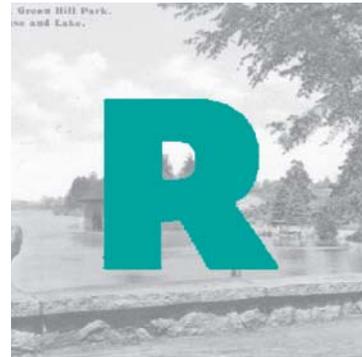


CITY OF WORCESTER
**OPEN SPACE &
RECREATION PLAN**
U P D A T E 2 0 1 3



M A S S A C H U S E T T S

WORCESTER DEPARTMENT OF PUBLIC WORKS & PARKS
WORCESTER PLANNING & REGULATORY SERVICES

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Philip P. Palmieri
Sarai Rivera
Gary Rosen
George J. Russell
Frederick C. Rushton
Kathleen M. Toomey

Worcester Parks and Recreation Commission

William T. Daring, Chairperson
Eric Goldstein
Paul Gunnerson
Robert Hennigan Jr
David Kowalcheck
Lisa Markarian Labossiere
Meg Mulhern
Steven Sabacinski
George Sedares
Jared Swerzenski

Worcester Department of Public Works & Parks

Robert L. Moylan, Jr., P.E., Commissioner
Robert C. Antonelli, Jr., CPRP, Assistant Commissioner

Worcester Planning and Regulatory Services Division

Joel Fontaine, Director
Luba Zhaurova, Sustainability Project Manager

Worcester Technical Services Department

Paul Covello, Director
Eileen Cazaropou, Deputy Director
Claire Brille, GIS Manager

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01. Plan Summary



In many ways, the completion of a city-wide open space and recreation plan is a celebration of people, and places, and of constructive thought about how best to go about preserving and enhancing highly visible and critically important public park and open space assets and the inherent recreational program offerings.

This Open Space and Recreation Plan Update has come together over a one year period. During that time, hundreds of residents and hundreds of others from open space and recreation related stakeholder and advocacy groups have contributed positive ideas that are now reflected throughout this document, but particularly present in **Section 09 Seven Year Action Plan**.

This plan is all about continuing to make Worcester competitive and relevant and attractive in the face of a changing world with changing priorities and an ever evolving local demographic.

A park and open space system is not a stand-alone or isolated complex within a community. In fact, where parks and open space systems provide the most value to its citizenry, it is a highly integrated and highly connected, highly accessible series of properties and programs where good health and well-being, athletic competition, informal play, culture, art, history, social interaction and just basic fun get woven together to form amazing and wonderful parts of everyday life.

To gain insight into the most basic yet key aspects of this document in relation to the work that needs to be done, we reference the following sections:

Section 06 Community Vision- “Open Space and Recreation Goals” (Page 2)

Section 07 Analysis of Needs- “Priority Needs Summary” (Page 13)

Section 09 Seven Year Action Plan- Goal 1 through 9 and all associated action items.

A review of these three report sections will inform readers about all significant community priorities and preferences.

In particular, we direct focus to **Section 09 Seven Year Action Plan** for the full range of actionable items that serve as the outgrowth of a highly collaborative and highly advertised public process. This Action Plan will guide the community moving forward.

It has been heartening to observe the breadth of the interests related to the protection and enhancement of Worcester’s Park, Open Space and Recreation System. To this end, the Action Plan contains nearly 90 actionable items.



Many action items will require funding from federal, state or local sources. Other items may garner funding through community partnerships (corporations, institutions, other non-profit and benevolent organizations). Some action items require no funding at all as they will be accomplished through the good will and contributions of volunteers. And finally, other action items represent shifts in current policy or new policy that is intended to promote, protect and enhance public open space assets throughout the City of Worcester.

Action Items fall into nine basic categories as represented by nine basic goals and objectives. Following is a list of the nine basic categories of actionable items.

1. Enhance natural and cultural resources
2. Improve public access to water resources
3. Invest in recreation facilities
4. Upgrade the delivery of parks and open space maintenance services
5. Integrate parks and open space planning
6. Promote urban landscape improvements
7. Improve open space system connectivity
8. Plan/design open space improvements to meet current and future needs
9. Expand recreation programming



In response to these nine basic areas of focus, the Action Plan identifies ways to enhance Worcester's Open Space and Recreation System through:

- Continued commitment to developing master plans and studies that establish the specific means to improve park and open space facilities and assets.
- Aggressive pursuit of funding for all aspects of the Action Plan.
- Continued building of advocacy networks.
- Establishment of new partnerships with key benefactors and other constituencies.
- Continued capital investment geared to the improvement of active and passive recreation facilities throughout the parks system.
- Continued commitment to making all assets within the parks, open space and recreational system fully ADA compliant and multi-generational.
- Continued capital investment geared to the protection and enhancement of natural resources.

- Aggressive pursuit of funding to continue to acquire important properties that enhance the protection of environmental resources, protect drinking water supplies, and provide recreation value.
- Establishment of policies, programs and infrastructure improvements that improves access to water resources, makes city roads more accommodating to pedestrians and bicyclists and creates stronger connections between open space assets.

Today, Worcester is the second largest city in New England with approximately 182,000 residents. By 2030, the Donahue Institute of the University of Massachusetts estimates that the population will have grown by 6.7%. And the population will change in that it is likely to include more senior citizens, more non-English speaking families and fewer folks under the age of 19. Despite these demographic changes, the City of Worcester will continue to offer meaningful opportunity for active and passive recreational pursuits within the parks, open space and recreation system as part of the core mission.

With more than 3,700 acres of protected open space (approximately 17% of all City land area) and a committed citizenry, the City of Worcester seems well positioned to make continued gains in protecting and enhancing a truly amazing and wonderful open space system through 2020 and beyond.



(Photo source Wikipedia)

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02. Introduction



A. Statement of Purpose

The intent of this Open Space and Recreation Plan Update is to:

1. **Evaluate** the 2006 Master Plan and report on progress made since the plan was adopted.
2. **Identify** new goals, objectives, needs, priorities and actions for the next seven year period.
3. **Develop** a prioritized seven-year strategy that implements stated goals and objectives and addresses the most critical open space and recreation needs.
4. **Present** pertinent and comprehensive information about Worcester's diverse and expansive parks, open space and recreation system.
5. **Assess** the existing parks, open space and recreation assets in relation to the existing and projected needs of Worcester's diverse population.
6. **Integrate and align** the priorities identified in the 2013 Open Space and Recreation Plan with other important city programs and initiatives that promote good health, well-being and economic advancement.
7. This document is also a **guideline** that will help the City to take full advantage of its open space opportunities while making sure that these resources are protected and enhanced for the

enjoyment of current and future generations of Worcester.

8. **Position** the City well for funding through a variety of federal, state, local and private initiatives aimed at the protection and enhancement of parks, open space and recreation assets.

Accomplishments Since 2006

Open Space and Recreation Plans were prepared for the City in 1987, 1994, 1999 and 2006. Great progress has been made in achieving the goals, objectives and priority actions established in the 2006 Worcester Open Space and Recreation Plan. At the same time, the work that lies ahead is significant and gains that have been made require continued attention, protection and further advancement. To this end, this document outlines a renewed approach to protecting, maintaining, operating, enhancing and expanding the park, open space and recreation system and all related programs, policies and partnerships.



A summary of the major achievements that have been realized since 2006 is included below.

Park, Playground and Open Space Physical Property Improvements

Using financial resources garnered from City capital funding sources, state and federal grants, donations from corporations, institutions and other advocacy groups, \$35M worth of capital improvements have been made to parks, playgrounds and open space properties under the direction of the Worcester Department of Public Works and Parks between 2006 and 2013.



Significant capital improvements have been completed at dozens of park, playground and open space locations including the sites listed below:

Capital Improvements Completed (2006-2013)

- Banis Street Play lot
- Beaver Brook Park
- Bell Hill Park
- Bennett Field
- Burncoat Street Playground
- Christoforo Colombo / East Park
- Coes Pond Parks (Coes Knife Property)
- Cookson Field
- Crompton Park
- Dodge Park
- Duffy Field (Wetherell Estate)
- Elm Park
- Green Hill Park
- Greenwood Park
- Harrington Field
- Institute Park
- Kendrick Field
- Logan Field
- Providence Street Playground
- Rockwood Field
- Salisbury Park (Bancroft Tower)
- Spillane Field
- Vernon Hill Park
- Winslow Park (Peace Park)
- Worcester (City Hall) Common



Providence Street Playground

Coes Pond Parks (Coes Knife Property)
Logan Field

Other improvements are currently being constructed or will soon be constructed at the following sites:

Capital Improvements Planned or in Progress

- Beaver Brook Park
- Blithewood Playground
- Burncoat Playground (Courts)
- Coes Pond Parks (Coes Knife Property)
- Coes Pond Parks (former Knights of Columbus)
- Cookson Field
- Crompton Park
- East Park
- Elm Park
- Great Brook Valley Playground
- Green Hill Park
- Greenwood Park
- Harrington Field
- Holmes Field
- Indian Hill Park
- Lake Park
- Logan Field
- Mulcahy Field
- Ty Cobb Field
- University Park

Master Planning Initiatives

The City has aggressively funded master planning efforts for individual parks and open space properties. The purpose of these master planning efforts is to partake in a public process that engages neighbors, city residents as a whole, and other stakeholders in a conversation about the future of a particular park or open space property. This process is very effective in clarifying park and open space needs and priorities, solidifying public support and in securing the necessary funding streams for important property upgrades, often under a phased approach.

For instance, the City embarked on a master planning process for Crompton Park, an important 12 acre park/playground property located 15 blocks south of Worcester City Hall serving a very diverse population. A series of public and stakeholder meetings were held over a six month period and a formal Master Plan was developed for the site. The Plan was adopted in 2011 by the Parks and Recreation Commission and the Worcester City Council. With a publicly supported and prioritized master plan in hand, the City is now embarking on a third phase of capital improvements after investing nearly \$3M during two earlier phases.

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Master Plans Completed (2006-2013)

- Bennett Field
- Coes Knife, Columbus Park, Knights of Columbus and Coes Beach
- Crompton Park
- Indian Hill Park
- Institute Park
- Logan Field (Update)
- Oakland Heights Playground
- Rockwood Field
- University Park
- Vernon Hill Park
- Winslow Park (Peace Park)
- Worcester Common

Master Plans Planned or in Process

- Oread Castle Park
- Greenwood Park
- Burncoat Park and Holland Rink
- Holmes Field
- Shore Park, Morgan Landing and Indian Lake Beach
- University Park
- Harrington Field
- Grant Square
- Mulcahy Field
- City-wide Playground Safety Inspections

Expansion of the Parks and Open Space System

The City actively pursues the outright acquisition or the gaining of rights to new properties that can provide open space and/or recreational value to the citizens of the Worcester. This endeavor takes many different approaches and relies heavily on the support and collaboration of private entities. Some of the City's most important partners in open space preservation are the Greater Worcester Land Trust (GWLT) and Massachusetts (Mass) Audubon, who are custodians (through conservation restrictions) or outright owners of hundreds of acres of open space within the City's confines. GWLT and MassAudubon, in partnership with the City, are committed to seeking

opportunities to preserve unprotected open space assets and enhance the existing ones through new contiguous acquisitions in order to provide expanded opportunity for public use and enjoyment, wildlife habitat protection, and watershed protection. In many cases, these lands merge into other City-owned lands (that are under the ownership of various departments including Conservation Commission and Department of Public Works & Parks) to create impressive strings of connected public open space.



Following is a summary of achievements in relation to the purchase or gaining of rights to new park and open space resources since adoption of the 2006 Open Space and Recreation Plan.

Park Land Acquisitions Since 2006



Conservation Commission Acquisitions Since 2006

- Ball Property (CR by GWLT and Mass Audubon)
- Crow Hill Savannah (CR by GWLT)
- Moreland Woods (CR by GWLT)
- Park Hill Road (CR by Mass Audubon)

Private Partnership Land Protection Since 2006

- Trinity Woods (12 Acres)
- Worcester City Campus Corporation (5 Acres)

Regulatory (Policy) Accomplishments

Trees:

Protection of Public Shade Trees Ordinance
 Private Property Tree Adoption Initiative
 Tree Planting Initiative (Right Tree/Right Place)
 Tree Planting Protocols in Compliance with USDA
 Trees in Streetscape

Streetscapes:

Streetscape Policy and Urban Design Guidelines for downtown and other urbanized areas in the City
 Parking Overlay Districts reducing parking requirements along commercial corridors
 Outdoor Dining Zoning Ordinance Amendment promoting the character and vitality of street life throughout the City

Floodplains:

Amendment of the Floodplain Overlay District Map and Ordinance

New Park and Open Space Partnerships

Regional Environmental Council
 Friends of Newton Hill
 Friends of Institute Park
 WPI
 Clark University
 MCPHS
 Becker College
 Worcester State College
 Holy Cross
 UMass Memorial Hospital System
 St. Vincent's Hospital System

City Organizational Changes and Initiatives

Parks merging with DPW and Conservation Commission administration assigned to EOED / DPRS.

B. Planning Process & Public Participation

The update to the 2006 Open Space and Recreation Plan represents a collaborative effort between the City of Worcester Department of Public Works and Parks, Worcester Planning and Regulatory Services, and Weston & Sampson.



The Greater Worcester Land Trust has also played a significant role in this undertaking; particularly in regard to updating mapping, compiling various inventories of lands and in helping to set new

priorities for open space protection and enhancement.



It is noteworthy that the effort has been supported and strengthened through the input of hundreds of residents of the City and through the advice and consult of representatives from dozens of city institutions, environmental stewardship groups and other governmental entities.

To foster public dialogue, a comprehensive approach to public outreach was established and included three primary approaches as summarized below:

Public Meetings- More than fifteen public meetings were held in order to present information and receive public advice and comment. Meetings were held in all five City districts.

The following general, city-wide public meetings were held:

Meeting	Date
First Round Meetings	
District 3	11.26.12
District 1	11.29.12
District 2	12.06.12
District 5	12.10.12
District 4	12.17.12
Commission on Disability (City Hall)	01.15.13
Sports Leagues/Permit Holders (GHP)	01.17.13
Second Round Meetings	
District 4	01.24.13
District 5	01.28.13
District 2	01.31.13
District 1	02.04.13
District 3	02.11.13
Joint Conservation/Planning (City Hall)	02.12.13
Walk/Bike Worcester (Beaver Brook)	03.04.13
Elder Affairs	03.04.13
Third Round Meetings	
City-wide #1	6.27.13
City-wide #2	7.01.13
Parks and Recreation Commission	12.19.13
Commission on Disability	12.30.13
City Council	

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Meetings were widely advertised using a variety of means (e-mail to various user/stakeholder mailing lists, notices in traditional media sources, other electronic and social media sources).

(Refer to **Appendix B** Public Meeting Notes for meeting announcements and corresponding public feedback).

Other Stakeholder Meetings - In addition to the public hearings listed above, we also met with, or contacted and received information from, individual stakeholder groups and other City and Regional Agencies on many occasions, including those listed below:

- City of Worcester’s Division of Planning and Regulatory Services
- City of Worcester’s Division of Housing and Health Inspections
- Worcester Elder Affairs
- Greater Worcester Land Trust
- Worcester Housing Authority
- Central Massachusetts Regional Planning Commission
- Massachusetts Audubon
- Appalachian Mountain Club
- Worcester Regional Transit Authority
- Massachusetts Department of Environmental Protection
- United States Department of Agriculture

Public Survey -

To garner meaningful public input, the City established the “**Worcester Park, Recreation & Open Space Plan Public Survey**” and made this available in both electronic formats (with a link on the City’s front web page) and in paper formats. More than five hundred surveys were completed. The survey was prepared with input from the Commonwealth of Massachusetts Division of Conservation Services, Worcester Office on Disabilities and Worcester Division of Planning and Regulatory Services.

The results of the survey helped to identify and confirm critical community-wide park, open space and recreation goals, objectives, needs, actions and priorities.

(Refer to **Appendix C** Public Survey Results for an analysis of the feedback and hardcopies of surveys).

The information received through the public outreach process (at the general city-wide public meetings, other stakeholder meetings and through the public

survey) has been thoughtful, useful and far-reaching and has informed the scope and breadth of this 2013 Open Space and Recreation Plan update.



Encuesta Pública para el Plan de Parques, Espacios Abiertos y Recreativos de la ciudad de Worcester

A. Introducción

Estimados Residentes,

Le invitamos a ayudar a actualizar el Plan de Espacios Abiertos y Recreativos de la ciudad de Worcester participando en esta encuesta sobre sus necesidades. Los resultados de esta encuesta nos ayudarán a definir las prioridades de la ciudad durante los próximos siete años. Este plan también ayudará a que la ciudad reúna los requisitos necesarios para fondos estatales y federales para implementar varios desarrollos/mejoramientos.

Le agradecemos de antemano por tomarse el tiempo en completar esta encuesta antes del **viernes, 12 de abril, 2013 a las 5:00 P.M.** Las respuestas a esta encuesta serán anónimas y aunque haya proporcionado su nombre; ninguna de las respuestas serán atribuidas a individuos.

¡SU OPINION CUENTA!

Los resultados de esta encuesta al igual que un resumen preliminar del Plan de Espacios Abiertos y Recreativos serán presentados durante las reuniones públicas en la primavera del 2013. Para mayor información comunicarse con parks@worcesterma.gov.

1. Nombre (Opcional): _____
2. ¿Cuál es la intersección más cercana a su hogar? (Por ejemplo June St. y Chandler St.)

3. ¿Cuánto tiempo lleva viviendo en su hogar?

4. ¿Cuánto tiempo lleva viviendo en Worcester?

5. ¿Cuántos miembros viven en su hogar (incluyendo lo a usted)?
__ 1 (Sólo usted mismo) __ 2 __ 3 __ > 4

C. Enhanced Outreach & Public Participation

The public survey was conducted in both Spanish and English and the survey was made available in both electronic and paper formats.

The Worcester Housing Authority was engaged to inform their residents about the survey through a monthly mailing.

As part of the GIS mapping exercise, enhanced Environmental Justice (EJ) Mapping was prepared in order to clearly delineate geographic sections of the City with high EJ populations. This population was represented at many public hearings by a variety of stakeholder and advocacy groups.

As part of the public outreach effort, City representatives also reached out to the Audio Journal, a broadcasting entity that provides important community related information to the visually impaired community.

Representatives of the Worcester Department of Public Works and Weston & Sampson appeared on a broadcast show to discuss the Open Space and Recreation Plan update process and to solicit input from this particular community. The show was broadcast to dozens of communities throughout Central Massachusetts. Project representatives came away with a better appreciation of how parks and open space systems might better support those with visual impairments.



AUDIOJOURNAL

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03. Community Setting

A. Regional Context

(Refer to **Fig. 1 Regional Context Map, Appendix A.**)

The City of Worcester is located in the heart of Central Massachusetts and to a larger extent the heart of New England. Over one million people live within a 25 mile radius of the city, six million within 50 miles and more than eight million within 75 miles.

Worcester is the second largest City in New England. It is densely populated (4,836 persons/ square mile), with a total estimated resident population of 181,631 in 2010 (census.gov).

The City is the educational, medical and commercial hub of Central Massachusetts. There are nine universities and colleges located within the City limits and several major hospital systems. Worcester has a labor force of 86,124 (2012 Massachusetts Department of Revenue, Division of Local Services).



Aerial photo of Worcester, courtesy of commons.wikimedia.org

The City is surrounded by Paxton, Holden, West Boylston, Shrewsbury, Grafton, Millbury, Auburn and Leicester. It is easily accessible to the rest of New England via the Interstate Highway System and other major federal and state highways. I-190 and I-290 intersect just to the north of Worcester center. Route 146 connects Worcester and Providence, Rhode Island. I-90 (the Massachusetts Turnpike), I-395 and I-495 are within minutes of Worcester center. Boston is located 42 miles to the east and New York City is 178 miles to the southwest. Worcester Regional Airport provides convenient connections to jet service in central Massachusetts and easy access to airports in Boston, MA, Manchester Airport, NH, Bradley International Airport, CT and T.F. Green Airport, RI. Since its purchase by Massport, plans are in the process of seeking a tenant airline.

Amtrak trains connect Worcester to 500 cities nationwide. Additionally, the City is well served by rail links in all directions, including the CSX intermodal terminal off of Grafton and Franklin Streets located to the east of Union Station. At present, the Massachusetts Bay Transportation Authority (MBTA commuter rail) operates 17 trains between Worcester Union Station and Boston South Station during the work week with 9 and 5 trains running on Saturday and Sunday respectively. A new express service provides direct daily connections between Worcester and Boston. The Worcester Regional Transit Authority (WRTA) operates an expansive bus system with service to 35 Central Massachusetts cities and towns.

Worcester possesses a varied natural landscape with many hills, dense woodlands, expansive wetlands, lakes, ponds, and waterways. Its central location also provides ready access to other parts of the Northeast and their natural resources such as the Atlantic Coast and Cape Cod to the east and south, the Berkshires to the west and the Green and White Mountains of NH to the north.



Photo courtesy Worcester Historical Museum, circa 1855

B. History of the Community

Worcester is a city formed by its geography and by natural resources. Its manufacturing heritage used the City's water resources as part of the production process. Plants were constructed in valleys and workers found housing in the hills around the plants. The multitude of hills made it possible for various ethnic groups to find housing in contiguous and readily definable neighborhoods. Roadways and public transportation were structured in ways which accommodated Worcester's dramatic topography. A few distinct roads crossed or skirted Worcester's hills, connecting its many residential areas to the places where people went to work or to shop. Open spaces, including parks and playgrounds, were integrated into

the fabric of Worcester's neighborhoods, as were schools. (Worcester Master Plan, 1987).

Much of Worcester's development during the late 19th and early 20th century's was linked to its rivers and then a railroad – fundamental goods manufacturing and transport channels. Worcester's dense developments (commercial and residential) concentrate around those channels in the City's urban core, with newer residential areas having a more spread out, almost rural quality in the outlying areas.

Blackstone Canal and Railroad. Established as a town in 1722, Worcester's growth can be traced closely to the growth of industrial America. Inexpensive power and transportation via the Blackstone Canal (1827-1848) reinforced an industrial boom that began with industrial textile production in the 1790's. The Blackstone Canal was built to link Central Massachusetts to the Atlantic via Providence, RI and was short lived as it was soon replaced by the railroad as the transportation mode of choice.



Blackstone Canal. Photo courtesy Worcester Historical Museum

Once a rural agricultural community that became the county seat, Worcester evolved into a major manufacturing center for small industries as well as large nationally known producers of machinery, hardware and wire.



Worcester skyline today (2013)

The streams, ponds and canals that aided Worcester's early growth became a disposal system for the industries they once fueled. By the mid to late 19th Century, these water resources had become an environmental nuisance and were either filled in or covered. Recent studies such as the "Blackstone River Valley Special Resource Study Report" indicate the importance to support the preservation, protection,

and interpretation of the Blackstone River and Canal as part of a national industrial heritage. The possibility of daylighting, even portions of the Canal would bring this important natural and cultural resource to life.

In the past, the City has made big strides in addressing significant issues related to water quality, portable water supply and impaired water resources by constructing and improving upon water treatment facilities. Along with these efforts, there is a history of providing parks and open space to its residents.

First Open Spaces. In June of 1669, Worcester established its first open space. The Worcester Common was a 20 acre parcel established to serve as a common open space for citizens. Although only 4.4 acres remain, the Common continues to provide vital open space in the downtown area. In recent years the City has invested over \$6M improving and expanding elements on the Common in an effort to restore lost luster and to establish the space as a major venue for civic activity.



City Common 1910-20 (image courtesy of Library of Congress)

Elm Park is another historic public park in Worcester. The City acquired the land for Elm Park in 1854, thus making Worcester one of the first cities in the United States to expend public funds to purchase land for use as a public park. Shortly after it's purchased, it was redesigned by the firm of Fredrick Law Olmstead, the same firm that designed Central Park, in New York City.



Wood Bridge at Elm Park

Both the Worcester Common and Elm Park are on the National Register of Historic Places.

Green Hill Park is another National Register listed open spaces in the City. Once an estate belonging to the Green family, in 1850 it became a city park. It is almost 500 acres of woodland and fields, a petting zoo, scenic memorials and artificial ponds.



View of Green Hill Pond looking toward the Dam ca. 1898

Salisbury Park, also listed on the National Register of Historic Places, has the famous Bancroft Tower memorial at its highest point. This tower was built in 1900 by Honorable Stephen Salisbury III, also owner and designer of nearby, Institute Park with Salisbury Pond constructed in 1834.

Mr. Salisbury had acquired both of these properties, developed and opened them for public enjoyment. He went to become an honorable member of the Parks Commission in 1887 and donated both parks to the Worcester Art Museum.

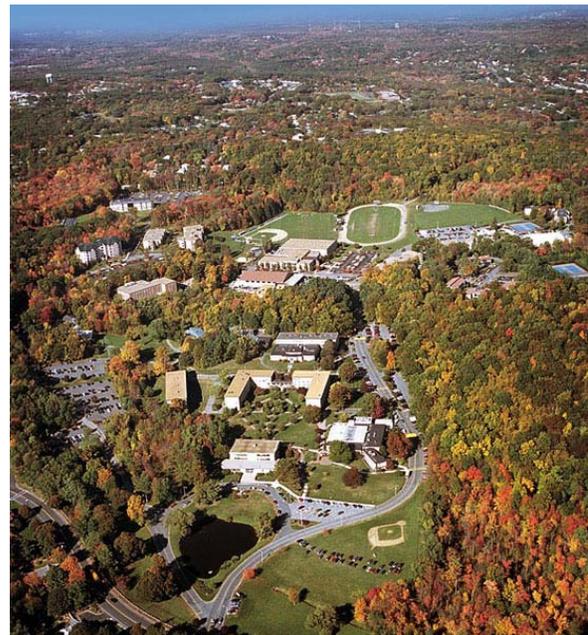
Salisbury Park and Institute Park were donated to the City in 1912 by the Worcester Art Museum.

Parks Commission. Worcester formed its first Parks Commission in 1863. At the time the Commission's emphasis centered on City trees. Their mission soon grew to expanding the park system by adding new properties. The Parks Commission prepared a comprehensive plan in 1885 that described park locations, functions and uses. Worcester hired its first full-time parks superintendent in 1896, as the City acquired more parks and the system grew in size and complexity of recreational offerings.

The formal concept for the park system at that time was to connect the City's parks with avenues and boulevards. The Park Commission began to focus on recreational issues and preserving important open spaces in natural states, rather than solely on the maintenance of trees and other horticultural pursuits. The City also established a playground budget to acquire property, construct new playgrounds and improve existing playgrounds.

By 1910, Worcester's park system contained approximately 1,000 acres. Since then, Worcester has added over 200 acres to the system.

Recent History. The City's Department of Public Works and Parks has worked with the Executive Office of Economic Development to revitalize the City's parks and playgrounds through the use of city capital funds, community development funds and other state and federal funding sources. The City has also formed important partnerships with neighborhood groups, corporations and college communities to focus on improving the park and open space system.

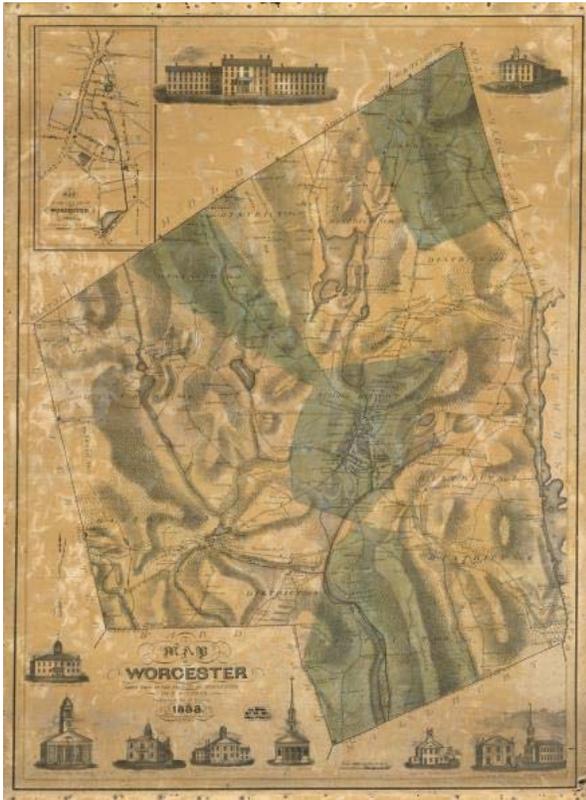


Aerial view of Worcester

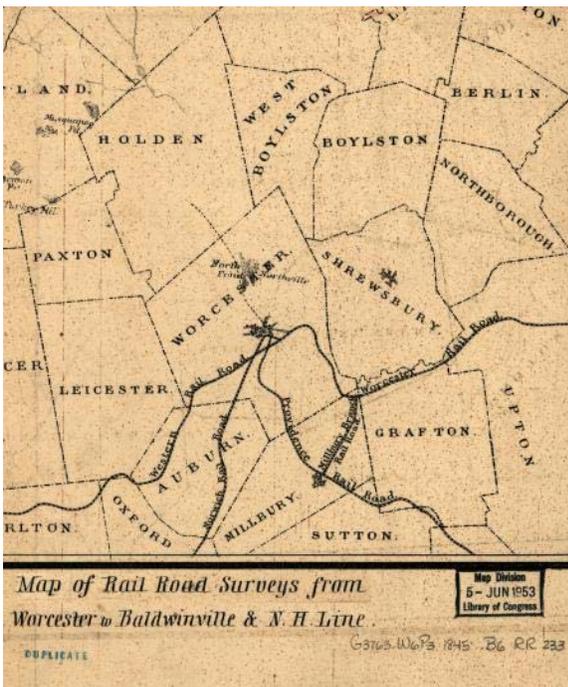
Like most other municipalities, Worcester's great present day challenge is to stabilize and then increase operational funding levels in order to maintain the City's expansive open space network at the level desired by residents.

Historical Maps. A series of historical regional and local maps (courtesy of the Library of Congress) are included below and they graphically depict the evolution of Worcester, from a small town to an increasingly large regional transportation hub at the center of an expanding railroad system.

Greatest changes in regional transportation are evident from the construction of the first railroad in 1835 to the consolidation of the railroad network into Old Union Station (1875). This all contributed to Worcester's rapid growth as an industrial city.

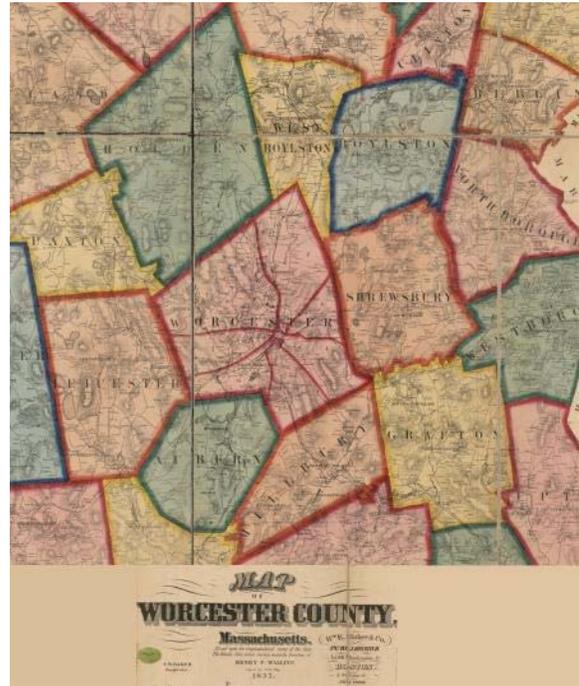


Worcester City Map ca. 1833

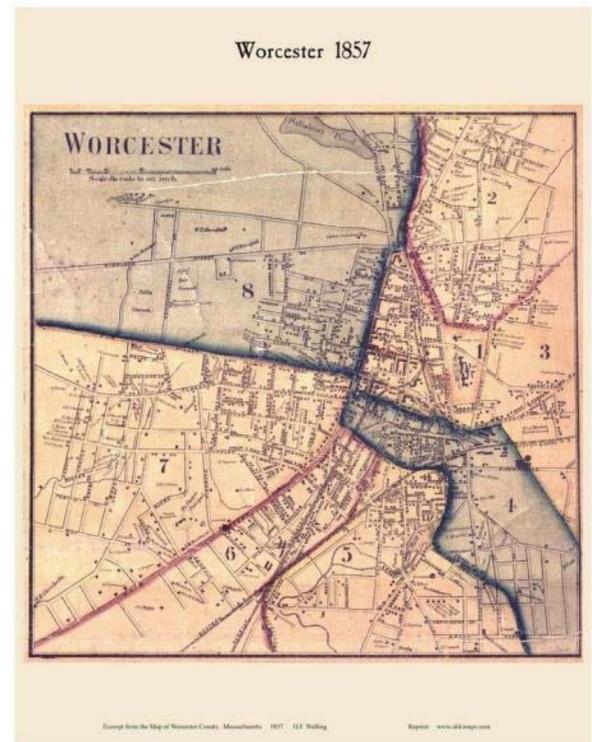


Worcester County Railroad Map ca. 1845

(Worcester was incorporated from town to city in 1848)



Worcester County Map ca. 1855



Worcester City Map ca. 1857

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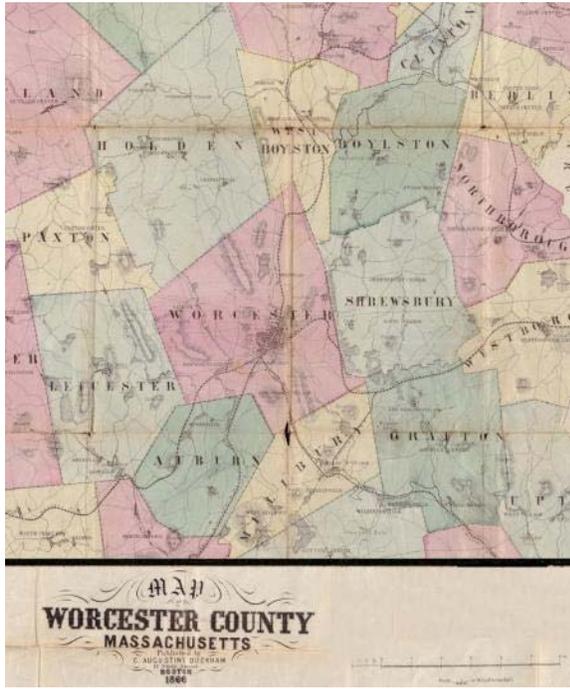
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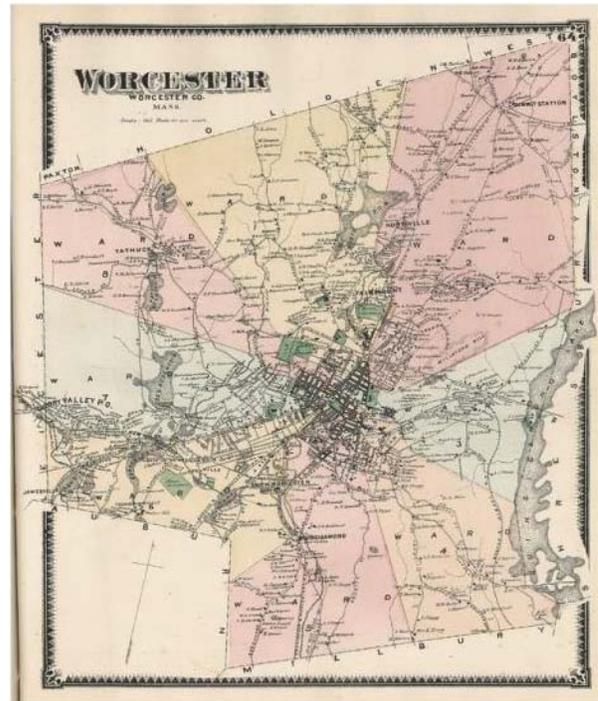
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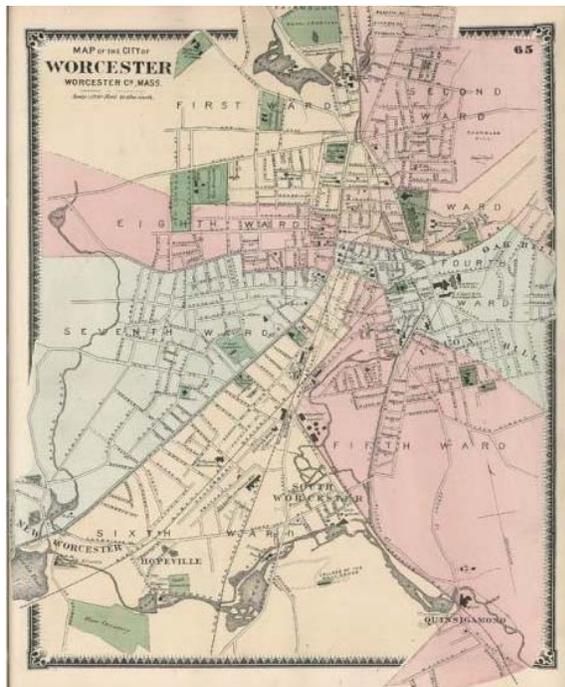
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Worcester County Map ca. 1866



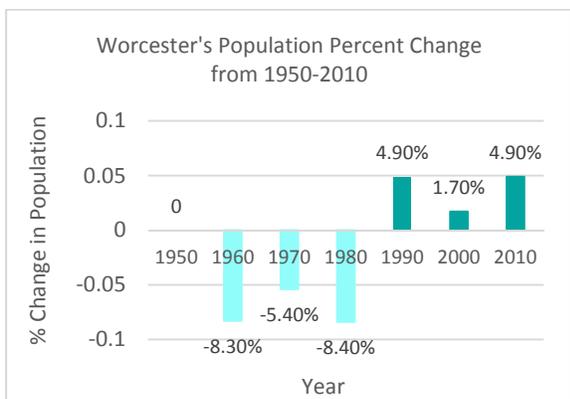
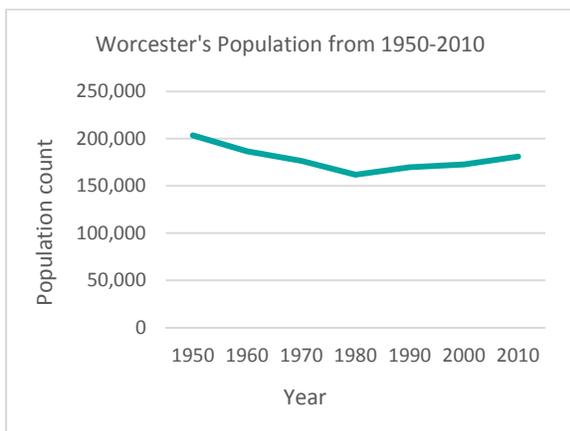
Worcester City Map ca. 1870



Worcester City Map Enlargement ca. 1870

C. Population Characteristics
(Refer to Fig. 2 – 3, Appendix A)

Population Characteristics and EJ Communities. The population of Worcester peaked at about 210,000 residents in 1950. Thereafter the population steadily declined to a low of 161,799 in 1980 mirroring the trend of other New England and Midwestern industrial cities in the post-industrial age. During the 1980's, the population began to rebound reaching 169,759 persons by 1990. By 2010 the City's population had increased to 181,045, an increase of approximately 6.6 % over a twenty year period.



