City of Kingston, New York

OPEN SPACE PLAN

JUNE 25, 2019

PREPARED BY

BEHAN PLANNING AND DESIGN

PREPARED FOR

The City of Kingston and the Kingston Conservation Advisory Council

This project has been funded in part by a grant from the New York State Environmental Protection Fund through the Hudson River Estuary Program of the New York State Department of Environmental Conservation

CITY OF KINGSTON
OPEN SPACE PLAN

Mayor
Steven T. Noble

Common Council

Jeffrey Morell
Reynolds Scott-Childress
William Carey
Patrick O'Reilly
Andrea Shaut
James L. Noble, Jr.
Douglas Koop
Rita Worthington
Tony Davis
Steven Schabot

Kingston Conservation Advisory Council
Julie Noble, Chair
Emilie Hauser, Vice Chair
Kevin McEvoy, Secretary
Elizabeth Broad
Lorraine Farina
Lynn Johnson
Casey Schwarz

Acknowledgements
Special thanks to the following people who contributed their valuable ideas and time to the plan:

Laura Heady (Hudson River Estuary Program)
Greg Shaheen (Kingston Land Trust)
Julia Farr (Kingston Land Trust)

Consultants
Behan Planning and Design
112 Spring Street, Suite 305
Saratoga Springs, NY 12866
www.behanplanning.com

BEHAN PLANNING
AND DESIGN

CITY OF KINGSTON
OPEN SPACE PLAN

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

DOCUMENT REFERENCES

(1) Mark Correll et al. 1978. *The Effects of Greenbelts on Residential Property Values: Some Findings on the Political Economy of Open Space.* Land Economics, and Darryl F. Caputo. 1979. *Open Space Pays: The Socioenvironomics of Open Space Preservation.* Morristown, NJ Conservation Foundation. Land Economics.

(2) *American Farmland Trust. September 2016. Cost of Community Services fact Sheet. https://www.farmlandinfo.org/sites/default/files/Cost_of_Community_Services_Studies_AFT_FIC_201609.pdf*

(3) *Margaret Bonner and Francis Gray. 2005. Cost of Community Services Study. Town of Rochester, NY.*

(4) *New York State Hudson River Estuary Program. Climate Change in the Hudson Valley, A Summary for the Public. https://www.dec.ny.gov/docs/remediation_hudson_pdf/ccinthehvms.pdf*

(5) *For this state-designated significant habitat, a habitat impairment test must be met for any activity that is subject to consistency review under federal and state laws, or under applicable local laws contained in an approved local waterfront revitalization program. If the proposed action is subject to consistency review, then the habitat protection policy applies, whether the proposed action is to occur within or outside the designated area. Additional information about significant coastal fish and wildlife habitats can be found at https://www.dos.ny.gov/opd/programs/consistency/scfwhabitats.html*

(6) *Riparian came to English from the same source that gave us "river" - the Latin riparius, a noun deriving from ripa, meaning "bank" or "shore." "Riparian" refers to things that exist alongside a river (such as riparian wetlands, habitats, trees, etc.). Source - https://www.merriam-webster.com/dictionary/riparian*

ACRONYMS / ABBREVIATIONS

- CAC — Conservation Advisory Council (of the City of Kingston)
- GIS — Geographic Information System
- NRI — Natural Resources Inventory
- NYS — New York State
- NYSDEC — New York State Department of Environmental Conservation
- NYNHP — New York Natural Heritage Program (of the NYSDEC)
- OPRHP — Office of Parks, Recreation and Historic Preservation (of NYS)
- OSI — Open Space Index
- PDR — Purchase of Development Rights
- SAV — Submerged aquatic vegetation
- SBA — Significant Biodiversity Area
- USACOE — United States Army Corps of Engineers

CHAPTER 1
INTRODUCTION

OVERVIEW

In 2017, the City of Kingston and the Kingston Conservation Advisory Council (CAC) began the process of developing a Natural Resources Inventory and Open Space Index for the entire city. The goal of this data-collection effort was to better understand what natural resources existed in the city so that informed planning decisions could be made with regard to future growth and the conservation of these elements which are considered assets to the city. It is believed that this knowledge-based approach will not just help to protect the visual aesthetic quality of the city and inform local planning decisions, but also help to maintain clean drinking water, protect natural habitats, provide recreational opportunities and position the city to mitigate impacts from future climate change trends. The findings of this comprehensive work were then utilized as part of a public planning project to develop the City of Kingston Open Space Plan - this document - a strategy for the responsible stewardship of these important resources for future generations.

EXECUTIVE SUMMARY

OPEN SPACE VISION

Kingston's open space system is an interconnected network of parks, paths and preserves that add to the quality of life in the city. The city and its rivers are intertwined in history—and this natural and cultural legacy includes both protected uplands and restored shoreline. Enhanced waterfront access and riparian habitats coupled with naturalized stormwater management systems create the foundation of Kingston's green infrastructure network. The city's comprehensive trail system connects revitalized and expanded parklands and other community recreation resources with local and regional destinations. Community gardens and expanded urban agricultural opportunities help connect people with nature. Kingston is celebrated as a "Tree City" by the Arbor Day Foundation, recognizing the importance of an urban tree canopy and improved care of Kingston's vital city trees. Together these open space resources provide a beautiful and healthy framework for Kingston's continued revitalization; yielding benefits to the quality of life and economic vitality for all who live, work, and play in our treasured city. Source: USEPA website www.epa.gov, Climate Change Basic Information, as it appeared on January 19, 2017.

The Open Space Plan for the City of Kingston, Ulster County, New York identifies the natural resources and related areas of the community that help to:

- Improve water quality
- Reduce flood damage
- Maintain habitats for wildlife
- Reduce noise pollution
- Improve air quality
- Enhance outdoor recreation opportunities
- Protect scenic resources
- Strengthen property values

Forming a foundation of the plan was an extensive Natural Resources Inventory (NRI) developed by dozens of dedicated volunteers, commissioners, consultants and generous stakeholder groups in 2017-2018 and documented in a report and mapping documents compiled by John Mickelson of Geospatial & Ecological Services. This comprehensive inventory included geophysical aspects (geology, terrain, etc.), land cover, urban forests and biotic systems, hydrological systems, recreation resources, historic and cultural resources, among others, and considered factors affecting the environment climate change and related effects such as increased flood risk.

Community input was sought throughout the planning process and in particular in review of the natural resources inventory, identifying conservation priorities and in creating an overall vision for an open space network in the city.

Three notable areas within the city which have significant natural resources include the coastal and upland region of the Hudson River, the coastal and upland area associated with the Rondout Creek and the lowlands and waterfront along the Esopus Creek. The plan recommends several actions to address resource conservation in these areas and includes conservation targets for those and other areas for implementation over the next 10 years:

- 5,000 additional linear feet of public access created along the Hudson;
- 500 additional acres of permanently protected land in the uplands along the Hudson;
- 1,000 new street trees planted;
- 5,000 additional linear feet of public access secured along the Rondout;
- 60 additional acres of permanently protected land in the uplands along the Rondout;
- 2,500 linear feet of compromised urban stream corridor restored to a more natural condition;
- 10 new community gardens established in city neighborhoods;
- 50 acres of farmland and natural areas protected along the Esopus;
- 1 new neighborhood park created in Midtown area

These are not unambitious goals and continued and expanded community partnerships will be needed to achieve that which is envisioned. First and foremost, collaboration with willing landowners who share this conservation interest will be of great importance. As well, conservation partners like the Kingston Land Trust and Scenic Hudson are among the key players who can help the community advance its goals. Other nonprofits including the Hudson Valley YMCA and Riverkeeper, among others, have complementary programs and several county, state, and federal departments and agencies have programs that match well to the projects and actions needed to implement Kingston's Open Space Plan. City departments and agencies and the elected leadership will all continue to be important to the advancement of the plan.

Figure 1. *Young citizens helping establish conservation priorities.*

It is important to recognize that this plan is visionary and conceptual in nature—its implementation will require subsequent technical work in terms of feasibility studies and establishment of priority sites for protection; initiation of more detailed, project-specific planning and design; and development of program-wide and project-specific financing strategies. By advancing the open space conservation targets described in this plan into projects that are implemented, the quality of life for Kingston's citizens will be enhanced with benefits that will continue in perpetuity for both current and future generations. We hope that you participate in these very important activities months ahead.

WHAT IS AN OPEN SPACE PLAN?

An open space plan is a document which outlines the desired goals for the future preservation and enhancement of both the natural and man-made resources which are important to the quality of life in a community. While many people often think of open space simply as farm fields, wetlands or attractive scenery, it is not limited to that. Open space in this sense can include important historic sites or structures; cultural attractions which draw tourists; underground water sources; and public recreation areas such as parks, beaches and gardens. Even downtown streetscapes—the public realm in which people work, play and meet in a city—are an essential component of our community open space. These features contribute to the beauty of our neighborhoods, our health and our overall quality of life. These factors, in turn, contribute to the economic health of the community as well.

It is important for a community to have a plan for the preservation of these resources in much the same way as any family saves for their children's education or their retirement—they are an investment in our future. As populations grow and new development occurs, open space resources are often lost over time. Taking a look at the long-term picture, it makes sense to identify what is most important to us so that steps can be taken to preserve or enhance these resources for our grandchildren. An open space plan is the strategy to do just that.

The forested areas, rivers, wetlands and other natural resources within the City of Kingston are all part of a system. Ideally, this system must remain balanced and relatively unbroken in order to function properly as a water filtration system or wildlife habitat, but this does not mean that every acre must remain forever untouched. There are many different land uses and land development strategies which can allow for continued growth and economic development while still protecting open space. For example, conservation "cluster" development and development transfer strategies can help to keep sensitive lands open while allowing denser development elsewhere. Likewise, outdoor recreation and agriculture also help to promote tourism and economic activity while protecting the land.

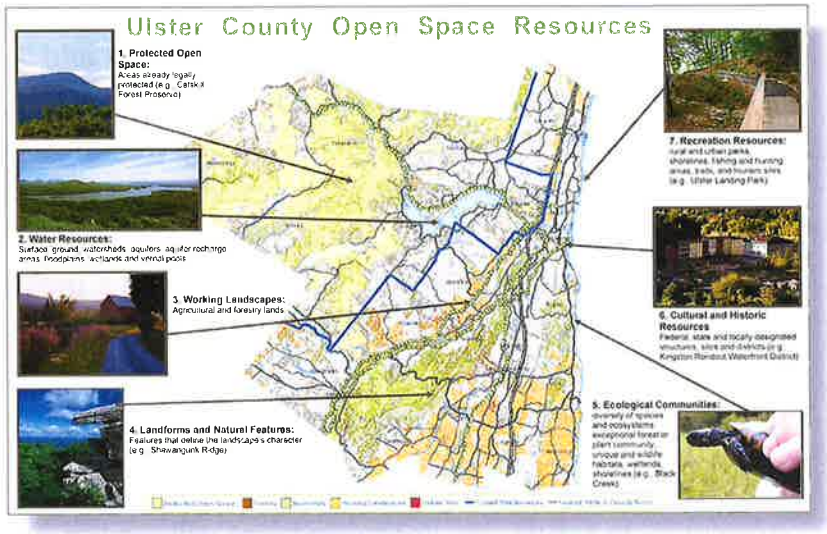


Figure 2. *Ulster County Open Space Plan - Resources Map.*

Unlike the more rural towns and villages of surrounding Ulster County, Kingston is a bustling riverfront city. Because of this, there is relatively little land area today which remains undeveloped compared to the surrounding communities. Currently, the city has approximately 7% of its total land area devoted

to protected open space. This lags behind a majority of other municipalities in the county, yet is still notable considering its urban industrial history. Today, with relatively little natural open space and forests left to maintain, it is important as ever to identify the areas which should be protected or enhanced. This plan will help to identify the resources here in Kingston which contribute to the health, well-being and quality of life of the community, and help to provide a strategy for the city to ensure that it remains healthy for future generations.

Figure 3. Permanently Protected Open Space in Ulster County

Municipality	Total Acreage	Protected Open Space Acreage	% In Protected Open Space
Town of Shandaken	79,781	55,739	70%
Town of Denning	64,932	43,487	67%
Town of Hardenburgh	51,189	27,918	55%
Town of Olive	42,045	17,830	42%
Town of Kingston	4,772	1,764	37%
Town of Wawarsing	84,971	26,701	31%
Total for Ulster County	737,599	227,434	31%
Town of Hurley	22,649	6,837	30%
Town of Rochester	57,109	16,296	29%
Town of Woodstock	43,818	12,803	29%
Village of Ellenville	1,231	147	12%
Town of Gardiner	28,418	3,184	11%
Town of New Paltz	20,707	2,299	11%
Town of Rosendale	12,738	1,413	11%
Town of Marbletown	35,669	3,163	9%
Village of Saugerties	1,437	118	8%
City of Kingston	***5,625***	***381***	***7%***
Town of Saugerties	36,286	2,307	6%
Town of Esopus	26,868	1,444	5%
Town of Shawangunk	36,286	1,544	5%
Village of New Paltz	1,088	57	5%
Town of Lloyd	21,357	851	4%
Town of Ulster	18,774	504	3%
Town of Marlborough	16,993	299	2%
Town of Plattekill	22,856	348	2%

Source: Ulster County Open Space Plan; Catskill Center for Conservation and Development and Open Space Institute, 2006

THE BENEFITS OF OPEN SPACE

Open natural spaces such as forests, rivers, fields and wetlands contribute in many different ways to our health and quality of life, which is why having a management plan for them is so important. While many people can appreciate the obvious visual benefits of beautiful scenery, open space can also help to improve our communities in many other ways which are not readily visible.

