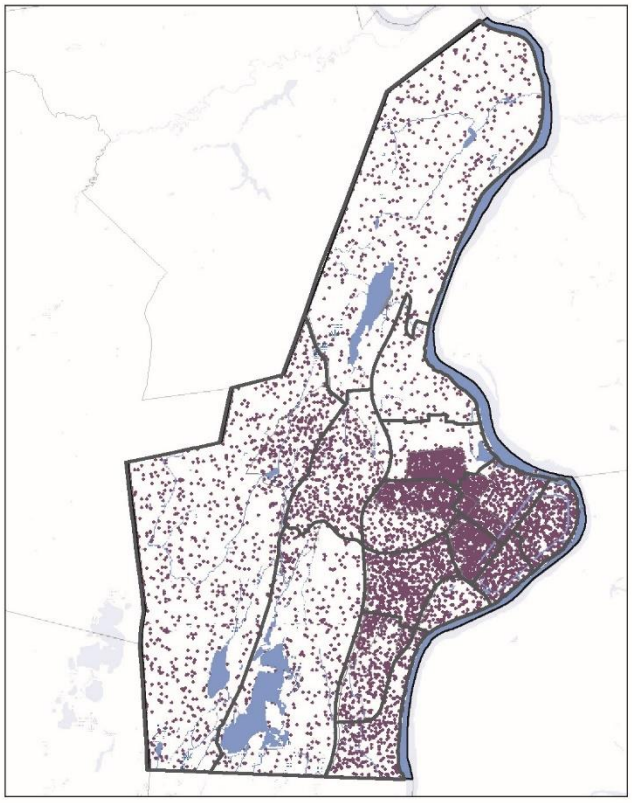
Race/Ethnicity	1960	1970	1980	1990	2000	2010	2016
African-American (non-Hispanic)	1.1%	2.2%	2.2%	2.6%	4.6%	2.4%	3.5%
Hispanic (of any race)	0.1%	3.7%	13.8%	31.1%	41.4%	48.2%	50%
White (non-Hispanic)	98.8%	94.1%	83%	65.3%	54%	47.1%	43.2%
Other	0%	0%	1%	1%	0%	2.3%	3.4%
Race/Ethnicity	1.1%	2.2%	2.2%	2.6%	4.6%	2.4%	3.5%

the mountain range, are the least dense neighborhoods. The dense urban core suggests a greater audience for open space and recreation opportunities in this area and necessitates an assessment of how well existing spaces and programming meet the needs of residents.

Holyoke's overall age composition has remained relatively consistent in the past few decades (see Table 3.3.2). The population under 25 years of age remained around 40 percent from 1960 to 2010, though has dropped slightly according to the 2016 ACS estimate and is currently at its lowest level, 34.4 percent (US Census Bureau). The 25- to 64-year-old population has increased to its highest percentage since 1960, while the percent of people over 65 has decreased. Though the median age remains around 35 percent, median age is slowly rising. The city can expect a robust city workforce for many years, though the need to plan for these residents' long-term recreational needs will increase as they age.

Thirty percent of households have children under 18 years old. The younger populations in the city are concentrated around the four downtown neighborhoods, where the median age is 21 years, significantly younger than the city's overall median age (see Map 4). North and west of downtown the median age increases to 47. Different age populations naturally seek out different recreational opportunities, though research and community engagement are needed to accurately gauge those needs. One example of how the community identifies program needs for a variety of age groups comes from The Flats neighborhood: students from the Morgan Street School identified which parks best corresponded to which grade levels in their neighborhood, assisting community organizers and City officials in planning for the park elements that best suited those age groups (Meier-Zimbler).

The city has been attractive to migrants and immigrants, since the 1870s industrial boom. Though from several different nationalities, incoming immigrants through the 1980s were primarily white (see section 3.2). Since the 1960s, migrants to the city have been largely Hispanic or Latino, the vast majority of Puerto Rican descent. The 2016 ACS estimates that Hispanic or Latino residents have grown to 50 percent of the residents in Holyoke, 3.5 percent identify as African-American, and 43.2 percent as white, non-Hispanic or Latino (see Table 3.3.3).



POPULATION DENSITY

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

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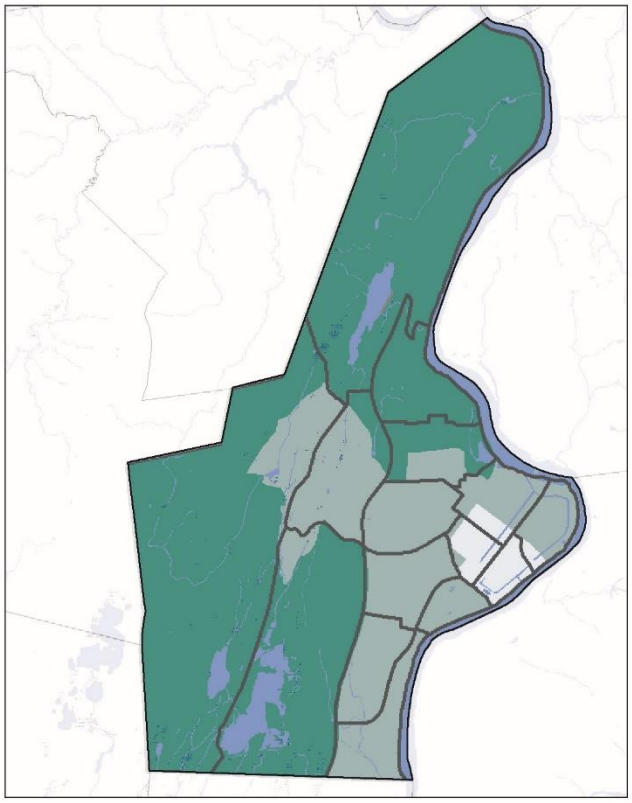
Map 3: POPULATION DENSITY

According to 2010 US census data, the Churchill neighborhood is the most populous in the city. Population density dramatically decreases north, west, and southwest of the city core.

One Dot = 5 people

Neighborhoods



MEDIAN AGE

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

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Map 4: MEDIAN AGE

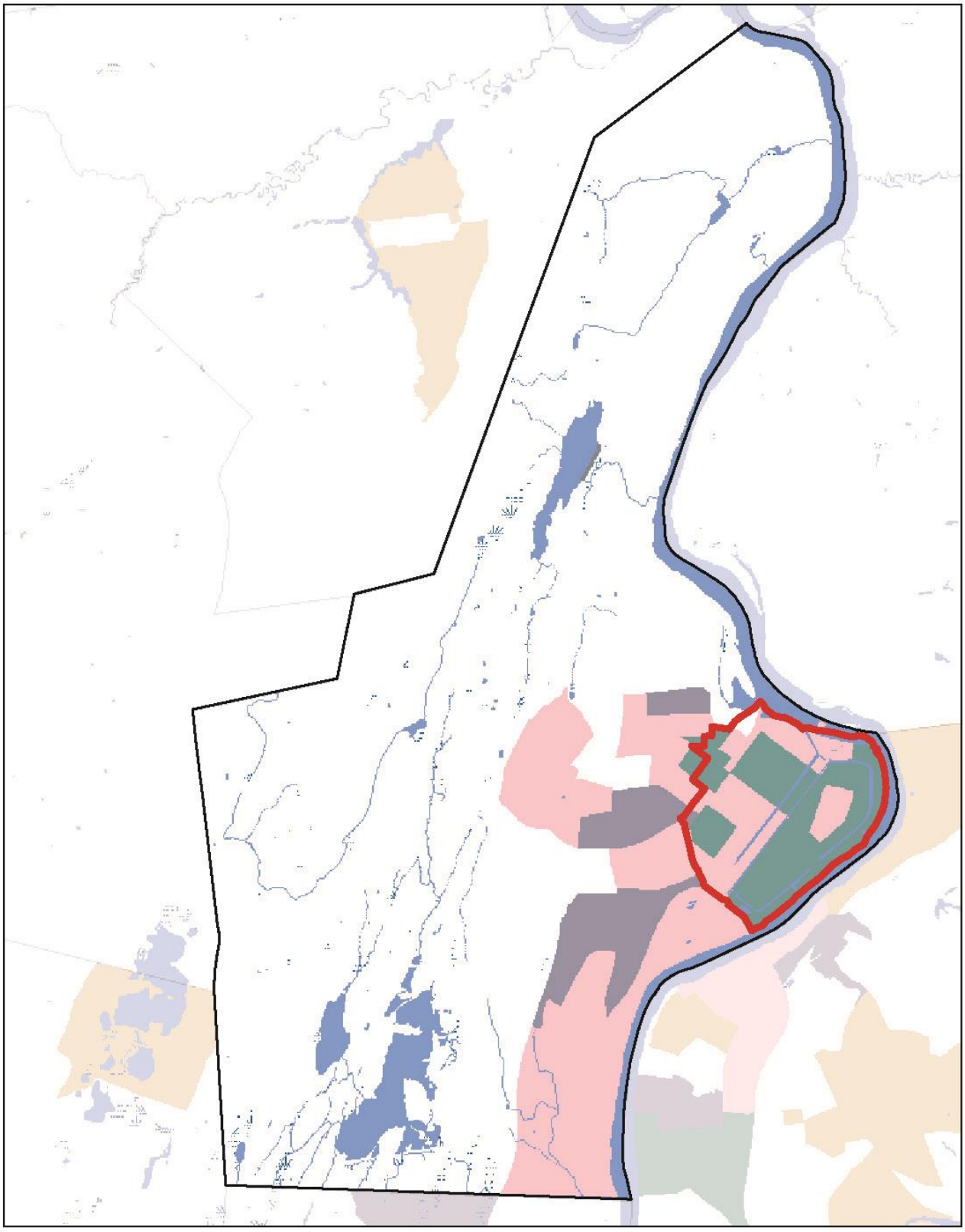
Residents of the Churchill and South Holyoke neighborhoods are on average younger than the rest of the city. The zones where the median age is close to the city's overall median of 35 years roughly correspond to the boundaries of the designated Environmental Justice community (see Map 5).

22-25 Years

25-40 Years

45-60 Years

Neighborhoods



ENVIRONMENTAL JUSTICE POPULATIONS

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

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This majority Hispanic or Latino population is unusual in comparison to Hampden County and Massachusetts racial demographics, which remain predominantly white (see Table 3.3.4). The needs of a multicultural community must be considered in the planning of recreational programming. For example, language barriers should be reduced or eliminated and activities and festivals promoted that are culturally rich, inclusive, and foster pride in the diverse backgrounds of Holyoke residents.

Table 3.3.4: Race/Ethnicity in Context

Race/Ethnicity	Holyoke	Hampden County	MA
African-American (non-Hispanic)	3.5%	7.8%	6.6%
Hispanic (of any race)	50%	23.3%	10.9%
White (non-Hispanic)	43.2%	64.8%	73.7%
Other	3.4%	4.1%	8.8%

Although the median income in Holyoke increased from $31,948 in 2010 to $38,829, income remains significantly lower than the state average of $70,954 (see Table 3.3.5) (US Census Bureau). While the number of Holyoke families living below the poverty line increased between 1980 (19.3 percent) and 2010 (28.4 percent), the 2016 ACS estimate shows a decline in this decade to 25.2 percent. However, this number is nearly double the county rate and triple the estimated statewide average. The high percentage of residents living below the poverty line suggests that there may be financial and transportation barriers to accessing open space and recreation resources and illustrates the critical importance of providing affordable programming and recreational opportunities that ensure accessibility to all residents.

Table 3.3.5: Economic Characteristics in Context

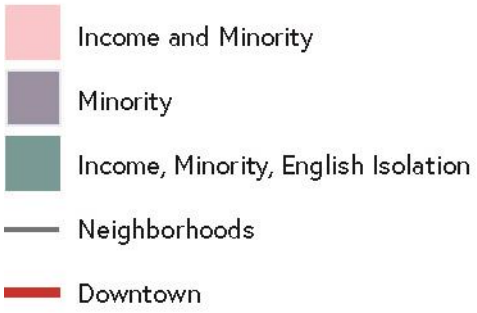
Economic Characteristic	Holyoke	Hampden County	MA
Living Below Poverty Line (families)	25.2%	14.1%	8.0%
Unemployment	6.2%	5.5%	4.6%
Median Household Income	$38,829	$51,005	$70,954

3.3.2 Environmental Justice Community

Approximately 24 percent of Holyoke's total land area—a zone limited to the downtown and southeastern corner of the city—is identified as an Environmental Justice (EJ) community (see Map 5). All three of the qualifying

Map 5: ENVIRONMENTAL JUSTICE POPULATIONS

A portion of residents in much of the eastern half of Holyoke are of a demographic that characterizes them as vulnerable to environmental injustices; those factors are most concentrated in the four downtown neighborhoods.



demographic factors of race, language, and income overlap in Wards 1, 2, and 4. The most dominant factors across this EJ zone are minority status and income limitations. It is worth nothing that these areas also tend to be younger (see Map 4).

Because Holyoke's densest areas are identified as EJ communities, 73 percent of the city's population (or 29,053 people) live within EJ census block groups (MA EOEEA 2010). The state and federal governments identify Environmental Justice groups in order to increase municipal efforts to "ensure their protection from environmental pollution," and to "promote community involvement in planning and environmental decision-making to maintain and/or enhance the environmental quality of their neighborhoods" (US EPA 2018a). To that end, this OSRP update process made deliberate efforts to reach out to these neighborhoods and involve a representative cross-section of residents for full and fair participation by all.

3.4 Growth and Development Patterns

Land use in the city of Holyoke varies widely from the rural west to the historic and highly-developed downtown. The development patterns shaping the land early in the city's history persist today and further development is shaped and limited by the landscape, the extent of existing structures, and zoning ordinances. Redevelopment and infill, especially within the urban core, are the City's current focus for the growth of the built environment. Current infrastructure provides Holyoke with energy, water, and transportation connections to the entire region.

3.4.1 Patterns and Trends

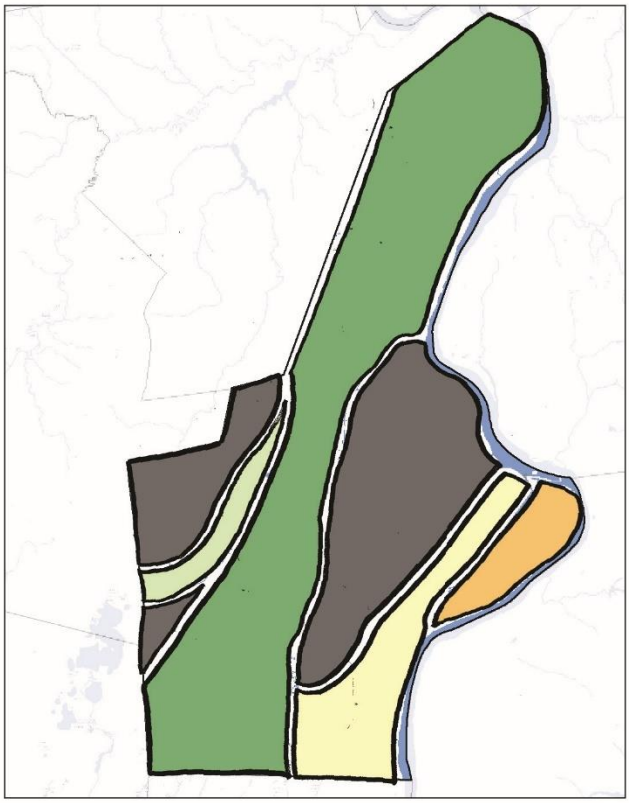
The city began as a farming community but rapidly grew into a dense, industrial urban hub in the second half of the nineteenth century. Holyoke's environmental features have strongly shaped the city's development patterns. The dam provided an abundant source of power to fuel industrial growth, the gently sloping alluvial plains of the river provided land for factories and homes, and the mountain range limited development through the center of the city and separated west from east Holyoke. These patterns persist today. The mountain range and forested land around the reservoirs have remained largely undeveloped, creating a wide north–south band of primarily forested lands (see Map 6). This natural area is bordered to the west by rural farmland and suburban residential development, farthest from the historic industrial center. East of the mountains denser residential neighborhoods house the majority of Holyoke's residents. There is a concentration of commercial land use along High, Maple, Main, and Northampton Streets, but predominantly around the Holyoke Mall and nearby properties in the southeast. Industrial use is located mostly along the canals and adjacent to the Connecticut River, sometimes intermingled with residential development.

Many of the mills that were once the industrial backbone for Holyoke are now the focus of redevelopment, maintaining the legacy of mixed use in downtown. Residential areas with multi-family units are concentrated east of Northampton Street and south of the Highlands neighborhood, while single-family homes dominate the other residential areas. Early planned growth of the city often resulted in the development of neighborhoods during distinct architectural periods and/or for homogenous economic classes that gave some neighborhoods distinct character which is still visible today. The old carriage roads behind many buildings in historic areas of Holyoke are vulnerable to development by business owners which reduces circulation through the alleyways.

The Mount Tom-East Mountain range retains much of its characteristic wilderness, though many different organizations own the properties that compose this natural landscape. City departments, such as Holyoke Water Works (HWW) or Parks and Recreation, own properties dispersed throughout Holyoke, including many parcels around the reservoirs in the southwest and around Whiting Street Reservoir in the north. Mount Tom is owned by a variety of partners though primarily the Department of Conservation & Recreation. The Department of Fish and Wildlife (MassWildlife or DFG) own a number of parcels around East Mountain and The Trustees own a few parcels on Little Tom Mountain and along the river. This mixed ownership allows for collaboration and cooperation in protecting the city's natural and open space resources, but also requires effective coordination and communication.

Holyoke's fast-paced development as an industrial center along with the physical obstacles created by the Mount Tom-East Mountain range resulted in limited availability of easily developable land in the twenty-first century. According to the 2012 OSRP, over ninety percent of the city's land is either developed or protected from development, leaving a mere ten percent of the city's total acreage open to development. New residential development over the last ten years in Holyoke has been slow, a product of depressed economic conditions and the shortage of easily developable land. South of downtown Holyoke, the Holyoke Mall in Ingleside was, at the end of the twentieth century, the primary locus of economic development in the city.

Building permit data reveals that new construction continues in Holyoke regardless of these spatial and economic limitations. Since 2010, there has been consistent growth in City-issued building permits and 737 were issued last year (see Table 3.4.1). Current open permits are concentrated in the eastern half of the city, especially in the city's downtown industrial and commercial core. The Conservation Commission has also reviewed and issued 70 Determinations of Applicability and 26 Notices of Intent for construction around wetlands since 2012. These



Map 6: LAND USE

The city experienced a boom in the late 1800s and early 1900s accompanied by dramatic population growth, especially from immigrant groups seeking employment opportunities. The legacy of this history remains visible today in the city layout, the land use patterns, and in the types of open space and parks in the industrial.

- Open Land
- Agriculture
- Residential
- Commercial and Residential
- Industrial and Residential

permits reflect a broad scale of economic activity that would not normally fall under the purview of the Planning Board and range from infill development, brownfield remediation projects, to large scale commercial developments. While development is limited in Holyoke, there is still economic and development activity, however it might not necessarily result in the construction of new housing units or new large-scale subdivisions. The objective of the City is to maintain focus on downtown reinvestment and redevelopment, reducing the impact on wild areas and open space.

Table 3.4.1: Building Permits by Year

Year Permits Issued	Permits Total
2017	737
2016	715
2015	703
2014	632
2013	578
2012	607
2011	515
2010	505
2009	553
2008	604
2007	551
2006	605
2005	555
2004	554
2003	567
2002	585

Agriculture in Holyoke

The community, with the grass-roots community organization Nuestras Raíces at the helm, actively promotes and participates in community garden use and agricultural skill development through fourteen community gardens, a community farm, and youth and adult training programs. These local gardens grow healthy food locally and act as community hubs. They are primarily located in the urban core and the southeast neighborhood of Ingleside, falling within the Environmental Justice community where inequities determined by race, income, and language can sometimes reduce access to food. These community garden initiatives work toward establishing a more localized and healthy food system by providing community gardening space, education and skill development, a mobile produce market, and building community pride. The current needs of the urban gardening community are not addressed in this OSRP, but fostering this food network in ways identified by Nuestras Raíces, the City, and the community in other planning efforts will diversify the availability of food sources available to residents.

Although there is some agricultural land west of the range, its typical use is for livestock and hay rather than fruits, vegetables, and other food crops.

Industries and Employment Trends

The Massachusetts Office of Labor and Workforce Development reported that in January 2018, 15,167 Holyoke residents were employed and 963 unemployed (approximately 6 percent of the total labor force) (MA EOLWD). According to PVPC, the average weekly wage for Holyoke's residents in 2014 was $810, significantly below Hampden county's average of $896 (PVPC 2015b, 2015c). In 2016, unemployment in Holyoke was 6.2 percent, higher than the state rate of 4.6 percent (see Table 3.3.5) (US Census Bureau). While it peaked at 11.7 percent in 2010, unemployment has been decreasing in line with state trends (MA EOLWD).

Nuestras Raíces is a local urban agricultural organization that works throughout Holyoke to promote community-focused food systems and healthy environments for a sustainable future. Photo by Alison Maurer.

The PVPC *Holyoke Community Profile* reports that Holyoke residents work in a wide range of sectors. In 2014, the health care and social assistance sector employed the greatest percentage of the city's workforce (29.8 percent). The service industry employed the second greatest number of residents (24 percent), followed by wholesale/retail (19.3 percent). Manufacturing remains a component of the city's employment base but makes up only 7.7 percent of the labor force.

3.4.2 Infrastructure

Water Supply

Holyoke has a rare abundance of high-quality drinking water, one of five communities in Massachusetts for whom the state waives filtration rules and regulations. HWW, a City entity, operates and maintains the municipal water supply and distribution system. The primary reservoir, the Tighe-Carmody (located in Southampton), supplies over 99 percent of residents with surface drinking water. Less than one percent of residents, exclusively in the Rock Valley and Smith's Ferry neighborhoods, rely on private wells (City of Holyoke 2013b 21).

The Tighe-Carmody Reservoir has a surface area of 365 acres, a storage capacity of 4.8 billion gallons, and a watershed area of 14.5 square miles (21). It has an estimated safe yield of 13 million gallons per day ("mgd").

Three reservoirs are located within city limits. Ashley Reservoir, with an estimated safe yield of 2.1 mgd (City of Holyoke 2013a), is a feeder reservoir for the McLean Reservoir. Water is pumped from Ashley to McLean, which sits just west and at a higher elevation. From McLean, which has an estimated safe yield of 0.5 mgd (City of Holyoke 2013d), water can be treated at the adjacent facility and distributed to customers.

Although it is not currently online, the Whiting Street Reservoir, off Route 141, has an estimated safe yield of 1.5 mgd (City of Holyoke 2013e). Like the Ashley Reservoir, Whiting Street is a popular destination for hikers, joggers, and bicyclists. Whiting Street is currently a backup water source and if HWW wishes to retain this backup resource, state law will not allow water-based recreation. The *City of Holyoke Natural Hazards Mitigation Plan Update* identifies repair of the Whiting Street Reservoir dam as an effective hazard mitigation strategy, preventing potential damage to 20 percent of the city's infrastructure (83).

Ashley Reservoir and its surrounding protected land provide clean water and passive recreation opportunities to residents. Photo courtesy of Paul Cooper.

With a safe yield of 13 mgd out of its primary reservoir alone, the city's consumption of 1.6 mgd per day on average means that Holyoke has an abundance of drinking water (City of Holyoke 2013b 24). The loss of some past large industrial users and overall population decline has left the city with the capacity to provide much more water than it currently uses, so it is likely that if current population growth trends continue, there should be enough water to meet demand far into the future.

Sewer Service

Sewer service is provided for the more densely developed areas of Holyoke. Expansion of the wastewater treatment plant has allowed for an increase in industrial development in Ingleside as well as additional residential development in Whiting Farms. The plant is located just south of downtown on Berkshire Street, adjacent to the Connecticut River. The plant was designed to provide primary and secondary treatment for an average daily flow of 17.5 mgd and a peak flow of 37.0 mgd (Holyoke Hazard Mitigation Planning Committee 11).

Areas not serviced by the sewer system include west Holyoke and a small part of Smith's Ferry. No plans exist currently for the expansion of sewer service into these areas, which may limit development where septic systems are not feasible.

Combined Sewer Overflows

Holyoke's sewer system is over one hundred years old. Approximately two-thirds of the 117 miles of sewer pipeline is combined sewerage and stormwater pipeline. As of 2018, the system had fourteen combined sewer overflows (CSOs) (see Map 20) discharging a total of 84.4 mgd of effluent annually to the Connecticut River (PVPC 2014a 45). The CSOs are designed to prevent overloading of the sewers, pump stations, and the plant during peak stormwater events, but have been identified as one of the leading causes of contamination in the Connecticut River (PVPC 2014b 5).

In 2001, the EPA issued an administrative order to the City to reduce the total amount of discharges and to complete the process of separating the stormwater runoff flows from sewage. The EPA also ordered the City to stop the flow of Green Brook into its wastewater treatment plant, to install detention basins along Day Brook, and to upgrade the wastewater treatment plant wet weather capacity.

In 2005, the City contracted with United Water to complete the construction of a CSO abatement facility at the highest-volume CSO, located on Berkshire Street (US EPA 2015 19). The twenty-year contract included provisions that require United Water to manage the Berkshire CSO Abatement Facility. This facility prevents over 400 million gallons of combined storm and wastewater effluent per year from entering the river over the pre-2007 rate. Along with other projects, including the separation of Green Brook in 2002 and the construction of several detention basins along Day Brook at Community Field in 2012, the CSO abatement facility has contributed to the improvement of water quality in the Connecticut River (19).

Transportation

Holyoke has several major highways: Interstate 91, with three exits in Holyoke, runs north–south and follows the eastern edge of the mountain range and west of most of the urbanized portion of the city. State Highway 5 parallels I-91 to the east. Before I-91 was built, Route 5 was the major north–south road in the Connecticut River Valley. Interstate 391 starts in downtown Springfield, runs north through Chicopee, and ends in Holyoke at the south end of High Street. Just south of the Holyoke city line, the Massachusetts Turnpike (Interstate 90), runs east–west through West Springfield. The intersection of these two routes has contributed to the development of southeastern Holyoke as a commercial hub, with the Holyoke Mall at the center.

The construction of I-91 in the late 1950s bisected the city, limiting circulation between the urbanized east, the undeveloped ridge, and western Holyoke. Ten interstate underpasses provide few opportunities to move between the eastern and western portions of the city. The highway also cuts through the center of Anniversary Hill Park, at one time a very active 130-acre park. Today,

The dark walkway under I-91 to Anniversary Hill Park and Scott Tower (above, photo courtesy of Mark Roessler and the Valley Advocate) isolates the area from the popular and well-used Community Field Park (below, photo by Tamsin Flanders).

some residents hike from Community Field under I-91 to Scott Tower, but the separation and isolation of the land around the tower created two very distinct characters: Community Field is easily accessible and visited by many and Anniversary Hill Park has a reputation for vandalism, illegal activities, and disrepair.

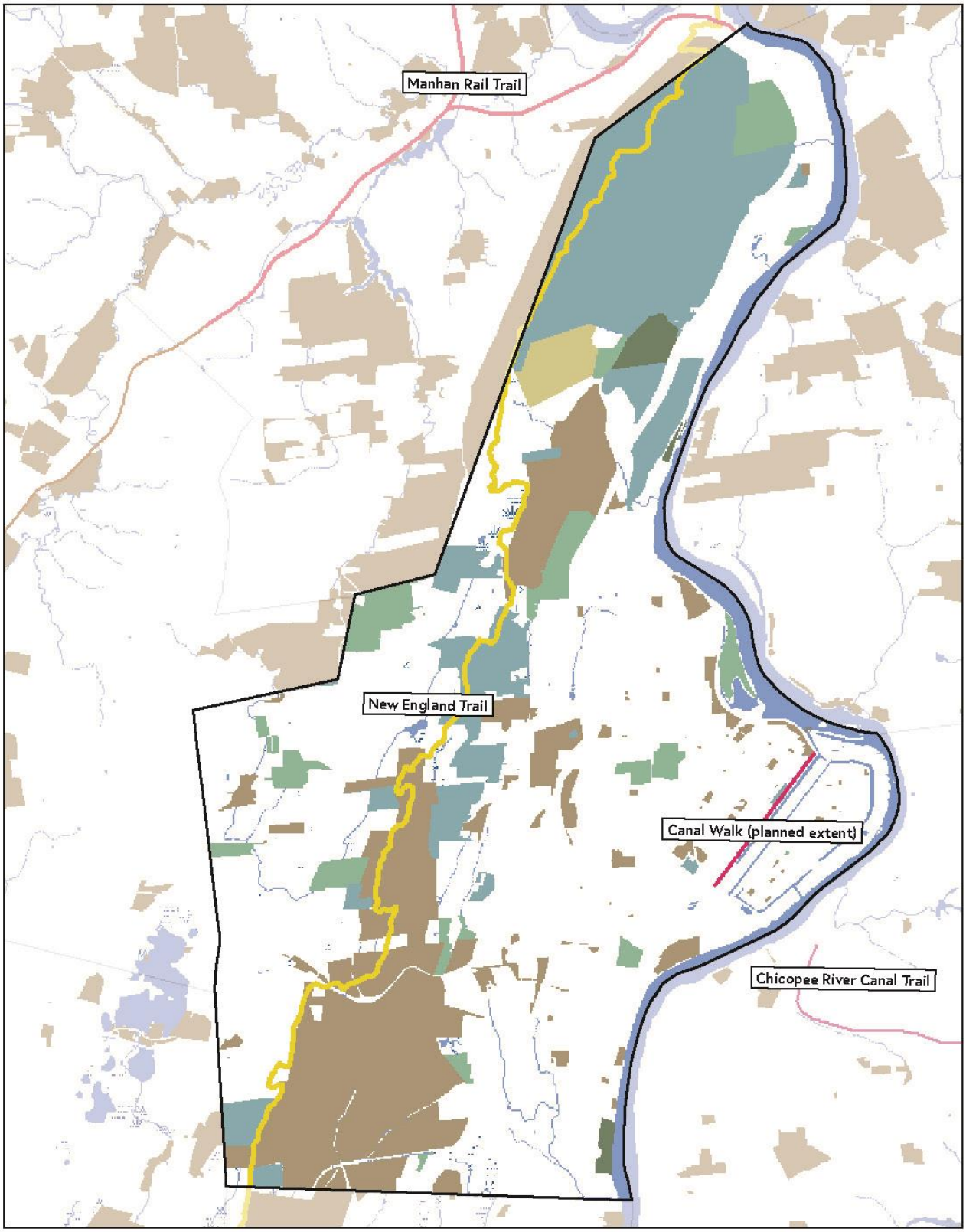
State Highway 141 runs from the Easthampton town line northwest of the city, over the Mount Tom-East Mountain range, through downtown Holyoke, and into Chicopee. State Highway 202 starts at the Westfield town line and runs east though downtown to cross the Connecticut River on the Mueller Bridge into South Hadley. State Highway 116 crosses the river from South Hadley Falls to downtown Holyoke on the Vietnam Veterans' Memorial Bridge, runs briefly south through the industrial section of the city, and re-crosses the river into Chicopee on the Willimansett Bridge. Together, these roadways connect Holyoke to the greater region and the many bridges create potentially walkable or bikeable access between towns.

The newly redeveloped Holyoke Transportation Center opened downtown on Maple Street in August 2010. This mixed-use facility serves as Holyoke's main transportation hub with transit connections to New England and beyond. The Pioneer Valley Transit Authority operates ten bus routes out of this location that run throughout Holyoke and connect to Westfield, Easthampton, Northampton, South Hadley, Chicopee, West Springfield, and Springfield. Peter Pan Bus Lines also offers intercity service at the Transportation Center. The Council on Aging operates shuttle services for senior citizens not capable of driving or accessing public transportation nodes.

In 2015, Amtrak completed renovations to the train station located at the intersection of Dwight and Main Street, a half mile south of the Holyoke Transportation Center. The once-daily Vermonter passenger train service connects Holyoke directly to major cities between the trains' terminuses in St. Albans, Vermont, and Washington, D.C. Plans to add passenger train service between Greenfield, MA, and New York City to two times daily would expand transportation options for the city's residents and visitors (Davis). The Pioneer Valley Railroad is a short local line serving industries, warehouse operations, and transload facilities between Holyoke and Westfield. The Massachusetts Department of Transportation and the Vermont Agency of Transportation are also studying the feasibility of further services that would ultimately connect Holyoke to Springfield, Boston, and Montreal. Although rail service can facilitate travel to other major cities, it has created access barriers throughout Holyoke. The tracks run along the eastern boundary of the city from its northern tip to the center of downtown, passing between the second and third canals before exiting via a train trestle adjacent to the Willimansett Bridge. Because crossing this rail line is illegal, the tracks severely restrict residents' access to the river and the access of residents in The Flats to the city center.

The Holyoke Amtrak station on opening day in 2015. The station offers train service from Vermont to Washington, D. C.
Photo courtesy of Ben Heckscher.

Bradley Airport is the closest major airport, approximately 20 miles south of Holyoke. The Barnes Airport in Westfield and Westover Air Force Base in Chicopee are general aviation airports, which serve private, military and corporate aircraft.



OPEN SPACE & RECREATIONAL TRAILS

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

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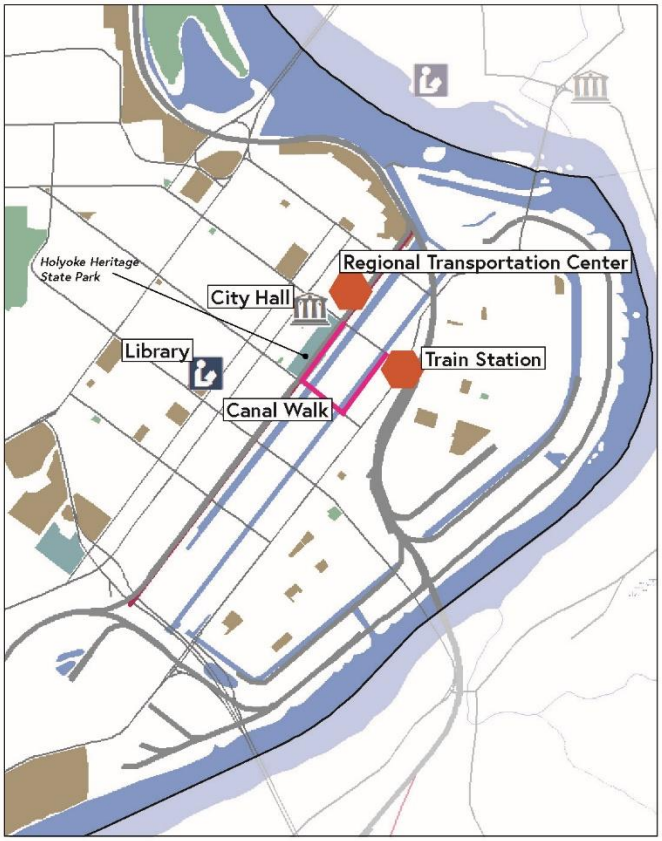


Map 8: OPEN SPACE & TRANSPORTATION DOWNTOWN

With the exception of Holyoke Heritage State Park, open space downtown consists of smaller (<2 acre) parks and are generally municipally owned. Municipal buildings and transportation hubs are centered in this downtown core. Many small park parcels are sprinkled throughout and larger parks and recreation facilities ring the edges of the downtown area.

- Muncipal
- State
- Private
- Railroad
- Roads

Map 7: OPEN SPACE & RECREATIONAL TRAILS

There are over 12,800 acres of open space in Holyoke. Larger City- and state-owned open space parcels dominate the length of the Mount Tom-East Mountain range. Smaller, fragmented open space parcels are located primarily in the denser urban areas. The New England Scenic Trail traverses the length of the city along the mountain range.

- Muncipal
- Federal
- State
- Land Trust
- Private

The Canal Walk is currently the only multi-use trail in Holyoke. The Manhan Rail Trail, a six-mile bike path, connects to the east–west Norwottuck Rail Trail in Northampton (see Map 7). The construction of trail linkages through Holyoke between regional trails such as the Manhan Rail Trail, the Connecticut Riverway and Bikeway in Springfield, and the Chicopee River Canal Trail, could conceivably allow residents to walk or bike from their homes in downtown Holyoke to a network of destinations in western Massachusetts.

The Holyoke Canal Walk is an on-going project turning the historic canals into a recreation destination and a hub for economic development. Photo courtesy of Phil Lacombe.

As mentioned before, PVPC, in collaboration with multiple local municipalities and the University of Massachusetts, will bring ValleyBike Share to Holyoke and the region in 2018. This program will provide bicycle access to residents with proposed locations at the Holyoke Public Library and the Holyoke Amtrak station. A Zipcar pickup location at Veteran's Park also provides transportation options for downtown residents and visitors without vehicles.

Map 7 shows the route of the long distance New England National Scenic Trail (NET) and the Manhan Rail Trail which intersect just north of Holyoke. The NET is a 215-mile hiking trail along the Mount Tom-East Mountain range that travels through 41 communities in Connecticut and Massachusetts providing the city with a unique opportunity to interface with its woodlands. The route features classic New England landscapes: long distance vistas with rural towns as a backdrop, agrarian lands, unfragmented forests, and large river valleys. NET trailheads in Holyoke are found along Routes 202 and 141 and from within the Mount Tom State Reservation.

Renewable Energy and Green Technology

As a designated Green Community—a municipality in the Commonwealth dedicated to reducing emissions and meeting the criteria of the Green Communities Act—the City is actively developing renewable energy sources to position itself for the twenty-first century's changing energy needs. For example, through Holyoke Gas & Electric (HG&E), the City has constructed solar facilities that can serve around 2,900 customers, enough to power 17 percent of residences in the city with clean, carbon-neutral energy (HG&E). The dam itself generates about two-thirds of the city's energy needs, supplying a renewable energy to consumers at a much lower cost than its regional utility competitors. The availability of relatively inexpensive electricity was a major contributing factor in the selection of Holyoke as the location of the Massachusetts Green High Performance Computing Center, a supercomputing center designed, in collaboration with universities and other partners, for climate modeling and biotechnology development. The construction of the Computing Center and Holyoke's relative abundance of renewable energy have the potential to draw other green technology and information technology businesses.

Holyoke's redevelopment efforts established an Arts and Industry district in the downtown. Massachusetts Green High Performance Computing Center (MGHPCC) is one example of new development in this area. Photo courtesy of the City of Holyoke.

3.4.3 Long-Term Development Patterns

As mentioned before, development in Holyoke is restricted by the limited availability of developable land. However, there are some areas, primarily in west Holyoke, Ingleside, and Smith's Ferry, where further development is possible. Land considered developable is mostly flat, supplied with municipal water and sewer, and easily accessible; there are only a few remaining parcels like this in Holyoke. As a result, and following the City's desire to increase density in the urban areas, new development or redevelopment will occur downtown.

West Holyoke could potentially see the construction of more single-family homes, if larger lots are subdivided. This could negatively impact the scenic beauty and eliminate rare natural resources such as prime agricultural soils and the purity and quantity of water recharging the Barnes Aquifer.

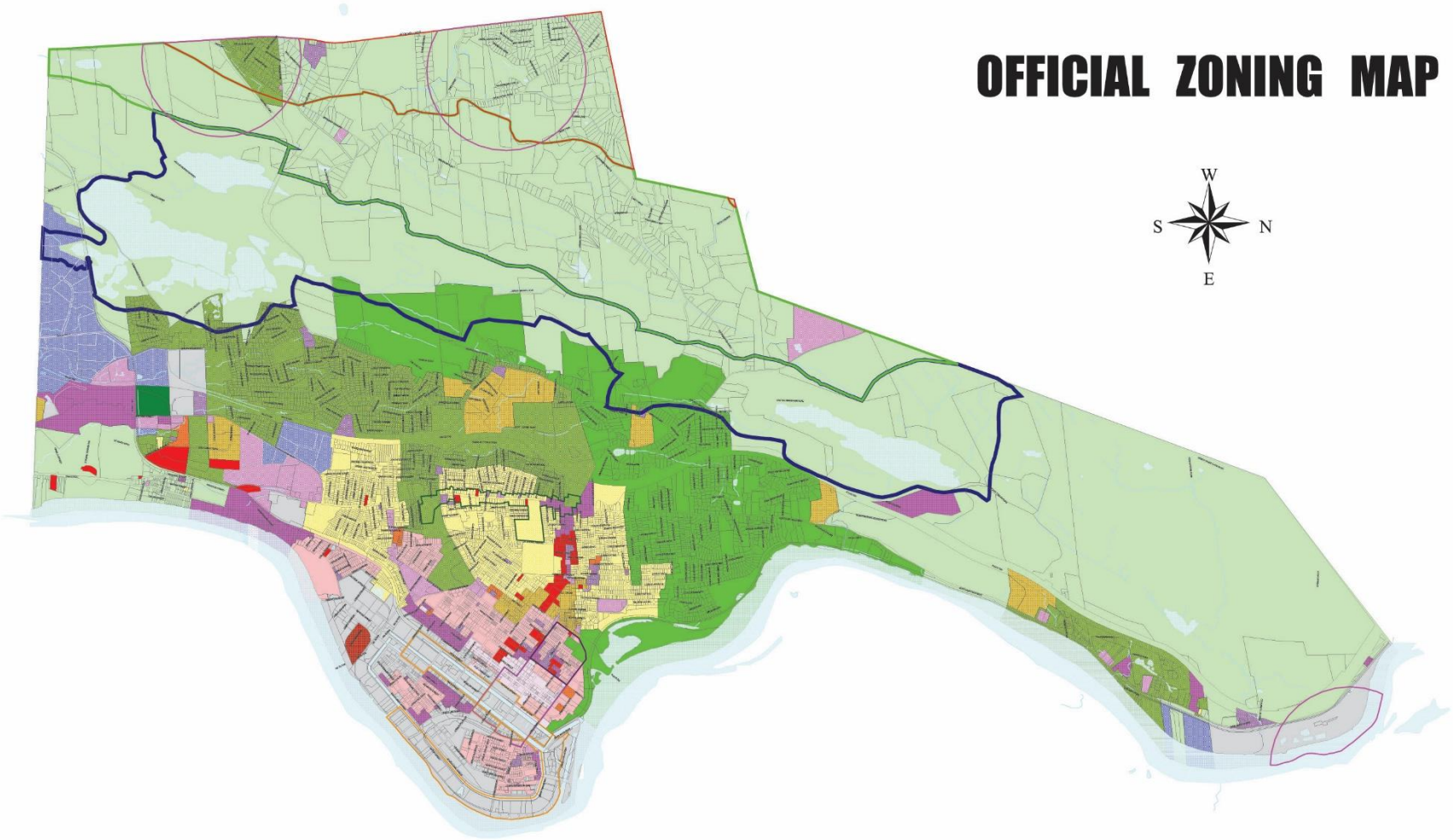
Ingleside continues to experience some ongoing commercial development and redevelopment, such as the redevelopment of the Ingleside Square Plaza on Whiting Farms Road and Lower Westfield Road (see Map 9 for the current zoning of these areas). There is still room for commercial, office, and light industrial growth in this portion of the city.