(Based on: The Research Bureau Worcester's Demographic Trends 2010 Census:
http://www.wrrb.org/files/downloads/reports/eco_dev/2013/worcester-demographic-trends.pdf)

Other more recent demographic characteristics (through the year 2010) relevant to the current and future use of the City's open space system include the following:

- Between 2000-2010 Worcester had the 3rd highest rate of population growth compared to similar cities in United States and the 2nd in New England. (Boston's population growth was slightly less than Worcester's).

(Source: US Census Bureau, 2000 Census and 2006-2010 American Community Survey)

This illustrates the importance of Worcester to proactively continue to plan, manage and serve a rapidly growing population with a demand for quality recreational spaces.

2010 Pop. Growth & Statistics	Worcester	MA	USA
Total Population	181,389	6,619,031	308,455,134
Square Miles	37.56	7,840.02	N / A
Population Density	4,829.20	844.3	87.2
Population Change Since 1990	7.48%	10.02%	24.02%
Population Change Since 2000	5.06%	4.25%	9.61%
Forecasted Population Change by 2014	1.87%	3.85%	4.52%
Population Male	87,788 48%	3,216,681 49%	152,625,766 50%
Population Female	93,601 52%	3,402,350 52%	155,829,368 51%
Median Age	33.6	37.1	35.6

Source: US Census Bureau State & County QuickFacts

- 37% of Worcester residents are under the age of 25 year old. About 18% are between 0-14 years of age.
(<http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>)
- 28% of Worcester residents are obese and 35% are overweight.
- 18% of families live in poverty
- 57% of families are within the low to moderate income bracket levels
- Between 2000-2010 number of households making \$49,999 or less decreased by 13.9% and consequently households making \$50,000 or more increased by 40.6%; the extreme bracket levels had little to no change (\$10,000-\$14,999 and \$50,000-\$74,999). (Source: The Research Bureau Worcester's demographic Trends 2010 Census: http://www.wrrb.org/files/downloads/reports/eco_dev/2013/worcester-demographic-trends.pdf)
- 33.6% of school-age students live in homes where a language other than English is spoken. (Compared to 21.4% in MA)
- Spanish and Vietnamese are the two most commonly spoken non-English languages.
- The average child in this metro area lives in a neighborhood where the poverty rate is 9.5% (U.S.Census Bureau 2000)

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- Figure 2, Appendix A shows how there is a tendency of youth population (18 years and under) associated with areas of Environmental Justice: 40% or more of younger than 18 years of age live at North-east Great Brook Valley area. Also 30-40% of younger population lies at central corridor near I-190 and I-290.

“Environmental justice (EJ) is the equal protection and meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies and the equitable distribution of environmental benefits... Increasing environmental assets in EJ communities is central toward improving public health and achieving environmental equity”
 -Executive Office of Energy and Environmental Affairs

The Massachusetts Executive Office of Energy and Environmental Affairs (EEA) defines EJ populations as neighborhoods (U.S. Census Bureau census block groups) that meet one of more of the following criteria:

- Median annual household income is at or below 65% of the statewide median income;
- 25% or more of the residents are a *minority*;
- 25% or more of the residents are *foreign born*; or
- 25% or more of the residents are *lacking English language proficiency*.

The Grant Programs associated in an EJ Community are: PARC Grant, Urban and Community Forestry Challenges Grant (DCR) and Brownfields Site Assessment and Cleanup Funding Resources (MassDEP).

In Worcester, EJ population is concentrated along the I-290 corridor and near the City Center and University Park areas. Another isolated Critical EJ is found at the north-east part of the city. (For the purpose of this mapping analysis, Critical means that it satisfy the 3 criteria: Minority, Income and English language Isolation (Refer to **Fig. 2, 2b, and 2c Appendix A**).

Education Attainment. The number of adults aged 25 and older who have less than a high-school diploma has decreased by about 29%. There is an overall *increase* in the higher level of education as follows:

- 5.35% in high school graduates,
- 38.34% in Bachelor’s degrees (2nd highest % of adults with Bachelor’s degree in New England)
- 23.31% in graduate or professional degrees

(Census Bureau 2008-2010 American Community Survey and 2000 US Census Summary File 3)

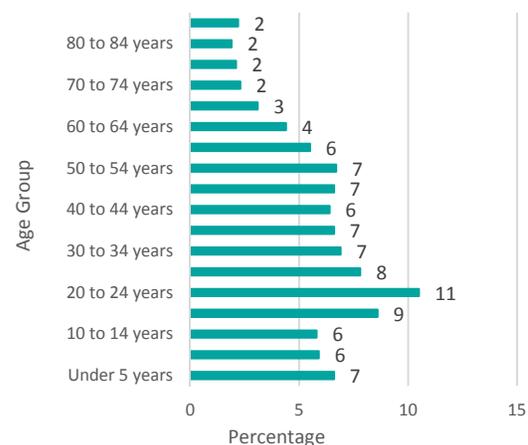
In terms of other population characteristics, here are some categories that compare current patterns of change between Worcester and Massachusetts:

Categories of comparison	Worcester	Massachusetts
Living in same house 1 year & over, percent, 2007-2011	84%	87%
Foreign born persons, percent, 2007-2011	21%	15%
Language other than English spoken at home, percentage 5+, 2007-2011	34%	21%
High school graduate or higher, percent of persons age 25+, 2007-2011	84%	89%
Bachelor's degree or higher, percent of persons age 25+, 2007-2011	30%	39%

(Source: quick facts census.gov)

Age. The average age in Worcester is 33.4 years of age.

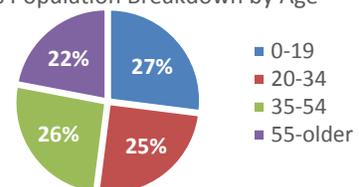
Percentage of Population by Age



(Source: U.S. Census Bureau, 2010 Census: DP-1-Geography-Worcester city, Massachusetts: Profile of General Population and Housing Characteristics: 2010.)

Worcester has the third-highest population of 20-34 year olds of the major cities in New England (Boston and Providence being first and second. Note: this population includes college students living on and off-campus residences).

Worcester's Population Breakdown by Age



(Based on: The Research Bureau Worcester’s Demographic Trends 2010 Census)

The data below shows a common trend of elderly population increasing, much like other cities and municipalities in the state. This trend implies that there may be a greater demand for passive activities with trails/pathways that allow for contact with natural resources. The data also suggest a future need for ADA compliant accessibility and for multi-generational recreational opportunities that will allow an aging population with renewed focus on maintaining a high level of wellness to seek out City resources to support their efforts.

Massachusetts Population Projections by Age.

age	Percent change			
	1980-1990	1990-2000	2000-2010	2010-2020
0-4	30%	-11%	8%	4%
5-9	10%	12%	2%	4%
10-14	-17%	23%	-7%	8%
15-19	-19%	4%	10%	1%
20-24	-8%	-11%	16%	-6%
25-29	25%	-16%	1%	14%
30-34	55%	-13%	-11%	20%
35-39	56%	13%	-11%	1%
40-44	47%	34%	-5%	-11%
45-49	5%	49%	17%	-11%
50-54	-23%	43%	38%	-5%
55-59	-30%	5%	52%	18%
60-64	-21%	-21%	45%	39%
65-69	-6%	-31%	11%	55%
70-74	7%	-18%	-18%	48%
75-79	10%	-4%	-27%	14%
80-84	6%	14%	-14%	-14%
85-89	-2%	15%	3%	-22%
90 plus	32%	5%	21%	6%
	5%	2%	6%	7%

(Info graphic based latest MISER population projections for Massachusetts were released on Wednesday, December 10, 2003.

Racial and Ethnic Diversity. Worcester’s diversity trends reflect forecasts for US population growth overall where the percentage of African Americans in the workforce will continue to increase as the United

States continues to become more racially and ethnically diverse.

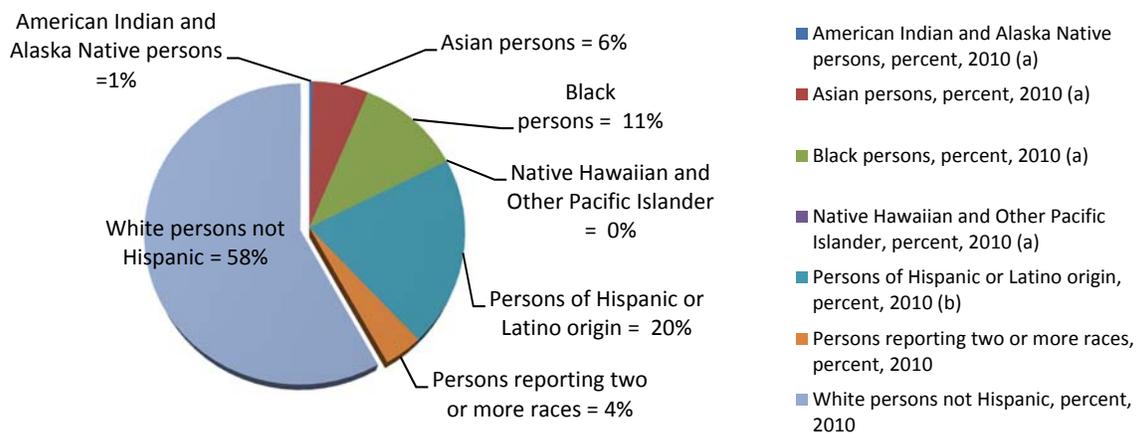
National census data predicts that by 2050 there will be no racial or ethnic majority in our country. Between 2000 and 2050 new immigrants and their children will account for 83% of the growth in the working-age population.

Since 2000-2010, Worcester’s racial breakdown has changed: number of people who identify themselves as white decreased by 5.57%. Depending on the source of data, minorities represent approximately 38-41% of Worcester’s current day population. In Worcester’s Demographic Trends: 2010 Census, the Research Bureau found that the city’s African American population increased by 77% during the first decade of the 21st Century. During the same period, the Latino population grew by 45% and the Asian population grew by 31% as well. As of 2010, the largest numbers of immigrants in Worcester are from Brazil, Vietnam and Ghana, followed by a Latin-American group consisting of El Salvador and Dominican Republic origins.

Between 2000 and 2010 the number of linguistically isolated households (with all members of the household 14yrs and over having some difficulty in speaking English) increased for all languages spoken In Worcester: Highest increase was 68% for “other languages” and 26% for Spanish. There has also been an increase in the number of people who speak English Language “Less than Very Well”.

Among racial groups in the City, the unemployment rate is: 19% for American Indian and Alaska Natives, and 15.8% for Latino or Hispanic origin.

Worcester's Percentage Racial Composition (2010)



(This graph is based on data from quick facts census.gov dated 2010)

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City Industries.

According to the US Census Bureau from 2007-2011 Worcester has employed 57.70% of its residents and unemployed 5.90%. Between 2000 and 2010, civilian labor force increased by 11.22%.

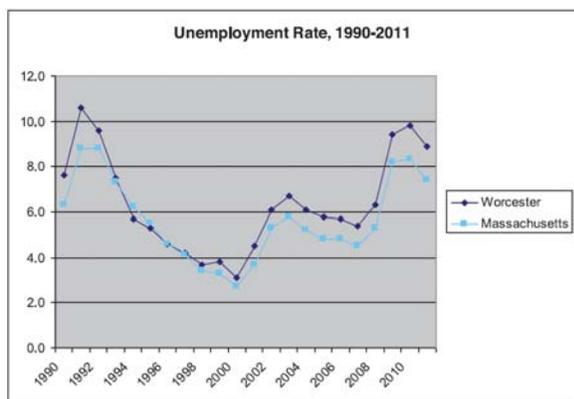
In Worcester, business ownership within the minority population is double that of Massachusetts overall as depicted in the following chart: (Note: percentage calculated in 2007).

Diversity in Business Ownership

Type of Business Ownership	Worcester	Massachusetts
Total number of firms	11,799	596,790
Black-owned firms	7.00%	3.40%
American Indian- and Alaska Native-owned firms	F	0.40%
Asian-owned firms	10.30%	4.50%
Native Hawaiian and Other Pacific Islander-owned firms	F	0.00%
Hispanic-owned firms	6.40%	3.30%
Women-owned firms	27.80%	29.80%

(F is Fewer than 100 firms. Source: US Census Bureau State & County QuickFacts)

Worcester’s historic unemployment trend illustrates that the average unemployment rate for Worcester has been higher than Massachusetts’s state average as indicated in the graph below:



Source: US Bureau of Labor Statistics
 (Source: The Research Bureau Worcester’s Demographic Trends 2010 Census:
<http://www.worcestermass.org/uploads/34/24/3424f70e8140bb0052e83ce4bab96c48/2012-Year-in-Review.pdf>)

In comparison to the national level, Worcester has a greater portion of the following jobs: Education and Health Services, Manufacturing and “Other Services”. This so called “Other Services” include: repair services, personal services, household services and works in philanthropic and non-profit organizations.
 (Source: US Bureau of Labor Statistics:
<http://www.bls.gov/cew/cewfaq.htm#Q19>)

According to the Comprehensive Annual Fiscal Report (FY June 30, 2012) the City’s principal employers, in descending order are:

UMass Memorial Health, University of Massachusetts Medical School, City of Worcester, Saint Gobin, Reliant Medical Group, Hanover Insurance Group, St Vincent Hospital, Polar Beverages, Quinsigamond Community College, Fallon Community Health Plan, Massachusetts Electric Company, Seven Hills Foundation, Price Chopper.

(Source: Comprehensive Annual Financial Report for the Fiscal Year ended June 30 2012:
<http://www.worcesterma.gov/uploads/c8/65/c865731cff09f1bf458d9d2ab4005841/auditor-report-2012.pdf>)

Growth of the City’s most prestigious institutions has positively impacted the economy through the expansion and construction of new research centers (UMass Medical, Massachusetts College of Pharmacy and Health Sciences, Worcester Polytechnic Institute and Worcester State University). This has subsequently brought growth in residential, retail & commercial, food & entertainment, business and cultural developments.

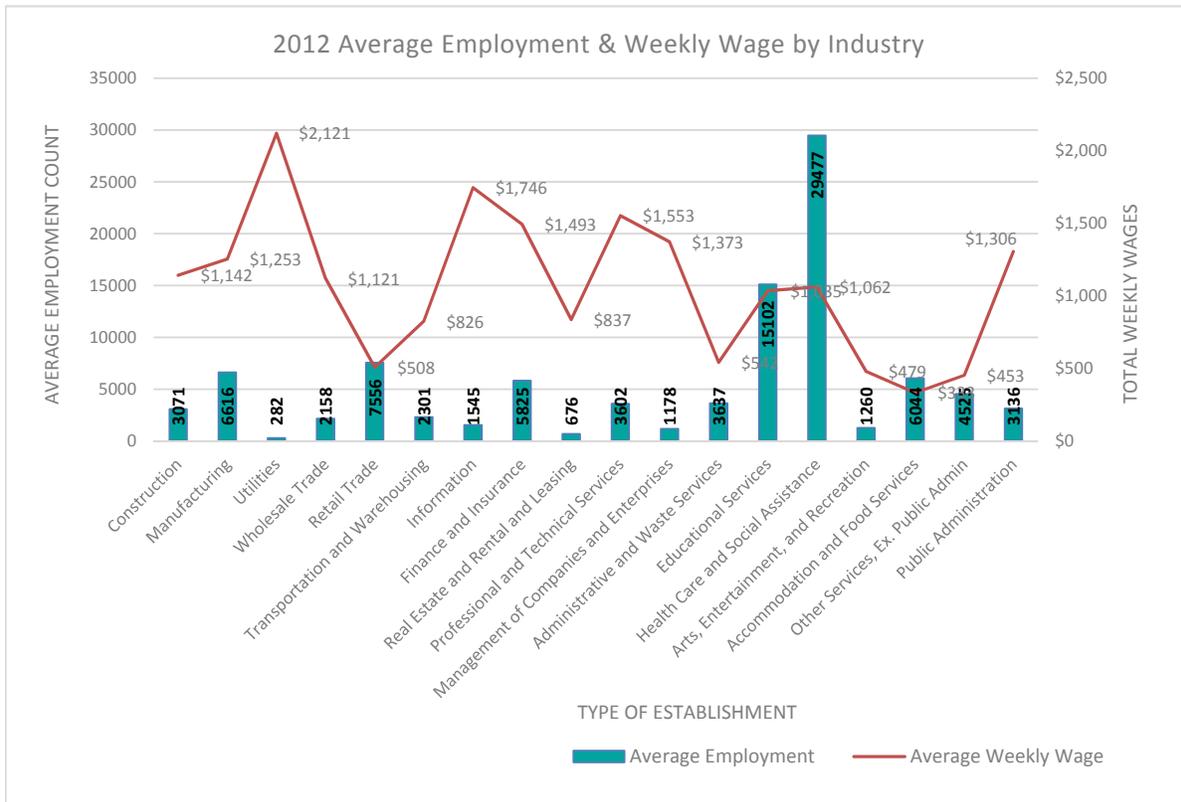
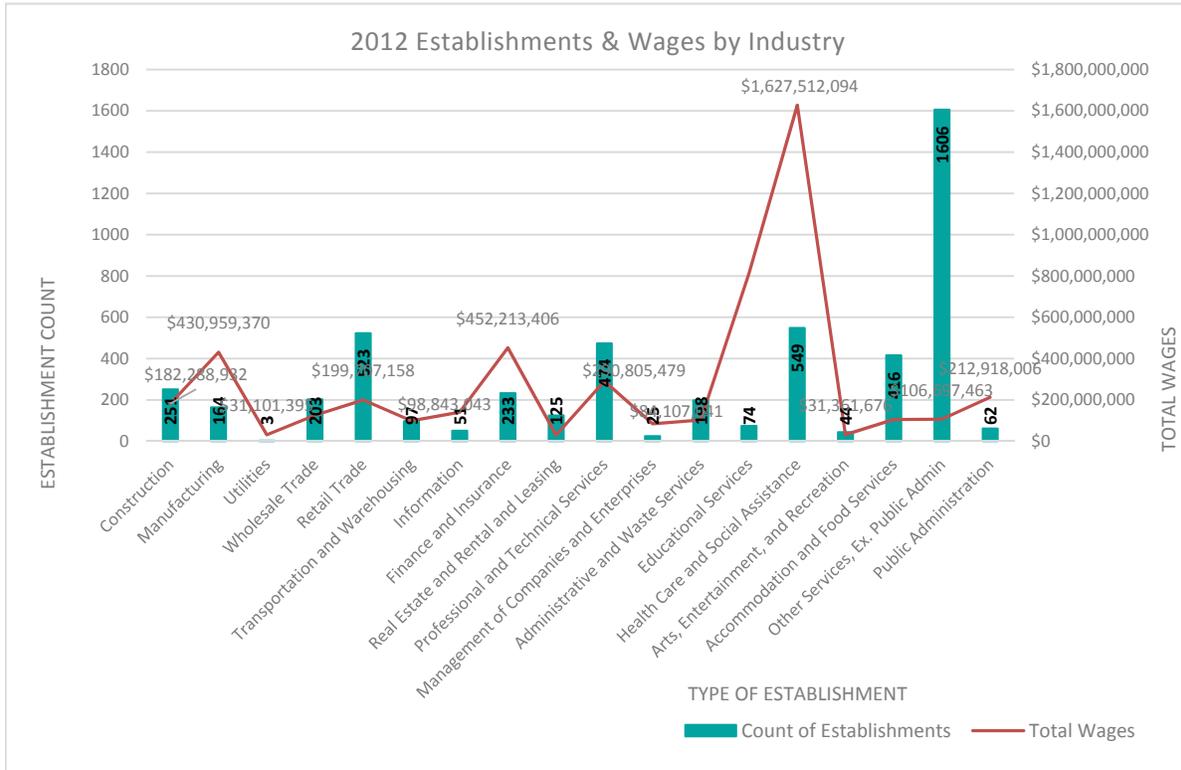
In 2010, the Worcester Cultural Coalition and City of Worcester partnership contributed to attract 2.5 million in visitors to Worcester during 2012. This partnership sponsored cultural events that ranged from street festivals to openings of new galleries, film making and chamber concerts.

This helped contribute to the City’s growing reputation in the following areas:

- #3 MSA in US for Job Creation (2011) Boston Business Journal
- #4 MSA in US – Job Gainers (2012) Wall Street Journal
- #3 MSA in US for Real Income (2011)
- Top 5 Housing Market in the Country (2012)
- #14 Ranking Most Creative US Cities (2012)
- Top 20 Strongest-Performing Metropolitan Region (2012) Brookings Institute
- 10th Best City for Families (2012) Forbes
- 2nd Happiest City to Work in (2012) Career Bliss

New development projects such as Citysquare, Gateway Park, Theater District Partnership, CSX and Retrix will bring more tourists and new residents to the City that will be looking to explore its natural, cultural, and recreational resources.
 (Source: Economic Development 2012 Year in Review:
<http://www.worcestermass.org/uploads/34/24/3424f70e8140bb0052e83ce4bab96c48/2012-Year-in-Review.pdf>)

The following graphs show 2012 statistics for types of industries in Worcester and their corresponding wages. The investment and popularity in healthcare industry may suggest the potential to consider open spaces as part of the tools and strategies to heal (Refer to recent research on outdoor public 'Healing Spaces' and the benefits of 'Sensory Gardens', etc.).



(Source: the Massachusetts Government Labor and Workforce Development Official website of the EOLWD - Executive Office of Labor and Workforce Development: http://lmi2.detma.org/lmi/lmi_town.asp)

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Housing Study

According to a City of Worcester Housing Strategy prepared by the Executive Office of Economic Development and RKG Associates, Inc. (dated October 2012) approximately 3,600 new residential units were built in Worcester between 2000 and 2010 representing a 5.5% increase. According to the US Census Bureau and 2006-2010 American Community Survey, Worcester has added 8,307 housing units, an increase of 11.75%. The average size of households decreased by 1% now being 2.38 (WRRB: Worcester Demographic Trends: February 2013 report).

The neighborhoods in the Green Hill and North Side (extreme northeastern corner of Worcester) experienced the highest growth in the new residential units during that time. In those same ten years the Great Brook, Greendale, Piedmont, Main South and Southwest sections of the City experienced the lowest percentage increase in new housing unit development. These areas are located along an urban corridor that traverses through Worcester Center and the rest of the City in a northeast to southwest direction. The Worcester's center neighborhoods of Downtown East Side and Green Island achieved moderate growth rates of new housing. Other lower density, outlying areas of the City where land is still available were under more intense residential subdivision development pressure including the West Side, College Hill and Beaver Brook Neighborhoods.

From a planning perspective, City policy is focused on investments in the densely developed residential neighborhoods located in and near downtown.

D. Growth and Development Patterns

Patterns and Trends

During the last cycle of intensive development, Worcester's pattern of residential expansion generally consisted of new projects in outlying areas rather than in-fill development within existing neighborhoods. The City's Planning Board has approved many residential developments which consist of both multi and single family developments of various sizes and geographic configurations. Many developments are now active again, after going dormant during the economic downturn between 2006 and 2010. By being built in phases, impacts to the City's infrastructure, school system and the environment have been spread out over time, allowing the City the opportunity to implement needed infrastructure related improvements. As the economy begins to revive, previously approved and new subdivision plans will be put forward which will

apply more pressure to the remaining open space in the city. (Refer to **Fig. 2a - Population Change by Block -2000-2010**)

In recent years, economic development and planning initiatives have focused on developing distressed properties within the City's urban core and within other previously developed areas. (Refer to **Fig.2 Environmental Justice Map by Youth Population**). Significant, new projects within these areas during recent years include:

- City Square
- Mass College of Pharmacy Downtown Campus
- Hilton Garden Inn
- Regional Justice Center
- Union Station Parking Garage
- DCU Expansion/renovation
- Hanover Theatre for the Performing Arts
- WPI Life Sciences Center
- WPI Dormitory
- Union Station garage
- Union Station WRTA Transportation Hub
- Multiple public and private investments into restaurants and streetscapes of Shrewsbury Street and Canal District
- North Main Street / Worcester Auditorium vicinity

A 2012 Housing Market Study recommends that the City of Worcester "develop a city-wide plan with specific action items for each distressed property (e.g., maintenance, redevelopment, selective demolition, community garden/open space, parking, etc.)". The City Manager's Office has established five Neighborhood Revitalization Strategy Areas, each focused specifically on issues relative to housing, code enforcement, commercial storefront improvement and job training.

City planning policies and initiatives continue to be in sync with state and national planning policies that are focused on smart growth and transit oriented development and on building a "greener" economy that is less reliant on the automobile.

Biotechnology continued during the 2000 to 2010 decade as an important economic development theme in the eastern portion of the City along Plantation and Belmont Streets. The UMASS/Memorial Medical School and Health Care System have also fueled significant growth and expansion to the Plantation Street vicinity and to the Belmont Street transportation corridor east of

Worcester center. This highly educated new work force may be seeking for different recreation activities such as biking, hiking and connections to conservation areas (as evidenced from the public survey results- see **Appendix C Public Survey Results** and **Section 07 Analysis of Needs**).

During the most recent decade, jobs in health care, education and social assistance increased by 21%. The City’s colleges and universities have also aggressively built new facilities to house and to educate their student populations.

Long-term Development Patterns and Trends

Nationally, there is a clear migration of residents from rural and suburban areas to more urban areas. In the northeast, the population of cities like Washington, New York and Boston will increase at more rapid rates compared to surrounding suburban areas and more distant rural areas. The Donahue Institute (University of Massachusetts) predicts that by 2030, the population of Boston will expand by 11.7% and Worcester by 6.7% while the total population of Massachusetts is expected to grow by a more modest 4.4%. Western Massachusetts and other rural parts of the state are expected to experience level growth in population or even modest losses in population.

At the rate of population growth referenced above, Worcester’s population by 2030 will be approaching 200,000. Based on current City policies and current development trends, we are likely to see the following:

- An emphasis on the development of residential uses within downtown and close to downtown areas. With limited open space, there will be further pressure to provide meaningful recreational opportunities.
- Continued expansion into the few remaining undeveloped areas of the City, primarily to the north and to the west. With fewer park properties within these outlying areas, there will be additional pressure to establish new parks, playgrounds and recreational facilities that serve these geographic locations.
- Continued redevelopment of underused and environmentally stressed commercial and industrial properties within downtown and near to downtown areas is a priority. This type of development creates jobs and economic development. It will be important to expand open space and recreation facilities within these geographic areas in order to remain competitive and in order to accommodate the needs of

workers who may live within new center city residential offerings or commute to work via car, bus, train or bicycle.

- The Donahue Institute findings also reinforce the notion of an aging population with the population of those aged 65 and older increasing by more than 50% and those aged 19 and younger shrinking by about 12% by 2030. To this end, open space and recreational amenities must continue to be adjusted and refined in order to meet these changing age demographics.

Grey Infrastructure

Transportation System

(Refer to **Fig. 1 Regional Context Map**, in the **Appendix A**.)

The City is vertically bisected by Interstates 190 and 290, which provide a regional transportation link throughout Central Massachusetts to Interstates 495 and 90 (Massachusetts Turnpike). Route 146 was completely reconstructed and expanded and now directly connects downtown Worcester to Providence, Rhode Island. The City is horizontally bisected by Route 9, a highly developed commercial linkage to Boston to the east and Amherst to the west. Route 9 is currently undergoing major renovation efforts.

Two other major east-west routes (Routes 20 and 122) and three north-south highways (Routes 12, 70 and 122A) pass through Worcester.

Locally, the City has over 2,000 streets listed in its Official Street directory. About 90 miles of Worcester streets are considered private and are for the most part unpaved “dirt roads”. Their origin can be traced back to before 1925 (before sub-division control laws regulated land Development). Anyone owning property in Worcester could record a plan dividing their property into new lots and proposed streets. The City of Worcester has two programs to consider the improvement of these dirt roads: “Private Street Conversion” and “Private Street Betterment”



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In order to continue satisfying increased transportation demand associated with economic development, while complying with the statutory requirements of the Clean Air Act, the City must continue to invest in diversify its transportation system to make it more efficient.

Two of these major investments in Worcester have been the MBTA and the City's Airport. (Please refer to **A. Regional Context** of this section for a description of these regional transportation systems).

Some examples of local transportation diversification include:

- Enhancement of the public transit system (bus, commuter rail, and Intermodal Transportation Center)
- Promotion of ridesharing (through parking policies, park-and-ride lots, and a transportation management association)
- Promotion of walking and bicycling through urban design, streetscape improvements and trail creation.

To meet the challenges above, many improvements have been recently completed, are currently being constructed or are in the planning stages.

- Construction of a new parking garage at Union Station
- Construction of a new WRTA Transportation Hub adjacent to Union Station
- System-wide improvements to WRTA facilities and transportation routes
- Construction of a new WRTA Bus Maintenance Facility to be located on a former "brownfield" property off of Quinsigamond Avenue
- Reconstruction of Route 9 and the Route 9 Bridge at Lake Quinsigamond
- Continued expansion of the Blackstone River Bikeway within central and southeastern sections of the City
- Streetscape improvements promoting walking and biking in the Canal District (recently completed) and downtown (soon to begin construction).



Bike lanes are currently limited and/or not being used for transportation by most people, but occasionally for recreation. There is the potential to plan for a

better bike transportation network, since many roads in the City that are wide enough to accommodate bike lanes.

Public or Private Water Supply Systems

(Refer to **Fig. 1 Regional Context Map**, in the **Appendix A**. for watershed locations)

Ten local water reservoir sources provide the city with over 27 million gallons of drinkable water per day. In addition, the City has emergency connections supplies that include two wells and two reservoirs; the Coal Mine Brook Well on Lake Ave North in Worcester and the Shrewsbury Well off Holden Street in Shrewsbury, the Wachusett Reservoir and the Quabbin Aqueduct.



(Worcester water treatment facility at Holden Reservoir No. 2)

Not all of the City's residents are served by the public water supply system. A small area around Mountain Street West is supplied with water purchased from the Town of Holden. This area includes Mountain Street West from #157 to the Holden line (including Stratton Hill Apartments), Maravista Road, Maranook Road, Wend-over Road, and the first 500 feet of Lanesboro Road Relocated. These residents will receive a similar Water Quality Report from the Town of Holden.

Water treatment presently meets all federal and state requirements set forth by the *Safe Drinking Water Act*. (Refer to 2013 Water Quality Report, www.worcesterma.gov).

Municipal sewer services / individual septic systems

The City of Worcester is an active member of the Upper Blackstone Water Pollution Abatement District (UBWPAD). Worcester is the most upstream community among with the following cities and towns forming part of the UBWPAD: Auburn, Cherry Valley Sewer District, Holden, Millbury, Rutland, and West Boylston. Over 90% of the waste received at the regional wastewater treatment facility (located in the Greenwood Neighborhood) is from residents of the City of Worcester. The facility also processes industrial wastewater and has enacted an industrial pretreatment program.

During the past decade the City of Worcester, through the Department of Public Works, has spent tens of millions of dollars upgrading the regional wastewater treatment facility and upgrading piped sewer and storm water systems to meet or exceed current state regulations. At present, less than 10% of residential properties maintain individual private on-site septic facilities with plans to reduce this number as the municipal waste water treatment system is extended.

Green Infrastructure

In urban environments, green infrastructure (or blue-green infrastructure) is a landscape approach that aims to integrate stormwater management and multifunctional space design as part of a sustainable open space framework.



(WPI Roof top with planted trays that collect rain water. Featured in "Princeton Review Names WPI One of Nation's Greenest Schools" <http://www.wpi.edu/news/20101/greenest.html>)

Its importance lies in the need to resolve long term urban issues of water demand and supply, problems with periods of flood and drought in cities,



(Meadow Trail at the Ecotarium. Image courtesy of Ecotarium) <http://www.ecotarium.org/outdoor-explorations/nature-trails>

climatic change adaptations and creative and efficient use and management of open space. Its scale of action can be from streetscapes, pocket parks, etc., to multiple parcels of conservation areas within different watersheds.

The City of Worcester has an array of open spaces: 60 park properties (that add up 1,292 acres of park land) and more than 100 conservation (state, city and private) properties that can make a significant contribution to the green infrastructure and to connectivity of land and natural water resources. Furthermore, by allowing public access to these water and land resources, residents and visitors can become informed of their larger significance at a regional level.

Recent Parks and Open Space Accomplishments

The City continues to invest heavily in its schools, parks and open space system, open space protection and in programs designed to serve an aging population, city youth and economically disadvantaged residents.

Since completion of the 2006 Open Space and Recreation Plan, Worcester made great strides in environmental protection, historic preservation and economic development such as:

- Protection of dozens of new open space properties
- Protection of historical resources and assets
- Completion of more than a dozen open space specific Master Plans.
- Capital improvements to dozens of parks, playgrounds and open space properties scattered throughout the City of Worcester with a total investment since 2000 approaching \$45M.
- Formation or strengthening of partnerships with other land stewards including the Greater Worcester Land Trust and Mass Audubon.
- Partnerships with citizen groups, local colleges and universities to undertake meaningful

improvements within the City parks and open space system.

- Establishment of new partnerships to provide new recreational and sports programming opportunities for the City's youth
- Continued implementation of pedestrian and bicycle improvements in conjunction with transportation improvement projects throughout the City.

Over the past 20 years, the City has enacted a number of regulatory water supply protection measures including establishing Water Resources Protection Overlay District and Floodplain Overlay Districts (that limit types of uses or regulate construction standards in these sensitive areas), enacting Wetland Protection Ordinance and Regulations in 1990 (enforced by the Conservation Commission), and Earth Removal Ordinance.

Land use Boards and Commissions of the City often consider landscaping and open space allocation when reviewing large-scale projects.

The City has also established priorities for future watershed and wellhead protection area land acquisitions. With multiple land purchases achieved during the past five years for this purpose.

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04. Environmental Inventory & Analysis

A. Geology, Soils and Topography (Refer to Soils & Geological Features Map, Figure 4)

A-1. Geology

Central Massachusetts was subjected to the rigorous physical alterations of the Wisconsin stage of Pleistocene glaciation. Local landforms are characteristic of glacial transport and deposition. The ice sheet advanced in a southerly direction, and eroded land differentially in folded belts of rocks.

Predominantly sedimentary in origin, the rocks in the area have been subjected to intense deformation by the pressures and temperatures accompanying igneous intrusion and erosion by fluvial and glacial activities. For the most part, the rocks are now metamorphic in nature. The common bedrock units in the area are:

- *Worcester Phyllite (Carboniferous sedimentary rock - Paleozoic Era)*
- *Oakdale Quartzite (Carboniferous sedimentary rock - Paleozoic Era)*
- *Paxton Quartz Schist (Carboniferous sedimentary rock - Paleozoic Era)*
- *Oxford Schist (Carboniferous sedimentary rock - Paleozoic Era)*
- *Ayer Granite (Late carboniferous igneous rock - Triassic Era)*



(Image of The Cascades)

The phyllite and quartzite in the Worcester area typically underlie the lower, flat tracts of land. The granite is concentrated in prominent hilly areas of the City. Gneiss and schist occupy the higher lands east and west of the City proper. However, not all

aspects of the landscape form can be correlated with rock types.

Quinsigamond Valley appears to follow some line of structural weakness in the underlying bedrock. Outwash lies high in the valley, with flood plain deposits following southward along the City's eastern border to an area of ground moraine and recessional moraine in the southeast corner of the City.

Glacial geology has left the central portion of the City overlain with outwash deposits and a large area of glacial moraine, surrounded to the northwest by numerous drumlins and recessional moraine and to the southwest by glacial moraine and a single esker.

A-2. Soils

Based on the findings of the U.S. Soil Conservation Service's Soil Survey, Worcester is made up of the following main group of soils:

41%	Paxton Urban land complex
31%	Paxton, Woodbridge or Canton fine sandy loams, moderately well drained but stony.
10%	Chatfield-Hollis rock outcrop complex
18%	Well drained to excessively drained soils

The **Paxton-Urban Land complex** consists of soils which are very deep, nearly level to moderately steep that are well drained on uplands. The dominant soils in the complex have slow to very slow permeability in the substratum and firm glacial till at a depth of about two feet. The dominant minor soils in this complex are somewhat poorly drained soils.

The **Paxton-Woodbridge-Canton** complex consists of very deep, nearly level to steep soils that are well drained and moderately well drained on uplands. The complex consists of upland hills and ridges dissected by many small drainage ways. The soils formed in glacial till. The permeability of the soils is slow to very slow in the substratum with the exception of the Canton soils which permeate rapidly. Slope, the seasonal high water table, a frost

action potential and firm substratum are the major limitations for development.

The **Chatfield-Hollis complex** is characterized by moderately deep and shallow, gently sloping to moderately steep soils that are well-drained or somewhat excessively drained on uplands. The complex consists of hills and ridges with many bedrock exposures throughout. The soils formed in glacial till. Bedrock is at a depth of 20 to 40 inches. The permeability of the soils is moderate or moderately rapid.

The soils complexes noted above are only general classifications, their suitability for development is dependent on soil features and the specific type and scale of use being considered. Soil suitability for individual sewage disposal systems is generally not a determining factor as over 90% of the City is served by public sewers. Current regulated soil factors include but are not limited to restrictive features such as wetness, slope, and susceptibility to flooding.

(See **Soils & Geological Features Map, Figure 4**)

A-3. Topography

Worcester is made up of the following topographic regions: Worcester Lowland; Central Upland of Massachusetts; East Side Hills; and Quinsigamond Valley.

The Worcester Lowlands occupies part of a basin in the center of the City. This basin is bordered by considerably higher ground on both the east and west sides. The flattest and lowest parts of this area lie at an elevation of about 500 feet above sea level.

The western border of the Worcester Lowlands is marked by an abrupt rise in elevation. This rise in land is the eastern boundary of the Central Upland of Massachusetts. The Central Uplands stretch west to the Connecticut River Valley. The elevations of these broad-summitted hills lie in the 1,000 foot range, rising above narrow lowlands with streams and ponds in the 700-800 foot range. The Worcester Airport rests on one of these hills at an elevation of about 1,000 feet.