Property Values

Having the natural landscape to provide a counter-balance to the built environment helps to strengthen and increase local property values, as it can often provide a more visually appealing setting. This is especially true with preserved lands which cannot be developed. If a prospective buyer knows that the lands adjacent to them will remain undeveloped, they have much more certainty in what they are buying. Many economic studies have demonstrated that proximity to parks and greenbelts in more urban areas can increase nearby property values by as much as 15 - 20%.[1]

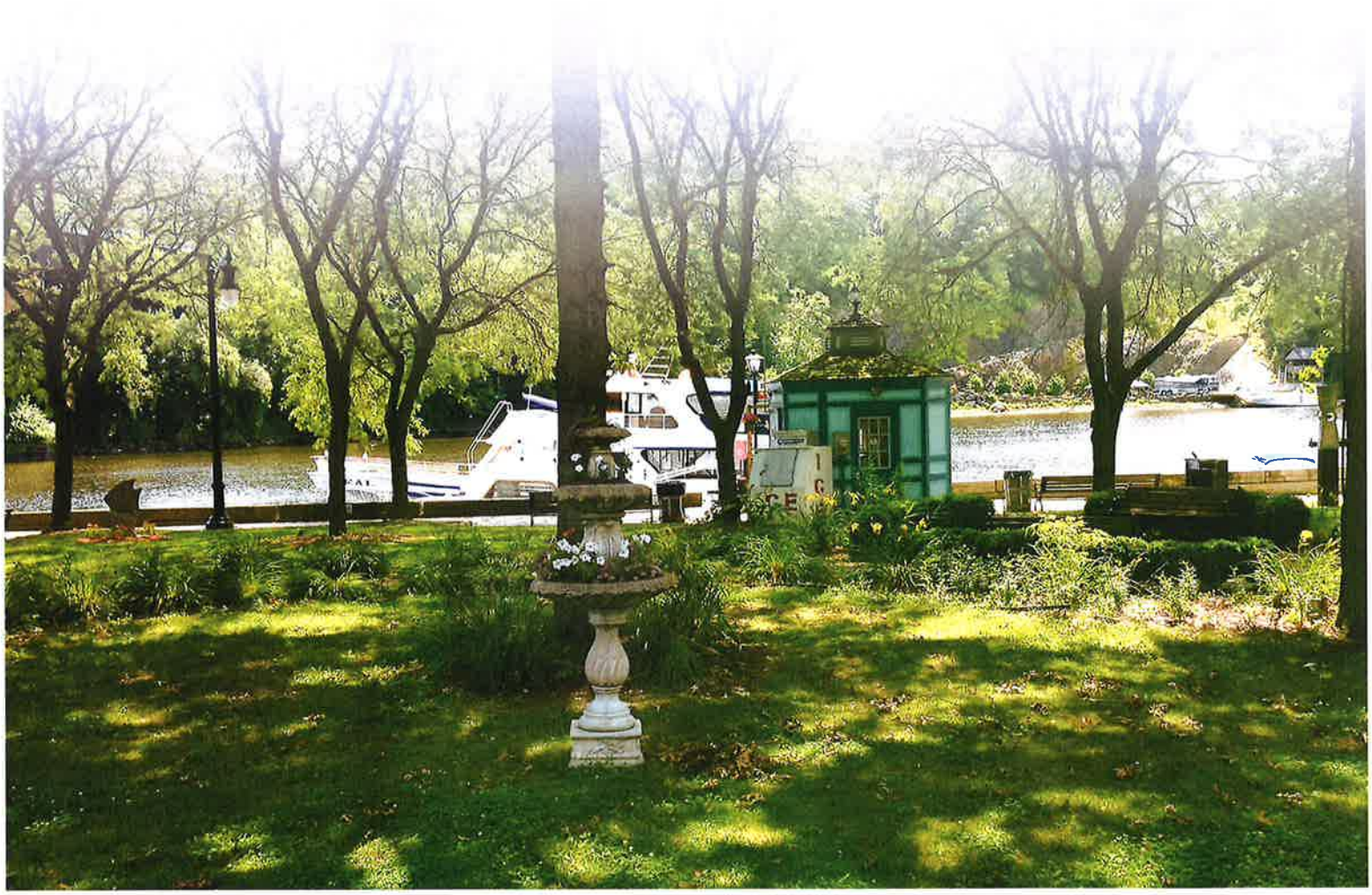


Figure 4. *T.R. Gallo Waterfront Park*

Recreation and Tourism Dollars

Tourism and recreation are an important part of any community, and having recreational opportunities which attract visitors and residents helps to provide money to local businesses. The Hudson River, Rondout and Esopus Creeks provide significant recreational and tourism potential, with waterfront activities, kayaking, marinas and docks which can be a draw for visitors. Supporting these assets is an investment in local businesses and the future.

Reduced Tax Burden

Development of land in any community has tax implications to provide additional services such as roads, police, fire, schools and utilities to the community. Studies conducted across the U.S. over the last 30 years on the impacts of different types of development have shown that for every dollar of tax revenue received, the municipality sometimes has to spend more to provide services in return. Residential development was found to be the most costly, requiring about $1.16 in services for every tax dollar received. Farmland costs significantly less—generally requiring about $0.37 per dollar of revenue, followed by commercial development at $0.30.[2] Because the cost to service open space is so low, the combined costs of open space and commercial development was found to be around $0.18 per tax dollar received in the Ulster County town of Rochester.[3] Open space helps to provide a balance to offset the high cost of residential services.

Cleaner Water

The conservation of open space helps to protect and enhance the water quality of both surface waters such as ponds and streams and sub-surface water sources. The natural riparian buffers along streams and the filtration function of wetlands and forests helps to purify water runoff from pollutants before it enters back into the local water system. This results in cleaner water downstream and underground in aquifers, and a reduced need to rely on costly filtration plants to generate clean drinking water.

Reduced Flooding

As communities develop, the additional roads, buildings and parking lots create impervious surfaces which prevent rain from being slowly absorbed into the ground and replenishing streams and the local water table. Instead, the water accumulates and becomes runoff, moving quickly across impervious surfaces where it collects pollutants and is eventually discharged in high volumes to storm drains and streams. This rapid flow of water contributes to flooding, and as more impervious surfaces are created, the more this effect is compounded. Open space areas conversely provide places for rain to be absorbed back into the ground naturally. Likewise, wetlands and floodplains provide stormwater storage areas which temporarily hold rain water and mitigate the flow into developed areas.

THE BENEFITS OF OPEN SPACE

Environmental Health

Preservation of open space helps to support the functioning of natural ecological systems which local flora and wildlife rely on to survive, and from which human communities receive benefits called "ecosystem services." Maintaining large areas of unfragmented natural land provides important habitat and corridors for wildlife. The trees and plants which live in these areas helps to purify the air we breathe. A balanced natural system is important as degradation of certain plant or animal species can have a negative ripple effect on others.

Agriculture & Food Supply

Local agriculture and community farms help provide a reliable source of food and community gardens can provide locally-grown foods at low cost. Having a local food source is important not just for security but also helps to reduce the amount of energy spent transporting goods long distances to national grocery chains. Having fresh-picked, nutritious foods in your neighborhood—and learning how to grow them—is an important consideration and provides us with a connection to our foods when we know where they came from.

Human Health & Quality of Life

Outdoor parks, playgrounds and trails all provide recreational opportunities where walking, running or hiking contribute to healthy living and exercise. A community which has access to these amenities is more likely to take advantage of them, contributing to the health of the community. Likewise, the more access they have, the more likely they are to use them. And while many people think of open space as large forested areas or parks, in more urban communities these can take many other forms such as community gardens, pocket parks and corner playgrounds. Even a consistent planting of mature street trees—which often go unnoticed by many people as the general backdrop scenery of a street—have a profound impact on the landscape and our health. Such trees provide a regular repository of shade on hot summer days, and provide fresh oxygen in cities where air quality is often lower. They also provide welcome scenery and relief from the paved urban hardscape and make the city a more inviting place to live and work.

Figure 5. *Kingston's stockade district is graced with mature street trees, which greatly contribute to the mood and character of the neighborhood. If these trees were to be taken away, the street would have a very different feel, and likely lower property values.*

Climate Change Resiliency

The effects of climate change are anticipated to be felt locally in the coming decades, and proper open space planning provides us the opportunity to be better prepared for it. As a community bordering three rivers, Kingston will likely see the effects of rising water levels and flooding, along with rising temperatures, extreme weather, and the spread of invasive species. Knowing in advance what changes will likely occur provides us the opportunity to prepare for them - a process known as 'climate resiliency.'

The NYSDEC's Hudson River Estuary Program notes the following expected changes and risks associated with climate change over the coming decades: [4]

- Heat waves becoming more frequent and lasting longer, with the number of summer days exceeding 90 degrees Fahrenheit doubling by the year 2020, and quadrupling by 2050.
- Precipitation becoming more varied and extreme, with potential for short-term droughts and heavier rainfall events. Today's "100-year flood" is expected to become 50% more likely by 2020.
- Since 1900, sea level in the lower Hudson River has risen 15 inches. It is projected to rise another nine to 27 inches by 2050, increasing flooding in coastal areas.
- Invasive species and nuisance plants will thrive under elevated atmospheric CO2 levels, making them spread faster and harder to contain.

WHAT IS CLIMATE CHANGE?

Climate change refers to any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among other effects, that occur over several decades or longer.

- Humans are largely responsible for recent climate change. Over the past century, human activities have released large amounts of carbon dioxide and other greenhouse gases into the atmosphere.
- The majority of greenhouse gases come from burning fossil fuels to produce energy, although deforestation, industrial processes, and some agricultural practices also emit gases into the atmosphere.
- Greenhouse gases act like a blanket around Earth, trapping energy in the atmosphere and causing it to warm. This phenomenon is called the greenhouse effect and is natural and necessary to support life on Earth. However, the buildup of greenhouse gases can change Earth's climate and result in dangerous effects to human health and welfare and to ecosystems.

Source: USEPA website www.epa.gov, Climate Change Basic Information, as it appeared on January 19, 2017.

Some actions to mitigate adverse impacts of climate change include: Planting more trees in the city to provide shade and clean air; conserving wetlands and forests to help manage stormwater, recharge groundwater and reduce flooding; conserving land in floodplains and riparian areas to reduce damage from storms and serve as natural flood-storage areas. Avoiding the development of these areas now prevents flood damage to future investments and maintains flood storage potential that help keeps surrounding areas from being inundated.

THE CHALLENGES OF OPEN SPACE

Maintaining open natural space also presents challenges, as finding the desired balance between preservation and development often raises questions about the true value of property, property owners' rights to develop it, and the municipal income lost from taxes.

Population Growth vs. Development Style

In a newly-established or growing town, the single largest threat to open space is typically the population growth. The City of Kingston is a well-established city which has already been developed over many decades, and as such has a relatively low or steady population growth compared to many new towns. This however should not mean that there is no threat. The threat of land development more often depends on the type of development which is trending. Compact "traditional" development is a much more efficient use of land, while contemporary "sprawl" eats up available undeveloped land area at a much higher rate. The historic development styles of our past are still giving way to the convenience of suburban parking lots and big box stores, where the more rural areas outside of the city center are now in highest demand. Cities such as Kingston have already developed much of their "developable" land years ago, and often times the land which still remains today exists only because it has more difficult terrain, or is not as conveniently located. The remaining open space here—like in cities all over the country—will continue to be developed as the local options become fewer and higher-value targets. However proper planning now will help to ensure that these remaining areas can still be better preserved.

Figure 6. *The intersection of Broadway and Brewster Street.*

The Process of Developing this Plan

In 2018, Behan Planning and Design—a land-use planning consulting firm based in Saratoga Springs—was selected to assist the City of Kingston with the preparation of the open space plan. The plan was overseen by the seven-member Kingston Conservation Advisory Council (CAC), who met regularly every month to review information and coordinate decisions with the consulting team. The mission statement of the CAC is: *Ensure the conservation of the City of Kingston's natural resources and the enhancement and protection of its environment while fostering unified action on environmental matters.*

Among other regular duties, the CAC was responsible for overseeing the successful evolution of all of the information developed in the natural resource inventory into a clear and concise open space plan which would help guide future land use decisions in the city. In order to do this, it was important that the public be involved in the decision making process and have a voice for ideas and concerns.

Figure 7. *Participants at each workshop table were invited to draw on maps to share their ideas for conservation, recreation and other community enhancements.*

The CAC hosted a public informational meeting on June 22, 2018 to present the findings of the Natural Resource Inventory (NRI), and formally announce the beginning of the open space planning process. Approximately 50 people attended this meeting, and all were encouraged to sign up for future meeting announcements.

On September 25, 2018, the first public workshop was held at the Kingston Library to develop open space visioning ideas. This workshop was open to the public, with specific stakeholders directly invited, including those who signed-up at the informational meeting and those who owned significant tracts of vacant land within the city. Over 40 people attended this workshop, which included table discussions with aerial maps and resource prioritization exercises. The resource prioritization exercises asked participants to "vote" for the preservation of different resources by spending an allotted number of stickers on different categories.