Zoning

Holyoke's zoning is designed to promote economic development and redevelopment in the existing commercial, residential, and industrial districts while preserving fragile ecosystems and water resources. The City's primary goal in promoting this pattern of economic development is to preserve Holyoke's scenic and natural beauty while encouraging the active use and reuse of its historic urban landscape.

West of the city center, zones consist mostly of single and multifamily residential districts with small pockets of commercial zoning along Northampton Street (Route 5) and neighborhood commercial areas throughout the city (see Map 9). Larger residential zoned lots are located in the north and to the west of the mountain range. These districts to the west have been restricted through water resource overlays, requiring a minimum of 2-acre lots and 200 feet of frontage. The city's retail and business zoning are concentrated along the highways and in the southeast just north of the intersection of Interstates 90 and 91. Some areas in the center of downtown are also commercially zoned. Industrial and manufacturing zones are in the historical manufacturing district, along the banks of the canal system, and west of the Connecticut River.

Several special overlay districts protect natural resources and promote economic development. The Water Resource Protection Overlay District protects the Barnes Aquifer and its recharge area and surface water supplies. This district limits impervious surface cover, sets minimum lot sizes, and restricts activities with potential pollution sources. A recently-zoned Arts and Industry Overlay District, which roughly tracks parcels surrounding the historic canal system, promotes continuing mixed use for mixed income groups and the reuse and redevelopment of mills. The Smart Growth Zoning Overlay District encourages mixed-use development to take advantage of the City's transit nodes, including the Holyoke Transportation Center and Amtrak station along Dwight Street. A Floodplain Overlay District, based on Federal Emergency Management Agency (FEMA) flood maps updated in 2013 (see Map 16), prevents development in hazard-prone 100-year floodways except by special permit.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REVISED - 1985

Downtown Development

The four neighborhoods that make up the downtown/city center (see Map 2)—The Flats, South Holyoke, Churchill, and Prospect Heights/Downtown—were once the economic, social, and cultural hubs of the city but now contain the most stressed economic conditions. These four neighborhoods surround the three-tier canal system and border the Connecticut River, Chicopee, and South Hadley. A high number of vacant lots populate these downtown neighborhoods. This is both a hindrance for the city, as these vacant lots reduce property values and fail to contribute to City revenue, and an opportunity to steer investment toward the city center.

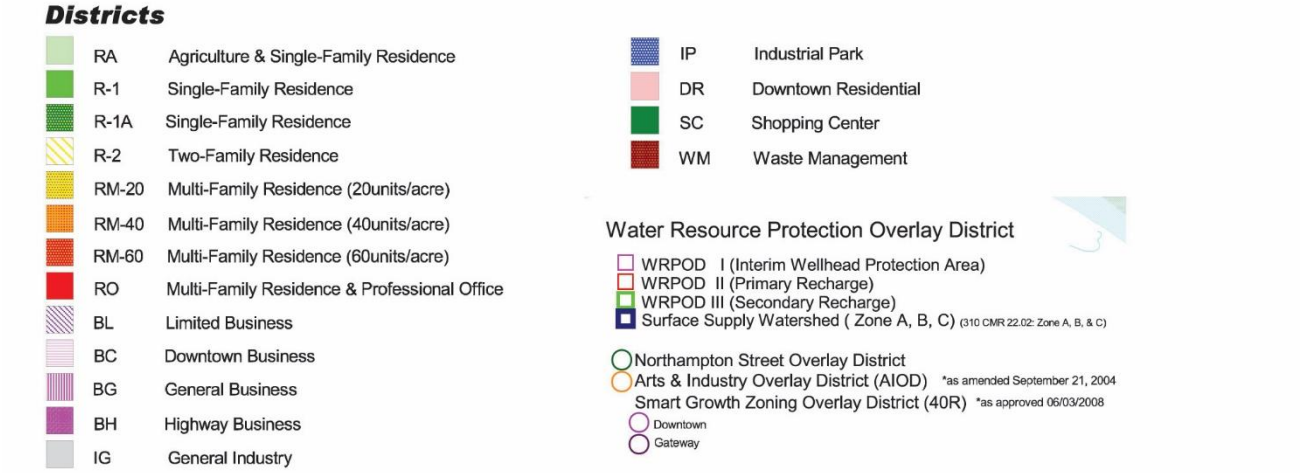
The redevelopment of downtown for housing and commercial use is a trend that the City actively promotes through financing and zoning tools such as the Tax Increment Financing program, the Downtown Residential Zone, the Smart Growth and Arts and Industry Overlay Districts, and through its planning process.

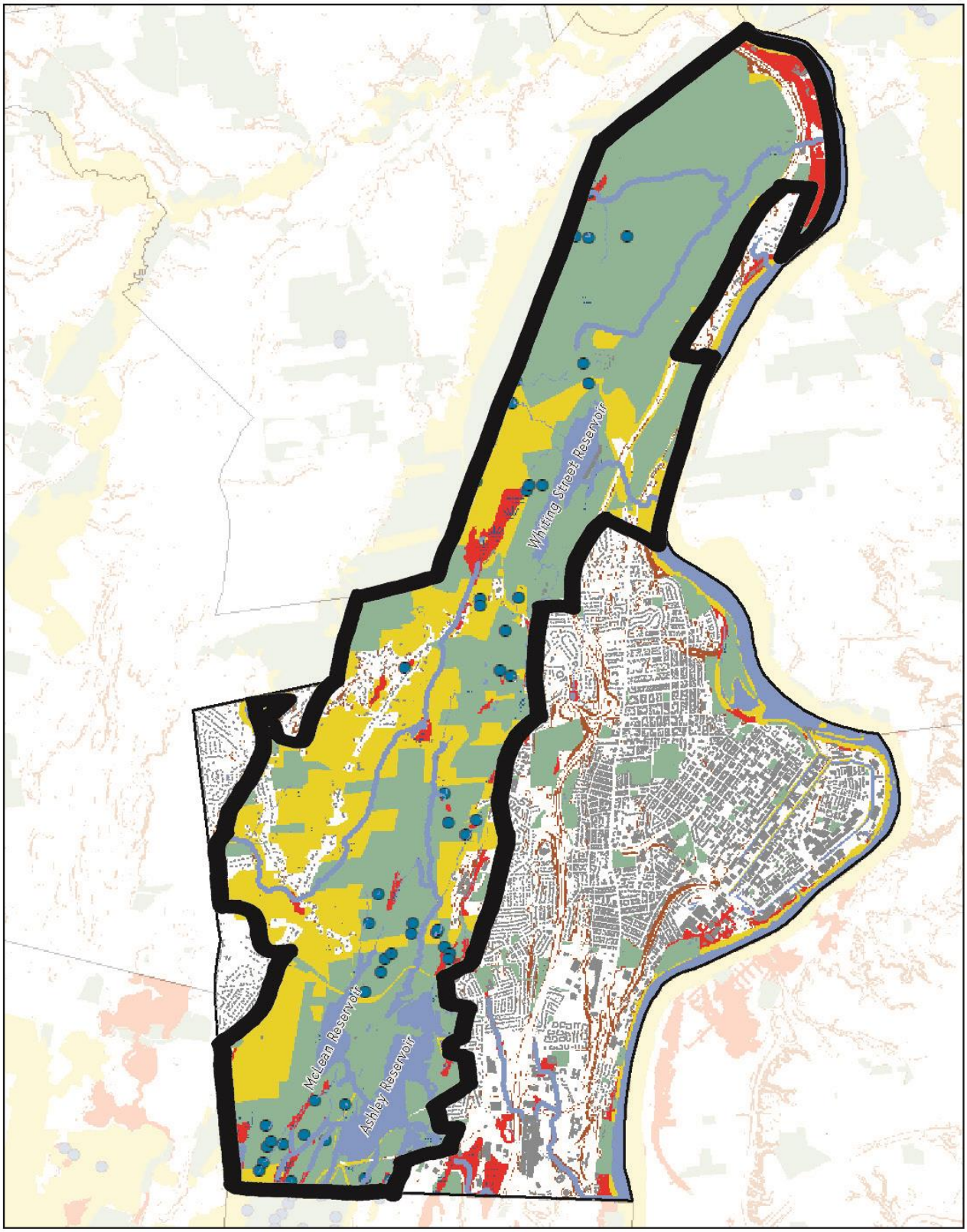
Much thought has been put into the redevelopment strategy on the part of the City in recent years such that it is possible to imagine the future direction of development in Holyoke. The City's 2012 Urban Renewal Plan (URP) entitled *Connect. Construct. Create. A plan for revitalization of Center City Holyoke*, underwritten by the City's Planning and Economic Development Department and prepared through a robust community input process, aims to combat abandonment and blight through a smart-growth approach to urban revitalization. Smart growth principles include a focus on compact design, mixed-use development, and the creation of a broad range of housing opportunities.

Indeed, recent development in eastern Holyoke has focused on the rehabilitation and reuse of existing building stock. Many redevelopment projects have been completed in recent years in this area, including the Holyoke Transportation Center, Holyoke Amtrak Station, Senior Center, Massachusetts Green High Performance Computing Center, and portions of the Lyman Terrace housing development.

Recent public infrastructure projects have often involved upgrades to open space amenities such as Veteran's Park, the skate park at Pulaski Park, the Canal Walk, and Carlos Vega Park. Upcoming plans to renovate Valley Arena Park will transform the formerly degraded site into a neighborhood asset. The City is considering removing the Article 97 designation from a lot on Appleton Street in the future but will seek to replace it with a

Map 9: ZONING





DEVELOPMENT CONSTRAINTS

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

N

parcel on Dwight Street that may become a pedestrian plaza connecting the Lyman Terrace neighborhood to the Dwight Street corridor.

Some recent redevelopment projects have directly or indirectly added open space to the city's open space profile: the Lyman Terrace demolition and redevelopment project is reconfiguring and upgrading the preexisting green space, and the train station parking area was designed as a flexible plaza for occasional pop-up events (Marrero)

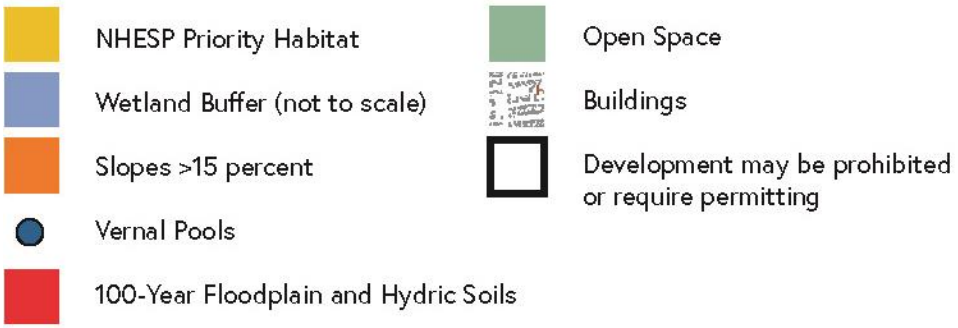
According to the URP, redevelopment in the city has brought attention to the need for better streetscapes. Community gardens, the maintenance of parks, safe pedestrian pathways along streets, urban tree canopy, green infrastructure, and public art all enhance street-based experience while contributing to quality of life and environmental function in the urban environment.

As the city continues to grow, it is likely that open space issues and wildlife habitat and wetlands concerns will continue to be factors that shape development activity. For example, as Map 10 shows, most of the remaining private, undeveloped land contains either wetlands, land that is adjacent to wetlands, Priority Species Habitat, vernal pools, hydric soils, steep slopes, or falls in the 100-year floodplain. According to state law, land within 100 feet of a wetland is not off-limits to development; development is possible, but permitting is necessary. It should also be noted, however, that the City of Holyoke has a 50-foot No-Build Zone around wetlands, as per the City's local wetlands ordinance, which, effectively, makes this area off-limits without an Order of Conditions from the Conservation Commission.

If current trends continue, development in the next decade is likely to consist of a mixture of residential and mixed-use units located in the urban core, brownfields redevelopment in urban and rural properties, and renewable energy (predominantly solar) development in the rural, western portion of the city. However, it is unclear how changes to the Alternative Portfolio Standard and the Solar Massachusetts Renewable Target (SMART) program will impact renewable energy development in the city. City policies are geared towards promoting rooftop solar, but state policy and underlying economics could result in conversion of forest to biomass or other renewable energy sources. Additionally, investments in the electrical grid would need to be made in order to support energy-intensive businesses that are anticipated to locate themselves in Holyoke (after the rules and regulations codify the parameters of the Commonwealth's recreational marijuana cultivation and distribution markets).

Map 10: Development Constraints

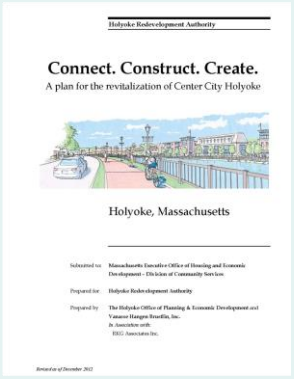
Slopes and environmental protections constrain development across much of western Holyoke. A large portion of eastern Holyoke is already developed, leaving less than ten percent of land in Holyoke for further development and making the case for infill and redevelopment.



Urban Renewal Plan

Through the community process and feedback received on the 2009 *Center City Vision Plan*, a number of core principles developed for the Center City became the basis for a 2012 Urban Renewal Plan. These core principles were:

- Revitalize the Center City; Churchill, Downtown, The Flats, and South Holyoke;
- Increase the density and types of development (more residents, more jobs);
- Create an active Center City with a variety of 24/7 uses (events, retail, restaurants, family destinations, etc.);
- Preserve Holyoke's historic urban character and valuable architectural resources (blocks, streets, buildings);
- Increase housing choices with building styles that complement the character of each urban neighborhood (multi-family, townhouse, duplex, etc.);
- Improve downtown circulation with walkable, safe and pedestrian-friendly streets and open space; and
- Promote local utilities, green technology, and the innovative sectors as economic development initiatives (HG&E's water power, renewable energy, creative jobs).



For more information, see the Urban Renewal Plan:
Connect. Construct. Create. A Plan for the Revitalization of Center City Holyoke

Section 4. Environmental Inventory & Analysis

Photo courtesy of MassWildlife.

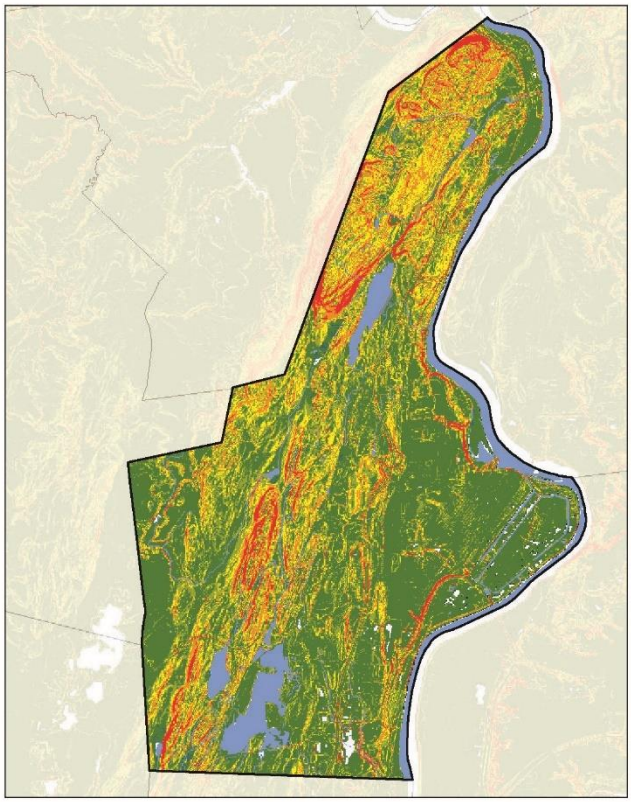
4.1 Topography, Geology, and Soils

The topography of Holyoke is a product of dynamic geological processes that formed the basalt mountain range, sedimentary flatlands, Barnes Aquifer, and Connecticut River. The range is home to shallow bedrock and rocky outcroppings that provide habitat and scenic views and streams and wetlands that carry and filter fresh water to the city's reservoirs. A diversity of soils resulting from numerous glacial and river-basin processes comprise the city's soil profile, with high-importance agricultural soils in the west. Steep slopes and some soil types constrain development in Holyoke.

4.1.1 Topography

Holyoke contains many steeply-sloped areas with the Mount Tom-East Mountain range dividing the city from north to south through its center. The Mount Tom Range fills much of the northern half of Holyoke. The East Mountain range bifurcates the city in the south. The two are both a part of the Mount Holyoke Range geological formation but are two distinct ridges roughly divided by Route 141.

The highest peak in the Mount Tom range is Mount Tom itself, at an elevation of 1040 feet. Most of the peaks in the range are between 600 and 700 feet, including Mount Nonotuck, Dry Knoll, Goat Peak, Whiting Peak, and Deadtop. Just to the east of Mount Tom is another, slightly smaller ridge called Little Tom Mountain, with peaks no higher than about 600 feet. This smaller ridge is separated from the Mount Tom range by the Lake Bray drainage basin. West of the Mount Tom-East Mountain range lies a second smaller range, again with peaks no higher than about 600 feet. Broad Brook and Mountain Road run through the valley between the Mount Tom-



Map 11: SLOPE

Steep slopes found along the Mount Tom-East Mountain range, as well as on the edge of neighborhoods in southeast and east-central Holyoke, constrain development while protecting the scenic views and natural landscapes valued by city residents.

- 0-5 Degrees
- 5-10 Degrees
- 10-15 Degrees
- 15-25 Degrees
- > 25 Degrees

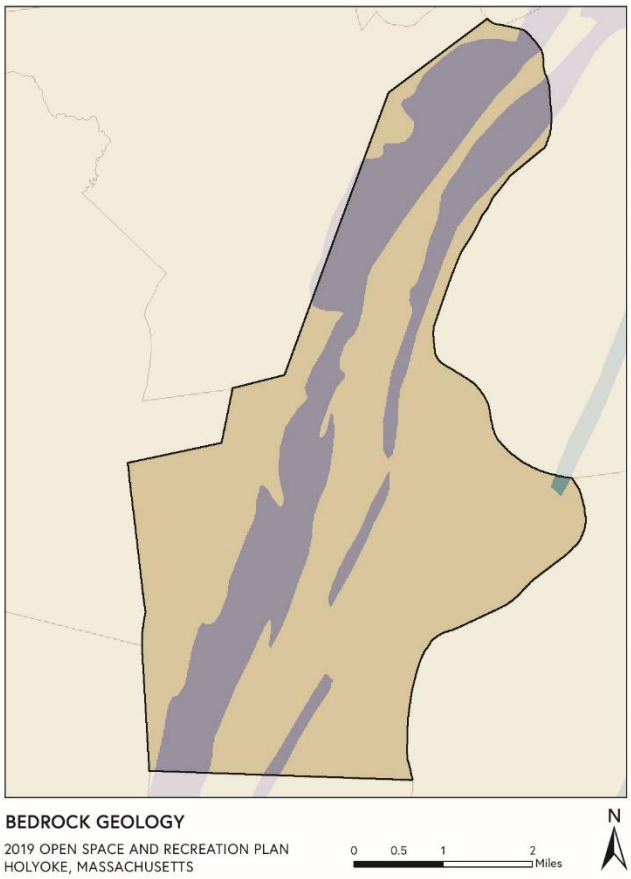
East Mountain range and this smaller, unnamed range to the west. These dramatic changes in elevation provide landscape character, habitat, species diversity, and scenic vistas.

Several thousand acres within Holyoke have slopes greater than 15 percent (see Map 11). These steepest slopes are found along the mountainous spine and along the western boundaries of the Springdale and Ingleside neighborhood. Steepness limits development due to the added construction expense and increased-risk engineering costs to combat erosion. The maximum slope permitted for subdivision roads is currently 12 percent (Holyoke's Subdivision Regulations) and Holyoke's site plan review criteria directs applicants to minimize the use of steep slopes for access purposes.

From the Mount Tom-East Mountain Range eastward to the Connecticut River, the city steps down into a series of relatively level terraces. In several places these flat areas are cut into by sharp ravines, or dingles, which drain toward the Connecticut River. These dingles were major barriers to passage in the early development of the city's streets and remain relatively untouched wooded valleys through urban Holyoke (City of Holyoke 2015b 38). Residents often report that the slopes that ring the city are difficult to walk or bike up, limiting bike and pedestrian circulation out of the city to the north and west.

4.1.2 Geology

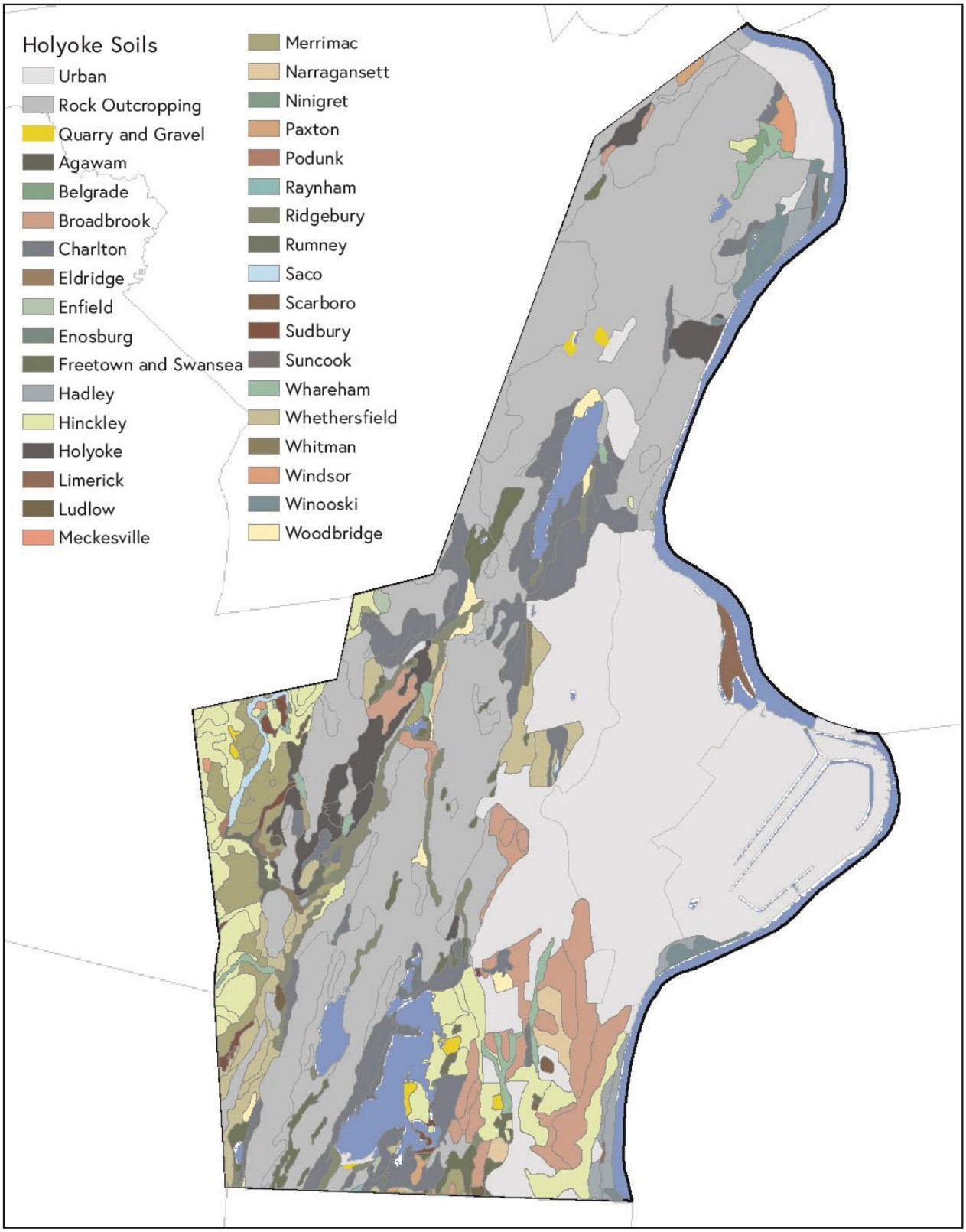
The topography of Holyoke reveals its long and complicated geological history. According to the Open Space and Recreation Plan 2013–2018 and the Mount Holyoke Range Planning Unit resource management plan, two



Map 12: BEDROCK GEOLOGY

Surrounded by the sedimentary rock deposited by the retreating glacier and Connecticut River, a band of magnesium- and calcium-rich mafic rock—in this case basalt—forms the Mount Tom-East Mountain range.

- Basin Sedimentary
- Basalt
- Calpelite



SOILS

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

N

hundred million years ago, during the breakup of the ancient supercontinent Pangea, the Eastern Border Fault moved apart to form the Connecticut River Valley. Erosion of cliffs on the eastern edge of the valley deposited considerable sediment, resulting in up to 16,000 feet of sedimentary rock, on the valley floor. This sedimentary substrate preserved the dinosaur footprints that can be seen along Route 5 in northern Holyoke, which likely date back 190 million years to a time when the Connecticut River Valley was a sub-tropical swamp.

In a parallel process, basalt magma erupted from rift faults running east–west along the present-day Holyoke Range and north–south from the northernmost part of present-day Holyoke south to Hartford, Connecticut, releasing lava flows that form the underlying bedrock of the ranges. About 65 million years ago, the region had eroded nearly to sea level. Approximately 15 million years ago, a period of uplift raised the Mount Holyoke, Mount Tom, and East Mountain ranges, exposing the basalt igneous rock as the land slowly rose. A prehistoric river cut through layers of sedimentary rock to create the valley between the Mount Tom and Mount Holyoke ranges.

Beginning about two million years ago, glaciers covered the northeast as far south as southern New England. About 14,000 years ago, a retreating glacier (the Laurentide Ice Sheet) left a dam of stratified till across its valley near Rocky Hill, Connecticut. This dam created an enormous lake, now referred to as Lake Hitchcock, that stretched 220 miles from Rocky Hill to current-day Saint Johnsbury, Vermont. In the area that was to become Holyoke, Lake Hitchcock covered parts of west Holyoke and low-lying areas between the range and current-day Connecticut River until the dam breached around 10,000 years ago. After the lake drained, the Connecticut River began eroding its channel through the lake-bottom sediment to create the river we know today.

Map 12 shows that the geological processes of Holyoke's prehistoric past left behind igneous rock (basalt) primarily along the contours of the current Mount Tom-East Mountain range, and sedimentary rocks as the underlying bedrock of the remainder of the city. Glacial grinding exposed some of the volcanic basalt, but glacial deposits left coarse and thick till over most of the city, including granite and quartz erratics transported from farther north. The nutrient-rich bedrock, where exposed, helps support unique plant communities that contributed to the ecological diversity of Holyoke. In the 1980s, a quarry began extracting some of this basalt from the east side of Little Tom Mountain to convert to traprock. The quarry closed in 2012.

The meltwater streams flowing from the ice at the base of the glacier deposited sand and gravel into the bottom of Lake Hitchcock. The ice sheet paused or retreated very slowly as it moved across current-day Westfield, west Holyoke, Southampton, and southern Easthampton forming a large delta whose sediments make up much of the Barnes Aquifer.

4.1.3 Soils

Soils in Holyoke generally derive from alluvial sediments or from glacial till deposited by the receding glacier and include more than 90 distinct soil types (see Map 13 and Appendix D).

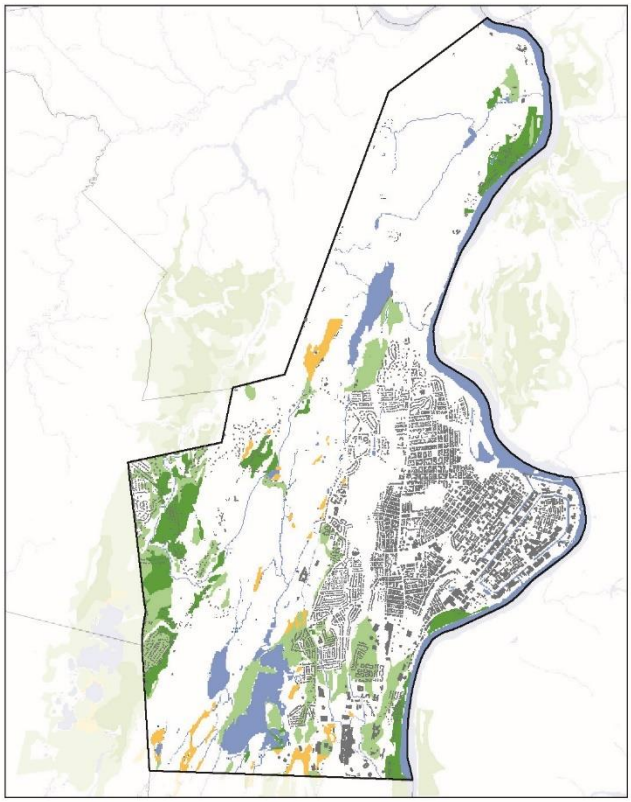
Map 13: SOILS

For a description of all soil types and a summary of soils of note, see Appendix D: Soils.

Sediment from glacial Lake Hitchcock as well as alluvial deposits from the Connecticut River created rich agricultural soils throughout the Connecticut River Valley. However, urban works and structures removed or altered soils in the three quarters of the city east of the mountain range, rendering them what USDA calls "Urban" soils. Due to decades of industrial activity atop much of this land, these soils are more likely to contain contaminants.

Prime farmland soils are present in Holyoke along the city boundary west of the range, along the Connecticut River in the southeast and northeast (see Map 14). Farmland of statewide significance appears around the prime soils in far west Holyoke, in areas surrounding the Ashley and Whiting Street Reservoirs, and in the flatter portions of the Ingleside neighborhood.

Parts of the city contain hydric or flood-prone soils, which (in addition to a few other soil types) severely limit on-site sewage disposal systems. Much of the area between Mount Tom and the river is already built upon or is unavailable for development due to steep or flood-prone soils. The Mount Tom-East Mountain spine cannot be significantly developed without extraordinary expense or environmental hazard due to the presence of rocky outcrops (discussed in section 4.1.2). What remains is the western and southern portion of the city, where a surprisingly diverse concentration of significant agricultural soil has been identified. While a large amount of the city's prime agricultural soil has already been developed, a few remaining parcels containing prime agricultural soils could be targeted for preservation efforts.



Map 14: AGRICULTURAL SOILS & BUILDING PATTERNS

The vast majority of prime agricultural soils are found west of the ridge and in the southeast along the Connecticut River. While much has been developed, some agricultural soil of statewide importance remains in the southeastern corner of the city, often beneath mixed residential and commercial development.

- Farmland of Statewide Importance
- Farmland of Statewide Importance
- Farmland of Unique Importance
- Buildings

4.2 Landscape Character

Holyoke is a landscape of striking contrasts and natural beauty. Between the dramatic wooded ridgelines of Mount Tom and East Mount to the west and the sinuous Connecticut River in the east lies a densely-developed former industrial city. The mountains' dynamic topography restricts development and shapes Holyoke's nationally-recognized unique natural and scenic landscapes. As land use has shifted from farming and manufacturing to residential development, commerce, and renewable energy generation, dominance of the mountain range has remained unchanged.

4.2.1 Development Patterns

The dense historic urban center concentrated on the riverbank contrasts with the wild and mostly undeveloped steep terrain of the Mount Tom and East Mountain ranges. Large Victorian houses grace some of the neighborhoods at higher elevations north of the city center. The residential areas along Homestead Avenue, between Interstate 91 and the mountain range, are distinct from the rest of Holyoke with a strong urban/suburban feel. The development along Mountain Road, which runs north–south along the western side of the range, feels more akin to the rural hilltowns. Residences and horse farms throughout western Holyoke have no neighborhood center and maintain a mixed rural-suburban feel. Commercial strip development is primarily contained to the area around the Holyoke Mall, in southeastern Holyoke. Holyoke has no one single landscape character to preserve, but a variety of distinct zones that have produced a diversity of open space.

4.2.2 Industry in the Landscape

Holyoke's industrial history contributed to its social and built character and its self-sufficiency, hardening the landscape in the east. While the Holyoke dam, floodwalls, and levees have drastically changed the hydrological patterns of the Connecticut River, they have controlled the floodway to allow dense riverside residential and industrial development. The canal system that powered Holyoke's industry serves as a scenic and recreational resource today, even though hard walls and strict control over its flow limits its ecological function. Together with solar, the dam and canal powers the city with 100 percent renewable energy through the HG&E public utility.

Holyoke's shrinking industrial economy in the twentieth century resulted in the loss of blue-collar job opportunities, but also reduced environmentally hazardous emissions and pollutants and opened up opportunities

View of Mount Tom. Photo courtesy of Mass DEP.

to bring in environmentally friendly industry. This happened in northern Holyoke where a coal-powered electrical plant closed in 2014 and much of its land was converted to solar power harvesting. Hazardous environmental conditions remain on many of these former industrial sites, restricting their public use until remediation occurs. When select old factory buildings are torn down, some historic character is lost, but demolition opens up large tracts of land to the community and to investors, creating the opportunity to reimagine the landscape.

4.2.3 Unique Natural Environments

By limiting building opportunities, the ridge also forms a connective forested corridor for wildlife the length of the city: from the Connecticut River in the north, south through the Bear Hole Reservoir in West Springfield to the Westfield River. These steep, forested slopes also provide regionally significant migration and nesting habitat for reptiles, amphibians, and birds. Birds of prey especially take advantage of warm air thermals along the range's western bluffs during spring and fall migration. The physical conditions of the range also create ideal conditions for over twenty rare plants and two rare butterflies.

4.2.4 Scenic Resources

The dramatic elevation change from floodplains and farm fields to the undeveloped ridgeline creates a proliferation of scenic vistas. The Mount Tom and Whiting Street Reservoir areas were designated by the Massachusetts Landscape Inventory as Noteworthy, with the western bluffs of Mount Tom (partly in Easthampton) as Distinctive (i.e., even more worthy of attention). In addition to views from the range, one of the most remarkable views of Holyoke can be observed from Scott Tower at Community Field on the western edge of downtown. Scott Tower provides a bird's eye view of Holyoke and Mount Tom—a view that cannot be observed from other locations.

In 2000, the Mount Tom-Mount Holyoke range was designated by Scenic America as a Last Chance Landscape, in part because of threats of development. In Holyoke, those threats have been mostly alleviated with the permanent protection of a large portion of Mount Tom thanks to HG&E and ongoing efforts to protect priority abutting parcels by various stakeholders.

4.3 Water Resources

While Holyoke enjoys a remarkably pure and abundant drinking water supply, some water resources are severely impaired. Nitrogen and pollutants in the Connecticut River require the monitoring of both what stormwater is directed to the Connecticut River and how suitable the river is for human use. A few remaining private households in west Holyoke use the Barnes Aquifer, a water source facing multiple contamination issues. By contrast, the city's abundant surface drinking water supply is in good condition and, with the exception of Whiting Street Reservoir, is well protected. Flooding occurs along the Connecticut River and in parts of the upper watersheds of the many streams that are buried under the city of Holyoke. Wetlands appear to be well protected but further assessment is needed to identify the status of all wetlands in Holyoke.

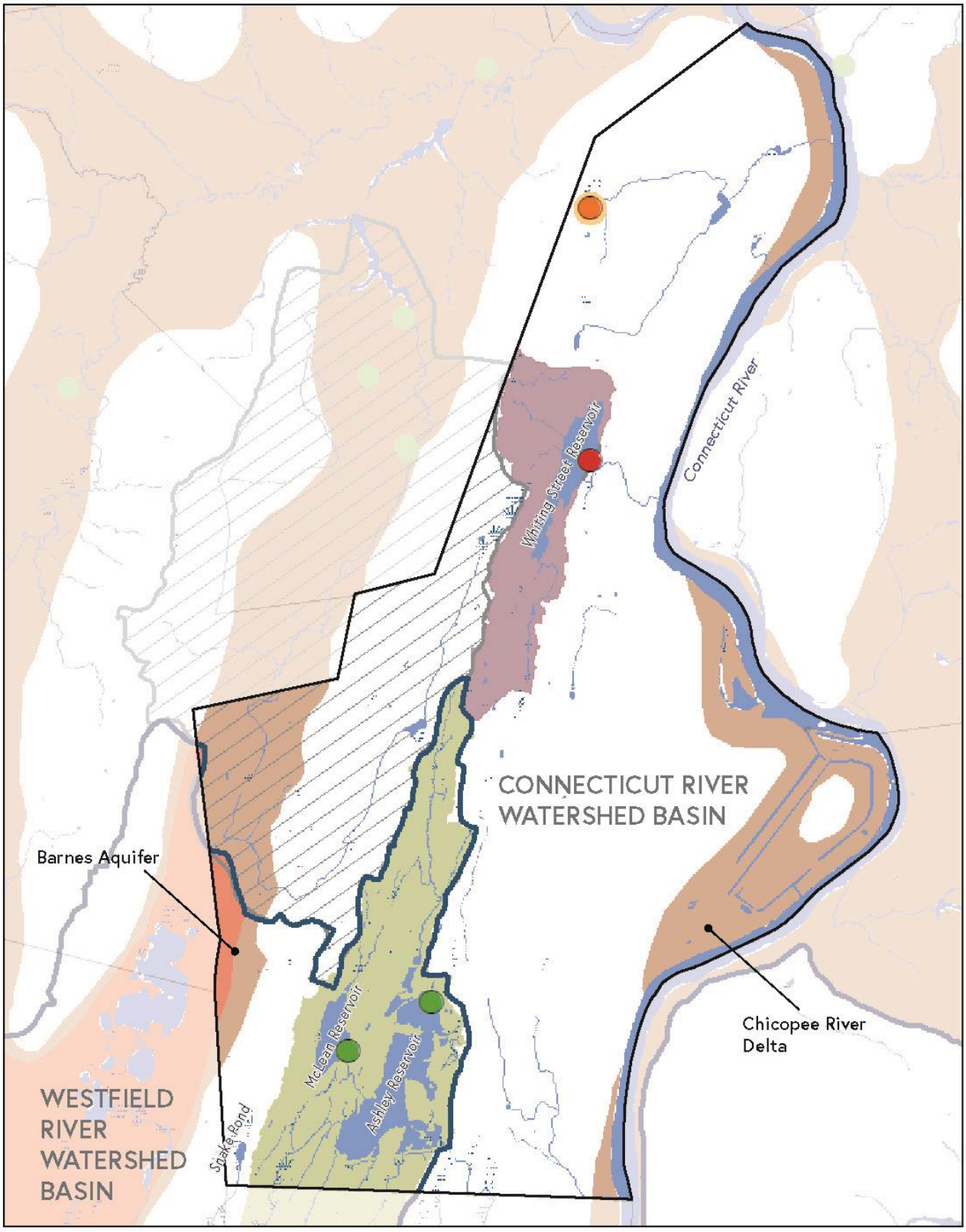
4.3.1 Watersheds

Most of Holyoke lies within the Connecticut River watershed; the southwestern corner is the exception, draining to the Westfield River. There are thirteen minor tributary basins in Holyoke. With three exceptions in the north, streams that historically flowed eastward across Holyoke from the Mount Tom-East Mountain Range to the Connecticut River have been buried and now pass under urban development. During storm events the flow of these tributaries can activate one of the city's fourteen CSOs, forcing untreated sewage into the Connecticut River.

4.3.2 Public Drinking Water Supply

Holyoke Water Works operates and maintains four reservoirs for the city's drinking water supply: two active, one emergency, and one offline reservoir (see Map 15). According to the DEP's Source Water Assessment for Protection Report (SWAP), the active Tighe-Carmody Reservoir, located in the Town of Southampton, supplies approximately 95 percent of the city's water (2). The watershed for this reservoir lies further to the west in the hilltowns of Southampton, Westhampton, Huntington, and Montgomery. To ensure continued protection of Holyoke's drinking water supply, "HWW continues to work with the communities of Southampton, Westhampton, Huntington and Montgomery [...] to develop new and strengthen existing water supply protection district bylaws" (Holyoke Water Works 1). For yields and infrastructure information on all reservoirs, see section 3.4.2.

Aerial view of the Ashley and McLean Reservoirs. Photo courtesy of the City of Holyoke.



WATER RESOURCES

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

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Within the city's limits lie the McLean, Ashley, and Whiting Street Reservoirs. Water from the active McLean Reservoir is blended with the supply from the Tighe-Carmody Reservoir to achieve a water quality standard that exempts Holyoke from state law requiring municipalities to filter their water, one of only five communities in the state to achieve this standard (Holyoke Water Works 1). McLean's watershed boundary is located entirely within Holyoke. Within the watershed 99 percent of the land is forested steep or sloping land with exposed bedrock or thin glacial till. HWW owns approximately 73 percent of the McLean Reservoir watershed (2). Ashley Reservoir is an emergency reservoir that feeds the McLean Reservoir. The Whiting Street Reservoir was taken offline by HWW, but the land continues to be managed as a drinking water supply watershed.

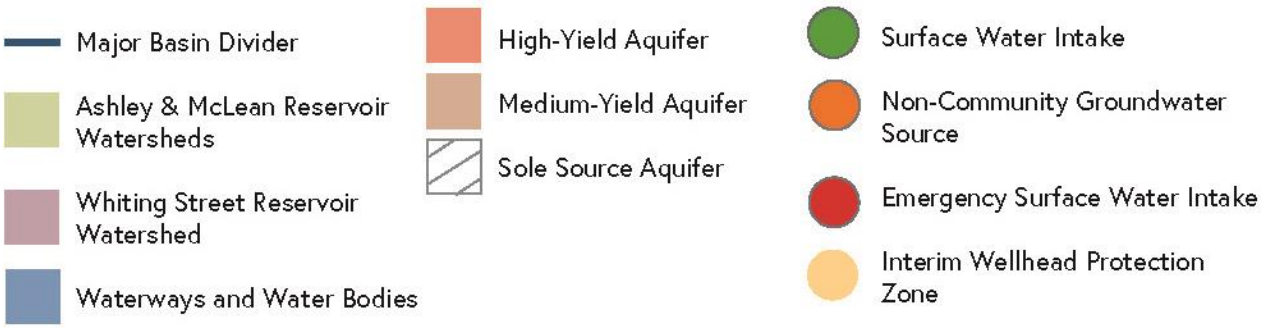
HWW ensures the protection of Holyoke's drinking water supply through the Watershed Resource Protection Plan (HRPP). The HRPP's mission is to "1) identify potential threats to the drinking water supply sources; 2) shield the watersheds from identified threats; and 3) develop a plan to protect water quality from future threats" (MA DEP 1). A forest management program outlined by the HRPP directs forest management within City-owned portions of the watershed, promoting forest cover, preserving water quality, and preventing erosion and fire. The SWAP Report gives HWW a "moderate" rating as a public water supply.