At the opposite border of the Worcester Lowlands are the East Side Hills. The summits of these hills lie in the 700 foot range. These hills include the Burncoat Street area, Green Hill Park, the Oak Hill District, Union Hill and Packachoag Hill areas. Traveling further east is the Quinsigamond Valley, the eastern border of the City. Lake Quinsigamond

occupies the central part of this valley. The elevations along the lake's shores are the lowest in the City. The lake is one of three natural water bodies in the City, the others being Indian Lake and Bell Pond.

B. Landscape Character

Urban open space is present in a variety of forms, parks and playgrounds for active recreation, tree-lined streets which provide shade and color, and undeveloped land in its natural state. To a great extent, Worcester's City form is a result of its natural environment. Topography, waterways and valleys helped shape the built form of the City. Valleys and waterways were locations for industry. The radial circulation pattern followed the hilly topography. Residential neighborhoods developed on the hills around workplaces. The multiple hills allowed an evolution of many neighborhoods, each with a clear identity, tradition, and relationship to the natural environment (Worcester Master Plan, 1987).

The following resources are examples of Worcester's unique landscape character:



(Image of Crow Hill Drumlin, Worcester, courtesy of Robert Lingner, on flicker.com) A drumlin is a small oval hill or ridge of compacted sediment deposited and shaped by a glacier. Drumlins have one steep and one gentle slope along their longest axis, which is parallel to the direction of the glacier's movement. The steepest slope faces the direction from which the glacier originated, and the gentler slope faces the direction in which the glacier was advancing.

Crow Hill Drumlin - This area was identified for acquisition in the 1987 Open Space Plan. In 1999, the Greater Worcester Land Trust acquired 27.9 acres of the 42 acre property. The hill has fine white hardpan (clay) which was mined for a brick factory formerly located on the site. The exposed clay escarpment is a significant geologic formation and the summit provides a 360-degree panoramic view of the City.



(Image of Green Hill Park)

Green Hill Park - This City-owned park represents a landscape which has been greatly transformed in the past several centuries, from wilderness to farmland, to a country estate and finally, to a unique multiple-use public park. Development of the land was carefully planned and managed by the Green family for over a century. The park offers unique vistas and panoramas to residents from the rolling Millstone, Crown, Green and Chandler Hills as well as areas of mature woodlands and open space. The City has acquired additional adjacent open space assets in an effort to protect, enhance and expand this largest of all Worcester parks.



(Image of Deed Rock at God's Acre, courtesy of Greater Worcester Land Trust)



(Image of God's Acre, courtesy Greater Worcester Land Trust)

God's Acre - Owned by the Worcester Airport Commission, this area is under a conservation restriction which prohibits further development in the area. God's Acre provides several walking paths through wooded swamp and wetland forest. Prominent vegetation in the upland areas includes mountain laurel, evergreens, red oaks, American laurel, and stands of hickory and red maple trees.



(Image of Lake Quinsigamond, courtesy of panoramio.com)

Lake Quinsigamond - Located at Worcester's lowest elevation, the Lake consists of a deep northern basin of 475 acres and a shallow 297 acre southern basin known as Flint Pond. Lake Quinsigamond's primary outlet is through Irish Dam, forming the Quinsigamond River. The distinct physiognomy of the Lake's narrow, steep-sided northern portion is reminiscent of a Norwegian fjord. Because of this, the Lake deserves special recognition as a unique physiographic feature of the regional landscape.



(Image of Blackstone Valley from King Phillip's rock, courtesy of Wikipedia)

Blackstone Valley - Approximately 99 percent of Worcester lies within the Blackstone River Basin, which is divided into several sub-basins. The River's headwaters flow throughout the City's wetlands and streams and portions of the City have been included in the congressionally-designated Blackstone River Valley National Heritage Corridor.

The Blackstone River Bikeway (and multi-use trail) is contained within the corridor and there are plans for a new visitor's center (the project has been delayed since the building intending to house the center was destroyed by fire).

(Refer to **Unique Features Map, Figure 5**)

C. Water Resources

C-1. Surface Water

C-1(a) Rivers and Streams

Despite its urban character, Worcester boasts many watercourses of significance to the region (Refer to **Water Resource Map, Figure 6**). The Blackstone River's headwaters flow from the north and western portions of the City through Beaver Brook and the Middle River and the waters of Lake Quinsigamond flow into the Blackstone River from the southeastern portion of the City through the Town of Grafton.

Blackstone River

"The hardest working river, the most thoroughly harnessed to the mill wheels of labor in the United States and probably the world, is the Blackstone."

- Winthrop Packard, 1909



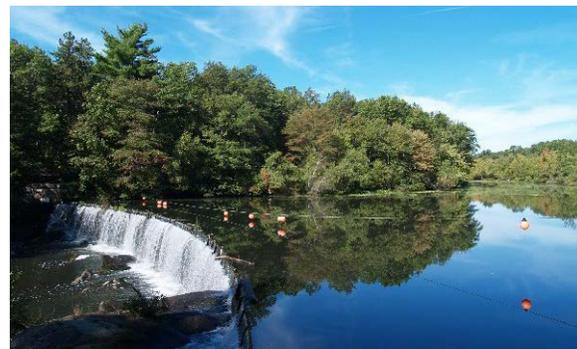
(Blackstone Valley Map. Image courtesy of Wikipedia)

The headwaters of the Blackstone River are located within the City limits. The tributaries to the headwaters include Mill Brook, Beaver Brook, Tatnuck Brook, and Middle River. The official headwaters are located at Beaver and Weasel Brooks. Much of the natural runoff feeding the northern section of the River has been cut off due to the installation of a public sewer system and other utilities. The River is subject to extensive urban runoff

and wet weather overflows which are discussed further in this section.



(Quinsigamond Pond Dam/Middle River upstream by Michael J Lauria)



(Blackstone River at the Blackstone River and Canal Heritage State Park, near Mass./R.I. state line. Image courtesy of Wikipedia)

Middle River

Formed at the confluence of Tatnuck Brook, Beaver Brook and Kettle Brook in the central western portion of the City known as Webster Square, the Middle River and its surrounding wetlands have a history of flooding, which has caused the Worcester DPW to pursue numerous projects to improve conditions.



(Image: <http://www.weatherforecast365.com/usa/worcester>
End point of Mill Brook and Middle River and starting point of the Blackstone River/the entrance point of the Blackstone Canal. The remains of an old railroad track bridge with overgrown vegetation).

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Mill Brook Sewer and Flood Control Conduits

Another Blackstone River tributary, the Mill Brook, once an open canal (Blackstone Canal) and later a sewer system and flood control conduit, was walled and arched in the mid 1800's. There is a possibility that certain sections of the canal could be opened for historic purposes and for viewing the unique granite structure of the canal. In order for this to happen, problems associated with low water levels, hazardous sediments and sewer flows during wet weather would need to be addressed.



(Image of Coal Mine Brooks, courtesy of Greater Worcester Land Trust)

Coal Mine and Poor Farm Brooks

The Coal Mine and Poor Farm Brooks lie within the North Quinsigamond Aquifer Recharge Area and have been included within the City's Watershed Protection Overlay District in order to protect the critical recharge area for the City's Shrewsbury and Coal Mine Brook Wells. Although groundwater investigations for potential water supplies have been the focus in the area, the value of these surface water resources has been included within the targeted open space acquisitions section of this plan as well as plans for the expansion of Biotech Park.

C-1(b) Great Ponds & Lakes

Great Ponds are defined and protected by the Massachusetts Wetlands Protection Act (MGL Ch. 91) and the Massachusetts Department of Environmental Protection's Waterways Program which controls activities on specific water ways for the purpose of the betterment of the waterway and the public good. Great Ponds listed by the Department of Environmental Protection are indicated with images below and include Green Hill Pond, Flint Pond, Indian Lake, and Lake Quinsigamond.



(Image of Green Hill Pond)



(Image of Flint Pond, courtesy of Steve, member of <http://www.meetup.com/paddling-33/>)



(Image of Indian Lake)



(Image of Lake Quinsigamond, courtesy of Doug Stone, Northborough, MA)

C-2. Water Quality

The water quality of some of the City’s watersheds has been adversely impacted by marginal residential development practices and intense commercial and industrial development. Blackstone River was at one point called the hardest working river in the nation. Then it became the victim of the industrial revolution through deposition of untreated sewage and industrial wastes in the 19th and 20th centuries. The passage and implementation of anti-pollution laws (1960s and 70s) and the establishment of municipal wastewater treatment plants have improved the quality of the river and the City’s other water bodies in recent years, but more must still be done.

For example, in the Tatnuck Brook Watershed, Patches Reservoir has been impacted by conversion of nearby seasonal homes without the installation of public sewers as well as stormwater runoff. Additionally upstream impacts to water quality from development and maintenance practices at the municipal airport have negatively impacted the water body. The City’s Health Department has begun a systematic sampling program for the pond to attempt to identify further sources of degradation. The City’s Conservation Commission and Recreation Department jointly filed for Clean Lakes funding in cooperation with the Coes-Patches Watershed Association to implement watershed best management practices. In 1997 a Comprehensive Management Plan was completed for Patches Reservoir by GZA GeoEnvironmental, Inc. through joint funding provided by the Department of Environmental Management’s Lakes and Ponds Program and the City of Worcester. The water quality of the reservoir exhibited problems that are typical of urban water bodies, such as sedimentation deposition and eutrophication, but the overall quality of water is still in fair condition. This plan includes a variety of watershed and in-reservoir techniques to preserve and slowly increase the water quality of Patches Reservoir.

While most point sources of pollution have been systematically eliminated by sewer and ISDS upgrades, Lake Quinsigamond is also adversely impacted by poorly controlled non-point source runoff. The lakeshore is heavily developed by residential as well as commercial land uses, which have led to a mesotrophic state in the lake and a eutrophic state in Flint Pond downstream. In 2002 report specifies Flint Pond as listed on the Massachusetts 303d list for Turbidity due to high phosphorus loadings. Lake Quinsigamond is also

listed on the Massachusetts 303d list for nuisance aquatic plants, organic enrichment and low dissolved oxygen due to high phosphorus loadings. The Lake Quinsigamond Watershed Association keeps an updated list of information related to the lake’s status and other information related to BMPs that can improve the conditions of the lake at: <http://www.lqwa.org/>.

The Blackstone River Watershed Water Quality Assessment Report (2003-2007) states the following: “monitor for the presence of invasive non-native aquatic vegetation and determine the extent of the infestation to prevent spreading of invasive aquatic plants. Once the extent of the problem is determined and control practices are exercised, vigilant monitoring needs to be practiced to guard against infestations in unaffected areas, including downstream from the site, and to ensure that managed areas stay in check.” There are also strong recommendations to test for “episodes of instream toxicity to *P. promelas* in the Blackstone River just downstream from the new Millbury Street Bridge in Worcester by the EPA if possible”.

Water quality of all municipal bathing beaches is certified annually by the Health Department. Nuisance vegetation, oily sheens, and foul odors have been viewed as indicators of water quality degradation in some areas of the ponds, but for the most part, water quality remains good and public beaches continue to operate during the summer swimming season.

During 2012-13, the City of Worcester undertook a study at Salisbury Pond to determine the quantity of sediment located on the pond bottom. In recent years, siltation has adversely impacted recreational pursuits, water quality and habitat conditions. With dramatically improved stormwater management facilities now in place within much of the upstream watershed, the City is interested in restoring the health of the pond to levels not seen in decades.

C-3. Water Supply

The City of Worcester currently owns several surface water reservoirs for public water supply use within the Nashua River Basin and the Blackstone River Basin. (Refer to **Appendix A Regional Map, Figure 1** and **Section 03 Public or Private Water Supply System**). Water sources in the Nashua River Basin which serve the Worcester public water supply are the Quinapoxet Reservoir, the Pine Hill Reservoir, and the Kendall Reservoir. From the Blackstone River Basin, the City is served by

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surface water supplies in Holden Reservoir #2, Holden Reservoir #1, Kettlebrook Reservoirs #1, #2, #3, and #4, and Lynde Brook Reservoir. All of these surface water reservoirs and over 99% of the associated watershed acreage are located outside of the City of Worcester in the towns of Princeton, Rutland, Paxton, Leicester, and Holden. The City owns approximately 25% of the watershed lands surrounding surface.

In the past, the City has applied for increased water withdrawals from its existing Blackstone Basin sources as required by the Massachusetts Department of Environmental Protection's Water Management Act. These applications were denied. An application for increased withdrawals for the Nashua River Basin was submitted in 1994. In June 2007, a Final Permit Decision settled past appeals for the Blackstone Basin and approved a new Nashua River Basin permit application, with Special Permit Conditions such as a limit to unaccounted water not to exceed 15% of overall water use; and a maximum Residential Per Capita Water Use not to exceed 80 gallons per day.

Additional sources of water include two gravel-packed wells which are currently used as emergency supplies. The Shrewsbury Well is located in the Town of Shrewsbury west of Lake Quinsigamond, while the Quinsigamond or Coal Mine Brook Well is located in Worcester on the shore of Lake Quinsigamond. Emergency water supplies are also available from the Massachusetts Water Resources Authority via connections to Wachusett Reservoir and the Quabbin Aqueduct.

Table 4-2 Water Supply Protection Organizational Framework

Responsible Party	Water Supply Protection Responsibilities
Department of Public Works & Parks	Water Treatment and Distribution Water Quality Monitoring and Watershed Patrols Site Plan Review Road Salting and Sanitary Surveys Wetlands Protection Regulations
Planning Board	Consider projects under jurisdiction of Zoning Ordinance and Subdivision Control Law and Regulations, including projects within Water Resources Overlay Protection District
Zoning Board of Appeals	Consider projects under jurisdiction of Zoning Ordinance, including earth removal and placement of fill
Conservation Commission	Consider projects under jurisdiction of Wetlands Protection Act, Ordinance and Regulations; Open Space Planning / Preservation
Fire Department	Review Storage of Flammable, Hazardous, or Toxic Materials and Site Plan Review
Departments of Inspectional Services	Issue Building Permits; Conduct Sanitary Surveys & Title V (Septic Systems); Monitor Water Quality; Site Plan Review and Advise Land Use Boards; Issue Permits for Earth Removal, Enforce Floodplain Regulations; and more.
Division of Planning and Regulatory Services	Review and make recommendations regarding significant land use issues before Boards under jurisdiction of Subdivision Regulations, Zoning Ordinance and Wetlands Protections Act / Ordinance, and more.

Table 4-1 Reservoir Capacities and Surface Areas

High Service	Capacity ('000Gals.)	Surface Water (Acres)	Low Service	Capacity ('000Gals.)	Surface Water (Acres)
Lynde Brook	717,422	131.8	Holden Res. #1	720,319	129.8
Kettlebrook #1	19,307	11.5	Holden Res. #2	257,398	52.6
Kettlebrook #2	127,310	30.8	Kendall Res.	792,163	175.0
Kettlebrook #3	152,306	37.4	Pine Hill Res.	2,970,966	345.3
Kettlebrook #4	513,746	118.6	Quinapoxet Res.	1,100,000	280.0
Total	1,530,091	330.1	Total	5,840,846	982.7

Source: Worcester Watershed Overlay

C-4. Recreational Usage of Water Bodies

Worcester’s water bodies provide aesthetic as well as recreational value to the residents of the City. Please refer to **Section 05: Inventory of Lands of Conservation & Recreations and Appendix D (Site Assessment Forms for individual parks)** for a comprehensive list of recreational water uses and locations.

It is important to expand on the public access points on water bodies throughout the City so that a larger population can enjoy them.

The following table illustrates current (2013) pools and beaches that are open for public swimming and active recreation:

Table 4-3 State and City Beaches & Pools Open for Public recreation

State pools	
Bennett Field Pool	<u>1268 Main Street</u>
Shine Pool	<u>184 Providence Street</u>
State Beaches	
Regatta Point	<u>10 North Lake Avenue</u>
Quinsigamond Lake	<u>287 Lake Avenue</u>
City Pools	
Crompton Park Pool	<u>Canton Street</u>
Greenwood Spray Park	<u>Greenwood Street</u>
City Beaches	
Bell Pond	<u>238 Belmont Street</u>
Coes Pond	<u>Mill Street</u>
Indian Lake	<u>20 Clason Road</u>
Shore Park	<u>115 Shore Drive</u>

Source: <http://www.worcesterma.gov/dpw/parks-rec/recreation/pools-beaches>

Other ponds also used for active and passive recreation throughout the City include Curtis Pond, Cider Mill Pond, Green Hill Pond, Leesville Pond, Patch Reservoir, Salisbury Pond, Lincoln Pond at Elm Park, Thayer’s Reservoir / Cook Pond.

C-5. Flood Hazard Areas

The Federal Emergency Management Agency's (FEMA) revision of the Flood Insurance Rate Map for the City of Worcester became effective on January 16, 2003. (Recent maps were issued in 2012). With the exception of the reduction of the 100-year floodplain in the area of Beaver Brook, the floodplain largely stayed the same.

Table 4-4 Flood Hazard Elevations

Flood Hazard Location	Area	100 Year Flood Elevations (ft.)
Blackstone River	Corporate Limits	415.5
	Mill Brook Conduit	444.0
Middle River	Confluence of Blackstone River	444.0
	Conrail (Reaches 1-5)	460.5
St. John's Cemetery	Reaches 5 - 7	460.5
	Confluence with Curtis Pond	476.0
Beaver Brook	Beaver Brook	476.0
	Maywood Street	482.9
Kettle brook (East)	Curtis Pond	476.3
	Leesville Pond	484.0
	Corporate Limits, Reach 1	520.8
	Reach 8	572.0
Kettle brook (West)	Reach 9	600.0
	Reach 10	672.0
	Confluence with Beaver Brook	482.0
Tatnuck Brook	Patches Pond Res.	541.0
	Mower Street Bridge	592.0
	Before Dam	592.0
	Corporate Limits	656.0

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C-6. Wetlands

The topography of Worcester's landscape was formed by faulting and folding of rock formations and the retreating of glaciers which formed deposits of glacial till in the form of drumlins, facing a southeast direction. These drumlins drain to the lower elevations and form streams with related vegetated wetlands, swamps, marshes and wet meadows such as the Broad Meadow Brook area, the Newton Square Peat Bog, the Jamesville "Pond", and the Blackstone River Valley.



(Image of Broad Meadow Brook, courtesy of Greater Worcester Land Trust)



(Image of Broad Meadow Brook boardwalk across wetlands, courtesy of Dawn

Fine: <http://dawnandjeffsblog.blogspot.com/2012/06/broad-meadow-brookwalk.html>)

C-6(a) Vernal Pools

According to the Massachusetts Natural Heritage and Endangered Species Program, vernal pools are temporary bodies of freshwater that provide crucial habitat to several vertebrates and many invertebrate species of wildlife. The invertebrates constitute a rich source of food for amphibian larvae, and also attract various species of birds, mammals and reptiles to vernal pools. To be protected by the Massachusetts Wetlands Protection Act, a pool must be certified by the Natural Heritage Program and must be located within a wetland resource area as defined in the Act. According to the Massachusetts Division of Fisheries and Wildlife, Worcester has 18 Certified Vernal Pools (as of January 2010. Refer to website: http://www.mass.gov/dfwele/dfw/nhESP/vernal_pools/vernal_pool_data.htm)

See

also: http://www.mass.gov/dfwele/dfw/nhESP/species_info/vprs_home.htm)

For locations of these please refer to **Area Receptors Map, Figure 6b** in **Appendix A Mapping**.

C-7. Aquifer Recharge Areas

To protect potential new sources and the existing Shrewsbury and Quinsigamond Wells, the City adopted a Water Resources Protection Overlay District in April 1991. This addition to the Zoning Ordinance protects the quality and quantity of water supplying these wells by regulating land uses in the district overlying the aquifer and its recharge areas. Certain uses deemed to be a threat to groundwater are either prohibited or require issuance of a Special Permit depending on the nature of the use and the designation of the district area. The Zone GP-2 overlies the primary recharge area and includes the cone of depression and zone of contribution of the wells. Land uses are most strictly regulated in this region. Zone GP-3 covers areas that are upgradient of the primary recharge areas but which drain by surface water runoff and, to a lesser degree groundwater flow, to the primary recharge areas. Maintaining ample open space in both zones is key to protecting the integrity of the aquifer which supplies water to both Worcester and Shrewsbury.

D. Ecoregions of Worcester

According to the BioMap2 report (Published in 2012 by Mass Department of Fish and Game through the Division of Fisheries and Wildlife's NHESP, The Nature Conservancy's Mass Program. There are three identified ecoregions in Worcester:

1. Lower Worcester Plateau
2. Southern New England Coastal Plains and Hills
3. The Worcester Plateau

These three areas are distinguished by their unique topography and natural habitats:

1. Open hills with central and transition hardwoods.
2. Plains with few low hills comprising of central hardwoods, transition hardwoods, and some elm-ash-red maple, red and white pine.
3. Hilly with high Monadnocks (residual rocky masses that resisted erosion and stand isolated in a level area) and mountains with dominant forest types: transition hardwoods, some northern hardwoods and forest wetlands are common and surface waters are for the most part acidic.

Under this Biomap2 classification, the City has a Core Habitat of 1,481 acres and a Core Habitat Protected of 552 acres, which equates to around 38%.

Core Habitats are important areas that “promote long-term persistence of rare species, other Species of Conservation Concern, exemplary natural communities, and intact ecosystems.”

Of these two BioMap2 components, the Core Habitat has:

- 1 Aquatic Core or ecosystems made up of intact river corridors important for aquatic Species of Conservation Concern.
- 12 Species of Conservation Concern Cores consisting of 2 birds, 2 amphibians, 1 insect and, 3 plants.

For second component, the **Critical Natural Landscape, defined as “intact landscapes in Massachusetts that are able to support ecological processes and disturbance regimes, and a wide array of species and habitats over a long period of time”**, Worcester has 1 Aquatic Core Buffer consisting of 186 acres around Quinsigamond Lake region.

Worcester 16 acres of Critical Natural Landscapes none of which are protected as of 2012.

Table 4-5 Species of Conservation Concern, Priority and Exemplary Natural Communities, and other Elements of Biodiversity in Worcester

INSECTS	
Orange Swallow Moth (SC)	 <small>Pyralis orangeana, male • Specimen from MA: Hampden Co., Holyoke, insect collected 30 Sep 2002 by L. Haines; adult emerged 20</small>
AMPHIBIANS	
Marbled Salamander (T)	 <small>Photo by Lloyd Gamble</small>
Four-Toed Salamander (Not-listed SWAP)	 <small>Photo by Bill Byrne</small>
BIRDS	
Grasshopper Sparrow (T)	
Eastern Whip-poor-will (SC)	

PLANTS	
Smooth Rock-crec (SC)	
Hairy Wild Rye (E)	
Vasey's Pondweed (E)	

E = Endangered
T = Threatened
SC = Special Concern

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D-1. Rare, Threatened and Endangered species

There are 432 native plant and animal species listed as Endangered, Threatened or of Special Concern under the Massachusetts Endangered Species Act (MESA). The selection criteria to list these species are based on how rare species are, whether there are foreseen threats to survival and detrimental effects on population trends. MESA's list is maintained by the Massachusetts Natural Heritage and Endangered Species Program (NHESP) and has identified estimated a total of 23 "Rare, Threatened and Endangered Species" in Worcester.

According to Massachusetts Natural Heritage Program Staff, the wood turtle (*Clemmys insculpta*), a "special concern" species, has been identified in the Lake Quinsigamond resource area. Directly north of Lake Quinsigamond, the Wachusett Reservoir provides habitat for the bald eagle, an endangered species listed by the U.S. Fish and Wildlife Service.

The following are images of some of Worcester's endangered species:



(Myotis sodalist)



(Falco peregrinus)



(Bartramia longicauda)



(Hydrophyllum canadense)



(Asclepias_purpurascens)

Table 4-6 Rare, Threatened and Endangered Species illustrates MESA documented species observed in Worcester.

D-2. Areas of Critical Environmental Concern

There are currently no Areas of Critical Environmental Concern (ACEC) designated by the Executive Office of Environmental Affairs (EOEA). In December, 1992 the City of Worcester attempted to have a 6,766 acre portion of the Lake Quinsigamond Aquifer Resource Area designated as an ACEC by the EOEA. The area nominated included a portion of the City of Worcester, and the Towns of Shrewsbury, Boylston, Grafton, West Boylston and Millbury. According to DEP water management data, the present yield from the proposed ACEC exceeded nine million gallons per day. The area is also the principal source of recharge to an extensive surface water complex of lakes and ponds and vegetated wetlands. In addition, the area is situated in the headwaters of the Blackstone River and is a regionally important wildlife migratory corridor.

However, in a 1993 letter to the City Manager, the Secretary of Environmental Affairs declined to review the area for designation because "the high level of development and urbanization located within the area reduces the number of highly significant resource components and fragments the integrity of critical ecological relationships necessary for ACEC designation."

Table 4-6 Rare, Threatened and Endangered Species in Worcester

Scientific Name	Common Name	MESA status	Most Recent Observed
<i>Accipiter striatus</i>	Sharp-shinned Hawk	SC	1880
<i>Adlumia fungosa</i>	Climbing Fumitory	SC	1938
<i>Ambystoma opacum</i>	Marbled Salamander	T	2012
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	T	2009
<i>Asclepias purpurascens</i>	Purple Milkweed	E	1879
<i>Bartramia longicauda</i>	Upland Sandpiper	E	1960
<i>Boechera laevigata</i>	Smooth Rock-cress	SC	2012
<i>Carex lenticularis</i>	Shore Sedge	T	1933
<i>Cicindela purpurea</i>	Cow Path Tiger Beetle	SC	Historic
<i>Eacles imperialis</i>	Imperial Moth	T	Historic
<i>Elymus villosus</i>	Hairy Wild Rye	E	2009
<i>Falco peregrinus</i>	Peregrine Falcon	E	2010
<i>Hydrophyllum canadense</i>	Broad Waterleaf	E	1934
<i>Lygodium palmatum</i>	Climbing Fern	SC	1879
<i>Myotis sodalis</i>	Indiana Myotis	E	1937
<i>Ophioglossum pusillum</i>	Adder's-tongue Fern	T	1933
<i>Penstemon hirsutus</i>	Hairy Beardtongue	E	1890
<i>Platanthera flava</i> var. <i>herbiola</i>	Pale Green Orchis	T	1939
<i>Potamogeton vaseyi</i>	Vasey's Pondweed	E	2007
<i>Pyrrhia aurantiago</i>	Orange Swallow Moth	SC	2012
<i>Satyrium favonius</i>	Oak Hairstreak	SC	1992
<i>Sorex palustris</i>	Water Shrew	SC	1880s
<i>Terrapene carolina</i>	Eastern Box Turtle	SC	1992

E = Endangered
T = Threatened
SC = Special Concern

http://www.mass.gov/dfwele/dfw/nhESP/species_info/species_viewer/species_viewer.htm

Source (as of 2013): Mass gov. : Natural Heritage & Endangered Species Program (NHESP) maintains a list of all documented MESA-listed species observations in the Commonwealth

E. Forest Land

The City of Worcester's naturally forested areas represent a zone of transition hardwoods-white pine-hemlock identified by the Society of American Foresters. In this region, beech, birch, and maple overlap with the oaks and hickories that dominate the zone to the south. As a result, most of New England's native hardwood species occur here. Oaks and hickories, along with white pine, paper birch and aspen, usually occupy the hilltops and sandy areas. Northern hardwood and hemlock stands predominate on lower slopes. White pine is dominant in abandoned fields and sandy sites.

It is important to note that between 2007 and 2008 an invasion of Asian Long-Horn Beetle ALB (*Anoplophora glabripennis*) was discovered in Worcester. This is a destructive pest of hardwood trees that affects both healthy trees and nursery stock, causing great environmental and economic damage. Some of the host trees include but are not limited to maple species including Boxelder and Norway red, silver and sugar maples. Other preferred hosts are birches, Ohio buckeye, elms, horse-chestnut and willows.

Occasional to rare hosts include ashes, European mountain ash, London plane tree, Mimosa and

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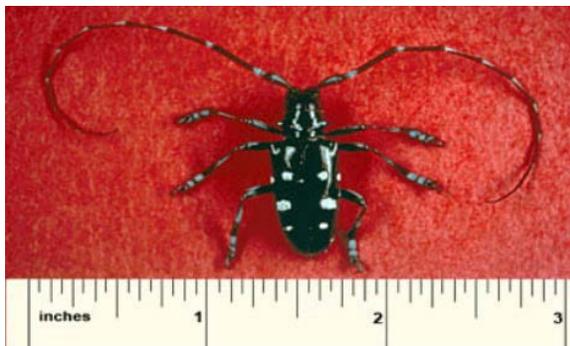
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Poplars. (Refer to **Appendix A Fig. 6a** for Map showing geographical ALB impacts on City Trees).

Efforts since the initial outbreak have been made by the City of Worcester and other governmental agencies (USDA, DCR and Worcester Tree Initiative) to disseminate information, on how to identify, prevent the spread, control and destroy these pests. In addition, the Worcester Tree Initiative has partnered with other corporations to continue to reforest urban Worcester. They have planted more than 1,100 trees in 2013 and are working to accomplish their initial goal of 30,000 total trees planted by the end of 2015. (<http://www.treeworcester.org/>)



(Image of Asian Longhorned Beetle (ALB), courtesy of US Forestry Services)



Trees felled within the Cascades West property due to ALB infestation.

The following properties are protected Forest Land under the Conservation Commission's ownership:

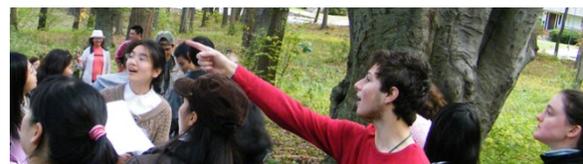
Perkins Farm consists of 80 acres of young and mature woodlands. The site provides hiking through birches, quaking aspens, white aspen, oak and chestnut trees. Several types of warblers and towhees can be seen during certain times of the year. In the fall, the hillside of the site provides an overlook to Lake Quinsigamond. The City has a management plan for Perkins Farm with the assistance of the Massachusetts Audubon Society. This now includes trails, beautification, and

educational projects, as well as trailhead and trail signs. It was the last working farm in the City, now a wonderful woodland island and has protected ecosystems such as vernal pools, and abundant plant species.

Dawson Road is a 37 acre forested parcel that the City of Worcester acquired through a tax foreclosure. The land is under the jurisdiction of the Conservation Commission who provided a local match to fund the completion of a Forest Stewardship Plan in December, 1999 through a DCR grant. The parcel is densely forested, contains a small portion of wetland area and serves as habitat to a variety of wildlife. The parcel is marked for passive recreation purposes. The area is in fair to good condition; there are a variety of non-native species invading the parcel but are currently at a phase where they can be controlled before indigenous species are displaced.

Cascades East is a 30.86 forested open space parcel that abuts the Cascades, which is a 36 acre preserved open space area. This parcel is a vital addition to the Cascades greenway corridor located in Holden and Worcester. The parcel is owned by the Conservation Commission with a Conservation Restriction held by the Greater Worcester Land Trust (GWLT) whom financed a majority of the required matching funds granted through DCS. This parcel is located within the Tatnuck Brook Watershed, which is a tributary to Patches Reservoir. Preserving this parcel will allow for infiltration and natural filtration of ground water and prevent a future increase of sedimentation deposit.

Institutional: Clark University's Hadwen Arboretum, houses a variety of trees from all over the world, planted during the 1800's. It is advertised in the universities website as "6.4 acres of unspoiled woodland green space" Many of these trees, including Tulips and Sassafras can still be viewed at the Arboretum. This resource is open to the public and has trails and provides areas for hiking, picnicking, a community garden and even dog-walking.



(Image of Hadwen Arboretum courtesy GWLT)

F. Urban Agriculture

The City of Worcester possesses an active Agricultural & Silvicultural network including the following:

- i. Over 40 Community Gardens on public and private lands, engaging over 300 residents in active cultivation,
- ii. a non-profit partner, the Regional Environmental Council, as informal coordinator of the system of Community Gardens,
- iii. a seasonal Farmer's Market that uses 2 City park sites for a three-day-a-week program,
- iv. two private properties under the state Chapter 61 forestry program,
- v. two private properties under the state Chapter 61A agricultural program,
- vi. the Hadwen Arboretum, managed by Clark University, at the intersection of May and Lovell Streets,
- vii. a municipal Department of Public Works program that converts leaves and yard waste into compost which is then made available to residents free of charge,
- viii. a City Forestry Department under the direction of a municipal forester that manages two cemeteries as arboretums, and over 700 miles of street trees, and
- ix. a City Reservoir system with over 3000 acres of protected lands under the management of a municipal forester specifically tasked to those lands,
- x. a private property under a state Forest Stewardship Management Plan.

This network of agriculture and silviculture, while not integrated, is an important element of Worcester's open spaces and substantially contributes to the general quality of life.

Agriculturally, the City of Worcester benefits from a Community Garden Program that provides recreation, community development, and locally grown produce. The Community Gardens are a public-private-partnership and receive assistance from the Regional Environmental Council, the Department of Public Works and Parks, and the Worcester Housing Authority. The Farmer's Market, a private venture, is supported by the Parks Department of the Department of Public Works and makes locally grown farm products available to City residents. There are two private Chapter 61A (private farmland properties) rounding out this category, described further in Section 05, Inventory of Lands.

Silviculturally, the City of Worcester benefits from a considerable forest cover that consists of street trees, specimen trees, unmanaged woodland, and managed forest. The urban forest includes some substantial tracts of forest that would more typically be associated with a rural landscape. Worcester's forests are a collection of publicly and privately managed lots. The City employs a forestry division within the Department of Public Works & Parks and is executing a multi-year management plan for the City's street trees. The City of Worcester, through the Water Department of the Department of Public Works, owns and manages thousands of acres of forested land that are adjacent to the City under the direction of a forester.

In 2005 the City of Worcester reorganized its municipal operations. The Parks Department, Sewer Division (handles management of the City leaf composting operation, waterway management, and supports the City community gardens), Forestry Division, and Reservoir Division of the Water Department have all been merged under the single leadership of the Commissioner of the Department of Public Works. As a result of this merging of functions, the City anticipates improved efficient management of its agriculture and silviculture. There is also a better possibility for integration and coordination of the private and public agricultural and silvicultural efforts in the City.

G. Trees: Environmental, Economic and Social Benefits

Street trees are not evenly distributed in Worcester. While some areas of the City may contain 10% of the City trees others are lacking them (e.g. South Worcester). The October 2008: Report on the Status of Street Trees in Worcester MA, illustrates major concentrations of trees and maple species per area of the City. This report estimates that for every \$1 the City invested in urban reforestation, it received approximately \$1.69 in benefits.

(Refer to: <http://www.mass.gov/eea/docs/dcr/stewardship/forestry/urban/docs/worcester-report.pdf>)

The City of Worcester has updated their policy relative to the protection of public trees. It mandates that planting and maintenance of shade trees: to plant, cut, trim, remove, spray or otherwise treat Public Shade Trees shall require prior written approval from the tree warden. Since Asian Longhorn Beetle infestation and the severe ice storm of December 2008 the regulation

states that the DPW & Parks shall maintain a list of species of trees that are suitable trees for planting along streets.

Below is important points to consider the benefits of shade trees:

Environmental importance of trees:

Albedo effect (heat regulating) and stormwater-regulating mechanisms- capture, store, and release water. Reduce pollution and improve air quality.

Social and Economic Importance of trees:

Increase aesthetics and thus increase property value
Provides recreational value and therefore can decrease municipal budget because it is a long term investment.

Macro-economic picture:

According to research conducted by the NRPA (National Recreation and Parks Association) the benefits of environmental resources such as trees and parkland are economically quantifiable. Here is an example relating to Recreation *Air Quality Benefits of Trees*:

\$0.29 per tree per year based on Quantifying Urban Forest Structure, Function, and Value: the Chicago Urban Forest Climate Project. 1997. (50.8M trees provided \$9.2M air pollution benefit in 1991 = \$0.18 cents/tree, or \$0.29 by 2011).

\$0.51 per tree per year based on Houston’s Regional Forest. USDA Forest Service & Texas Forest Service study, Oct. 2005. Converted to per tree and 2011 values.

Acres \$94.91 per acre of forest per year, based on Coder, Dr. Kim D., “Identified Benefits of Community Trees and Forests”, University of Georgia, October, 1996. (One hectare forest equals \$136/day value of air pollution control. Converted to acre/year)

Here is an example relating to Recreation *Water Quality Benefits of Trees*:

Acres \$58.00 per acre per year based on “Assessing the Benefits and Costs of the Urban Forest”. Journal of Arboriculture 18(5): September 1992. John F. Dwyer, E. Gregory McPherson, Herbert W. Schroeder, and Rowan Rowntree. Est. **\$.18 runoff savings per tree = \$0.29/tree in 2011, or \$58/acre at 200 trees/acre.**

Acres \$142.13 per tree per year based on Economic Benefits of the Park and Recreation System of

Mecklenburg County NC. Trust for Public Lands. 2010. Considered impervious % of parklands vs. no parks, 96% pervious parkland surfaces, 42 inches/rain/year, and 0.0344 stormwater treatment cost per cubic foot. Converted to per acre value.

Acres \$747.71 per acre per year based on Identified Benefits of Community Trees and Forests. Dr. Rim Coder, Univ. of GA. 1996. \$336,000 savings per 1 sq/mi. = 640 acres or \$525/acre. Converted to 2011 values.

(For more information and other links refer to the NRPA website and tree calculator resource at <https://www.iisecure.com/nrpa/proragis/EcoBenefit.asp>)

H. Air Quality

Worcester’s air quality index is a median value which considers the most hazardous air pollutants. The Worcester, MA air quality index is 4% less than the Massachusetts average and equal to the national average. See graph below:



Air quality indices (AQI) are numbers used by government agencies to characterize the quality of the air at a given location. As the AQI increases, an increasingly large percentage of the population is likely to experience increasingly severe adverse health effects. Air quality index values are divided into ranges, and each range is assigned a descriptor and a color code. Standardized public health advisories are associated with each AQI range. The United States Environmental Protection Agency (EPA) uses the following AQI:

(Source: <http://www.usa.com/worcester-ma-air-quality.htm>)

The information on this graph is based on the air quality database from the U.S. Environmental Protection Agency (EPA)

The City’s pollution index is the sum of the most hazardous air pollutants displayed in pounds. The reports for Worcester County pollution index is greater than the Massachusetts average and much greater than the national average.