Figure 8. **Resource Prioritization Results**

Local Resource to Protect / Enhance	Total Score
Street Trees & Streetscapes	87
Trails & Bike-Hike Paths	77
Parks & Recreation Areas	57
Hudson River Shoreline	57
Urban Agriculture	51
Esopus & Rondout Creeks	49
Open Fields & Forested Areas	46
Historic & Cultural Sites	45
Wetlands, Ponds & Streams	36
Scenic Views	36

A SAMPLING OF ATTENDEES' IDEAS FROM THE SEPTEMBER PUBLIC VISIONING WORKSHOP

Conservation & City Enhancements

- Protection of the Esopus Creek floodplain.
- Preservation of the undeveloped lands west of the railroad tracks, in the vicinity of Wilbur Ave., Chapel St., and Mason Hill Road.
- Preservation of undeveloped lands in southwest area of the city, upland from the Rondout Creek.
- Kingston Plaza upgrades - sidewalk connections to surrounding areas and more greenspace / sustainable stormwater solutions.
- Uncover or "daylight" buried streams such as Tannery Brook / Twaalfskill.
- Redeveloped commercial properties could incorporate more greenspace, softer landscaping in lieu of pavement.
- Support of urban agriculture with more community gardens.
- Protection of water quality from combined Hudson River sewer overflows, turbidity from Esopus upstream impoundment operations.

New Recreation Opportunities

- Riverfront promenade along the Hudson River.
- Removal of debris from Esopus Creek to allow paddling/kayaking.
- Bringing back Clearwater Park and Lawton Park.
- More playgrounds, pocket parks, street trees in midtown areas of the city.
- Kayak launches or public access on Esopus Creek on Kingston side.
- Pocket parks along trails such as Greenline, Wallkill Valley Rail Trail, Empire State Trail.
- Academy Green upgrades.
- Safe pedestrian crossing of active railroad and sound buffers.
- Additional marina/dock space along Rondout.

After the workshop, a public comment period was provided where people could submit additional ideas and considerations to the CAC. A highlight of some of the ideas which came out of that meeting are presented on the next page. (*A full copy of the notes and written public comments collected at this workshop is provided in the Appendix.*)

The input gathered from this meeting was used to begin defining goals and strategies for the open space plan. Not surprisingly, the public provided a wide variety of suggestions on many facets of recreation and open space protection. It was important to review these ideas, and determine what needed to be incorporated into the plan. The CAC and consultants met to review the summary material from the workshop and discuss the potential projects or efforts which were derived from the public input. A review was also conducted to determine if there were additional considerations which should be incorporated into the plan.

As part of this review, a series of resource-analysis "heat maps" were developed in GIS (Geographic Information Systems) using the data from the NRI, which looked at the geographic location of various natural and cultural resources found throughout the city. The CAC, using some of the resource prioritization input from the first public workshop, developed a scoring system for each of the various resources. Areas where more of these resources overlapped received a higher score. This allowed the CAC to visualize what geographic lands were more important or sensitive to development. When combined, the overall maps were used to identify priority areas for conservation.

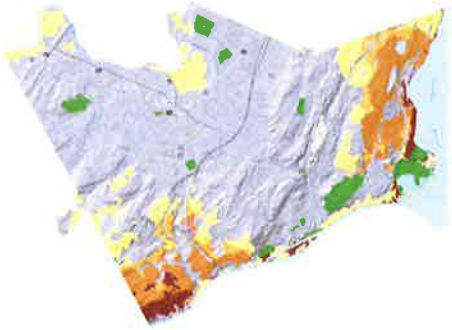


Figure 9. *An example of one of the GIS "Heat Map" analysis, showing areas of the city most vulnerable to trending climate change impacts. Multiple maps were developed for different topics and then combined together to identify the priority areas of the city for conservation.*

The resulting heat maps and ideas collected at the first public meeting were then used to develop preliminary recommendations for discussion. Areas of the city which contained overlapping priority resources were considered for different conservation approaches, as well as potential community improvement projects. At this point, it was important to bring the discussion back to the public to get their feedback on these ideas and help determine what resources, efforts

Summer 2018

IDENTIFY NATURAL RESOURCES

Public Workshop
September 2018

DETERMINE WHAT IS IMPORTANT

Fall 2018 / Winter 2019

IDENTIFY PROJECTS

Public Workshop
Spring 2019

REVIEW COMMUNITY PRIORITIES

Summer 2019

FINALIZE PLAN

Figure 10. *Participants at the open space workshop utilized a series of table maps to draw out ideas and identify areas for future recreation and preservation.*

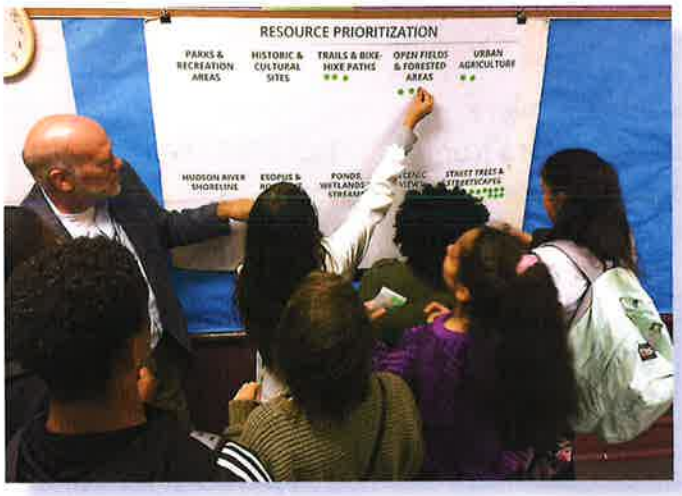


Figure 11. *Participants at the open space workshop were asked to vote for categories of different local resources they would most like to see enhanced or protected using a series of voting stickers (Photo: Susan Hereth). Below: Draft Open Space Plan presentation May 2019 (Photo: City of Kingston).*

and projects should be given priority. This would assist the city with general guidance on the best short and long-term implementation goals, and develop a timeline for implementation.

In May of 2019, the draft Open Space Plan was presented to the public at City Hall. The goal of this presentation was to review the major findings and recommendations of the plan and confirm that local residents and city leaders agreed with the direction and specific details of the planning document.

John Mickelson, the author of the Natural Resource Inventory, joined Laura Heady of the Department of Environmental Control in speaking about the findings of the Natural Resource Inventory which was used as the foundation for this plan. Greg Shaheen of the Kingston Land Trust also spoke about conservation techniques for future trails and land management.

The presentation included a recap of the major concerns identified in the plan, including coastal flooding, invasive species management, brownfield redevelopment, pollution and shoreline habitat. A draft vision statement was shared for discussion, as well as a summary of the proposed "10-year goals" for the City of Kingston which covered the topics of the Hudson River shoreline, Rondout Creek corridor, Esopus Creek corridor, community gardens, neighborhood parks, street trees, trail connections, farmland, and restoration of stream corridors. (*A full copy of the notes collected at that meeting is provided in the Appendix.*)

At the conclusion of the presentation, it was noted that a public comment period would be left open until June 14th for any additional comments and questions. The public comments from this presentation and draft review were then used to help finalize the plan.

CHAPTER 2
RESOURCE INVENTORY AND ANALYSIS

The City of Kingston, bounded on the north and south by major tributaries to the Hudson River, was a logical location for the only city in Ulster County to develop. Two of the three major waterways in the county—the Esopus and Rondout Creeks—collect their watershed rainwater and transport it downstream to the east side of the city in the Hudson River. The Esopus Creek, traveling through the mountains from the Ashokan Reservoir, today is the primary source of drinking water for New York City. These waters, once important decades ago for travel and the transport of merchandise, continue to be important today as a source of drinking water and recreation. (The residents of Kingston now get their drinking water from Cooper Lake, miles upstream in Woodstock.) Along with water, the Catskill Mountains to the west provide recreation, tourism, untamed open space and many other natural resources which are important to the area's economy and quality of life.

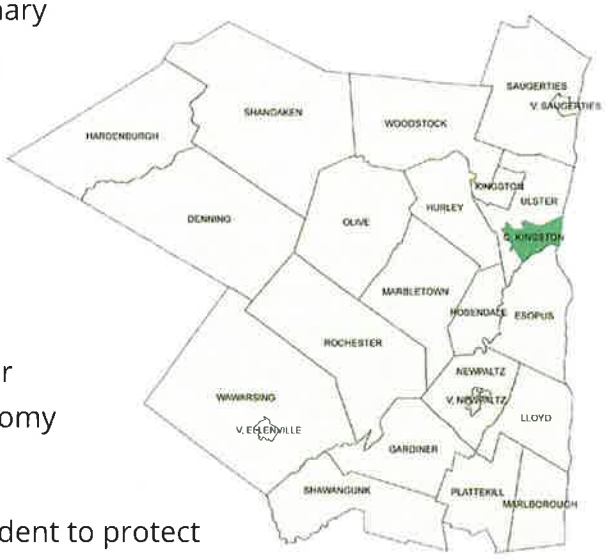


Figure 12. *The City of Kingston in Ulster County.*

With these many essential and valued resources, it is prudent to protect certain lands and features as protected open space. Protected open space is any public or private land permanently protected from development, such as forest preserves, dedicated parkland, parkways, and nature preserves. In developed areas such as cities, protected open spaces can include parks, cemeteries vegetated buffer strips, historic sites, and even setbacks on private property.

The distribution of protected open space varies widely across the county. Although as much as 30% of Ulster County is made up of protected open space, a majority of this land is located in the western regions concentrated around the Catskill Mountains. The eastern region of the county has significantly less protection, despite a prevalence of wetlands and consolidated aquifers. As the only city in the county, and a hub of activity along the north-south I-87 corridor, the City of Kingston faces much different development pressures and threats than the more

Figure 13. *The City of Kingston and surrounding environs.*

THE NATURAL RESOURCE INVENTORY

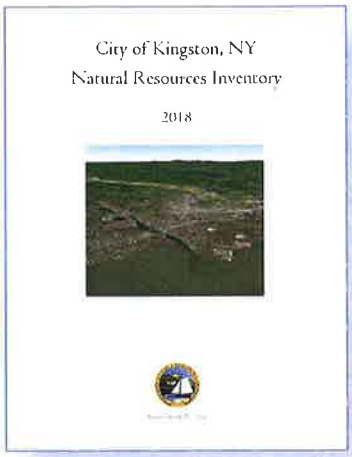
Natural Resources Inventory (NRI) and Open Space Index (OSI)

The Natural Resources Inventory was compiled in 2018 through Estuary Grant funding, and is an established foundation for this open space plan. Through the diligent work and contributions of dozens of dedicated staff, volunteers, commissioners, consultants and generous stakeholder groups, a wide array of data, reports, maps, and topical and spatial information has been assembled into a Natural Resources Inventory (NRI) and an Open Space Index by the city with the Kingston Conservation Advisory Council (CAC) working with consultant John Mickelson of Geospatial & Ecological Services. This work was completed in 2018, and provided an essential foundation for the preparation of this open space plan. It will also continue to serve as an information base for other future planning initiatives and decisions which will help conserve the city's natural resources.

Designed to be user-friendly and compatible with modern geospatial technologies (e.g. Google Earth), Kingston's NRI provides powerful, simple and free spatial tools for easy access by all. A broad array of natural resource, cultural and open space features are included: biophysical resources (geology, soils, and terrain), hydrological resources (water and aquatic habitats), biological resources (vegetation, habitats, flora, and fauna), recreational resources, urban agriculture, historical and cultural resources, scenic resources and climate.

The Open Space Index provides a breakout of some 20 important natural resource and open space variables, summarized using tax parcels as the unit of analysis. The various geographic information system (GIS) layers will greatly enhance current and future mapping in the city and ensure that GIS operators will have easy access to the comprehensive map library. To augment and expand the utility of these primary aids, the vast majority of layers that went into constructing each map were converted to KML format, for use within Google Earth. Natural resource and open space categories were organized into groups as a method for presenting and discussing both the open space (cultural) and the natural and biotic elements in the NRI process. The general organization of the NRI is listed in the sidebar to the right.

Natural Resource Inventory



GEOPHYSICAL
Geology, Soils, Terrain

LAND COVER AND BIOTIC SYSTEMS
Land Cover, Habitat Studies

URBAN FOREST
Resources, Stresses and Threats

HYDROLOGICAL SYSTEMS
Hudson River, Rondout Creek, Esopus Creek, Riparian Zones, Surface Ponds, Human Drinking Water Supply, Stresses and Threats

FLORA AND FAUNA
Resources, Stresses and Threats

RECREATIONAL RESOURCES
Resources, Stresses and Threats

URBAN AGRICULTURE
Resources, Stresses and Threats

HISTORIC AND CULTURAL
Resources, Stresses and Threats

CLIMATE AND POTENTIAL ENVIRONMENTAL CHANGES

THE NATURAL RESOURCE INVENTORY

It is not surprising that many of the high-value terrestrial biodiversity resources identified in the NRI fall within three large natural areas remaining in Kingston. The first falls within the coastal and upland regions adjacent to the Hudson River shoreline. The second area contains the floodplain forests, riparian zones, marshes and adjacent grasslands along the Esopus Creek. The third area includes the large forested areas within the southwestern corner of Kingston, within the Twaalfskill Basin. The Hudson River and the Rondout Creek contain much of the rare, endangered and special concern species. Fisheries here are also very regionally significant both from an ecological as well as a recreational perspective.

At a more detailed level, the NRI identifies a comprehensive array of important natural resources, some of which are illustrated below in maps for reference. The interested reader is encouraged to view the full report—which can be found at www.kingston-ny.gov/nri—and the associated digital maps for a more complete picture of these important local natural systems. The data from this comprehensive NRI/Open Space Index was used to help establish priority areas for conservation identified later in this plan. See page 22 - Scoring the Resources.