The trails surrounding Ashley and Whiting Street Reservoirs see heavy use from city and area residents, indicating that these reservoirs are well loved as recreational and scenic resources. HWW's Recreational Management Plan permits pedestrian and bicycle traffic after dawn and before dusk on designated trails. All other activities are prohibited in order to minimize the possibility of contamination and erosion. Signs expressly forbid parking in front of reservoir access gates in order to discourage use of the property and to maintain access for emergency vehicles. However, visitor parking frequently occurs at these prohibited sites. While the idea of water-based recreation on the Whiting Street Reservoir is mentioned in this plan, if HWW wishes to retain this backup drinking water resource, state law will not allow water-based recreation.

Most of the forested land surrounding the McLean and Ashley Reservoirs is owned by HWW and permanently protected by Article 97. Mass Audubon's Mapping and Prioritizing Parcels for Resiliency (MAPPR) tool identifies a few small parcels along the eastern edge of Ashley Reservoir and near the northern edge of the McLean Reservoir as high or medium priority for protection, based on their location within the surface water protection zone identified by the Massachusetts Drinking Water Regulations 310 CMR 22.00 (see section 4.5.6 for more information on MAPPR tool). Though the MAPPR tool does not identify anything around Whiting Street

Map 15: WATER RESOURCES

Watersheds that recharge active surface and groundwater drinking supplies cover nearly one third of the land area in the southwest corner of Holyoke.



Reservoir as high priority for protection, the City has identified land in its vicinity as parcels of conservation and recreation interest (see Table A.1.6). Wyckoff Country Club golf course in particular is an open space parcel with both recreation and watershed protection value.

4.3.3 Aquifers

Portions of west Holyoke lie over the Barnes Aquifer (see Map 15), an aquifer composed of well-sorted coarse sands and gravels that were deposited approximately 14,000 years ago by a the retreating Laurentide Ice Sheet. The aquifer underlies twelve square miles and supplies water to twelve public drinking wells and numerous private wells, serving 60,000 residents in Southampton, Easthampton, and Westfield. The aquifer serves as a sole-source drinking water supply for the city of Easthampton. HWW closed its two public wells in 1988 due to Trichloroethylene (TCE) contamination (PVPC 2015a, 2). An estimated 15 private wells (though this is likely a very low estimate) remain active in west Holyoke (3). In the last decade, groundwater testing found perfluorinated compounds in wells in Westfield, suggesting that private wells in Holyoke are susceptible to further contamination should the periflourinated compounds plume migrate (Gambarini).

Holyoke is a member of the BAPAC, an advisory committee of member communities staffed by PVPC that reviews new development over the aquifer and provides education and advocacy for protection of the resource. In an additional attempt to strengthen groundwater protection, the City of Holyoke has adopted a zoning ordinance known as the Water Resource Protection Overlay District. This district was created prior to the availability of USGS medium- and high-yield aquifer data, and review of the overlay in reference to this new data may point to a need for a revision of the district's boundaries.

4.3.4 Surface Water — Connecticut River

The Connecticut River is the city's most significant surface water feature. The river flows from its headwaters near the Vermont-New Hampshire-Quebec boundary south to the Long Island Sound. Forming the eastern boundary of the city, the Connecticut River plays a strong historical, cultural, economic, and recreational role in the life of Holyoke residents. The construction of the Holyoke dam across this river significantly shaped both river dynamics and development in Holyoke.

The Department of Environmental Protection classifies the Connecticut River and the contiguous Log Pond Cove as Category 5 impaired waterbodies due to nitrogen loading from CSOs and agricultural practices in multiple towns along the river. This categorization requires bordering municipalities to develop a Total Daily Maximum Load (TDML)—a daily maximum release threshold. Though this has not yet been done for the Connecticut River, the City's CSO abatement plan focuses on reducing nitrogen loading in the river.

The state has labeled Lake Bray and the Whiting Street Reservoir as having Category 4C impairment—impairment not caused by a pollutant. This designation results from natural causes (such as invasive plants or lack of in- and outflow) and does not require a TDML.

Very little land bordering the Connecticut River is in legal protection. The Trustees owns two permanently protected parcels that abut the river: Dinosaur Footprints in the north of the city and Land of Providence in the south. The City's Springdale Park, protected under Article 97, sits on the river as well, though it is separated by a tall levee. While these properties make up only a fraction of the Connecticut's river frontage in Holyoke, the active rail line does serve as a protective buffer between development and the river.

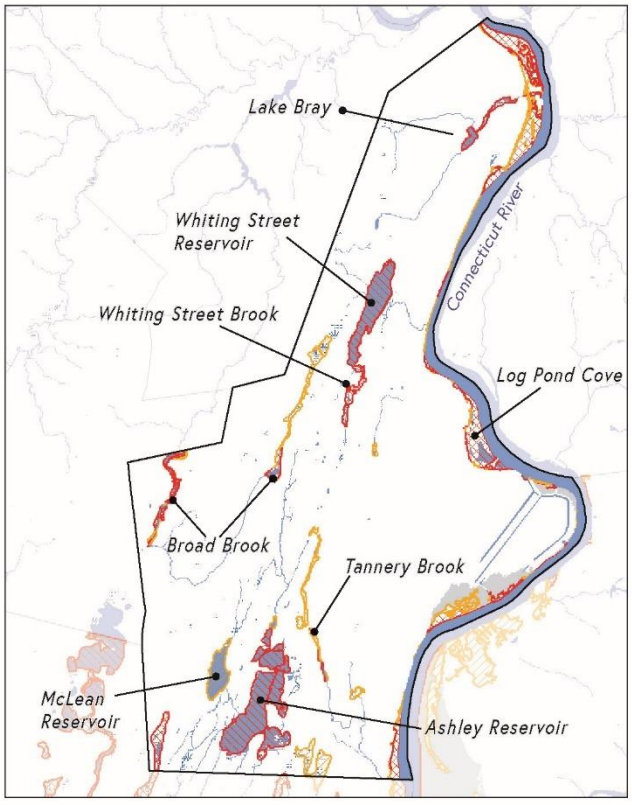
4.3.5 Flood Zones

Holyoke's FEMA-identified flood zones are part of the active river area of the Connecticut River and a handful of smaller streams. Most of the floodways in Holyoke are narrow thanks to the hilly topography that has restricted the breadth of floodplains along brooks and streams.

Holyoke has FEMA-designated 100-year (Zone A) floodplain in several sections of the city (Map 16). These flood-prone areas include land along the Connecticut River in the Smith's Ferry, Springdale, and Ingleside neighborhoods, land along Tannery Brook and Broad Brook, and land on the west side of Route 5 in Smith's Ferry. FEMA's 500-year floodplain zones show additional flood potential along the Connecticut River in the Log Pond Cove and McNulty Park area; along the northern city boundary from the Easthampton line to the first sharp bend in the river; eastern sections of Main Street; portions of downtown between Riverside Park and the Willimansett Bridge; Tannery Brook along Homestead Avenue; Broad Brook along portions of Mountain Road and Rock Valley Road; and Whiting Street Brook south of the reservoir to Old Bassett Road.

A flood control system consisting of concrete flood walls and earthen dikes extends from the Holyoke dam south along the Connecticut River to the south end of Springdale Park. Without this flood control system maintained by the DPW, much of the areas inland of these control structures would be subject to increased periodic flooding.

The City participates in the FEMA Flood Insurance Program, which requires adherence to specific construction standards. Development in the 100-year floodplain is regulated by a local Floodplain Protection Ordinance that requires a City Council-issued special permit and limits the type of development allowed. The Conservation Commission reviews Notices of Intent from and issues Orders of Conditions to applicants that meet



Map 16: FEMA FLOOD ZONES

Flooding occurs in narrow bands along the city's major water systems and flood-mitigation infrastructure protects a large portion of the downtown from flood risk.

100-Year Floodplain

500-Year Floodplain

Reduced Risk Due to Levee

performance standards for development in the 100-year floodplain (pursuant to the Massachusetts Wetlands Protection Act and the City of Holyoke Wetlands Protection Ordinance).

4.3.6 Wetlands

Holyoke has a wide variety of inland wetland resources. The city contains approximately 605 acres of Bordering Vegetated Wetlands according to the October 2004 release from the DEP (City of Holyoke 2015b 42). Many of the wetlands identified in MassGIS fall within protected open space parcels. However, the City has found that MassGIS wetlands data is often inaccurate and would like to create a comprehensive list of wetlands in the City of Holyoke. MassWildlife and the City of Springfield Water Department has protected one of the city's most unusual wetland habitats, with Snake Pond, which is encircled with a rich bog habitat. The location and importance of vernal pools is discussed in 4.5.2.

The Connecticut River and all perennial streams in Holyoke, such as Tannery Brook and Broad Brook, contain regulated 200-foot Riverfront Resource Areas. In 2001, the City of Holyoke Conservation Commission revised its Wetlands Protection Regulations to include regulatory jurisdiction over 100 feet around designated Bordering Land Subject to Flooding and a 50-foot Limit of Disturbance from the edge of all wetlands and wetland resource areas, including : "any vegetated wetland, bank, lake, stream or river, intermittent or continuous, natural or artificial and certified or uncertified vernal pools"(City of Holyoke 2001 42, 47). The purpose of this Limit of Disturbance is to further protect the valuable upland buffer zone around wetlands and limit the impact of upland projects on wetlands.

4.4 Vegetation

Approximately half of Holyoke is a forested band of northern hardwoods, hemlock, white pine, and mixed oak in the range running through the center of the city. Low canopy cover in eastern Holyoke motivated the City to initiate a tree-planting program, especially in Environmental Justice community areas. Rare plants and forest and plant communities of concern are found along the ridge and Connecticut River.

4.4.1 Natural Community Patterns and the Urban Landscape

There are approximately 7,000 acres of forested land in Holyoke primarily located along the Mount Tom-East Mountain range—approaching 50 percent of the city (City of Holyoke 2015a 44). The Mount Tom-East Mountain spine contains most of this forested land, the majority of which is owned by the City of Holyoke, MassWildlife, and the DCR. The forest along the mountain range is in large, somewhat continuous blocks running north–south through the city. Varying topography, mineral-rich basalt bedrock exposed through glacial scouring, and other glacial processes produced a diversity of soils along the range, creating the conditions for a wide range of forest and herbaceous plant communities. Over 400 plant species from more than 70 families have been found on Mount Tom alone (Mount Tom Range Commission).

Heavily developed land lies east of the mountain range with no dominant plant community and limited vegetation. Municipal policies and development plans that concentrate future growth toward the east will preserve the natural resources and wooded character of the city's larger open space parcels.

4.4.2 Forested Landscapes

The Nature Conservancy (TNC) developed a mapping system that examines in detail the varying ecological communities called *Terrestrial Habitat Map for the Northeast US and Atlantic Canada*. Compiled by the TNC's Eastern Conservation Science team, this mapping system allows for detailed examination of the varying ecological communities in Holyoke from developed lands to northern swamps. These plant community categories were then compared to MassWildlife's Natural Heritage & Endangered Species Program (NHESP) community types fact sheets using TNC's "crosswalks" to MA state names. The following information is sourced from the accompanying NHESP plant community descriptions and represents the most dominant plant community types in Holyoke.

Terrestrial Habitat Map for the NE US & Atlantic Canada

A collaborative mapping project, the Terrestrial Habitat Map combines resources from The Northeast Climate Science Center and The North Atlantic Landscape Conservation Cooperative to map the distribution and conditions of 140 habitat types across the region. This effort aims to guide conservation and wildlife management across jurisdictional borders.

An interactive mapping tool and habitat fact sheets are available at:

- Conservationgateway.org

Northern Hardwoods - Hemlock - White Pine Forest
Northern hardwoods dominate much of the Mount Tom-East Mountain range's landscape, west Holyoke, and some areas along the Connecticut River. The dominant species include sugar maple, white ash, yellow birch, American beech, black cherry, red oak, bitternut hickory, eastern hemlock, and white pine. This community thrives on a variety of landforms and at varying elevations. Shrub level growth is relatively open with some occurrences of hobblebush, striped maple, red-berried elderberry, and honeysuckle. A sparse and diverse herbaceous layer can include woodfern, Christmas fern, clubmosses, Canada mayflower, white wood aster, and wild oats. Invasive plant species and hemlock woolly adelgid pose a threat to this forest type (NHESP 2016b).

Mixed Oak Forest/Woodland
Concentrated in drier sites along the Mount Tom-East Mountain range corridor, mixed oak forests are composed primarily of deciduous oak species: chestnut oak, white oak, red oak, black oak, and scarlet oak. Birches (black, white), red maple, and white pine are also typical. Understory species include gray birch, striped maple, mountain maple, witch hazel, shadbush, and possibly chestnut. In lower and herbaceous levels, one might find sparse or dense blueberries, huckleberry, mountain laurel, wild sarsaparilla, and Pennsylvania sedge. This community is threatened by vulnerability to fire (NHESP 2016a).

The City has planted 1,500 trees across Holyoke to improve ecological and aesthetic conditions. Photo courtesy of Andrew Smith.

4.4.3 Urban Forestry

In contrast to Holyoke's forested lands on the mountain range, the remaining land is developed with minimum tree cover. The City has undertaken significant efforts to increase urban canopy cover with the support of the Massachusetts Greening the Gateway Cities program and the Environmental Justice Urban Forestry

Challenge Grant. Funded through DCR, this program, which seeks to increase tree canopy cover in developed and vulnerable areas, selected Holyoke as a recipient in 2013.

The resulting *Community Based Assessment of Urban Forestry Conditions* identified existing urban forest distribution and tree health. The final planting goal—30 percent tree canopy cover by 2033—located high priority planting areas (based on risk of soil loss, degradation from storm events, urban heat island effect impacts, and forest fragmentation), focused within the Environmental Justice zones (see section 3.3.2 for more details about Holyoke's Environmental Justice community areas) (Davey Resource Group 3).

The assessment determined a canopy cover rate of 26.5 percent in the EJ communities (i-Tree analysis done for this plan using 2018 orthophotographs showed tree canopy closer to 14 percent on average in the four downtown neighborhoods). The study inventoried health, species composition, and diameter at breast height (DBH). It found that 47 percent of the trees in downtown were to be in good condition, 38 percent fair, and 16 percent poor, dying, or dead. A mix of maple, oak, linden, ash, and pear currently dominate the urban canopy of downtown (Westfield State University 8).

Since 2013 the inception of the Greening the Gateway Cities Program, the City has planted or assisted with the planting of 1,500 trees. Planting, maintenance, and replacement of trees on city properties will be an ongoing task that will need to be integrated into the routine work of the DPW in order for the City to reach its goal of 30 percent canopy cover in the next 15 years. The projected benefits of increasing coverage include reducing urban heat island effect and thereby saving energy, improving water quality, reducing damage from storms and floods, improving health through cleaner air and psychological benefits, increasing tree diversity and urban wildlife habitat, and raising property values.

4.4.4 Forest and Natural Communities of Conservation Concern

In 2010, the Massachusetts' Division of Fisheries and Wildlife and The Nature Conservancy released *BioMap2*, a state-wide comprehensive dataset that identifies landscapes within ecoregions that are most important for the preservation of the Commonwealth's biodiversity and natural landscape integrity. The *BioMap2* town report for

Surrounding forests of hardwoods and pines help protect water quality for the cities reservoirs. Photo courtesy of Wikimedia Commons.

Holyoke identifies several forested and non-forested ecosystems in Holyoke as endangered, threatened, or of special concern. They are located in four small bands along the Mount Tom-East Mountain range or close to Connecticut River. These priority and exemplary natural communities include:

- Calcareous Talus Forest
- Circumneutral Talus Forest
- Hickory-Hop Hornbeam Forests
- Floodplain Forests (present as narrow corridors along Connecticut River)
- Hemlock-hardwood Swamp

In addition to these notable plant communities, *BioMap2* identifies a patch of forest core about 375 acres in size in the southeastern-most corner of Holyoke in the Bear Hole Watershed. Forest core—large patches of intact forest that are not impacted by roads and development—provides critical habitat for species sensitive to the impacts of forest fragmentation (NHESP 2012a 24). Though these forests do not always contain priority plant communities, they serve as extremely important habitat and can be prioritized for permanent protection.

4.4.5 Rare Plant Species

NHESP's rare species by town online tool identifies thirty-eight plant species as endangered, threatened, or of special concern, based on population trends, identified threats to their survival, and their rarity across the state. These species face habitat loss or degradation; identifying existing and future threats can guide efforts in Holyoke to protect or reduce the impacts of development on land that hosts these rare species (see Appendix C for a full list).

Wapato is a threatened wetland plant species found within Holyoke, MA. Photo courtesy of Thayne Tuason.

4.4.6 Threats to Natural Communities from Climate Change

As in all of the northeast, Holyoke's plant communities are under pressure from the shifts in temperature, intensity of climate events, and invasive pest and plant ranges. These changes may result in increased precipitation intensity, longer periods of drought, and warmer temperatures, which might reduce the ability for certain plant species to thrive. The City can approach ecosystem management with a focus on the areas of high priority identified by *BioMap2* and minimize threats to the healthy and undisturbed plant communities which are most resilient to the impacts of climate change.

4.5 Fisheries and Wildlife

Holyoke's mix of riparian and upland habitats support over 242 documented species of vertebrates. Most of the Core Habitat is along the mountainous spine but wildlife is also found within and around the Connecticut River. The City is fortunate to have such biodiversity and working to protect these parcels of high priority is necessary to sustain it.

4.5.1 General Inventory

Approximately 242 species of vertebrates have been identified within Holyoke's borders (see Appendix C). These species include 29 species of fish, including game fish such as smallmouth and largemouth bass, brook and rainbow trout, and yellow perch; 21 species of amphibians, including spotted salamanders and wood frogs—species dependent on vernal pools; 18 species of reptiles, including all snake species found in the state; at least 160 species of birds, from ruby-throated hummingbirds to bald eagles; and about 42 species of mammals, including the occasional wandering moose.

The state recognizes most of west Holyoke as containing land critical to these species and the resilience of those species' natural habitats. The same topography that creates diverse conditions for a range of plant communities (discussed in section 4.4.1) also discourages human disturbance, allowing for large tracts of unsettled and relatively-unvisited land the length of the Mount Tom-East Mountain range. These large landscape blocks, minimally impacted by development, may serve as a wildlife corridor for large mammals and migrating birds, as well as for smaller mammals, reptiles, and amphibians who migrate short distances annually. Holyoke's Connecticut River frontage and undisturbed habitats along the range give Holyoke more biodiversity than may be typical of cities, more than most residents (and non-residents) realize.

4.5.2 Vernal Pools

Vernal pools are temporary freshwater bodies that provide critical breeding habitat for many vertebrate and invertebrate wildlife species. They are defined as basin depressions where water persists for at least two months of the spring and reproducing fish populations do not survive. Vernal pools can be of varying sizes and depths. They are found across the landscape, anywhere that small woodland depressions, swales, or kettle holes collect spring runoff or intercept seasonal high groundwater or river overflow in floodplain forests. Many species of amphibians and vertebrates, such as the threatened marble salamander found in Holyoke, are completely dependent on vernal pools to reproduce and the loss of vernal pools can endanger entire populations of these species.

Red-backed salamander rely on spring vernal pools to reproduce. Photo courtesy of the National Park Service.

NHESP has certified the location of vernal pools statewide through ground reconnaissance, as well as predicted the location of others based on interpretation of aerial photographs. There are 55 certified vernal pools throughout Holyoke, some within two distinct clusters, or vernal cores, in the north and south ends of the East Mountain range. An additional 30 or more potential vernal pools are scattered more broadly across Holyoke, including in the western residential areas and along the Connecticut River (MassGIS 2018). According to NHESP, clusters indicate particularly good habitat for species because they ensure alternative habitat options if

one or more pools are compromised and slightly different conditions in each provide slight variety for different species' preferred habitat.

Certified vernal pools are protected by the Massachusetts Wetlands Protection Act and by additional state and federal regulations. The City of Holyoke Wetlands Protection Regulations protect vernal pools regardless of whether they are certified through the state Isolated Land Subject to Flooding performance guidelines.

4.5.3 Rare, Threatened and Endangered Species

Holyoke is remarkably rich in rare plant and animal species. NHESP has noted that the Mount Tom-East Mountain range is one of the most ecologically significant rare species localities within the Commonwealth (City of Holyoke 2013b 45). The Silvio Conte National Fish and Wildlife Refuge Action Plan considers the Mount Tom range to be a high priority Special Focus Area for protection given the rare species habitat, the extent of contiguous habitat types, and the available habitat for migratory land birds. Indeed, about 48 percent of Holyoke's landscape is designated as Priority or Estimated Rare Species Habitat by NHESP, an extremely high percentage of the city (MassGIS 2018). This priority habitat is primarily found in the southwest corner of the city, along the range, along the Connecticut River, and in a block of land between the river and Little Tom Mountain. The areas designated Priority Habitat are protected by the Massachusetts Endangered Species Act (MESA), which requires NHESP review of projects located within Priority Habitat. In recent years, several projects have been proposed within Priority Habitat for which NHESP requested a Conservation Restriction on significant areas of land around the project site, thus increasing the amount of protected land in the City.

Holyoke is especially rich in rare reptiles and amphibians, with virtually every non-marine species known in the state represented in the city. Ten vertebrates, eleven invertebrates, thirty-two plants, and two rare natural community types are included on the Natural Heritage Program database.

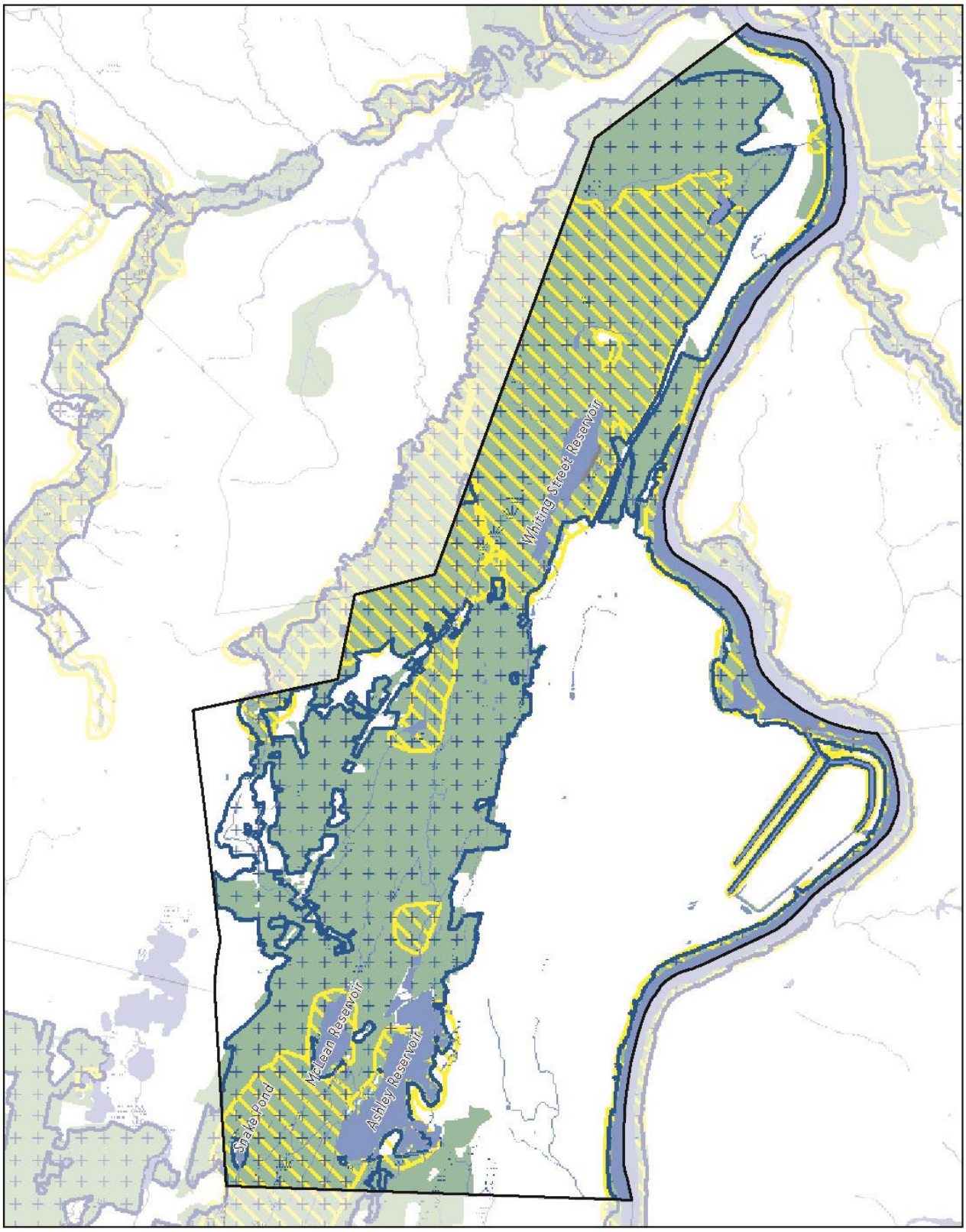
Two of the more spectacular threatened and endangered animal species found in the Commonwealth can be encountered in Holyoke: bald eagles and peregrine falcons. Bald Eagles nest along the Connecticut River in Northampton and West Springfield and use areas such as the river to hunt. Wintering eagles are also found along the river in Holyoke because of the unfrozen water just below the Mount Tom Power Plant and the Holyoke dam. Peregrine falcons, which nest in Springfield, in the Holyoke City Hall Clock Tower, and on bluffs in the range can also be seen migrating and wintering along Mount Tom and hunting pigeons downtown.

Holyoke is fortunate to have such numbers of rare species and habitats within its boundaries. Some of the unprotected parcels that fall within the *BioMap2* areas are parcels already identified by the City as high priority for watershed protection. Lands that represent both ecological and watershed values become high priority for protection, especially when they connect to already-protected and/or undevelopable land.

Appendix C lists most of the known endangered, threatened, and special concern plant and animal species found in the city. Several endangered species which are highly susceptible to disturbance are not shown on the list.

4.5.4 Core Habitats and Critical Natural Landscapes

BioMap2 identifies two types of important habitat types: Core Habit and Critical Natural Landscape (CNL). Core Habitat is vital to the state—deemed valuable rare plant and animal populations, exemplary natural communities, and aquatic habitats (NHESP 2012a 20). The Core Habitat map is based the 2012 NHESP Priority Habitats of Rare Species data, which documents where rare/state-listed species have been found in the past 25 years.



CORE & PRIORITY HABITAT

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

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The Core Habitat layer is intended as a planning data layer identifying areas with defensible populations of rare species, but also land important for the protection of natural communities, intact forests and wetlands, vernal pool clusters, and high priority aquatic/riparian habitat. Because the Priority Habitats of Rare Species layer is updated about every two years, it is more up to date than *BioMap2*'s Core Habitat layer and thus should always be the default rare species map.

State, federal, and local agencies have protected 52 percent of the 8,105 acres identified as Core Habitat in Holyoke, though this percentage may have increased with the additional 300+ acres protected since 2012 (NHESP 2012b). Core Habitat in Holyoke is found over most of the western side of the city, including the ranges and reservoirs, and along the Connecticut from the north as far south as Long Pond Cove.

BioMap2

In Holyoke, Core Habitat areas were determined by the following *BioMap2* designations:

7 Exemplary or Priority Natural Community Cores
1 Forest Core
3 Wetland Cores
8 Aquatic Cores
2 Vernal Pool Cores
8 Species of Conservation Concern Cores

Within the Core Habitat area, *BioMap2* recognizes 4,615 acres in Holyoke as CNL: landscapes that are best suited to support habitat, ecological processes, and resilience by connecting and buffering Core Habitats. Areas identified as CNL lie fully within the Core Habitat area, predominantly in the southeastern corner, along the Mount Tom Range, and around Log Pond Cove. The occurrence of CNL fully within Core Habitat is, in fact, unusual, and identifies the land along the Mount Tom-East Mountain range as important aquatic and wetland buffers, but not so much as a large intact forest landscape block.

Of the identified CNL area, 56 percent is already under some form of protection. *BioMap2* recognizes the value of keeping CNL lands working lands, allowing low-impact timber harvesting and agricultural use, however because all CNL in Holyoke lies within Core Habitat, these uses should be promoted sparingly.

With some ground truthing to confirm the true importance of these areas, protecting land within Core Habitat and CNL has the potential to make a significant impact on the commonwealth's plant and animal species. Maps 17 overlays NHESP's Priority Habitats of Rare Species with *BioMap2*'s Core Habitat and CNL. Map 18 breaks the Core Habitat and CNL layers into the components most relevant to conservation planning in Holyoke. These maps, in conjunction with the list of parcels identified as being of conservation interest in Table A.1.6, are

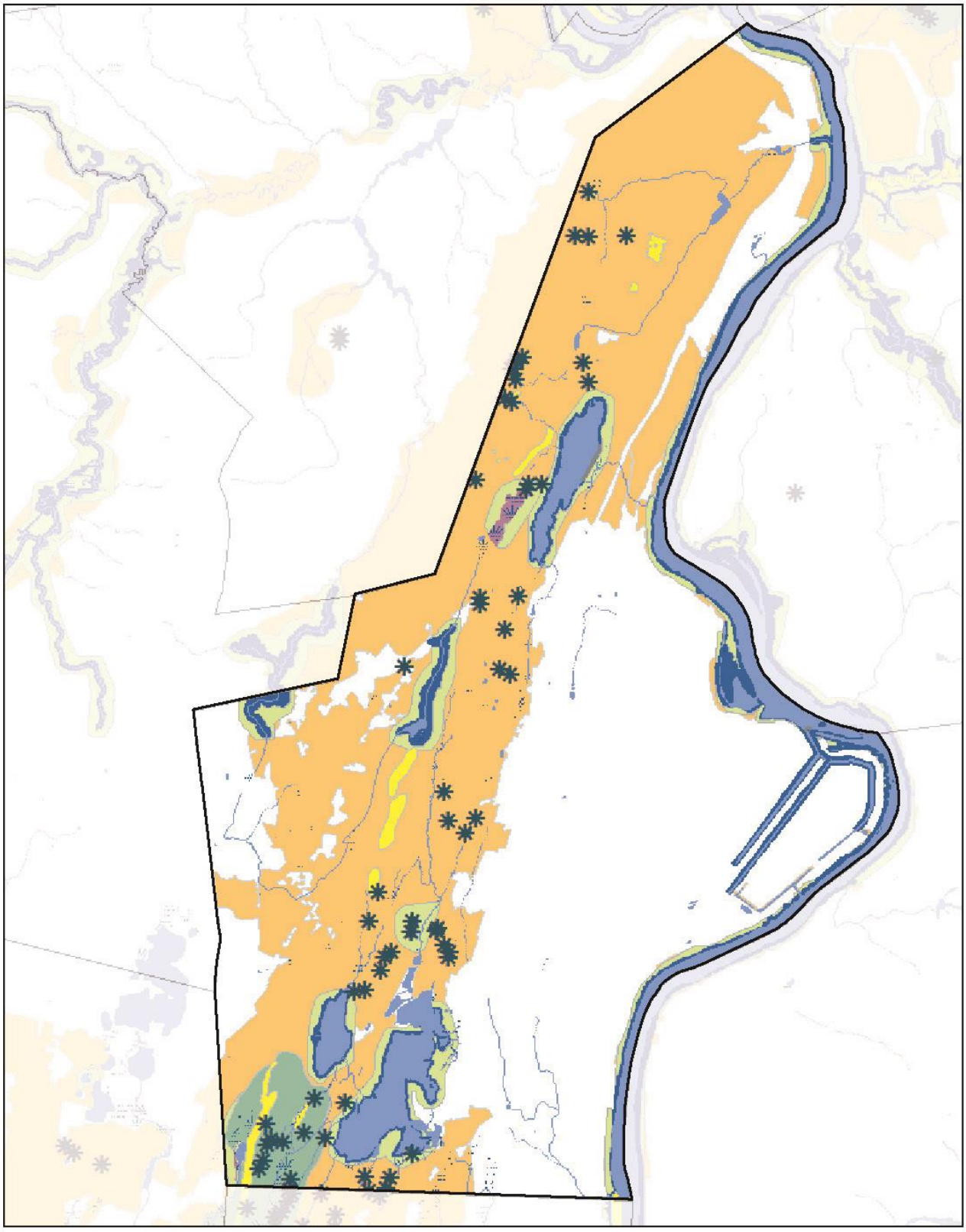
Map 17: CORE & PRIORITY HABITAT

A wide swath of core and priority habitat runs north-south along the ridgeline, encompassing all three reservoirs and nearly half of the city's total land area. The 2017 updated NHESP priority habitat information extends the area of conservation concern farther to the west.

BioMap2 Core Habitat

BioMap2 Critical Natural Landscape

NHESP Priority Habitats of Rare Species



CORE HABITAT & CNL COMPONENTS

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HOLYOKE, MASSACHUSETTS

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designed to assist the Conservation Commission and policy makers when deciding whether or not to preserve a parcel of land.

4.5.5 Wildlife Corridors

The Mount Tom-East Mountain range forms an important terrestrial corridor of wildlife habitat running right through the middle of Holyoke. This wildlife corridor continues beyond city limits to the Mount Holyoke Range to the northeast and Bear Hole Watershed area to the south. At the regional scale, the range as a whole is part of a wildlife corridor that spans from the 50,000 acres of the Quabbin Reservoir area to the Westfield River, a federally recognized Wild and Scenic River whose headwaters start in the Berkshire hills (Novak and Corbin 13). The range aids birds and large mammals on the move regionally. Large blocks of intact land uninterrupted by roads within that corridor aid the migration of smaller species, especially amphibians, between breeding and non-breeding habitats and in search of food.

Only Routes 141 and 202 cross the mountains, but the two golf courses, the telecommunication towers on the top of Mount Tom, the former quarry site, and Interstate 91 and Route 5 do also interrupt the connectivity of the landscape. The Connecticut River also imposes a barrier to connectivity between the Mount Tom and Mount Holyoke Ranges for certain species.

Mass Audubon has identified the Mount Tom, East Mountain, and Mount Holyoke ranges together as an Important Bird Area. This mountain range collectively hosts an extraordinary concentration of migrating hawks during the fall migration. Many bird watchers congregate on the various peaks of the range to watch this migration from early September through Late November. During mid-September, up to 10,000 hawks have been seen in one day passing over Goat Peak on the Mount Tom range (City of Holyoke 2013b 46). Other raptor species known to migrate over Mount Tom include turkey vulture, osprey, bald eagle, northern harrier, sharp-shinned hawk, Cooper's hawk, northern goshawk, red-shouldered hawk, red-tailed hawk, American kestrel, and peregrine falcon (Mass Audubon 3).

Map 18: CORE HABITAT & CNL COMPONENTS

Vernal pools, aquatic cores, and their buffers occur from north to south throughout the range. Priority natural communities sit in the central and southern part of the range but it is the southwestern-most corner where the highest concentration of valuable ecological resources, including forest core, are located.

The Connecticut River forms another major wildlife corridor for aquatic species, including aquatic mammals. In Holyoke, very little land along the Connecticut River is under protection with the exception of some land in the north. There is very little floodplain forest left to act as a wildlife corridor along the river, but Log Pond Cove, an area near the power plant in Smith's Ferry, and a strip of land belonging to the Sisters of Providence in the southeast, still contain notable floodplain forests. Most land along the river is within the 200' Riverfront Resource Area and/or the Bordering Land Subject to Flooding resource area and is, therefore, subject to protection under the Wetlands Protection Act. This layer of protection helps to preserve these critical habitat areas. The Robert E. Barrett Fishway allows fish to migrate upstream around the otherwise impassable Holyoke dam. It has been successful assisting American shad and sea lamprey migrate upstream, and less successful for Atlantic salmon (Motzkin).

4.5.6 Identifying Priority Protection Conservation Parcels

Mass Audubon's MAPPR tool can be used to identify high priority lands for habitat, watershed, and resource protection based on the following criteria: resilient sites for conservation (The Nature Conservancy), critical linkages priority, *BioMap2* Core Habitat and Critical Natural Landscapes, and surface water protection zones. The MAPPR tool identifies various parcels that lie adjacent to City- or state-owned conservation land along the ridge extending south from Route 141 to the West Springfield boundary as priorities. Conserving parcels adjacent to protected conservation land reduces the risk of fragmentation, increases wildlife connectivity, buffers interior forest from forest stressors, protects rare species and important habitat, and increases the function of forests in watershed land. Generally, the city should prioritize parcels along the city's mountainous spine, unprotected parcels surrounded by protected ones, and land close to the City's reservoirs. Section 5.1.6 gives a more detailed list of parcels identified as important for watershed protection.

View from Mount Tom. Photo courtesy of Andrew Smith.

4.6 Scenic Resources and Unique Environments

Holyoke's rich industrial history and its location at the crossroads of riparian and upland forest ecology offer residents a wide array of scenic resources and unique environments. Residents value scenic resources ranging from the Mount Tom State Reservation, to the canal system downtown, to the dinosaur footprints along the Connecticut River.

4.6.1 Scenic Landscapes

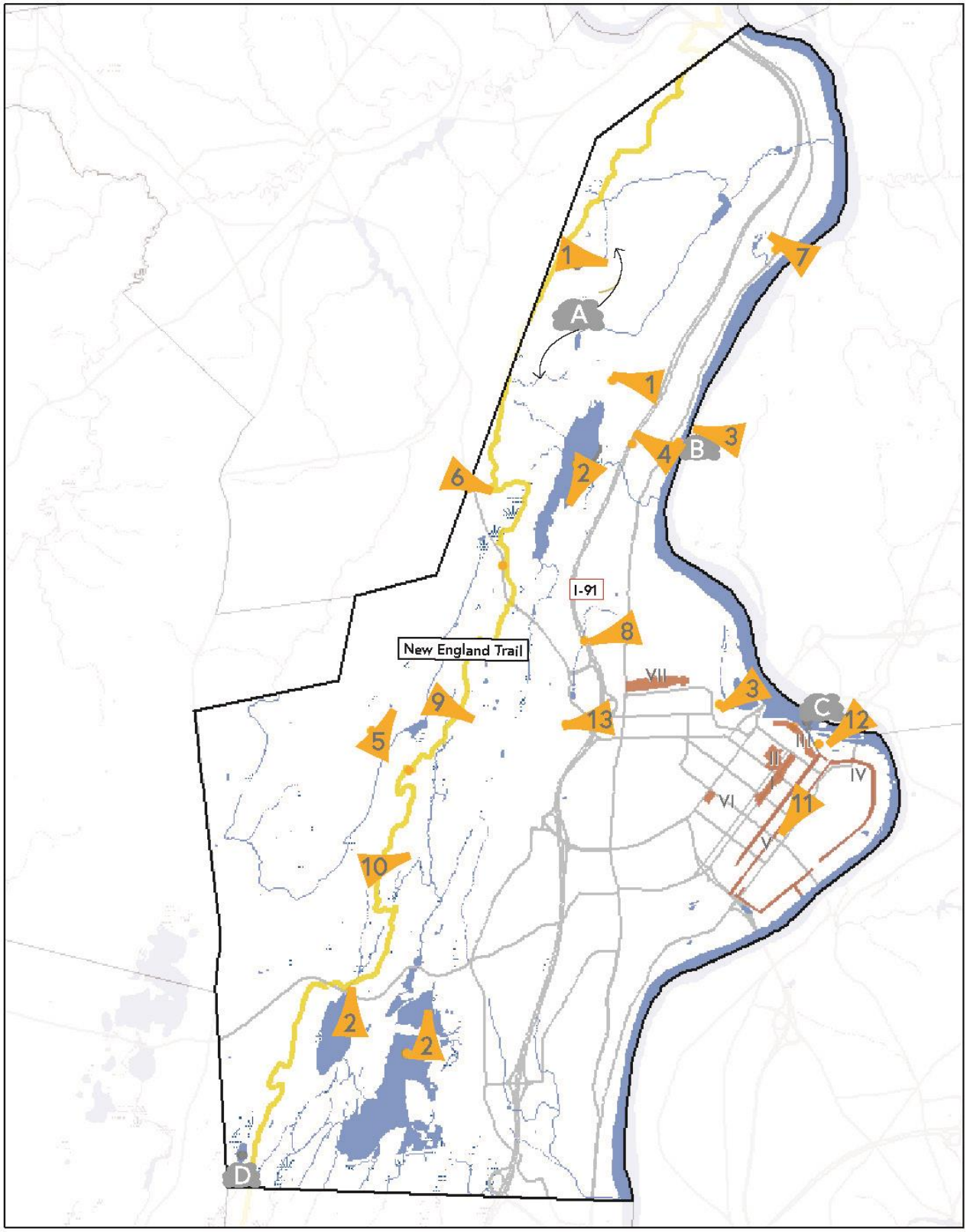
As documented earlier, Holyoke is rich in ecological, cultural, historical, and scenic resources. When planning for the protection, development, or improvement of open space, the following valued scenic areas (according to the 2012 OSRP and 2017/18 survey respondents) should be considered as they contribute to a strong sense of place:

1. The Mount Tom area, including the State Reservation, the former Mount Tom Ski Area on Little Tom Mountain, and Mount Tom itself, for its dominance of the skyline and its scenic vistas;
2. The Whiting Street, Ashley, and McLean Reservoirs for the scenic and natural opportunities they provide outdoor enthusiasts;
3. The Connecticut River, particularly the Holyoke dam and views of the range from the Dinosaur Footprints Reservation, Pulaski Park, McNulty Park, and bridges;
4. The Route 5 corridor in Smith's Ferry for its views of the river and the mountains;
5. Mountain Road in west Holyoke, for its rural character and unbroken views of East Mountain;
6. The views west from Log Cabin Restaurant on Route 141, which serve as a regional attraction;
7. The views from Cedar Knob, between Route 5 and Interstate 91;
8. The changing views of the city from Interstate 91;
9. The New England National Scenic Trail along the backbone of Mount Tom and East Mountain;
10. Views from basalt bluffs along Mount Tom and East Mountain, which provide views of the Berkshires;
11. The canal system downtown, an engineering accomplishment that makes Holyoke unique in the area;
12. Gatehouse Road behind the HG&E substation, with its views of the river, dam, and Mount Tom;
13. Scott Tower at Community Field/Anniversary Hill Park, for its views of the valley;

(See Map 19 for locations of these areas)

There are many other smaller vignettes of grace and beauty throughout the city, such as the classic Victorian houses of Fairfield Avenue, the verdant retreat of Heritage State Park and Veteran's Park in the downtown, and the quiet calm of Zenner Pond on West Cherry Street. Even the modest places of scenic value are valuable to protect for future generations.

Important to the preservation of scenic resources is the maintenance of views. Thinning trees in the railroad right-of-way below Pulaski Park in 2017 and along the steep slope adjacent to McNulty Park in 2018 re-opened the excellent views of the Connecticut River, the dam, and the Mount Tom Range after many years of obscurity, to the delight of Holyoke residents.