I. Fisheries and Wildlife

I-1. Inventory

The Division of Fisheries and Wildlife currently stocks Lake Quinsigamond and Coes Pond with rainbow and brown trout. Lake Quinsigamond is stocked with trout on seven to ten dates during the spring (March through May) and on one or two dates in the fall (October). The Lake is also stocked with discard brood stock Atlantic salmon. These salmon are

excess brood stock available on occasion from the cooperative State and Federal programs to restore Atlantic salmon to the Merrimack and Connecticut Rivers. Also, Northern Pike are stocked in Lake Quinsigamond and Indian Lake. These lakes are stocked with pike every three to four years. The City of Worcester currently does not stock any of its ponds or lakes.

According to the April 1982 DCR Watershed Management Plan for Lake Quinsigamond and Flint Pond, the following fish species are known to reproduce within the warm and cool water fisheries of Lake Quinsigamond:

black crappie, brown bullhead, largemouth bass, pumpkin-seed sunfish, white perch, yellow perch, bluegill, sunfish, carp, chain pickerel, smallmouth bass, white sucker, banded killifish, rainbow smelt, eastern brook trout.

Lake Quinsigamond holds the current state record for common carp (42 lbs. in 1988), and held previous records for both northern pike and tiger muskellunge. Coal Mine Brook has recently been designated as a cold water fishery by the Massachusetts Division of Fisheries and Wildlife.

In addition to a diverse fisheries population, the less populated sections of the City provide habitat for deer, fox, raccoons, coyotes and occasionally moose and bear.

I-2. Wildlife Corridors

Wildlife corridors are defined as narrow strips of land that differs, usually in terms of dominant vegetation, from the surrounding area. They serve as traveling avenues for wildlife species between two similar yet fragmented habitat areas, and provide important sources of food and cover for many species.

Depending on the specific management goals, corridors can be developed in a variety of ways including; natural revegetation, establishment of tree, shrub, and/or herbaceous cover, fence row establishment through a plowed field, or establishing a buffer along streams or roadsides. The main purpose in establishing a corridor is to connect two or more areas of habitat while also providing a variety of food and shelter. The habitat types being connected may include grasslands, wetlands, woods or old fields.

Management objectives should be prioritized and be specific to target species, while maximizing the

potential use by other wildlife species. The more variety provided, the greater the number of species

that will use the corridor. Research studies show a great number of songbirds, game birds, small mammals and other species of wildlife use corridors as a regular part of their life cycles. By providing well-placed and managed corridors, the wildlife on private lands can be greatly enhanced for wildlife use.

Advantages of providing corridors for wildlife:

1. Increase movement between isolated populations
2. Increase genetic variability
3. Increase food availability for a variety of wildlife species
4. Provide escape cover from predators and shelter during bad weather
5. Provide habitat variety for species requiring various cover types
6. Establishes “greenbelts” in urban areas for recreation, aesthetics, improved land value, and other benefits
7. Can decrease heating and cooling costs when used as windbreaks

Source: <http://www.in.gov/dnr/fishwild/files/HMFSCorridors.pdf>

In Worcester there are two important Wildlife or Natural Corridors: the John H. Chafee Blackstone River Valley National Heritage Corridor and Broad Meadow Brook Wildlife Sanctuary and Conservation Center.

The Blackstone River Valley National Heritage Corridor covers over 500 square miles, hosting a rich array of natural resources which are evident in its rivers and tributaries, wetlands and rocky outcroppings, and forests and fields. It lies within the watershed of the Blackstone River that runs from Worcester, Massachusetts to Providence, Rhode Island.

The Blackstone River is the most significant natural resource in the region, linking two states and 24 communities by a natural system with a national story. It was once harnessed by more than 30 dams over its 46-mile length. Over time, these impoundments created marsh and wetlands that are now an integral part of the region’s natural ecosystem.

State parks and forests also protect significant areas of both historic and natural resources. A developing

system of trails and the Blackstone Bikeway will provide important connections to natural areas in

the future. A list of recorded species can be found in here can be found:

<http://www.nps.gov/blac/naturescience/upload/NRIListedSpecies.pdf>

Under the Section 22 Planning Assistance to the States Program and the Coastal America Initiative, the Corps of Engineers was recently requested by the States of Massachusetts and Rhode Island with the support of the Blackstone River Valley National Heritage Corridor Commission to conduct an investigation into the feasibility of restoring anadromous fish (chad and salmon) to the Blackstone River watershed through assessment of both spawning and nursery areas as well as water quality and quantity. Additionally, the Massachusetts Division of Fisheries and Wildlife is very interested and active in waterfowl habitat restoration along the Blackstone River. Identification and mapping of all potential sites for potential habitat restoration and dam restoration was added to the project's scope of work.

Broad Meadow Brook Wildlife Sanctuary and Conservation Center is the largest urban wildlife sanctuary in New England, consisting of 272 acres of oak woods, fields, old pasture, streams, marsh and swamp for wildlife habitat and nature education to encouraging preservation and conservation of the natural world. There are species of approximately 155 birds, 67 types of butterflies. Fox, coyotes, deer, minx and muskrats are also present. Broad Meadow Wildlife Sanctuary is a fire adapted plant community, of both upland and wetland species.

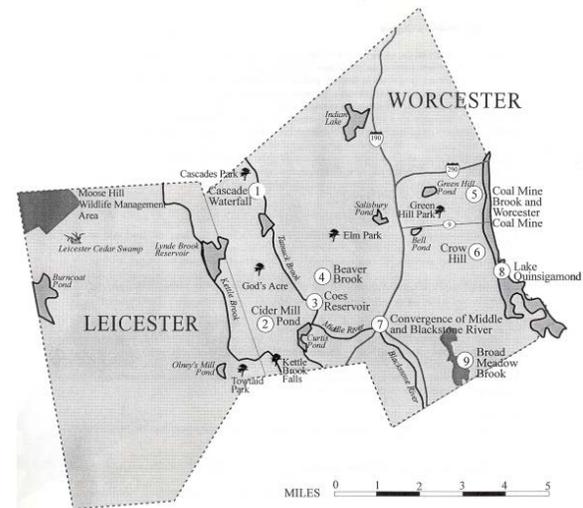
http://www.massaudubon.org/Nature_Connection/Sanctuaries/Broad_Meadow/index.php

J. Scenic Resources & Unique Environments

J-1. Scenic Landscapes

The following are primary examples of Worcester's natural, cultural, and scenic resources which do not fall into the Historical Preservation Initiative classification described by Massachusetts Department of Conservation and Recreation (DCR) but have been listed under the "Natural Resources Inventory and Assessment" carried out by the Blackstone River Valley National Heritage Corridor Commission (Listing of Valley Sites, by John H. Chafee, February 1998) and are considered Scenic

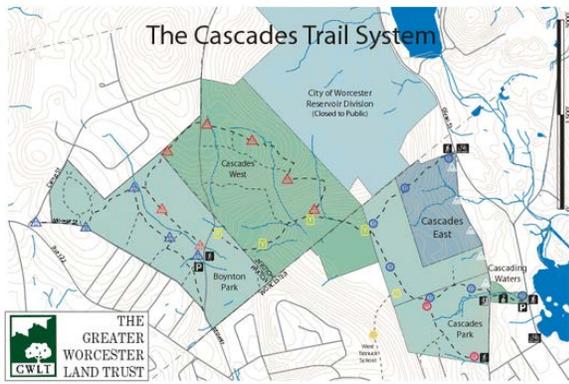
Resources / Unique Environmental Resources by the citizens of Worcester.



Sub region 1: Leicester-Worcester map from Natural Resources Inventory and Assessment 1998 report (image courtesy of Blackstone River Valley National Heritage Corridor Commission)

Broad Meadow Brook Wildlife Sanctuary – as previously mentioned, the Massachusetts Audubon Society manages 272 acres of scenic land with a trail network for hiking. Broad Meadow Brook is owned by a consortium comprised of the City of Worcester Conservation Commission, the New England Power Company, and the Audubon Society itself. Outdoor classrooms and programs are run throughout the year, with a strong emphasis on reaching to those who are underserved by environmental organizations elsewhere. The Sanctuary also offers a variety of classes for adults and children in the identification of flora and fauna.

Coal Mine Brook – The old Worcester Coal Mine is located on Plantation Street in the eastern central portion of the City. During the early 1800's, the coal was mined and sent by rail to Lake Quinsigamond, where it was then shipped to southern portions of the Blackstone Valley. The mine shaft opening has collapsed; however, the coal is still visible. The nearby brook (Coal Mine Brook) is a trout and smelt spawning run and has recently been designated as a cold water fishery by the Massachusetts Division of Fisheries and Wildlife.



Map showing the Cascades Trail System at Paxton-Holton-Worcester line (image courtesy of Greater Worcester Land Trust)

The Cascade Green Belt – Located in the northwestern section of Worcester, this site is comprised of approximately 300 acres of woods owned by the Worcester Parks Department and the Greater Worcester Land Trust in Worcester and neighboring Holden and Paxton. It contains two waterfalls dropping 108 feet from bedrock escarpment, large boulders, and a mature hardwood forest. There are several trails in Worcester and Holden which the public may access for hiking, picnicking, and exploring wildlife and vegetation. Among the wildlife in the Green Belt are: the giant pileated woodpecker, turkeys, owls, deer, and salamanders. There are also mountain laurels and silver beech. A new addition to this greenbelt is the recently purchased Cascading Waters which is situated across Cataract Street from the falls of Cascades East.

Crow Hill – is a 42.1 acres parcel located off of Plantation Street at the terminus of Clarendon Street. The City of Worcester Conservation Commission has obtained ownership of 27.9 acres of the parcel through funding made available by the Greater Worcester Land Trust whom have placed a conservation restriction on the parcel. A grant application is pending through the EOE, DCS Land and Water Conservation funds for the remaining 14.2 acres. The parcel is forested and contains approximately two acres of wetlands surrounding a small pond.



Crow Hill (image courtesy of Greater Worcester Land Trust)

Beaver Brook Day lighting – was constructed and the park is currently in use.

Blackstone River Corridor and Middle River Greenway – efforts are being carried out to clean the water ways that run through the Blackstone River Corridor.

Cider Mill Pond and Park – the largest water-powered cider mill in New England, home to endangered species. Coal Mine Brook and Worcester Coal Mine is the last remaining smelt run in New England. Crow Hill provides a 360-degree view of the Blackstone Valley and is adjacent to the New England Science Center.

Lake Quinsigamond – a large lake dammed for recreation. The longest skull boat race in the country is held here.



Regattas on Lake Quinsigamond (image courtesy of Quinsigamond Rowing Association)

Salisbury Park – is home to the historical landmark known as Bancroft Tower (1900s) and the property holds some of the most beautiful views of Worcester. It is located atop Prospect Hill on the northwestern side of the City. The summit has a 360-degree view of the City, greatly enhanced by a climb to the lookout tower (currently closed). A locator map in the stone walkway helps to identify the distant hills.

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J-2. Cultural and Historic Areas

J-2(a) Local Historic Districts

1. Massachusetts Avenue Historic District

Listed as both a National Register and local historic district, is located near Salisbury Park. It is characterized by a variety of mid-19th century residential architectural styles.

2. Montvale Historic District

This is a broader interpretation of the Montvale National Register District established in 1978. It is bordered by Park Avenue, Salisbury Street and Forest Street, and the Massachusetts Avenue Historic District is located to the South. A residential area, most of the homes in the Montvale District were built in the late Victorian and Greek revival traditions of the first quarter of the 20th century.

3. Crown Hill Local Historic District

On March 12, 2013, City Council ordained City's third and largest Local Historic District in the downtown area roughly along and within Pleasant, Irving, Austin and Newbury streets. The District will promote preservation of the neighborhood's general character, historic resources and architectural features threatened by ongoing changes and development. The proposed district represents some of the City's best remaining examples of mid and late 19th century architecture.

J-2(b) Historic Parks

1. Elm Park

Originally called "New Common", the original 27 acres of Elm Park were purchased in 1854. From 1874 to

1884 the basic plan for the park was put in place; pools, walks, and bridges were established for passive recreation pursuits. In 1888, Newton Hill was purchased as an addition to the park, yet has remained as a separate "rustic" unit. In 1910, the Olmsted Brothers landscape architecture firm was hired by the City with an emphasis on playground planning. In 1970, the park was designated as a National Historic Landmark and a complete renovation was accomplished in the mid-1970.

2. Blackstone Gateway Park

Historical resources identified in the Technical Feasibility Study and Implementation Strategy for the Heritage State Park include the Blackstone Canal, Quinsigamond Mill Complex, U.S. Steel Buildings, and remnants of a set of historical engineering structures including the Quinsigamond Dam, former

Mill Pond and associated waterways. The Washburn and Moen Wireworks building has been designated as the future site of the Blackstone Canal Visitor's Center prior to burning down. This site will eventually promote tourism and house a variety of commercial and educational uses. DCR is converting the abutting property to park land. Taken together and used for an interpretive site, these resources have the potential to graphically emphasize the importance of natural/geographic determinants in the development of the area. The Blackstone Bikeway will run into this historic landscape.

4. Cider Mill Park

Cider Mill Pond was once the home of Solomon Parsons and is both historically and naturally significant. It was the location where the pre-Civil War underground railroad took passengers to hide in Mr. Parson's home on their way north. Species of the original landscaped red cedar, Japanese yew, *Rosa floribunda*, bittersweet, and forsythia can still be viewed. The City previously formed a partnership with the Greater Worcester Land Trust to purchase approximately 33 acres of this site for parkland.

5. Institute Park

Close to downtown and adjacent to Worcester Polytechnic Institute, this park was originally ordinary farm field and pasture, then donated by Honorable Stephen Salisbury III in 1887 as a park, to supply a green space for the students and citizens of Worcester. The park has a Master Plan and has completed the renovations of the Sneiderman Pavilion, which hosts concerts throughout the summer.

J-2(c) Evaluation of Known Threats to Historic Resources

Many of the City's historic resources are directly or indirectly threatened by development pressures, and shifts in the economy and development patterns. A number of historic resources may be at risk either by neglect, development forces or other threats. At risk resources include mill complexes and associated mill housing and community service buildings, individual or isolated structures, cemeteries and graveyards, and archaeological sites.

Mill complexes in Worcester, including associated housing and other buildings, are an important and visible element of the City's historic resources. Many structures have been updated and changed over the years so that only remnants of the original buildings remain, while others have disappeared

entirely. Vacant mill structures are threatened unless they are put to uses which will promote their survival.

Marginal uses do not yield the type of revenue needed to protect the integrity of the structures. The condition of structures left vacant may disintegrate to the point where only massive public support will save them. To help prevent demolition of historic structures the City of Worcester adopted a demolition Delay Ordinance in June of 1997. This ordinance provides jurisdiction to the Worcester Historical Commission to enforce a six month demolition delay period on buildings that are included on the state MACRIS list. This demolition delay allows six months for state agencies and other interested parties, such as Preservation Worcester, to find alternatives to demolition. In addition, the City of Worcester received a grant in 1999 from the Massachusetts Historical Commission to hire a historical consultant to update the state MACRIS inventory list and prepare eligibility criteria for 85 new structures to be included on the National Register of Historic Places.

J-2(d) Blackstone River Valley National Heritage Corridor

“The Blackstone River Valley National Heritage Corridor is unlike a traditional park or historic site where people come to view historic or natural resources. The Corridor seeks to preserve nationally significant cultural and natural assets right where the people of the Blackstone Valley actually live and work. The concept salutes their proud and common heritage.”

- Richard Moore, former Chairman
Blackstone River Valley National Heritage Corridor Commission

1. Blackstone River Valley National Heritage Corridor

In November 1986, Public Law 99-647 was passed by the 99th Congress, establishing the Blackstone River Valley National Heritage Corridor in Massachusetts and Rhode Island. The legislation established a guiding commission for the Corridor’s administration as well as boundaries and mission. In 1989, the Heritage Corridor produced a Cultural Heritage and Land Management Plan which established a guiding action plan for the Corridor with an emphasis on public-private partnerships. Legislation to expand the Corridor’s boundaries to include most of the City of Worcester as well as four other communities in Massachusetts and Rhode Island. The City of

Worcester is currently working with the Blackstone River Valley National Heritage Corridor Commission to promote the scenic corridor by developing a Visitor’s Center, park land, bike and pedestrian paths.

2. Route 146 / Massachusetts Turnpike Connector

City and State agencies have been engaged in the reconstruction of Route 146 between I-290 and the Massachusetts Turnpike for the past years. The project has nearly been completed with a successful improvement to the area’s transportation network and promoting carpooling by providing a “park-and-ride” location. The vision for 146 is still to have a park-like feel (bridges, trees and green spaces) that can further help decrease greenhouse gas emissions.

3. Route 146 Bikeway

An important open space feature of the new Route 146 is the bikeway that will stretch from Brosnihan Square to Route 122A in Millbury. Approximately three quarters of the bikeway will be independent of Route 146. Although it is still in the design stages, eventually the bikeway will become a component of the regional Blackstone Heritage Corridor Bikeway. There is a proposal to extend the bikeway further into the City linking it to the revitalized Union Station via the Brosnihan Square Gateway road redesign project. The Department of Environmental Management is also investigating the possibility of locating a canoe launch along Middle River, which will connect to the bikeway and the Washburn Moen building, which is the site for the proposed Visitor’s Center.

K. Environmental Challenges (Potential Sources of Environmental Degradation)

All types of land use have a number of point and non-point sources of contamination. The City’s natural resources are threatened by development within groundwater recharge areas; runoff from roads, parking lots and golf courses; poor septic system maintenance; illegal dumping, poorly managed construction, demolition and renovation projects, spills and/or releases of oil and/or hazardous materials (OHM) either from failing storage systems, legacy sites dating back to previous industrial use or sudden releases due to spills. Generally, as development pressure increases, so does the intensity of the land use, increasing the chance of contamination from any number of sources. An example of this would be to use fill for grading from other construction sites that may contain low concentrations of contaminants. Thus,

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the suitability of the fill is dependent on contaminant concentrations in addition to the condition of the receiving facility. Where large quantities of fill are being transported, the nature and condition of the fill, as well as site development controls (dust, erosion controls) are important to ensure local receptors such as surface water bodies are not degraded. With only an estimated 15% open space remaining in the City, local regulatory methods of resource protection have been put into place to “slow the tide” of degradation and maintain and improve the quality of its natural resources.

K-1. Hazardous waste sites

Releases of OHM are regulated by the Massachusetts Contingency Plan (MCP); 310 CMR 40.0000, and the Massachusetts Superfund Law (MGL c. 21E), enacted in 1983. In 1993, the Commonwealth created a privatized cleanup program resulting in the licensing of Licensed Site Professionals (LSPs) tasked with managing the cleanup process and MCP response actions. Privatizing the program and providing incentives for rapid cleanup has allowed the Massachusetts Department of Environmental Protection (DEP) to concentrate their in house resources on the more serious releases of OHM and has allowed the private sector to address the numerous smaller releases. The MCP dictates reportable conditions and provides performance standards for cleanup, depending on site risk. This successful program has been revised a number of times since 1993, with recent proposed revisions currently in the public comment period. One of the important categories of closed sites are those that meet the health risk standards for current conditions but cannot meet unrestricted use. As such a number of sites are closed with land use restrictions in place. In Massachusetts these are known as Activity and Use Limitations (AUL). A site with an AUL has residual contamination at the site however there are no uncontrolled or ongoing sources of OHM.

Of the 1331 releases of OHM reported for the City of Worcester, most have been cleaned up and have achieved some sort of regulatory closure. Only 18 sites, approximately 1% of known reportable releases, have not yet achieved regulatory closure. Of the closed sites, 107 are closed with AULs in place. If a site with an AUL is to be redeveloped as open space, it is important to know the nature and extent of residual contamination to address and mitigate site risk. In addition to the MassDEP regulating contaminated sites, EPA (United States

Environmental Protection Agency) regulates them under Comprehensive Environmental Compensation and Liability Act of 1980 (CERCLA).

Following preliminary assessments and site inspections, those locations deemed to represent an immediate threat to public health and safety are elevated to the National Priority List and are commonly referred to as "Superfund" sites.

Although the City boasts extensive industrial development, Worcester is fortunate to be low of documented sites.

Other sites are currently under both 21E and CERCLIS jurisdiction and will receive further investigation or remediation. No sites have the potential to reach a significant level on the National Priority Listing unless significant impacts are discovered or assessed.

Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 established reporting requirements to provide the public with information on hazardous chemicals in their communities, and on development of state and local emergency response plans. Under its National Pollutant Discharge Elimination System permit application, the City has proposed stringent review of facility inspection results and ownership tracking for listed facilities.

Finally, the Resource Conservation and Recovery Act requires that generators of hazardous waste document and account for the generation, transportation and disposal of said waste from “cradle to grave.” Therefore generators are registered with USEPA and there is process to account for their housekeeping practices with respect to disposal of hazardous waste.

K-2. Landfills

Landfills provide an excellent opportunity for development of open space, due to their large footprint. DEP has an established procedure for the reuse of closed landfills that requires an evaluation of risk and the acquisition of a post-closure permit for any proposed landfill re-use. Post-closure uses are restrictive because of concerns about the integrity of capping, instability of surface and presence of methane and other gases. Typical post closure uses include passive and active recreation facilities such as parks, dog walks, ball fields, as well as commercial sites in some cases where the technical challenges of building on a landfill can be

addressed. Some unregulated “disposal areas” within City parks such as Cascades, Apricot Street and Columbus Parks should be investigated further and proper disposal of materials implemented.

Greenwood Street Landfill.

The 26 acre landfill cap is undergoing repair. As part of that re-capping project, the City Council has approved a passive recreation use for the top of the landfill. The DPW & P is now working with a consultant to define that passive recreation post closure plan which should include walking trails, information kiosks and maybe a dog park. The plan has to be approved by the State Division of Fisheries and Wildlife and has to take into account the threatened bird species (grasshopper sparrow) whose habitat includes the landfill top. Greenwood Street is adjacent to Route 146, which is the gateway to the City from the south and an area of renewed interest and redevelopment. This resource provides an excellent opportunity to connect to other open space assets as the Blackstone River trail system.

Ballard Street Landfill.

Approximately 55 of the 72 acre landfill site has been capped and catch basins and swales have been installed greatly reducing the amount of leachates entering the City’s stormwater system. The remaining acreage is presently functioning in a limited capacity, accepting only street sweepings and catch basin cleanings. The site is expected to be utilized until September of 2000 at which time a closure permit from the DEP must be obtained. No monitoring of air or groundwater quality is presently underway.

Green Hill Landfill.

This 18-acre site is an example of new active recreation re-use of a capped municipal solid waste landfill site. The site was originally developed as a rock quarry and filled with miscellaneous debris and sanitary refuse. An informal soccer field had been constructed in the area of the former landfill which was operational from 1964 to 1973. The site is located within the municipally owned and operated 432-acre Green Hill Park, a multiple use facility located in the eastern central portion of the City. The City has now completed the recapping and renovation of this facility. It now includes a baseball and softball field, with a football and soccer overlay. The facility is lighted for evening use and has a comfort station for storage and restrooms.

K-3. Erosion and Sedimentation

Sediment loading from urban runoff results in reduction of aesthetic values, increased turbidity,

and smothering of benthic communities. Sediment is also an efficient carrier of toxins and trace minerals that change the composition of the bottom substrates of receiving waters. Soil erosion caused by uncontrolled road runoff and sand applied to highways as a de-icing agent are additional sources of sediments deposited into waterways.

Slopes greater than or equal to 15% are regulated within the City's Site Plan Approval provisions of the Zoning Ordinance. Construction impacts are reviewed by the Planning Board as well as various City departments for each petition. The City's Department of Public Works presently uses Soil Conservation Service guidelines (Methods for Controlling Peak Discharge from Urban Areas) as well as the University of Delaware Water Resources Handbook (Water Resource Protection Measures in Land Development) as standards for review, linking stormwater management techniques with erosion and sediment control practices. Best Management Practice design and performance standards should be developed for use by the Planning Board and Conservation Commission in their plan review (Section 3.2.3 of the City's Wetland Protection Regulations establishes only general performance standards for review).

The site of Smith Pond is currently a large wetland with Tatnuck Brook flowing through. The pond was filled by sediment and siltation from development runoff on Airport Hill. The siltation was generated from miles away in some instances and conveyed to the pond (its first settling point) through the City's stormwater system.

K-4. Chronic Flooding

Worcester joined the regular portion of the National Flood Insurance Program in 1980. The purpose of the flood insurance study completed by the Federal Emergency Management Agency is to investigate the existence and severity of flood hazards in the City and to aid in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The Worcester Zoning Ordinance’s Floodplain Overlay District regulates development within flood hazard areas identified on Flood Insurance Rate Maps. Development proposals within this overlay district are subject to an administrative review by Building Commissioner and a land use review by the Conservation Commission.

The Route 146/Massachusetts Turnpike Interchange Project for Worcester and Millbury provides an opportunity to correct some drainage problems within the south central portion of the City, including

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Brosnihan Square, Green Island, Southbridge Street as well as Ballard and Millbury Streets. Improvements are scheduled to be included as part of the Route 146 contract to the Mill Brook Conduit in Brosnihan Square to reduce flooding in these areas. The Conduit will convey stormwater southerly to its outlet at the Blackstone River. Other areas of historic flooding (i.e. Webster Square and the Tatnuck Brook Watershed) have been addressed by retrofit of the City's storm drain system by the DPW and/or Army Corps of Engineers.

Additionally, the US Army Corps of Engineers 1960 Worcester Local Protection Project is located in Millbury and Auburn as a result of the record flood of August 1955 which caused extensive damage in the City. This project was authorized by Congress in December 1944 through the Flood Control Act of 1944 for local flood protection on the Blackstone River at Worcester.



(Image courtesy of US Army Corps of Engineers, source from: <http://www.nae.usace.army.mil/Missions/CivilWorks/FloodRiskManagement/Massachusetts/Worcester.aspx>)

Major project components consist of a control dam at Leesville Pond, an intake weir and transition section, a concrete lined diversion tunnel, and an open return channel leading to the Blackstone River. The function of this project is to permit return flood flows originating in the Kettle Brook drainage area to bypass the City of Worcester by conducting them to the Blackstone River. The area protected by the Project consists of dense industrial and residential areas, including over 100 homes, 50 stores and 20 manufacturing plants (US Army Corps of Engineers, 1990).

Several of the City's dams have also been the subject of the National Dam Inspections Program -Phase 1 by the Army Corps of Engineers. Several have been assessed as being in a hazardous state by the Massachusetts Office of Dam Safety, including the

targeted Coes Reservoir Dam (part of the Coes Knife Company Site).

K-5. Ground and Surface Water Pollution

Urban Runoff Areas

The City is currently in the second year of its 5-year NPDES Stormwater Permit, one of only two municipal Stormwater Permits in the Northeast. In accordance with the Clean Water Act, the City has implemented a Stormwater Management Program (SWMP), comprised of a wide variety of Best Management Practices (BMP's), which are designed to improve the quality of stormwater discharges from the municipal separate surface sewer system. The BMP's include illicit connection detection and removal; rehabilitation of twin-invert manholes to prevent cross-contamination of sanitary and storm flows; construction site runoff management; an annual household hazardous waste collection day; a substantial public education program; as well as regular operation and maintenance activities such as catch basin cleaning and street sweeping, etc.

The public education BMPs includes informational pamphlets distributed at public events; a newsletter distributed with water/sewer bills; informational meetings; sponsorship of school projects ranging from grammar school to Master's thesis; installing signs where culverted waterways cross City street to raise awareness; catch basin stenciling' as well as partnering with local advocacy groups such as Mass Audubon, Regional Environmental Council and Blackstone Headwaters Coalition. Additionally, as part of the SWMP, DPW will be investigating one watershed per year to isolate and eliminate pollution sources.

Combined Sewer Overflows

The City's sewer maintenance program includes catch basin cleaning, sewer flushing, sewer scraping, inflow/infiltration surveys, and on-going sewer separation efforts. Through numerous contracts in the late 1970's and 1980's, the City undertook significant modifications to its sanitary and storm drain system. The objective of those contracts was to alleviate Combined Sewer Overflows to the Blackstone River by constructing separate conveyances for sanitary sewage flows, overflow relief collectors, and a Combined Sewer Overflow Treatment Facility.

Upper Blackstone Water Pollution Abatement District

The Upper Blackstone Water Pollution Abatement District is also regulated by EPA under the National

Pollutant Discharge Elimination System and has been issued a permit pursuant to the Clean Water Act, as amended, and the Massachusetts Clean Waters Act, 21 M.G.L. as amended. Additionally, the facility is regulated by a Massachusetts State Water Quality Certification as issued by the Massachusetts Division of Water Pollution Control. EPA proposed new limits for toxic metal pollutants and chlorine discharged into the Blackstone River.

The facility's discharge into the Blackstone River nearly doubles the quantity of water within the River's channel and the facility, despite years of compliance with water quality regulations and permit requirements; it is the largest source of pollutants to the Blackstone and the upper Narragansett Bay. The facility treats industrial and residential sewage from Worcester and several surrounding communities and has developed an industrial pre-treatment process on-site in response to changing water quality regulations. The plant had not been required to meet specific total limits for toxic metal pollutants such as zinc, cadmium, nickel and copper in the past and appealed the permit as drafted. Additional industrial pre-treatment for those industrial waste waters sent to the plant would be required on an individual plant basis, a process requiring additional monitoring and pre-treatment equipment.

Sanitary Surveys

Annual sanitary surveys are completed by the City in compliance with the DEP's Drinking Water Regulations and are currently compliant. A list of registered RCRA facilities was compiled from the EPA's Hazardous Waste Data Management System database and is maintained and investigated by DPW & P staff.

K-6. Development Impact

Salt Storage Sites and Road Salting Areas

Worcester uses a sand/salt mix on its roads. Several manufacturing uses that can negatively impact water resources are prohibited or more strictly regulated in the Water Resources Protection Overlay District by requiring a grant of Special Permit from the Planning Board. For example, storage of ice control chemicals in quantities of greater than one ton and the disposal of snow containing de-icing chemicals are prohibited in the GP-2 zone and permitted by Special Permit in the GP-3 area.

Industrial Facilities

Approximately 11% of the City's land area is zoned for industrial uses. Several non-conforming uses

within vulnerable ecological areas have posed problems for the City over time and have provided good cases for more environmentally protective land use regulations with strong performance-based criteria.

Underground Storage Tanks (USTs)

Oil and other petroleum products contain a wide array of toxic hydrocarbon compounds. EPA, DEP and the Department of Fire Prevention, have enacted regulations concerning the design, installation, maintenance, monitoring and failure of underground storage tanks. For example in 1998, all USTs were required to meet certain standards for construction which resulted in upgrades of UST systems throughout the state. Current DEP programs focus on release prevention and correction. The regulations apply to new, existing and abandoned facilities at which petroleum and/or hazardous materials serving industrial, commercial, educational or governmental operations are stored underground. Recent amendments to the City's Zoning Ordinance prohibit the replacement or installation of underground storage tanks within the City's Water Resources Protection District.

Junkyards

On-site and leaching fluids are the potential sources of contamination from junkyards and abandoned vehicles. These fluids include oil, brake and transmission fluid, anti-freeze/coolant, battery acid and gasoline. Due to their size and nature of their operations, several "recycling" facilities have resulted in adverse impacts to soil, groundwater and surface water. Junkyards with documented releases are regulated under the MCP, which stipulates cleanup objectives and remediation goals.

Illegal Dumping

Illegal dumping can be a problem for surrounding receptors depending on the nature of material dumped as well as the location. Sometimes dumping may be discovered and result in a cleanup action by DEP or regulation under the MCP. Many times dumping may result in overland transport of fill to surface water bodies. Therefore it is important to understand the nature and extent of impacts and to implement housekeeping, source removal and erosion controls.

Pesticide or Fertilizer Application Areas

Easements for power lines or other public utilities, railroad beds, and golf courses are primary sites for pesticides and fertilizer application because of the intensive maintenance requirements of the land uses. The City has three golf courses, two private

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facilities and one public (managed by the Parks Department). Applications to public utility rights-of-way are regulated by the state's pesticide and herbicide program, where annual maintenance programs are submitted for review and permitting. New utility installation is subject to local wetland regulation provisions.

Non-Sewered Areas

The City's Department of Health Human Services estimates that 2,500 septic systems remain within the City limits. According to the latest Public Works Department sewer service area, many of the systems are located in the outskirts of the City or off private streets not serviced. Within the last five years, a very large system was installed off Ballard Street in close proximity to the Blackstone River and is being monitored by the Health Department.

K-7. Forest Degradation

Threats posed by development, particularly during times of economic expansion, and the invasive Asian Long-horned Beetle (ALB) create stress on street trees, woodlands and larger forested expanses. Unchecked land disturbance also creates opportunities for invasive species to take hold, creating further stress on native species. If left unchecked, resulting impacts will affect economic value of lands and properties and further affect opportunities for outdoor activities by Worcester residents.

To address these threats, the City has established a comprehensive web-based information center (link from the main page) concerning control of the Asian Long-horned Beetle. The Conservation Commission and other land stewards continue to be vigilant about the control of other exotic invasive plant species. In regard to ALB, the entire geographic limits of the City of Worcester and part of neighboring Shrewsbury, Boylston, West Boylston, Holden and Auburn have been designated at risk to infestation.

To protect vegetation within the City of Worcester, in 2008, the City Council adopted "An Ordinance Relative to the Protection of Public Trees". This

document recognized the intrinsic value of trees as it relates to visual quality and aesthetics, quality of life and property value. Fines for violating any aspect of the ordinance top out at \$300 per violation.

K-8. Environmental Equity

Another environmental challenge relates to access to parks and open space properties and to certain types of recreational facilities from within certain geographic sections of the City. Figure "2c - Open Space and Critical Environmental Justice" (EJ) indicate the limits of park and open space lands in relation to regions of the city that are stressed from an environmental equity perspective. To overcome obvious gaps, there will be continued focus on introducing the means to provide improved access to various types of recreational opportunities.

EJ neighborhoods generally run through the center of Worcester in a southwest to northeast direction, primarily within District 2 and District 4. When applying a high bar ¼ mile radius standard (distance from residence to park or open space asset), it is estimated that approximately 40% of the EJ designated area falls beyond this distance. When applying a ½ mile radius standard, less than 10% of the EJ designated areas fall beyond that distance.

In general, access for EJ resident populations to water based activities, to large open sports field complexes and to woodlands, wetlands and other conservation areas is a challenge. To make improvements, the city has established initiatives to improve recreational opportunities to all citizens.

There are other non EJ neighborhoods that appear to be underserved by park and open space assets. This includes large swaths of northcentral, northeastern and southeastern Worcester. These areas tend to exhibit much lower density development overall with larger single family residential character.

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05. Inventory of Lands of Conservation & Recreation

Introduction



The definition of the open space according to the Massachusetts' Division of Conservation Services (DCS) is broad, and aligns well with the City's definition. Regardless of the type of ownership, open space includes parks, active and passive recreational lands, conservation lands, forests, agricultural fields, greenways, as well as green buffers along roadways and streetscapes. Open spaces may also include vacant lots, brownfields or other underused, abandoned or forfeited properties that might provide recreational value to surrounding residential neighborhoods.



Open space can be used for passive (and often informal) recreational uses such as walking, hiking, jogging, fishing, bathing, boating, and picnicking, or active recreation such as field-based sports, court games, playgrounds, aquatic parks and other built facilities or amenities that require more formalized and often intensive development and management. Passive recreation might also be referred to as "low intensity recreation" as it usually relies less on built facilities and as such is typically closely aligned with the goals of preserving natural resources and natural habitats.

From another perspective, Paul M. Sherer's article titled *"The Benefits of Parks: Why America Needs More City Parks and Open Space"* (published by the Trust for Public Lands) articulates many societal benefits that the open space provides including:

- Improve physical and mental health of Individuals
- Strengthen the community
- Expand tourism
- Benefit the economy
- Enhance the natural environment



The American Planning Association's *"City Parks Forum Briefing Papers"* identified 10 key ways in which open space is used by municipalities to benefit the public:

- Community Revitalization
- Community Engagement
- Economic Development
- Creation of Safer Neighborhoods
- Green Infrastructure
- Help Children Learn
- Improve Public Health
- Venues for Arts and Cultural Programs
- Promote Tourism
- Promote Smart Growth
- Help Manage Climate Change

As this Open Space and Recreation Plan is unique to the Worcester community, it is important to put this conversation about open space, and what defines it, into locally relevant context. Overarching goals of the Worcester open space system are focused on the providing of important outlets for passive and active recreational pursuits, building community and creating opportunities for residents to help establish and maintain healthy lifestyles. The City has also come to appreciate that a strong open space system can help yield positive economic activity and development.

The City of Worcester, GWLT, Mass Audubon and other important stakeholders have been unified in their common goal of balancing the preservation of important natural environments, while providing critically important recreation needs to the citizens of Worcester.

Perhaps the most obvious open space asset in Worcester includes the system owned and managed by the **Worcester Department of Public Works & Parks**. The system includes 59 properties encompassing nearly 1,300 acres of land. Highly recognizable signature properties within this category include Green Hill Park, Worcester Common, Elm Park, Hadwen Park, University Park and Institute Park. City parks and open space resources provide a wide-range of active and passive recreational opportunities and most of the larger properties host a wide range of public uses and activities.

Beyond the city park system, other high visibility and high use properties used for recreation and conservation include those owned and/or managed by the Massachusetts Department of Conservation and Recreation (DCR), Greater Worcester Land Trust and Mass Audubon.

The chart below identifies the major categories of ownership and management related to the various types of open space in Worcester.

Worcester Open Space System's Major Owners, Custodians and Managers
Worcester DPW & Parks
Worcester Conservation Commission
Worcester Public Schools
Other City-owned Properties (various jurisdictions)
Massachusetts DCR
Other State-owned Properties (various jurisdictions)
Greater Worcester Land Trust
Massachusetts Audubon
Privately Owned



A Worcester Parks Facility (Rockwood Field)

DCR owns four properties that provide opportunities for active recreation and water-based recreation as follows:

- Shine Memorial Pool at Vernon Hill
- Bennett Field Pool at Webster Square
- Quinsigamond State Park (Regatta Point and Lake Quinsigamond)
- Buffone Skating Arena and Lake Park.



DCR Pool Facility at Vernon Hill

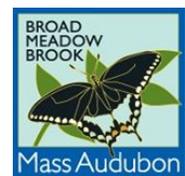
The **Greater Worcester Land Trust (GWLT)** owns outright or has conservation restrictions (CRs) for 27 properties in Worcester encompassing hundreds of acres of land. The GWLT is a small non-profit organization created in 1987 to purchase, hold, advocate for, preserve or transfer critical open space parcels in the Greater Worcester area. The majority of GWLT lands are located within the northwestern section of the City. The 13 Worcester properties owned by GWLT encompass more than 400 acres. GWLT also owns or holds conservation restrictions on other properties in West Boylston, Holden, Leicester, Paxton, Grafton and Spencer, and many of these are contiguous with their Worcester holdings.