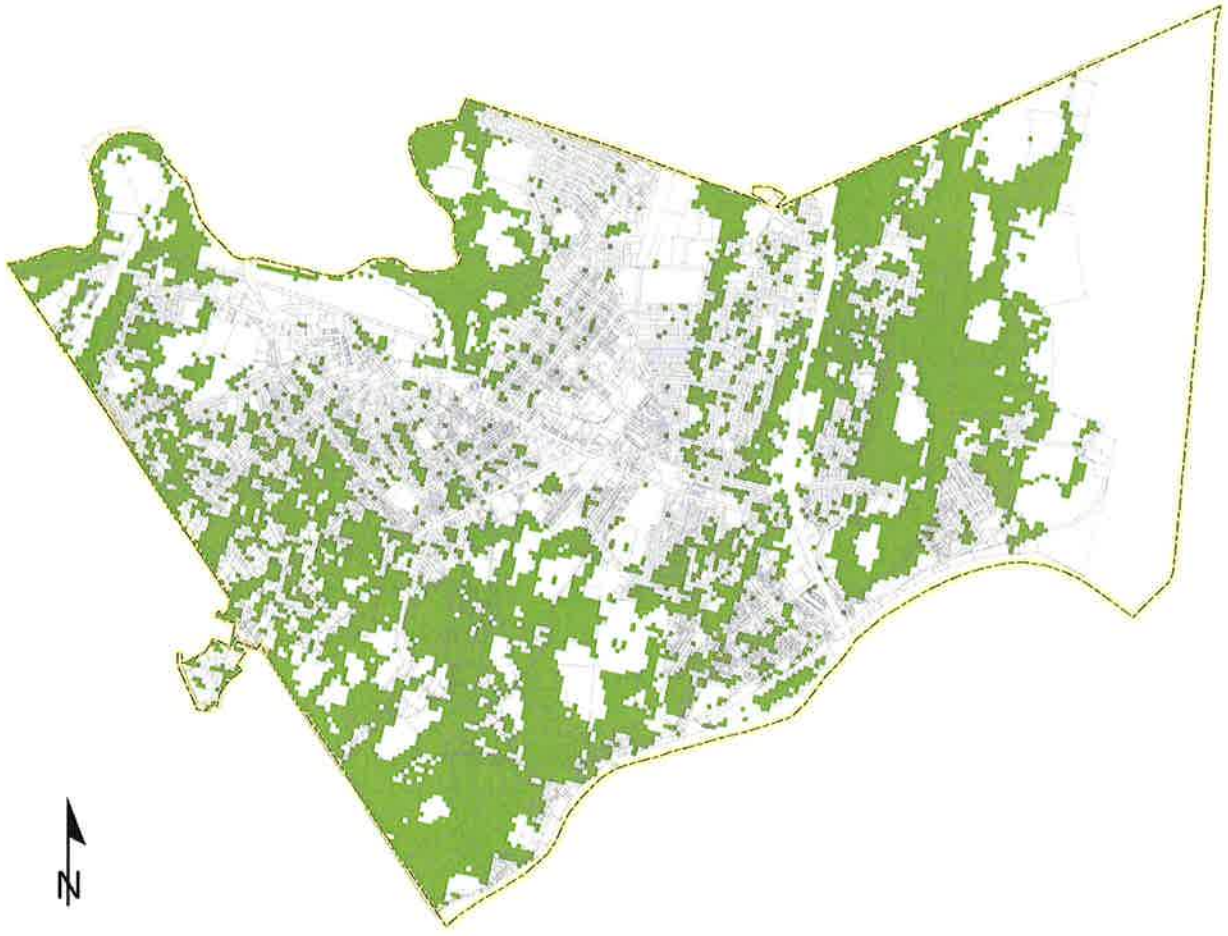


Figure 14. *FOREST COVER - NRI map indicating the current geographic extents of the urban forest canopy within the City of Kingston. This measurement included area with 40% or more of tree canopy coverage.*

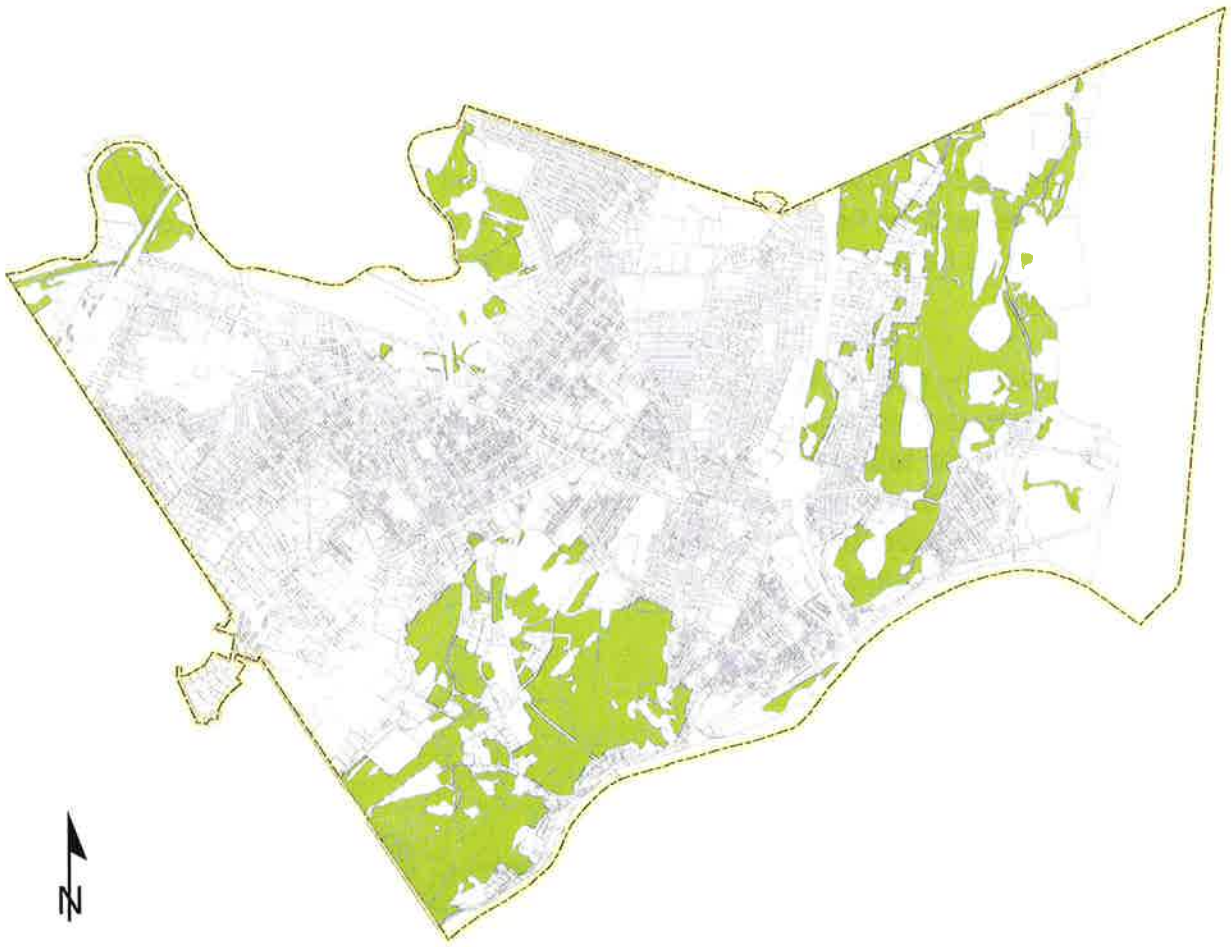


Figure 15. *BIOLOGICALLY IMPORTANT TERRESTRIAL AREAS - NRI map indicating the current geographic extents of known terrestrial (non-aquatic) biological habitats. Biologically important areas are defined as those found to contain significant and valuable habitat, plant and/or animal species, biodiversity features or ecological functions. Maintaining contiguous (non-fragmented) natural habitat areas is important for the breeding and survival of local animal life. For the purposes of mapping analysis, aquatic habitats were identified separately.*

The overarching results of the NRI analysis found that a large majority of the high-value terrestrial biodiversity within the city was generally found in three large clusters around the urban center: the coastal and upland regions to the east along the Hudson River; the coastal and upland regions along the Rondout Creek to the south; and the floodplain forests, riparian zones, marshes and grasslands along the Esopus Creek to the north. Overall, the Hudson River and the Rondout Creek together were responsible for much of the rare, endangered or special concern species which were identified.

The NRI noted in the executive summary that these findings aligned very closely with those of previous habitat studies conducted by the New York State Department of Environmental Conservation (NYSDEC) and Hudsonia, Ltd., a not-for-profit institute for environmental research and education. (City of Kingston, NY Natural Resources Inventory 2018. Appendix F, Section 1. Species Tables from: 2014 Natural Areas and Wildlife in Your Community: A Habitat Summary Prepared for the City of Kingston - May 2014. NYSDEC L. Heady)

Using the findings of this NRI, an Open Space Index (OSI) was developed. The OSI database gives the city the ability to identify—by individual tax parcel—the presence and size of select natural resources. This is an important tool which can be utilized to identify the potential impact to important conservation features at the earliest stages of development review, giving land-use and design review boards (including but not limited to the Kingston Planning Board, Landmark Commission, Heritage Kingston Committee), as well as applicants, knowledge of sensitive features on-site. It is the hope of

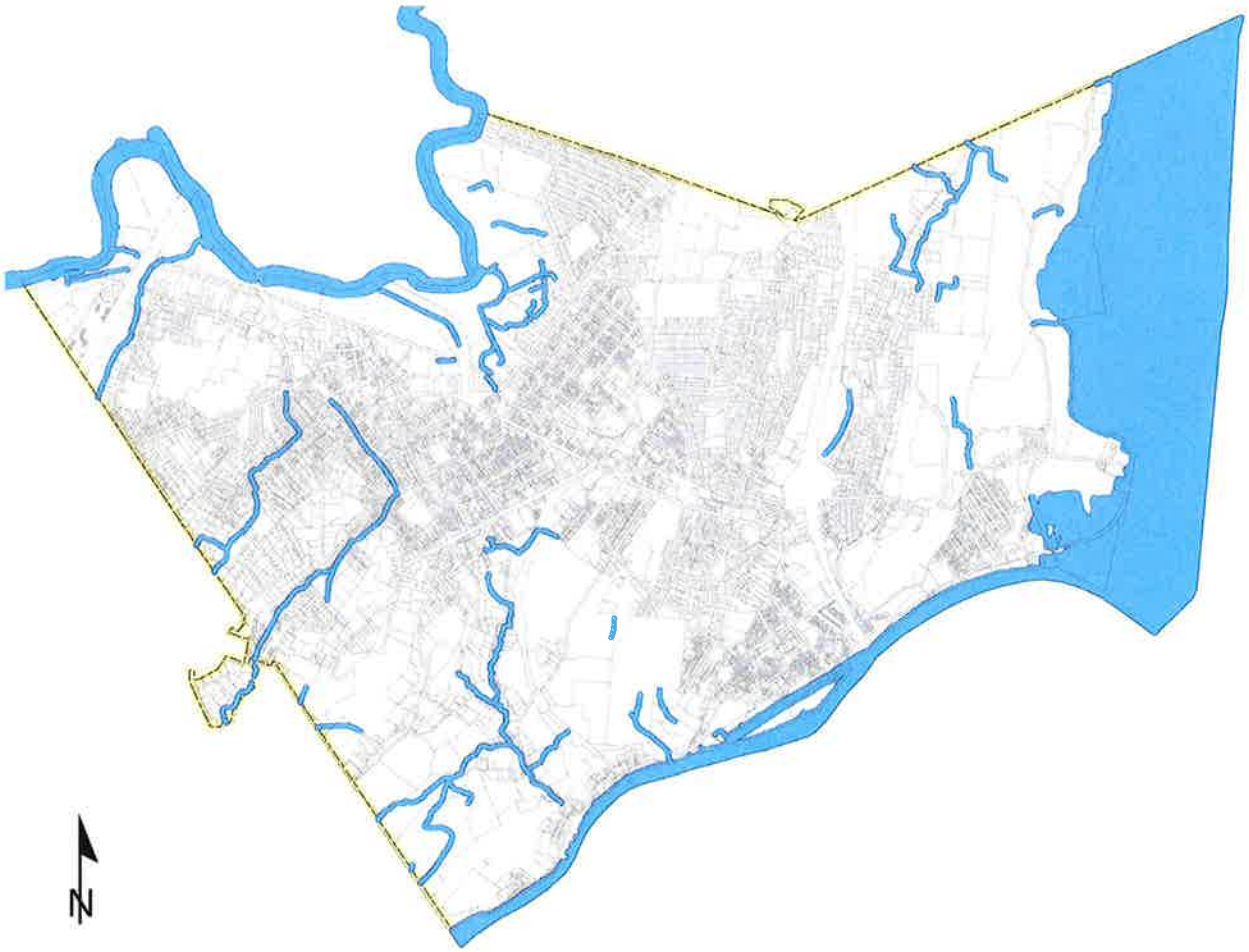


Figure 16. *RIPARIAN BUFFER AREAS - NRI map indicating the current geographic extents of riparian areas alongside streams, creeks and other watercourses. Natural riparian areas help to catch and filter out pollutants and trash from stormwater before they get back into the water, helping to preserve local water quality.*

the city that this tool will be used to locate sensitive conservation features on a site or nearby before detailed engineering plans are developed, reducing design costs to applicants and protecting natural features.