UNIQUE GEOLOGICAL, SCENIC & HISTORIC FEATURES

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

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4.6.2 Unusual Geological Features

As noted in section 4.2.1, Holyoke is home to several unique and important geological features (see Map 19). The city's most well-known landmark is also one of its most interesting geological features: volcanic activity created the Mount Tom and East Mountain range.

The Dinosaur Footprints Reservation along Route 5 is the best-known example of fossilized dinosaur footprints in the area, though Holyoke also boasts several lesser-known examples such as those at the Wistariahurst Museum. Both properties are protected in perpetuity to ensure the preservation of these historic resources. The Trustees owns the Dinosaur Footprints property and are dedicated to preserving its integrity and promoting public access. The City owns Wistariahurst Museum, and thus can take an active role in protecting its historic value.

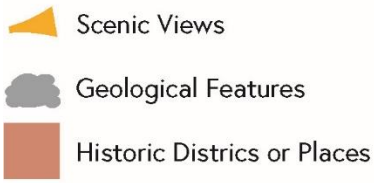
Snake Pond, in the southwest corner of the city, is a more recent geological feature worthy of note. Kettle holes are hydrological remnants of New England's most recent period of glaciation, formed when a melting mass of ice trapped in glacial deposits leaves a depression. This pond is fringed by a bog which contains several rare and endangered species and when water level is low, can create acidic soil environments that support plant communities less common in the region.

4.6.3 Cultural and Historic Areas

The National Register of Historic Places recognizes three historic districts, seven historic buildings, Pulaski Park, and the Holyoke Canal System (see Map 19). The North High Street Historic District encompasses the block on High street between Lyman Street and just past Appleton Street. The Hadley Falls Company Housing District includes examples of mill-worker housing on Canal, North Canal, Grover, and Lyman Streets. The Hampden Park Historic District includes Veteran's Park and is roughly bounded by Hampden, Chestnut, Maple, and Dwight Streets. The Wistariahurst Museum, owned by the Holyoke Historical Commission, includes a historic house and museum, formal gardens, and the odd but delightful historic Frog Circus created by naturalist Burlington Schurr.

Map 19: UNIQUE GEOLOGICAL, SCENIC & HISTORIC RESOURCES

Unique geological features and scenic views dot the mountains, highways, and river's edge; historic districts define the downtown.



A Mount Tom

B Dinosaur Footprints

C Drop in Connecticut River

D Snake Pond

I North High Street

II Hampden Park Historic District

III Pulaski Park

IV Hadley Falls Co. Housing District (spatial area unknown)

V Canals

VI Wistariahurst

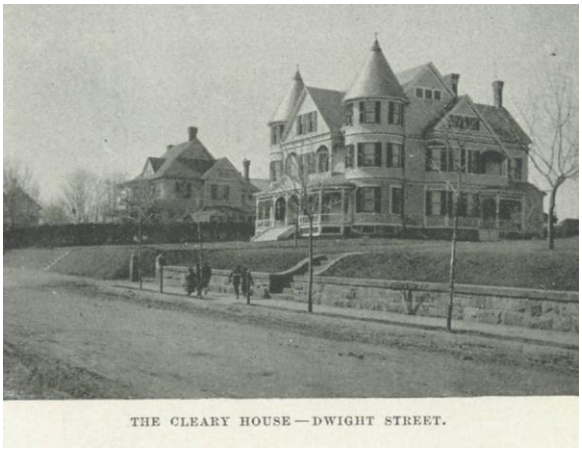
VII Fairfield Avenue

Locally, the City established a historic district on Fairfield Avenue in Ward 7 in 2007 to preserve the architectural integrity of some of Holyoke's prime examples of Victorian architecture. The Historical Commission has expressed interest in adding another historic district (local or national) around Depot Square, one of the first commercial districts located near the train depot. The local historic inventory also includes approximately 1,195 buildings and sites.

Holyoke Community College and the War Memorial Auditorium, where both veteran dancer Mikhail Baryshnikov and seminal American band Fugazi have performed, are also considered important sites and regularly offer cultural programming. If proposed renovations are completed, the historic Victory Theater would become a valuable historic and cultural site once again in the downtown. Other downtown cultural sites include the restored antique carousel at Holyoke Heritage State Park, the Children's Museum, and the Volleyball Hall of Fame.

The city is also home to a historic Civilian Conservation Corps project. Constructed in the 1930s, the stone tower (Scott Tower), stairs, and bridges at Anniversary Hill Park would offer, if restored, a wonderful view of Holyoke and nearby mountains and a unique urban recreational area. Some renovation was completed in 2003 through the help of a grant awarded from the DCR. However, additional funding and improvements to access and navigational issues (discussed in 3.4.2) are needed to restore this park and Scott Tower to wide use by city residents.

Holyoke's adoption of CPA in 2017, increases options for historic preservation. Since CPA funds are available for historic preservation, housing, and open space, there are opportunities, such as with Scott Tower and Anniversary Hill Park, for CPA funds to be directed jointly toward historic and open space preservation.



Above: Holyoke Heritage State Park sits along First Canal and features picnic areas, great views, and a restored Holyoke Merry-Go-Round. Photo courtesy of John Phelan.

Below: Many examples of Victorian architecture, exemplified by the Cleary House, remain standing today. Areas like Fairfield Avenue are protected by their historic district designation. Photo courtesy of Jim and Russ Birchall.

4.6.4 Areas of Critical Environmental Concern

Holyoke has no state-designated Areas of Critical Environmental Concern, however as described in sections 4.5.3 and 4.5.4, NHESP and *BioMap2* identify many areas along the Mount Tom-East Mountain range as important for regional ecology. With its concentration of rare and endangered species and habitats, its scenic lookouts, and its heavy recreational use, the range is a natural resource of regional significance. The Connecticut River is another regionally important natural resource, again because of its rare and endangered species, natural beauty, recreation potential, and valuable hydropower generation. The lowlands in western Holyoke are locally important for their scenic beauty and isolated areas of rare and endangered species habitat and is regionally important due to their location over the Barnes Aquifer.

4.7. Environmental Challenges

The developed, historic urban areas in Holyoke are particularly impacted by a variety of environmental hazards, from brownfields to combined sewer overflow outlets along the Connecticut River. Development and historic land use has caused chronic flooding, channelized waterways, and long-term contamination concerns that require long-term planning and remediation.

4.7.1 Hazardous Waste Sites and Brownfields

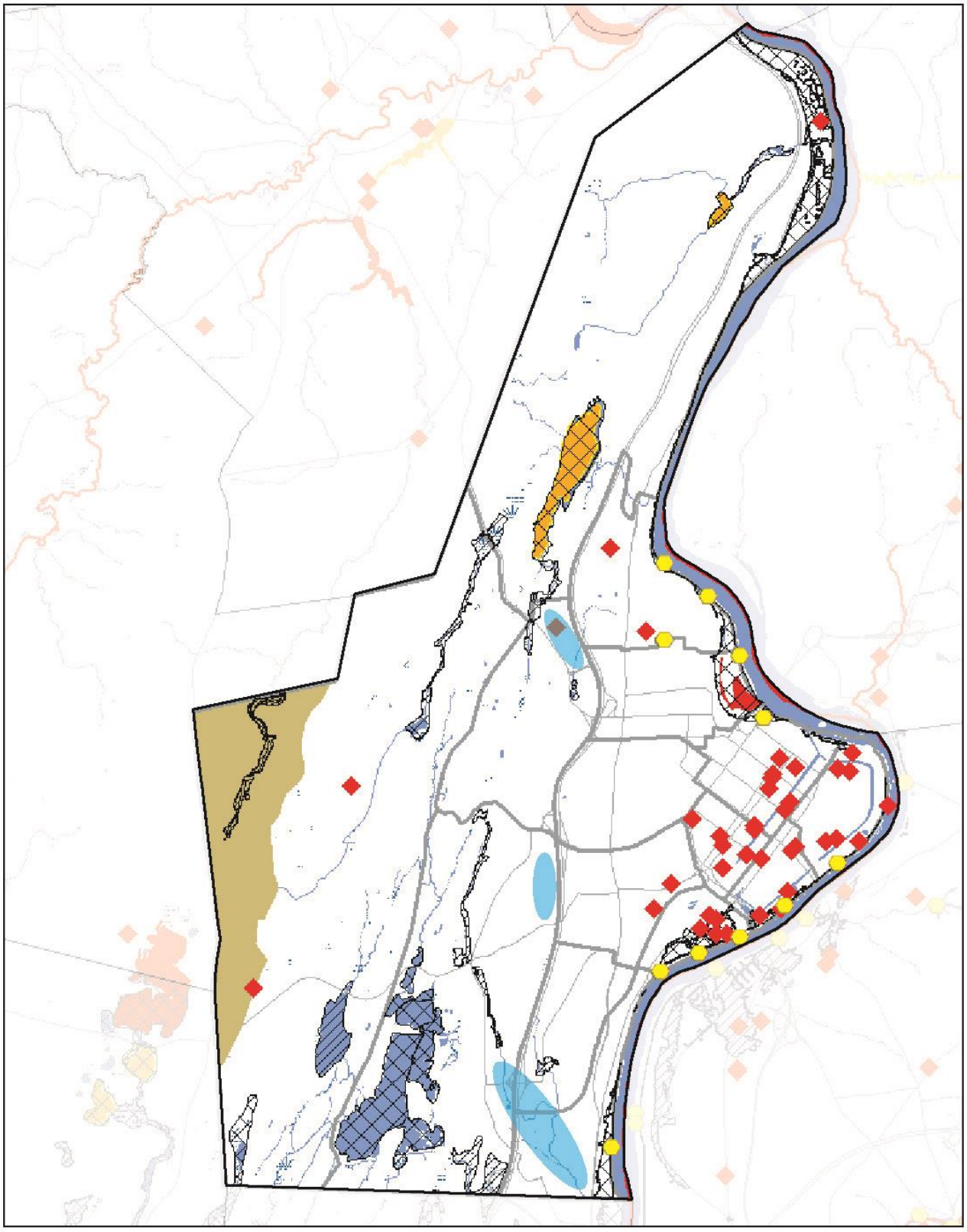
Hazardous waste sites are land parcels contaminated by chemical pollutants, usually as a result of dumping or accidental leaking. Many of these sites become classified as brownfield sites: properties "whose expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" (US EPA 2018c). Holyoke contains many abandoned or underused properties with potential brownfield issues (see Map 20). Fortunately, the city is not home to any Superfund sites—hazardous waste sites where contamination is so severe the federal government is involved (EPA 2018b).

The Massachusetts Department of Environmental Protection (DEP) currently identifies 294 Waste/Reportable Release Sites, or hazardous waste sites, in the city (MA EOEEA 2017). According to the DEP, at least ten of these release sites are currently "open," which indicates that assessment or cleanup is ongoing or needed. The DEP has also given 23 of these sites Activity and Use Limitations (AULs). These AULs concentrated in the developed east and especially around the industrial downtown infrastructure limit use to prevent exposure to contaminants (typically in soil) that might compromise air or groundwater quality. In addition to known spill sites, there are large numbers of abandoned or underutilized properties throughout the city where potential environmental issues exist and investigations have not been conducted. Holyoke has 64 properties in tax title according to assessor's data, and 11 foreclosed properties on the market at the time of writing. Hence, brownfield remediation could provide opportunities to incorporate open space in the redevelopment of in Holyoke.

The remediation and redevelopment of brownfield sites in Holyoke would benefit the community by returning properties to the tax rolls, protecting public health, potentially increasing open space, and opening up opportunities for job creation. Cleaning up brownfields for redevelopment fosters better economic and environmental conditions for the entire Holyoke community, but particularly for those people living in the urban core in proximity to brownfield properties. All of the four downtown neighborhoods where hazard sites are concentrated are environmental justice communities.

In order to continue to encourage economic growth and simultaneously slow the rate of greenfield development, the City aims to prioritize infill and redevelopment in the industrial/post-industrial core to provide potential new and expanded business space (Devoe et al. S-5). Some recent initiatives, including the construction of the Massachusetts Green High Performance Computing Center on the former Mastex site on Bigelow Street, and the upcoming redevelopment of Valley Arena Park, are City-led or City-supported efforts to redevelop contaminated parcels to produce high-quality development and open space.

One of the City's largest efforts to remediate brownfields can be found in the rural western portion of the city. In 1924, the City took ownership via eminent domain of a parcel on Mountain Road previously used for small arms practice by the former "Voluntary Militia" (once required by state law). The National Guard was the last known property user, terminating their use of the site for these purposes in the 1970s. The City is in the process of removing lead, antimony, and arsenic that remained after the use of this site as a firing range ended. The City is in the final stages of reaching either a temporary or permanent solution for this parcel, at which point a decision will



ENVIRONMENTAL CHALLENGES

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

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need to be made as to whether or not to sell the front four acres for housing/commercial uses or to place the remaining front four acres in conservation, which is the status of the rear 15-acre section.

In the past, the City received EPA Brownfield Assessment Demonstration Pilot Grant and Targeted Brownfield Assessment Grant funds for its brownfield remediation work. The City is now looking to use CDBG funds for spot blight remediation of potential brownfield locations.

4.7.2 Landfills and Sewage Treatment Plants

There are no active landfills in the City of Holyoke. The Holyoke Mall at Ingleside is built over a capped landfill, which was discontinued in the early 1970s.

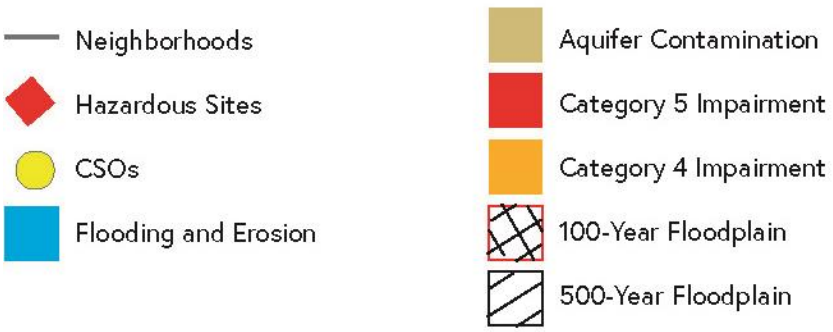
The City sewage treatment plant next to Interstate 391 is also the location of the Berkshire CSO Abatement Facility (described in section 3.4.2) which manages storm and wastewater from the combined sewer overflow system. While this facility reduces the amount of pollution entering the Connecticut River effluent, the fourteen CSOs remain an environmental concern.

4.7.3 Erosion

Tannery Brook is a 2.5-mile long tributary of the Connecticut River with headwaters in a wooded area northwest of Holyoke Community College. Its watershed is approximately 1,400 acres, around ten percent of Holyoke's land area. The upper reaches of the brook, in the vicinity of the college, are in a mostly stable riparian state according to the Conservation Commission. However, several sections within the middle and lower portions of the brook have experienced significant erosion and channelization. Extensive development and culverting in this section of the brook has resulted in scouring, flooding, and sedimentation on land belonging to The Trustees' Land of Providence and to commercial tenants near the intersection of Tannery Brook and Main Street (totaling several hundred thousands of dollars in 2006). Aerial photos taken in September of 2010 and 2017 at low flow levels (Figure 1) demonstrate the extent to which erosion and sedimentation and erosion of Tannery Brook may be

Map 20: ENVIRONMENTAL CHALLENGES

Hazardous sites and CSO exit points are concentrated in downtown Holyoke, while flood risk is highest north and south of downtown, along the major streams, and along the northern- and southernmost extents of the Connecticut River. In the west, past and potential contamination in the Barnes Aquifer poses a risk to the health of the households who draw from it.



impacting the Connecticut River. The City has not found a good funding program that meets the needs of this watershed. It is likely the Municipal Vulnerability Program (MVP) process underway in Holyoke at the time of writing will identify needs and potential solutions for this stream.

The high and steep bank of the Connecticut River around Log Pond Cove also shows considerable erosion below Lincoln Street (City of Holyoke 2013b). This site has shown signs of erosion for several decades, but the actual effects of the erosion have been minimal in terms of cutting back the top of the bank.

The City has an Erosion and Sedimentation Control Ordinance enforced by the City Engineer to address active erosion and sedimentation problems. It is the City's duty to closely monitor compliance with the Stormwater Pollution Prevention Plan (SWPP) requirement of the EPA, including during construction and development processes, to ensure that construction activities do not result in the deposition of sediment within the city's water supplies and wetlands resource areas. Additional site-specific areas of sedimentation include Broad Brook, where road sand washes into the brook, and the pool upstream of the Holyoke dam on the Connecticut River, which receives sediment from the river's watershed upstream.

Figure 1: Sediment from Tannery Brook where it reaches the Connecticut River as seen in 2010 (above) and 2017 (below). Images from Google Earth Pro.

4.7.4 Chronic Flooding

In 2012, FEMA issued new floodplain boundaries. The City amended its flood insurance rate map in July of 2013 based on this update (see Map 16), reducing the total number of parcels in flood zones (City of Holyoke 2013b 2). Aside from the 100-year floodplain, there are portions of the city known to experience regular flooding. Areas prone to flooding during high volume rain events but not within the 100-year floodplain are most often found downtown and in residential areas east of I-91 where streams are not yet buried, including:

- Areas adjacent to Green Brook at Green Lane and Longfellow Drive (Woodmar Glen development);
- Portions of the Great Lakes neighborhood; and
- A few roadways including West Franklin Street and Cabot Street next to First Canal, and especially in the severe slope or "u" within the railroad underpass.

The City took steps to mitigate flooding at Longfellow Road in 2015 through the joint efforts between the Massachusetts Highway Department and Holyoke DPW, restoring functionality to culverts and the original grade through the removal of barriers. Maintenance and monitoring will need to occur regularly at this site to address

the changes as they arise. Further investigation of flooding in downtown Holyoke is needed before developing recommendations.

United Water cleans out the catch basins on a regular basis to mitigate the periodic flooding of Michigan and Erie Avenues (in the Great Lakes Neighborhoods). According to the Conservation Commissioner, the City plans to design and construct a swale to further resolve the issue.

4.7.5 Development Patterns

Because over 90 percent of Holyoke is already built upon or curtailed by building restrictions, the City is directing planning and funding efforts toward infill and redevelopment (see section 3.4.3). Utilization of already-developed lands could reduce pressure on undeveloped sites, preserving Holyoke's rural and natural landscapes where they exist.

Holyoke's subdivision regulations, which standardize streets, utilities, drainage, and vehicular use within a subdivision, were last amended in 1986. Review and revision of subdivision rules to low-impact development current best practices may be needed to better align City stormwater management with development goals. The local land use regulations analysis tool Greening Your Community produced by Mass Audubon may be useful for such a review.

4.7.6 Surface Water Pollution

Holyoke possesses an abundant supply of clean surface water which is filtered by the forests that encircle the city's reservoirs. This provides clean, uncontaminated water to the City's municipal drinking water customers.

While surface water in lakes and ponds hasn't faced contamination issues according to the annual water system reports, contamination of the Connecticut River has been an issue for decades. Operations at Northeast Utilities' power generation facilities along the Connecticut River between 1900 and 1945 dumped coal tar in the river. When HG&E took ownership of Northeast Utilities' power operations in Holyoke, a comprehensive coal tar removal process commenced. Starting in 2002, excavation occurred in both wet and dry conditions and has involved numerous municipal, state, and federal permitting agencies. In 2005, coal tar removal began on stretches of the river in the vicinity of Springdale Park and additional work was completed in 2011 within the canal system to remove coal tar deposits. Most recently, in fall 2017 and winter 2018, stone caps were placed over patches of coal tar in Holyoke, South Hadley, and Chicopee under DEP186-0264 in compliance with the Massachusetts Contingency Plan.

Holyoke has well-established urban development patterns resulting in a high percentage of impervious surfaces concentrated in the downtown. As of 2014, 23 percent (1,478 acres) of Holyoke's urbanized areas were classified as Directly Connected Impervious Area (DCIA) by the EPA. DCIAs are impervious surfaces in which surface runoff runs directly towards catch basins, drains, or other conveyance structures without first passing over pervious surface where it could infiltrate (PVPC 2014b 40). A quick analysis using 2018 aerial photographs and the US Forest Service's i-Tree tool shows that the total amount of impervious surface in Holyoke's urban core is close to 60 percent.

As in other cities, development produces surfaces that are impervious to rainwater, typically in the form of buildings, roads, and parking lots. During rain events, oil, grease, heavy metals, and other contaminants are captured by rainwater, flow over impervious surfaces instead of infiltrating into the ground, and reach waterways

where they are flushed downstream. Increasing pervious surfaces allows water to infiltrate the first flush during rainfall, helping filter contaminants before runoff enters ground or surface water. To mitigate the impacts of non-point source pollution, the City relies on a combination of enforcement, permitting, education, and construction of new infrastructure.

The City of Holyoke filed its National Pollutant Discharge Elimination System (NPDES) General Permit for Small Municipal Separate Storm Sewer Systems (MS4s) in March of 2003. In July 2018, a new, revised permit will go into effect for the state of Massachusetts. The six minimum control measures mandated by this permit include: 1) public education and outreach, 2) public participation in development and implementation of the City's Stormwater Management Program (SWMP), 3) illicit discharge detection and elimination, 4) management of construction site runoff, 5) management of post-construction site runoff (development and redevelopment), and 5) good housekeeping in municipal operations. The scope of work and the permitting requirements established in this document require the Conservation Commission to inspect all stormwater detention basins, generate public education resources, and stencil storm drains.

Holyoke's Stormwater Ordinance, adopted in 2009, contains strong requirements for stormwater management. According to the *Pioneer Valley Green Infrastructure Plan*, Holyoke fulfills all of the NPDES regulatory requirements with the exception of the previously noted lack of strong low-impact development (LID) language in subdivision regulations (see section 4.7.5) (35).

Efforts by the City and community to install green infrastructure are part of a larger strategy to reduce the amount of stormwater flowing from streams into the city's sewer system to improve the integrity of the Connecticut River watershed. These projects include daylighting sections of Day Brook near Community Field, which has directly reduced the amount of stormwater flowing from the brook into the stormwater system during peak flow events. Other green infrastructure projects, such as the rain garden at Pulaski Park, have been completed recently through public sector and public-private partnerships. The *Pioneer Valley Green Infrastructure Plan* identifies public projects at Depot Square and the Suffolk Parking Garage as potential locations for new public-sector projects (43). Green infrastructure projects, strong language promoting green infrastructure, and LID zoning rules could not only reduce stormwater and wastewater pollution, but also have beneficial placemaking and quality of life benefits.

PVPC and the Sullivan School teamed up to create a public education element to commemorate the daylighting of Day Brook at Community Field. Photo by Taurean Gagnon.

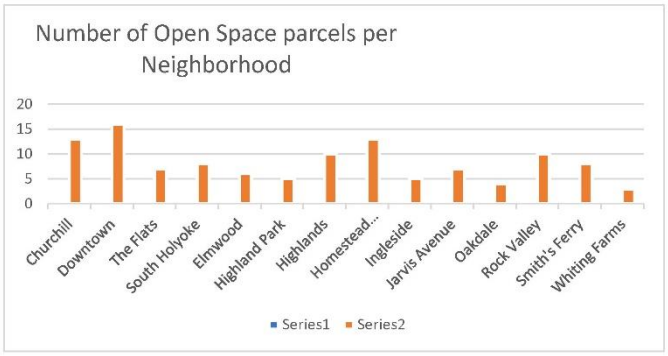
4.7.7 Groundwater Pollution

Pollution has persistently plagued the Barnes Aquifer groundwater. According to the 2012 OSRP, in 1984, DEP found trichloroethylene (TCE) in a stretch of the aquifer, including in the Broad Brook basin, which contaminated a small area of drinking water wells in west Holyoke. DEP did a comprehensive investigation and identified two Potentially Responsible Parties: Southampton Sanitary Engineering at their site at 80/82 Pequot Road, Southampton, and General Electric at two sites in west Holyoke. As part of this investigation, DEP sampled more than 400 private wells in Southampton, Easthampton, Westfield, and Holyoke and consequently installed 278 monitoring wells to identify the approximate area of the TCE contaminant plume. To reduce the risk of drinking water contamination, the City of Holyoke shut down two public wells in 1988: the Coronet Homes

Water Supply and the Pequot Well. In 1997, DEP installed and maintained for two years whole-house granular-activated carbon filters in homes still reliant on aquifer well water to reduce risk. Residents were provided written sampling and maintenance recommendations and DEP sent reminders from 1999 to 2010 after returning responsibility of filter care to homeowners. Some homes have connected to public water lines made available as a result of DEP's findings. A few homes with private wells continue to use whole house filters.

The 2012 OSRP elaborates that in 2008, further assessment was performed and additional investigative bedrock wells were installed in west Holyoke to test for TCE and PCBs. Although levels were very low, results indicated that these contaminants were present. Testing did identify a release from an adjacent business. Ultimately, the affected properties connected to public water.

Most recently, DEP identified the Barnes Air National Guard Base as the source of perfluorinated compounds (PFC) contamination in portions of the Barnes Aquifer in Westfield. The contamination plume has not yet been found to affect the homes estimated to still be drawing from the aquifer in west Holyoke (3). Monitoring of both DEP-issued filters and of pre-filter water quality could be continued while the City seeks alternative public drinking water sources for households reliant on private wells that tap into the Barnes Aquifer.



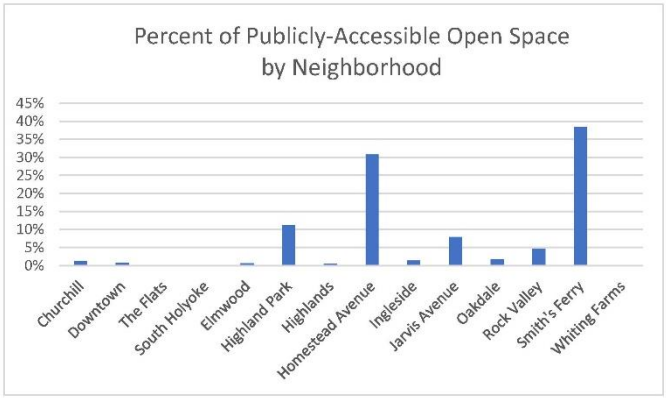


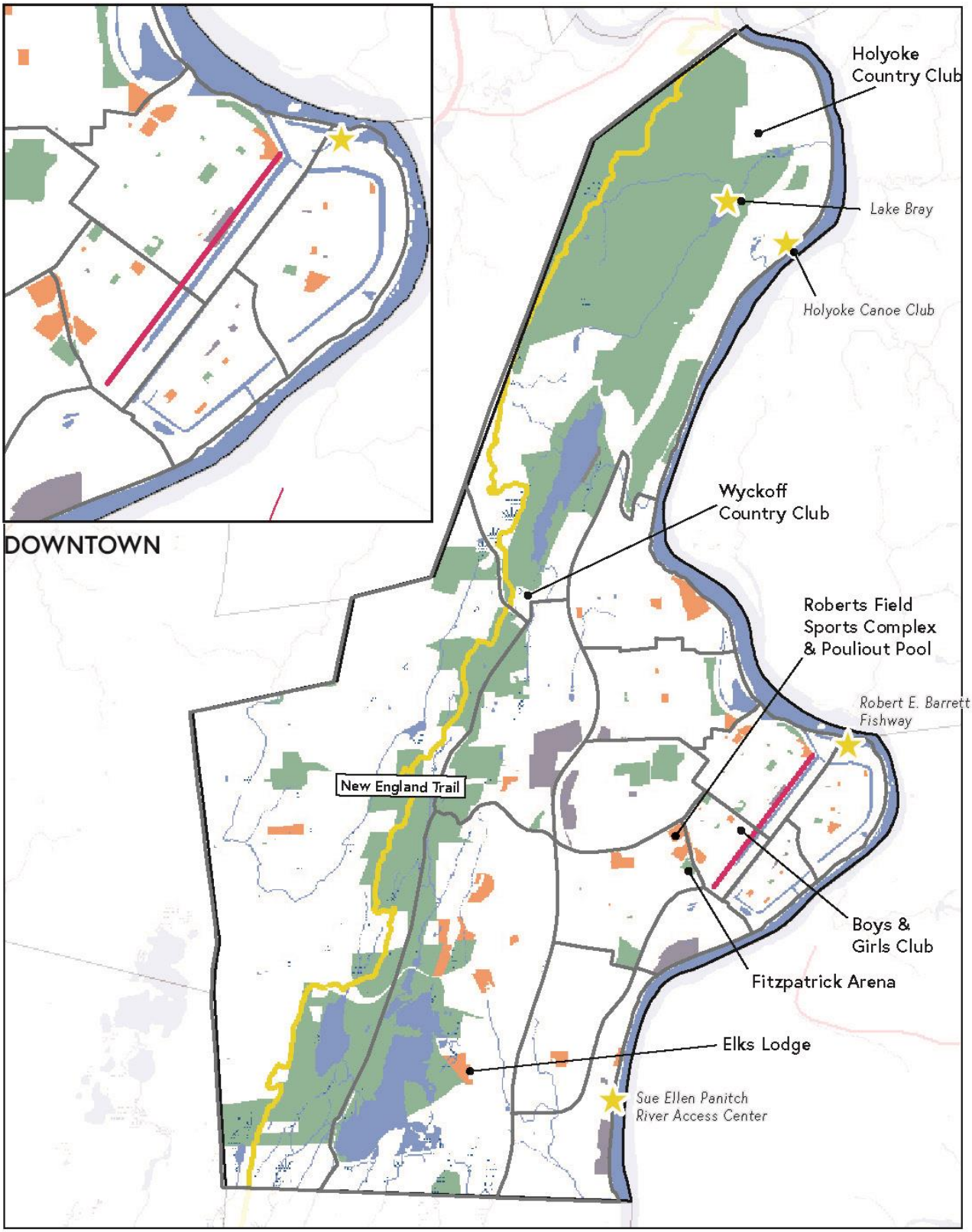
Figure 2: The number of open space parcels by neighborhood reveals a high quantity in the downtown neighborhoods (above).

Figure 3: The quantity of open space downtown is significantly lower than in Homestead Avenue, Smith's Ferry, and Highland Park (below).

4.7.9 Environmental Equity

A cost-distance GIS analysis shows that the vast majority of residents in the urban core live within a quarter-mile walking distance to a public park. The Rock Valley, Highland Park, Whiting Farms, and Homestead Avenue neighborhoods are home to the greatest number of households not within easy walking distance of a public park. It should be noted however, that residents of these neighborhoods are more likely to own cares and live a short drive from either Mount Tom, Ashley Reservoir, or Whiting Street Reservoir.

While there are over thirty distinct parks in the downtown area (see Figure 2), many of these parks are very small and analysis of the city's open space land area by neighborhood shows that less than five percent of Holyoke's total open space and park area is located in the four downtown neighborhoods (see Figure 3). While the abundance of park land and open space is one of Holyoke's strongest civic amenities, unequal park distribution between neighborhoods may not provide the residents in the most densely-populated parts of the city enough access to clean air and recreational opportunities. These are residents who by definition may already be impacted by elevated exposure to environmental hazards and exclusion from public processes regarding the environment. Further analysis of how unequal distribution affects residents of downtown neighborhoods could lead to better prioritization of park development and improvements in these areas.



PARKS, RECREATION FACILITIES & WATER ACCESS

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

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4.8 Parks and Recreation Facilities and Programming

With over 50 parks and recreation facilities, ranging in size from small pocket parks to large state reservations, Holyoke has a variety of recreational opportunities available at no cost to the public. The Parks and Recreation Department oversees recreational programming and grant writing for these parks and facilities which are maintained by the Department of Public Works. The City attempts to stay current with residents' needs with a range of year-round recreational programs that strive to stay current with residents' needs. However, it faces challenges in maintaining these numerous parks and facilities and recreational use of these properties is sometimes limited by issues with quality, accessibility, and availability—especially in the case of a public swimming pool facility.

Active vs. Passive Recreation

Active Recreation: activities requiring little to no facilities and causing limited environmental impact.

Passive Recreation: activities requiring more extensive facilities and causing considerable environmental impact, such as baseball diamonds.

4.8.1 Parks and Recreation Facilities

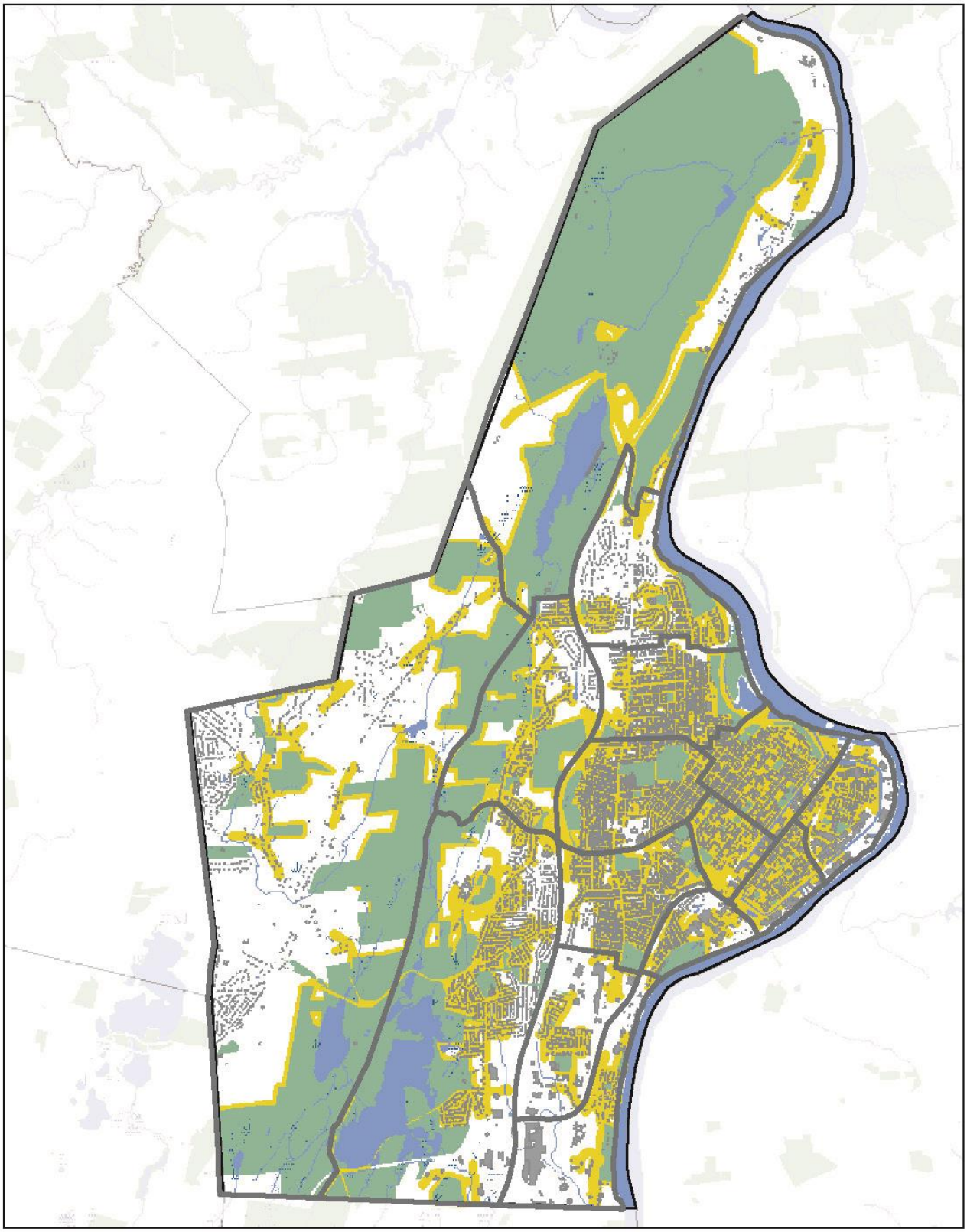
Parks and Recreation Facilities

Two state reservations lie within the city limits. The Mount Tom State Reservation in the north has a regional draw providing vehicular access to the ridge, access to nature trails (including the New England National Scenic Trail), fishing, picnic tables, a playground, and the ruins of the historic hotel on Mount Tom. Heritage State Park in downtown is frequently the site of community events, offers scenic views of the historic canal system, with a visitor's center and hotel. Access to recreational sites involving water is currently limited with only two publicly accessible locations.

In addition to these state-run parks and facilities, the City maintains 62 parks and recreation facilities as part of the City-owned park system (see section 5.2.1). Most of Holyoke's park are scattered throughout the eastern half of the city, becoming smaller and more numerous as development becomes denser. A limited number of neighborhood parks exist in the Smith's Ferry and Rock Valley neighborhoods (see section 4.7.9).

Map 21: PARKS, RECREATION FACILITIES & WATER ACCESS

While the ridgeline contains the greatest acreage of natural woodlands and trails, active and mixed-use parks are the most-easily reached from eastern neighborhoods. Water access points are in the north, center, and southern edges of the city and within the Mount Tom State Reservation.



ACCESS: QUARTER-MILE WALKING DISTANCE TO PARKS

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

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Uses
The City's parks and facilities are used for both passive and active recreation. Most of the larger parks, such as Community Field and Springdale Park, see community-wide use and cater to multiple passive and recreational uses, though neighborhood parks and even some pocket parks are often filled with active sports fields, courts, play structures, splash pads (see Map 21 for major recreational facilities and parks categories by active and passive use). Few sports fields exist in the west and north, but these residents are within short driving distance to opportunities for passive and some active recreation on the range. Unlike most of the city's recreational facilities, the skating rink is owned by the state.

Park Permits
The Department of Parks and Recreation gives out permits to individuals and organizations for the use of sports fields, picnic tables city-wide, and for use of the pavilion at Community Field. Because the demand for indoor facility rental exceeds the City's ability to provide it, many residents use city parks for birthdays and parties. In summer, a Parks and Recreation staff member responds full time to park requests (Sheppard).

Community Field is the only city park with grills on site. Personal grills are allowed at certain parks with a propane permit obtained from the Holyoke Fire Department.

The City also permits use of parks for festivals, such as El Festival de la Familia Hispana, and is open to hosting more as long as parks remain open to use by the public (Sheppard).

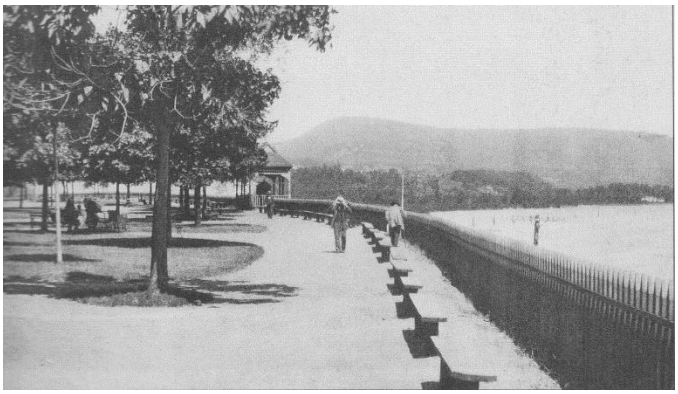
Access to Parks
At least 50 percent of the city's land is within a quarter-mile walking distance of a park or open space (see Map 22). Likely, the majority of residents live within walking distance of a park, as population is densest in eastern Holyoke where few gaps in walkable distance are found. While parks are numerous throughout the city, and most areas of residential development are within quarter-mile walking distance of a park or another form of open space, park and open space acreage is neither equally distributed across the city's land area nor amongst its population (see section 4.7.9).

No comprehensive analysis of walkability to parks exists, although the Holyoke DPW completed a WalkBoston walkability assessments for parts of town in 2018 and the *Holyoke Bike Network Plan* presents a spatial analysis of pedestrian-traffic accidents. Holyoke has an extensive bus system that provides residents relatively good access to

Map 22: ACCESS: QUARTER-MILE WALKING DISTANCE TO PARKS

The vast majority of residents in eastern Holyoke are within walking distance of a park or open space. Residents of west and southeastern Holyoke have to travel the longest distances to reach parks and open space.

the eastern half of the city, but bus stops are not generally located at parks (except in downtown) and a personal vehicle is necessary for reaching most trailheads along the ridge. Interstate 91 poses one of the most formidable barriers to walkability to parks in Holyoke, as it limits east–west walkability across the city and discourages the use of Anniversary Hill Park at Community Field.



Above: Prospect Park, designed by the Olmstead Brothers, offers scenic vistas of the dam, the Connecticut River, and Mount Tom. Photo courtesy of Jim and Russ Birchall.

Below: Now called Pulaski Park, little has changed since its first design. The park remains a point of pride in Holyoke. Photo courtesy of John Phelan.

Quality of Parks

Unequal distribution of total available open space across the city highlights the question of the condition of open space in densely-populated parts of the city. Table A.2.1-B provides a cursory description of the condition of each park maintained by the Department of Parks and Recreation. This analysis was completed in the fall of 2017. Further conditions assessment and community feedback could provide more comprehensive guidelines for improvements to park amenities and quality.

Visibility of Parks

Ongoing installation of park signage is increasing the visibility of parks. There is no comprehensive map of parks in the city and when in a park, it is not always obvious that there is another nearby.

Historic Legacy of Parks

Many parks in the city date back to the original city planning, making them great historical assets. Veteran's Park is one such example, with recent renovations that preserved its original design. The Olmsted Brothers (Frederick Law Olmsted is considered the founding father of landscape architecture) designed Pulaski Park which retains the vernacular feel of some of the country's first public parks. The City recently repurposed the edges of one of its greatest historical legacies—the canal—to provide a greenway along the first and second canals. Phases I and II of the Holyoke Canal Walk have been completed and plans to extend the canal walk north and south are pending. The creation of this greenway has the potential to increase resident and tourist use of this area as well as to invite investment into the historic but neglected area.

4.8.2 Recreation Programming

The City primarily takes responsibility for sports recreation programming in the summer months, while the school system runs sports and recreational programs throughout the school-year. In addition to the Parks and Recreation department and schools, a few private organizations run recreational programs outside of school hours including Holyoke Rows, the Greater Holyoke YMCA, the Boys & Girls Club, and Girls Inc. The Parks and Recreation Department's website and Facebook page provide contact information for City-, league-, and non-profit run recreational programs, but for the most part does not provide schedules or details. These recreational opportunities include baseball, softball, basketball, field hockey, football, lacrosse, hockey, biking, soccer, tennis,

volleyball, bowling, and preschool. According to Parks and Recreation Director Terry Sheppard, new programs are being developed as trends change. Passive activities such as jogging are not actively promoted by the City, but are also not discouraged.

In addition to sports camps, Holyoke Parks and Recreation sets up drop-in activities in parks for eight-week periods, offering arts and crafts and other passive activities. Finally, the department offers a handful of one-time community events such as the Celebrate Holyoke festival, the annual Easter Egg Hunt and Spring Celebration, and senior picnics.