The GWLT is an excellent partner to the City with an impressive group of volunteer rangers who aid in the management and maintenance of properties, particularly in the upkeep of trails and signage systems.



Image courtesy of Greater Worcester Land Trust

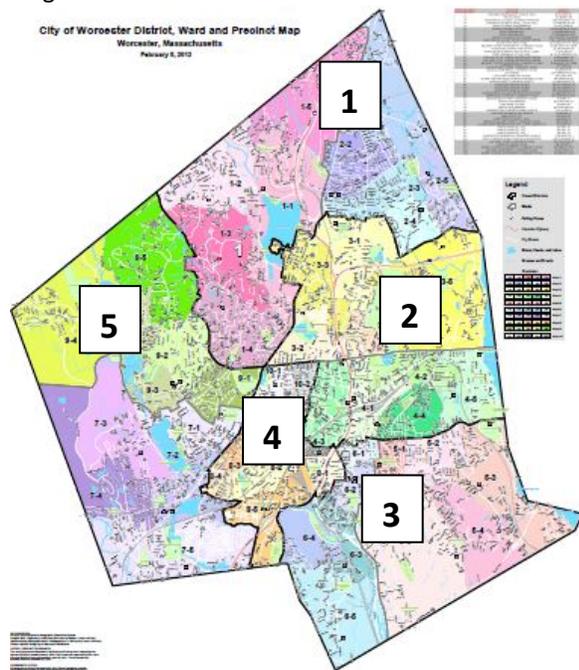
Mass Audubon is a large, non-profit conservation organization with assets throughout the state including the expansive Broad Meadow Brook property in Worcester. Mass Audubon works to protect the nature of Massachusetts for people and wildlife. With more than 100,000 members, Mass Audubon cares for 35,000 acres of conservation land, provides school, camp, and other educational programs for 225,000 children and adults annually, and advocates for sound environmental policies at local, state, and federal levels.



Other important recreational amenities are provided at the fifty **Worcester public school properties**. At these locations, outdoor playing courts, tracks, fields, children’s playground and undeveloped woodlands provide opportunities for a variety of recreational pursuits.

There are also many private schools, colleges and universities in Worcester with hundreds of acres of buildings, indoor and outdoor recreation facilities and undeveloped lands. Many institutions share facilities with City groups during certain times and large tracts of undeveloped and landscaped areas provide wildlife habitat and form a part of the City’s environmental ecosystem.

Open Space System Inventorying Process. In updating the Open Space and Recreation Plan, all Worcester DPW & Parks properties were visited and inventoried. Following is a narrative description of many of the City’s most prominent open space and recreation assets. The City Parks system has been chronicled geographically by Political District. There are five political districts in the City as shown on the diagram below.



(For a comprehensive listing of all open space assets located within the City of Worcester, refer to the Charts contained near the end of this section. For the geographic location of these assets refer to **Appendix A** City of Worcester’s Open Space and Recreation Map - Figure 7.) (For a comprehensive inventory and conditions assessment of all 59 Worcester DPW & Parks properties refer to the

individual Site Assessment Forms contained in **Appendix D**.)

Worcester Department of Public Works & Parks properties are publically owned and managed. There are 59 parks in the system ranging in size from less than ½ an acre to nearly 500 acres. Uses are varied and site amenities accommodate both passive and recreational pursuits. The narratives below are intended to be brief and to provide a quick glance at the richness and diversity of the system in images and a few accompanying words. They are not intended to convey detailed physical conditions of all natural and man-made features and facilities. Scattered within the 28 “briefs” of some of the most significant parks and open space, summaries present some of the collective highlights (and challenges) that have been observed and noted.

Worcester DPW & Parks Properties

DISTRICT 1- This district covers northern and central sections of the City of Worcester. Important and highly visible City-owned parks and open spaces located within this District include the following:

Burncoat Street Playground- a typical neighborhood playground located adjacent to the Burncoat Preparatory Elementary School, this site has been recently improved with additional upgrades being planned. The site at once must meet the needs of the surrounding residential community while also meeting the needs of the elementary school community during the school year. The property covers little more than an acre of area and it contains a children’s playground, court facilities and open lawns for informal play.



Burncoat Street Playground

Kendrick Field- this nearly 15 acre property provides wide ranging, mostly active recreational facilities (including 4 major field complexes) that support local and city-wide sports programs and also neighborhood uses. The City has completed a master plan and multiple phases of park

improvements, with additional work in the planning stages. Active citizen involvement at this site helps to maintain many of the park facilities.



Kendrick Field

Salisbury Park- This 12 acre park site contains the historic Bancroft Tower surrounded by an expansive and shaded open lawn. Beyond the Tower, the site is largely undeveloped and geared toward passive recreational pursuits. It is situated on a dramatic hillside, with beautiful views out across the City. Recent improvements have included the refurbishment of the access drive and parking area located adjacent to the Tower.



Bancroft Tower at Salisbury Park

Shore Park- the largest of three public park properties located along the banks of Indian Lake (the other two properties are Morgan Landing and Indian Lake Beach). The park site is located across the street from the Bancroft School (a private junior and senior high school) and important site features include a bathhouse, picnic grounds, sand volleyball court, sandy beach for sun bathing and swimming and expansive, generally flat, open lawn areas for informal play.



Shore Park

Tacoma Street Playground- this site encompasses nearly 20 acres of land area and it contains both developed park amenities and undeveloped and steeply sloping woodlands. A pool complex was previously located at the site and it was removed as part of a city-wide aquatics replacement program. The park supports neighborhood needs and the nearby Great Brook Valley housing development.

This park is indicative of numerous other properties in the system where there have been few recent capital investments and as a result facilities appear worn and outdated.



Tacoma Street Playground

DISTRICT 2- This district covers eastern and central sections of the City of Worcester. Important and highly visible City-owned parks and open spaces located within this District include the following:

Burncoat Park (also historically known as North Park) - this diverse property provides wide ranging passive and active recreational resources that serve the surrounding neighborhood (including the Wawecus Road Elementary School, Burncoat Senior and Middle Schools, and the Hanover Insurance corporate campus). Burncoat Park Pond provides opportunity for fishing and for bird/nature watching and open fields provide opportunity for both informal and formal sports and other activities and an expansive pathway system accommodates walking, jogging and biking.

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This park is indicative of numerous other properties in the system where a playing field complex has received few recent capital investments and as a result conditions appear worn and user experience is compromised.

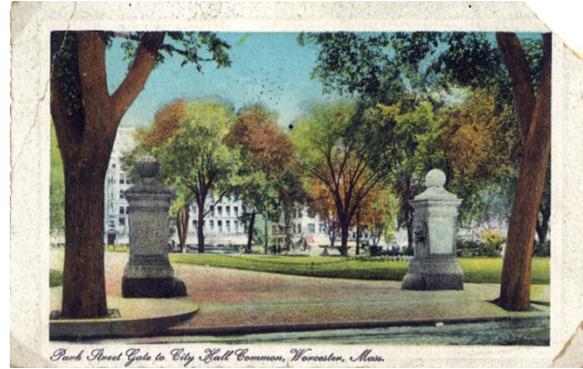


Burncoat (aka North) Park

Worcester Common - this critically important open space asset dates to 1669. In a single, 4 acre parcel vital historical, cultural, social, recreational, civic and economic development attributes are woven together within an integrated fabric of features and spaces. The City has invested more than \$6M into a series of public improvements that are intended to foster wide ranging passive and active recreational uses and help to restore the site to a central position in civic life. A new public outdoor skating facility has proven to be very successful during cold weather months and the same space is used for seating, concerts and other public gatherings and events during warm weather months.



Worcester Common Ice Skating Rink



Worcester Common (Historical postcard)

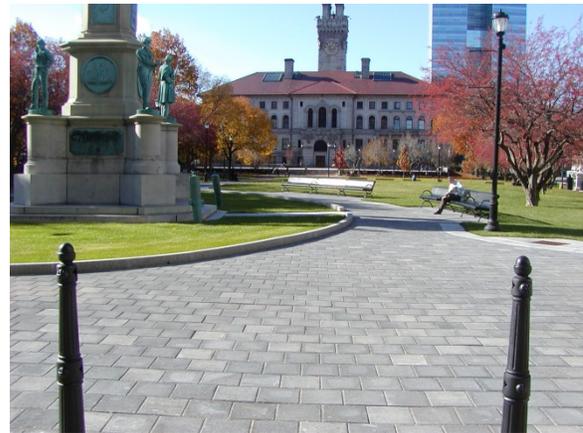


Image of Worcester Common

Christoforo Colombo (East) Park- this important neighborhood and city-wide park contains fields, a state-of-the-art children’s playground, courts, amphitheater and many acres of undeveloped hillsides with trail connections to Bell Pond Park, Green Hill Park and other open space destinations to the northeast. As such, East Park forms the southern-most piece of the East Side Trail system.

East Park is located within the busy and vibrant Shrewsbury Street commercial district. A new splash pad and winter skating amenity are being constructed at the present time, with an opening scheduled for spring 2014.



Christoforo Colombo (East) Park

Green Hill Park - the City’s largest and most diverse park, this site encompasses nearly 500 acres of land and includes a golf course, farm yard, playing fields,

playgrounds and a network of drives and parking areas. The State-wide Vietnam Veterans Memorial is located within the core of the park site in close proximity to Green Hill Pond, a 30-acre “great pond”. The site contains unique historical and environmental assets. The sheer size of the park and the dramatic and rugged terrain make access to the site difficult, with most visitors needing to arrive via automobile. The City has invested more than \$10M in recent years upgrading utility systems, park drives and parking areas and the wide range of passive and active recreational facilities and amenities. Recent open space purchases have extended the boundaries of Green Hill Park. The Worcester Vocational School is located to the east of the park site and the school makes use of a large field sports field complex located within the park.



Green Hill Park (State-wide Vietnam Veterans Memorial)

Harrington Field - fields, courts and children’s playgrounds define this important six acre park property. Fields accommodate major sports league activities and all features provide opportunity for a wide range of informal neighborhood uses throughout the year.

The City is currently working with community representatives to define a desired range of new park improvements to be implemented beginning this year.

This park is indicative of numerous other properties in the system where children’s playground facilities are old, worn and outdated from a code compliance perspective.



Harrington Field

Holmes Field - more than just a field, this 8 acre park site located on busy Plantation Street provides a venue for sports leagues, public school sports programs, and lots of informal neighborhood uses. Fields, courts, and children’s playgrounds are scattered throughout the property. The City is presently leading a community-based master planning effort and a first phase park improvement program is planned to be implemented in calendar year 2013. The site formally hosted a pool facility and this was removed under the city-wide aquatics initiative.



Holmes Field

Institute Park- this large (44 acres) and important park is home to an outdoor performance pavilion, open fields, meandering pathways and rolling and shaded lawns, tennis courts and numerous park support buildings. The historic park dates to the late 1800’s and has long been connected to the Worcester Polytechnic Institute campus which is located to the west and south.

Salisbury Pond is an important water resource that possesses unique environmental, recreational and aesthetic qualities. In 2013, the City analyzed the pond and identified a variety of approaches to improving the pond’s physical condition. The City also completed a master plan process in 2007 and has implemented several phases of improvements, with more improvements being planned.

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Institute Park (Opening Night 2012 for the Massachusetts Symphony Orchestra)

DISTRICT 3- This district covers eastern and southern sections of the City of Worcester. Important and highly visible City-owned parks and open spaces located within this District include the following:

Lake Park- is another important open space that encompasses nearly 75 acres of land and links to other important open space resources including DCR's Quinsigamond State Park located across Lake Street. Developed sections of the park contain fields and courts and large, undeveloped expanses contain woodlands and trails. Several park support buildings are located at the site. The City has invested heavily in new facilities at Lake Park in recent years and current plans call for ADA compliant renovations to an existing bathroom building.

This park is indicative of numerous other properties in the system where expansive woodland areas have been badly damaged by recent catastrophic storm events (early fall snowstorms, hurricanes and near hurricanes etc.).



Lake Park

Blithewood Park- is a small (3 ½ acre) playground that serves as the social and recreational focal point of an active and committed neighborhood. The park contains a children's playground, Little League field, court area, gazebo and series of pathways. The City plans to upgrade the children's playground during

the summer of 2013. Like many park properties, Blithewood Park accommodates both formal league uses and informal neighborhood uses on a daily basis.



Blithewood Park

Greenwood Park- encompasses 14 acres of hilly terrain and it contains great opportunity for both active and passive recreational uses. The steeply sloping, rocky woodlands possess trails and link the park to Greenwood Street nearby. Courts, fields and a children's playground provide opportunity for more active recreation in formal (through league play) and informal means. The City has completed a community based and supported master planning process and plans for a new round of improvements are progressing with implementation anticipated during the latter half of 2013.

Greenwood Park formerly contained a pool complex. The pool complex was replaced with a major outdoor splash pad facility and the former bathhouse was renovated to support this new amenity.



Greenwood Park

Vernon Hill Park- is an important, high-visibility city park and playground that encompasses 15 acres and is located adjacent to other open space assets (DCR Shine Memorial Pool and Worcester Academy playing fields). The park has undergone major renovations. Vernon Hill Park contains an array of fields, courts and a children's playground that meets the needs of both neighborhood users and city-wide groups.



Vernon Hill Park

DISTRICT 4- This district covers central and southern sections of the City of Worcester. The district is the smallest district geographically yet it covers high density residential and mixed use areas located within center city. District 4 contains the largest environmental justice populations. City-owned parks and open spaces located within this District include the following:

Cookson Field- encompassing nearly 20 acres of land, this park contains remnants of an actual playing field that dates to the middle of the 20th century. The field is no longer in use and woodlands now permeate much of the park off of College Street. An active neighborhood group and a partnership with adjacent Holy Cross College have helped to implement a new playground and small parking area at the edge of the park. The parking area provides access to the myriad of woodland trails that wind through the incredibly hilly and rocky terrain. The park is favored for walking and hiking and significant changes in elevation provide dramatic views out over the city.



Cookson Field

Crompton Park- this 12 acre site provides a wide range of active recreation facilities in the form of fields, courts, children’s playground and a new state-of-the-art aquatics complex. The City completed a community based and supported master planning process in 2009 and continues to implement wide ranging park improvements in accordance with the priorities and preferences established in the master plan.

Crompton Park provides important recreational opportunities for the high-density neighborhood that surrounds and for city residents overall. Meandering walks and mature shade trees provide the chance for more passive recreational pursuits.



Crompton Park

Oread Castle Park- the City is embarking on a master planning process during the spring of 2013. This neighborhood park provides open lawns and woodlands for passive recreational uses. A variety of courts and a children’s playground provide opportunities for more active plan.

The site is located in one of the most high density sections of the City with several public schools and at least three community garden sites within a short walking distance of the site.



Oread Castle Park

University Park- is an important, scenic park noted for its undulating lawns, graceful mature shade trees, meandering paths and pond. The site encompasses 14 acres of land and provides the perfect venue for a wide range of passive and active recreational pursuits. A community based master planning process has recently been completed and the City is now embarking on implementing early phases of improvements. Under the current effort, courts will be upgraded.

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The park serves a large, high density mixed use residential population and is located adjacent to the Clark University campus.



University (Crystal Park)

Winslow Park- also known as Peace Park, this small and compact site is typical of many “pocket” parks located within the City. With less than a ½ acre of land, the site serves the residential community that surrounds with a new walkway which doubles as a bike and scooter track and new park furnishings. Improvements were based on a recently completed master planning effort.



Winslow Park (Peace Park)

Elm Park- is one of Worcester’s most beloved park and open space assets. It is a historic park that was established in the mid 1850’s by a progressive City looking to preserve open space for the enjoyment of its citizens. The most highly developed portion of the park is “Olmstedian” in nature and located to the south of Park Avenue. Much of the park’s 58 acres are less developed (located north of Park Avenue) and typified by woodlands and trails and the City’s only disc golf course. Numerous historic structures dot the landscape of Elm Park. The City has expended nearly \$3M in improvements in an effort to refurbish much of the park’s landscape with improvements ongoing. This park hosts most of the cultural events, such as concerts.

The park is located in both Districts 4 and 5. District 5 lands extend to Newton Square where a series of courts, monuments and passive seating areas are located.



Elm Park

DISTRICT 5- This district covers the western section of the City of Worcester. Important and highly visible City-owned parks and open spaces located within this District include the following:

Beaver Brook Park- encompasses 18 acres of land and possesses a wide assortment of fields and courts and children’s playgrounds. The park has undergone a major transformation that renovated many facilities and “day-lighted” a significant length of Beaver Brook that was formerly contained within a below ground culvert. The property also contained a pool facility that was removed under the City-wide pool initiative.



Beaver Brook Park

Boynton and Cascades Parks- are major open space assets located partly in Paxton and partly in Worcester. Encompassing approximately 160 acres of land the sites are largely undeveloped and favored by visitors for passive recreational pursuits and dog walking. One small field is located within the property. Formal recreational elements are limited and include primarily a series of interpretive signs and trail markings. Picnic amenities are deteriorated and much of the site has been impacted by recent

storms (snow and wind) and by infestation of the Asian Longhorned Beetle.

This park is indicative of numerous other properties in the system where great and expansive woodlands have badly impacted by the Asian Longhorned Beetle (ALB) infestation and recent storm damage.



Boynton Park



Cascades Park

Coes Pond Parks- are a series of open space assets that form the western, southern and eastern edge of Coes Reservoir. Properties include a public swimming beach at Mill Street, new passive park at the site of the former Coes Knife Manufacturing concern, a narrow pathway corridor located to the rear of the Lakeview Residential community, Columbus Park, an easement through a Knights of Columbus property and new open space acquisitions (the Fenton parcel and part of the Knights of Columbus property). A master plan was completed for this series of interconnected properties and the City has implemented improvements that have included a small parking area, pathways, a bridge across the Coes Reservoir/Tatnuck Brook spillway, new fields and a playground.



Coes Pond Parks

Hadwen Park- like so many of Worcester’s larger park sites, is a large property encompassing over 58 acres of land with windows of developed recreation facilities and dozens of acres of rolling, heavily wooded terrain. A former park drive (formerly Knox Street and no longer open to the public) links the northwest side of the park to the southeast park corner. Spectacular views abound from the property out over the wetlands and waterways associated with Curtis Pond and Ramshorn Brook. A children’s playground, baseball field and court complex are located at the edge of the park near Heard Street. A grove of magnificent, ancient beach trees is located along a steeply sloping area of the site not far from the Heard Street entrance.

This park is indicative of numerous other properties in the system where underperforming and/or malfunctioning stormwater management systems is damaging park facilities and the overall park environment.



Hadwen Park

Logan Field- provides a major venue for organized sports leagues with a softball field and baseball field. A basketball court provides a venue for active use. The City has completed a master planning process

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and major improvements to the softball field and surrounding park area are to be completed during the spring of 2013. Additional improvements, including baseball field upgrades and a new children's playground are planned.

The park site is located along busy Mill Street and parking is on-street. Steeply sloping, heavily wooded terrain forms the western side of the park. A few worn pathways provide limited access to these park areas.



Logan Field

Rockwood Field- located off of Chandler Street, Rockwood field is a major venue for organized sports including baseball, Little League, softball and soccer. Like so many parks in the system, facilities serve many stakeholder groups including in this case the surrounding neighborhood, city as a whole and the adjacent Worcester State University community. The City has entered into partnerships with sports organizations and Worcester State University to undertake significant upgrades to the property. A master plan has guided multiple phases of improvements to the property in recent years including construction of a new baseball field, softball field, park support building and significant stormwater management system upgrades.



Rockwood Field

Worcester Conservation Commission

The Worcester Conservation Commission is identified as the owner of 43 properties

encompassing nearly 400 acres of land. The Conservation Commission is not an active manager or custodian and in the past it received no funding for capital improvements or property upkeep. For some of the larger properties, management and maintenance structure is provided through partnerships (with City DPW & Parks, Greater Worcester Land Trust and/or Mass Audubon). The chart below identifies the four largest holdings (representing 75% of the total acreage) of the Conservation Commission.

Conservation Commission Property	Acreage
Perkins Farm	78
Broad Meadow Brook	145
Mooreland Woods	21
Dawson Road	63

Inventory of Lands Related to Environmental Justice

The inventory of park and open space assets yielded a general deficit of public park space within Environmental Justice designated areas. A few park and open space properties are actually located within the EJ zone, and these include Grant Square, Fairmont Park, Oread Castle Park, Winslow and Pleasant, and City Hall Common. These parks tend to be very small geographically with limited offerings due to their size. Typically (excluding the Common), these parks include a playground, but little else.

Other larger parks and open space assets are located on lands that immediately abut EJ neighborhoods. This includes Beaver Brook Park, University Park, Green Hill Park, Harry Sherry Field, Bell Hill Park and Knights of Columbus Park. Except for Green Hill Park, these properties tend to be neighborhood parks with opportunities for a wider range of active and passive recreational pursuits making use of fields, courts, playgrounds and other informal areas.

With approximately 38 of the 59 Worcester DPW & Parks properties located beyond the ¼ mile radius of EJ neighborhoods, there is a clear intention to seek out new opportunities to expand recreational facilities within more centrally situated sections of the city and, to this end, related Action Items are articulated later in this document.

Greater Worcester Land Trust

The Greater Worcester Land Trust owns property outright and also owns Conservation Restrictions for lands in which it participates in managing and maintaining.

The organization’s website (<http://www.gwlt.org/>) provides an excellent summary of the properties in which it holds an interest, including significant interests of property in adjacent communities.

The GWLT is keenly interested in creating “greenways” by connecting or otherwise linking various open space assets. To this end, linear systems have been created making use of open space assets owned by the City of Worcester, Mass Audubon, GWLT and other stakeholders.



Some of the larger properties for which GWLT possesses rights are included in the chart below:

Greater Worcester Land Trust	Acreage
Nick’s Woods	60
Bovenzi Park	84
Lindberg	38
Kettle Brook	16
Tetasset Ridge	17
Cascade West and Waters	150
Marois Property	27

Mass Audubon | Broad Meadow Brook Wildlife Sanctuary

Mass Audubon is a prominent open space owner, manager and advocate within Worcester. From a signature open space property located in southeastern Worcester (Broad Meadow Brook Wildlife Sanctuary), Mass Audubon provides a wide range of passive recreational opportunities and notable environmental educational programs to residents of the City, particularly school-age children. Broad Meadow Brook encompasses more than 400 acres of land area (under various ownerships).

There are more than five miles of well-marked trails with impressive natural diversity of the land including a Black Oak Savannah, Cattail Marsh, Red Maple Swamp, Broad Meadow Brook and heavily wooded upland areas.

Mass Audubon is the owner of 17 separate parcels of land totaling 56 acres of area. Under agreements (with the City of Worcester, National Grid and the Greater Worcester Land Trust), Mass Audubon

manages an additional 340 +/- acres of land that form the whole of the Broad Meadow Brook Wildlife Sanctuary.

Parks, playgrounds, opens spaces and other resources of important cultural and historical nature are best preserved from potential future development when they are legally protected by legislation. The most common forms of open space asset protection are described below.

Article 97 protects land acquired for natural resources purposes in a very broad sense. It states that the land for “the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is hereby declared to be a public purpose”.

In Worcester, most lands owned and operated by the Department of Public Works & Parks and the Conservation Commission are protected under Article 97.

Although most of the lands protected by article 97 are publicly owned, *not all* municipal parkland is protected. Some examples are school playgrounds and ball fields.

Privately owned lands can also be protected under Article 97 if the deed is restricted by a **Conservation Restriction, Agricultural Preservation Restriction, Historical Restriction, or Wetland Restriction.**

In Worcester, organizations such as Greater Worcester Land Trust (GWLT), Mass Audubon, other non-profits (Friends of Green Hill Park for example) and private institutions (Clark University and Worcester Polytechnic Institute for example), contribute to the protection and preservation of conservation lands that save open space from development and urban sprawl.

GWLT owns land with Conservation Restrictions, but also has Conservation Restrictions on land owned by the City (Conservation Commission or DPW & Parks). The reverse is true for the City, i.e. the Conservation Commission or DPW & Parks may hold Conservation Restrictions for lands owned by non-profit organizations such as GWLT and others. These types of agreements have been mutually beneficial in Worcester to ensure the protection and preservation of the hundreds of acres of land possessing vital recreational benefit and unique natural resources. It has also allowed the city to be able to expand and protect their acquisition of properties for the purposes of conservation.

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Chapter 61, 61A or 61B refers to lands under special taxation programs, managed by owners of forestry, agricultural, horticultural or recreational use.

A. Private Parcels

(Refer to **Appendix A** City of Worcester’s Open Space and Recreation Map - Figure 7, and to the inventory charts contained at the back of this section.)

Forest Lands under Chapter 61

Chapter 61 of the General Laws was enacted to encourage the preservation and development of the Commonwealth’s productive forest land. If forest land qualifies for classification under Chapter 61, it will be taxed exclusively under the provision of that chapter and will be exempt from full value property taxation. In order to qualify:

1. The land must consist of at least 10 contiguous acres of “forest land,”
2. The state forester must certify that the land is managed under an approved 10 year rest management plan and
3. A timely and completed application for classification must be submitted to the assessors. Assessed valuations are 5% of the “full and fair cash valuation” of the property or \$10 per acre, whichever is greater, plus an additional products tax of 8% on the actual products (timber) cut.

Examples of property falling into this category are included in the chart below.

Owner	Location	Acreage
Lauring	Moreland St.	21.16 ac
Donker	Tory Fort Lane	0 ac



Pond at Parsons Cider Mill

Agricultural Lands under Chapter 61A

Chapter 61A – A constitutional amendment approved by the voters of the Commonwealth in 1972 authorized the General Court to provide for the

valuation and taxation of agricultural/horticultural land based solely upon the land’s agricultural/horticultural use.

The purpose of assessing agricultural/horticultural land solely on the basis of the current use it to promote the development and conservation of these types of lands, considered to be a valuable resource of the Commonwealth. Qualifications for this designation include: 1) the land must be “actively devoted” to agricultural/horticultural uses, 2) the parcel must be of at least 5 contiguous acres, 3) the gross sales from the land actively devoted to agricultural/horticultural uses must be \$500 or more per year and 4) the land must be actively devoted to agricultural/horticultural uses for at least 2 tax years immediately preceding the year for which the classification is sought.

The valuation of Chapter 61A properties is in accordance with Department of Revenue guidelines published on an annual basis.

The range currently begins at \$35 an acre of non-productive land to \$19,080 per acres for “above average” productivity for cranberry productions.

Examples of properties falling into this category are included in the chart below.

Owner	Location	Acreage
Barys	Rydberg Terrace.	6.73 ac
Ence	Airport Drive	5.00 ac

Open-Recreational Lands under Chapter 61B

Chapter 61B of the General Laws provides some measure of tax relief to land utilized for certain qualifying “recreational” purposes. Chapter 61B provides a tax benefit by classifying land, when appropriate, as “recreational land” and taxing it exclusively under the provisions of Chapter 61B. Under this Chapter, recreational land is valued and assessed on the basis of its present use rather than upon its full and fair value, and in no event may the valuation exceed 25% of the full and fair value. Land will qualify if it consists of five or more acres and is retained in a substantially natural, wild or open condition or in a landscaped condition, provided the condition of the land allows to a significant extent the preservation of wildlife and other natural resources. The above land need not be open to the general public for qualification. Land of five or more acres may also qualify solely on the basis of its recreational use, provided such use does not materially interfere with the environmental benefits

derived from the land and the land must be made available either to the public or to members of a non-profit organization.

The only qualifying recreational uses are: hiking camping nature study and observation, boating golfing, horseback riding, hunting fishing, skiing, swimming, picnicking, private non-commercial flying, hang-gliding, archery or target shooting.

Examples of property falling into this category are included in the chart below



Image courtesy of Worcester Country Club <http://www.worcestercc.org/>

Owner	Location	Acreage
Tatnuck Country Club	Rice Street	165.47 ac
Worcester Country Club	Pleasant St	235.56 ac
Smith's Pond Co.	Cooks Pond	22.60ac
Courtney	Brigham Rd	9.00 ac
Estabrook	Massasoit Rd	5.80 ac
Schmitt	North Bend Rd	5.22 ac



Image courtesy of Tatnuck Country Club <http://www.tatnuckcc.com/Club/Scripts/Home/home.asp>

B. Public and Nonprofit Parcels

There are many other types of properties that provide open space benefits. While not analyzed in depth, these properties have been identified below.

Worcester Public Schools

See Listings in Inventory Chart

Other City of Worcester

(Ownership designations unclear, no Article 97 protection afforded)

See Listings in Inventory Chart

Major Institution Holdings (Private)

1. Assumption College
2. Bancroft School
3. Clark University (incl. Hadwen Arboretum)
4. Holy Cross College
5. Worcester Academy
6. Worcester Polytechnic Institute

Major Institution Holdings (Public)

1. Quinsigamond Community College
2. University of Massachusetts Medical Center
3. Worcester State College
4. Worcester State Hospital

State Highway Land

MHD Excess Land	38.2
Highway Taking	1.0
R.O.W Parcels	3.4

Water-based Recreation and Linear Trail Systems

As part of the inventory effort, we have included information related to water-based recreation and linear trail systems.

The Appalachian Mountain Club (AMC), together with the Mass Audubon and Greater Worcester Land Trust have provided the following information about current water-based recreation activities:

Table: Canoeing Facilities

Water Body	Canoeing	Need permit	Ramp access	Parking
Bell Pond	Yes	Yes	No	Yes
Indian Lake	Yes	No	Yes	Yes
Lake Quinsigamond	Yes	No	Yes	Yes
Green Hill Park Pond	Yes	Yes	No	Yes
Salisbury Pond	Yes	Yes	No	No
Coes Reservoir	Yes	Yes	No	?
Cook Pond	No	NA	NA	NA
Patch Reservoir	No	NA	NA	NA
Curtis Pond	No	NA	NA	NA
Burncoat Park Pond	No	NA	NA	NA
Leesville Pond	Yes	No	No	NA
Jamesville Pond	?	NA	NA	NA
Flint Pond	Yes	No	Yes	Yes
Coes Reservoir	Yes	No	Yes	Yes

Source: AMC (2013, still in process)

The GWLT and Mass Audubon have provided the following information on linear trail systems:



Nick's Woods



Tree climbing at Bovenzi Conservation Area.



Kettle Brook Gorge
(All above Images courtesy of GWLT)

Table: Places to Hike in Greater Worcester

Name	Length (miles)	Location
Black River Bikeway*	5m	Worcester, Millbury
Bovenzi*	Several	Worcester
Broad Meadow Brook (<u>U</u>)	5m	Worcester
Burncoat Pond	4m +	Spencer
Cascades & Boynton Parks*	Several	Paxton, Holden, Worcester
Cascading Waters and Cook's Pond*	1m	Worcester
Cider Mill*	1.5m	Worcester
Cook's Canyon	2m	Barre
Crow Hill	Several	Worcester
Deed Rock or God's Ten Acre	Several	Worcester
Eagle Lake	Several	Holden
Eastside Trail	6m	Worcester
Kettle Brook*	2-3m	Worcester
Moore State Park*	1m>	Paxton
Moreland Woods*	?	Worcester
Newton Hill and Elm Park*	+/-1-2 m	Worcester
Nick's Woods*	2-3m	Worcester
Perkins Farm*		Worcester
Piermont Meadow (<u>U?</u>)	Several	Dudley
Rail Trails- Mass Central Rail Trail (Some <u>U</u> and some *)	1-4 m trails	Sterling, Holden, Rutland, W. Boylston
Southwick Pond*	2m	Paxton, Leicester

(*) = Dogs on leashes are allowed

U = Trail has some universal access trails

Trail length is in miles, round trips & approximate)

The inventory tables were compiled from the following GIS data sources: MassGIS, City of Worcester GIS, and GWLT GIS.

The total acreage was based on actual parcel size for accuracy, and therefore includes some undeveloped properties with no access, dense vegetation, etc. The available recreation land will therefore vary from the total acreage (parcel size) listed depending on each property.

For detailed information on the City parks' current use, condition, recreation potential and public access of park properties please refer to **Appendix D, Site Inventory Forms**.

All Parks Department Parcels zoning is under "OS-P Parks" and "OS-ConComm" for Conservation Commission parcels. All City parks and Conservation Commission properties are protected under Article 97. For other/private properties, Conservation Restrictions (CR) as of 2013 are listed on the following tables.

Park Managed Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	No.	STREET	DISTRICT	CR STATUS	ACREAGE	RECREATION USE TYPE	GRANT FUNDING	MANAGEMENT	CONDITION	PUBLIC ACCESS	ZONING TYPE
Elm Park	GTY OF WORCESTER	121	RUSSELL ST	4-5	None	19.38	Park	a	DPW & Parks	Appx.D	✓	S-2FR 7000
Crompton Park	GTY OF WORCESTER CROMPTON PARK	47	QUINSIGAMOND AVE	4	None	12.42	Park	a	DPW & Parks	Appx.D	✓	GR 5000
Winslow and Pleasant	GTY OF WORCESTER PARKS DEPT	374	PLEASANT ST	4	GWILT	0.55	Playground	a	DPW & Parks	Appx.D	✓	GBU 3-1 Max FAR Res
Oread Castle Park	GTY OF WORCESTER PARKS DEPT	20	ALDEN ST	4	None	3.24	Park	a	DPW & Parks	Appx.D	✓	GR 5000
University Park	GTY OF WORCESTER CRYSTAL PARK	965	MAIN ST	4	None	14.27	Park	a	DPW & Parks	Appx.D	✓	GR 5000
Harry Sherry Field	GTY OF WORCESTER	380	CAMBRIDGE ST	4	None	4.89	Field	a	DPW & Parks	Appx.D	✓	LBU 1-1 Max FAR Res
Coolson Field	GTY OF WORCESTER COOKSON FLD	103	CLAY ST	4	None	18.93	Property		DPW & Parks	Appx.D	✓	S-2FR 7000
Coes Knife Parks: Coes Knife	GTY OF WORCESTER QTY MANAGER	72	COES ST	5	None	4.32	Property		DPW & Parks	Appx.D	✓	LMU 1-1 Far Biz
Elm Park (Newton Hill)	GTY OF WORCESTER	339	HIGHLAND ST	5	None	39.00	Park	d/e	DPW & Parks	Appx.D	✓	S-2FR 7000
Columbus Park	GTY OF WORCESTER	10	CIRCUIT AVE WEST	5	None	8.81	Park	a	DPW & Parks	Appx.D	✓	SFR 7000
Beaver Brook Park	GTY OF WORCESTER PARKS DEPT	1258	MAIN ST	5	None	18.08	Park	a	DPW & Parks	Appx.D	✓	GBU 4-1 FAR Res
Bennett Field	GTY OF WORCESTER BENNETT FIELD	1258	MAIN ST	5	None	5.63	Field		DPW & Parks	Appx.D	✓	SFR 7000
Apricot Street Playground	GTY OF WORCESTER	0	APRICOT ST	5	None	2.32	Playground		DPW & Parks	Appx.D	✓	S-2FR 7000
Hadwen Park	GTY OF WORCESTER HADWEN PARK	19	HEARD ST	5	None	58.09	Park		DPW & Parks	Appx.D	✓	SFR 7000
Farber Field	GTY OF WORCESTER	90	CAMELOT DR	5	None	3.15	Field		DPW & Parks	Appx.D	✓	SFR 7000
Ty Cobb	GTY OF WORCESTER QTY MANAGER	67	JAMES ST	5	None	12.20	Field		DPW & Parks	Appx.D	✓	GMU 1-1 FAR Biz
Bailey-Prouty Playground	FASSETT,JEANNE MARIE TRUSTEE	89	PROUTY LN	5	None	3.74	Parks		DPW & Parks	Appx.D	✓	Airport District
Logan Field	GTY OF WORCESTER	539	MILL ST	5	None	11.33	Field		DPW & Parks	Appx.D	✓	SFR 7000
Rockwood Field	GTY OF WORCESTER	540	CHANDLER ST	5	None	15.53	Field	a	DPW & Parks	Appx.D	✓	Colleges & Universities
Coes Knife Parks: Knights of Columbus	GTY OF WORCESTER	44	CIRCUIT AVE NORTH	5	GWILT	8.36	Field	a	DPW & Parks	Appx.D	✓	SFR 7000
Coes Knife Parks: Coes Pond Beach	GTY OF WORCESTER	200	MILL ST	5	None	1.67	Beach		DPW & Parks	Appx.D	✓	SFR 7000
Cascade Park	GTY OF WORCESTER	105-151	CATARACT ST	5	None & GWILT	69.06	Park		DPW & Parks	Appx.D	✓	SFR 7000
60 PROPERTIES						1290						

TOTAL ACRES

d. Massachusetts Historical Commission

a. Massachusetts Division of Conservation Services PARK or LAND

b. Massachusetts Division of Conservation Services Common Backyards

e. Massachusetts Department of Conservation & Recreation Trails

c. 319 Water Quality

Public School Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	No.	STREET	DISTRICT	CR STATUS	ACREAGE	Management	Garden
Midland St.	CITY OF WORCESTER SCHOOL DEPT	18	MIDLAND ST	1	None	0.60		
Forest Grove Middle & Francis McGrath Elementary	CITY OF WORCESTER SCHOOL DEPT	495	GROVE ST	1	None	28.78		
Nelson Place	CITY OF WORCESTER SCHOOL DEPT	35	NELSON PL	1	None	9.61		
Thorndyke Rd	CITY OF WORCESTER SCHOOL DEPT	30	THORNDYKE RD	1	None	5.34		
Burncoat St. Preparatory	CITY OF WORCESTER SCHOOL DEPT	526	BURNCOAT ST	1	None	1.67		
Norrbark Ave.	CITY OF WORCESTER SCHOOL DEPT	44	MALDEN ST	1	None	5.81		
Worcester Arts Magnet	CITY OF WORCESTER SCHOOL DEPT	321	SAINT NICHOLAS AVE	1	None	10.22		
School Shop	ABBY KELLEY FOSTER CHARTER	0	NEW BOND ST	1	None	7.23		
Clark St. Developmental Learning	CITY OF WORCESTER SCHOOL DEPT	280	CLARK ST	1	None	16.71		
City View Discovery	CITY OF WORCESTER SCHOOL DEPT	0	EASTERN AVE	2	None	4.80		
Grafton Street School	CITY OF WORCESTER SCHOOL DEPT	311	GRAFTON ST	2	None	1.17		School
Harlow	CITY OF WORCESTER SCHOOL DEPT	15	HARLOW ST	2	None	0.68		