Next Step - Developing The Open Space Plan. The detailed geographic data compiled from the NRI was then carried forward to be used in the development of this open space plan. By combining the findings of all of the different resource layers developed in the NRI, it is possible to assign them relative value scores, and then visualize how these scores add together when all of the resource maps are overlayed on top of each other. Using this method, it is possible to develop resource "heat maps"

RESOURCE SCORING

The Mapping Analysis

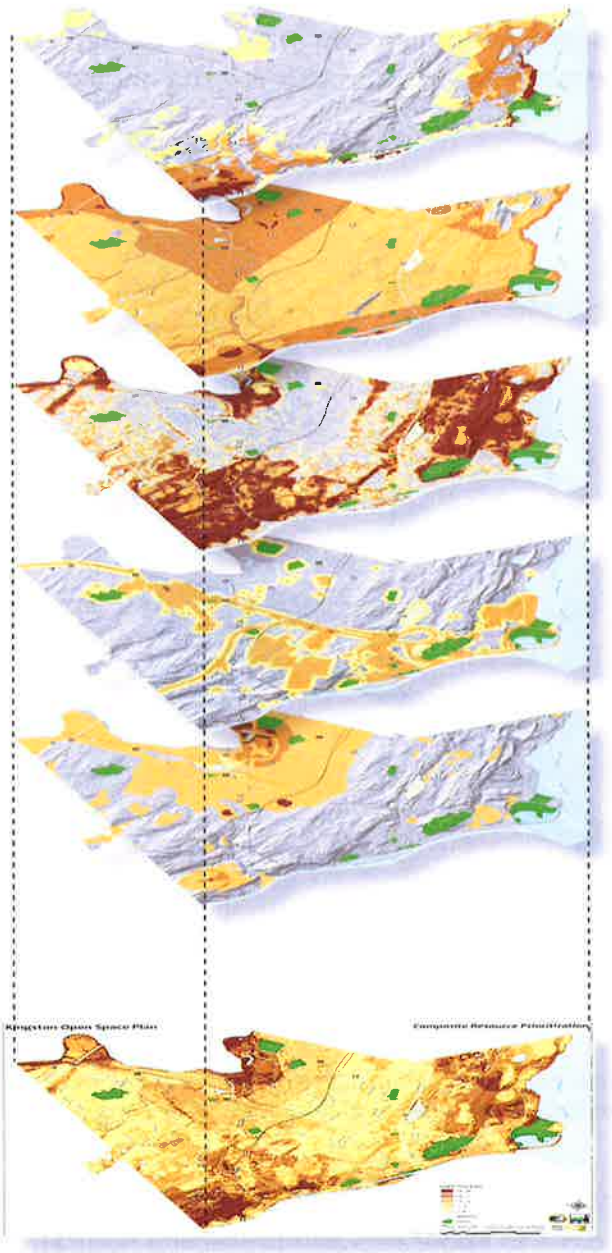


Figure 17. *IDENTIFYING PRIORITY AREAS - Each of the individual natural resource categories scored and mapped, showing higher-value (higher-scoring) resources as increasingly darker areas on the map. All of the different resource map scores are then overlayed together into a composite map of all natural resources in the city. This composite map illustrates the areas where there is an overlap of multiple high-value resources, which is used to identify priority areas for conservation.*

which show the highest-scoring areas which would be priorities for future conservation, as illustrated on the next page. This mapping analysis method provides us with a sound and data-driven guide to making future land conservation decisions.

Scoring the Resources. In the winter of 2018-2019 the Kingston Conservation Advisory Council reviewed the data compiled during the NRI and worked to develop and refine a scoring system which could be applied to the mapping. Since some resources are considered to be of higher value than others, it was important to develop a relative scale within each category. For example, among the various water resources found in the city, NYSDEC regulated wetland and vernal pools areas were assigned three points, while other wetlands were assigned two points. Likewise, higher-classification streams were assigned more points than lower class streams, and buffer areas immediately adjacent to resources were generally assigned higher values than those further away. This point method allowed for a logical and fine-grained approach to looking at the relative value of prioritization. The complete listing of all assigned point values for each type of resource can be found in the Appendix.

Using Geographic information System (GIS) software, the values of each feature were then scored within each category to provide the relative scale of priority. The categories were:

Water Resources (wetlands, hydric soils, riparian buffers, surface waters, streams, soil permeability, unconfined aquifers, flood plains and vernal pools)

Ecological Resources (terrestrial habitat, aquatic habitat, terrestrial corridors, tree canopy, sub aquatic vegetation, steep slopes)

Cultural & Recreation Resources (historic and cultural sites, existing parks, existing and planned trails)

Agricultural Resources (active farmland, community gardens, farmland soils, agricultural land within 200 feet of waterways, agricultural buffers)

Climate Resiliency (areas of climate resilient landscape and features, based on results from The Nature Conservancy analysis and Scenic Hudson SLAMM tidal wetland data, projected sea level rise).

The results of this GIS analysis provided maps illustrating the high and low scoring areas within each category. It is important to note that each category is initially scored only against itself first—to identify the highest scoring resources within that category—before the results of all categories are combined together. This is done specifically to avoid the pitfalls of trying to compare the importance of a particular wetland up against the merits of a specific historic site, an apples-to-oranges comparison. The resulting heat map for each category then gives us a visual illustration of the most important areas within each category, as shown in the individual maps on the following pages.

The Composite Map

The results of these individual category maps are then later compiled together into a composite map which overlays all of the categories together. The composite map, shown below and on page 29, illustrates the areas in the city where there is an overlap of multiple high-value resources from multiple categories, shown in increasingly darker shades of orange and brown.

As can be seen in the map, there are notable concentrations of overlapping priority resources found in three areas of the city: the eastern shore along the Hudson River and associated upland areas; the southern corner along the Rondout and associated upland areas; and along the northwestern border along the Esopus Creek corridor. The results of this composite map were utilized to identify the high priority areas for conservation within the city.

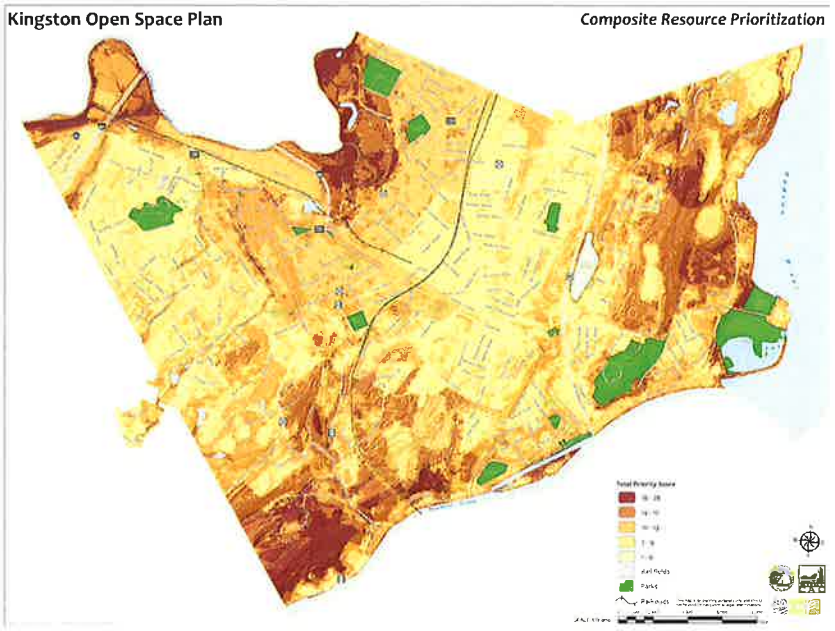


Figure 18. *COMBINED COMPOSITE MAP - See page 29 for larger detail view.*

RESOURCE SCORING

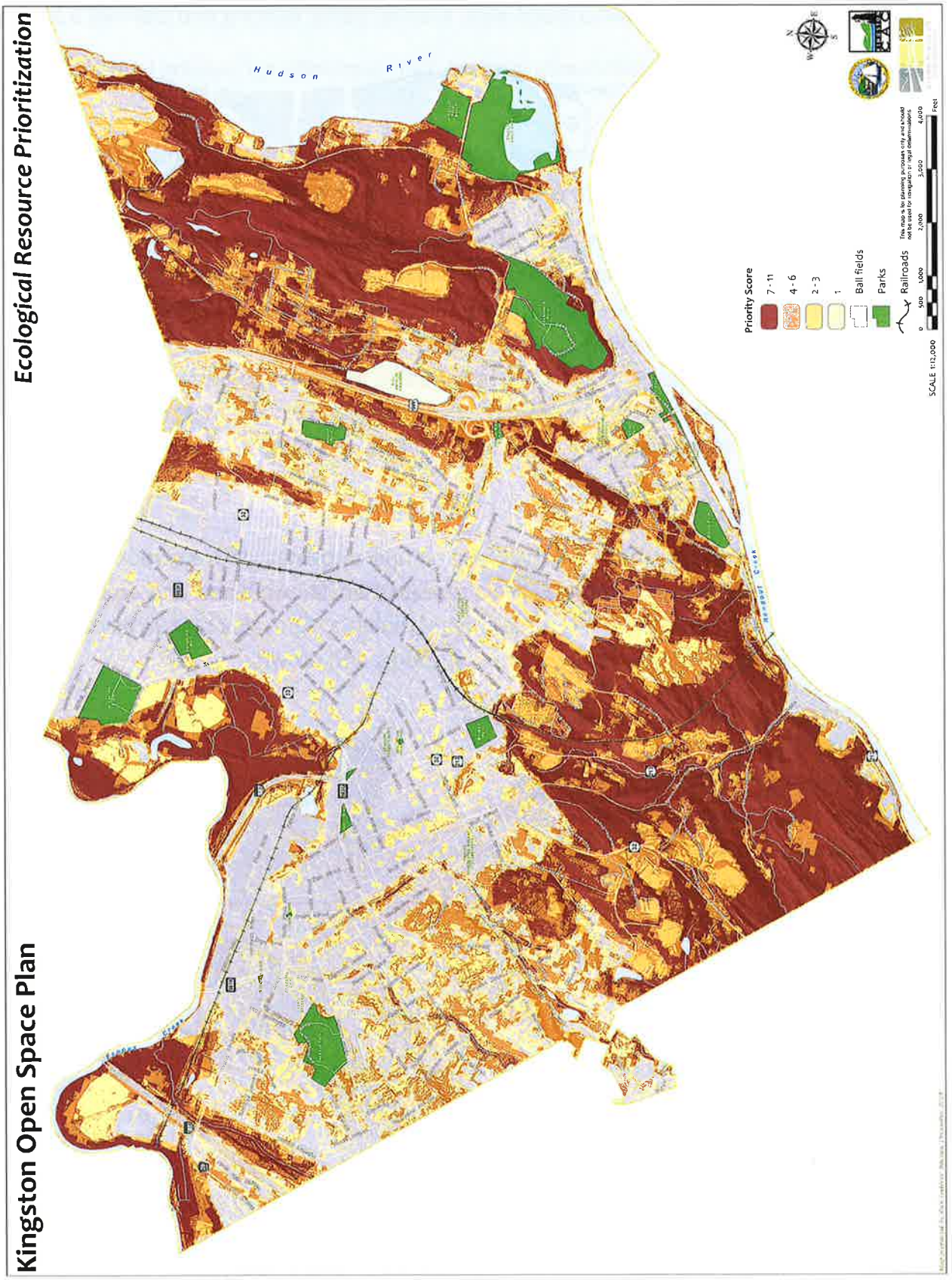


Figure 19. *ECOLOGICAL RESOURCES ANALYSIS MAP - This map depicts the results of the ecological resource scoring analysis. Geographic areas which scored relatively lower are shown as lighter yellow areas, while higher scoring areas are shown in increasingly darker shades of orange to brown. Existing parkland is indicated in green.*