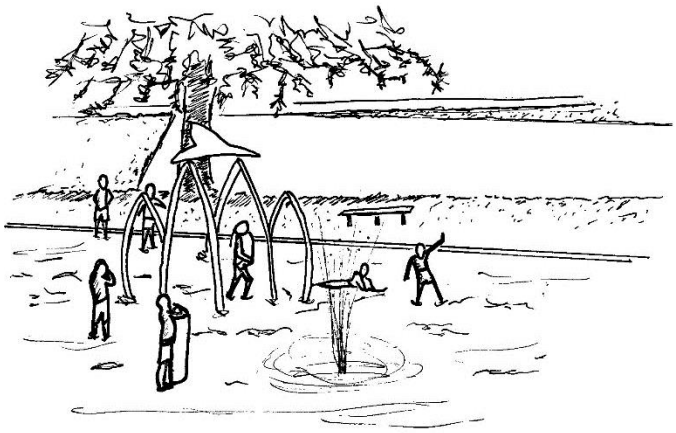
In 2015, the City closed its only public pool, Pouliot Pool, due to structural damage. Attempts to raise funds to rebuild the pool have not succeeded as of 2018. The City knows the availability of a public pool is a high priority for the community (see section 4.8.3 for further analysis of access to water).

The City gathers public feedback regarding recreational programming in an ongoing but piecemeal manner. Information about parks and available programs is predominantly distributed through the City's website and Facebook page. In the last ten years, public demand has led to the creation of a skate park at Pulaski Park and a dog park at Community Field in addition to other improvements. For the most part, it is beyond the scope of the OSRP to assess how well recreational programs fulfill the needs of the community, but section 9 does provide a few specific recommendations regarding recreation programming and communication based on community feedback.

4.8.3 Recreational Use of Water Resources

Despite the abundance of water resources in the city, physical barriers and land use policies have led to surprisingly limited swimming, boating, and fishing access for residents. As mentioned previously, though walking and biking around the reservoirs is permitted, swimming, boating, and fishing are not tolerated. Anecdotally, many Holyoke residents leave town to swim in publicly accessible lakes and ponds in the neighboring towns of Westfield, Chicopee, and Ludlow (Teschner). Residents can fish in Lake Bray, within the Mount Tom State Reservation, but swimming and boating are not permitted. All of these activities are permitted in the Connecticut River, but the lack of public points of access greatly limits these uses.

An active rail line borders the northern section of the river from the Route 116 Bridge upstream to Easthampton, restricting human access to the river. Unofficially (and illegally), fishermen, boaters, birdwatchers, and other nature lovers cross the tracks on foot in several places, notably at the Dinosaur Tracks Sanctuary off Route 5, Log Pond Cove peninsula, and Jones Point Park. Officially, recreational users can reach the river via one of the three public access points in the city: the Holyoke Canoe Club, the Sue Ellen Panitch (SEP) River Access Center, and the dock at Slim Shad Point. Recreational use of the river has increased since the opening of the latter two access points in the last decade.



Splash pad at Pulaski Park.

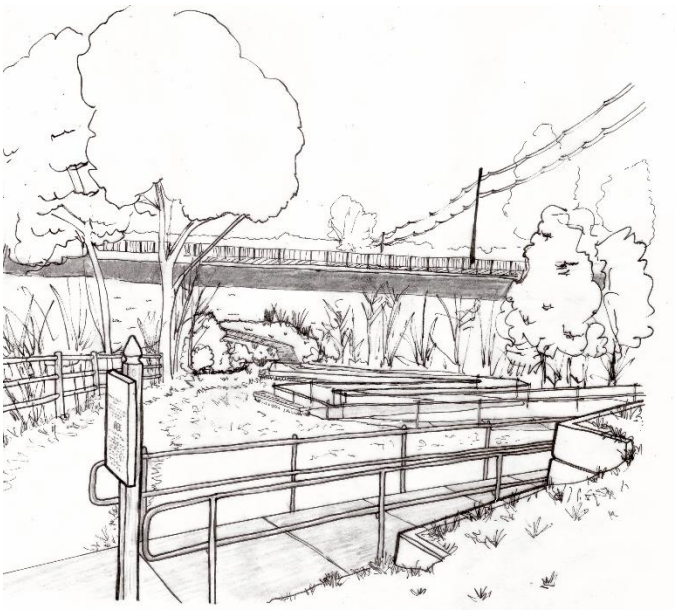
The Holyoke Canoe Club, in the northern part of the Smith's Ferry neighborhood, is a private club with boat launching facilities. According to City officials, there is public access to the river on the canoe club's property, but public parking is not delineated and the public access is unclear.

The SEP River Access Center in the Ingleside neighborhood, completed in 2009, consists of a large parking lot, a boat ramp, and a small building with a green roof. The non-profit community organization Holyoke Rows leases the City-owned building out of which it operates seasonal rowing programs. This site now provides opportunities to experience the Connecticut River through rowing, kayaking, and sailing programs, as well a free access point to launch personal boats. Boaters use the boat ramp heavily in the spring when the section of the river south of the dam is high enough to accommodate larger powerboats and the fishing is good. This section of the river experiences extremely low water levels during the summer, limiting the ability of large motorized watercraft use this facility for stretches of time. However, the low water levels create good conditions for non-motorized activities compared to the congested areas north of the dam. The city explored the possibility of constructing the dock to meet American Disabilities Act (ADA) compliance and of purchasing a mounting apparatus for adaptive rowers, but neither project was feasible due to size limitations and availability of funds, respectively. However, the center is still an attractive and mostly accessible location for both adaptive and fully-abled user groups. Though located within an Environmental Justice zone, the area is three miles south of the city center, limiting access for those without a car.

HG&E's universally-accessible fishing area at Slim Shad Point opened to the public in 2012 and has become a favorite fishing location for local shad enthusiasts. The small peninsula is located within the city's Environmental Justice community and walkable from downtown Holyoke.

In addition to the Holyoke Canoe Club and the SEP River Access Center, neighboring communities of Northampton, Hadley, and South Hadley have public or private launching facilities which contribute to the sometimes-heavy boat traffic along the Holyoke shoreline upstream of the dam.

The Robert E. Barrett Fishway provides a unique view of life in the river. Adjacent to the Holyoke dam, the transparent glass fish lift is open to the public in the spring when fish, including American shad, sea lamprey, and Atlantic salmon, use it to bypass the dam. Owner HG&E estimates that thousands of visitors and schools visit the Fishway during the spring migration, which allows children and families to connect with the otherwise hidden natural community within the river.



ADA accessible ramp at Slim Shad Point fishing area below Route 116.

Despite these facilities, access to the river remains hindered by the active rail line, flood control structures, and land ownership patterns. Ongoing unofficial use of the riverside by fishermen and youth suggests demand for more river access than currently exists. While the City has worked recently to increase access to the river, Mayor Alex Morse has stated it is important that the City decrease barriers to access at the current public locations while continuing to explore new potential points of access. Springdale Park could potentially offer river access in the future if a legal, safe method to cross the levee could be developed.

The Connecticut River Paddlers Trail affords the valley's residents the opportunity to access the river in a new way. Tent sites established along the length of the river provide spaces for paddlers to camp overnight without leaving the river's edge. There is currently no campsite between Whately, MA, and Cromwell, CT, making Holyoke a potentially popular location for an additional tent site.

While regular testing of the Connecticut River finds it safe for swimming and boating, bacteria monitoring occasionally reveals unsafe conditions, especially after high rainfalls, making the case for continued separation of CSOs (Connecticut River Conservancy).

4.8.4 Maintenance of Parks and Recreation Facilities

The Parks and Recreation Department and DPW together maintain the City's open space and park system (this includes very small parcels that may contain ornamental plantings, memorials, and public art). Over 60 individual parcels are maintained by the City.

While the Parks and Recreation staff predominantly handles programming and grant-writing, the DPW employs a Parks Superintendent who oversees the operation, maintenance, and repair of City-owned parks, as well as tree maintenance within the city. DPW maintains a list of needed maintenance at parks throughout the city.

In the late 1980s, Holyoke employed 50–60 full-time employees to maintain fewer properties than exist today. Currently there are only eight employees coordinating and maintaining these assets. Maintenance is one of the biggest challenges for the park system. While tree planting and capital improvements for things like playgrounds, benches, trash disposal, and signage can be funded through grants, the City has difficulty covering basic maintenance costs such as equipment repair and mulch.

A job opening for a City arborist was posted in 2017, but as of writing none have been hired. Hiring an employee to maintain park and street trees could save the City money in the long term and improve the aesthetic quality of the urban landscape. Additional hires to this department would certainly increase the City's capacity to maintain the quality of these valued open space assets.

Section 5. Inventory of Lands of Conservation & Recreation Interest

Photo courtesy of John Brandeuer.

5.1 Private and Non-Profit Recreation and Conservation Parcels

Holyoke is endowed with many acres used for recreation or passively serving a conservation purpose. While public entities own the majority of parcels with conservation and recreation value, private and non-profit entities contribute in a variety of important ways to Holyoke's open space and recreation profile.

Many of the parcels identified in the following section are privately owned by individuals with some kind of temporary or permanent development restriction placed on them. Others are owned by non-profits or businesses aimed directly or indirectly at creating recreation opportunities within the city's boundaries. Finally, others are parcels that the City has found useful to identify as parcels that have conservation or recreational value or potential, that are not currently protected or used as such. Table 5.1 gives a breakdown of the acreage of existing private and non-profit recreation and conservation land in Holyoke as it has been organized in this OSRP.

Tables for each of the below categories are found in Appendix A. Each table provides data, including specific identification numbers, for each listed parcel.

Table 5.1: Private and Non-Profit Recreation and Conservation Land

Summary of Tables 5.1	**Acres**
Parcels in Chapter 61	531
Private Recreation Parcels	474
CRs on Private Parcels	236
Cemeteries	118
Large Private and Institutional Parcels	86
Total	**1445**

5.1.1 Chapter 61 Lands

The Commonwealth of Massachusetts recognizes that agriculture, forestry, and certain types of outdoor recreation contribute greatly to the economy of the state, to its environmental health, and to its scenic beauty. Many of these undeveloped lands however, are taxed based on their assessed development value. To reduce the tax burden on property owners who wish to keep property in conservation, recreation, or agricultural production, the Commonwealth enacted M.G.L. Chapter 61, which authorizes tax abatement to the owners of parcels used for agriculture, active forestry, and some kinds of outdoor recreation (such as ski areas). Chapter 61 is available to landowners with ten or more acres and is segregated into three different programs; Chapter 61A and 61B is available to landowners with 5 acres or more. For the purpose of this plan, Chapter 61 represents forestland, Chapter 61A represents agricultural land (which may include forestland), and Chapter 61B represents forested recreational land. Table A.1.1 lists 30 parcels in Holyoke that are enrolled in the Chapter 61 program as of March 2018—a total of 531 acres (see summary of Chapter 61 enrollment in Holyoke in Table 5.1.1).

Table 5.1.1: Land in Chapter 61 by Enrollment Type

Summary of Table A.1.1	**Acres**
Chapter 61	144
Chapter 61A	232
Chapter 61B	155
Total	**531**

Under the law, for a ten-year period the landowner receives a considerable break on property taxes as the final tax bill is calculated not on the value of a land as a developable lot, but as a farm, forest or recreational site without development potential. If the property owner decides to sell the property within the ten-year agreement period, a few things occur: the community is granted the right of first refusal for 120 days, and the landowner must pay back to the City the difference in taxes for all of the years in Chapter status.

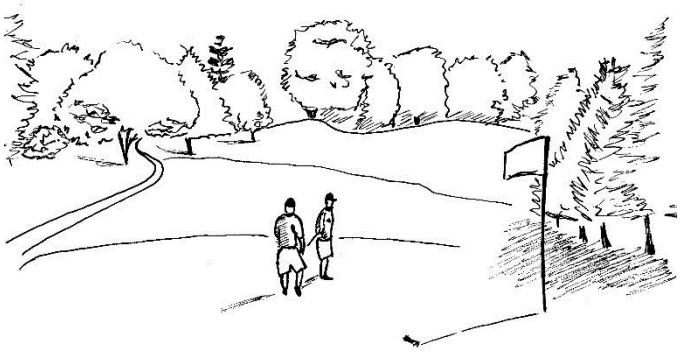
Land enrolled in Chapter 61 is not permanently protected from development. In practice, communities seldom exercise their rights of first refusal and Chapter 61 lands have been lost to development throughout the Commonwealth. The City of Holyoke has never exercised its right of first refusal and has not enacted policy or procedures for acting quickly.

While encouraging productive use of land and providing savings for property owners who chose to not develop, Chapter 61 sites also serve as a good indicator of what might be good conservation and recreation parcels for Holyoke to acquire, as many of these properties are already providing open space and recreational benefits to the community. The best use of the Chapter 61 program, for any municipality, is to prioritize which parcels might be acquired or otherwise protected. Identifying which of these parcels the City would wish to acquire would augment the City's ability to efficiently make strategic land preservation decisions. The City also may assign its right of first refusal to or collaborate with a non-profit conservation organization, if desired.

The use of the Chapter 61 program appeared to be in decline between 2005 and 2012, when acreage in Chapter 61 enrollment dropped from 805 to 325 acres. As of 2018, the number of acres currently enrolled is back up to 531. The City assessor can notify the Conservation Commission or other City entities when properties delay or terminate enrollment in Chapter 61.

5.1.2 Private and Non-Profit Recreation Parcels not in Chapter 61

Table A.1.2 lists 24 recreational parcels totaling 474 privately-owned acres that were not identified in the previous Chapter 61 inventory. The parcels, owned by an assortment of private and/or non-profit organizations, have a wide variety of light recreational uses. Many are popular as leisure and entertainment venues, such as the Holyoke Country Club, Canoe Club, and the Mountain Park concert venue. Other parcels are owned by civic groups, such as the Elks Club Lodge playing fields, and the Polish National Alliance's Pilsudski Park. The community non-profit gardening organization Nuestras Raíces owns or maintains many of the parcels included as community garden, farm, greenhouse, or gathering spaces. This table also includes private active recreation properties such as the YMCA, and parcels for passive recreation, such as private housing playgrounds.



Wyckoff Country Club golf course.

The Trustees are the only non-profit conservation organization that owns recreation land in Holyoke, including the Dinosaur Footprints Reservation off Northampton Street in Smith's Ferry. This is one of the few examples of in situ dinosaur tracks in Massachusetts and one of the few examples in the world of evidence of herding behavior by dinosaurs. Currently the tracks are subject to vandalism and highway runoff. This area could serve as access to the river if the question of a railroad crossing could be resolved. The Trustees purchased Little Tom Mountain in 2002 as part of the Mount Tom land protection project. Efforts to incorporate this parcel with Mount Tom and the surrounding area are ongoing. The largest cloud on the horizon for the Little Tom Mountain area remains the unresolved long-term plan for the former Mount Tom Ski Area.

Parcels, in Table A.1.2, in general, have no legal protection against a change of use away from recreation. While sites such as the Boys & Girls Club, the YMCA, or the Dinosaur Footprints are not likely to be taken out of

recreational use, the parcels for the community gardens are vulnerable to development and thus to displacement (as occurred in 2017 with the Lyman Terrace community garden).

5.1.3 Conservation Restrictions on Privately Owned Parcels

Table A.1.3 shows 236 acres in Holyoke under conservation restriction (CR) in Holyoke. One private conservation organization—the Connecticut River Conservancy—holds CRs that total 98 acres. In addition, the Holyoke Conservation Commission holds several CRs on approximately 138 acres on privately-owned parcels in west Holyoke.

The majority of Commission-held CRs were placed on properties owned by members of the Kuzeja family. Located over the Barnes Aquifer, these CRs work to protect lands valuable for habitat and Easthampton's water supply from development. Conservation of one of these properties resulted in the discontinuance of a portion of Old Basset Road, preventing by right development of land through the Approval Not Required process. The Commission-held CRs in the table constitute valuable scenic resources in addition to their contribution to forest, wildlife, and drinking water conservation. The Holyoke Conservation Commission monitors its CRs on an annual basis to ensure that the terms of the CR are being met. Change in ownership of CR properties are often the time a property is most vulnerable to violations, so the Conservation Commission may need to do its most diligent educational outreach and monitoring of CRs during these times.

Though new land is not necessarily protected each year, the City consistently pursues for land conservation. Kestrel Trust may be looking to become more involved in land conservation deals in the city. The Conservation Commission is currently considering becoming the holders of a CR on the Forestdale Cemetery Extension property off of Southampton Road in west Holyoke. The adoption of the CPA will give the City a new funding mechanism for land acquisition.

5.1.4 Private Cemeteries

Table A.1.4 lists all the private cemeteries in Holyoke. In addition to honoring family members, cemeteries provide opportunities for residents to partake in passive recreation and enjoy the benefits of a quiet, contemplative setting. Holyoke contains 118 acres of cemetery land owned and managed by private organizations.

5.1.5 Large Private Holdings with Conservation Value

This OSRP seeks to identify in Table A.1.5 large private land holdings in Holyoke that are not publicly accessible for recreational purposes but that, thanks to their size and land use condition, have inherent conservation value. These holdings total acres. Because they are large and private, it is always possible that the landowners may seek to develop these properties in the future.

There are two large estates in Holyoke, one on Homestead Avenue on the east side of East Mountain, and one on Apremont Highway on the west side of East mountain. Both parcels are contiguous to or near important protected watershed land.

Recent no recent inventory of farmland parcels has been done to identify farms not enrolled in Chapter 61.

5.1.6 Unprotected Parcels of Conservation and Recreation Interest

Parcels in Table A.1.6 are privately-owned lands identified as having conservation or recreational value to the City, but may not currently be used or managed as such. In total, the City has identified 811 acres of unprotected parcels as being of potential interest for public trails or greenways, important scenic areas, Connecticut River access points, rare species habitat, and possible downtown parks and plazas. This table does not include parcels in Chapter 61.

There are approximately 540 undeveloped, privately-owned acres within the watersheds of the City's reservoirs. Future activities on these parcels are a possible threat to the water quality of the City's water supply, as development risks erosion, reduced infiltration, and possible contamination. This table lists mostly large, undeveloped parcels that may provide opportunities to protect water quality for Holyoke (small parcels and developed parcels are not listed). While protecting this land is important for reservoir quality, it is important to remember that most of the City's water comes from the Tighe-Carmody Reservoir in Southampton. Acquiring unprotected watershed properties in Southampton may be of greater priority than the parcels listed below in Holyoke.

5.2 Publicly Owned Conservation and Recreation Parcels

A high percentage (90 percent) of Holyoke's 12,800 acres of open space is owned and managed by public entities, including the City of Holyoke, the City of West Springfield, and state and federal conservation organizations. With the exception of parcels owned by the Parks and Recreation Department, most of these parcels are forested with few or no roads or structures, allowing them to function as important wildlife habitat, water conservation, scenic quality, and passive recreation. Parcels owned by Holyoke Water Works, the Commonwealth, and federal agencies in particular are large, unfragmented tracts that provide.

5.2.1 Municipally Owned Conservation and Recreation Parcels

In total, the City owns 4,060 acres with conservation or recreational value. Table 5.2.1 gives a breakdown of this acreage by City department or agency; parcels include public housing parks, city-owned playing fields and recreation facilities, cemeteries, and undeveloped parcels owned by the Conservation Commission and by the utility companies. For a complete list of Holyoke-owned conservation and recreation parcels, see Table A.2.1.

Table 5.2.1: Municipally Owned Land by Department

Summary of Table A.2.1-A	**Acres**
Miscellaneous Owners	4
Holyoke Parks and Recreation Department	254
Holyoke School Department	97
Holyoke Housing Authority	5
Holyoke Conservation Commission	49
Holyoke Water Works	3,332
Holyoke Gas & Electric	319
Total	**4,060**

Parks and Recreation Department

Parks and Recreation (part of the DPW) currently manages the majority of municipally owned properties which span a range of facility types (see Table 5.2.2-A). These properties encompass approximately 254 acres of maintained parkland and provide approximately 175 distinct recreation opportunities.

Table 5.2.2-A: Parks and Recreation Facilities Managed by Department of Parks and Recreation

Summary of Table A.2.1-A	**Acres**
Active- or Passive-use Parks	43
Traffic Islands or Memorials	6
School-related properties	9
Cemeteries	2
Pool (closed)	1
Boat House	1

Every spring and fall the Parks Superintendent assesses all of the parks facilities. The condition of each park and facility was identified in Table A.2.1.1 rated as good, fair, or poor depending upon the severity of the concern and the impact on safety, functionality and appearance. The rating system did not generalize the conditions of the park as a whole but instead identified the elements within the park as being in excellent, good, fair or poor condition. Of the 61 sites listed, 18 sites had some elements that received a rating of poor (including accessibility), 19 sites had elements rated as fair, 37 sites had elements that received a rating of good, and 14 were ranked as containing elements in excellent condition. In 25 sites all elements in the park received a rating of good or excellent with no other concerns identified. Table A.2.1-B presents a detailed analysis of each of the properties maintained by the Departments of Public Works and Parks and Recreation from an equipment and quality perspective. The data contained in this table will inform infrastructure and facility improvements for the next seven years.

In addition to assessing the general quality of the City's parks as a part of the Open Space and Recreation update process, Parks Department officials will also study each park for the purpose of evaluating ADA compliance. This ADA assessment builds on the 2012 ADA survey baseline. Issues identified in this ADA assessment will be used to select upgrades needed to be made in order to provide a full recreational experience for all citizens in Holyoke.

Holyoke Housing Authority

In an attempt to meet the needs of residents, the Holyoke Housing Authority (HHA) provides many different recreation opportunities, including a ball field, at its housing developments. The facilities include play structures, play areas, and passive parks. A playground, paved courtyard, and community garden previously located at the Lyman Terrace was redeveloped into more housing after the City was unable to obtain the funding to bring the property up to code.

Holyoke Conservation Commission

The Holyoke Conservation Commission owns in fee six parcels with a total of 49.5 acres in the City. Most of these parcels do not have any significant active recreational potential, as they are severely constrained by steep slopes or wetlands. However, the Brush Hill parcel on East Mountain abuts a particularly scenic portion of the New England Trail. In order to enhance the recreation potential of this property, the Commission would like to coordinate with the Appalachian Mountain Club (AMC) to construct an overnight sleeping facility for through-hikers of the NET. This project would address a current shortage of remote overnight camping facilities for users of the NET.

Holyoke Water Works

Because of its in-town reservoirs, HWW (a.k.a. the Holyoke Water Department) owns considerable acreage in the city, in addition to its watershed holdings around the Tighe-Carmody Reservoir in Southampton. The vast majority of these 3,332 acres are reservoir watershed, protecting the quality of surface and groundwater runoff into the reservoirs. Some 48 acres are used for pipelines to and from the reservoirs and treatment plant. Two

parcels (totaling 27.12 acres) are former wells which are no longer used. The Water Department also owns property which is not considered open space, such as its headquarters at 20 Commercial Street; these parcels are not included in Table A.2.1. All of the HWW parcels included in Table A.2.1, unless documentation proves otherwise, are protected under Executive Office of Energy and Environmental Affairs (EOEEA) Article 97.

HWW has a long-term forestry plan for its holdings, aimed primarily at maintaining the health of the watersheds, but also providing funds for department activities. It is unclear whether the Department plans to acquire more watershed land in Holyoke as landowners wish to sell.

There are few threats to the in-town watersheds with the exception that runoff from Route 202 has the potential to impact water quality in the Ashley and McLean Reservoirs, since it is highly travelled. Development pressures on privately-owned parcels within the watershed, such as the pressure about a decade ago to place a casino on parcels that abut the Whiting Reservoir, have the potential to reduce the ability of Holyoke's watershed lands to filter and treat municipal drinking water supplies.

Holyoke Gas & Electric Company

HG&E manages approximately 319 acres of open space throughout the City, including a park, land along a pipeline in west Holyoke, the Slim Shad Point fishing access site, and the only cove along Holyoke's bank of the Connecticut River. It also owns the canals, canal banks, and many lengths of riverbank through the acquisition of the dam, but these parcels are not considered open space for the purposes of this plan. Major additions to HG&E's properties in the last decade include two large parcels on Mount Tom that were once actively pursued as possible locations for wind power. After Federal Aviation Administration regulations ruled a wind project unfeasible, telecommunications facilities were constructed instead. Pending negotiations between HG&E and DCR, the remaining portions of these two parcels will most likely be conserved. The decisions made on these high-profile parcels have the potential to affect the city's scenic ridgeline, but also present the community with the opportunity to produce clean, renewable energy.

Table 5.2.2-B: Snapshot of Holyoke's Recreation Properties

21 Park Settings
8 School Settings
• 1 Artificial Turf Multi-Purpose Field with an 8-Lane NCAA Track and Stadium Seating for 3,000 Spectators
• 24 Baseball and Softball Fields 15 - 60' Diamonds 4 - 75' Diamonds 5 - 90' Diamonds
• 21 Multi-Purpose Fields 4 - Full Size Soccer or Football Fields 8 - Mid Size Soccer Fields 8 - Small Size Soccer Fields
• 20 Basketball Courts 11 Full Courts 8 Half Courts
• 3 Volleyball Courts
• 13 Tennis Courts
• 6 Handball Courts
• 1 Swimming Pool - Closed
• 1 Skateboard Park
• 1 Bocce Court
• 30 Sets of Play Equipment
• 6 Spray Pads
• 1 Refrigerated Ice Skating Path
• 1 Warming House with Restrooms
• 1 Pavilion with 2 Charcoal Grills
• Sue Ellen Panitch River Access Center (Boat House)
• 11 Community Garden Spaces

5.2.2 Parcels Owned by Other Municipalities

The West Springfield Water Department owns several parcels in south Holyoke that are within the Bear Hole Reservoir watershed. These 143 acres shown in Table A.2.2 protect the quality of the City of West Springfield's drinking water supply. As with parcels owned by HWW, parcels owned by the West Springfield Water

Department are permanently protected from development through Article 97. West Springfield currently has no plans to acquire more land in Holyoke for watershed protection. However, there are several landlocked parcels within close proximity to West Springfield's watershed lands that could be conserved as permanently protected open space, an action which would enhance wildlife habitat and scenic attributes in west Holyoke and increase a buffer of protected land around Snake Pond (one of which was acquired by MassWildlife in 2018).

5.2.3 Federally and State-Owned Conservation and Recreation Parcels

Over the past decade, Commonwealth of Massachusetts conservation agencies have assisted the goal of conserving high-priority recreation, habitat, and watershed land in Holyoke with the acquisition of many contiguous parcels along the Mount Tom-East Mountain range and near the Connecticut River, many of which were high priority parcels from past OSRPs. The Commonwealth currently owns approximately 4,054 acres of land whose primary purpose is either conservation or recreation within the City. Table 5.2.3 provides a summary of this land by managing agency. Among these state-owned parcels, the Mount Tom State Reservation, Holyoke Heritage State Park, and Holyoke Community College rise to the top as well-recognized and highly used regional resources. In addition, US Fish and Wildlife owns one 141-acre parcel on the side of Little Tom Mountain. This parcel composes part of the Silvio O. Conte National Fish and Wildlife Refuge, a network of disconnected parcels throughout the Connecticut River watershed that protect high value wildlife habitat. In 2018, MassWildlife acquired three new inholdings in 2018 along Apremont Highway and Bobala Road that are of high watershed and habitat value and are adjacent to the New England Trail.

Table 5.2.3: Federally and State-Owned Land by Managing Agency

Summary of Table A.2.2	**Acres**
Department of Cons and Rec	3,055
Department of Higher Education	136
Department of Fish and Game	722
US Fish and Wildlife	141
Total	**4,054**

Table A.2.3 lists all parcels owned by state agencies located within the city. The City and the Commonwealth have established a successful track record of facilitating the acquisition of vulnerable open space at fair market value. Continued reliance on this partnership will allow additional priority parcels to be conserved.

Section 6. Community Vision

Photo courtesy of Phil Lacombe.

6.1 Description of Process

This plan builds on OSRPs developed in previous decades and reflects the current vision of Holyoke residents for the future of this city. Input was gathered from residents through public forums and through a survey in English and Spanish whose links were posted online, sent to teachers at Holyoke High School and HCC and to various community organizations, and disseminated via printed inserts at the 2017 Parks and Recreation Easter egg hunt. This survey received over 150 responses between March 2017 and March 2018. One public meeting was held in April 2017 at Wistariahurst Museum, followed by a meeting in February 2018, to gather public input on the draft action plan. A tabling event at the Holyoke Public Library was held to promote the second meeting and for more information gathering. Feedback was also gathered from City officials such as the directors of Conservation and Sustainability, Parks and Recreation, Public Works, the office of Planning and Economic Development, the Conservation Commission, and Mayor Alex Morse.

This OSRP update also incorporates information from recent City plans and studies that relate to economic development, transportation, open space, and community well-being, including the *Massachusetts Statewide Comprehensive Outdoor Recreation Plan* (SCORP). Alignment with ongoing City and community plans and projects—each grounded in their own community feedback processes—attempts to harmonize this OSRP's proposed goals and actions with the community's long-term vision. The prior plans include:

- ***Connect. Construct. Create. A Plan for the Revitalization of Center City Holyoke***
  (Holyoke Office of Planning and Economic Development and Vanasse Hangen Brustlin, Inc. 2012)
    - Built on the 2009 *Center City Vision Plan*, this Urban Renewal Plan focuses on four neighborhoods in downtown Holyoke and envisions an active and revitalized city center, increased density and jobs, the preservation of historic character, increased housing options, pedestrian-friendly and safe walkable streets, and strong and sustainable infrastructure. This vision includes improving streetscapes, improving downtown circulation with walkable, safe, and pedestrian-friendly streets and open space, and forming economic hubs around open space.

- ***Holyoke Bike Network***
  (PVPC 2016)
    - This plan guides Holyoke in its ongoing complete streets efforts, specifically regarding its biking network. The plan evaluates current street networks and safety concerns, identifies where improvements can be made, and specifies which streets should be prioritized for better bicycle circulation across the city.

- ***Community Based Assessment of Urban Forestry Conditions***
  (Davey Resource Group)
    - This urban forestry plan identifies areas of the city where efforts for tree planting should be concentrated. Davey Resource Group overlaid data consisting of Environmental Justice populations, impervious surface cover, urban heat island effect, and lack of vegetation, resulting in a map of high-priority tree planting areas around the city center.

- ***Holyoke Community Report 2017***
  (Montenegro-Menezes and Stromsten)
    - A collaboration of local academics, students, and eighteen local organizations, this participatory asset mapping (PAM) project gathers information about Holyoke residents' values, sense of place and community, and well-being, including perceptions of safety and priorities regarding open space and conservation in the city.

Due to the number of participants in the survey and its focus on open space and natural resources, the most comprehensive input to the 2018 OSRP came from the 2017/2018 survey. However, survey participants were disproportionately from the Highlands, Elmwood, and Oakdale neighborhoods. While participation from downtown neighborhoods Churchill and Downtown were relatively strong, participation from Jarvis Avenue and Whiting Farms, The Flats and South Holyoke, and Smith's Ferry was low at 3, 2, and 1 respondents respectively. These results indicate that there is significant room for improvement in the collection of feedback from a representative cross-section of Holyoke. Concern that this OSRP focuses analysis and recommendations on certain neighborhoods that were not well represented in survey feedback suggests that the City employee(s) or committee responsible for monitoring and implementing this plan should consider continuing public outreach efforts to increase proportional representation and assess if further feedback necessitates adjustment of the document's action plan at a later date.

6.2 Statement of Open Space and Recreation Goals

Much of the city's valued natural resources are protected and well enjoyed by residents. Many residents list Mount Tom, Ashley and Whiting Street Reservoirs, and the canals as their favorite outdoor spaces in Holyoke. Over 35 percent of the city is already under some form of protection. Residents support preserving wildlife habitat, natural areas, and a safe drinking water supply according to survey responses. Increased use of the river also emerged as a priority for residents. Another important desire expressed by survey respondents and the Conservation Commission is the conservation of limited agricultural land and preservation of historic architecture in the western half of Holyoke.

The city has a large number of parks and recreation facilities and residents expressed a desire for increased use of these spaces through improvements to infrastructure, regular maintenance, and an increased sense of safety. Recreational programming may expand to include some new interests expressed in the recent survey, including bike clubs, bike lanes, and expanded water-based recreation on the reservoirs and the Connecticut River. Gaps in access to recreational programming, especially for low-income youth, is a priority for both the City and residents.

Finally, there are ways that improvements can support community development on multiple levels. Residents expressed interest in additional green infrastructure, increased tree cover, and improved pedestrian and bicycle connectivity that increases comfortable, safe, and enjoyable use of the city, especially in the downtown. Community involvement in planning, park and open space management and maintenance, and in site-specific design emerged as a necessary step through this outreach process to ensure residents' desires and needs are incorporated into City actions.

The community envisions a future Holyoke where:

- Natural resources are protected and enjoyed by all;
- Parks and recreation facilities are safe, high quality, and enjoyed by all;
- A broad array of recreational programs and opportunities are available for people of all ages, abilities, and socioeconomic backgrounds; and
- Open space is an integral component of community development at the neighborhood, city-wide, and regional scale.

Section 7. Analysis of Needs

Photo courtesy of Wikimedia Commons.

7.1 Summary of Resource Protection Needs

A significant portion of the city's natural resources are already under some form of protection. Additional protection of key parcels can increase the ecological value of the Mount Tom-East Mountain range by protecting vernal pools, rare species, Core Habitat, and Forest Core. Such parcels found within the reservoir watersheds would also help ensure a high-quality drinking water supply for future residents and neighboring towns. Land that is already protected, especially when owned by the City, needs careful monitoring, management, and maintenance. Rehabilitating environmentally compromised parcels could return the land to public use and enjoyment. Preservation of the legacy and future of farming in Holyoke may depend on the protection of the last remaining farmland parcels. The challenges posed by dense urban development and climate change necessitate consideration of how green infrastructure, especially tree planting and resilience planning can contribute to improved quality of life for residents in the coming years.

7.1.1 Protecting Valuable Natural Resources

Mountain Corridor and Connectivity

The Mount Tom-East Mountain range offers residents of Holyoke and the region access to significant recreational and ecological resources. Expanding connectivity along the range improves the overall resilience of this natural area to the effects of climate change by buffering core areas from stressors such as invasive plants, pests and pathogens, and fragmentation. Connectivity also allows animals and plants to move more successfully across the landscape during regular and climate-driven migration. Increasing protection around the ridge would ensure that future development will not endanger the many rare and threatened plants and animals that inhabit this area, nor the many wetlands and vernal pools that provide habitat and breeding grounds for species of concern. Finally, protecting forested lands along the range will contribute to cleaner surface water and higher-quality water infiltrating into the groundwater.

Permanently protecting open space for future generations was important to 93 percent of 2017/18 survey respondents. The City has made significant efforts to conserve land along the mountain range and a large swath of land running north–south is currently under some form of protection. Adding high priority parcels to currently protected lands and facilitating long-term preservation of lands under temporary protection will expand and improve the existing wildlife corridor and increase passive recreation options. Using available resiliency planning tools, planning for property coming out of Chapter 61 enrollment, and building connections with interested landowners could go a long way to preparing the city for strategic land conservation.

Hiking on Mount Tom.

Pressure on these priority conservation lands is low in Holyoke in part due to building constraints, but also due to the City's focus on directing investment towards infill and redevelopment of the urban core. Indeed, 48 percent of 2017/18 survey respondents chose redevelopment of the urban center as the growth pattern they would like to see, 18 percent selected redistricting growth to already developed areas, and 25 percent supported growth in undeveloped areas.

Protecting Water Resources

Drinking Water

Of 2017/18 OSRP survey respondents, 96 percent say that protecting the drinking water supply is important or very important to them. Because Holyoke's reservoirs and the Barnes Aquifer provide invaluable resources to residents of Holyoke and beyond, the City can continue to seek out opportunities to permanently protect and advocate for ecologically focused land and forest management of parcels around the reservoirs. Since the Tighe-Carmody Reservoir in Southampton provides most of Holyoke's water supply, land around this reservoir may be the highest priority watershed for conservation for the City. However, there has been no public outreach effort to determine if reservoir land protection in Southampton is a priority for Holyoke residents. Because many of these surface water resources do not conform to political boundaries, Holyoke should consider regional partnerships with surrounding towns to coordinate watershed protection.

The watershed protection overlay district, last reviewed in 2002, could be reviewed to evaluate whether sufficient protection is given to the aquifer based on new GIS data from USGS for the medium- and high-yield aquifer zones in the city. Additionally, increased contamination of the Barnes Aquifer over the past 60 years is a concern for the private wells in Holyoke still tapping into the aquifer. Continuing to seek out options for connecting these houses with public water supplies would ensure safe drinking water for all residents.

Surface Water (Non-drinking)

Approximately 97 percent of 2017/18 OSRP survey respondents believe that clean rivers, streams, and ponds are important. The Connecticut River and Log Pond Cove have been identified by the Mass DEP as category 5 impaired water bodies requiring TDMLs for nitrogen. Whiting Street Reservoir and Lake Bray have category 4C impairments (not caused by a pollutant). Both classifications denote water that is safe for boating and swimming, but not as public drinking water. While regular testing of the Connecticut River indicates it is safe for swimming and boating, monitoring occasionally reveals unsafe conditions, especially after high rain events, making the case for continued separation of CSOs (see section 3.4.2) (Connecticut Water Conservancy). Many of the city's residents expressed interest in more options for fishing in the recent OSRP survey; the City could determine if there are safe options for public fishing access in addition to Slim Shad Point and the SEP River Access Center.

Stormwater Management and Green Infrastructure

Ensuring that the Connecticut River is an ecologically healthy and recreationally safe resource depends on management of stormwater in a manner that minimizes sewage and toxin contamination. The EPA has identified stormwater management as a significant problem and has ordered Holyoke to address these risks (US EPA 2015 19). As the city's 14 remaining CSOs continue to degrade water quality in the Connecticut River, the City needs to continue to comply with MS4 permit minimum standards. Street reconstruction projects can integrate sewer separation into their plans towards this effort.

Daylighting buried brooks and streams helps return them to their natural hydrological regime, reducing both flooding and the amount of water that gets shunted into the sewer and wastewater treatment systems. In order to protect the health of regional waterways (a priority for 97 percent of survey respondents), to protect residents themselves from flooding events and toxic exposure, and to comply with the EPA, the City could continue to daylight Day Brook and explore options for daylighting other waterways. Significant erosion and flooding issues related to Tannery Brook make it one of the highest priorities in this regard.

Green infrastructure reduces the amount of stormwater entering CSOs and other overflows and improves the quality of surface runoff by allowing stormwater to infiltrate at its source—especially important in areas with a high percentage of impervious surfaces such as downtown. Incorporating green infrastructure also creates more comfortable and visually-interesting streetscapes. The City's 2016 *Natural Hazards Mitigation Plan Update* has

identified a few locations where the city could prioritize green infrastructure in redevelopment plans. While green infrastructure reduces the financial burden on the City overall and adds social and environmental benefits (see the "Green Infrastructure on Display" case study for more information), financial resources and training for the long-term maintenance of these living systems is required to fully realize their benefits. Green infrastructure education and training in schools provides an opportunity for young residents to learn about these systems to increase the community's capacity to build and maintain green infrastructure.

According to the *Pioneer Valley Green Infrastructure Plan*, there is room for the City to review and revise its stormwater and subdivision zoning regulations for stronger green infrastructure and low-impact development language (35).

Urban Ecology

According to *BioMap2*, little of the eastern portion of the city has critical ecological value. The canals themselves, while included in the Core Habitat area, are too channelized and subject to man-made hydrological changes to provide significant habitat. Rather the canals provide energy and historic and aesthetic value. The banks of the Connecticut River and a few vegetated strips along the canal, however, may offer opportunities to increase ecological function around the more densely developed urban neighborhoods. Continuing ongoing efforts to remove invasive species from Log Pond Cove would help restore ecological integrity to an important water resource in eastern Holyoke.

CASE STUDY

Green Infrastructure on Display

Name: Springfield Museums Rain Gardens
Date: 2015
Location: Springfield, Massachusetts

Project Summary:
Regenerative Design Group collaborated with Pioneer Valley Design Group to design a series of rain gardens for the City of Springfield. One rain garden is a public demonstration installation at the Springfield Museums. The 2800-square-foot garden is projected to intercept and infiltrate 5,000 gallons of stormwater from a 12 hour 2.5" storm from the adjacent rooftops and lessen the stormwater entering the city's storm drains. Efforts to infiltrate stormwater will help prevent combined sewer overflows (CSOs) which pollute the Connecticut River and its tributaries. Not only can rain gardens beautify Holyoke, sinking stormwater can take pressure off the existing CSOs that remain in the city.

Rain gardens gather and sink water instead of entering stormwater drains that pollute the Ct. River watershed. Photo courtesy of Regenerative Design Group.

For more information, see: Regenerativedesigngroup.com/2015/05/27/springfield-rain-garden-project

In the past five years, the City has planted around 1,500 trees, primarily in the downtown neighborhoods, to reduce urban heat island effect, improve water quality, reduce stormwater flooding and air pollution, and to improve the aesthetics of the city. Continuing this effort could increase resilience to severe weather events and improve quality of life in the urban core, especially in the high-priority areas designated by the *Urban Tree Canopy Assessment* where they align with Environmental Justice zone. Continuing this effort also aligns with the *Center City Vision Plan*'s recommendations for greener streets and green infrastructure systems and with survey respondents' expressed interest in more trees downtown. In order to fully realize the benefits of this project, however, regular maintenance by a City arborist and a manager at the tree nursery are likely necessary. The City may need to assess and develop a staffing and management plan to preserve the health and long-term vitality of these new city assets.

"Definitely need more street trees in neighborhoods like The Flats."
-2017 Survey Respondent

Agricultural Land Preservation
Prime agricultural soil or farmland of importance shows up in a small portion of the city, particularly in the west and along the Connecticut River (see Map 14). Educating residents about the agricultural value of these productive lands may build broad support for protecting these rare resources in Holyoke. In particular, the City could look to support permanent protection of the Siedel Orchard, the only orchard in Holyoke and one of the largest active farm parcels in Holyoke. The CPA process also identified public desire to protect the historic vernacular architecture (historic barns and carriage houses) and to preserve the open character of west Holyoke. While survey respondents said that agricultural land protection is less of a priority compared to other natural resource protection measures, 74 to 86 percent of survey respondents still find these two issues important or very important. This in combination with the rarity of valuable agricultural soils and farmlands of importance in Holyoke and its historic quality suggests that the City consider opportunities to protect the few remaining agricultural areas in the city. To support the continuation of agricultural uses on agricultural land, the city could assess if the zoning ordinances, regulations, and Board of Health regulations are friendly to agricultural enterprises.