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Public School Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	No.	STREET	DISTRICT	CR STATUS	Acreege	Management	Garden
Belmont Street Community School	CITY OF WORCESTER SCHOOL DEPT	170	BELMONT ST	2	None	5.99		School
Lake View	CITY OF WORCESTER SCHOOL DEPT	133	COBURN AVE	2	None	1.42		
North High	CITY OF WORCESTER SCHOOL DEPT	150	HARRINGTON WAY	2	None	19.23		School
Burncoat Middle & High Schools	CITY OF WORCESTER SCHOOL DEPT	135	BURNGOAT ST	2	None	33.52		
Wawecus Rd.	CITY OF WORCESTER SCHOOL DEPT	20	WAWECUS RD	2	None	4.36		
Worcester Technical High School	CITY OF WORCESTER SCHOOL DEPT	1	SKYLINE DR	2	None	20.25		School
Doherty Memorial High School	CITY OF WORCESTER SCHOOL DEPT	299	HIGHLAND ST	5	None	23.77		School
Greendale Head Start	CITY OF WORCESTER SCHOOL DEPT	130	LEEDS ST	1	None	1.02		School
Columbus Park Elementary School	CITY OF WORCESTER SCHOOL DEPT	75	LOVELL ST	5	None	2.48		School
Union Hill	CITY OF WORCESTER SCHOOL DEPT	1	CHAPIN ST	3	None	1.37		School
Quinsigamond	CITY OF WORCESTER SCHOOL DEPT	14	BLACKSTONE RIVER RD	3	None	2.42		
Worcester East Middle	CITY OF WORCESTER SCHOOL DEPT	420	GRAFTON ST	3	None	1.99		
Roosevelt	CITY OF WORCESTER SCHOOL DEPT	1006	GRAFTON ST	3	None	9.09		
Rice Square	CITY OF WORCESTER SCHOOL DEPT	76	MASSASOIT RD	3	None	2.18		
Vernon Hill	CITY OF WORCESTER SCHOOL DEPT	211	PROVIDENCE ST	3	None	5.37		
The Gerald Creamer Center	CITY OF WORCESTER SCHOOL DEPT	120	GRANITE ST	3	None	1.98		
Elm Park Community	CITY OF WORCESTER SCHOOL DEPT	33	NORTH ASHLAND ST	4	None	4.22		Community
Fanning Learning	CITY OF WORCESTER SCHOOL DEPT	24	CHATHAM ST	4	None	0.96		School
Durkin Administration Building	CITY OF WORCESTER SCHOOL DEPT	20	IRVING ST	4	None	0.90		
Claremont / Woodland Academy	CITY OF WORCESTER SCHOOL DEPT	15	CLAREMONT ST	4	None	2.07		
Chandler Elementary School	CITY OF WORCESTER SCHOOL DEPT	114	CHANDLER ST	4	None	0.79		School
Jacob Hiatt Magnet	CITY OF WORCESTER SCHOOL DEPT	768	MAIN ST	4	None	0.50		
Jacob Hiatt Elementary School	CITY OF WORCESTER SCHOOL DEPT	770	MAIN ST	4	None	0.70		School
Goddard School of Science & Technology	CITY OF WORCESTER SCHOOL DEPT	14	RICHARDS ST	4	None	2.06		School
University Park Campus School	CITY OF WORCESTER	12	FREELAND ST	4	None	0.68		School
Canterbury St. Magnet	CITY OF WORCESTER SCHOOL DEPT	129	CANTERBURY ST	4	None	0.97		
Woodward Day	SOCHA, NANCY A TRUSTEE	190	FREMONT ST	4	None	0.41		
Chandler Magnet	CITY OF WORCESTER SCHOOL DEPT	525	CHANDLER ST	5	None	21.15		School
Foley Athletic Complex	CITY OF WORCESTER SCHOOL DEPT	50	ABBOTT ST	5	None	14.09		
Hartwell Learning Center	CITY OF WORCESTER SCHOOL DEPT	1407	MAIN ST	5	None	4.40		
Lincoln St.	CITY OF WORCESTER SCHOOL DEPT	549	LINCOLN ST	2	None	6.52		
Mill Swan A & B Head Start	CITY OF WORCESTER SCHOOL DEPT	337	MILL ST	5	None	6.04		School
Flags St.	CITY OF WORCESTER SCHOOL DEPT	115	FLAGG ST	1	None	9.96		
West Tatnuck	CITY OF WORCESTER SCHOOL DEPT	300	MOWER ST	5	None	33.60		
Tatnuck Magnet	CITY OF WORCESTER SCHOOL DEPT	1083	PLEASANT ST	5	None	3.65		
Heard St. Discovery Academy	CITY OF WORCESTER SCHOOL DEPT	200	HEARD ST	5	None	5.51		
May Street School	CITY OF WORCESTER SCHOOL DEPT	275	MAY ST	5	None	2.02		School
South High School	CITY OF WORCESTER SCHOOL DEPT	170	APRICOT ST	5	None	43.31		School

*NOTE: Acreage does NOT reflect Open Space, only total property size

TOTAL ACRES *

43 PROPERTIES

393.59

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State Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	ACREAGE	RECREATION USE TYPE	GRANT FUNDING	MANAGEMENT	CONDITION	PUBLIC ACCESS	Management	Garden
Pernet Family Health Center Garden	COMM OF MASS HIGHWAY DEPT	MILLBURY ST	4	None	0.58	Passive		City	Unimproved	✓	SFR 10000	
Quinsigamond State Park - Lake Park	COMM OF MASS ENVIRONMENTAL MNGT	LAKE AVE	3	None	23.25	Passive		City	Unimproved	✓	SFR 10000	
Quinsigamond State Park - Regatta Point	COMM OF MASS ENVIRONMENTAL MNGT	LAKE AVE NORTH	2	None	9.55	Passive		City	Unimproved	✓	SFR 7000	
DMH Parcel	COMM OF MASS MENTAL HEALTH		0	GWLT	9.60	Passive		City	Unimproved	✓	SFR 7000	

TOTAL ACRES*

42.98

*NOTE: Acreage does NOT reflect Open Space, only total property size

Worcester Conservation Commission Properties (At present, properties are largely unimproved and not actively managed.)

NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	ACREAGE	RECREATION USE TYPE	GRANT FUNDING	MANAGEMENT	CONDITION	PUBLIC ACCESS	ZONING TYPE
Grove Street	WORCESTER CONSERVATION COMMISSION	GROVE ST	1	None	0.21	Passive		City	Unimproved	✓	SFR 10000
Forest St.	WORCESTER CONSERVATION COMMISSION	FOREST ST	1	None	0.56	Passive		City	Unimproved	✓	SFR 10000
Aroostook Street	WORCESTER CONSERVATION COMMISSION	AROOSTOOK ST	1	None	0.75	Passive		City	Unimproved	✓	SFR 7000
Chester St	WORCESTER CONSERVATION COMMISSION	CHESTER ST	1	None	4.30	Passive		City	Unimproved	✓	SFR 7000
Winter Hill Preserve	WORCESTER CONSERVATION COMMISSION	VENUS DR	1	None	0.14	Passive		City	Unimproved	✓	SFR 7000
Governors St.	WORCESTER CONSERVATION COMMISSION	BANISTER-GOVERNORS ST	1	None	2.56	Passive		City	Unimproved	✓	SFR 7000
105 Wayside Rd.	WORCESTER CONSERVATION COMMISSION	WAYSIDE RD	1	None	3.33	Passive		City	Unimproved	✓	SFR 7000
1 Country Club Blvd.	WORCESTER CONSERVATION COMMISSION	COUNTRY CLUB BLVD	1	None	0.30	Passive		City	Unimproved	✓	S-2FR 7000
55 White Ave	WORCESTER CONSERVATION COMMISSION	WHITE AVE	1	None	1.05	Passive		City	Unimproved	✓	SFR 7000
Darnell Road	WORCESTER CONSERVATION COMMISSION	DARNELL RD	1	None	2.40	Passive		City	Unimproved	✓	SFR 7000
Lindberg Abutter	WORCESTER CONSERVATION COMMISSION	BRATTLE ST	1	None	0.47	Passive		City	Unimproved	✓	SFR 7000
88 Anna St.	WORCESTER CONSERVATION COMMISSION	ANNA ST	2	None	4.29	Passive		City	Unimproved	✓	S-2FR 7000
Harrington Way	WORCESTER CONSERVATION COMMISSION	HARRINGTON WAY	2	None	8.55	Passive		City	Unimproved	✓	SFR 7000
Dallas St.	WORCESTER CONSERVATION COMMISSION	NONQUIT-EMPIRE ST	2	None	15.98	Passive		City	Unimproved	✓	S-2FR 7000
240 Coburn Ave	WORCESTER CONSERVATION COMMISSION	COBURN AVE	2	None	0.52	Passive		City	Unimproved	✓	S-2FR 7000
Belmont St.	WORCESTER CONSERVATION COMMISSION	BELMONT ST	2	None	0.15	Passive		City	Unimproved	✓	S-2FR 7000
St Anthony's Street	WORCESTER CONSERVATION COMMISSION	GUSTAVUS AVE	3	None	2.72	Passive		City	Unimproved	✓	GBU 2-1 FAR Res
108 Commonwealth Ave.	WORCESTER CONSERVATION COMMISSION	COMMONWEALTH AVE	3	None	0.12	Passive		City	Unimproved	✓	S-2FR 7000
St Anthony's St	WORCESTER CONSERVATION COMMISSION	GUSTAVUS AVE	3	None	0.79	Passive		City	Unimproved	✓	S-2FR 7000
73 St Louis Street	WORCESTER CONSERVATION COMMISSION	SANT LOUIS ST	3	None	0.45	Passive		City	Unimproved	✓	S-2FR 7000
Ellen St.	WORCESTER CONSERVATION COMMISSION	MARGIN-ELLEN-NILES ST	3	None	4.56	Passive		City	Unimproved	✓	SFR 7000
251 Providence St.	WORCESTER CONSERVATION COMMISSION	PROVIDENCE ST	3	None	4.25	Passive		City	Unimproved	✓	S-2FR 7000
Lorenzo St	WORCESTER CONSERVATION COMMISSION	LORENZO ST	3	None	2.23	Passive		City	Unimproved	✓	S-2FR 7000
Perkin's Farm	WORCESTER CONSERVATION COMMISSION	JOLIVA RD-GRAFTON ST	3	None	78.43	Passive		City	Trails	✓	SFR 7000
Lake Ave	WORCESTER CONSERVATION COMMISSION	LAKE AVE	3	None	0.44	Passive		City	Unimproved	✓	S-2FR 7000
Broad Meadow Brook	WORCESTER CONSERVATION COMMISSION	SOUTH WORCESTER	3	GWLT	144.78	Passive		City	Trails	✓	SFR 7000 + S-2FR 7000
Park Hill Road	WORCESTER CONSERVATION COMMISSION	PARK HILL RD	3	None	4.05	Passive		City	Unimproved	✓	SFR 7000
8 A Crest Ave	WORCESTER CONSERVATION COMMISSION	CREST AVE	3	None	0.11	Passive		City	Unimproved	✓	SFR 7000
25 Swensen Ave	WORCESTER CONSERVATION COMMISSION	SWENSON AVE	3	None	0.12	Passive		City	Unimproved	✓	SFR 7000
20 Echo Street	WORCESTER CONSERVATION COMMISSION	ECHO ST	3	None	0.78	Passive		City	Unimproved	✓	SFR 7000

Worcester Conservation Commission Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	ACREAGE	RECREATION USE TYPE	GRANT FUNDING	MANAGEMENT	CONDITION	PUBLIC ACCESS	ZONING TYPE
41 Dolly Drive	WORCESTER CONSERVATION COMMISSION	DOLLY DR	3	None	0.58	Passive		City	Unimproved	✓	SFR 7000
Iowa St.	WORCESTER CONSERVATION COMMISSION	IOWA ST	5	None	0.97	Passive		City	Unimproved	✓	SFR 7000
10 Westview Road	WORCESTER CONSERVATION COMMISSION	WESTVIEW RD	5	None	2.77	Passive		City	Unimproved	✓	SFR 7000
50 Chamberlain Parkway	WORCESTER CONSERVATION COMMISSION	CHAMBERLAIN PKWY	5	None	0.31	Passive		City	Unimproved	✓	SFR 7000
42 Westview Road	WORCESTER CONSERVATION COMMISSION	WESTVIEW RD	5	None	0.52	Passive		City	Unimproved	✓	SFR 7000
Moreland Woods	WORCESTER CONSERVATION COMMISSION	MORELAND ST	5	None	20.99	Passive		City	Trails	✓	SFR 7000
Dixon Avenue South	WORCESTER CONSERVATION COMMISSION	DIXON AVE SOUTH	5	None	0.48	Passive		City	Unimproved	✓	SFR 7000
551 R. Chandler St.	WORCESTER CONSERVATION COMMISSION	CHANDLER ST	5	None	0.34	Passive		City	Unimproved	✓	SFR 7000
66 Rockrimmon Rd.	WORCESTER CONSERVATION COMMISSION	ROCKRIMMON RD	5	None	2.23	Passive		City	Unimproved	✓	SFR 7000
Patch Reservoir	WORCESTER CONSERVATION COMMISSION	GLENDALE ST	5	None	6.36	Passive		City	Unimproved	✓	SFR 7000
Dawson Rd	WORCESTER CONSERVATION COMMISSION	HOOSAC ST-DAWSON RD	5	None	63.99	Passive		City	Trails	✓	SFR 7000
Ceas Reservoir Shoreline	WORCESTER CONSERVATION COMMISSION	SOUTHER DR	5	GWLT	7.65	Passive		City	Unimproved	✓	SFR 7000
Parson's Hill	WORCESTER CONSERVATION COMMISSION	PARSONS HILL DR	5	None	1.69	Passive		City	Unimproved	✓	S-2FR 7000
43 PROPERTIES					TOTAL ACRES 397.68						

*NOTE: Acreage does NOT reflect Open Space, only total property size

Auburn Conservation Commission Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	ACREAGE	MANAGEMENT	Garden
Leesville Pond	TOWN OF AUBURN CONSERVATION COMMISS	WEBSTER ST	5	None	17.92		

City Owned Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	ACREAGE	MANAGEMENT	Garden
GOD'S ACRE ST.	AIRPORT INDUSTRIAL PARK	SWAIN AVE	5	None	132.53		
Hawley Street Garden	CITY OF WORC EOEND	HAWLEY ST	4	None	0.14		Community
Ryan Ornamental	CITY OF WORC TAX TITLE CUSTODIAN	SUTTON LN	5	GWLT	1.90	GWLT	Community
CROW HILL	CITY OF WORCESTER	DARTMOUTH-CLARENDON ST	2	None	27.99	GWLT	
Sherer Trail	CITY OF WORCESTER	MONTICELLO DR	5	None	14.64	ConComm	
BROAD MEADOW BROOK	CITY OF WORCESTER/DPW	GRANITE ST	3	None	95.90	MassAud	
Bailin	CITY OF WORCESTER	BAILIN DR	3	None	4.62	MassAud	
Cascade Ea st	CITY OF WORCESTER	CATARACT ST	5	GWLT	31.57	GWLT	
Parson's Cider Mill	CITY OF WORCESTER	GODDARD MEMORIAL DR	5	GWLT	18.13	GWLT	
PATCHES RESERVOIR	CITY OF WORCESTER CITY MANAGER	MILL ST	5	None	54.38	ConComm	
Coal Mine Brook II	CITY OF WORCESTER DPW	PLANTATION ST	2	GWLT	5.29	GWLT	
Worcester Public Library	CITY OF WORCESTER PUBLIC LIBRARY	SALEM SQ	2	None	1.50		School
Senior Community Center Garden	CITY OF WORCESTER SENIOR CENTER	PROVIDENCE ST	3	None	2.42		Community
Water Department Parcel	CITY OF WORCESTER WATER DEPT	GODDARD MEMORIAL DR	5	GWLT	8.97		
2 Lafayette Street	WORCESTER HOUSING AUTHORITY	LAFAYETTE ST	4	None	0.24		Community
Lincoln Park Tower Garden	WORCESTER HOUSING AUTHORITY	LAKE AVE	2	None	4.96		Community
Greenwood Gardens	WORCESTER HOUSING AUTHORITY	GREENWOOD ST	3	None	4.59		Community
Curran Apartments Garden	WORCESTER HOUSING AUTHORITY	PROVIDENCE ST	3	None	3.31		Community

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NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	Acreage	Management	Garden
Booth Apartments Garden	WORCESTER HOUSING AUTHORITY	LINCOLN ST	1	None	7.97		Community
Roberto Clemente Playground	WORCESTER HOUSING AUTHORITY	CONSTITUTION AVE	1	None	13.95		9 Comm
20 PROPERTIES					TOTAL ACRES	435.00	Gardens

*NOTE: Acreage does NOT reflect Open Space, only total property size

Greater Worcester Land Trust Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	Acreage	Management	Garden
Kinney Woods			0	Holden Cont Com	53.22		
PROSPECT HILL	GREATER WORCESTER LAND TRUST	HOWATSON WAY	1	None	3.74		
Sargent's Brook Property	GREATER WORCESTER LAND TRUST	GROVE ST	1	None	2.61		
NICK'S WOODS	GREATER WORCESTER LAND TRUST	GROVE ST	1	GHPC	59.89		
BOVENZI PARK	GREATER WORCESTER LAND TRUST	SUNRISE AVE & CORINTH AVE	1	MASS	84.47		
LINDBERG	GREATER WORCESTER LAND TRUST	BRATTLE ST	1	MASS	38.13		
Brattle St.	GREATER WORCESTER LAND TRUST	BRATTLE ST	1	None	0.59		
Curtis Pond Parcel	GREATER WORCESTER LAND TRUST	STAFFORD ST	5	None	0.14		
Coe's Reservoir Shoreline Connector	CITY OF WORCESTER	CIRCUIT AVE NORTH	5	GWLT	0.26		
KETTLE BROOK & EASEMENT	GREATER WORCESTER LAND TRUST	MERRIDALE-LUDLOW ST	5	None	15.55		
180 South Flagg Street	GREATER WORCESTER LAND TRUST	SOUTH FLAGG ST	5	None	0.16		
Sherer Trail	GREATER WORCESTER LAND TRUST INC	SPRING LN	5	None	1.55		
Tetasset Ridge	GREATER WORCESTER LAND TRUST INC	ESPER AVE	5	WORC	17.01		
BRIGHAM RD. PARCEL	GREATER WORCESTER LAND TRUST	BRIGHAM RD	5	None	2.97		
Tony Fort Lane Parcel	GREATER WORCESTER LAND TRUST	DAWSON RD	5	None	0.59		
CASCADE WEST & WATERS	GREATER WORCESTER LAND TRUST	MOWER-OLEAN ST	5	None & WORC	149.99		
Marois Property	GREATER WORCESTER LAND TRUST	GODDARD MEMORIAL DR	5	None	26.93		
1551 Main St.	GREATER WORCESTER LAND TRUST INC	MAIN ST	5	None	0.28		
18 PROPERTIES					TOTAL ACRES	458.07	

*NOTE: Acreage does NOT reflect Open Space, only total property size

Mass Audubon Society Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	Acreage	Management	Garden
7 Hjeltn Rd.	MASSACHUSETTS AUDUBON SOCIETY INC	HJELM AVE	3	None	7.89		
4 Crest Ave.	MASSACHUSETTS AUDUBON SOCIETY INC	CREST AVE	3	None	3.29		
20R Woodcliffe Ave	MASSACHUSETTS AUDUBON SOCIETY INC	WOODCLIFFE AVE	3	None	1.12		
Dunkirk Ave	MASSACHUSETTS AUDUBON SOCIETY INC	DUNKIRK AVE	3	None	0.15		
Dunkirk Ave	MASSACHUSETTS AUDUBON SOCIETY INC	DUNKIRK AVE	3	None	0.06		
Broad Meadow Brook	MASSACHUSETTS AUDUBON SOCIETY INC	MASSASOIT RD	3	None	3.05		
Peter's East	MASSACHUSETTS AUDUBON SOCIETY INC	GRANITE ST	3	None	14.01		
Beckland	MASSACHUSETTS AUDUBON SOCIETY INC	BECKLAND ST	3	None	3.61		
Park Hill Rd.	MASSACHUSETTS AUDUBON SOCIETY INC	PARK HILL RD	3	None	0.40		
7 Hjeltn Ave.	MASSACHUSETTS AUDUBON SOCIETY INC	HJELM AVE	3	None	0.11		

Private Properties

NAME OF PARCEL	ASSESSORS OWNERSHIP	STREET	DISTRICT	CR STATUS	Acreage	Management	Garden	
Seven Hills Charter Public School	LEARNING FIRST FOUNDATION INC	GAGE ST	2	None	0.96		School	
Benefit St. Garden	MAIN SOUTH COMMUNITY	BENEFIT ST	4	None	0.13		Community	
Elm Park Tower Garden	METROPOLIS-WOR0001A	PLEASANT ST	4	None	0.00		Community	
Coal Mine Brook	MOHEGAN COUNCIL INC BOY SCOUTS	PLANTATION ST	2	GWLT	7.34	GWLT		
Dismas House Garden	MORRILL, DAVID	RICHARDS ST	4	None	0.16		Community	
Lafayette Place Garden	MOTON INC	WASHINGTON ST	4	None	0.16		Community	
204 Grantie St.	NEW ENGLAND POWER COMPANY	GRANITE ST	3	None	16.26	MassAud		
414 Massasoit Rd.	NEW ENGLAND POWER COMPANY	MASSASOIT RD	3	None	114.74	MassAud		
482 Southwe st Cutoff	NEW ENGLAND POWER COMPANY	SOUTHWEST CUTOFF	3	None	5.58	MassAud		
WOO Garden	PILGRIM CONGREGATIONAL CHURCH	MAIN ST	4	None	0.65		Community	
Quinsigamond Village Community Center	QUINSIGAMOND VILLAGE COMMUNITY	GREENWOOD ST	3	None	0.33		School	
Ely Street Garden	REVICKI, ANN MARIE M	CASTLE ST	4	None	0.09		Community	
Alternative School AT St. Casimir's	ROMAN CATHOLIC BISHOP OF WORCESTER	WAVERLY ST	2	None	0.47			
Oak Hill CDC	ROMAN CATHOLIC BISHOP OF WORCESTER	PROVIDENCE ST	2	None	0.07		Community	
Worcester Central Catholic	ROMAN CATHOLIC BISHOP OF WORCESTER	MAIN ST	4	None	4.46		Community	
Cook's Pond	SMITHS POND CORP	TORY FORT LN	5	GWLT	35.91	GWLT/Parks		
Wayside Rd	SPEIGHT, AUGUSTER, JR + ESTELLA	ERIE AVE	1	None	0.40	ConComm		
Standish Garden	STANDISH NEIGHBORHOOD ECONOMIC	LAGRANGE ST	4	None	0.37		Community	
Patch Reservoir	THE CHURCH IN WORCESTER, INC	PATCH ISLAND	5	None	0.87	ConComm		
Semillas da Vida (Seeds of Life) Garden	THE RELIGIOUS OF THE ASSUMPTION	VINEYARD ST	5	None	0.16		Community	
Senior Community Center	VHS ACQUISITION SUBSIDIARY NUMBER 7,	PROVIDENCE ST	3	None	0.73		Community	
Saint Francis & Therese Catholic Worker House Garden	WALKER, ROBERT C	MASON CT	4	None	0.04		Community	
Neighbors To Dismas House	WHITE, KEVIN J	RICHARDS ST	4	None	0.17		Community	
EAT Center	WORCESTER COMMON GROUND INC	OREAD PL	4	None	0.03		Community	
Castle Street Garden	WORCESTER COMMON GROUND, INC	VALLEY ST	4	None	0.19		Community	
Temple Emanuel	WORCESTER JEWISH COMMUNITY HOUSING	CHANDLER ST	5	None	2.62		Community	
Worcester Youth Center	WORCESTER YOUTH CENTER INC	CHANDLER ST	5	None	0.87		School	
Zion Greendale Garden	ZION EVANGELICAL LUTHERAN CHURCH	WHITMARSH AVE	1	None	0.58		Community	
Castle Park			4	None	0.05		Community	
Parsons Hill Associates			0	WORC	12.04			
TOTAL ACRES							31 Comm	
*NOTE: Acreage does NOT reflect Open Space, only total property size							Gardens	
47 PRIVATE PROPERTIES							251.94	

2 South Harlem Street	JALLAH, PAUL K + BETTY	SOUTH HARLEM ST	4	None	0.09		Community
KofC CR & Coes Reservoir Park	KNIGHTS OF COLUMBUS RELIGIOUS	CIRCUIT AVE NORTH	5	GWLT	7.00	GWLT / Parks	
YouthGROW Orenic	KROSOCZKA, JOSEPH M + STEPHEN A	LAGRANGE ST	4	None	0.98		Community
Hector Reyes Garden	LATIN AMERICAN HEALTH ALLIANCE	VERNON ST	3	None	0.17		Community

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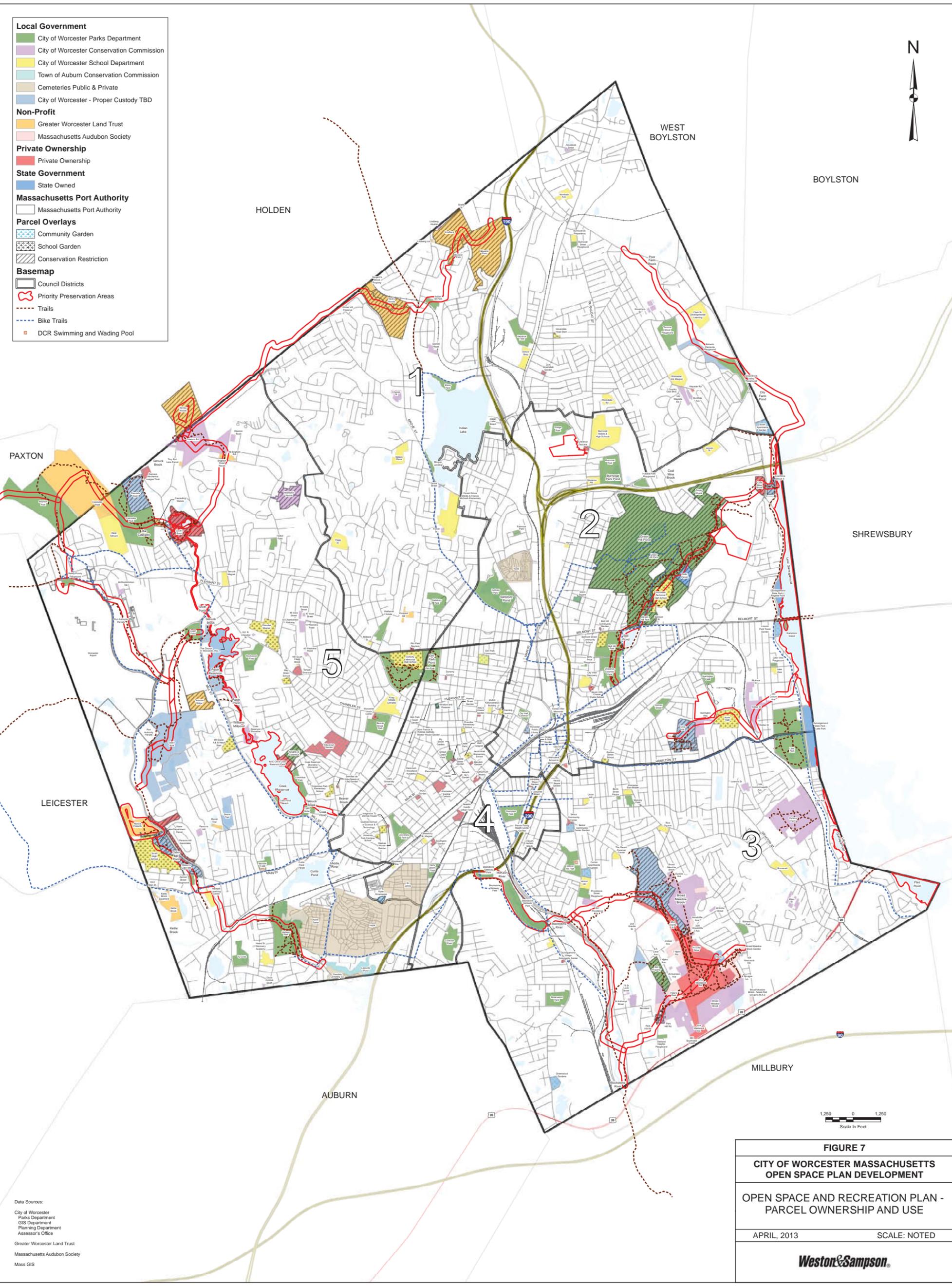
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- Local Government**
 - City of Worcester Parks Department
 - City of Worcester Conservation Commission
 - City of Worcester School Department
 - Town of Auburn Conservation Commission
 - Cemeteries Public & Private
 - City of Worcester - Proper Custody TBD
- Non-Profit**
 - Greater Worcester Land Trust
 - Massachusetts Audubon Society
- Private Ownership**
 - Private Ownership
- State Government**
 - State Owned
- Massachusetts Port Authority**
 - Massachusetts Port Authority
- Parcel Overlays**
 - Community Garden
 - School Garden
 - Conservation Restriction
- Basemap**
 - Council Districts
 - Priority Preservation Areas
 - Trails
 - Bike Trails
 - DCR Swimming and Wading Pool



Data Sources:
 City of Worcester
 Parks Department
 GIS Department
 Planning Department
 Assessor's Office
 Greater Worcester Land Trust
 Massachusetts Audubon Society
 Mass GIS

FIGURE 7
CITY OF WORCESTER MASSACHUSETTS
OPEN SPACE PLAN DEVELOPMENT
 OPEN SPACE AND RECREATION PLAN -
 PARCEL OWNERSHIP AND USE
 APRIL, 2013 SCALE: NOTED
Weston&Sampson.

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06. Community Vision



The City of Worcester seeks to provide a diverse, accessible, and well-maintained open space and recreation system with programs that offer all residents meaningful opportunity for regular use and enjoyment. It is widely recognized that the operation of diverse open space systems can yield great benefit to those seeking to maintain active and healthy lifestyles. In addition, maintaining and operating a high quality and high visibility open space system can become a selling point for residents and for businesses and this can yield significant economic, social and environmental benefit to all.

This section contains two primary components. First, “Description of Process” outlines the public outreach approach and process. This process helped to inform and define Worcester’s “Community Vision”. Secondly, we include a Statement of Open Space and Recreation Goals. These goals are broad-brush and intended to set up more detailed discussions contained in the subsequent Goals and Objectives and Action Plan sections of the Open Space and Recreation Plan.

A. Description of Process

In the Introduction, we described the level of outreach that has been undertaken during the Open Space & Recreation Plan update.

It was through this outreach process that a “Community Vision” was initially formulated and then

vetted and refined through continued public outreach with key constituencies. In summary, Worcester’s Community Vision has been crafted as a direct outgrowth of this fully integrated outreach process which included the following elements:

Public Hearings - As the Open Space & Recreation Plan update process was carried out, more than 17 public meetings were hosted from 2012-2013 in an effort to receive maximum input from residents, user groups, youth, open space advocates, and other interested parties (Refer to **Appendix B Public Meeting Notes**).

Select Group Meetings - formal and informal meetings were conducted with a variety of other stakeholder groups (public and private) to gain insights related to current park and open space hopes, needs and concerns. The entities consulted included Worcester Elder Affairs, the Greater Worcester Land Trust, Mass Audubon’s Broad Meadow Brook Wildlife Sanctuary, Appalachian Mountain Club, WalkBike Worcester, Worcester Planning and Regulatory Services Division, Worcester Housing Authority, Worcester Public Health Division, various sports leagues, Worcester Conservation Commission, Central Massachusetts Regional Planning Agency, and Worcester’s Commission on Disability.



Correspondence - in the form of e-mail and other communications received from various members of the community that were not able to attend public meetings or had additional thoughts following a particular meeting.

Open Space Plan Public Survey - data extracted from online surveys and from hardcopy questionnaires in both English and Spanish. Nearly 600 responses were collected during the spring of 2013.

The survey's objective was to identify usage patterns, to test satisfaction with outdoor recreation areas, and to evaluate unmet needs (Refer to **Appendix C Public Survey Results**).

Other Community Groups - input from established organizations that have strong ties to particular neighborhoods and are advocates for users of existing park open space and recreation resources. For example various Community Development Corporations, various "Friends of Parks" Groups, the Regional Environmental Council and higher educational institutions all provided insight during the process.

Park and Open Space Inventories - a great deal was gleaned during the individual park and open space property site visits through observation and through important constituent interactions during many of the visits. Visits were made to all 59 Worcester DPW & Parks properties, many GWLT properties, Broad Meadow Brook Wildlife Sanctuary and many Worcester Conservation Commission properties.



The conditions of all park and open space elements were also observed and recorded. (See **Appendix D** for all Worcester DPW & Parks Site Assessment Forms). Park users' comments and suggestions were noted and recorded and then reflected within many of the priorities that are articulated in the Action Plan.

B. Statement of Open Space & Recreation Goals

No urban area can expect to prosper in the long run unless economic growth is coupled with ongoing efforts to protect, preserve, and enhance the natural environment and the recreational facilities which make it a unique and desirable place in which to live and work. It is the intent of this Open Space and Recreation Plan to establish a framework that articulates broad goals (in essence, the community's vision) followed by more specific goals, objectives and

actionable items. The establishment of a "**Community Vision**" and the corresponding goals and objectives in essence represent the desired path to the operation and maintenance of a vibrant open space system that complements the City's desire to achieve a sustainable civic equilibrium (environmentally, socially and economically).

The following Open Space and Recreation goals for Worcester reinforce the overarching goal of sustainability:



Vietnam Veteran's Memorial at Green Hill Park

Open Space and Recreation Goals

1. Continue to strive for a **balance of open space and economic development goals** in order to establish the City as a vibrant, attractive and resilient place to work, live and play.
2. Protect, manage and enhance Worcester's **cultural, historical, and natural resources**.
3. Continue to provide ample opportunities for both passive and active recreation in the City, focusing especially on **better access to all City assets including lakes, ponds and reservoirs** while protecting existing ecosystems.
4. Actively manage the City's underperforming **conservation properties**.
5. Continue to develop community supported **master planning** initiatives for individual open space properties, particularly those that have had little or no investments in recent years and exhibit less than the desired physical conditions.
6. Explore ways to expand/introduce facilities that support **high recreational demands**, like dog parks, swimming pools, outdoor ice skating venues, skate parks, etc.

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7. Undertake efforts to meet the **recreational demands of EJ populations** that have fewer possibilities of travel and are requesting better quality neighborhood parks, active and passive recreational facilities (fields, courts, playgrounds and walking trails) and community gardens, etc.
8. Invest in **streetscape improvements** and reclaim streets as active public open spaces for people and create an environment that supports people's ability to make active living choices that promotes health and well-being by incorporating streets and sidewalks into the City's planning for open space linkages and recreation investment.
9. Plan ways to **improve connectivity between open space assets**, to create a network of greenway linkages that can be walked, jogged and bicycled to and from in a clear and universally accessible way. Improved physical connections would also support and allow the migration of wildlife species (natural corridors).
10. Continue to support the role of parks in social and cultural exchanges by **promoting a diversity of events** (like concerts, farmer's market, arts in the park, etc.)
11. Continue to **involve active and organized groups** in collaborative open space and recreation ventures (like **education programming** and **outreach about existing opportunities**) for specifically targeted projects with set goals.
12. Provide **more community gardens and pocket parks and playgrounds** where needed and study the potential for use of underused park areas or abandoned parcels for this purpose.
13. Avoid compromising **quality** for quantity; small but high quality parks are examples of well used and cherished resources. Cristoforo Columbo (East) Park, Blithewood Park and Winslow Street (Peace Park) are just a few examples of properties that are modest in size but provide high value to the community through their location and design as well as by being actively engaged by their host communities.
14. Continue to seek additional **maintenance and management support/funding** from a variety of sources to overcome cuts in City operational budgets.



Mass Symphony Orchestra Family Concert at Cristoforo Columbo Park (East Park)

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07. Analysis of Needs

Introduction

As described in the previous section, Worcester’s “**Community Vision**” was established as an outgrowth of the community outreach process and the inventory of actual open space and park lands. This same public outreach process was the source for much of the information contained in this section, combined with additional data extracted from the Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP) and various publications from The Trust for Public Land (TTPL).

In essence, we have identified needs based on what we have heard and what we have seen and by applying state and national recreational standards where relevant and appropriate to help identify obvious gaps in service. The priority needs contained on the last page of this section are the direct outgrowth of this analysis of needs exercise.

This section discusses the following topics in a generally sequential manner:

A. Needs
A.1 Needs derived through Public Feedback
A.2 Needs derived through open space and park property inventories and mapping
A.3 Needs derived through the analysis of community needs and wishes, community challenges, community strengths and community opportunities and potential
B. Summary of Resource Protection Needs (Applying local and statewide measures)
C. Summary of Community Protection Needs (Applying local and statewide measures)
D. Management Needs
E. Priority Needs Summary

Serving the recreational needs of people in an urbanized environment requires an understanding of the basic relationships between supply of recreational resources and their potential users.

A person's perception of recreation and leisure activities varies with age, sex, cultural background and personal preferences. The availability of recreation-related facilities and services also significantly affect the variety and types of activities people will choose during their leisure time. While meeting every individual's specific preference is impractical, public and private agencies can ensure that sufficient opportunities for recreation exist to accommodate the majority of recreational needs in the City. It is also important to insure that mechanisms exist to monitor the changing recreational needs of neighborhoods and to adjust the menu of resources to accommodate these changes.

A. Needs

A.1 Needs derived through Public Feedback

The Worcester user survey that was conducted as part of the Open Space and Recreation Plan update process yielded results that were remarkably similar to those results referenced within the statewide open space and recreation initiative surveys that are described later in this section.