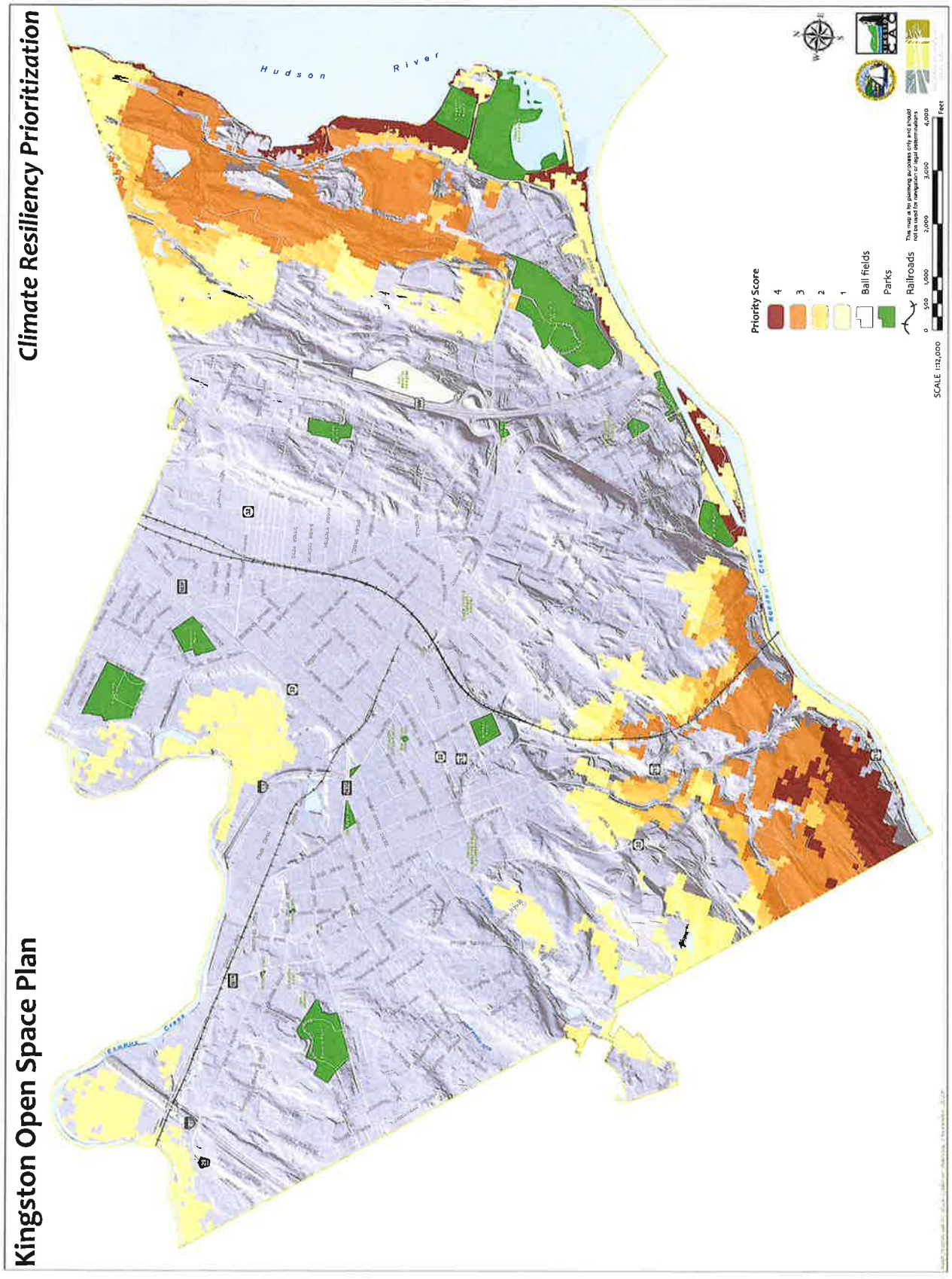


Figure 20. *CLIMATE RESILIENCY ANALYSIS MAP - This map depicts the results of the resource scoring analysis to identify areas which are vulnerable to climate change. Geographic areas which scored relatively lower are shown as lighter yellow areas, while higher scoring areas are shown in increasingly darker shades of orange to brown.*

RESOURCE SCORING

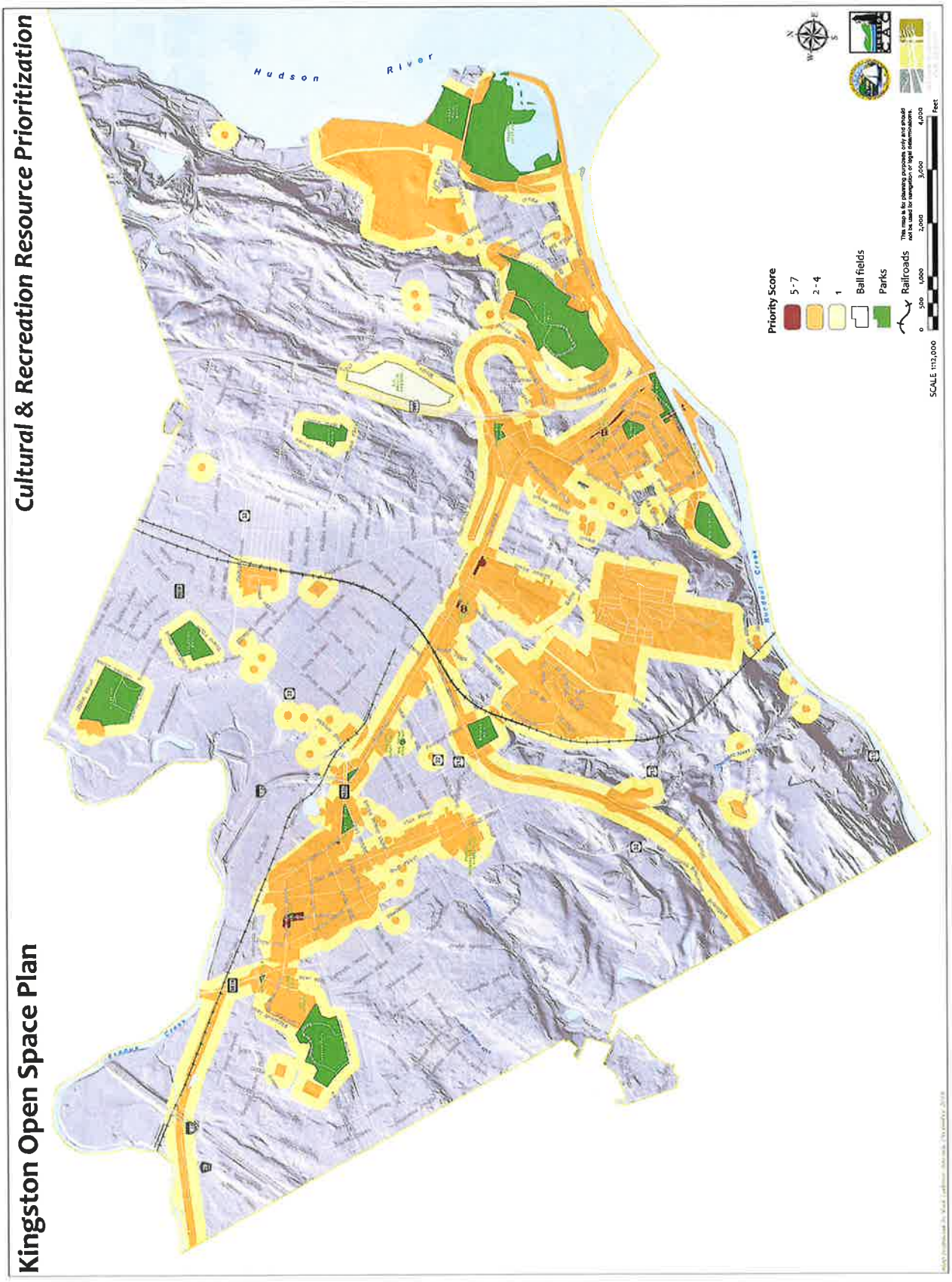


Figure 21. *CULTURAL RESOURCES ANALYSIS MAP - This map depicts the results of the cultural resource scoring analysis. Geographic areas which scored relatively lower are shown as lighter yellow areas, while higher scoring areas are shown in increasingly darker shades of orange to brown. Existing parkland is indicated in green.*

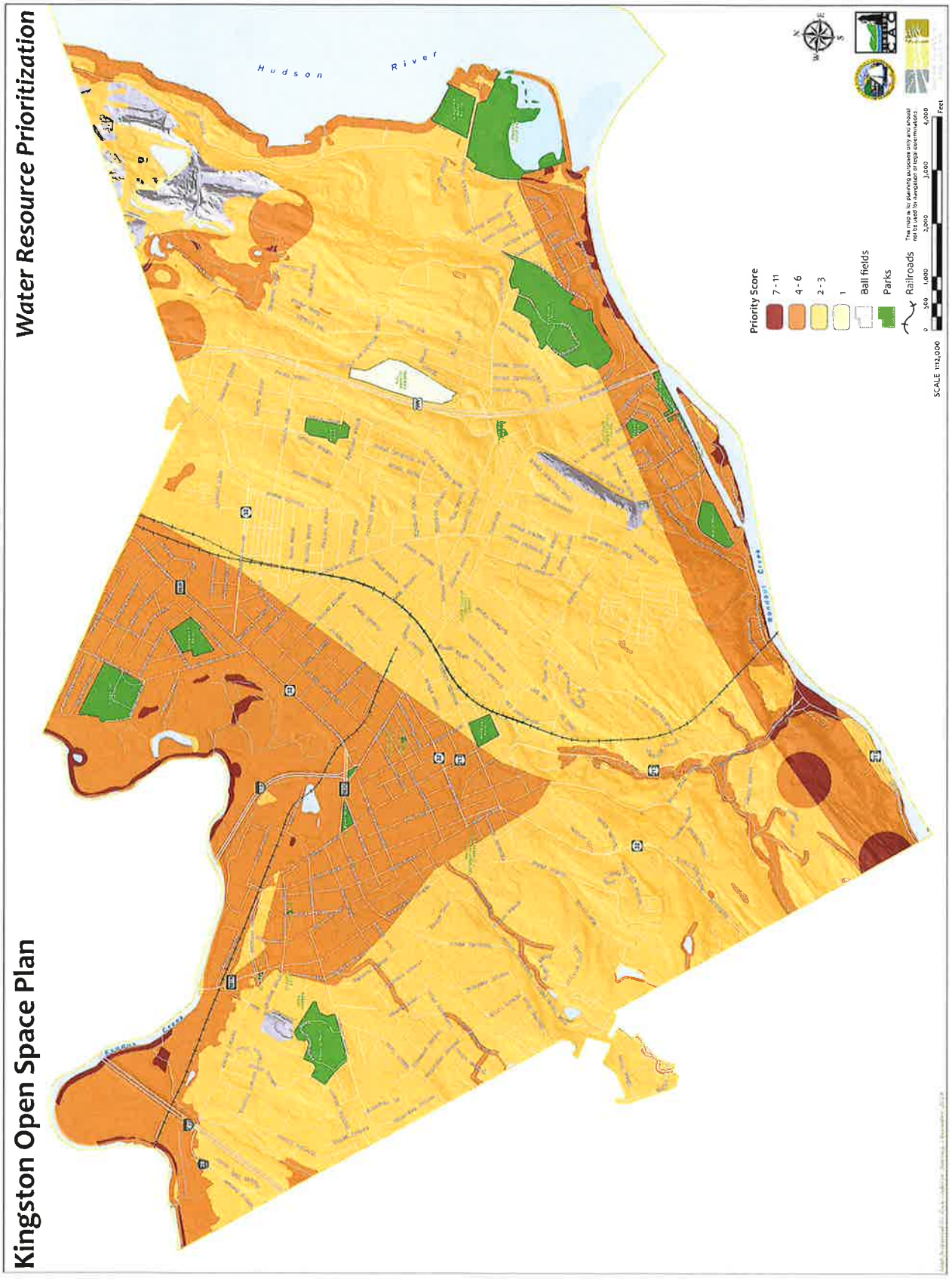


Figure 22. *WATER RESOURCES ANALYSIS MAP - This map depicts the results of the water resource scoring analysis. Geographic areas which scored relatively lower are shown as lighter yellow areas, while higher scoring areas are shown in increasingly darker shades of orange to brown. Existing parkland is indicated in green.*

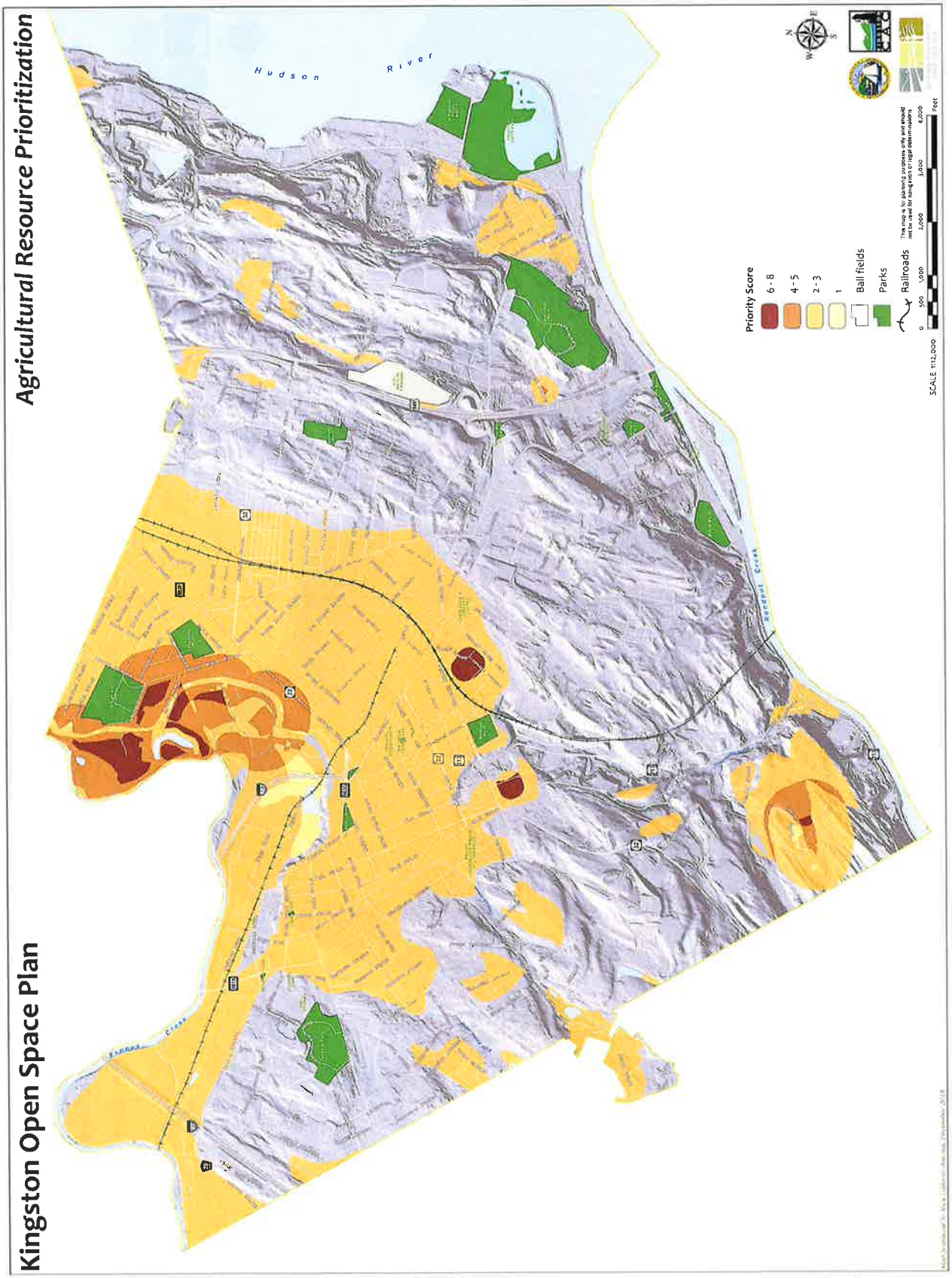


Figure 23. *AGRICULTURAL RESOURCES ANALYSIS MAP - This map depicts the results of the agricultural resource scoring analysis. Geographic areas which scored relatively lower are shown as lighter yellow areas, while higher scoring areas are shown in increasingly darker shades of orange to brown. Existing parkland is indicated in green.*