There are about 11 active community gardens in Holyoke, managed exclusively by Nuestras Raíces. Though the City does not own or operate these gardens, they serve as important open space, cultural, and community-building resources in downtown and southeastern Holyoke. Of 2017/18 survey respondents, 25 percent said they use a community garden with some frequency. Survey respondents did not rank community gardens as a high priority for needed improvements, but 75 percent of respondents identified downtown as the area that could use additional community garden space (followed by the Highlands, Ingleside, and Rock Valley). The *Holyoke Community Report 2017* data supports the OSRP survey's results, showing that demand for community gardens is highest and Wards 1 and 2. This OSRP did not assess and therefore does not address possible actions for protecting, expanding, or improving community garden space and programming.

Climate Change Resiliency Plan
The City is participating in the Massachusetts Municipal Vulnerability Preparedness program through which it will document existing hazards posed by climate change, the vulnerabilities and strengths of the city, prioritize actions, and identify opportunities to build climate change resilience. When available, the proposed actions will be incorporated into this OSRP.

7.1.2 Scenic and Historic Resources

Protecting the natural resources mentioned in section 7.1.1 will support ongoing enjoyment of the areas that residents find scenic. Views and outdoor recreation are highly valued by residents—94 percent of survey respondents find both types of open space enjoyment important—and many list Mount Tom, Ashley and Whiting Street Reservoirs, and the canals as their favorite outdoor spaces in Holyoke. Despite it being one of the city's greatest scenic and recreational assets, visual access to the Connecticut River remains limited. The City and the railroad company recently removed view-blocking trees at McNulty and Pulaski Parks, restoring coveted views that had been missing for years. Increasing pedestrian access to the river would increase residents' ability to experience it as a scenic resource as well.

7.2 Summary of Community's Needs

The City is responsible for a large number of parks and facilities in Holyoke. While the City has renovated many parks in recent years, maintenance is limited due to budget constraints, contributing to public perception that parks are degraded and unsafe. Increasing maintenance capacity and community stakeholdership, as well as continuing to remediate contaminated areas surrounding parks, could mitigate these quality and safety issues. The community also identified the need to resolve issues of access to parks in Wards 1 and 2, to increase safe pedestrian and biking options, and to expand swimming options.

7.2.1 Park Use Barriers and Improvements

Quality and Safety

Since 2012, the City has collaborated with community groups and volunteers to upgrade and renovated 11 parks, including the installment of a new playground at Piña Park and the completion of a skate park at Pulaski Park. However, some parks are still in need of infrastructure and amenities improvements. The Parks and Recreation Department manages 62 parks and open space parcels; an estimated 60 percent of which contain elements in poor or fair condition per Table A.2.1-B (see section 5.2.1). While the City has taken many opportunities to improve park infrastructure, residents in their survey responses and in conversations at community forums have expressed mixed perceptions around park quality and safety. Some residents expressed concerns about the presence of drug paraphernalia, poor conditions, trash, and inadequate lighting, and a general sense that many parks are empty and unused. The *Holyoke Community Report 2017* found that 40 percent of survey respondents had a negative perception of children's safety in Holyoke parks and, generally, lack of safety in the city was the number one feeling that residents would change if they could (Montenegro-Menezes and Stromsten 2017). Creating safe and engaging spaces can improve park perception and increase safety but will require community involvement, ongoing maintenance, and funding for improvements. The most cost-effective way to increase park quality and safety in a city with very limited resources is to develop stakeholdership on the part of neighbors of local parks who can help maintain, fundraise, monitor, alert the City to unsafe conditions, and generally create the culture of the park.

Planned Park Improvements:

- Anniversary Field
- Bonin Field
- Carlos Vega Park
- Jim Jackson Courts
- Mayer Field
- McNally Field
- Soucey Park
- Springdale Park

Access Inequities

The large tracts of public and private open space concentrated along the Mount Tom-East Mountain range and around the reservoirs are within short driving distance of neighborhoods that border the mountains. In contrast, downtown neighborhoods are dotted with small pocket and neighborhood-size parks that are predominantly sports fields and playgrounds. Though there are an abundant number of parks in Holyoke, especially for a city of its size, that parkland area is neither equally distributed nor proportionate in size to residential density. Therefore, distribution of desired park amenities and park quality remain a focus for the City. In the *Holyoke Community Report 2017*, residents of Ward 1 and Ward 2 expressed a need for better access to parks, though the question was not detailed enough to identify what kind of access (Montenegro-Menezes and Stromsten 2017). Continued assessment of how well the available parkland meets the needs of residents, especially for residents in the Environmental Justice area, is needed (e.g.: does Bonin Field serve Morgan Elementary School or are there barriers to its regular use?). West Holyoke has few sports fields or neighborhood parks and, as a result, it is important for these to be in good, usable condition by residents in those neighborhoods. Similarly, *SCORP* speaks to the importance of developing and renovating parks that are within walking distance to residences, particularly when lack of time is a barrier to outdoor recreation (23).

CASE STUDY

Social Life of an Urban Park

Name: Marvin Gaye Park
Date: 2009
Location: Washington D.C.

Project Summary:
The 1.6-mile-long Marvin Gaye Park was often referred to as "Needle Park" and although ongoing challenges to address the social issues of the neighborhood remain, it is a place where the neighborhood can come together and enjoy the outdoors. The park was named after the famous musician who grew up in the neighborhood. In 2009, the City of Washington D.C. invested in park renovations for new play structures, improved circulation, and the cleanup and remediation of the waterway. The community it serves still battles drug problems but with greater community involvement and help from external sources, fewer needles are being found. Drug addicts and sellers are still in the park every day, but the surrounding neighborhood and organizations are working to help their neighbors kick the addiction and make the park more user friendly. The park is also part of a public housing project and was helped redeveloped by the children of the housing.

Soular Sundays are once a week community events that take place in Marvin Gaye Park where residents can come together, listen and dance to soul music, and enjoy the outdoors. Photo courtesy of Christine Rhone.

To support the effort, Field Coordinator for Parks and People RonDale Pooler's suggestion is simple: keep using the park. "It's like a bandwagon thing," he explained. "If there's something going on out here and it looks appealing, then people will stop by."

For more information, see: Capitalcommunitynews.com/content/whats-going-marvin-gaye-park

Additionally, public feedback from Ward 1 revealed that regular use by sports leagues causes scheduling bottlenecks during warm months. It is unclear if this is a city-wide concern or specific to Ward 1, or if the issue could be easily resolved by increasing community-wide awareness of how to reserve fields. Regardless, ensuring equitable use of park space, especially in the Environmental Justice area where there is less open space available overall, would serve City and community interests.

7.2.2 Accessibility and Connectivity

Park Accessibility
Downtown neighborhoods are almost entirely within a quarter-mile of neighborhood parks, but walkable access to some larger community parks and facilities and to the mountain range is difficult due to distance, steep terrain, lack of sidewalks, and the presence of highway overpasses. In eastern Holyoke, ease of walking to Holyoke parks is sometimes impeded by railways, industry, canals, and lack of sidewalks in good condition. While it is likely that residents in western parts of Holyoke have access to cars, considering ways to improve pedestrian, bicycle, or public transportation access to open space in these areas could allow for broader use.

A network of maintained trails exists within most of the City's open space parcels. It must be noted that though there are many trails around the reservoirs, which 83 percent of survey respondents say they use, they do not actually permit direct access to the water. Survey respondents expressed an interest in increasing access for downtown residents to the trail systems along the range as well as along the Connecticut River and adjacent to more urban areas.

> *"There needs to be a deeper connection between the city's residents and nature. Make trails accessible from downtown, establish more rail trails and canal walks. We need to get people outside, caring about the environment we live in!"* *-2017 Survey Respondent*

Bike and Pedestrian Needs
Major barriers to bike and pedestrian access throughout the city include the Mount Tom-East Mountain range, Interstate 91, the hills surrounding downtown, and the railroad tracks in The Flats neighborhood. The gridded street pattern does aid pedestrian access throughout the downtown by creating many options for travel, but safe bike and pedestrian space and infrastructure such as working pedestrian crossing lights and protected bike lanes and paths are lacking in some places.

As the City continues to reconstruct roadways, redesign should include bike- and pedestrian-friendly features in each and every project. Near-term plans to stripe new bike lanes on Dwight and High Streets and the ValleyBike Share program rolled out in Spring 2018 will both improve access to and bikeability within Holyoke. Analysis shows the need for better connections between The Flats and the rest of downtown, and the Holyoke Bike and Pedestrian Committee expressed a need for a bike-friendly route through The Flats between the Vietnam Veterans' Memorial and Willimansett bridges in Holyoke. Together these make the case for the construction of a multi-use path along North and South Canal Streets. The 2016 *Holyoke Bike Network Plan* likewise found these streets high priority for the inclusion of safe bike routes and provided a design for such a path. This plan proposed other bike lanes along key connectors throughout the city.

Pedestrian improvements funded by MassDOT's Complete Streets Funding Program as well as Mass in Motion programming will improve the walkability of neighborhoods. Continuing to plant trees along sidewalks and in pedestrian gathering spaces could also increase pedestrian comfort, while simultaneously improving air quality and stormwater management.

Regional Connectivity
The development of a multimodal transportation hub in 2010 in downtown Holyoke and the return of Amtrak passenger train service to the city in 2015 expanded the capacity for Holyoke residents to travel to other areas in the region and may increase tourism in the long term. These examples of recent City efforts to tie Holyoke to the surrounding towns and region increase options for downtown residents to visit surrounding towns. For the Environmental Justice community, increased transportation access to open space, recreation, and economic opportunities, both within town and in the region, may improve overall quality of life.

The New England National Scenic Trail (NET) ties the city to the broader region. Strengthening connections for Holyoke residents to the trail and ensuring easy accessibility for residents, including a connection from HCC, could build interest and pride in Holyoke's passive recreation opportunities and scenic areas. While informal trails already exist that connect HCC to the NET, formalizing trails would create the first connection between the NET and a school institution (Likely). The City can also collaborate with community organizations who already have constituent groups that would enjoy use of the trail and can promote the establishment of hiking clubs to build a sense of citizen ownership. Additionally, the Conservation Commission could move ahead with the construction of a tent site on their Brush Hill property that abuts the NET, an action item identified in the previous OSRP and one that would increase use of the NET for those who want to hike it by wilderness camping. This effort aligns well with the Commonwealth's 2017 *SCORP* goal of increasing trail access for Massachusetts residents across the state (22).

"It'd be cool to promote walking routes from downtown up to the hiking trails at HCC, and to the M&M trail/Whiting Reservoir access point off Rt. 141. The HCC trailhead is even accessible by local bus, but there's not really any literature to make people aware of that."
-2017 Survey Respondent

Finally, the City could explore opportunities to use the nearby regional multi-use paths—including the Manhan Rail Trail, Chicopee River Canal Trail, and the Connecticut Riverway and Bikeway in Springfield—to address residents' desire for more cycling opportunities. Holyoke could continue to stay involved in regional bike network planning to advocate for the expansion of these routes through or into Holyoke.

7.2.3 Recreational Programming Improvements

Existing Recreational Resource Needs
Survey respondents expressed interest in many new recreational activities, with particular emphasis on bike lanes, bike clubs, and access to water-based recreation including fishing, boating, and swimming. The City has an active Bike and Pedestrian Committee advocating for improvements to bike infrastructure and recreation, which could inform efforts to improve bike lanes and sponsor bike clubs. The 2017 *SCORP* also set the expansion of water-based recreation options as a statewide goal. Finding additional ways to connect residents to the Connecticut River would address these community needs and make good use of the city's eastern river border. Holyoke is in the early stages of renovating Pouliot Pool, the only public pool in the city which closed in 2015; completing this project would provide a public swimming option for recreation and relief from summer heat but does not need to be the only option for swimming access.

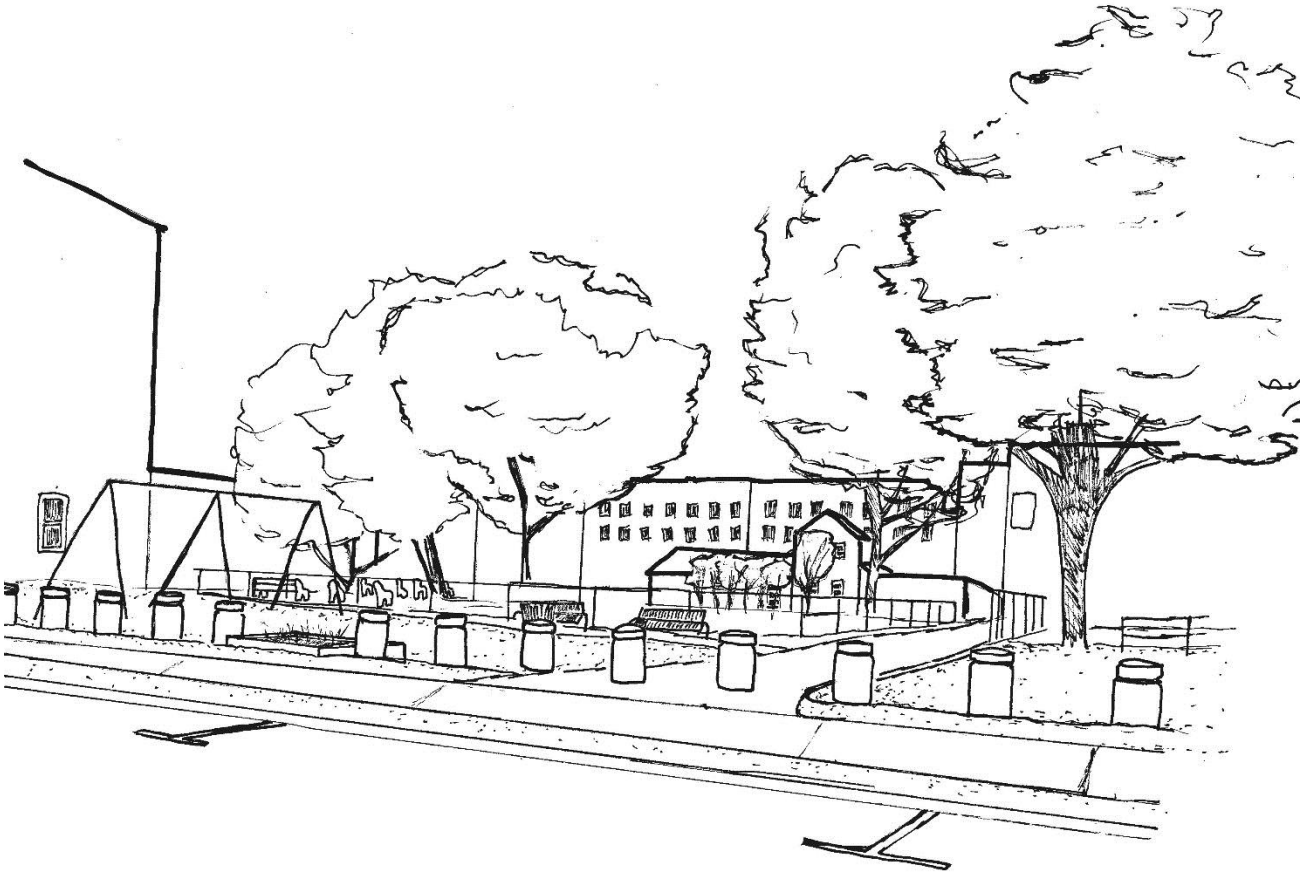
"I like the idea of bike clubs and hiking clubs. We have been running a down town volleyball activity on Race Street... It has been successful but could use support from the City." *-2017 Survey Respondent*

Recreational Programming Improvements

The City offers a range of sports programs and community events throughout the year to residents. Organizations such as the YMCA, Boys & Girls Club, and Holyoke Rows provide programs and regularly bring residents, especially youth, into parks and other recreation areas like the river. According to various sources, including the 2017/18 survey, there remains a need for additional programs for youth and teens throughout the year. Nearly 50 percent of survey respondents perceive that teens, young adults, adults, and children and adults with mobility impairments do not have sufficient recreational opportunities. This may or may not be an issue of availability, but rather issues around affordability and awareness. The City can help to facilitate easy access for youth and teens to recreation facilities and open space through public transportation, bike paths, and bike racks in parks. This would improve access for teens and young adults especially in low-income areas. Finally, trends in youth recreation evolve; the City's programming may need to remain flexible in response to shifting needs and interests through regular communication with residents.

7.2.4 Environmental Health and Quality of Life

Improving the ecological function and environmental health of urban open space benefits residents' quality of life by reducing the impacts of air pollution and airborne contaminants, improving water quality for drinking and recreation, reducing flooding, and creating more comfortable opportunities to recreate and commute by foot or bike. Safe open space where people can gather can also foster community-building, can reduce crime thanks to more eyes on the street, and attract investment, as plentiful and well-used open space resources are a visual indicator of vibrant communities.



The City has addressed concerns over soil contamination recently and The Flats community will help redesign Valley Arena Park for renovation in 2018–2019.

Analyses show that some of the highest concentration of youth, residents without access to a car, Environmental Justice communities, and brownfields occur in Holyoke's downtown neighborhoods. Downtown is in turn the farthest of all neighborhoods from the extensive intact natural areas along the range and around the reservoirs in the west of the city. This permanent geographic pattern, in which vulnerable populations have the highest exposure to toxicity and lowest access to large high-quality open space, makes the case that improvements to environmental quality in the downtown area may have particularly high benefits. The upcoming renovation of Valley Arena Park is one example of how the City can turn degraded land into a community asset. Greening downtown, increasing integration of green infrastructure into landscaping and stormwater management infrastructure, and increasing community use and care for neighborhood parks would also increase quality of life for not only the most vulnerable, but for all the city's neighborhoods. Though not downtown, completing the cleanup of the Mountain Road property, well underway by the City, will also ensure safe public use in future.

7.2.5 Community Participation

Outreach Improvements

Feedback gathered from the community through the 2017/18 survey and community meetings came primarily from residents of the Highlands and Elmwood neighborhoods. The neighborhood demographics in those two areas are composed of older, primarily non-Hispanic or Latino white residents. This indicates a need to improve outreach and information gathering in the future.

CASE STUDY

Brownfield Redevelopment & Greenway Corridors

Name: Atlanta Beltline
Date: April 2012, completion by 2030
Location: Atlanta, Georgia

Project Summary:
In 2012, Atlanta, Georgia broke ground on a new redevelopment effort to connect 45 different neighborhoods in a greenway corridor, using a 22-mile strip of vacant land that was once a rail line. Brownfield remediation is a major consideration. The new Beltline will connect 5,600 units of affordable housing and over 1000 acres of new/improved parks. Sections of the greenway corridor are already completed and host charity events while providing everyday recreational opportunities, community building, volunteer activities, public art displays, and concert venues. The corridor remains flexible for the future incorporation of a light rail transit system.

Pathways offer multi-modal transport between neighborhoods and parks while remediating surrounding brownfields. Photo courtesy of AJC

Pedestrians of all abilities can use the multi-modal path system that is wheelchair accessible. If you walk, bike, wheel, rollerblade, or skate, the large 14-foot paths accommodate all different users.

For more information, see: Beltline.org

While projects that correct past environmental injustices are absolutely necessary, environmental justice calls for the "fair treatment and meaningful involvement of all people regardless of race, color, sex, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" to prevent future threats to the health and well-being of communities (US EPA 2018a). Holyoke could benefit enormously by directing efforts toward building partnerships with community organizations and leaders in order to gather information equitably and involve all wards. Barriers to involvement in planning, policy, and design, especially for the growing Spanish-speaking population, necessitate the cultivation of long-lasting lines of communication. In future plans and OSRP updates, identification of partners for community meetings could begin very early in the process. These relationships will guide action plans that more accurately reflect all residents' needs.

Needs of a Bilingual City

According to the 2016 ACS estimate, 46.4 percent of the residents of Holyoke speak a language other than English at home and 17.2 percent of residents speak English less than "very well." In Holyoke, 41.7 percent of residents speak Spanish, reflecting the growing Hispanic and Latino population discussed in section 3.3.1 (US Census Bureau). Language barriers can prevent or limit resident participation in public meetings and forums, participation in planning and policy decisions, and also hinder use of City websites and plans that advertise open space and recreation events, offerings, and resources. Ensuring that documents, programming and resource advertisements, and outreach is translated into Spanish, providing opportunities for City employees to learn Spanish, and regularly assessing how well the City is reaching Spanish-speaking residents would increase equitable access to both City open space and recreation programming as well as to its valuable resources.

7.2.6 ADA Findings

An assessment of community needs related to ADA accessibility in Holyoke's open space and recreation facilities will come following the ADA report. As encouraged by the 2017 *SCORP*, the City could consider ways to go above and beyond ADA requirements for amenities and programs to best serve the diverse needs of the community. When available, the proposed actions will be incorporated into this OSRP.

7.3 Management Needs, Potential Changes of Use

Lack of staff and funding prevents Holyoke from fully realizing the benefits of its parks, recreation facilities, and streetscape elements such as trees. Increasing staffing in the DPW would improve the functionality and aesthetic value of open space resources. Furthermore, a strong relationship between the City and neighborhoods could strengthen community involvement in a variety of ways. Good communication with park stakeholders is the best way to ensure that parks and recreation facilities meet the needs of Holyoke residents. Cultivating youth and volunteer support can supplement City maintenance efforts. Similarly, coordinating conservation and maintenance of the Mount Tom area, including Little Tom Mountain, will benefit the area's ecological and social value.

7.3.1 Increased Staffing Needs

The City has, over the past decade, received funds and support for many park improvements. However, limited staffing hinders the City's current ability to maintain and manage its many open space areas and parks. There is a perception from the City and residents alike that park infrastructure is subject to a cycle in which grant-funded renovations fall into disrepair for lack of maintenance and subsequently require grant funds for rebuilding. While this system has worked well enough for the past decades (given that the quality of parks has improved), it is subject to the availability of funding and may not be a sustainable system for overall park maintenance. Adding DPW staff to increase the capacity for park maintenance would align with the community's goals of improving the overall perception of parks as safe and clean community spaces and support the City's increased tree canopy and green infrastructure goals. Increasing DPW staff would also employ more residents of Holyoke.

Though not as intensive and not under the purview of DPW staff, the City has a responsibility to manage its large open space parcels and conservation restrictions. Regular monitoring and enforcement of CRs, clear signage, development of forest management plans for City-owned watershed and conservation parcels, and the cleanup of hazardous materials, for example, protect the use and benefits of important natural resources.

7.3.2 Coordinated Efforts on Mount Tom

The Mount Tom range is divided into parcels of open space owned by many different entities including DCR, HG&E, Holyoke Boys & Girls Club, and The Trustees. *Mount Tom: Making Connections* recommends coordinating management and conservation efforts between the many parties to ensure the ecological value of the range is preserved and disturbance is minimized. This recommendation aligns with residents' desire to protect the range and its water resources. Based on feedback in public meetings and interviews, there is also a need for a coordinated effort to deal with trespassing issues, especially at the Mount Tom Ski Area facility.

7.3.3 Community Support

Community members regularly volunteer for parks maintenance, in some cases as part of the City's voluntary tax work-off program for veterans and widows of veterans who own homes in Holyoke—a program now in its sixth year (City of Holyoke 2018). This collaboration between the City and open space users builds community care and investment in open space resources. To complement DPW's regular maintenance, volunteer-based efforts can increase the level of upkeep and care for parks and open space. Connecting with keystone community members and encouraging the establishment of friends' groups could do the following:

- Help maintain park cleanliness and safety;
- Activate parks by showing investment and use;
- Increase awareness of parks;
- Encourage the City to integrate more community site design and planning in the future; and
- Establish important lines of communication between residents of Holyoke and City departments to discuss park needs and resolves problems.

CASE STUDY

Youth Involvement at Groundwork Lawrence

Name: Groundwork Lawrence
Date: 2004
Location: Den Rock Park, Lawrence, Massachusetts

Young adults got the chance to work with the redevelopment of Den Rock Park and gain hands on experience. Photo courtesy of Groundwork Lawrence.

Project Summary:
This 120-acre wooded property with steep rock outcrops is the only park of its kind in the densely developed and historically industrial City of Lawrence, Mass. In 2004, the City partnered with the non-profit Groundwork Lawrence to improve trail systems, signage, the parking area, and to bring awareness to the park. The Groundwork Lawrence Summer Green Team employed six local residents to create habitat, install new signs, and lead bird watching expeditions. The youth of Lawrence were able to assist in the park improvements under a certified arborist. The Summer Green Team also employs high school youth to make improvements throughout the city of Lawrence. Today the park is sought after by rock climbers and local residents looking to escape the urban-scape without having to leave the city.

For more information, see: Groundworklawrence.org

7.4 Special Opportunities

Holyoke's prior planning and redevelopment efforts have envisioned a vibrant and environmentally sound city. Two large recreation properties in Holyoke stand out as greatly underused community assets whose overhaul could create many new opportunities for residents. Newly-available Community Preservation Act funds are a potential funding source for these types of projects.

7.4.1 Addressing Potential Assets

Two key potential open space assets on Little Tom Mountain currently have complications that prevent greater use as recreational opportunities: the defunct Mount Tom Ski Area (owned by the Boys & Girls Club), and the adjacent quarry (owned by Sons Construction Co.). Efforts to reduce trespassing, prevent further degradation, and to plan and fundraise for rehabilitation are a good way to begin the long process toward complete repurposing and revitalization. Protecting the quarry (now peregrine falcon habitat) and the Mount Tom Ski Area would expand the protected corridor along the Mount Tom-East Mountain range.

Similarly, Anniversary Hill Park, despite being physically connected to and accessed through the well-trafficked Community Field, remains plagued by vandalism and the perception that it is unsafe. Despite regular City and volunteer attempts to clean the site, it remains compromised by trash, graffiti covering Scott Tower, and overgrowth. Survey respondents, citizens at the public meetings, and Conservation Commission members have expressed interest in restoring the area around Scott Tower and improving the trail network throughout the park. Redesign of the park and its entrance could change the perception of the park to one that is cared for and safe. This is a special opportunity because the parks' proximity to downtown and to Community Field provides residents of the urban core relatively easy access to a large expanse of forested open space.

7.4.2 Coordinating with City Planning Efforts

In the past ten years, the City has written or commissioned numerous plans outlining intentions and visions including the *Center City Vision Plan*, *Connect. Construct. Create. A Plan for the Revitalization of Center City Holyoke*, the *Community Based Assessment of Urban Forestry Conditions,* the *Green Streets Guidebook*, the *Holyoke Bike Network Plan,* and the *City of Holyoke Natural Hazards Mitigation Plan Update*, among others. The action plan items in this OSRP reinforce these long-term planning efforts. A criteria matrix that measures an open space or recreation project's overall importance based on how well it aligns with City plan goals can help the City prioritize actions. This matrix (see conceptual design of matrix in Appendix E), would heavily favor projects that support downtown improvements since most plans focus on the city's four downtown neighborhoods. Holyoke's Parks and Recreation resources listed in the left column can be vetted against one another to determine priority based on how many criteria they meet. This tool reflects not just the understanding of community needs described in this OSRP, but also the many years of public feedback and visioning for Holyoke established in these previous plans.

7.4.3 Community Preservation Act

The Community Preservation Act, approved by Holyoke residents in 2017, provides new funding opportunities for protecting open space and recreational resources in the city. While these annual funds will be shared with other housing and historic preservation projects, a minimum of 10 percent of the funds will be apportioned to open space and recreation annually. These funds can be used to acquire, create, or preserve open space and recreational resources. Funds can also go towards environmental restoration if it contributes to the preservation

of an open space resource. CPA money presents an opportunity to protect or improve open space and recreation resources outside of the Community Development Block Grant (CDBG). Open space and recreation resources outside of the CDBG area have had many fewer grant opportunities in the in the last several years.

CASE STUDY

Using Community Preservation Act Funds

Several Massachusetts mid-sized industrial cities facing social and economic challenges have used The Community Preservation Act funds to enhance open space and recreation assets for their community:

Waterfront destinations provide vistas and recreational opportunities that create a vibrant destination for the city of Salem. Photo courtesy of Wikimedia Commons.

Name: Camp Naumkeag Master Plan
Date: 2015
Location: Salem, Massachusetts

Project Summary:
Camp Naumkeag in Salem, MA, occupies five acres along the lake waterfront in the Salem Willows. The camp is used for YMCA summer camps, as well as by the local community. Several facilities were in disrepair (a beach, parking area, and volleyball court). These conditions did not allow the City to take full advantage of programming, rentals, and other events. The creation of a master plan could ensure that each area of the property and all recreational opportunities are best utilized, including beach and boating access, a playground, open grassy field, volleyball court, basketball court, community garden, and picnic/BBQ area.
Total Project Cost: $25,000

Name: East Trail Line
Date: 2016
Location: Fall River, Massachusetts

Project Summary:
This award could allow for the acquisition of a privately-owned parcel within the Fall River Bio-Reserve. While the Bio-Reserve is over 30,000 acres, there are a few lots still owned privately. Acquisition of these lots is important to preserve this significant environmental reserve.
Total Project Cost: $9,400

For more information, see: Communitypreservation.org/projects.

Section 8. Goals and Objectives

Photo courtesy of Phil Lamcombe.

The following goals and objectives were identified by participants in a series of community engagement meetings, through a public online survey developed and publicized in 2017 and 2018, by City committees and officials, and through other City planning objectives. The first three goals focus on protecting, maintaining, and accessing open space and recreational opportunities while the last goal focuses on strengthening the connection between the community and open space through partnerships, bike and pedestrian improvements, and green infrastructure. Together, these goals and objectives illustrate a vision of Holyoke that protects and cares for its rich natural resources, that offers recreational opportunities to meet the needs of all of its residents, and that builds community involvement in the changing city and regional landscape.

1. Natural resources are protected and enjoyed by all.

Objective A. Protect and manage priority land with recreation and conservation value

Objective B. Preserve surface and groundwater resources

Objective C. Manage public lands as scenic and recreation destinations

Objective D. Increase and clarify public access to public lands and waterbodies

2. Parks and recreation facilities are safe, high quality, and enjoyed by all.

Objective A. Improve overall park quality

Objective B. Improve safety and comfort in parks and recreation facilities

Objective C. Increase funding for maintenance programming and personnel

Objective D. Increase residents' and visitors' awareness and wayfinding of parks

3. A broad array of recreational programs and opportunities are available for people of all ages, abilities, and socioeconomic backgrounds.

Objective A. Assess and implement recreational programming based on public need

Objective B. Increase use of parks and recreational facilities

Objective C. Actively and comprehensively promote all recreational programming in the city

4. Open space is an integral component of community development at the neighborhood, city-wide, and regional scale.

Objective A. Use green infrastructure to infiltrate stormwater and enhance urban landscape

Objective B. Improve safe pedestrian and bike connections across the city

Objective C. Actively engage community members and organizations to enhance neighborhood involvement in parks

Section 9. Seven-Year Action Plan

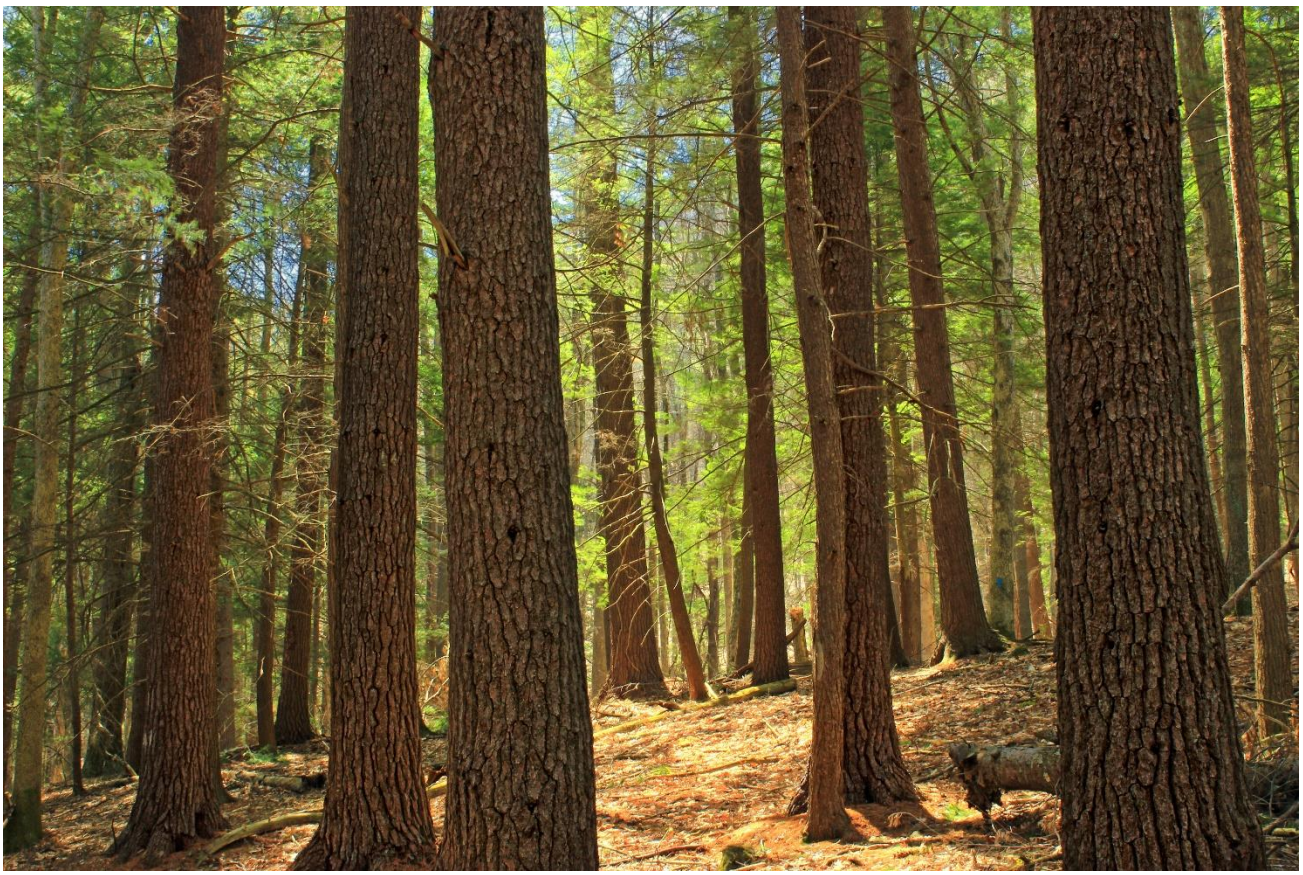


Photo courtesy of Wikimedia Commons.

7-YEAR ACTIONS

2019 OPEN SPACE AND RECREATION PLAN
HOLYOKE, MASSACHUSETTS

0 0.5 1 2 Miles

N

Map 23: 7-YEAR ACTIONS


Connect


Increase Green Infrastructure to Infiltrate Water


Increase Access

There is an opportunity to preserve the city's remaining prime agricultural soils and farmland and to improve neighborhood parks in west Holyoke.

A Protect farmland
Improve parks outside of CDBG funding area

The greatest needs along the ridgeline include conservation of priority habitat and watershed parcels, further development of trails and hiking destinations, and coordinated management of the Mount Tom area.

B Create tourism and management plans for Mount Tom and Little Tom Mountain area
C Protect land around Whiting Street Reservoir
D Protect Williams parcel
E Complete clean-up of City-owned Mountain Road parcels
F Install tent platform along New England Trail
G Connect Holyoke Community College with the New England Trail
H Protect and plan for increased used of Anniversary Hill Park

Multiple water systems near the I-91 corridor in the south are high-priority for infrastructure improvements to reduce flooding, erosion, sedimentation, and CSO activation.

I Improve green infrastructure at and daylight Whiting Street Brook, Day Brook, and Tannery Brook

The urbanized east has a need for improved bike and pedestrian circulation, increased tree canopy and green infrastructure, access to water and water-based recreation, and park improvements related to quality, safety, and visibility.

Improve and maintain parks
Improve visibility and wayfinding of parks
J Reopen public pool
K Finish Canalwalk
Improve bike and pedestrian infastructure downtown and between 116 and Willamanset Bridges
Continue planting trees in priority-tree planting areas
L Maintain City-owned tree nursery

Pollution and invasive species management could complement increased river access to improve the ecological health and residents' experience of the Connecticut River.

Increase access to Connecticut River
Install tentsite for AMC paddler's trail along Connecticut River
M Manage invasive species in Log Pond Cove

The following Seven-Year Action Plan is reflective of community feedback received during the development of this document between 2017 and 2018 and of plans developed in previous years. Each of these action items supports the goals and strategies identified in section 8. By implementing the recommended actions, the City and community organizations can take steps toward achieving the associated objectives and broader goals. Funding may not yet be available for many of these actions and possible funding sources are noted when possible. Each action is also accompanied by proposed responsible board(s) and group(s) responsible for the completion of the task and an estimated timeline. Abbreviations used for these responsible boards/groups are as follows:

CC Conservation Commission
DPW Department of Public Works
PED Planning and Economic Development
PR Parks and Recreation
PNP Private Non-Profit

Goal 1: Natural resources are protected and enjoyed by all

Objective	Action	Timeline	Responsible Party	Potential Funding Source	Priority Level
A. Protect and manage priority land with recreation and conservation value	Work with landowners to protect and manage lands of conservation, recreation, and agricultural value; prioritize when abutting reservoirs, existing green corridors, and agricultural land				
	Expand protection around Anniversary Hill Park; possibly acquire adjacent DOT-owned inholding				
	Permanently protect City-owned Williams parcel for scenic and ecological value along Mount Tom corridor				
	Develop strategy for prioritizing protection of parcels leaving Chapter 61				
	Develop invasive species management plans for Log Pond Cove and watershed properties; obtain funding to implement				
	Develop forest management plans for City-owned land where missing to enhance habitat				

	Complete remediation of contaminated public-owned open space properties and new sites when discovered				
	Assess if the city's zoning ordinances, regulations, and board of health regulations are friendly to agricultural enterprises				
B. Preserve surface and groundwater resources	Prioritize land protection where it supports clean surface and ground water resources				
	Review surface water and groundwater protection zoning overlay and amend as necessary to protect Ashley/McLean and Whiting Street Reservoirs and Barnes Aquifer				
	Assess and address public interest in protecting watershed around Holyoke-owned public drinking water source in Southampton				
	Continue to identify wetlands throughout the city and increase awareness of waterways and bodies of city-wide importance				
	Review and revise subdivision rules and stormwater ordinance language to encourage low impact development best management practices				
	Integrate separation of CSOs into road improvement projects				
	Update stormwater infrastructure in areas with flooding and erosion concerns identified in this plan				
C. Manage public lands as scenic and recreation destinations	Continue monitoring and reporting of conditions of City-controlled open space, including conservation restrictions and fee-simple parcels				
	Support Friends of Mount Tom group and alliances formed by Mount Tom property owners				
	Create (eco)tourism plan for general Mount Tom area				
	Support Boys & Girls Club efforts to arrest degradation and increase safety/usability of former Mount Tom Ski Area				
	Develop a strategy for resolving parking and public access needs at the entrance of Mountain Park and Mount Tom State Park				
	Create tent platform/lean-to in City-owned Brush Hill property along NET trail				
	Explore options for public swimming access in public waterbodies				

	Maintain views at riverfront parks through proactive vista pruning (i.e. McNulty Park and Pulaski Park)				
D. Increase and clarify public access to public lands and waterbodies	Install signs at Conservation Commission-managed open space to inform citizens of recreation opportunities and prevent encroachment onto municipal lands				
	Assess feasibility of potential recreational uses of Whiting Street Reservoir such as boating, fishing, skating, and swimming				
	Collaborate with AMC to provide riverside tent site for the Connecticut River Paddlers' Trail				
	Increase awareness of and access to facilities and programming at Sue Ellen Panitch River Access Center, Slim Shad Point and the HG&E Fishway				
	Explore additional options for river access beyond already identified locations				
	Clarify public use and access of land around Holyoke Canoe Club				
	Support Center City Vision Plan's riverfront park expansion goals				
	Clarify public use of city-owned Mountain Road property after completion of clean-up				

Goal 2: Parks and recreation facilities are safe, high quality, and enjoyed by all

Objective	Action	Timeline	Responsible Party	Potential Funding Source	*Priority Level*
A. Improve overall park quality	Inspect park and recreation facilities annually				
	Maintain and improve all city fields, parks, playgrounds, pool, and facilities based on ongoing inspections, community feedback, and needed improvements listed in Table A.2.1-B				
	Identify and prioritize parks using the City Goals Impact Tool (Appendix E) whose improvements align with other City goals				

	Find funding for improvements to parks outside of CDBG funding areas (such as Gloutek Park)				
	Create template of approved design options for future park redesigns (i.e. type of benches, trash cans, vegetation, and accessibility)				
	Implement existing design plans for parks, such as Connecting the Pulaski Park Corridor				
	Increase diversity of vegetation in parks for visual interest and ecological function				
	Increase number of picnic tables and permanent grills				
	Explore design alternatives for Anniversary Hill Park that enhance appeal and sense of safety (especially through underpass)				
	Complete planned Canal Walk, create pocket parks along Canal Walk, and create easy pedestrian connection from Canal Walk's terminus to Pulaski Park				
	Restore public pool and explore additional downtown locations for water-based recreation				
B. Improve safety and comfort in parks and recreation facilities	Continue needle clean-up in parks with high needle incidence; install needle disposal units in parks with high needle incidence				
	Ensure residents understand dawn to dusk park policy				
	Identify parks where lighting will increase perception of safety and install, especially in denser downtown neighborhoods				
	Continue to provide bathroom amenities seasonally and maintain them as needed				
C. Increase funding for maintenance programming and personnel	Allocate additional time and resources toward park maintenance				
	Hire city arborist or local tree management company to maintain trees in parks and rights-of-way				
	Hire a designated 'park' ranger(s) to supervise and maintain parks on a daily basis				
	Increase participation in tax work off program for park maintenance				

	Explore options to increase volunteer support for park maintenance (e.g. master gardeners' role at Wistariahurst Museum is example)				
D. Increase residents' and visitors' awareness and wayfinding of parks	Create a greenprint map of parks so residents and tourists know what parks are nearby and walkable				
	Complete installation of uniform park signage that includes greenprint map				
	Put map of parks on website and highlight regional destination parks and connections				
	Include historic sites and parks in Holyoke walking tours				

Goal 3: A broad array of recreational programs and opportunities are available for people of all ages, abilities, and socioeconomic backgrounds

Objective	Action	Timeline	Responsible Party	Potential Funding Source	*Priority Level*
A. Assess and implement recreational programming based on public need	Continue yearly assessment of recreational needs of all city residents on neighborhood basis				
	Conduct yearly review of all parks and recreation programs and policies to ensure they reflect the needs of city residents where possible				
	Increase offering of summer recreational sports clinics and non-sports camps				
	Continue to explore residents' interest in additional indoor recreational sites such as health club and indoor soccer facility				
	Strengthen existing collaborations with community organizations (such as YMCA, Holyoke Community College, Holyoke Health Center), and explore new programming and publicity collaborations				
	Work with schools to determine ways to increase school use of open space and parks				

	Decrease cost barriers to recreational programming for low-income youth, especially in the summer				
	Increase access of youth to mountain range and reservoirs through recreational or environmental programming				
	Consider opportunities for workforce development and youth employment				
	Seek alternative funding systems for special events and cultural festivals (i.e. spring celebrations, Celebrate Holyoke, tree lighting, Halloween, senior picnics, etc.)				
	Increase funding to grow and strengthen the recreation department's seasonal, part-time workforce and training of program instructors and lifeguards				
B. Increase use of parks and recreational facilities	Conduct yearly review of all user fees to ensure balance of affordability and coverage of operational costs				
	Identify sports facilities with greater demand for use than available and strategize ways to fulfil all requests				
	Consider allowing students to use public transportation without a bus pass to reach non-school programming after school				
	Continue to develop working relationship with the school department to coordinate field usage, programming, field maintenance issues, recess, booster clubs, etc.				
	Seek opportunities to increase use of open spaces through public arts and festivals				
C. Actively and comprehensively promote all recreational programming in the city	Regularly assess how recreation communications are reaching residents and explore alternative ways to publicize				
	Ensure Spanish-speaking communications and registration materials are easy to find and use				
	Continue to publicize non-municipal recreational programming such as Holyoke Rows' programs				

Goal 4: Open space is an integral component of community development at the neighborhood, city-wide, and regional scale

Objective	Action	Timeline	Responsible Party	Potential Funding Source	*Priority Level*
A. Use green infrastructure to infiltrate stormwater and enhance urban landscape	Integrate green infrastructure with public funded projects, guided by Holyoke green streets plans and the *Pioneer Valley Green Infrastructure Plan*				
	Maintain existing rain gardens and increase capacity for City maintenance of additional green infrastructure systems				
	Increase education of innovative stormwater management including workshops for students on rain garden creation				
	Continue tree-planting program in priority tree-planting areas to meet urban tree planting goals				
	Maintain municipal nursery in its current Berkshire Street location and permit re-location in the case that a suitable, irrigated parcel is located and trees are transplanted by a certified arborist				
	Increase awareness of tree planting forms and disseminate widely to schools, realtors, tax mailings, etc.				
	Daylight Day Brook and other streams flowing into CSOs				
	Reduce impervious surfaces and increase pervious surfaces throughout the city				
B. Improve safe pedestrian and bike connections across the city	Create protected bicycle facilities or stripe bike lanes on key transportation corridors, especially those recommended in the *Holyoke Bike Network Plan* and between the SEP River Access Center and Springdale Park				
	Create linear park with multi-use path looping from the Canal Walk on Race street, the length of South and North Canal Streets, to the Willimansett Bridge, and to downtown				
	Support valley bike share program: publicize, protect bike stations, and make access to membership equitable				

	Site and install bike racks in key parks and destinations, such as the Holyoke Health Center and Holyoke Mall (check DPW's supply)				
	Link Holyoke's existing bicycle and pedestrian networks into the region's existing long-distance hiking and biking trails				
	Advocate for future commuter rail links to Holyoke to allow bicycles on board				
	Increase bike, pedestrian, and vehicular safety education in schools				
	Involve organizations and businesses such as Holyoke YMCA in educating families about and promoting bicycle and pedestrian activities				
	Improve pedestrian crosswalks and ramps to city parks; identify and eliminate barriers to universal access				
	Increase trail connections to Mount Tom-East Mountain trail network; allow public use of HWW property to connect trails at HCC with NET				
	Improve safety and appearance of underpasses, with better lighting and public art projects for pedestrians				
	Explore opportunities to turn pedestrian corridors (such as alleyways) into parkways				
	Consider installing additional foot bridges over the canals and restoring the foot bridge from The Flats neighborhood to Main Street				
C. Actively engage community members and organizations to enhance neighborhood involvement in parks	Collaborate with neighborhood organizations to determine if existing open spaces and parks meet community needs				
	Develop partnerships with community organizations to help organize community feedback and design sessions				
	Facilitate creation of friends groups to oversee park maintenance and generate volunteer support				
	Continue to seek keystone community members to monitor parks and serve as line of communication between the city and neighborhood				
	Continue to involve residents in park design				
	Support city planning and development efforts to invest in improvements to housing and infrastructure in neighborhoods surrounding parks and open space				

Section 10. Public Comments

Photo courtesy of Andrew Smith.