Following is a summary of needs extracted from the results of the **Worcester Parks, Recreation & Open Space Plan Public Survey**. (Refer to **Appendix C Public Survey** for full report). It should be noted that over 58% of the survey participants have lived in Worcester for more than 20 years (making them long-time residents), with the biggest group being 19-65 years of age, followed by a much smaller group of 10-14 year olds:

- 81% of the survey participants selected parks, recreation and open space as very important to them.
- The majority of the participants strongly agreed that the city should protect open space, improve access to lakes and publicly available water resources.
- About a third of the respondents visit a park or open space facility 1-2 times/week.
- Although 53% of the participants owned two vehicles and drive to the Worcester parks and open space properties that they visit, 66.7% of

Table 7.1 Summary Analysis of City Parks Inventory

Total number of park properties	City Park Properties	Total Park Acreage	Category A			Category B			Category C			Category D	Category E			Total count of active facilities per District	Category A	Category B	Category C	Category D	Category E			
			ACTIVE USE	Football	Soccer	Multipurpose Field	Little League	Softball	Baseball	Basketball	Tennis	Handball	Volleyball	Roller Hockey	Playground							Ice Skating Area	Sledding	Spray Park
10	=Subtotal properties in DISTRICT 1	83.23	2	2	0	5	2	1	3	2	0	2	0	5	0	2	0	0	26	4	8	7	5	2
17	=Subtotal properties in DISTRICT 2	620.17	4	7	0	4	4	4	9	4	1	0	1	12	2	1	1	0	54	11	12	15	12	4
11	=Subtotal properties in DISTRICT 3	162.85	0	2	0	5	4	2	5	2	0	0	0	8	0	0	1	0	29	2	11	7	8	1
7	=Subtotal properties in DISTRICT 4	112.67	1	0	0	1	2	2	6	8	3	1	0	5	4	2	1	1	37	1	5	18	5	8
15	=Subtotal properties in DISTRICT 5	311.54	1	2	2	8	5	3	3	0	0	1	1	9	0	2	0	0	37	5	16	5	9	2
60	= Total number of properties	1290.46	8	13	2	23	17	12	26	16	4	4	2	39	6	7	3	1	183	23	52	52	39	17

Total number of park properties	City Park Properties	Total Park Acreage	PASSIVE USE													Total count of passive facilities per District			
			Water Resources	Bathing Beach	Boating	Fishing	Historic Resources	Monument/ Memorial	Gazebo/Pavilion/Picnic Shelter	Amphitheater	Interpretive Signs & Kiosk	Paths & Trails	Unprogrammed Open Lawns	Picnicking	Woodlands		Other: café seating area	Other: community gardens	Other: Zoo, golf
10	=Subtotal properties in DISTRICT 1	83.23	3	2	1	1	1	3	1	0	0	4	5	2	1	0	0	0	24
17	=Subtotal properties in DISTRICT 2	620.17	2	1	1	2	5	13	10	4	1	9	10	11	4	1	1	1	77
11	=Subtotal properties in DISTRICT 3	162.85	0	0	0	0	0	5	1	0	1	7	3	5	4	0	0	26	
7	=Subtotal properties in DISTRICT 4	112.67	0	0	0	0	1	6	0	0	1	5	2	3	0	1	0	24	
15	=Subtotal properties in DISTRICT 5	311.54	7	2	0	3	1	0	0	0	1	10	5	4	4	0	0	37	
60	= Total number of properties	1290.46	12	5	2	6	8	27	12	4	4	35	28	24	16	1	2	2	188

respondents believe that sidewalks are important for recreation and for travel. Related to this, walking is consistently brought out as one of the most common recreational activities pursued in the City.

- While only 29% respondents stated that bike lanes are personally important to them, the majority of the survey participants are strongly in favor of the City providing more of them.
- In terms of park and open space ratings, participants indicated that parks were in average to good condition and they assigned open space an adequate to average rating overall.
- Half of the participants mentioned that the reasons they would rarely use an open space facility was due to poor conditions (52%) or because they felt unsafe (35%). 22% didn't know the locations of particular of parks or facilities and 21.8% found them not enjoyable or interesting.
- Overall, about one third of respondents indicated that their recreational needs are being met at an average level of performance and one third referenced a good level of performance.
- In terms of park improvements, maintenance was the most chosen improvement option, followed by restrooms, walking/jogging paths, then children's play equipment, behavior of people and the protection of open space.

A.2 Needs derived through Open Space & Recreation Property Inventory and Mapping

Using the chart contained above, one can begin to analyze basic deficiencies on a district by district basis and on a City-wide basis. Examining data from The Trust for Public Land for nearby Boston and for other US Cities, one can begin to see some trends, deficits and surpluses.

Table 7.2 Comparison Table: Acres of land, Parkland and Population

Population	Total land (acres)	Parkland* (acres)	% of Park to land
BOSTON			
617,594	30,897	4,908	16% approx.
WORCESTER			
181,045	24,648	2,000	8.1% approx.
MEDIAN US City (of High Population Density)			
			11.7% approx.

(*Public Parkland acreage includes City parks, conservation lands, state and federal park land. Note that Private Open Space Lands owned by the Greater Worcester Land Trust, Mass Audubon and certain other entities are not connected when using Trust for Public Land Criteria. When containing these and other Open Space Lands, Worcester contains 3,723 acres of total open space, or approximately 20.6 acres of parkland per 1,000 residents)

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Other comparisons between Worcester and Boston and other high density cities are as follows:

- **Worcester** has **11.1 acres** of park land per 1,000 residents.
- **Boston** has **7.9 acres** of park land per 1,000 residents.
- **Median US** High density city (out of 18 cities) has **6.7 acres** of park land per 1,000 residents.

Park Playground comparisons are summarized as follows:

- **Worcester** has **39 playgrounds**, or **2.2 playgrounds** per 10,000 residents.
- Boston has **222 playgrounds**, or **3.6 playgrounds** per 10,000 residents.
- **Median for US cities** is **2.2 playgrounds** per 10,000 residents.

Parks and Recreation Department Employees per 10,000 residents are as follows:

- **Worcester** has **50 employees**, or **2.8** per 10,000 residents.
- Boston has **191 employees**, or **3.1** per 10,000 residents.
- **Median for US cities** is **5.2 employees** per 10,000 residents.

Other snapshots to compare are as follows:

Ball Diamonds: (See Category B on **Table 7.1**)

- **Worcester** has a total of **52 diamonds***, or **2.8** per 10,000 residents.
- **Median** (in 10 US Cities) is **4 diamonds** per 10,000 residents
(*Includes softball, baseball and little league)

Off-Leash Dog Parks:

- **Worcester** has a none
- **Other US cities** have an average of **3.3** per 10,000 residents

Basketball hoops: (See Category C on **Table 7.1**)

- **Worcester** has a total of **26 basketball courts**, or **1.4** per 10,000 residents.
- **Median** (in 10 US Cities) is **6.6 basketball courts** per 10,000 residents

Swimming Pools: (See Category C on **Table 7.1**)

- **Worcester** has a total of **3 swimming pools centers** (1 City, 2 state), or **.2** per 10,000 residents.
- **Median** (in 10 US Cities) is **2.1 swimming pool centers** per 10,000 residents.

Fig. 9 sheets 1-16 and **Fig. 2b and 2c** in Appendix A show a ¼-mile radius around City owned parks. (This ¼ mile radius was chosen because of the hilly terrain of the city. Frequently, a ½ mile standard is used for this purpose. And only City owned parks were designated in this way as public accessibility to other open space properties is not always obvious or consistent). The estimated percentage of population in Worcester with walkable park access is 85%. In comparison, it was estimated that in Boston 97% of the population.

Worcester Local Gaps

The following summary of observations are extrapolated from **Table 7.1** above and **Table 7.3** below.

Table 7.3 Comparison Table: Acres of land, Park land and Population by District

District	Total District Area (acres)	Open Space Area (acres)	District Population
1	6,094	408	36,834
2	4,909	887	37,550
3	5,019	729	36,696
4	1,710	167	34,805
5	6,916	1,258 + 274*	35,160
Totals	24,648	3,449 + 274 = 3723	181,045

(*from 3 parcels in the bordering towns of Paxton and Holden (Boynton Park, Cascades West and Kinney Woods. This total Parkland acreage includes developed and undeveloped land, that is mostly, but not exclusively available for public use).

District 1 is the second largest district (total area is 6,094 ac) however, it has low total open space acreage and the lowest acreage of city park land at just 83 acres. It also contains the lowest per capita number of active recreation facilities (see Table 7.1) with 26 including just 5 children’s playgrounds.

District 2 is the most populated district (2,745 more residents than District 4, the lowest). It also contains Green Hill Park with 464.97acres (occupying more than 50% of the open space area within the district). It should be noted that Green Hill Park is a passive park, with less than 10 active recreation facilities located within its borders. In total, District 2 appears to be a recreation facility-rich district with a total of 54 active and 77 passive facilities.

District 3 is low in acres of City park land (163 acres) and also lowest in active facilities per capita (only 29 total recreation facilities and just 2 soccer fields. However, this district does include the Mass Audubon property (Broad Meadow Brook), which boosts total open space to 729 acres.

District 4 is the highest density district, being located near to the geographic and functional heart of the City. Correspondingly, it has the lowest total acreage of open space area per capita and lacks the space for athletic fields in comparison to other districts (with just 1 football field and a higher concentration of court facilities (18) compared to three of the four other Districts).

District 5 contains the most total acreage and the most acreage of open space (1,532 acres). It has a total of 37 recreation facilities but relatively limited court facilities.

Environmental Justice

In Worcester, there is a need to improve people’s awareness of existing local recreational resources (both active and passive) especially in Environmental Justice (EJ) areas (where high percentages of non-English speaking, and/or foreign born and/or low income residents live) cover a significant geographic area within the City. These EJ areas are high density and tend to be located toward the center of Worcester. With fewer park and open space assets, and with income, language and transportation barriers, this demographic tends to be less involved. There is also a need to get EJ populations to be more aware of the recreation resources that are available and to advocate for facilities that adequately meet their needs. With higher immigrant populations, EJ areas may require a different array of recreational amenities that match their cultural needs in a way that is different from prior generations of immigrants and different from those residents born and raised in this country.

Maps in **Appendix A figure 2b and 2c** illustrate the current open space and recreation system with the Environmental Justice population overlay. It illustrates areas where open space could be improved or new property could be acquired to better serve the demands of a growing population. **Figure 9** zooms into the **Half-mile radius Access to Parks** showing a neighborhood analysis of open space, community gardens and public transportation bus stops spatial relationship at a neighborhood level.

Aging Population

The average age of Massachusetts residents is increasing and the facts illustrated in Section 03 Community Settings show Worcester’s trends align to those of the state in this respect.

The trends, community feedback and responses from the survey highlight a city-wide need to focus investments on universal access, accessible circulation, and linkages to parks and open spaces throughout.

Accessibility

Statewide surveys show that households with a *member with a disability* prefer gardening and swimming. Picnic and historic sites were also popular within this group.



One in seven Massachusetts households has a member with a disability that restricts his or hers ability to use outdoor recreation areas and facilities. From the Worcester Parks, Recreation & Open Space Plan Public Survey, 5% of the participants had a person or more with a disability in their household. There is a tremendous need to design park and open space facilities and programs in a way that maximizes accessibility to this large segment (the aging and those with a disability) of the population.

A.3 Needs derived through the Analysis of Additional Community Characteristics

Information gleaned through the public outreach process was also analyzed and grouped under four basic headings in order to further inform community needs and preferences. The four headings are as follows:

- Community Needs / Wishes
- Community Challenges
- Community Strengths / What Works
- Community Potential / Opportunities

Grouping public feedback into these four basic classifications allowed us to analyze and prioritize information and helped to develop the goals and objectives in subsequent sections of this Open Space and Recreation Plan.

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Community Needs / Wishes

Stated and observed needs and wishes related to the Worcester Parks and Open Space System are listed below.

Improved Open Space Resource Protection and Access- especially to water bodies and their shores, for habitat protection of existing listed species (natural) and historical resources, and for general use and enjoyment of the public.



New Land Acquisitions- to strengthen links between park and open space assets for conservation, for connectivity, for environmental education and for encouragement and maintenance of healthy life styles.

Strengthening the connectivity of the City's overall Open Space System – through the creation of paths, construction or maintenance of new or existing sidewalks, enhancing streetscapes (making the main linkages boulevard-like), etc.

Water-based Amenities- high demand for swimming at public pool facilities and at available lakes and ponds within the City.

Rectangular fields- the demand for rectangular shaped fields far exceeds the supply of such facilities. In particular, while fields might be available to support actual games, finding a venue for a practice is reported to be difficult for many sports leagues.

Courts- more basketball, badminton, volleyball and handball courts are needed and/or should be renovated for better use. This is to support daily, informal use and use by organized sports leagues.



Dog Parks- the concept of creating city sanctioned and formalized amenities that accommodate residents and their dogs was repeatedly raised at many of the public meeting venues.

Community Gardens- according to the Worcester Regional Environmental Council (REC) and other sources, “demand for community garden space exceeds supply by a factor of three”.



Bathroom Facilities- the concept of making bathroom facilities available for park and open space users was also repeatedly stated. In particular, bathroom facilities would be beneficial to seniors, young children (and their parents) and to people with a disability.

New Investment in Bicycle Facilities- Many participants during the update process requested improved bike trails, new/better bike connections, bicycle friendly roadway designs and the installation of bicycle racks on a more frequent basis throughout the City.

ADA Compliant/Universal Access- there is a need and a demand for universally inclusive activities and facilities within parks and open space facilities.

Transportation Enhancements- More bus stops and routes are desired, particularly by/for residents with disabilities and especially to and from popular parks like Green Hill Park.



Other themes that have arisen during the public input process included:

- Installation of mile markers at park and open spaces and their connections as part of healthy life style initiatives.
- Shaded benches in outdoor recreational zones for summer use.
- Handrails and other support systems on trails within some of the larger, undeveloped and typically passive open space venues.
- Increased public access to water bodies and their shores, i.e. swimming, canoeing, kayaking and fishing.
- Improved opportunities for outdoor (winter) skating, skate boarding and bicycling for youth groups.



- Introduction of more aggressive reforestation efforts within large woodland areas in response to the Asian Longhorned Beetle (ALB) infestation and damaging recent storms.

Community Challenges:

Based on the public and stakeholder input and site visits:

Public Safety Concerns – inadequate lighting and staffing, limited visibility, poor design (confusing layout, areas of concealment, isolation or restrictive access), and regulatory issues (too restrictive or not enough enforcement, depending on different locations).



Inadequate Playground Design - often leading to misuse of facilities, declining physical conditions, maintenance difficulties, and indifference from the general public. Improper drainage (leading to stormwater management issues), grading (leading to erosion issues or non-compliant ADA and playground safety conditions) and poor location of park elements within facilities (orientation of metal slides to the south with no shading, bench locations and positions, etc.) are some examples of poor designs that have been noted.



Inadequate Park Maintenance/Repair- often leading to vandalism, intensified safety concerns and lack of feeling of ownership and pride by the park users, advocates and stakeholders.

Inadequate Capital Investment into Parks – leading to inadequate park maintenance / repair (see above), and consequently, general deterioration of a particular parks condition and usability.

Facilities that are inadequate to meet stated needs- can lead to misuse and disenchantment. For example, Little League fields are often used as a dog parks because they are frequently enclosed, conveniently located and because of the lack in formal facilities for dog owners and their pets.

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Connectivity- physical greenway connections between existing and future open spaces to unify existing resources and integrate potential open space opportunities, such as access to waterfronts and migration of wildlife and habitat enhancements.

Environmental concerns- the City possesses hundreds of acres of open space that is largely undeveloped and that contains unique and impressive natural resources. Yet, many of these open spaces lack management of fragile ecosystems. Ownership and management should be clarified and funded.

Community Strengths / What Works

The following are examples of stated and observed community strengths, policies and approaches that currently work for Worcester Parks and Open Space System:

- Impressive range of types, sizes and wide distribution of the open space system in the City, based on the spatial analysis of open space distribution.
- Alignment of recreation programs with other public initiatives focused on building a stronger, healthier and more connected community.
- Multiple public master planning projects of individual public open space and recreation facilities that help to engage communities, build new stakeholder groups and define tailored priorities and appropriate goals and objectives for improvement.
- Models of good public-private partnerships, such as Broad Meadow Brook Wildlife Sanctuary and Greater Worcester Land Trust, and a remarkable composite of open space lands under various ownerships that have been pieced together for public use and enjoyment, and for environmental protection and conservation.
- Mixed ownership partnerships for Community gardens, largely managed by the Regional Environmental Council.
- Park and open space task forces (often associated with neighborhood groups, higher education institutions, local corporations, sports leagues etc.) that band together to undertake special clean-up events, and routine and continuous management and maintenance efforts.

- Partnerships with community based organizations including the YMCA, Boys and Girls Clubs, Youth Growth Farm and Community Development Corporations in relation to park and open space programming and infrastructure improvements.
- Partnerships with park and open space “friends” groups and other individuals that care about the environment, as observed throughout the park and open space inventory site visits, where volunteers were engaged in the removal of trash, spring clean-up efforts, sports field raking and lining efforts, lawn mowing, exotic species removals and reforestation efforts.

Community Potential / Opportunities:

Attendees at public hearings and other stakeholders identified numerous ways in which the City might enhance the overall park and open space system, including:

- Allow the Parks and Recreation Commission and the Conservation Commission the right of first refusal in relation to lands being taken for non-payment of taxes.
- Adopt the “Complete Streets” approach, where possible, for developing well integrated transportation and green corridors that provide meaningful facilities for drivers, as well as walkers/joggers and bicyclists.

<http://www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/complete-streets-faq>



Examples of transportation corridor refurbishment projects displaying the full array of public transportation, car pedestrian, and bicycle accommodations.

- Improve access to park and open space properties by 1) enhancing site entrances; 2) creating informational systems that direct

visitors to parks and open space locations; 3) providing infrastructure upgrades to public streets that link neighborhoods (curb lines, sidewalks, ramps, bicycle lanes etc.) to park and open space properties; 4) and improving/enhancing public transportation system's routes and stops to provide better access to major park and open space properties.

- As the City embarks on upgrades to transportation corridors and roadways, improvements need to be in sync with the City of Worcester and other tree planting and maintenance policies. Viable tree planting strategies would help to create linear park conditions that enhance non-vehicular modes of transportation and also help to reforest the City in light of the recent ALB infestation which caused the loss of thousands of street trees and woodland trees.
- Water and sewer easements (often linear corridors through and between private properties) may provide potential connections to, from and between open space properties.
- In certain areas, vacant lots that have little economic potential might be converted into pocket parks and community gardens.
- In certain instances, cemeteries might be considered as potential connectors to open space and park properties.



Example of a bike trail project that incorporates pockets of recreational green space: sloped lawns play areas, some formal and informal seating and gathering spaces.

- From a public information perspective, the creation of a single web-based clearinghouse that disseminates information about park and open space assets including locations, facilities available, access and transportation options, ADA compatible facilities and water resource and access options.
- The same web-based resource system would highlight the extent of linear trail (bicycle and multi-use walking) systems and provide links to

important related systems including those listed below:

<http://www.gwlt.org/lands/index.htm>
https://www.massaudubon.org/Nature_Connection/Sanctuaries/Broad_Meadow/index.php
<http://www.hikeworcester.com/>

- In order to meet the needs of this diverse and important community it is necessary to undertake innovative outreach practices, perhaps in the form of workshops or “Charrettes” that engage residents in future park and open space planning and design initiatives.



Public outreach at a community meeting in Crompton Park, which serves a large and diverse Environmental Justice neighborhood.

Part of the efforts related to the updating of this Open Space and Recreation Plan were focused on integrating and assessing different information made available from different community groups in order to better evaluate community needs and goals. Examples of the information provided by these community groups included:

- GWLT contributed and helped to evaluate GIS mapping information.
- Central Massachusetts Regional Planning Commission (CMRPC) and Worcester Regional Transportation Authority (WRTA) provided bus routes and bus stop information that was incorporated into the **Fig. 9 Half-Mile Radius Access to Parks Maps** (see **Appendix A**).
- The Regional Environmental Council (REC) and other community garden advocates provided data that has been included in the **Quarter-Mile Radius Maps** (see **Fig. 9, Appendix A**) as well as in the inventory charts in **Section 05**.

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- AMC provided recreation information included in Section 05.

Despite the vast array of existing open space and recreation resources within the City, it is clear from feedback received and from observations made, that improvements to existing parks and recreation facilities are greatly valued and continue to be needed. The majority of the user survey participants favored the protection of open space lands and improvement of existing recreational facilities over the acquisition of new ones. However, lessons learned from other communities in Massachusetts which have limited open space to acquire or expand upon, makes the acquisition of vacant land (particularly in geographic areas that are underserved) important to consider as an action item identified later in this report.

Maintenance of existing recreational facilities has been a challenge for the City, due to significant reductions to the size of the dedicated park maintenance labor force (net loss of 20 positions during the past 10 years). To fill gaps, the City now relies heavily on organizations such as “friends of”, sport leagues, private and public institutions for both funding, management and maintenance to be able to sustain and balance the current active recreation demands.



Community clean-up and maintenance at Kendrick Field: sport leagues, college students and other residents were involved.

It should be noted that the online survey results illustrate a spectrum of the opinion by City residents and as such, the survey is but one of many tools used to examine and illustrate the trends and opinions of the whole Worcester community.

In essence, the descriptions contained throughout this Section begin to speak to the “Needs” and goals of the community in regard to park and open space issues. With information gathered through the myriad of outreach efforts, basic goals are summarized as follows:

B. Summary of Resource Protection Needs

Resource protection needs have been summarized based on results of the park and open space resource inventory effort as well as through the mapping of protected and targeted open space parcels in Worcester.

B.1 Statements of Resource Protection Needs

- *To balance use of open spaces as recreational resources and their protection* as important habitats of species and natural resources. 
- *To actively protect and improve conservation properties and parcels.* To involve the Conservation Commission, as a key custodian of such lands, and to secure funding for this purpose. (Worcester also has 16 acres of Critical Natural Landscapes none of which are protected or managed as of 2013).
- To recognize significant challenges of a changing climate (such as the frequency and intensity of storms creates that create great pressure on all natural and human made systems) and implement maintenance and management protocols that protect an extensive and resilient natural system, needed to be able to buffer and recover from these climatic change challenges.
- To better manage and regulate designated floodplains, to protect their natural functions and to minimize flood hazards to the built environment.
- To restore and preserve wetlands for wildlife habitat, water supply and open space corridors. (Refer to Section 04 BioMap2 information on Critical Core Habitats and Critical Natural Landscapes).
- To add linkages between passive and active recreation areas, forming greenways and potential bikeway and/or trail connections throughout the City as well as connections to regional systems.
- To strengthen the coalition of local preservation interests to promote public/private partnerships in preservation.

- To explore additional means for obtaining and preserving conservation and open space land besides out-right purchase, including easements, zoning or other land use and development regulations like neighborhood preservation.
- To improve access to water bodies for appropriate recreational uses. (Provide other modes of transportation, i.e. bus connections, bicycle facility options, sidewalks and trails to prime water front locations for the enjoyment of all Worcester residents.)



- To continue to promote policies that encourage preservation of privately-held farm/agricultural lands, forest, open space parcels and public education.
- To protect and manage existing woodland pockets to prevent more tree loss.
- To support tree reforestation initiatives (such as the City of Worcester Replanting and Worcester Tree Initiative efforts) to restore the city tree cover from the Asian Long-horned Beetle infestation.
- To protect watershed from wildlife pollution (geese ducks etc.).
- To create policies which focus on the control or elimination of invasive aquatic, wetland and upland species and to enforce them (i.e. Install signage which requests operators to clean boat hulls when transferring between water bodies to prevent the spread of bacteria and invasive or non-native aquatic species).
- To identify locations where there is the greatest demand for community gardens and acquire or gain the rights to these parcels, or transform abandoned plots nearby. Plan to include Community Garden plots, where required, as part of the master plan development of existing

parks (like those at Winslow Street Playground - Peace Park).



- To continue mapping of natural resources on a Geographic Information System (GIS) (e.g. soils and development limitations, floodplains, wetlands).

B.2 SCORP Findings (in regard to Resource Protection Needs)

It is noteworthy that Worcester's resource protection needs and demands align with many of those at the state level. For example, as noted in the DRAFT SCORP Plan dated 2012, the Massachusetts Land Trust Coalition (Land Trust) reported that the top four priorities of its member organizations (the Massachusetts Land Trust Coalition is a consortium of 130 local land trusts, watershed associations, open space committees and similar groups):

1. Acquiring new land
2. Trail maintenance
3. Conservation restriction stewardship
4. Funding

The most important land issues that the Land Trust is addressing include invasive species management, control of undergrowth and weeds, and providing parking to visitors to their properties.

Some of the use issues impacting conservation areas across the state are illegal use of trails, littering and dumping, and conflicts between different types of users.

As a long term priority, the Land Trust would like to make their work relevant to a more diverse audience and strengthen the connections between conservation lands and surrounding neighborhoods, parks, schools, etc.

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Blackstone River Image from Massachusetts SCORP DRAFT Publication dated 2012

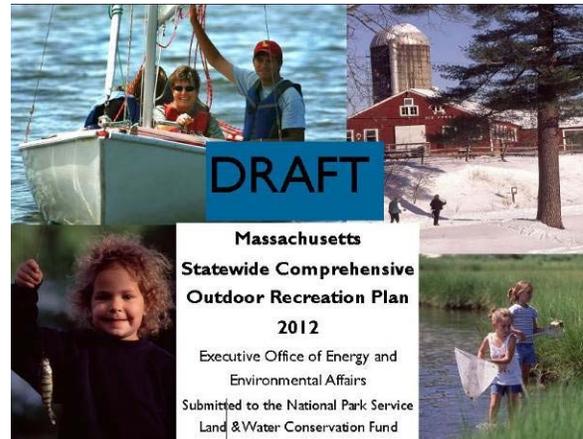
C. Summary of Community's Needs

C.1 Regional Context

Actively promote the City as an area rich in historic resources of the 18th, 19th and 20th centuries through partnerships with groups such as Preservation Worcester and the Blackstone River Valley National Heritage Corridor Commission.

- Promote the City's rich cultural and historic heritage to attract tourism and other viable economic development activities.
- Invest in streetscape improvements (to include sidewalks, bike lanes, amenities that support recreational opportunities along wider streets, green infrastructure, etc.).
- Support the management and maintenance of facilities that strengthen the City's position as the regional hub of Central Massachusetts and New England. (For example, recent investments in transportation systems and regional athletic facilities like Rockwood Field, Lake Park and Foley Stadium.)
- Invest in park and open space improvements at sites that are located in Environmental Justice areas and where conditions warrant.
- Establish ways to connect the greatest assets of the park and open space system to regional and local tourism initiatives.
- Endorse stormwater treatment policies and BMP to reduce flooding, water pollution problems, and sewer system costs.

C.2 SCORP Findings (in regard to Community Needs)



The DRAFT Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP 2012), prepared by the Executive Office of Energy and Environmental Affairs has been reviewed in conjunction with the updating of the Worcester Open Space.

Some interesting SCORP findings in regard to community needs have been summarized below. (The detailed report can be found here: <http://www.mass.gov/eea/docs/eea/dcs/fy13-gr/draft-scorp-2012.pdf>)

Results from a **SCORP Public Officials Survey** indicated the following:

- The most popular recreation resources for families are playgrounds and water facilities (beach, pond, pool etc.).



- For preschoolers, playgrounds and water facilities.
- For children, playgrounds and athletic fields.
- For adolescents, athletic fields and skate parks
- For adults (by far), hiking/walking trails.
- For seniors, senior centers and hiking/walking trails.
- Public officials noted that public recreation facilities providing trail systems and multi-use fields will be a big priority over the next five year period and beyond. Other high ranking activities

that will require physical resource investment are likely to include playgrounds, baseball fields, community gardens, picnic areas and fresh water swimming areas.

Results from a **SCORP Phone Survey** indicated the following:

- Eight of ten respondents indicated that they run, jog or walk multiple times per week.
- Other activities most frequently mentioned (by at least 20% of respondents) were hiking, road bicycling, gardening and swimming in pools. Swimming in lakes and ponds was close behind at 18%.
- If the respondent was a youth, preferences included those referenced above but also team sports such as basketball, football, soccer and baseball were mentioned frequently.

From a state-wide perspective, a SCORP public survey showed that 56% of Massachusetts residents would increase their outdoor recreation activities if there were new opportunities in the form of quality parks, forest lands or wildlife refuges.

From a local perspective, the SCORP highlighted what are likely to be the most popular facilities (1 being the most popular) over the next 5 years as follows:

1. Playgrounds
2. Baseball fields
3. Community gardens
4. Picnic areas
5. Fresh water swimming areas



Adolescents (ages 13-18) are the group that has the least of their needs met. In order to increase their opportunity for meaningful activity, youth identify a number of priorities as follows:

1. Recreation close to their homes
2. More sports facilities
3. Age appropriately designed recreation areas.
4. Skateboard parks
5. Playing fields

Adults identified needs for outdoor recreation with physical fitness being a priority (running, walking or jogging), while youths often emphasized activities simply for fun and enjoyment.



Swimming, canoeing, kayaking and several winter sports are also ranked higher within youth populations.

Team sports are mentioned more often by residents that are younger, male and from urban areas with larger minority populations.

“For Our Common Good: Open Space and Outdoor Recreation in Massachusetts” (another statewide publication) identifies the following recreational needs deficiencies for Central Massachusetts:

- Water-based recreation activities (e.g. boating, fishing and swimming)
- Trail corridor programs
- Facility maintenance programs
- Preservation and conservation of water supply areas, and public-private partnerships for the provision of golf courses and tennis courts.

D. Management Needs, Potential Change of Use

D.1 Facility Maintenance

Since the 2006 Open Space Plan was written, the responsibilities of the Parks and Recreation Department has continued to grow while staffing has decreased. The City’s Parks, Recreation & Cemetery Division, under the Department of Public Works and Parks continues to be responsible for operating the City’s 160 acre cemetery - Hope Cemetery, as well as maintaining certain public buildings (including Worcester Auditorium).

Category	Suggested	Actual*
Park Maintenance	59	28
Cemetery	6	8
Forestry	7	9

(*This does not include security and administrative staff and security which would total 53 for the FY14)

To overcome shortages, the City continues to rely on other groups that have stepped forward to fill maintenance gaps. Numerous sports organizations now maintain the fields which they use. Park Spirit, a private non-profit group, was created to solicit volunteers and funds to help maintain and improve the parks. The Friends of Hope Cemetery focus their fundraising and volunteer efforts on the maintenance and improvement of Hope Cemetery. In the end, the delivery of maintenance efforts is uneven and the lower profile, less formal and largely undeveloped natural resource areas tend to receive inconsistent treatments.

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Even using creative partnering arrangements, the Department still finds itself far short of the staff needed to properly maintain the facilities under its jurisdiction. Therefore, during the busy growing season, active facilities are maintained for league uses but passive facilities are maintained only on an as needed basis. Furthermore, Conservation lands have no dedicated maintenance crews. Volunteers and the City's annual Earth Day clean-up, headed by the Regional Environmental Council (REC), are the only attention these facilities receive.

D.2 Recreation Programs

The Recreation side of the Department of Public Works & Parks (Parks, Recreation and Cemetery Division) has seen a continual decline of funding. What used to be a full-time staff of four with a budget established in the City's annual budget planning process is now a staff of zero with no program budget except for Aquatics. The Division now refers to itself as a "facilitator" of recreation and cultural activities for the City. The Division has no staff to plan and implement a program but management on the Parks side of the Division continues to team-up with other organizations that can provide the financial and staffing resources needed to implement successful programs throughout the City, including tournaments, parks programs, concerts, other special events etc. An inventory of all recreational opportunities for all age groups was completed by the Parks, Recreation & Cemetery Division with the cooperation of the City Manager's Office of Employment and Training. Basic findings include the following:

- Provide support staff for the Parks, Recreation and Cemetery Division.
- Develop more structured uses for neighborhood parks, especially teen programs.
- Utilize private and non-profit facilities for "after hours" recreation programs and activities.
- Pursue non-municipal funding sources to operate neighborhood-based recreational and cultural programs.
- Encourage inter-agency cooperation to stimulate program development.
- Encourage private investment in recreational areas and facilities.
- Ensure that the needs and recreational interests of residents of all social and age groups and abilities are considered to the fullest extent possible in developing recreational facility plans.
- Improve access to all types of recreation facilities.
- Relate the type and size of recreational facilities to the characteristics of the service area.

- Base acquisitions and development programs on up-to-date studies of demand and usage.
- Improve and expand opportunities for recreational swimming and beach usage by maintaining and upgrading existing facilities, by encouraging the protection of small lakes and ponds which have traditionally accommodated swimming, and developing opportunities where feasible and appropriate. Seek to improve the opportunities for bicycling as an alternative transportation mode and recreational activity throughout the City.

PRIORITY NEEDS SUMMARY

When taking into account information gathered from the 2012 DRAFT SCORP Plan, the publication of "For Our Common Good", various publications from The Trust for Public Land, the Worcester Parks, Recreation and Open Space Public Survey, the site inventory process and from comments received at public meetings, we have compiled a list of the top five needs related to park and open space matters.

1. **Enhancement of Natural Resources-** with so much demand for escape from the rigors of urban life, there is a great need to provide improved access, improved facilities and resource enhancements of undeveloped and largely natural lands within the City's open space network.



2. **Continued Investment in Active Recreation Facilities-** while stakeholders representing this contingent were not as vocal, these facilities (as evidenced by heavy use) are critical to support active recreational pursuits of all of residents, and particularly younger, less affluent and underserved populations.
3. **Increased Maintenance-** there is a tremendous need for a higher level of park and open space management and maintenance. While the City should be applauded for seeking creative approaches to maintaining higher visibility assets within the system, the delivery of maintenance service is uneven, especially at lower use, lower profile properties.

4. **Integrated Park and Open Space Management-** there is a need to integrate new parks planning, programs and initiatives with other economic, infrastructure, health, environmental protection and transportation strategies.
5. **Greater Open Space System Connectivity-** there is a need to provide improved access overall, but also better connectivity between various open space resources in the City.
6. **Design Open Space Improvements to meet the needs of a changing population-** the makeup of the citizenry in Worcester has changed. The population is older, and it is more diverse, and many families have members with a disability. There is a critical need to design park and open space improvements in a way that adequately serves these important constituent groups.

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08. Goals and Objectives

A. Community Goals & Objectives Planning Process

The City of Worcester has completed many updates to its Open Space and Recreation Plan over the past four decades. Some basic goals and objectives have carried through many editions of the Open Space and Recreation Plan, and some still seem relevant today. However, in order to meet the needs of a more diverse population, many new goals and objectives have been identified in this 2013 edition of the Open Space and Recreation Plan. These new ideas are a direct result of the broadest public outreach process ever conducted in association with an Open Space and Recreation Plan update process in Worcester.

The goals and objectives identified in this section of the Open Space and Recreation Plan correlate directly to the **Priority Needs** that are summarized at the end of **Section 07 - Analysis of Needs**. In a similar way, the goals and objectives lead directly to the priorities identified in **Section 09 - Action Plan**.



Goals and objectives have been established through public outreach efforts and through interactions with a wide range of open space and recreation stakeholders. Prior goals identified in earlier plans have been reevaluated, confirmed, refined or removed if that goal is no longer valid.

In essence, new goals and objectives:

- Incorporate the current and new Open Space uses
- Acknowledge the needs of an increasingly diverse population
- Address threats or challenges to open space and recreation assets
- Include previously known goals that have been missed, not adequately achieved, or in continuous process.

B. Identified Goals & Objectives

The goals identified below are a direct outgrowth of the public outreach process (which included general public meetings, a well-publicized on-line user survey and individual meetings with public, not-for-profit and private entities) in an effort to satisfy one overarching goal (as defined in the Community Vision, section 06) that can be articulated as follows:

“The City of Worcester seeks to provide a diverse open space and recreation system that provides all citizens of the community with relevant opportunities for use, enjoyment, and the maintenance of healthy lifestyles.”

The identified goals are listed in the table below and expanded upon immediately following.

Goal 1	Enhance Natural and Cultural Resources
Goal 2	Improve Public Access to Water Resources
Goal 3	Invest in Recreation Facilities
Goal 4	Upgrade Delivery of Parks & Open Space Maintenance Service
Goal 5	Integrate Parks and Open Space Planning with Other Related City Initiatives
Goal 6	Promote Urban landscape Improvements
Goal 7	Improve Open Space System Connectivity
Goal 8	Plan/Design Open Space Improvements to Meet Current and Future Needs
Goal 9	Expand Recreation Program

GOAL 1: ENHANCE NATURAL AND CULTURAL RESOURCES

There are important natural features and resources (woodlands, wetlands, streams, lakes, meadows, hillsides etc.), and important cultural resources (historical or archeological elements, venues for civic events etc.), that are woven throughout the Worcester Parks and Open Space system. It is these resources that help to form the City’s identity and that provide natural venues for public use and enjoyment and environmental protection.

During meetings and through the user survey, it became clear that the majority of those participating in this planning process were keenly interested in the enhancement of the City’s natural resources in a

way that benefits the public and protects the environment.

Objective 1a | Protection of Unique and Sensitive Natural Resources

To promote and achieve the protection of unique and sensitive open space and natural resources by implementing protection strategies to effectively inventory, maintain, manage and preserve unique and sensitive natural resources. Continue to include public led initiatives, support from private organizations and the fostering of existing and new public/private partnerships.

Objective 1b | Invest in Restoring and Improving Natural Resource Properties

Invest in facilities that provide venues for such passive recreational pursuits as walking, hiking, jogging, fishing, wildlife viewing, canoeing and kayaking.

Link other important public works projects with related resource enhancement efforts to maximize public benefit and investment and continue to seek new partnerships and volunteer collaborations.

Objective 1c | Historic & Archeological Resource Protection

Identify and preserve Worcester’s historic and archeological places, structures and artifacts as representations of the City’s cultural heritage; to support both on-going and future efforts by public and private organizations in promoting Cultural Heritage.

Objective 1d | Acquisition of Key Parcels

Identify priority criteria and acquire key open spaces. Develop criteria for evaluating the need/desire for acquisition of open space. Establish a matrix that chronicles the benefits of such an acquisition based on certain characteristics such as: proximity to other open space parcels; size; community needs (population density, geographical gaps- especially in EJ areas, accommodating youth needs); natural needs (sensitive habitat, a species corridor); price, etc. Acquisition of these key properties may be through outright ownership or by less-than-fee means, such as conservation restrictions, scenic easements, and the purchase of development rights, in order to complete the City’s open space network. Enlist the assistance of Federal and State open space agencies in the effort to acquire such parcels.

Objective 1e | Convert Tax Foreclosure Property

In lieu of allowing parcels on which no taxes are being paid to lay dormant for extended periods, transfer parcels of open space and conservation merit or that could be used for such purposes as community gardens, to the Worcester Conservation Commission.

Objective 1f | Potable Drinking Water Protection

Protect sources of public drinking water, by means of utilizing development incentives, permit enforcement, innovative land use techniques, and implementation of a comprehensive wellhead protection program. At the same time, provide opportunities for public access to restricted access areas where the safety of the water supply resource can be assured.