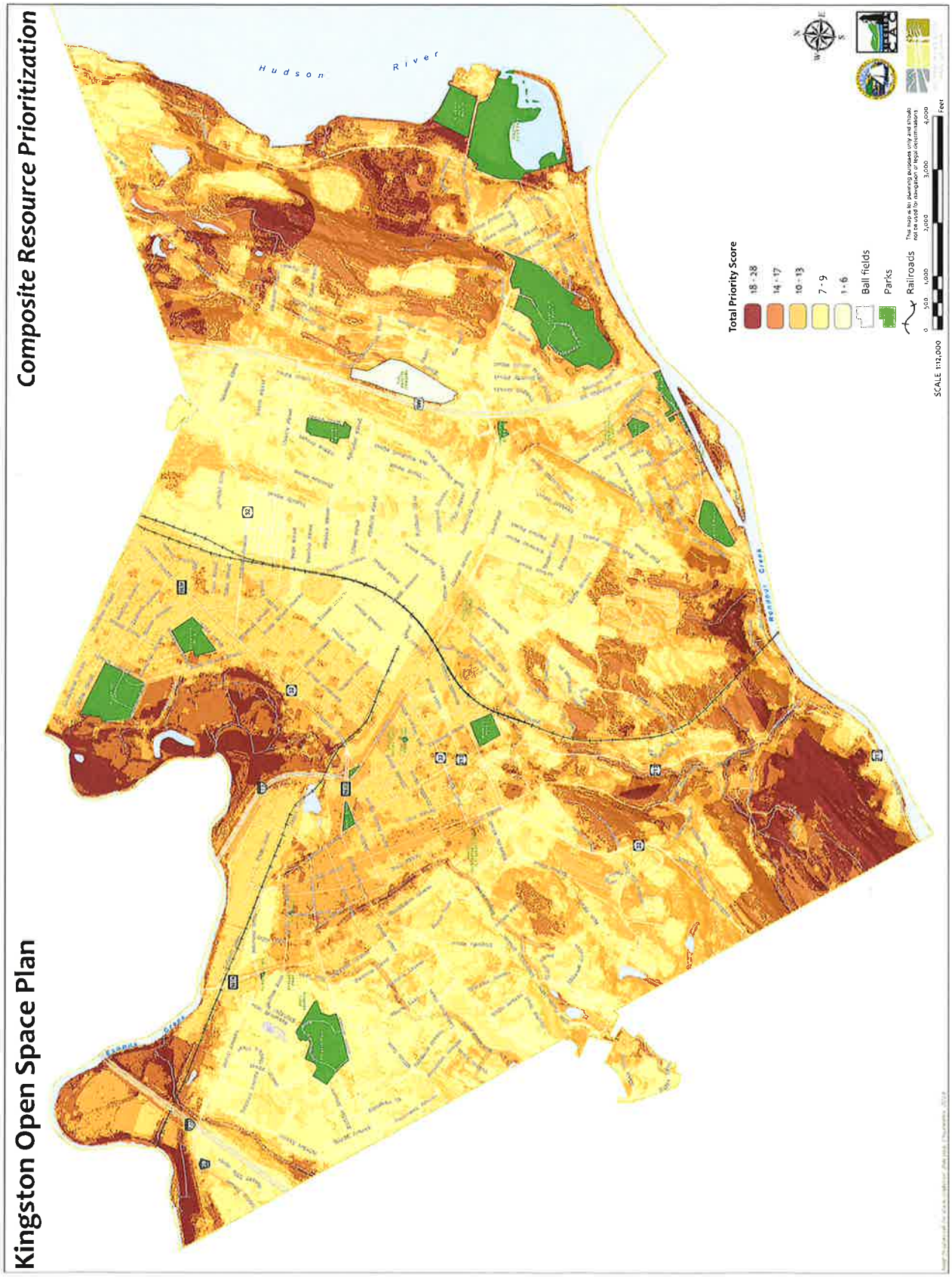


Figure 24. *COMPOSITE ANALYSIS MAP - This map depicts the results of the combined resource scoring analysis. Geographic areas which scored relatively lower are shown as lighter yellow areas, while higher scoring areas are shown in increasingly darker shades of orange to brown. Concentrations of high-priority areas are found in the northeast, southwest and north-central sections of the city. Existing parkland, which is already protected, is indicated in green.*

CHAPTER 3
EXISTING POLICY & LAWS

EXISTING POLICIES AND LAWS

Every municipality is guided by official policies and laws which shape the future direction of the community. In terms of land use and future growth, these most often take the form of comprehensive plans and zoning ordinances. Together, these documents define —and sometimes dictate—exactly how future growth can be allowed to occur. However, they are often out of date and may not always align with the goals and recommendations of a newly developed open space plan. This section looks at existing policies, plans and laws which relate to the City of Kingston to identify areas where they support the findings of this plan, or areas where they may be in conflict and should be updated.

Comprehensive Plan - Kingston 2025

The City of Kingston's comprehensive plan—*Kingston 2025*—was completed in 2016 and includes open space conservation as a key program element. Some of the planning principles outlined in the comprehensive plan which most relate to open space conservation include:

- It is preferable to focus future development on lands in existing developed areas (in-fill), and in obsolete heavy commercial and industrial areas (brownfields) than on virgin undeveloped land (greenfields);
- Recreational offerings must be diverse and robust including both public and private and indoor and outdoor options;
- Land use planning must not only consider existing physically and environmentally constrained land, but also land that may be constrained in the future due to rising sea level and global climate change;
- Conservation of open space and sensitive habitat is as crucial as development of those areas that are well suited to use of land;
- Sustainable approaches to stormwater management (green infrastructure like green roofs, rain gardens, porous pavement and landscaped swales) are preferable as being more efficient and less prone to failure.

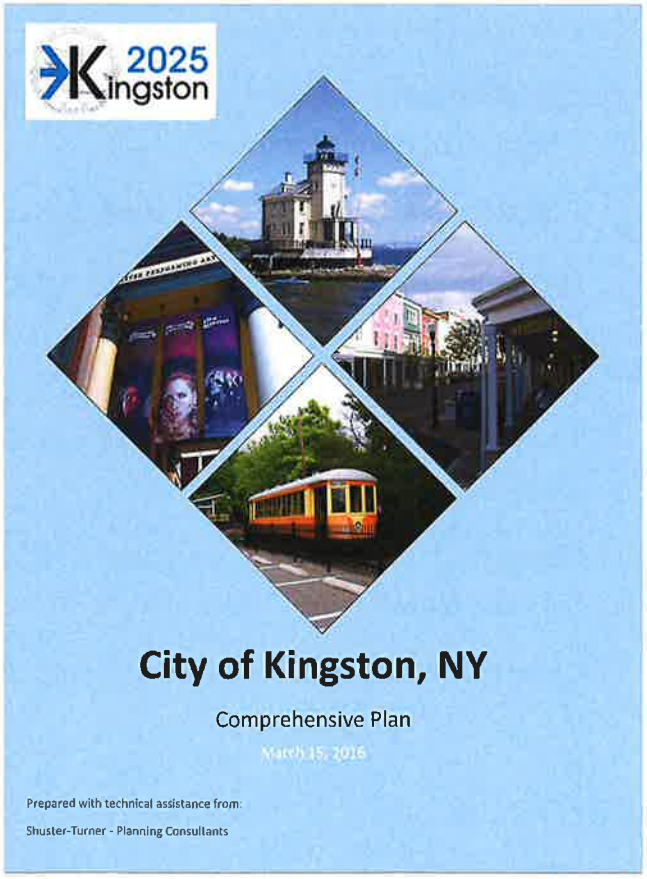


Figure 25. *City of Kingston Comprehensive Plan*

EXISTING POLICIES AND LAWS

Many of the goals expressed in the comprehensive plan are also supportive of open space conservation, including the following objectives:

Objective 1.2: Promote sustainable practices and green technologies be incorporated in any proposed redevelopment consistent with Climate Smart Communities Certification Program.

Objective 1.3: Promote urban agriculture as a sustainable practice as a part of local and regional food systems change, with a focus on Midtown.

Objective 2.5: Promote social interaction through the provision of neighborhood gardens, community gardens, parks and other open spaces.

Objective 3.1: Promote open space preservation throughout the city, but especially in outlying areas.

Objective 3.2: Identify and protect scenic views as seen from roadsides, parks, waterfronts, and other areas frequented by the public.

Objective 3.2.1: Support the City's Tree Commission's efforts to ensure the sustainable management of the city's trees.

Objective 3.3: Promote protection and conservation of environmentally constrained lands and important natural resources.

Objective 9.6.4: Provide a trail along the Esopus Creek.

Objective 10.1.2: Evaluate the use of natural buffers and green shoreline infrastructure to reduce flood risk and erosion and conserve natural resource functions.

Objective 10.2.2: Promote appropriate private redevelopment of Island Dock, as governed by sound planning for sea level rise, along with construction of a new passive/interpretive park at its eastern tip.

Objective 10.2.3: Provide continuous public access to the Hudson River Waterfront from Block Park to Kingston Point and on to the Town of Ulster via the future Hudson Landing Promenade.

Objective 11.2.1: Promote a waterfront trail along the Hudson River.

The Ulster County Open Space Plan

By identifying county-wide resource patterns, Ulster County's plan helps to establish a framework for coordinating open space conservation and management efforts. Kingston's Open Space Plan is well-aligned with Ulster County's plan.

The core elements are illustrated in the graphic from the county plan which include:

1. Protected Open Space
2. Water Resources
3. Working Landscapes
4. Landforms and Natural Resources
5. Recreation Resources
6. Cultural and Historic Resources
7. Ecological Communities

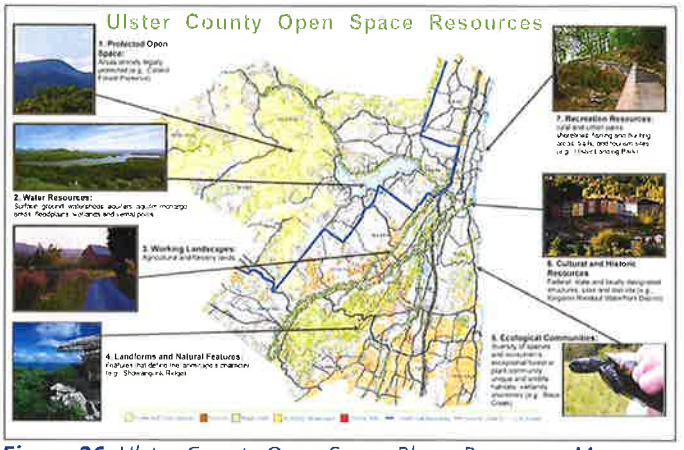


Figure 26. *Ulster County Open Space Plan - Resources Map*

The county's plan recognizes the importance of water-related resources including the major river systems in the City of Kingston along with stream corridors and water supply areas such as local reservoirs and groundwater aquifers. In developed communities like Kingston, the county's plan highlights the importance of protecting marginal spaces or landscaping and tree cover as part of the built landscape. Of note, green infrastructure opportunities in the county were prominently featured in National Geographic's magazine December 2016 issue entitled "Dreaming Green".

Kingston Zoning Code

Zoning codes and subdivision regulations directly establish the city's land use patterns and have great influence over development intensity. Zoning can also influence the city fiscally, controlling the amount of land set aside for residential, commercial or industrial development. This eventually impacts how the city looks and feels, and what areas are more likely to be developed. Looking at the zoning in comparison to the location of known natural resources can often inform us of what natural resource areas may be threatened, or areas where there may be a conflict between the city's conservation goals and the current land use regulations.