Public comments to be added at later date.

Section 11. References

Photo courtesy of Paul Cooper.

11.1 References

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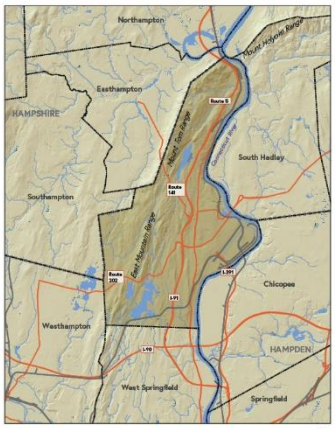
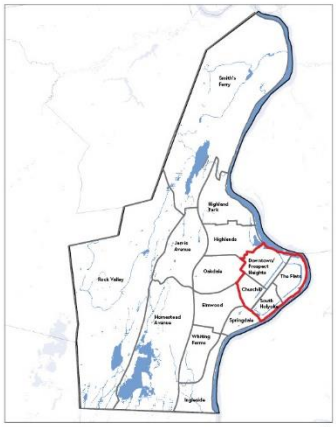
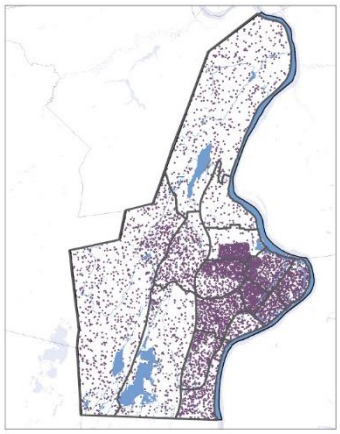
11.2 Data Layers



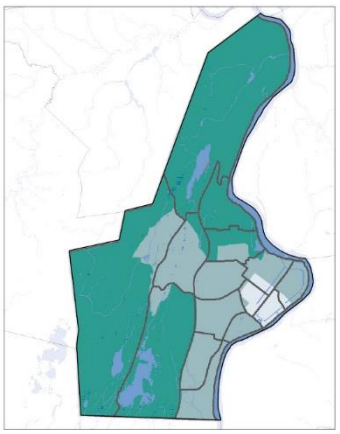
Map 1: HOLYOKE & SURROUNDING CONTEXT
MA Office of Geographic Information (MassGIS):
Community Boundaries (Cities and Towns)
County Boundaries
MassDOT Roads
Trains (and MBTA Commuter Rail)
MassDEP Hydrography (1:25,000)
Shaded relief 1:5,000



Map 2: NEIGHBORHOODS
MA Office of Geographic Information (MassGIS):
Community Boundaries (Cities and Towns)
City of Holyoke, Economic Development and Planning Department:
Neighborhoods



Map 3: POPULATION DENSITY
Massachusetts Office of Geographic Information (MassGIS):
Community Boundaries (Cities and Towns)
Data layers from the 2010 U.S. Census
City of Holyoke, Economic Development and Planning Department:
Neighborhoods



Map 4: MEDIAN AGE

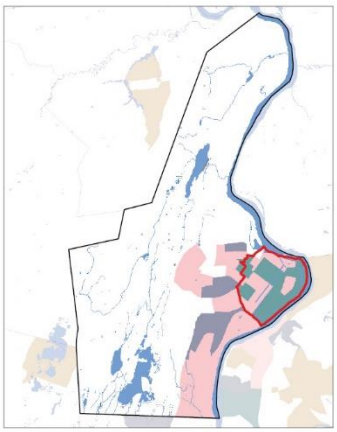
Massachusetts Office of Geographic Information (MassGIS)

Community Boundaries (Cities and Towns)

Data layers from the 2010 U.S. Census

City of Holyoke, Economic Development and Planning Department:

Neighborhoods



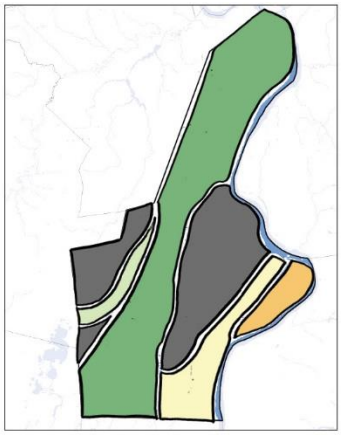
Map 5: ENVIRONMENTAL JUSTICE POPULATIONS

Massachusetts Office of Geographic Information (MassGIS):

Community Boundaries (Cities and Towns)

Data layers from the 2010 U.S. Census: Environmental Justice 2010 Populations

MassDEP Hydrography (1:25,000)

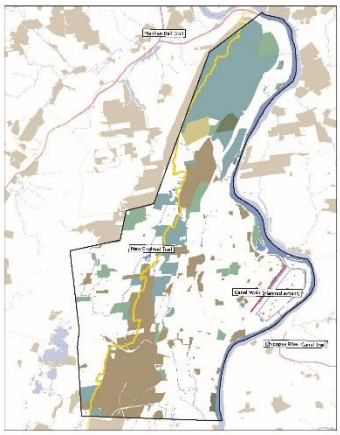


Map 6: LAND USE PATTERNS

Massachusetts Office of Geographic Information (MassGIS):

Community Boundaries (Cities and Towns)

Land Use (2005)



Map 7: OPEN SPACE & RECREATIONAL TRAILS

Massachusetts Office of Geographic Information (MassGIS):

Community Boundaries (Cities and Towns)
Bicycle Trails
Long Distance Trails
Protected and Recreational Open Space (*Updated 3/21/2018*)
MassDEP Hydrography (1:25,000)

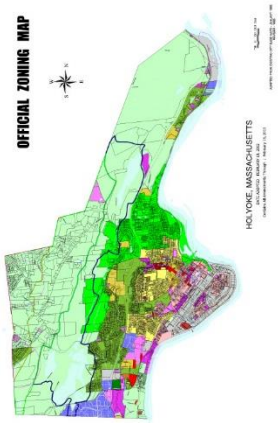
Map 8: OPEN SPACE & TRANSPORTATION DOWNTOWN

Massachusetts Office of Geographic Information (MassGIS):

Community Boundaries (Cities and Towns)
Town and City Halls (*Updated 7/10/2017*)
Libraries
Bicycle Trails
MassDOT Roads
Trains (and MBTA Commuter Rail)
Protected and Recreational Open Space (*Updated 3/21/2018*)
MassDEP Hydrography (1:25,000)

City of Holyoke, Economic Development and Planning Department:

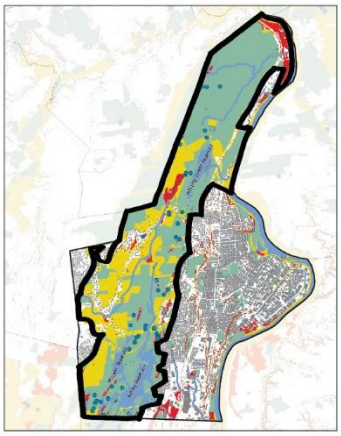
Neighborhoods



Map 9: OFFICIAL ZONING MAP

City of Holyoke, Economic Development and Planning Department:

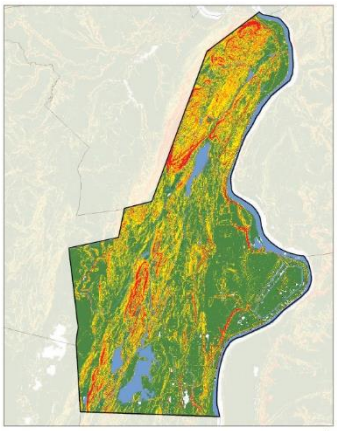
Official Zoning Map Plotted 2/13/13; (*Last update 11/2011*)



Map 10: DEVELOPMENT CONSTRAINTS

Massachusetts Office of Geographic Information (MassGIS):

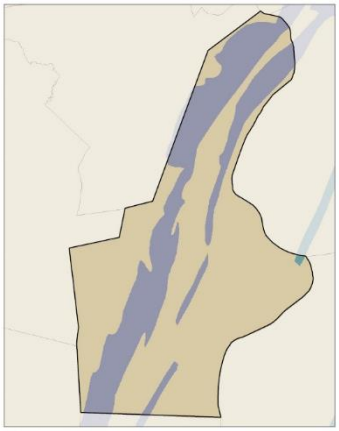
Community Boundaries (Cities and Towns)
Digital Elevation Model (1:5,000)
NRCS SSURGO-Certified Soils
NHESP Priority Habitats of Rare Species
NHESP Certified Vernal Pools
Protected and Recreational Open Space (*Updated 3/21/2018*)
MassDEP Hydrography (1:25,000)



Map 11: SLOPE

Massachusetts Office of Geographic Information (MassGIS):

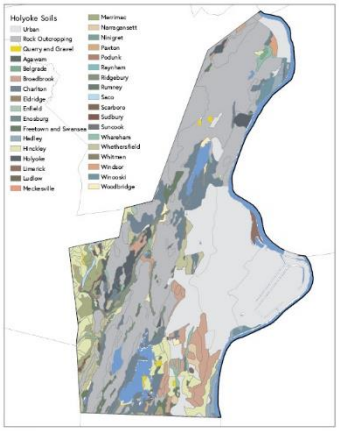
Community Boundaries (Cities and Towns)
Digital Elevation Model (1:5,000)



Map 12: BEDROCK GEOLOGY

Massachusetts Office of Geographic Information (MassGIS):

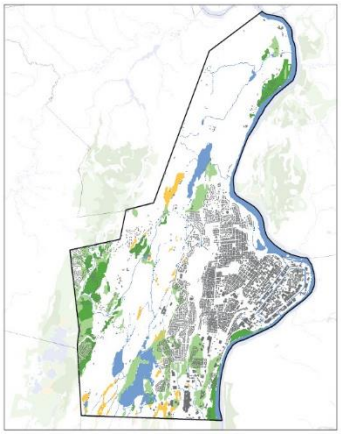
Community Boundaries (Cities and Towns)
Bedrock Lithology (Group A)



Map 13: SOILS

Massachusetts Office of Geographic Information (MassGIS):

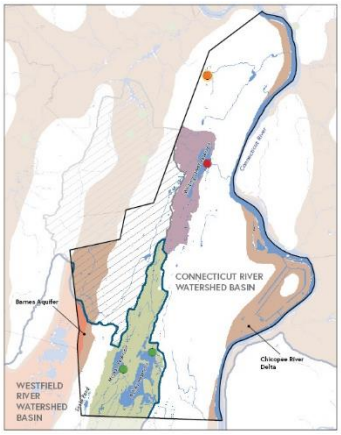
Community Boundaries (Cities and Towns)
NRCS SSURGO-Certified Soils



Map 14: AGRICULTURAL SOILS & BUILDING PATTERNS

Massachusetts Office of Geographic Information (MassGIS):

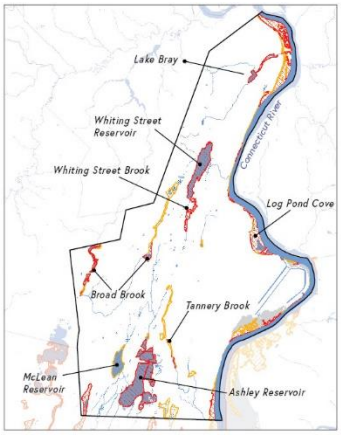
Community Boundaries (Cities and Towns)
NRCS SSURGO-Certified Soils: Prime Farmland Soils
Building Structures (2-D) (*Updated 10/4/2017*)
MassDEP Hydrography (1:25,000)



Map 15: WATER RESOURCES

Massachusetts Office of Geographic Information (MassGIS):

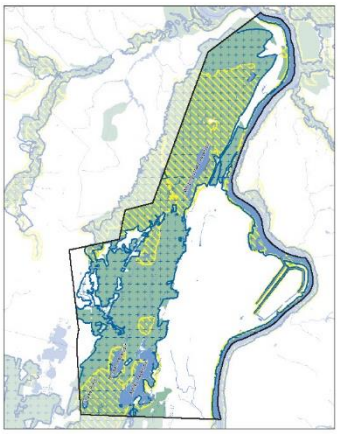
Community Boundaries (Cities and Towns)
MassDEP Hydrography (1:25,000)
Major Drainage Basins
Public Water Supplies (*Updated 10/19/2017*)
MassDEP Wellhead Protection Areas (Zone II, Zone I, IWPA) (*Updated 10/19/2017*)
Surface Water Supply Watersheds (*Updated 4/18/2017*)
U.S. EPA Designated Sole Source Aquifers
Aquifers



Map 16: FEMA FLOOD ZONES

Massachusetts Office of Geographic Information (MassGIS):

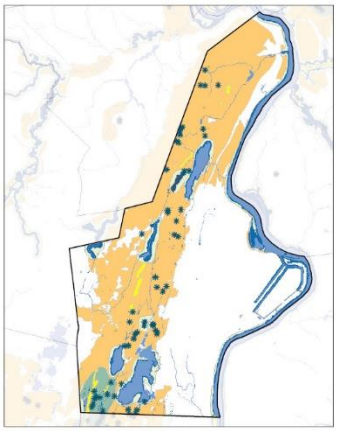
Community Boundaries (Cities and Towns)
FEMA National Flood Hazard Layer
(*Updated 7/25/2017*)
MassDEP Hydrography (1:25,000)



Map 17: CORE & PRIORITY HABITAT

Massachusetts Office of Geographic Information (MassGIS):

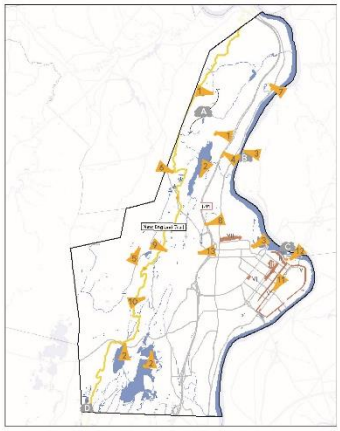
Community Boundaries (Cities and Towns)
NHESP Priority Habitats of Rare Species
BioMap2
MassDEP Hydrography (1:25,000)



Map 18: CORE HABITAT & CNL COMPONENTS

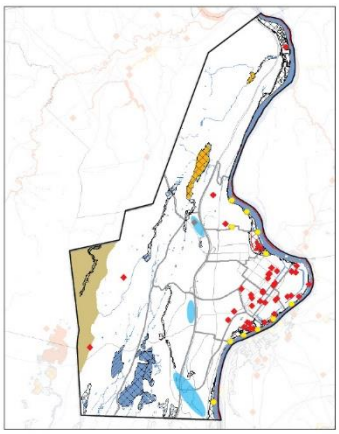
Massachusetts Office of Geographic Information (MassGIS):

Community Boundaries (Cities and Towns)
NHESP Certified Vernal Pools
BioMap2
MassDEP Hydrography (1:25,000)



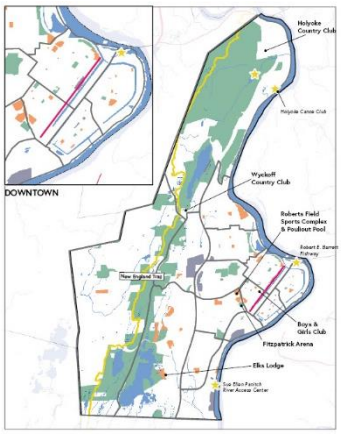
Map 19: UNIQUE GEOLOGICAL, SCENIC & HISTORIC FEATURES

Massachusetts Office of Geographic Information (MassGIS):
Community Boundaries (Cities and Towns)
MassDOT Roads
Long Distance Trails
Standardized "Level 3" Assessors' Parcels (*Updated 3/21/2018*)
MassDEP Hydrography (1:25,000)



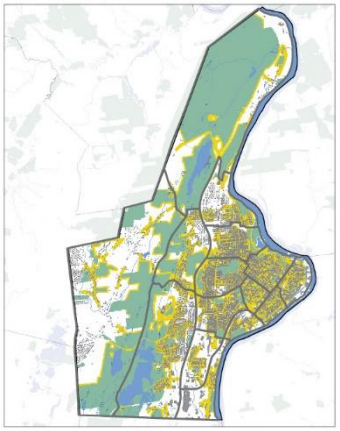
Map 20: ENVIRONMENTAL CHALLENGES

Massachusetts Office of Geographic Information (MassGIS):
Community Boundaries (Cities and Towns)
Aquifers
MassDOT Roads
MassDEP Tier Classified Chapter 21E Sites (*Updated 10/19/2017*)
FEMA National Flood Hazard Layer (*Updated 7/25/2017*)
MassDEP Major Facilities
MassDEP 2014 Integrated List of Waters (305(b)/303(d))
MassDEP Hydrography (1:25,000)
Department of Environmental Protection:
CSO_MA_DRAFT_2015
City of Holyoke, Economic Development and Planning Department:
Neighborhoods



Map 21: PARKS, RECREATION FACILITIES, & WATER ACCESS

Massachusetts Office of Geographic Information (MassGIS):
Community Boundaries (Cities and Towns)
Bicycle Trails
Long Distance Trails
Protected and Recreational Open Space (*Updated 3/21/2018*)
MassDEP Hydrography (1:25,000)
City of Holyoke, Economic Development and Planning Department:
Neighborhoods



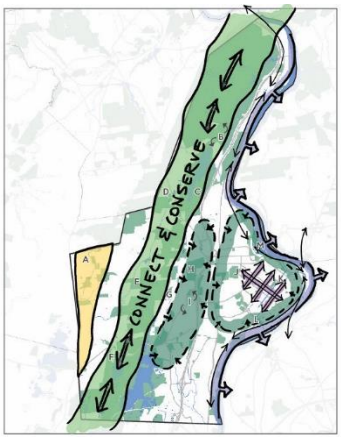
Map 22: ACCESS: QUARTER-MILE WALKING DISTANCE TO PARKS

Massachusetts Office of Geographic Information (MassGIS):

Community Boundaries (Cities and Towns)
Protected and Recreational Open Space (*Updated 3/21/2018*)
Building Structures (2-D) (*Updated 10/4/2017*)
MassDOT Roads
MassDEP Hydrography (1:25,000)

City of Holyoke, Economic Development and Planning Department:

Neighborhoods



Map 23: 7-YEAR ACTIONS

Massachusetts Office of Geographic Information (MassGIS):

Community Boundaries (Cities and Towns)
Protected and Recreational Open Space (*Updated 3/21/2018*)
MassDOT Roads
MassDEP Hydrography (1:25,000)

Section 12. Appendices

Photo courtesy of the City of Holyoke.

Appendix A. Chapter 5 Tables

Parcel numbers in ( ) may be inaccurate.

Private and Non-Profit Recreation and Conservation Parcels

Table A.1.1: Chapter 61 Lands (section 5.1.1)

Parcel	Address	Conservation/Recreation Value	Acres	61 Enrollment
181-00-155	Apremont Hwy	Secondary recharge, rare species, NET	68.64	Ch 61
186-00-008	Mountain Rd	NET, rare species, watershed	44	Ch 61
191-00-003	Rear Mountain Rd	Rare species, watershed, secondary recharge	20	Ch 61
200-00-001	West Cherry St	Existing recreation, rare species, watershed	11	Ch 61
178-00-001	Apremont Hwy	Aquifer recharge	30	Ch 61A
199-00-004	Mountain Rd	Agricultural soils, rare species, aquifer recharge	2.902	Ch 61A
202-00-026	Mountain Rd	Secondary recharge, rare species	10.77	Ch 61A
199-00-001	Mountain Rd	Agricultural soils, rare species, aquifer recharge	34	Ch 61A
202-00-020	Mountain Rd	Secondary recharge, rare species	10.8	Ch 61A
206-00-065	Mountain Rd	Agriculture	67.67	Ch 61A
208-00-017	Southampton Rd	Open Space, agriculture	3	Ch 61A
208-00-002	Southampton Rd	Open Space, agriculture	2.56	Ch 61A
208-00-011	Southampton Rd	Aquifer recharge, rare species, agricultural soils	1.75	Ch 61A
210-00-002	Southampton Rd	Agricultural soils, rare species	16	Ch 61A
211-00-009	Southampton Rd	Agricultural soils, rare species	8.25	Ch 61A
208-00-001	Southampton Rd	Agricultural soils, rare species	16.75	Ch 61A
208-00-004	Southampton Rd	Agricultural soils, rare species	6.54	Ch 61A
208-00-015	Southampton Rd	Agricultural soils, rare species	2.521	Ch 61A
211-00-013	Southampton Rd	Agricultural soils, rare species	16.08	Ch 61A
211-00-008	Southampton Rd	Agricultural soils, rare species	2.68	Ch 61A
186-00-009	Apremont Hwy	Rare species, watershed, secondary recharge	79.22	Ch 61B
141-00-003	Calvin Ln	Watershed Land	0.51625	Ch 61B
213-00-006A	Rear Easthampton Rd	Existing recreation	4.54	Ch 61B
222-00-012 222-00-013	Ferry Rd	Recreation, floodplain, rare species	0.22688	Ch 61B

174-00-003	Homestead Ave	Agriculture	57.54	Ch 61B
139-00-030	Mount Tom Ave	Existing recreation	0.27078	Ch 61B
207-00-005	Mountain Rd	Watershed	12	Ch 61B
227-00-001	Northampton St	Recreation	0.12741	Ch 61B
227-00-002	Northampton St	Recreation	0.0225	Ch 61B
141-00-007	Woodbridge St	Existing recreation	0.6837	Ch 61B

Table A.1.2: Private and Non-Profit Recreation Parcels not in Chapter 61 (section 5.1.2)

Name	Owner	Parcel	Acres	Address	Current Use/Facilities	Public Access
Burgee Tract		194-00-004	26.33	Mountain Rd	Forested	Hunting, hiking
Dean Park	Daniel O'Connell and Sons	075-02-007	0.16	Main St	Public park	Open to public
Dinosaur Footprints	The Trustees of Reservations	215-00-001 064-00-001	6.44	US-5	Preservation of fossil dinosaur tracks, Connecticut River	Good to fossil tracks; illegal access to river across active RR tracks; no handicapped access
El Jardin Girasol / The Sunflower Garden	Nuestras Raíces, Inc	034-01-009	0.15	E Dwight St	Community garden used by 17 members.	Restricted to gardeners
El Jardin La Piedra / Garden of The Rock	Haberman, Harold and Morton et al.	003-01-018	0.19	Sargent and Walnut St	Community garden used by 17 members.	Restricted to gardeners
Elks Club Soccer Field	Holyoke Lodge No. 902	173-00-027	15.14	Whitney Ave	Soccer fields, playing fields	Team sports and members
Former Kohlmeyer land	Nuestras Raíces, Inc	118-00-011 118-00-012 118-00-013	4.16	Main St		Bird watching, hiking, agriculture
Holyoke Canoe Club	Holyoke Canoe Club	222-00-013	9.73	Old Ferry Rd	Tennis courts, swimming, boat access	Members only to facilities; narrow public boat access
Holyoke Country Club	Holyoke Country Club	226-00-001	115.25	Country Club Rd	Golf	Members only
Holyoke YMCA	YMCA of Massachusetts	061-01-001 061-01-002	1.62	Pine St	Athletic facilities	Restricted to members, membership open to public
Jardin Ciudad Verde / Green City Garden	Paul Robert	062-03-001	0.14	Main St	Community garden	Restricted to gardeners
Jardin Cuenta Conmigo	Nuestras Raíces, Inc	West Street Alley	0.15	Miller St	Community garden used by 16 members.	Restricted to gardeners
Jarvis Heights Apartments Play Structure	Marken Properties	146-00-013	0.07	Gerard Way	Playground	Open to public
Jarvis Heights Garden / Jardin El Renacer	Marken Properties	146-00-013	0.15	Gerard Way	Community garden used by 14 members.	Restricted to gardeners

La Finca / Tierra de Opportunidades	Nuestras Raíces, Inc	118-00-011 118-00-012 118-00-013	4.58	Jones Ferry Rd		Restricted to gardeners
La Finquinta	Roman Catholic Bishop of Springfield	028-01-001	0.53	Main St	Community garden has 31 family plots, 1 plot for Broderick House homeless shelter youth.	Restricted to gardeners
Land of Providence	The Trustees of Reservations	118-00-015	27.27	Main St	Rented to Nuestras Raíces for agricultural purposes.	Open to public for walking farm roads and riverside trails
Little Mount Tom	The Trustees of Reservations	217-00-007 217-00-004	73.50	US-5	Priority habitat	Open to public for hiking, bird watching, winter activities
Mount Tom State Reservation	Boys & Girls Club of Greater Holyoke, Inc	011-03-003 011-03-004 011-03-005 020-02-010 217-00-006	21.75	Mountain Park Rd	Athletic facilities and abandoned portions of Mount Tom Ski Area	Currently closed
Mountain Park Concerts	Eric Suher	213-00-019	52.26	Mountain Park Rd	Outdoor entertainment venue	Open to public during operating hours
Nuestras Raíces	Nuestras Raíces, Inc	030-08-011 030-08-012	0.19	Main St	Community center, small business development, restaurant, plaza, greenhouse, community kitchen	Open to public
Pilsudski Park	Pilsudski Park Trust and Jan Midura	189-00-002	19.51	Country Rd	Natural setting, pavilion	Members only
Salvation Army Play Structure	Salvation Army	011-01-004	0.11	Appleton St	Playground	Open to public
Wyckoff Country Club	Wyckoff Associates, LLC	139-00-003 141-00-002 141-00-003 141-00-007 213-00-006A	95.00	Easthampton Rd	Golf	Members only

Table A.1.3: Conservation Restrictions on Privately Owned Parcels (section 5.1.3)

Name	Owner	Parcel	CR Holder	Acreage	Address	Public Access
Holyoke Community College CR	Holyoke Community College Foundation	185-00-001.1 185-00-001	Holyoke Conservation Commission	27.5	Homestead Ave	Good
Peaceful Valley Farm CR (Kuzeja)	Peaceful Valley Farm LLC	209-00-016 209-00-017	Holyoke Conservation Commission	9.53	Southampton Road	None
Kuzeja-Block CR: The Half-Moon, The Plateau, and The Sliver	Anna Kuzeja-Block	209-00-018 209-00-012 206-00-50	Holyoke Conservation Commission	38	Southampton Road	None
Kuzeja CR	Kuzeja Real Estate Trust	209-00-019 209-00-013 209-00-015	Holyoke Conservation Commission	53.6	Southampton Road	None
Old Road CR	Kuzeja Real Estate Trust	209-00-015	Holyoke Conservation Commission	4.9	Southampton Road	None
Kelly Way CR	O'Connell Development Group Inc	177-00-015	Holyoke Conservation Commission	4.5	Kelly Way	None
	Charles and Anna Bluermer	198-00-001 198-00-002A	Connecticut River Conservancy	13.99	Southampton Road	None
Lyons CR	Clarke and Helena Lyon	(190-00-012) (190-00-036) (190-00037) (190-00-001)	Connecticut River Conservancy	40.02	Mountain Road	None
	Robert & Theresa Wheatley	190-00-034 190-00-035 187-00-017	Connecticut River Conservancy	44	Mountain Road	None

Table A.1.4: Private Cemeteries (section 5.1.4)

Name	Owner	Parcel	Acres	Address	Current Use
Saint Jerome Cemetery	Roman Catholic Archdiocese of Boston	107-00-001	20.8	Saint Jerome Ave	Cemetery
Cavalry Cemetery	Roman Catholic Bishop of Springfield	114-00-066	15	Northampton St	Cemetery
Forestdale Cemetery	Forestdale Cemetery Association	077-07-001 077-07-002 077-07-018 090-00-014 090-00-015 090-00-016 090-00-017 090-00-026 090-00-037 090-00-038 090-00-047 090-00-048	35.12	Cabot St	Cemetery
Forestdale Cemetery Extension	Forestdale Cemetery Association	198-00-015	42.47	Rock Valley Rd	Open Field
Elmwood Cemetery	Elmwood Cemetery Association	115-00-019 115-00-020	5.11	Northampton St	Cemetery

Table A.1.5: Large Private Holdings with Conservation Value (section 5.1.5)

Name	Owner	Parcel	Acres	Address	Zoning	Notes
Daniel O'Connell	Daniel O'Connell; Leo Byrnes executor	183-00-003+5	62.62	Westfield Road	RA	Limited development opportunities, on ridge, NE Trail, rare and endangered species
Whiting Farms Estate	Estate of Marion Whiting	170-00-030	22.93	Homestead Avenue	RA	Includes 3 branches of Tannery Brook; currently undeveloped; acts as buffer between commercial and residential uses

Table A.1.6: Unprotected Parcels of Conservation and Recreation Interest (section 5.1.6)

Name/Description	Owner	Parcel	Acres	Address	Zoning	Notes
Wyckoff Country Club	Wyckoff Associates	139-00-003 139-00-030 141-00-002 141-00-003 141-00-007 213-00-006A	95.00	Easthampton Rd	RA	Watershed
Reservoir Watershed	Henry & Muriel Fini	179-00-003	73.3	Fini Rd	RA	Rare species, agriculture
Reservoir Watershed	Geraldine & Jennifer Cain	171-00-031	4.25	Homestead Ave	RA	Watershed
Reservoir Watershed	Holyoke Lodge of Elks	173-00-027	14.90	Whitney	RA	Watershed
Reservoir Watershed	Daniel O'Connell et al.	180-00-002	5.19	Rock Valley Rd	RA	Watershed
Reservoir Watershed	Daniel O'Connell's Sons, Inc.	186-00-009	123.00	Apremont Hwy	RA	Watershed
WHYN Radio Towers	Clear Channel Radio, Inc.	188-00-006	76.88	County Rd	RA	Watershed
Reservoir Watershed	Timothy Mahoney c/o Edward Foley	193-00-005+6	26.04	W Cherry St	RA	Watershed
Robert Gourde	Robert Gourde	194-00-002	45.50	Mountain Rd	RA	Watershed
Holyoke Revolver Club	Holyoke Revolver Club, Inc.	200-00-002 200-00-003	35.50	W Cherry St	RA	Watershed
Reservoir Watershed	Brian Mulcahy	206-00-035	79.00	Mountain Rd	RA	Watershed
Reservoir Watershed	Robert Yorczyk & Richard Yorcyzk	208-00-018	8.44	Southampton Rd	RA	Watershed
Reservoir Watershed	Raymond & Jill Dulude	211-00-014	3.66	Easthampton Rd	RA	Watershed
Abandoned rail line	Holyoke Water Power Co.	064-00-001	43.2	N/A	Multiple	Abandoned rail line along the Connecticut River -potential pedestrian path or bikeway
Nueva Esperanza	South City Housing Ltd. Partnership	029-05-014	0.108	South Bridge St	DR	Proposed plaza adjacent to Valley Arena Park
Nueva Esperanza	South Canal Ltd. Partnership	(029-03-002A)	1.521	South Canal St	DR	Proposed community garden & play space
Reservoir Watershed	Holyoke Street Railroad	192-00-001	2.38	Westfield Road		Watershed, rare species habitat
Old trolley line	L. Pellissier, III	219-00-043 183-00-016	5.63	Northampton St	R1-A	Former trolley line between Holyoke and Westfield -- potential trail or bikeway
Reservoir Watershed	Brian Mulcahy	206-00-035	79	Mountain Rd	RA	Watershed, rare species habitat
John S. Land & Sons	John S. Land & Sons	(181-00-156)	65			Rare species habitat
Carl Family Land	Carl Family	208-00-004.1 208-00-005 (223-00-006)	4	Southampton Rd	RA	Watershed, rare species habitat, scenic, agricultural
Reservoir Watershed	Jesse & Melissa Vanek	145-00-004	22.46	Lacus Dr	R-1	Watershed, rare species habitat

Publicly-owned conservation and recreation parcels

Table A.2.1-A: Municipally Owned Conservation and Recreation Parcels (section 5.2.1)

Name/Description	Manager	Parcel/ Acres	Facilities & Rec Potential	Condition	Public Access	Level of Protection/ Zoning	Grant Funds
Korean Veterans Memorial Plaza	DPW	N/A **0.12**			Good	Permanent BC	
Wistariahurst	Historic Commission	160-01-001 **2.40**	Museum, garden	Excellent	Fee	Permanent RM-20	
Holyoke Library Park	Holyoke Library	011-11-011 **1.84**	Benches, shade trees, walkways	Excellent	Good	Permanent DR	LWCF
Deroy Park	Park & Rec	035-03-012 **1.32**	Sitting area	Good	Poor	Article 97 RM-60	None
Anniversary Field	Parks & Rec	129-00-003 **6.00**	90' baseball diamond w/ player benches, 60' practice diamond, football field, open field, sledding	Good	Poor	Article 97 R1-A	None
Avery Field	Parks & Rec	062-05-013 **2.43**	60' baseball diamond, 2 half basketball courts, playground equipment, no parking	Excellent	Excellent	Permanent RM-40	LWCF 1988 CDBG 2014
Bonin Field	Parks & Rec	026-02-001 026-02-002 **1.56**	60' diamond with player benches & protective fencing, 7 bench sitting area	Good	Good	Permanent RM-60	
Carlos Vega (Formerly Hamilton St)	Parks & Rec	028-02-001 028-02-002 **0.88**	Shaded sitting area with 27 benches, spray pad, walkways	Excellent	Good	Permanent IG	UPARR CDBG 2000 State Grant 2014
Community Field/ Anniversary Hill	Parks & Rec	146-00-014 146-00-018 145-00-093 **93.60**	Field: 60' lit diamond with player benches & protective fence, lit basketball court, bleacher, paved play area, bathroom, storage bldg; Play area: play scape, swings	Excellent	Good	Permanent R-1A	CDBG 1982 1985 1995 1996 City Fund 2012
Crosier Field	Parks & Rec	110-00-010 **8.53**	60', 75' & 90' baseball diamonds with player benches and protective fencing, 3 bleachers, 4 tennis courts (1 lit), open field space used for 2 soccer fields, 1 field hockey, pedestrian benches, tree-lined perimeter, limited parking, no irrigation	Good/Fair	Good	Permanent R1-A	CDBG 1987 1988 2002

Dwight And Northampton Streets Ornamental Plantings	Parks & Rec	105-00-073 091-00-132 **0.81**	Gateway sign, ornamental plantings, urn, open green space	Good	Fair	Article 97 BH, RO	None
E N White School Playground and Fields	Parks & Rec	100-00-016 **7.60**	60' baseball diamond with player benches & protective fencing, play structure, 2 swings, drop shot hoop	Good	Good	Article 97 R-1A	None
Ely Court	Parks & Rec	037-06-001 **0.24**	Fenced in basketball court, bell monument, benches	Very Poor		Permanent RM-60	UPARR 1980
Ely Pedestrian Mall	Parks & Rec	033-01-003 **0.21**	Pedestrian brick walkway	Fair	Good	Permanent RM-60	CDBG
Fairfield Ave median	Parks & Rec	N/A **N/A**	Historic tree belt	Good	Good	Article 97 N/A	None
Gloutack Park	Parks & Rec	195-00-016 **10.54**	60' baseball diamond with player benches, protective fence, play structure for 3-5 yr-olds, swings, small soccer field	Good/Fair	Poor	Article 97 RA	None
Gramps Park	Parks & Rec	006-04-005 **0.10**	Benches, wishing well, plantings	Good	Fair	Article 97 RM-40	None
Ingleside Playground	Parks & Rec	117-00-055 **1.09**	Play structure for 3-5 yr-olds, swings, street parking only	Good/Fair	Fair/Poor	Article 97 RA	None
Jim Jackson Courts	Parks & Rec	027-01-003 **0.87**	2 basketball courts, 2 hand ball courts, benches	Good	Good	Permanent BH	CDBG 1975 1976 1977 1994
Joe Mayer Field	Parks & Rec	059-00-046 **2.12**	60' baseball diamond with player benches & protective fencing, 5- tier bleachers	Good	Good	Article 97 R-1A	None
Jones Ferry River Access Center	Parks & Rec	117-00-144 **1.38**	Boat House, 3 bays, office, locker rooms, community rooms, porch	Excellent	Excellent	Permanent RA	USHG/CDBG 2002 CDBG LWCC
Jones Point Park	Parks & Rec	097-00-012 **24.69**	75' diamond with player benches & protective fence, basketball court, 4 tennis courts, soccer field, benches, play structure, swings	Good/Fair	Good/Fair	Article 97 R1	None
Kennedy Memorial	Parks & Rec	076-08-001 **0.09**	Monument	Good	Good	Article 97 RM-20	None
Kennedy Park	Parks & Rec	092-00-012 **2.18**	Play structure for 5-12 yr-olds, swings, benches, lit flagpole, 60' diamond with player benches & protective fence, open space used for small soccer field, irrigation, 2 picnic tables, dog station	Good/Fair	Excellent	Permanent R-2	USHG/CDBG1999 2000 2002
Kenney Field	Parks & Rec	139-00-050 **2.12**	60' diamond with player benches & protective fence, small soccer field, play structure, swings, dog station		Good	Article 97 R-1	None
Kosciuszko Park	Parks & Rec	015-02-001a	Sitting area, monuments	Good	Good	Permanent	CDBG 1984

		0.54				DR	
Laurel Park	Parks & Rec	113-00-049 113-00-050 **0.29**	4 benches, fountain, plantings	Good	Good	Article 97 R-2	CDBG 2014
Lincoln And Northampton Streets Ornamental Plantings	Parks & Rec	104-00-008 104-00-062 104-00-063 **0.97**	Ornamental plantings, large, trees, mown lawn, public art installation	Good	Good	Article 97 R-2	None
MacKenzie Stadium	Parks & Rec	059-00-048 **8.50**	Jim Athas Field: 90' lit baseball diamond, restrooms, storage shed, scoreboard, press box with concession area, seating for 2,000; John Young Field: 60' lit diamond with player benches & protective fencing, scoreboard, 3 bleachers, bathrooms, irrigation, backstop screen	Excellent	Fair/Poor	Permanent R-1A	UPARR/CDBG 1976 1980 1988 1991 CDBG 1998 City Fund 2016
McNulty Park	Parks & Rec	073-00-036 073-00-037 073-00-038 **2.23**	Overlook, benches, flag, flagpole, parking lot	Good	Good	Article 97 R-2	CDBG 2018
Mitchell Field	Parks & Rec	062-04-001 **3.37**	90' diamond with player benches & protective fence, concrete bleachers, med soccer field, flag football field	Good	Poor	Article 97 R-1A	None
Morgan Street Park	Parks & Rec	029-06-001 **0.63**	Swings, sitting area, paved area	Poor	Fair	Article 97 R-1A	CDBG1982
Peasants Park	Parks & Rec	061-02-015 **0.12**	Sitting area with memorial	Good	Good	Permanent BG	CDBG1989
Piña Park	Parks & Rec	034-02-004 **0.51**	Spray pad, play structure for 5-12 yr-olds, 2 benches, swings, 2 lit flagpoles, new perimeter fence; community in rear	Excellent	Good	Permanent RM-60	UPARR/CDBG 1977 1979 1998 2001 2015
Pulaski Park	Parks & Rec	014-01-003 007-01-003 015-01-005 015-01-006 **11.63**	Spray pad, playground, volleyball court, basketball court, skateboard park, 49 benches to be replaced 2018, adult fitness equipment 2018, scenic overlooks, fenced in flagpole and monument area, chess table bocce court, walkways, parking lot, 2 porta potties June - August	Excellent	Good/Fair	Permanent RM-20 RM-40	CDBG/LWCF 1975 1980 1997 2001 2004 2009 2010 2011 2012 2017 2018
Rock Valley Cemetery	Parks & Rec	195-00-014 **0.50**	Cemetery	Good	Fair/Poor	Article 97 RA	None