GOAL 2: IMPROVE PUBLIC ACCESS TO WATER RESOURCES

Establish and manage a City-wide network of publicly and privately-held water resources within the open space system that affords a higher level of public access while continuing to protect critical water resources and land-water interface zones where natural habitats and scenic vistas are important.

Objective 2a | Improve Access to City’s Waterfronts and Water Resources

The City of Worcester possesses a rich array of water resources yet many of them are underused and/or inaccessible. Establish new access points and links to water resources throughout the City making use of public lands and cooperative arrangements with willing private entities.

Objective 2b | Provide Infrastructure Needed to Enhance Public Use of Water Resources

Provide built facilities (fishing piers, wildlife observation docks, interpretive and information signage, trail systems etc.) that allow the public to enjoy the benefits of access to water resources, while reducing impacts to areas that are environmentally sensitive.

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Objective 2c | Improve ADA Compliance at Water-based Facilities

Create new opportunities for both access and use of public facilities at water resources for the equal enjoyment of all types of users.

GOAL 3: INVEST IN RECREATION FACILITIES

Enhance and expand (where appropriate) the network of facilities at parks and playgrounds both formal (programmed) and informal active and passive recreation needs.

Objective 3a | Evaluate and Repair Existing Playgrounds

Assess the condition of all existing playgrounds in order to develop a priority list of improvements and repairs and to keep them safe, code compliant and in good repair.

Objective 3b | Manage and Maintain Existing Playgrounds

Continue to develop and implement a maintenance program that flexible enough to adjust to different site needs and uses in order to keep the playgrounds in proper use and good conditions throughout the city.

Objective 3c | Renovate Existing Recreation Facilities

Continue to renovate existing recreation facilities (playing fields, courts, walking paths, etc.) in parks and neighborhood playgrounds, through master plan and diverse community outreach efforts that can help establish current and future critical venues and programs for the more than 100 sports organizations and community groups that rely on them for day to day active recreational pursuits, social civic events and informal or passive recreational pursuits.

Objective 3d | Construct New Recreation Facilities and/or Convert Underused Facilities

Where facilities are lacking to support demand, renovate existing facilities to achieve desired performance levels, construct new facilities and “repurpose” underused or otherwise out of favor facilities. New synthetic turf fields, multi-use fields, water play (pool and splash pad facilities), natural playgrounds / “play forests” and formalized facilities for dog owners are some examples.

Objective 3e | Connect Recreation Assets to Cultural Life

Continue to support and grow the synergy between cultural events and the use of public spaces, in parks, streets or sidewalks. For example, the Worcester Cultural Coalition has utilized the City’s open space assets for many popular events, such as stART on the Street, Worcester Food Truck Festival, First Night Worcester, Summer Concert Series events and many more. Community outreach efforts can provide a basis of the type of programs/events that can occur in the facilities, how to effectively market these programs or events and how to get private sponsors involved.

Objective 3f | Capture Undervalued Land for New Recreational Purpose

Especially in downtown and other densely populated, underserved areas where open space is limited, explore opportunities to capture underperforming properties for establishing “pocket parks” to enhance neighborhoods and provide both urban recreation opportunities and green space.

Objective 3g | Partnerships

To meet certain recreation facility needs, enter into partnerships with private or non-profit entities (private schools and colleges for instance) for use of outdoor recreation facilities.

GOAL 4: UPGRADE DELIVERY OF PARK AND OPEN SPACE MAINTENANCE SERVICES

Establish a clear strategy that allows the City to maintain all parks, playgrounds, athletic facilities and open space assets at an appropriate level that is suitable to ensure public use, enjoyment and safety.

Objective 4a | Funding for Park and Recreation Property Maintenance

Establish reliable funding sources to maintain built facilities within the City’s parks and recreation system including fields, courts, playgrounds, common areas, circulation systems and all related infrastructure. The largest source of likely funding is in the form of City operational funds allocated during the annual budgeting process.

Objective 4b | Funding for Natural Resource Maintenance and Management

Establish reliable funding sources to maintain and manage properties with important natural resources to better manage environmental ecosystems and to provide suitable means for public access, use and enjoyment. This includes primarily undeveloped City parks and Conservation Commission holdings as well as other conservation areas that have shared rights of ownership and public usage.

Objective 4c | Maintenance Partnerships

Continue promoting and supporting innovative recreation resource management techniques through established and future partnerships in order to fill maintenance gaps created by City budget constraints. These partnerships can be employed to maintain active and passive recreational facilities and both developed and undeveloped areas within the City’s open space and recreation system.

GOAL 5: INTEGRATE PARKS AND OPEN SPACE PLANNING

Planning for parks and open space system improvements should be coordinated and integrated with other important and related City planning initiatives.

Objective 5a | Align Public Park and Open Space Initiatives with other City Planning Initiatives

Coordinate and collaborate with other City departments and agencies in ways that are mutually beneficial. As public initiatives related to roadway and utility infrastructure, transportation, schools, housing, economic development, crime prevention, elder affairs, public health and ADA compliance are contemplated, identify areas of common interest in order maximum public investment and benefit.

Objective 5b | Provide Public Park and Open Space Venues to Support Other City Programs

Related to this topic, park properties might provide important opportunities for the maintenance of a healthy lifestyle to seniors in the form of walking paths, surplus park areas might accommodate a community garden and a public plaza might be the perfect venue for a farmer’s market.

GOAL 6: PROMOTE URBAN LANDSCAPE ENHANCEMENTS

Develop strategies, resources and objectives that promote a harmonious relationship between the existing built environment, inevitable future land development and critical natural resources, both publicly and privately-held.

Objective 6a | Complete Streets Approach to Transportation Corridor Reconstruction

While street tree planting, bicycle lane installations and roadway and sidewalk upgrades should be considered on a city-wide basis, a more comprehensive or “Complete Street” reconstruction approach should be considered along designated transportation corridors.

A Complete Streets approach recognizes the inherent economic, social, transportation, accessibility and open space and recreation values of an urban corridor and defines a strategy to enhance these characteristics through public infrastructure improvement and policy.

Envision a scene along a bustling corridor (say Shrewsbury Street for example) that includes outdoor diners, walkers traveling below a continuous shaded canopy, joggers, bicyclists making use of designated lanes, drivers, bus riders, and a resident traveling the full length of the corridor in a wheelchair.

Foot and bicycle traffic also stimulates a local economy, as people find more opportunities to slow down, interact with one another and shop locally.

Objective 6b | Increase Reuse & Redevelopment Efforts

Minimize disturbance of remaining open areas in the City by providing incentives to re-use and redevelop existing sites; to provide a broad range of such redevelopment incentives, including local regulatory incentives as well as securing federal/state redevelopment funding assistance opportunities.

Objective 6c | Healthy, Local Food Initiatives

Continue to apply open space resources and programs in a way that helps to promote local growing initiatives, community garden establishment and healthy eating habits.

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Objective 6d | Park and Open Space Policy in Sync with Climate Change Adaptation Actions

Continue to weigh the inherent benefits that park and open space policies and initiatives can have in relation to addressing heightened concern about adaptation to climate change. A greener, more active and less fossil fuel dependent culture can provide direct and dramatic benefit to natural resources and the general health of the citizenry.

GOAL 7: IMPROVE OPEN SPACE SYSTEM CONNECTIVITY

There is a strong desire to achieve a higher level of connectivity between assets within the City’s park and open space network in order to enhance public recreation opportunities and benefit. Residents have a vision of being able to traverse long distances through open space properties and along travel ways that have park-like characteristics.

Objective 7a | Public Street and Sidewalk Improvements

Improving streets and sidewalks that form the edges of parks and open space assets provides improved access and connections to those facilities. Upgrading streets and sidewalks in between properties encourages use by walkers and leads to inherent public health and environmental benefits. The functionality, safety and connectivity of streets and sidewalks facilitate and encourage active living choices by providing opportunities for easy and free recreation in residential areas of the City by encouraging active use for running, biking, and walking. The City’s “Health of Worcester 2012” report recognized obesity as the third largest cause of premature deaths in Worcester and reducing the number of residents living at an unhealthy weight by 2015 has been identified as a priority.

Continuous and connective sidewalks are threads that integrate the fabric of the City and promote community development and community building. In densely urbanized cities, they are often the only front yard a family may have, providing important open space amenities.

Objective 7b | Street Tree Revitalization Efforts

Increase street tree planting efforts and continue to support tree planting initiatives, especially in areas that are affected by ALB.

Street trees play a major role in the beautification of the City. The Department of Public Works & Parks has been increasing their tree planting efforts. Street trees also play a major role in creating a pedestrian friendly environment which will encourage people to walk instead of driving.

Objective 7c | Bicycle Lanes

The introduction of bicycle lanes and shared use accommodations as roadways are reconstructed would dramatically improve linkages between open space assets and encourage people to ride a bike instead of driving a car.

Objective 7d | Trail System Upgrades

Currently the condition of trails or a lack of trails limits connectivity within large open space assets and between open space assets (sometimes where the assets are immediately adjacent to each other). Upgrades to trail systems would provide greater connectivity on a City-wide basis.

Objective 7e | Land Purchases

Purchasing or acquiring the rights to certain lands with the express goal of improving connectivity between open space assets would allow for the expansion of the existing open space and recreation footprint in the City.

Objective 7f | Encouragement of Neighborhood Preserves

Connect the City’s network of open space through the identification and protection of neighborhood preserves - these being defined as contiguous privately held tracts of land of more than five acres, in aggregate, whose preservation as open space would benefit both their specific neighborhood and the general public. To work with private landowners, and other organizations to secure conservation restriction on such parcels.

Objective 7g | Public Transportation System Enhancements

Continue to work with public transportation providers to improve connections to important park and open space assets throughout the City.

GOAL 8: PLAN/DESIGN OPEN SPACE IMPROVEMENTS TO MEET EVOLVING NEEDS

Objective 8a | Evaluate Existing Open Space Opportunities

As the City continues to update inventories and assessments of its current open spaces and recreation facilities, these analytical tools (GIS, surveys, assessment reports, master plan, etc.) can be used to inform and guide residents and visitors of unknown assets.

Objective 8b | Introduce New Recreation Facilities and Programs

Evaluate and prioritize recreational needs in communities that may not be satisfied by the current Open Space and Recreation facilities. Consider the large percentage of the population that is aging, the statistically larger communities with disabilities, and many new-comers to this country who may recreate in ways that are different than the prior generations.

There is also an ebb and flow to the popularity of various recreational pursuits with wide support expressed during the public outreach process for skate-parks, multi-use fields, community gardens, bicycle accommodations, passive outdoor recreation amenities, conservation, environmental education and stewardship. Approaches to investing in public open space and recreation enhancements may need to be adjusted in order to direct funding to new areas of interest.

Objective 8c | Evaluate New Open Space Opportunities

To meet the needs of a changing population, make use of the city’s updated Geographic Information System (GIS) when seeking out opportunities for new recreational venues. Creatively plan and design new spaces to serve various purposes, such as urban pathways that can satisfy transportation, recreation and park connectivity needs.

Objective 8d | Research Feasibility of Pilot or Innovative Use Programs

Innovative street programs have been developed and successfully tested in other higher density cities. An example of these type of community events are Play Streets (<http://ahealthieramerica.org/play-streets/>) Park(ing) Day (Parking space becomes community hub for a day- <http://my.parkingday.org/>) and temporary installations like Parklet Pilot Designs

(<http://www.peoplest.org/parklets/>). The city could run a pilot program, evaluate results and make adjustments to the program as appropriate.

GOAL 9: EXPAND RECREATION PROGRAMMING

Due to budget cuts, the City has had to resort to being an enabler of recreation programming by outsourcing most formal program offerings to partners and other outside entities.

There is a need to assess existing and demanded programs and find ways to coordinate with other city departments and partnerships in order to provide better formal recreation program offerings that can be coordinated with these entities.

Objective 9a | Comprehensive Recreation Program Offerings

Continue to develop, expand, manage and oversee recreation programming offerings that make appropriate use of parks and open space amenities and facilities and that meets the needs of an increasingly diverse population. In particular, establish programming to target underserved populations, including youths, elders, the disability community and populations living within environmental justice areas of the City.

Objective 9b | Increase Public Funding

Pursue additional City funding through the public budget process that allows the hiring of dedicated recreation programming staff within the Department of Public Works & Parks Department.

Objective 9c | Increase Private Participation

Seek funding from private partners interested in sponsoring specific recreation programming opportunities. Cooperate and coordinate where possible with other like-minded public and private groups and agencies that are already promoting public awareness of open space programs.

Objective 9d | Heighten Public Awareness

Develop programs and information sources (public workshops, information brochures, links on the City’s web site, use of social electronic media) to heighten citizen awareness about the parks, recreation and open space system and the value of protecting that system and all related recreation programming.

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09. Seven-Year Action Plan

Introduction

This **Action Plan** is based on the goals and objectives identified in the preceding section of the report. At a glance the number of action items that have been articulated might seem daunting, but in review of prior Action Plans it is useful to note that the City has been successful in achieving many (but not all) of the stated action items. We suspect that the current Action Plan will yield similar results in that much, but not all, of the goals stipulated below will be achieved, at least to some level. In this way it is recognized that no plan is perfect and that all plans must be somewhat flexible. Even with a seven year period, much can change and priorities might shift for a variety of reasons. For instance, since the writing of the last Open Space and Recreation Plan in 2006, one could never have anticipated the damage to woodlands and natural resource areas caused by the Asian Long-horned Beetle infestation and by other storm events. One may also not have been able to predict that the country would experience a severe recession, which would ultimately take a major toll on the funding of a myriad of state and local programs, including programs associated with open space and recreation.

As the 2013 update to the Open Space and Recreation Plan is rolled out and begins to be implemented it is recommended that the City establish a more formal committee that is charged with overseeing progress in relation to the stipulated action items. This committee should include representatives of the Department of Public Works & Parks, Parks and Recreation Commission, Planning and Regulatory Services Division, Conservation Commission and from local land steward organizations like Mass Audubon and Greater Worcester Land Trust. The creation of this Committee would allow the City to be more nimble and more proactive in regard to open space and recreation initiatives and opportunities that arise.

As this Action Plan is launched, there is cause for new optimism as the overall appreciation for open space and recreation needs seems heightened with a general understanding that the management and maintenance of a first rate system can provide compelling benefits to a community and to a region in regard to building community spirit, enhancing economic development, providing meaningful outlets for citizens to be active and to maintain healthy lifestyles and for benefitting the environment.

Goals & Objectives	Actions	Priority	Responsibility	Funding Source
Goal 1: Enhance Natural & Cultural Resources				
Objective 1a Protection of Unique and Sensitive Natural Resources	1. Allocate annual operational and capital funds to the Conservation Commission for management of properties in their custody.	2015 onward	Planning and Conservation	City, Volunteers
	2. Research acquisition history and deeds for all municipal conservation and parklands and identify those parcels that have stipulated uses as parks, conservation, conservation restrictions, etc.	2016	DPW & P, Planning and GWLT	City
	3. Correct the custody information (Assessors' records) or assign as appropriate through Council action.	2015	DPW & P, Planning and GWLT	City
Objective 1b Invest in Restoring and Improving Natural Resource Properties	1. Allocate capital funds to the Parks Division and to the Conservation Commission that are specifically targeted for improvements to natural resource areas.	2017 onward	DPW & P, Planning and Conservation	City, Grants, Partnerships, Volunteers
	2. Earmark funds from current utility, infrastructure, transportation capital projects to improve environmental resources at open space properties where work is integral or connected.	2017 onward	DPW & P	City, Grants

Goals & Objectives	Actions	Priority	Responsibility	Funding Source
Objective 1b Invest in Restoring and Improving Natural Resource Properties	3. Establish protocols and strategies for restoring inherent natural resource qualities at damaged properties (ALB and storm impacted woodlands, stormwater management, invasive vegetation controls, erosion controls).	2015	DPW & P, in collaboration with Worcester Tree Initiative (WTI)	City, Partnership
	4. Continue to partner with other land stewards, corporations, colleges, and other civic partners to restore, clean, manage and improve conservation lands.	2015 onward	Conservation	Partnerships, Volunteers
	5. Improve physical assets within conservation lands including trail heads, pocket parking, bicycle racks, trails, piers, docks, decks, interpretive signage and ADA compatibility.	2014 onward	DPW & P and Conservation	City, Grants, Partnerships
Objective 1c Historic and Archeological Resource Protection	1. Complete an inventory of historic assets within parks and open space properties and make available via the City's web site.	2018	DPW & P, Historical Commission	Grants, Partnerships
	2. Identify and track sources of funding for historical and archeological resource protection.	2018	Planning, Historical Commission	City, Grants
	3. Find ways to collaborate with other organizations to transform former industrial sites into innovative mixed use developments with historical and open space components.	2015 onward	Planning, Worcester Redevelopment Authority	City, Grants
	4. Prioritize protection of the last granite quarry in Green Hill Park.	2019	DPW & P and Planning	City, Grants
Objective 1d Acquisition of Key Parcels	1. Develop priority acquisition criteria to establish and maintain a list of properties of conservation and recreation interest.	2015	DPW & P, Planning, Conservation and GWLT	City, Grants, Partnerships
	2. Submit applications for land acquisitions to state LAND program annually	2014 onward	DPW & P, Planning, Conservation and GWLT	City, Grants, Partnerships
	3. Acquire the rights to properties of open space interest through outright purchase by the City, cooperative purchase, use of conservation restrictions or other form of easement or rights of usage.	2014 onward	DPW & P, Planning, Conservation and GWLT	City, Grants, Partnerships
Objective 1e Convert Tax Foreclosure Property	1. Establish consistent policy that allows the Parks & Recreation Commission and Conservation Commission to review merits of properties which fall into a non-payment of taxes status and to participate on decisions regarding the disposition of such properties.	2016 onward	Planning and Assessors	N/A
Objective 1f Public Drinking Water Supply Protection	1. Utilize permits and other incentives to protect public drinking water supplies.	2015 onward	DPW & P, Planning, Conservation	N/A
	2. Establish a policy that allows limited public access to lands where access is presently prohibited.	2020	DPW & P, Planning, Conservation	N/A
Goal 2: Improve Public Access to Water Resources				
Objective 2a Improve Access to City's Waterfronts and Water Resources	1. Identify potential physical impediments to the public access of the City's water bodies.	2016	DPW & P and Planning	City
	2. Improve universal access to water resources by upgrading nearby city sidewalk networks, installing new trails and paths with ADA compliant elements	2014-2021	DPW & P, Planning, and Conservation	City, Grants, Partnerships, Volunteers

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Goals & Objectives	Actions	Priority	Responsibility	Funding Source
Objective 2a Improve Access to City's Waterfronts and Water Resources	3. Work to obtain easements and or rights-of-passage that connect to water resources.	2018-2021	DPW & P and Planning	N/A
	4. Work to establish new transportation options connecting to water resources.	2019	WRTA	N/A
	5. Establish recreation programs and environmental education programs that make use of water resources. Create a multi-modal pathway along Lake Avenue and/or the shore of Lake Quinsigamond.	2014 onward	DPW & P and Planning	City, Grants, Partnerships
Objective 2b Provide Infrastructure to Enhance Public Use of Water Resources	1. Develop strategies (see related actions under Objective 1b) to construct support facilities (fishing piers, wildlife observation docks, interpretive and information signage, trail systems etc.) at water-based open space properties.	2014 onward	DPW & P and GWLT	City, Grants, Partnerships
Objective 2c Improve ADA Compliance at Water-based Facilities	1. Continue to improve universal access at water-based recreation areas and publish (via the City web site) a list of ADA compliant properties and amenities.	2014 onward	DPW & P, Planning, and Conservation	City, Grants, Partnerships
Goal 3: Invest in Recreation Facilities				
Objective 3a Evaluate and Repair Existing Playgrounds	1. Assess the condition of all existing park and open space playgrounds.	2014 onward	DPW & P	City
	2. Remove from use or repair playground equipment that is found to be unsafe or damaged.	2014 onward	DPW & P	N/A
Objective 3b Manage and Maintain Existing Playgrounds	1. Develop and implement a program to regularly inventory and inspect (by a CPSI staff member) all playgrounds.	2014	DPW & P	City
	2. Maintain and operate all existing playgrounds in a condition that is safe and code compliant.	2015	DPW & P	City
	3. Allocate additional funds in the City's annual operational budget for routine playground maintenance and repairs.	2015	DPW & P	City
	4. Establish a line item in the City's annual capital plan that earmarks funds specifically for playground replacements.	2015	DPW & P	City
Objective 3c Renovate Existing Recreation Facilities	1. Develop a maintenance list prioritizing the most actively used recreational facilities and re-evaluate frequently.	2014 onward	DPW & P	City
	2. Continue to develop park Master Plans as part of an effort to fulfill the recreational needs of residents and to maximize use and amenities.	2014 onward	DPW & P	City and Partnerships
	3. Continue coordination efforts with the City's Commission on Disability to make new facilities inclusive and ADA compliant.	2014 onward	DPW & P	City
	4. Continue community outreach efforts to address recreational needs particularly in EJ critical areas.	2014 onward	DPW & P and Planning	N/A
	5. Establish funding streams for implementing previously completed and new park property master plans.	2014 onward	DPW & P and Planning	City, Grants, Partnerships

Goals & Objectives	Actions	Priority	Responsibility	Funding Source
Objective 3c Renovate Existing Recreation Facilities	6. Establish targeted capital improvement programs that renovate like facilities at multiple sites (where possible) to provide cost reductions through economies of scale.	2016 onward	DPW & P	City
	7. Develop an asset management system to better track, general maintenance, repairs and improvements throughout the Park System	2018	DPW & P	City
Objective 3d Construct New Recreation Facilities and/or Convert Underused Facilities or Areas	1. Look for new locations to site needed recreation facilities (like Lake Park, where the City is entering into a long-term lease agreement with DCR to make use of land for a multi-purpose field).	2015 onward	DPW & P	City, Grants, Partnerships
	2. Look for new locations for additional multi-purpose rectangular fields and consider converting existing fields to new, synthetic turf systems where natural turf is not sustainable due to heavy use.	2017 onward	DPW & P	City, Grants
	3. Construct new facilities for activities that are underused and/or emerging (handball, cricket, rugby, skateboarding, etc.)	2015 onward	DPW & P	City, Grants
	4. Establish “play groves” or natural play areas as an alternative to traditional play equipment systems that encourage children to explore their natural world more fully.	2015 onward	DPW & P and Planning	City, Grants
	5. Continue to implement the City’s pool and splash pad initiative.	2016 onward	DPW & P	City
	6. Consider appropriate locations for dog parks in the City.	2014	DPW & P and GWLT	City, Grants Partnerships
Objective 3e Connect Recreation Assets to Cultural Life	1. Continue to support special community events and programs related to arts and culture through the design of multi-functional public parks and open space features and facilities.	2014 onward	DPW & P, Cultural Development Office	Grants and Partnerships
Objective 3f Capture Undervalued Land for New Recreational Purpose	1. Gain the rights to underperforming properties to create pocket parks in densely urbanized areas.	2015 onward	DPW & P and Planning	City, Grants
	2. Explore opportunities for converting brownfields and other distressed properties to park or open space use and construct new facilities on those properties to meet recreational demands.	2014 onward	DPW & P	City, Grants
Objective 3g Partnerships	1. Continue to establish and promote partnerships with private or non-profit entities (private schools and colleges for instance) for use of outdoor recreation facilities particularly where programming demand exceeds supply.	2014 onward	DPW & P, Worcester’s Public schools, and non-profits partnerships	N/A
Goal 4: Upgrade Delivery of Parks and Open Space Maintenance Services				
Objective 4a Funding for Park and Recreation Property Maintenance	1. Seek ways to restore operational funds for park maintenance, staff positions lost during recent economic downturns and purchases to make maintenance operations more efficient.	2015 onward	DPW & P	City
	2. Continue to enter into creative partnerships to supplement City efforts	2015 onward	DPW & P	Partnerships, Volunteers

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Goals & Objectives	Actions	Priority	Responsibility	Funding Source
Objective 4b Funding for Natural Resource Maintenance & Management	1. Identify operational needs (staff, materials, equipment) needed to better maintain natural areas within public parks and open space properties.	2017 onward	DPW & P	N/A
	2. Find ways to secure reliable public/private funding sources to reach a more sustainable state within the City's richly diverse woodlands, wetlands and related conservation areas. (Particularly in areas now stressed by beetle infestations, storm damage, and other damage caused by malfunctioning stormwater management systems)	2017 onward	DPW & P	City, Grants, Partnerships, Volunteers
Objective 4c Maintenance Partnerships	1. Continue to enter into partnerships that help to address maintenance and management challenges at park and open space properties.	2015 onward	DPW & P and GWLT	Partnerships, Volunteers
Goal 5: Integrate Parks and Open Space Planning				
Objective 5a Align Public Park and Open Space Initiatives with other City Planning Initiatives	1. Schedule regular meetings with other City departments and agencies (Planning, Health, Elder Affairs, Commission on Disability, Schools, and Youth Services etc.) in order to find common interests and maximize public investment and benefits.	2016 onward	DPW & P	N/A
	2. Include other City departments and agencies and other key constituents in the master planning process for individual parks open spaces and other park and open space related initiatives.	2015 onward	DPW & P	N/A
	3. Seek funding partnerships with other City departments and agencies in order to implement improvements that are mutually beneficial (include Schools, Elder Affairs, Office of Disability and Youth Services etc.).	2015 onward	DPW & P	City, Partnerships
Objective 5b Provide Public Park and Open Space Venues to Support Other City Programs	1. Facilitate use of park and open space facilities for events or programs offered through other City departments and agencies including Public Health, Division of Elder affairs, Office on Disabilities, Worcester Cultural Coalition, Worcester Arts Council, etc.	2016 onward	DPW & P	Partnerships, Volunteers
Goal 6: Promote Urban Landscape Improvements				
Objective 6a Complete Streets Approach to Transportation Corridor Reconstruction	1. Establish protocols and policies for using complete streets approach to transportation corridor reconstruction efforts, where possible.	2017 onward	Planning	City, Grants
	2. Research opportunities for state and/or federal funding for this type of integrated planning and design initiatives.	2014 onward	Planning	City, Grants
Objective 6b Increase Reuse and Redevelopment Efforts	1. Enact local regulatory incentives and identify federal/state redevelopment sources of funding to minimize disturbance of remaining open areas in the City by redeveloping underperforming properties first.	2015	Planning	N/A
Objective 6c Healthy, Local Food Initiatives	1. Define steps to apply open space resources and programs to help promote community garden establishment for better dietary habits.	2016	Planning	Grants, Partnerships, Volunteers

Goals & Objectives	Actions	Priority	Responsibility	Funding Source
Objective 6d Park and Open Space Policy in Sync with Climate Change Actions	1. Establish an internal advisory group that identifies specific steps that can be taken to make parks and open space operations and management “greener” and meet on a regular basis to chart progress.	2020 onward	DPW & P and Planning	N/A
Goal 7: Improve Open Space System Connectivity				
Objective 7a Public Street and Sidewalk Improvements	1. Evaluate and prioritize sidewalks improvements by analyzing their current functionality, safety and connectivity between residential and commercial areas and open space assets.	2017 onward	DPW & P and Planning	City, Partnerships
	2. Undertake a comprehensive, city-wide walkability assessment that recognizes city sidewalks as extensions of the City’s open space system.	2017	Planning	City, Grants
Objective 7b Street Tree Revitalization Efforts	1. Establish effective planting protocols to improve viability of street tree planting initiatives.	2014	DPW & P and Planning	N/A
	2. Engage partnerships with private property owners to participate in the care of street tree plantings (use the City’s private property tree adoption program).	2014 onward	DPW & P	City
	3. Continue tree planting initiatives as the City recovers from the ALB infestation.	2014 onward	DPW & P	City
Objective 7c Bicycle Lanes	1. Coordinate with road reconstruction projects, planning projects and other initiatives where potential links to parks are readily available.	2014-15 onward	DPW & P and Planning	City, Grants, Partnerships, Volunteers
	2. Undertake a comprehensive, city-wide bicycle facility planning effort to identify opportunities for stand-alone and integrated bicycle facility improvements.	2016 onward	DPW & P and Planning	City, Grants
	3. Coordinate with bicycle advocacy groups (Walk/Bike Worcester and others) to maintain an on-line information source for bicycle facilities located within the City	2016 onward	DPW & P and Planning	N/A
Objective 7d Trail System Upgrades	1. Upgrade existing trail systems, construct new trails systems and provide directional signage to create a more integrated and connected system.	2014 onward	DPW & P and GWLT	City
	2. Coordinate with outdoor enthusiasts to maintain an on-line information system for trail systems located within the City (and connecting to other regional facilities).	2015 onward	DPW & P, Planning, City GIS and GWLT	N/A
	3. Develop a master list of all trail systems within the City. Include the use of GIS system and mapping with GPS components	2015 onward	DPW & P, City GIS GWLT and Mass Audubon	City, Grants, Partnerships
Objective 7e Land Purchase	1. Purchase or acquire the rights to certain lands (see Goal 1d) with the intent of improving connectivity between open space assets.	2016 onward	DPW & P, Planning and GWLT	City, Grants, Partnerships
Objective 7f Encouragement of Neighborhood Preserves	1. Purchase or acquire the rights to certain lands (see Goal 1d) to benefit specific underserved neighborhoods and the general public and to fill geographic voids in the system.	2017 onward	DPW & P and Planning	City, Grants, Partnerships

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Goals & Objectives	Actions	Priority	Responsibility	Funding Source
Objective 7g Public Transportation System Enhancements	1. Continue to improve public transportation connections and stops to important park and open space assets throughout the City.	2016 onward	WRTA	Transportation
Goal 8: Plan/Design Open Space Improvements to Meet Current and Future Needs				
Objective 8a Evaluate Existing Open Space Opportunities	1. Make use of the city's updated Geographic Information System (GIS) and other survey and master plan reports to evaluate and inform residents and visitors of existing open space assets.	2017 onward	DPW & P, Planning and City GIS	N/A
	2. Update community survey and public outreach efforts to meet the needs of a changing population.	2016 onward	DPW & P and Planning	N/A
	3. Involve the partnerships and advocating groups that make regular use of these existing open space resources to publicize information on these assets for their better and wider use.	2015 onward	DPW & P and Planning	N/A
Objective 8a Introduce New Recreation Facilities and Programs	1. Through interactions with elected officials, constituents and advocacy groups, confirm the desire and the need for new types of recreation facilities and programs.	2018 onward	DPW & P	City and Partnerships
	2. As new needs are identified, evaluate the potential for converting existing or underused areas of parks and open space properties.	2015 onward	DPW & P	City
Objective 8c Evaluate New Open Space Opportunities	1. Make use of the city's updated Geographic Information System (GIS) when seeking out opportunities for new recreational venues. Investigate opportunities for creating multifunctional spaces.	2020 onward	DPW & P and Planning	Transportation
Objective 8d Research Feasibility of Pilot or Innovative Use Programs	1. Play Streets Program- close specific streets to traffic on a routine basis and open the space for the community to encourage physical activity, most commonly - children. This encourages physical activity, particularly in neighborhoods that lack sufficient open space for activity. (See http://ahealthieramerica.org/play-streets/find-a-play-street/ for examples of initiatives). Also close streets for special City events	2020 onward	DPW & P and Planning	N/A
	2. Conduct Pilot Street Visioning Demonstrations: Usually conducted by volunteers over a weekend, street furniture and temporary installations, such as benches, plantings and street striping, can be installed and used by the public in order to envision streetscape potential: open space, recreational, and cultural opportunities. Examples of these installations are "Park(ing) Day" or "Parklet" pilot programs. Hamilton Street, for example, could benefit from such a project due to its 4-lane wide street, concentrations of small businesses and a densely populated residential neighborhood.	2020 onward	DPW & P and Planning	City, Partnerships, Volunteers

Goals & Objectives	Actions	Priority	Responsibility	Funding Source
Goal 9: Expand Recreation Programming				
Objective 9a Comprehensive Recreation Program Inventory	1. Continue to develop, expand, and manage a comprehensive menu of recreation program offerings.	2016 onward	DPW & P	City, Partnerships
	2. Include activities that support a full range of populations and age groups that are close to the communities that they are intended to serve (or provide transportation options). Examples of program offerings might include soccer, cricket, aerobics, Zumba, yoga, salsa, tai chi etc. (These activities series should run several weeks in a row, be well advertised, and be free. Some of the well-suited parks for this activity would be Elm Park, Green Hill Park, Lake Park, and Crompton Park.)	2017 onward	DPW & P	City, Partnerships
	3. Meet with local health clubs and healthcare providers (e.g. Fallon Clinic, UMASS Medical and St. Vincent's) to seek their participation in the above program offerings.	2017	DPW & P	Partnerships
Objective 9b Increase Public Funding	1. Pursue additional City funding through the annual operational budget process that allows the hiring of dedicated recreation program staff within the Department of Public Works & Parks, Division of Parks and Recreation & Cemetery.	2014 onward	DPW & P	City
Objective 9c Increase Private Participation	1. Meet with private partners interested in sponsoring specific recreation programming opportunities or endowing a recreation position.	2015 onward	DPW & P	Partnerships
	2. Meet with other like-minded public and private groups and agencies that are already promoting public awareness of open space programs.	2015 onward	DPW & P	Partnerships
Objective 9d Heighten Public Awareness	1. Develop a public education and public relations strategy (public workshops, information brochures, links on the City's web site, use of social electronic media) to inform citizenry on open space and recreation matters.	2015	DPW & P, Planning and GWLT	N/A

1. Targeted Park Facility Master Planning

Following is a summary of targeted park and open space master planning needs. Note that funds for these master planning efforts have already been secured or will be secured during subsequent years. When complete, nearly 50% of the 60 parks and recreation open space properties will have had a master planning effort completed and on file. The City's goal is to make each master plan document available through the Department's web site.

The **Action Plan Map Figure 8** graphically depicts each site where a master planning effort has been identified as a need.

The following list of targeted Master Plans for park facilities is by alphabetical order, not prioritized yet:

- Apricot Street Playground
- Blithewood Park
- Boynton and Cascades Park
- Burncoat (North) Park and Holland Rink
- Grant Square
- Greenwood Park
- Hadwen Park
- Harrington Field
- Holmes Field
- Indian Lake Parcels (Shore Park, Indian Lake Beach and Morgan Landing)
- Mulcahy Field
- Oread Castle Park

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Tacoma Street Playground
Ty Cobb Park

2. Park Acquisitions

As noted throughout the Action Plan descriptions that form the majority of this Section, the City should remain vigilant in regard to acquiring the rights to properties that help protect, enhance (by meeting important needs and/or objectives) or expand the open space and recreation system. The following properties or geographic areas have been specifically identified, but other properties should be considered as opportunities arise.

Targeted For Trails

- Tatnuck Brook vicinity to Cook Pond, Smith Pond, Tatnuck Brook, Patch Reservoir and Patch Pond, Coes Reservoir to Middle River and across to Broad Meadow Brook property ending at Route 20.

Targeted Parcel Acquisitions

- Mass Port parcels (east of airport)
- Southwest of God's Acre property
- Southwest of Kettle Brook
- Conservation Restriction with Tatnuck Country Club
- Southwest of Coes Pond Beach
- East of Bell Pond
- Southeast of Green Hill Park
- Various Parcels in Environmental Justice Population Areas

3. Targeted Parks Improvements

Please note that lists under each category are by alphabetical order, not priority.

Category A Construction improvements are underway at the time of this writing:

Beaver Brook Park
City Hall Common
Coes Pond Parks: Coes Knife
Coes Pond Parks: Knights of Columbus
Cristoforo Colombo Park (East Park)
Elm Park
Greenwood Park
Institute Park
Lake Park
Logan Field
University Park (Crystal Park)
Wetherell Estate (Duffy Field)

Category B Funding for construction improvements has been secured and improvement plans are being developed:

Blackstone Gateway Park
Blithewood Park
Burncoat Street Playground
City Hall Common
Crompton Park
Dodge Park
Elm Park
Fairmont Park
Great Brook Valley Playground
Green Hill Park
Greenwood Park
Harrington Field
Holmes Field
Indian Hill Park
Institute Park
Lake Park (DCR)
Lake Park
Logan Field
Oread Castle Park
Providence St Playground
Ty Cobb Park

Category C Funding has not been secured, but the need for construction improvements has been identified:

Apricot Street Playground
Bell Hill Park
Bennett Field
Betty Price Playground
Boynton and Cascades Park
Burncoat Park (North Park)
City Hall Common
Coes Pond Parks: Coes Knife
Cookson Field
Crompton Park
Farber Field
Grant Square
Great Brook Valley Playground
Greenwood Park
Hadwen Park
Holland Rink Playground
Holmes Field
Indian Hill Park
Indian Lake Beach
Institute Park
Kendrick Field
Logan Field
Morgan Landing
Mulcahy Field
Oakland Heights Playground
Oread Castle Park
Rockwood Field
Shore Park
Tacoma Street Playground
University Park (Crystal Park)

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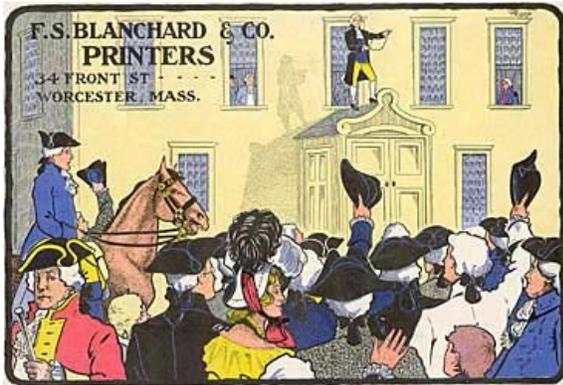
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An initial draft of the Open Space and Recreation Plan update was posted on the City's website on June 26, 2013 for public review and feedback.

A final draft was posted on the City's website, on December 6, 2013 for final public review and feedback.

The Open Space and Recreation Plan's availability was advertised in all public meetings and it was made available to about a dozen City Departments, Divisions, Commissions and Committees and to other entities such as the Greater Worcester Land Trust, Mass Audubon and Walk/Bike Worcester.

Open Space Plan documents have also been vetted with and reviewed by the Commonwealth of Massachusetts, Division of Conservation Services and the Central Massachusetts Regional Planning Commission.

The final document has also been presented to the Worcester Parks and Recreation Commission, and to the Worcester City Council for review, consideration and for approval.

To the greatest extent possible and as appropriate and applicable, all comments and feedback have been integrated into the final published Worcester Open Space & Recreation Plan.

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<http://www.preservationworcester.org/pages/pages-salis/s04wi/worcester-historical-socie.html>
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Appendices

- A. Mapping
- B. Public Meeting Notes
- C. Public Survey Results
- D. Site Assessment Forms
- E. ADA Self-Evaluation
- F. Comment Letters
- G. Additional Information