Rohan Park	Parks & Rec	108-00-024 **1.38**	5-12 & 3-5 yr-olds play structures, swings, picnic tables, benches, walkway, plantings, porta potties July - Aug	Good	Good	Article 97 R-2	CDBG 1999 2000 2001
Roland Pouliot Pool	Parks & Rec	058-00-019.1 **1.74**	Large swimming pool, wading pool	Dire	N/A Closed	Article 97 BG	CDBG 1983
Roosevelt Square	Parks & Rec	N/A **0.07**	Monument	Good	Good	Article 97 R-2	None
Sheard Park	Parks & Rec	009-07-001 **9.10**	8 benches, walkways, lit flagpole, trees	Good	Good	Permanent RM-40	None
Smith's Ferry Cemetery	Parks & Rec	226-00-007 **2.91**	Cemetery	Good	Poor	Article 97 RA	None
Soucy Park	Parks & Rec	030-05-003 **0.23**	Swings, play structure for 3-8 yr-olds w/slide, benches, handball court to be used for public art, open green space	Excellent	Excellent	Permanent BH	CDBG 1998 2017
South Chestnut Street Park	Parks & Rec	004-02-004 **0.62**	3-5 & 5-12 yr-olds play structures, spray pad, swings, walkways, open green space	Good/Fair	Good	Permanent RM-60	LWCF 1980 CDBG 1994 2002 2003
Springdale Park	Parks & Rec	085-00-065 084-00-001 **28.22**	2-60', 75' & 90' diamonds with player benches & protective fence, small, medium & large soccer fields, 2 bleachers, benches, 4 picnic tables, 2 volleyball courts, basketball court, hand-ball court, restrooms, maintenance building, 2 play structures for 3-5 & 5-12 yr-olds, 2 water spray pads, flood control dike with walking path, flagpole, storage shed demolished in 2017	Good	Good	Permanent RM-60	LWCF/CDBG 1980 CDBG 1984 1995 1994 1996 CDBG /USHG 1997 CDBG 2009
Sylvia Lane Park	Parks & Rec	075-01-002 **4.55**	Shade trees, green space, flagpole, gateway sign to city off Route 202 Bridge	Good	Good	Article 97 R-1A	None
Valley Arena Park	Parks & Rec	029-05-012 **0.41**	Half basketball court, benches, slide, swings, play structure; renovation scheduled for 2018	Poor	Good	Permanent RM60	UPARR/CDBG 1997
Veteran's Memorial Park	Parks & Rec	012-05-001 **2.70**	4 monuments, shaded sitting areas, walkways	Excellent	Excellent	Permanent BC	CDBG/LWCF 1980 CDBG 2010 Gateway Cities Grant 2012
Wyatt Harper Park	Parks & Rec	049-00-001 049-00-002 **4.30**	No amenities	Poor	Poor	Permanent RM-20	

McMahon School Playground	School Dept	159-00-046 **0.12**	Swings, playscape	Fair/Poor	Excellent	Article 97 R-1A	
Metcalf Preschool Playground	School Dept	112-00-059 **0.09**			Good	Permanent R-2	
Morgan School Playground	School Dept	029-06-006 **0.62**	Play structure, benches, drop shot hoop, paved play area, on-street parking only	Good	Good	Article 97 DR	CDBG
Dean Technical High School Playing Fields	School Dept/Parks & Rec	116-00-016 116-00-017 116-00-018 116-00-018.1 **18.66**	2 full & 2 half basketball courts (in parking lot), 60' baseball diamond, bleacher, mid-size soccer field & football, lighting	Excellent	Good	Article 97 BH, RA	None
Donahue School Playground	School Dept/Parks & Rec	174-00-014 **14.00**	75' diamond with player benches and protective fence, 2 soccer fields (medium & full), play structure for 5-12 yr-olds in school courtyard, porta potty on site April - October	Good	Good	Article 97 R-1A	CDBG 1995 2004
Lawrence School Playground	School Dept/Parks & Rec	010-07-001 **14.00**	2 half-basketball courts, handball court, benches, trees, large play structure for 5-12 yr-olds, on-street parking only, picnic tables	Good	Good	Permanent DR	CDBG/LWCF 1980 1990 1996
McMahon Playing Fields	School Dept/Parks & Rec	164-00-001 **11.90**	60' diamond with protective fencing, soccer field, basketball half court, 2 bleachers, school playground structure, paved play area	Good	Fair/Poor	Article 97 R-1A	CDBG 1977 1978 1979 1988
McNally Field & Playground	School Dept/Parks & Rec	035-03-001 035-03-002 035-03-003 035-03-004 **4.36**	60' lit diamond with player benches & protective fence, lit basketball court, bleacher, paved play area, bathroom, storage bldg. Play area constructed in 2015 at McNally Field. Including Swings.	Good	Excellent/ Good	Permanent RM-60	UPARR 1982 CDBG 2003 CDBG 2014
Roberts Field	School Dept/Parks & Rec	059-00-015 **22.15**	Lit artificial turf field for soccer, football, and field hockey, stadium seating for 3,000; Morneau Courts: 2 handball courts, 5 tennis courts, 2 basketball courts w/lights, 1 volleyball court, 8-lane NCAA track, field event venues, press box, concession stand, bathrooms, fieldhouse, ticket booths	Excellent	Excellent/ Good/Fair	Permanent R-1A	CDBG 1992 1993 1994 tennis 2000 LWCF 2002 2002 CDBG 2010 CDBG
Ronnie Bennett Playing Fields	School Dept/Parks & Rec	174-00-014 **7.71**			Good	Article 97 R-1A	

Sullivan Field	School Dept/Parks & Rec	147-00-010 **16.39**	60' diamond with player benches & protective fence, lit basketball court with 4 extra hoops, playground equipment, porta potty May - August	Good	Good	Article 97 RM-20	None
Toepfert Apartments Park	Holyoke Housing Authority	042-02-001 **0.587**	Playground equipment	Unknown	Yes	None DR	None
Beaudoin Village	Holyoke Housing Authority	148-00-038 146-00-017 **2**	Ball field, swing set, community garden	Poor	Yes	None RM-20	None
Churchill Homes	Holyoke Housing Authority	003-05-027 **0.6**	Passive park with granite sitting walls, play tables, attractive plantings and green space	Unknown	Yes	None DR	HOPE VI
Churchill Homes Community Center	Holyoke Housing Authority	003-04-019 **0.21**	Playground	Unknown	Yes	None DR	HOPE VI
Falcetti Towers	Holyoke Housing Authority	(009-06-001) **0.5**	Lawn, incl. community garden run by Nuestras Raíces	Unknown	Membership Only	None DR	None
North Summer Street	Holyoke Housing Authority	040-01-004 **1.05**	Playground equipment	Unknown	Yes	None DR	None
McNulty Park Extension	Holyoke Conservation Commission	072-00-040 **13.23**	Very little recreational potential due to steep slopes; should be kept heavily wooded to prevent erosion. Encroachment from abutting property owners needs to be addressed. NHESP habitat.	Good, some trash	Difficult due to steep slopes.	Permanent R-2	CDBG Funds 2018
Rear Valley Heights	Holyoke Conservation Commission	072-00-037 **1.82**	Potential for access trails for scenic vistas; should be kept heavily wooded to prevent erosion. NHESP habitat.	Good, some trash	Difficult due to steep slopes and absence of trails.	Permanent R-2	None
Grays Dingle	Holyoke Conservation Commission	159-00-084 **2.52**	Former nature trail for McMahon School. Potential exists to upgrade trail to more formal path, with information.	Good, some trash	Good	Permanent R-1A	None

Broad Brook Conservation Area	Holyoke Conservation Commission	203-00-003 **3.75**	Good example of red maple swamp for teaching purposes; should be maintained as is to protect wetland	Good	Good	Permanent RA	None
Brush Hill	Holyoke Conservation Commission	177-00-001 **14**	On NET; opportunity exists for overnight camping facility.	Excellent	Only accessible from NET	Permanent RA	None
Mountain Road	Holyoke Conservation Commission	193-00-014 193-00-015 199-00-013 **14.1**	Preservation of rare species habitat, trails	Good	Good-potential for formal trail system.	Permanent RA	CDBG Funds 2017-2018
Ashley Watershed	Holyoke Water Works	180-00-001 **903.8**	High, when public access is allowed	Good	Yes	Limited	
Ashley Watershed	Holyoke Water Works	180-00-001 193-00-003 **908**	High, when public access is allowed	Good	Yes	Limited	
Holyoke Water Supply Land	Holyoke Water Works	176-00-030 **1**	High, when public access is allowed	Good	Unknown	Limited	
Holyoke Water Supply Land	Holyoke Water Works	176-00-051 **19**	High, when public access is allowed	Good	Yes	Limited	
Holyoke Water Supply Land	Holyoke Water Works	177-00-013 **27**	High, when public access is allowed	Good	Yes	Limited	
Pipeline	Holyoke Water Works	115-00-003 **0.27**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	115-00-004 **1**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	120-00-005 **1.6**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	120-00-043 **0.38**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	120-00-044 **0.58**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	145-00-059 **2.5**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	160-00-031 **4.2**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	160-00-032 **6.3**	Very low, public access is prohibited	Good	Prohibited	Limited	

Pipeline	Holyoke Water Works	161-00-064 **4.4**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	165-00-001 **0.34**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	165-00-019 **0.34**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	165-00-020 **0.44**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	165-00-038 **0.34**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	167-00-066 **0.18**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	167-00-069 **0.8**	Very low, public access is prohibited	Good	Prohibited	Limited	
Pipeline	Holyoke Water Works	183-00-004 **24.89**	Very low, public access is prohibited	Good	Prohibited	Limited	
Unknown	Holyoke Water Works	139-00-012 **0.21**	Very low, public access is prohibited	Good	Prohibited	Limited	
Unknown	Holyoke Water Works	185-00-023 **10.09**	Very low, public access is prohibited	Good	Prohibited	Limited	
Unused Well Field	Holyoke Water Works	179-00-002 **6.35**	Very low, public access is prohibited	Good	Prohibited	Limited	
Unused Well Field	Holyoke Water Works	197-00-089 **20.77**	Very low, public access is prohibited	Good	Prohibited	Limited	
Water Tower	Holyoke Water Works	145-00-001 145-00-002 **24.8**	Very low, public access is prohibited	Good	Prohibited	Limited	
Water Tower	Holyoke Water Works	145-00-059 **37**	Very low, public access is prohibited	Good	Prohibited	Limited	
Watershed	Holyoke Water Works	145-00-005 **1.8**	High, when public access is allowed	Good	Prohibited	Limited	
Watershed	Holyoke Water Works	145-00-006 **1**	High, when public access is allowed	Good	Prohibited	Limited	
Watershed	Holyoke Water Works	177-00-003 **2.3**	High, when public access is allowed	Good	Prohibited	Limited	
Watershed	Holyoke Water Works	177-00-010 **3.97**	High, when public access is allowed	Good	Prohibited	Limited	
Watershed	Holyoke Water Works	177-00-012 **7.97**	High, when public access is allowed	Good	Prohibited	Limited	

Watershed	Holyoke Water Works	183-00-014 **26.5**	High, when public access is allowed	Good	Prohibited	Limited	
Watershed	Holyoke Water Works	193-00-001 **498**	High, when public access is allowed	Good	Prohibited	Limited	
Watershed	Holyoke Water Works	193-00-003 **14**	High, when public access is allowed	Good	Prohibited	Limited	
Watershed	Holyoke Water Works	199-00-013 **18**	High, when public access is allowed	Good	Prohibited	Limited	
Whiting Farms Road	Holyoke Water Works	166-00-058 **0.9**	Very low, public access is prohibited	Good	Prohibited	Limited	
Whiting Street Watershed	Holyoke Water Works	139-00-001A **5.5**	High, when public access is allowed	Good	Yes	Limited	
Whiting Street Watershed	Holyoke Water Works	213-00-006 **371**	High, when public access is allowed	Good	Yes	Limited	
Whiting Street Watershed	Holyoke Water Works	213-00-006 **371.8**	High, when public access is allowed	Good	Yes	Limited	
Whiting Street Watershed	Holyoke Water Works	213-00-008 **2.6**	High, when public access is allowed	Good	Yes	Limited	
Long Pond Cove	Holyoke Gas & Electric	071-00-020 **40.3**	Informal access to river, fishing, swimming	Fair	None, RR tracks	Limited	
Water Power Park	Holyoke Gas & Electric	037-01-010 **0.37**	Plantings, benches, on canal	Good	Yes	Limited	
Slim Shad Point	Holyoke Gas & Electric	042-01-001 **0.91**	ADA Fishing Access Point with excellent fishing	Excellent	Yes: trails, ADA ramp	Limited	
Peak of Mt. Tom	Holyoke Gas & Electric	213-00-001 213-00-004 **252**	Telecommunications towers; forest	Good	Prohibited	Limited	
Gas & Electric	Holyoke Gas & Electric	182-00-004 **14.15**	Gas pipeline: possible trail	Good	Prohibited	Limited	
Gas & Electric	Holyoke Gas & Electric	182-00-005 **4.57**	Gas pipeline: possible trail	Good	Prohibited	Limited	
Gas & Electric	Holyoke Gas & Electric	182-00-007 **2.55**	Gas pipeline: possible trail	Good	Prohibited	Limited	
Gas & Electric	Holyoke Gas & Electric	188-00-005 **4.28**	Gas pipeline: possible trail	Good	Prohibited	Limited	

Table A.2.1-B: Municipally Owned Conservation and Rec Parcel Conditions (section 5.2.1)

Name/Description	Condition
Anne McHugh School Playground	Unknown
Anniversary Field	Good: 90' diamond/field is not ADA accessible. Could use bleachers/seating.
Avery Field	Excellent: Park was renovated in 2014 with new playscape, swings, backstop. Half basketball court converted to full size court. Accessible, 100% ADA compliant.
Bonin Field	Good: 60' diamond, benches replaced in 2017. Fair: backstop needs to be upgraded, fence along 1st base needs repair, add bleachers, street parking only. Access is poor.
Carlos Vega (Formerly Hamilton St)	Excellent: Water spray. Good/Fair: Benches, tables, graffiti ongoing concern. Sidewalks need to be replaced. Access is excellent.
Community Field/Anniversary Hill	Excellent: Community Field--access and condition 100%. Poor: Scott Tower- picnic tables, pavilions in complete disrepair, tower recently repaired but continues to be vandalized. Area currently unmanageable due to isolation and limited resources; installation of gates in 2004 has reduced problems such as illegal dumping.
Crosier Field	Good: Side along the dingle trimmed & new lighting in 2012, Porta Potty on site April - October, Doggie Doo station in park. Good/Fair: tennis courts re-surfaced in 2010; Fair: diamonds, backstops, tennis fence rusted. Poor: turf throughout facility, bleachers, parking limited to street.
Dean Technical High School Playing Fields	Excellent: 60' softball diamond, dugouts, renovated field Good: Soccer/football field area, 60' diamond, backstop; Fair: basketball courts, backboard, goal asphalt cracked
Deroy Park	Good: Benches repaired & painted in 2015
Donahue School Playground	Good: 75' diamond & backstop but poorly located for efficient use of field for other sports. Fair: turf surface bumpy, benches need painting, play structure missing several elements such as wall barriers and climbers. Poor: basketball goals were removed, leaving the blacktop with no purpose, add player benches, bleachers, space needs to be re-evaluated and redesigned. Access is fair.
Dwight and Northampton Streets Ornamental Plantings	Good
Dwight and Pleasant Streets Ornamental Plantings	Good
E N White School Playground and Fields	Good: 60' skin diamond. Fair: back stop fabric bending to use, fence line in need of repair, benches need repair, erosion issues along back of back stop by play structure, field has drainage issues in spring, signs installed in 2011 - regarding dogs. Access is fair.
Ely Court (Basketball Court	Very Poor: Court surface cracks repair done 2004, benches need repair, fence bent and rusty; recommend removing non-functioning light poles; bell needs refurbishing/cleaning.
Ely Pedestrian Mall	Fair: Some benches need repair, needs better lighting.
Fairfield Ave median strip	Good
Gloutack Park	Good/Fair: 60' diamond, backstop, play structure for 3-5 yr-olds & swings installed 1999. Fair: Parking area, retaining wall.
Gramps Park	Good: Grass thin in shade areas, gravel gets kicked about.
Holyoke Library Park	Unknown
Ingleside Playground	Good/Fair: Play structure for 3-5 yr-olds installed 1999, set of swings. Poor: Stone steps leading from Main Street to park, fence along top. Add one bench. Access is poor.
Jim Jackson Courts	Good: Courts re-sealed in 2010, volleyball pits were removed in 2010, edible seating area installed in 2011.

Joe Mayer Field	Good: 60' diamond & back stop, player benches replaced in 2016. Fair: Turf surface uneven, hill-side benches & stairs need repair, create ADA access to park & parking area, plant trees. Poor: Play structure need was partially removed--needs repair or total removal.
Jones Ferry River Access Center	Excellent: Boathouse built in 2009 & opened in 2010. Contracted to Holyoke Rows for programming. Ramp was renovated in 2010. Excellent access.
Jones Point Park	Good/Fair: Fenced in area with play structure & swings for 3-5 yr-olds installed 1999, tennis courts resurfaced, cracks filled 2004, some drainage problems still exist around tennis courts, new fencing installed 2012. Fair: Basketball & tennis courts need to be resurfaced. Parking area limited--consider expanding. Access is fair/poor.
Kennedy Memorial	Good: Repaired in 2004. Maintained by Parade Committee & DPW
Kennedy Park	Good/Fair: Constructed 2001 with all new elements, irrigation, flagpole lighting installed. Vandalism & graffiti on going problem. Access is good.
Kenney Field	Unknown
Korean Veterans Memorial Plaza	Unknown
Kosciuszko Park	Good: Amenities in good condition, sign replaced in 2009, bench slats replaced in 2016. Access is good.
Laurel Park	Good: Renovated in 2015, working fountain, plantings attended to by a volunteer.
Lawrence School Playground	Good
Lincoln and Northampton Streets Ornamental Plantings	Good: Currently ornamental plantings maintained through Adopt-an-Island Program.
MacKenzie Stadium	Excellent: 90' diamond received major overhaul in 2016, field re-leveled to address drainage, Griffen Field House was demolished in 2016, new sound system installed in 2017, stadium needs some concrete repair and ADA access, bull pen area needs benches. Excellent: Fencing, backstop, irrigation in excellent condition.
McMahon Playing Fields	Good: 60' diamond, backstop, turf quality good with some wear in soccer area, new perimeter fence 2004, player benches installed 2010. Fair: paved play area cracked, basketball goal, backboard are worn and old, no lines for the court. Access is poor.
McMahon School Playground	Fair/Poor
McNally Field & Playground	Good: 60' diamond renovated, new bathroom & storage shed built, crack repair to basketball court, perimeter fence replaced in 2004, sprinkler head accessed to infield. Excellent: Playscape, swings, surfacing installed in 2015. Fair: Basketball court looks worn, recommend goals, backboards, fence be replaced, turf surface uneven, paved play area has cracks. Poor: Restrooms need new doors, new roof.
McNulty Park	Good: Overlook cut back 2018, outdated swing set & slide were removed in 2016.
Metcalf Preschool Playground	Unknown
Mitchell Field	Good: 90' ballfield player benches replaced 2012, backstop repaired 2011, fence lines repaired 2011, one access point needs repair for ADA compliance. Poor: fencing needs replacement.
Morgan School Playground	Unknown
Morgan Street Park	Poor/Fair: Swings need safety surface underneath, neighborhood group repaired & painted benches in 2016, no pedestrian gate access to park (only truck gate).
Peasants Park	Good: Small passive use park with brick patio, ADA access. Good: Hillside behind benches weeded & thinned out, park spruced up in 2016.
Piña Park	Excellent: Play structure, swings & ground cover replaced in 2016, water spray repaired 2016.
Pulaski Park	Excellent: South end of Park, water spray, play structure, basketball & volleyball courts, parking lot. Overlook areas, embankment walls, walkways repaired 2003-04, many benches were repainted with volunteer labor 2004 - 2010, view of river cleared by railroad company 2017,

	outdated play structure was removed at north end of the park in 2017, storage shed, restroom buildings demolished 2017 & 2018, sewer line repair project complete in 2017, adult fitness center 2018, 49 park benches replaced 2018.
Roberts Field	Excellent: Track resurfaced & drain problem repaired 2016, playing field re-turfed with sand infill, outdoor sound system replaced 2017. Walkway is accessible, walk is up hill/incline to get to the facility, no accessible seating.
Rock Valley Cemetery	Good: Closed to new internments unless burial site already identified. Volunteer Earl Brick maintains & cares for site.
Rohan Park	Good: Equipment in good shape, plantings maintained through volunteer efforts. Excellent access. 100% ADA compliant.
Roland Pouliot Pool	Dire: Structural problems forced pool to close at the end of the 2015 season. Funds have been allocated & procured for the demolition of Pouliot Pool, the construction of a new pool. Anticipated opening date: 2019.
Ronnie Bennett Playing Fields	Unknown
Roosevelt Square	Good: Monument flagpole re-painted in 2010. Arbor vitaes removed from square in 2015.
Sheard Park	Good: Passive use park with walkways, needs trees. Poor: Stairs in one corner need concrete repair, on street parking only.
Smith's Ferry Cemetery	Good: Closed to new internments without reservation. Replace fence, truck gate to access tree work, removes, dumping.
Soucy Park	Excellent: New play structure & swings for 3-8 yr-olds 2017, handball court will be used for public art, new walkway & sidewalks. Access is excellent.
South Chestnut Street Park	Good/Fair: Renovated 2004. Graffiti, vandalism, trash ongoing concern. Access is good.
Springdale Park	Good: Diamonds, play structures, spray pad, basketball court, walkways, volleyball courts, handball court, 60' diamond renovated 2011 & 2012, sign installed 2011. Fair: need more picnic tables, some benches need repair, need more bleachers, parking area limited to approx. 25 cars, tree work needed along southern perimeter, re- grade 90' outfield. Poor: replace Parks & Rec Dept. building. Access is good.
Sullivan Field	Good: 60' diamond, backstop, player benches, protective fence. Fair: Basketball courts, need one new backboard, hoop, resurfacing, restriping. Poor: player benches need repair.
Sylvia Lane Park	Good: Ornamental plantings provided through Adopt-an-Island Program
Valley Arena Park	Poor: Graffiti, vandalism, trash dumping ongoing concern. Renovation planned 2018.
Veteran's Memorial Park	Excellent
Wistariahurst	Excellent
Wyatt Harper Park	Poor

Table A.2.2: Parcels Owned by Other Municipalities (section 5.2.2)

Name	Owner/Manager	Parcel	Acreage	Condition	Recreational Potential	Public Access	Degree of Protection
Bear Hole Watershed	City of West Springfield	177-00-002 177-00-004 177-00-005 177-00-006 177-00-007 177-00-009 177-00-010	141.11	Good	Very low, because public access is prohibited	Prohibited	Permanent
Watershed Land	City of West Springfield	177-00-013	2.3	Unknown	Very low, because public access is prohibited	Prohibited	Permanent

Table A.2.3: Federally or State-Owned Conservation and Recreation Parcels (section 5.2.3)

Name/Description	Owner/Manager	Parcel	Acres	Conservation or Recreation	Facilities	Public Access
Heritage State Park	DCR	021-01-001 021-01-012 021-01-013	6.39	Both	Visitor Center, history exhibits, carousel, sitting area, picnic area, playground	Good
East Mountain WMA	DFG	200-00-004	84.51	C		Good
East Mountain WMA	DFG	141-00-001 144-00-002 144-00-005 144-00-007 144-00-011 217-00-004	157	C		Good
East Mountain WMA	DFG	145-00-017	88.16	C		Good
East Mountain WMA	DFG	208-00-019	21.48	C		Good
East Mountain WMA	DFG	178-00-002	64.67	C		Good
East Mountain WMA	DFG	194-00-004	21.43	C		Good
East Mountain WMA	DFG	207-00-003	13.31	C		Good
East Mountain WMA	DFG	191-00-003	20.00	C		Good
East Mountain WMA	DFG	186-00-008	10	C		Good
Fitzpatrick Skating Rink	DCR/Private	058-00-019	5.56	R	Ice skating rink	Fee
Holyoke Community College	Dept. of Higher Education	155-00-004	135.8	R	Track, baseball field, softball field, soccer field, 6 tennis courts, trails, aquatic, athletic facilities	Good

Mount Tom State Reservation	DCR	219-00-019	11.65	B		Good
Mount Tom State Reservation	DCR	221-00-001	14.91	B		Good
Mount Tom State Reservation	DCR	224-00-001	1272.19	B		Good
Mount Tom State Reservation	DCR	226-00-006	9.44	B		Good
Mount Tom State Reservation	DCR	216-00-001	121.93	B		Good
Mount Tom State Reservation	DCR	217-00-003	64.79	B		Good
Mount Tom State Reservation	DCR	226-00-002	3.01	B		Good
Mount Tom State Reservation (Mount Tom Ski Area)	DCR	217-00-004	144.66	B		Good
Mt. Tom State Reservation	DCR	(224-00-001) (226-00-006)	1,398.50	B	Trails, visitor center	Good
Mt. Tom WMA	DFG	213-00-005	13.34	C		Good
Mt. Tom WMA	DFG	211-00-001 211-00-003 211-00-004	64	C		Good
Mt. Tom WMA	DFG	211-00-002	6.8	C		Good
Mt. Tom WMA	DFG	211-00-015 211-00-016 211-00-017 211-00-018 211-00-019 211-00-020 211-00-021	4.42	C		Good
Scott Tower Field (in-parcel)	DCR	145-00-092	1.65		Trails	Good
Silvio O Conte National Fish and Wildlife Refuge	US Fish and Wildlife	217-00-008 213-00-001	140.82	C		Unknown
Southampton WMA	DFG	205-00-001 205-00-001 206-00-056	130.9	C	Small parcel along Southampton-Holyoke Border	Good
Unknown	DFG	178-00-004	22	C		Good

Appendix B. Survey Responses & Public Outreach Materials

Holyoke Public Outreach Flyer:

Breakout Notes from 2/28/2018 Public Meeting

7–8:30
Holyoke Health Center, Holyoke, MA

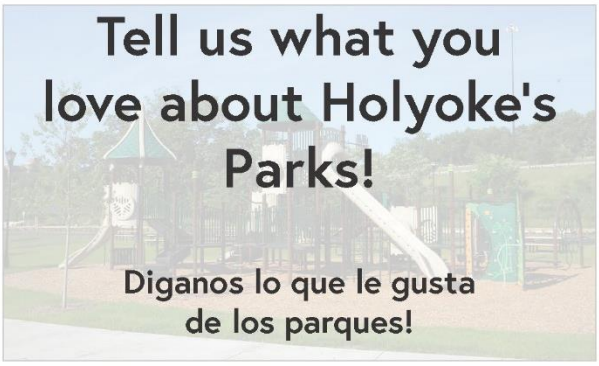
Comments/observations:

- Baseball field at McNulty often unavailable due to use by leagues and bathrooms are often locked;
- Mural in underpass is great;
- Some strong interest in footbridge from Flats, some strong disinterest;
- Confusion about park hours; and
- Confusion about what's a park and what's not a park, or where nearby parks are.

Recommendations:

- Prioritize Appleton for prioritization of bike lanes/infrastructure;
- Park ranger to manage day-to-day maintenance;
- Bike parking in parks;
- Improved lighting in parks; and
- Increase outreach to lower wards.

Holyoke Public Library Event Questionnaires:



Age/Edad:

What **neighborhood** do you live in? *En que barrio vive Usted?*

What are your **favorite outdoor places/parks**? How often do you go?
Quales son los parques or sitios al aire libre que le gusta visitar? Con que frequencia los visita?

What do you enjoy about those places? *Que es lo que le gusta en esos lugares?*

What could be better? *Que podria ser mejorado en esos lugares?*

What makes you **proud** to live in Holyoke? *Que aspeto de Holyoke le da orgullo?*

Thank you!

Age/Edad:

What **neighborhood** do you live in? *En que barrio vive Usted?*

What are your **favorite outdoor places/parks**? How often do you go?
Quales son los parques or sitios al aire libre que le gusta visitar? Con que frequencia los visita?

What do you enjoy about those places? *Que es lo que le gusta en esos lugares?*

What could be better? *Que podria ser mejorado en esos lugares?*

How do you choose which park to go to? *Como escoje qual parque a visitar?*

Are there parks you use **outside of your neighborhood**? Why?
Hay parques afuera de su barrio que Usted visita? Porqué?

Is there a **park that you don't go t**o in your neighborhood? Why?
Hay un parque que nunca visita en su barrio? Porqué?

What makes you **proud to live in Holyoke**? *Que aspeto de Holyoke le da orgullo?*

Thank you!

Appendix C. MESA-Listed Species in Holyoke

Table C.1: Endangered, Threatened, and Species of Special Concern

Taxonomic Group	Scientific Name	Common Name	MESA Status	Most Recent Observation
Amphibian	Ambystoma jeffersonianum	Jefferson Salamander	SC	2013
Amphibian	Ambystoma opacum	Marbled Salamander	T	2015
Bird	Caprimulgus vociferus	Eastern Whip-poor-will	SC	2015
Bird	Falco peregrinus	Peregrine Falcon	T	2016
Bird	Haliaeetus leucocephalus	Bald Eagle	T	2016
Bird	Podilymbus podiceps	Pied-billed Grebe	E	1928
Butterfly/Moth	Pyrrhia aurantiago	Orange Sallow Moth	SC	2012
Dragonfly/Damselfly	Enallagma carunculatum	Tule Bluet	SC	2003
Dragonfly/Damselfly	Gomphus abbreviatus	Spine-crowned Clubtail	SC	2001
Dragonfly/Damselfly	Gomphus vastus	Cobra Clubtail	SC	2001
Dragonfly/Damselfly	Gomphus ventricosus	Skillet Clubtail	T	2003
Dragonfly/Damselfly	Neurocordulia yamaskanensis	Stygian Shadowdragon	SC	2003
Dragonfly/Damselfly	Stylurus amnicola	Riverine Clubtail	E	2010
Fish	Acipenser brevirostrum	Shortnose Sturgeon	E	2017
Fish	Notropis bifrenatus	Bridle Shiner	SC	1952
Mussel	Lampsilis cariosa	Yellow Lampmussel	E	2015
Mussel	Leptodea ochracea	Tidewater Mucket	SC	2005
Mussel	Ligumia nasuta	Eastern Pondmussel	SC	2015
Mussel	Strophitus undulatus	Creeper	SC	1976
Reptile	Glyptemys insculpta	Wood Turtle	SC	1994
Reptile	Terrapene carolina	Eastern Box Turtle	SC	2016
Vascular Plant	Actaea racemosa	Black Cohosh	E	1980
Vascular Plant	Adlumia fungosa	Climbing Fumitory	SC	1988
Vascular Plant	Agrimonia pubescens	Hairy Agrimony	T	2010
Vascular Plant	Amelanchier sanguinea	Roundleaf Shadbush	SC	1998
Vascular Plant	Arabidopsis lyrata	Lyre-leaved Rock-cress	E	1880
Vascular Plant	Asclepias verticillata	Linear-leaved Milkweed	T	2011
Vascular Plant	Boechera laevigata	Smooth Rock-cress	SC	2008
Vascular Plant	Boechera missouriensis	Green Rock-cress	T	2015
Vascular Plant	Carex glaucodea	Glaucescent Sedge	E	2017

Vascular Plant	Carex grayi	Gray's Sedge	T	2016
Vascular Plant	Carex lupuliformis	False Hop-sedge	E	2015
Vascular Plant	Carex mesochorea	Midland Sedge	E	2016
Vascular Plant	Carex typhina	Cat-tail Sedge	T	2015
Vascular Plant	Celastrus scandens	American Bittersweet	T	2009
Vascular Plant	Clematis occidentalis	Purple Clematis	SC	2016
Vascular Plant	Corallorhiza odontorhiza	Autumn Coralroot	SC	2009
Vascular Plant	Cyperus houghtonii	Houghton's Flatsedge	E	1989
Vascular Plant	Deschampsia cespitosa ssp. glauca	Tufted Hairgrass	E	1987
Vascular Plant	Desmodium cuspidatum	Large-bracted Tick-trefoil	T	2015
Vascular Plant	Doellingeria infirma	Cornel-leaved Aster	E	2015
Vascular Plant	Liatris scariosa var. novae-angliae	New England Blazing Star	SC	2016
Vascular Plant	Lipocarpha micrantha	Dwarf Bulrush	T	2016
Vascular Plant	Moneses uniflora	One-flowered Pyrola	SC	1989
Vascular Plant	Morus rubra	Red Mulberry	E	1998
Vascular Plant	Oligoneuron album	Upland White Aster	E	2015
Vascular Plant	Oxalis violacea	Violet Wood-sorrel	E	2010
Vascular Plant	Panicum philadelphicum ssp. philadelphicum	Philadelphia Panic-grass	SC	1988
Vascular Plant	Pedicularis lanceolata	Swamp Lousewort	E	1997
Vascular Plant	Ranunculus pensylvanicus	Bristly Buttercup	SC	1932
Vascular Plant	Rotala ramosior	Toothcup	E	2016
Vascular Plant	Sagittaria cuneata	Wapato	T	1998
Vascular Plant	Salix exigua ssp. interior	Sandbar Willow	T	1985
Vascular Plant	Sphenopholis nitida	Shining Wedgegrass	T	2016
Vascular Plant	Symphyotrichum tradescantii	Tradescant's Aster	T	2009
Vascular Plant	Trichostema brachiatum	False Pennyroyal	E	2015
Vascular Plant	Trisetum spicatum	Spiked False Oats	E	2009
Vascular Plant	Verbena simplex	Narrow-leaved Vervain	E	2006
Vascular Plant	Veronicastrum virginicum	Culver's-root	T	1877

Source: NHESP Rare Species by Town Viewer

Appendix D. Soils

Table D.1: Soils in Holyoke

Abbr.	Name	Type	Slope	Limitations On-site for Septic Disposal	Hydric Soils	Frequency of Flooding
AgA	Agawam	Fine sandy loam	0–3%	Slight*		None
BaB	Belgrade	Silt loam	0–8%	Severe		None
BgB	Broadbrook	Gravelly silt loam	3–8%	Severe		None
BhB	Broadbrook	Very stony silt loam	3–8%	Severe		None
BhC	Broadbrook	Very stony silt loam	8–15%	Severe		None
BhD	Broadbrook	Very stony silt loam	15–25%	Severe		None
BkB	Broadbrook	Extremely stony silt loam	3–8%	Severe		None
BkC	Broadbrook	Extremely stony silt loam	8–15%	Severe		None
CkB	Charlton	Fine sandy loam	3–8%	Slight		None
CmB	Charlton	Very stony fine sandy loam	3–8%	Moderate		None
CmC	Charlton	Very stony fine sandy loam	8–15%	Moderate		None
CmD	Charlton	Very stony fine sandy loam	15–25%	Severe		None
CnB	Charlton	Extremely stony fine sandy loam	3–8%	Severe		None
CnC	Charlton	Extremely stony fine sandy loam	8–15%	Severe		None
CnD	Charlton	Extremely stony fine sandy loam	15–25%	Severe		None
COE	Charlton-Narragansett	Extremely stony soils	25–40%	Severe		None
EdB	Eldridge	Loamy sand	0–6%	Severe		None
EnB	Enfield	Silt loam	3–8%	Slight*		None
EnC	Enfield	Silt loam	8–15%	Moderate*		None
Es	Enosburg	Loamy sand	0–3%	Severe		None
	Freetown				Yes	Frequent
Ha	Hadley	Very fine sandy loam	0–3%	Severe		Common
HbA	Hadley	Very fine sandy loam	0–3%	Severe		Common
HbB	Hadley	Very fine sandy loam	3–6%	Severe		Common
HgA	Hinckley	Loamy sand	0–3%	Slight*		None
HgB	Hinckley	Loamy sand	3–8%	Slight*		None
HgC	Hinckley	Loamy sand	8–15%	Moderate*		None
HgD	Hinckley	Loamy sand	15–25%	Severe		None
HoB	Holyoke	Very fine sandy loam	3–8%	Severe		None
HoC	Holyoke	Very fine sandy loam	8–15%	Severe		None
HrC	Holyoke	Rock outcrop complex	3–15%	Severe		None
Lk	Limerick	Silt loam	0–3%	Severe		Frequent
LwB	Ludlow	Very stony loam	0–8%	Severe		None
LxB	Ludlow	Extremely stony loam	0–8%	Severe		None
MeA	Merrimac	Sandy loam	0–3%	Slight*		None
MeB	Merrimac	Sandy loam	3–8%	Slight*		None
MeC	Merrimac	Sandy loam	8–15%	Moderate*		None
MeD	Merrimac	Sandy loam	15–25%	Severe		None
NbB	Narragansett	Very stony very fine sandy loam	3–8%	Moderate*		None
NbC	Narragansett	Very stony very fine sandy loam	8–15%	Moderate*		None
Ng	Ninigret	Fine sandy loam	0–6%	Severe		None
PaB	Paxton	Fine sandy loam	3–8%	Severe		None
PaC	Paxton	Fine sandy loam	8–15%	Severe		None

PcC	Paxton	Extremely stony fine sandy loam	8–15%	Severe		None
Po	Podunk	Fine sandy loam	0–3%	Severe		Frequent
Rd	Ridgebury	Sandy loam	0–3%	Severe		None
ReA	Ridgebury	Extremely stony sandy loam	0–3%	Severe		None
ReB	Ridgebury	Extremely stony sandy loam	3–8%	Severe		None
Rf	----	Rock outcrop	----	Severe		None
RHD	\Holyoke Complex	Rock outcrop	3–25%	Severe		None
RHE	Holyoke Complex	Rock outcrop	>25%	Severe		None
Ru	Rumney	Fine sandy loam	0–3%	Severe		Frequent
Sa	Saco variant	Silt loam	0–3%	Severe	Yes	Frequent
Se	Scarboro	Fine sandy loam	0–3%	Severe	Yes	Rare
SrB	Sudbury	Fine sandy loam	0–8%	Severe		None
Su	Suncook	Loamy fine sand	0–5%	Severe		Common
	Swansea muck			Severe	Yes	Frequent
Ub	Urban	----	----	----		None
UK	Urban Land-Hinckley-Windsor	----	0–25%	Slight*		None
UW	Urban Land-Wethersfield-Paxton	----	3–25%	Severe		None
Wa	Wareham	Loamy sand	0–3%	Severe		None
WeB	Wethersfield	Fine sandy loam	3–8%	Severe		None
WfC	Wethersfield	Very stony fine sandy loam	8–15%	Severe		None
WfD	Wethersfield	Very stony fine sandy loam	15–25%	Severe		None
WgB	Wethersfield	Extremely stony fine sandy loam	3–8%	Severe		None
WgC	Wethersfield	Extremely stony fine sandy loam	8–15%	Severe		None
WgD	Wethersfield	Extremely stony fine sandy loam	15–25%	Severe		None
WhA	Whitman	Extremely stony loam	0–3%	Severe	Yes	None
WnA	Windsor	Loamy sand	0–3%	Slight		None
WnB	Windsor	Loamy sand	3–8%	Slight		None
Wo	Winooski	Silt loam	0–3%	Severe		Common
WrB	Woodbridge	Fine sandy loam	3–8%	Severe		None
WsB	Woodbridge	Very stony fine sandy loam	0–8%	Severe		None
WtB	Woodbridge	Extremely stony fine sandy loam	0–8%	Severe		None
WtC	Woodbridge	Extremely stony fine sandy loam	8–15%	Severe		None

***Excessive permeability of this soil type may allow pollution of groundwater.**

Table D.2: Urban Soils

UB	Urban land
UK	Urban land (Hinckley-Windsor association)
UW	Urban land (Wethersfield-Paxton association)

Table D.3: Wet or Flood-Prone Soils

Ha	Hadley
HbA	Hadley
HbB	Hadley
Lk	Limerick
Po	Podunk
Ru	Rumney
Sa	Saco variant
Se	Scarboro
Su	Suncook
Wo	Winooski

Table D.4: Rock Outcroppings

HrC	Holyoke
Rf	----
RHD	Holyoke Complex
RHE	Holyoke Complex

Table D.5: Prime Agricultural Soils and Soils of State-wide Agricultural Importance

AgA	Agawam
BaB	Belgrade
CkB	Charlton
EdB	Eldridge
EnB	Enfield
HbA	Hadley
HbB	Hadley
HgA	Hinckley
HgB	Hinckley
HgC	Hinckley
Lk	Limerick
LwB	Ludlow
MeA	Merrimac
MeB	Merrimac
MeC	Merrimac
Ng	Ninigret
PaB	Paxton
PaC	Paxton
Po	Podunk
Ru	Rumney
SrB	Sudbury
WeB	Wethersfield
WfC	Wethersfield
WnA	Windsor
WnB	Windsor
Wo	Winooski
WrB	Woodbridge
WsB	Woodbridge

Sources: MassGIS and 2012 OSRP

Appendix E. Improvements Prioritization Matrix

This is a conceptual design for a matrix the City might use to determine where park renovations could support the goals of other City plans. More research and data would be necessary to effectively identify park locations in relation to the priority areas listed in the left column below.

	Priority Area **Data Source**	*Laurel Park*	*Lawrence School Playground*	*McMahon School Fields*	*McNally Field*	*McNulty Park*	*Metcalf Preschool Playground*	*Mitchell Field*	*Morgan School Playground*	*Morgan Street Park*
Falls within	Priority tree-planting **Holyoke, Massachusetts-Urban Tree Planting Assessment**									
	Park Extension **Center City Vision Plan**									
	Flood-risk **FEMA Flood Zones & Holyoke Hazard Mitigation Plan**									
	Environmental Justice **MassGIS**									
	High-density youth population **MassGIS**									
	High Vulnerability **Municipal Climate Vulnerability Assessment (forthcoming)**									
Within a city block of	City Nodes **Urban Redevelopment Plan**									
	Housing redevelopment									
	Proposed green infrastructure project areas **Pioneer Valley Green Infrastructure Plan**									
	Priority roads for bike facilities **Holyoke Bike Network Plan**									
	Mid- and long-term redevelopment areas **Urban Redevelopment Plan**									
Adjacent to	Vacant lot									
	Intact forest									
	Waterbody or waterway									
	Transportation hub									