The current zoning for the City of Kingston is divided up among various residential and commercial/industrial districts which generally follow the topographic contours of the local geography. The relatively flat, upland areas of the city on either side of the Broadway corridor

> Studies estimate that for every dollar of tax revenue collected, residential development requires $1.16 in services (such as schools, roads, water and sewer) while open space and farmland only requires $0.36.
>
> *Source: American Farmland Trust. 2000. Cost of Community Services Studies Fact Sheet. http://www.farmlandinfo.org*

are generally reserved for the higher intensity commercial uses and single or two-family residential neighborhoods. This is also where you find many of the higher-intensity manufacturing and multi-family residential developments. Conversely, the hilly terrain found on the outskirts of the city along the southwest and northeast quadrants are generally reserved for the lowest-intensity uses such as the RR and RRR residential districts. In general, this land use pattern works well with the goal of preserving sensitive natural areas, since the hillier outlying areas which contain a majority of the sensitive natural resources in the city are where the lowest intensity uses are allowed. However, there are some exceptions, discussed below.

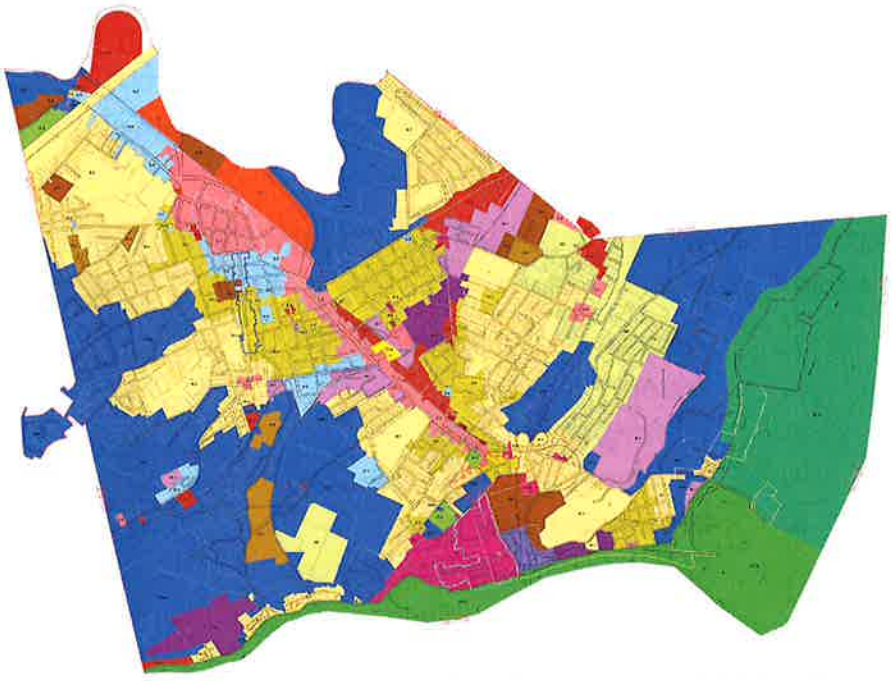


Figure 27. *Kingston Zoning Map*

Minimum Lot Size of Residential Districts. While the current zoning allows for a relative scale of different residential lot sizes, the lowest density residential zones in the city still permit lot sizes as small as 7,500 s.f. and 12,500 s.f. in the RR and RRR zones respectively—which is less than one-third of an acre per home. In many communities, the density of three or four units per acre would be considered urban, and are not conducive to the goal of preserving natural areas or open space. The hilly, natural terrain of the RR and RRR district areas is more in keeping with a less land-consumptive development pattern that emphasizes land conservation and development densities appropriate for a more rural and natural setting. While it is noted that cluster developments are currently permitted in the RRR district, such high densities make it uncertain if they would ever be of any use. The average density in these districts should be considered for a reduction to encourage resource conservation and minimize the impact of the development

footprint. In other words, separate lot size from density and decrease overall density.

RRR/RR District Allowed Uses. 'General hospitals and nursing or convalescent homes' are listed as a permitted use in the RR and RRR district. Hospitals do not seem appropriate for the outlying upland areas of the city. It should be clarified that nursing or convalescent homes may be permitted, perhaps by special permit only, but that a standalone hospital is not intended to be included in these areas.

Southwest - "Rondout Uplands." The southwest quadrant of the city—referred to here as the Rondout Uplands—contains a significant portion of the priority natural resource areas, and should be prioritized for conservation. While most of this area is currently zoned RRR (Single family homes, minimum lot size 12,500 s.f.) there are some notable exceptions. Included in this area are two significant districts: General Manufacturing (M2) and Two Story Residence (R4). The R4 district allowed uses includes multifamily development and townhouses, and has already been largely developed with the Orchard Hill Apartments complex. The M2 district is intended to provide space for uses which involve "a heavy dependence on trucks and potentially noisy or otherwise objectionable industrial activity", and includes general manufacturing. This area has not yet been developed. Both of these district areas should be considered for rezoning, considering their high conservation value, or if reasonable protective conditions on additional development should be implemented.

Northeast - "Hudson Uplands and Coastal Area." The northeast quadrant of the city—referred to here as the Hudson Uplands—also contains a significant portion of the priority natural resource areas identified in the inventory and should be prioritized for conservation. While most of this area is currently zoned RRR, there is a large area zoned as Light Manufacturing (M1) which has only been partially developed to date. This district area should be reviewed to determine if rezoning would be appropriate, considering its high conservation value, or if reasonable protective conditions on any additional development can be implemented.

North Central - "Esopus Valley." The northern quadrant of the city—referred to here as the Esopus Valley—contains the third significant natural resource area and should be prioritized for conservation. A large section of this valley along the bend in the creek is currently zoned as RRR, however there are areas to the west which are zoned for varying levels of commercial and high-intensity residential which could negatively impact the scenic creek corridor. To help protect against this, a provision in the zoning for these districts or an overlay should be considered which limits encroachment along the water and provides greenspace for a natural buffer, walking trail or promenade. The O&W Rail Trail, which is part of the Kingston Greenline, passes through this area and connects to the regional trail network. A connection here to a local waterfront trail would create a wonderful attraction. The existing development incentives for the RF Rondout Creek District (§ 405-31) and accompanying design standards for a pedestrian esplanade are an excellent model for this, and could be considered along the Esopus provided that the accompanying development incentives are removed.

At the northernmost tip of the city, west of Interstate 87, there are significant farm fields which are currently being utilized as a seed sanctuary and community solar farm. This land is currently zoned as General Commercial (C3). Although it is proximate to other commercial development, these parcels are largely cut-off and difficult to access from the commercial corridor. Adjacent to these parcels, just on the east side of Interstate 87, is another area which is rich with natural resources. This land is currently zoned for Limited Office (O2), however it is vacant, with a small stream bisecting it into the Esopus. Given the suitability of the soil along the creek, the high value of natural resources and the active agricultural use, these undeveloped areas along the south bank of the creek should be considered for a much less intensive zoning, and possibly considered for waterfront park and kayak access.

CHAPTER 4
THE OPEN SPACE VISION

Priorities for Protection

The results of the geographic information system analysis of the resource prioritization (scoring) system confirmed the earlier biotic or habitat assessments by Hudsonia Ltd. and the NYSDEC Hudson River Estuary Program: There are three areas of notable terrestrial biodiversity resources that are highlighted in the open space vision map for the city on page 57.

A series of conservation targets are established to create tangible objectives for advancing the open space vision for the City of Kingston over the next decade. These targets include consideration of the distribution and extent of existing resources and community goals and needs as expressed as part of the public involvement process for the formation of this plan. These targets are approximate and should be refined and updated as more detailed steps are taken to implement the plan and as conservation projects are completed. It is recognized that this plan is prepared at a point in time when several related activities have been underway for a number of years and that the targets are generally intended to comprise future accomplishments, some of which may be currently on the cusp of becoming realized.

The Hudson River, Shoreline and Uplands

A unique set of circumstances has left the city with a waterfront along the Hudson that is much less developed than its bustling past would have projected—and unlike the more urbanized waterfront of the New York City area, just 92 miles downriver, Kingston has an opportunity to maintain and restore its riparian[6] edge as a more extensive naturalized shoreline—though the changing climate is creating new challenges along the waterfront due

VISION STATEMENT

Kingston's open space system is an interconnected network of parks, paths and preserves that add to the quality of life in the city. The city and its rivers are intertwined in history—and this natural and cultural legacy includes both protected uplands and restored shoreline. The forests, streams, and wetlands are recognized for the benefits they provide to help keep our air and water clean. Enhanced waterfront access and riparian habitats coupled with naturalized stormwater management systems create the foundation of Kingston's green infrastructure network. The city's comprehensive trail system connects revitalized and expanded parklands and other community recreation resources with local and regional destinations. Community gardens and expanded urban agricultural opportunities help connect people with nature. Kingston is celebrated as a "Tree City" by the Arbor Day Foundation, recognizing the importance of an urban tree canopy and improved care of Kingston's vital city trees. Together these open space resources provide a beautiful and healthy framework for Kingston's continued revitalization; yielding benefits to the quality of life and economic vitality for all who live, work, and play in our treasured city.

to sea level rise and increasing extreme weather events.

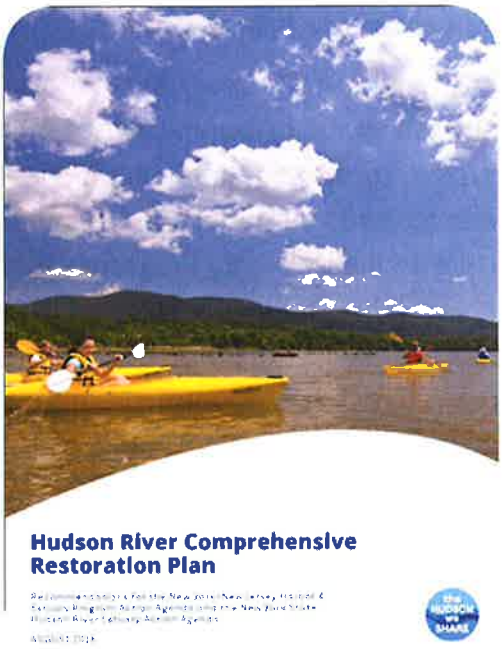


Figure 28. *Hudson River Restoration Plan*

The Hudson itself has undergone a transformation toward improved water quality as a whole over the past half-century thanks to the benefits from the federal Clean Water Act and state and local actions to prevent pollution coming from sewage, stormwater and non-point sources. However pollution prevention is both an ongoing and increasing call to action as the threats to the river's health—and all surface waters in the region in general—requires ongoing vigilance and continued action to reduce the flow of pollutants into the system to ensure long-term ecosystem health and human safety.

On the Hudson River shoreline, Kingston is facing a tremendous opportunity and a tremendous challenge—to restore a more naturalized system from a landscape that has been compromised by many years of industrial use. While there are important and globally rare habitats of freshwater tidal marshes and intertidal shore areas, the compromised landscape includes filled wetlands, marshes, and floodplains, hard-engineered shoreline and filled off-shore areas along with stormwater runoff and combined sewer overflows. Invasive plant species such as water chestnut (*Trapa natans*) have infiltrated native habitat and adding to water quality concerns.

Fortunately, there is a growing body of guidance available on ways to restore the river and its habitat including the recent publication "Hudson River Comprehensive Restoration Plan" (Partners Restoring the Hudson. 2018. Hudson River Comprehensive Restoration Plan: Recommendations for the New York–New Jersey Harbor & Estuary Program Action Agenda and the New York State Hudson River Estuary Action Agenda. New York, NY. The Nature Conservancy.)

The parts of the system being explicitly considered for protection, restoration or re-imagining in the Hudson River restoration plan are called ecosystem characteristics, and restoration objectives are called targets. Together, these form Target Ecosystem Characteristics (TECs). As stated in the restoration plan "an ecosystem characteristic is an attribute of the estuary which is considered to have significant ecological or societal value. To develop a TEC, it is necessary to first describe what the attribute is, what ecological or social function it serves in the system, and establish a justification for management activity." The restoration plan identifies "habitats and biological communities" with the following characteristics directly affiliated with natural resource attributes:

- Shallow Water and Intertidal Habitats
- Hudson River Shorelines and Riparian Areas

- Tributary Connectivity and Barriers
- Resilient Plant and Animal Communities
- Fisheries

The plan further identifies certain "drivers of conditions" that are considered critical elements that strongly influence natural resource attributes:

- Sediment
- Contaminants
- Storm and Wastewater

Finally, the restoration plan addresses "people and shoreline communities" around certain key elements that support and inform human interactions with the estuary:

- Public Access
- Navigation Safety and Natural Resource Interactions
- Estuary Education
- Resilient Waterfronts and Community Shorelines

Some of the major concerns identified for the area of the river that includes Kingston include coastal flooding, invasive species management and brownfield remediation. Specific open space opportunities and ideas identified include:

- Restore/naturalize the Hudson's shoreline habitat to the maximum extent practicable.
- Complete the riverfront trail (Empire State Trail) and secure additional public access to the river.
- Recognize the Kingston-Poughkeepsie Deepwater Habitat (NYS designation as a Significant Coastal Fish and Wildlife Habitats under the Coastal Management Program) for habitat protection, fishing, deep-water excursion vessels. The Kingston-Poughkeepsie Deepwater is a critical habitat for most esuarine-dependent fisheries originating from the Hudson River.[5]
- Recognize the Flats, (NYS designation as a Significant Coastal Fish and Wildlife Habitats under the Coastal Management Program) one of the largest contiguous areas of shallow, freshwater, tidal flats in the Hudson River, as a rare and valuable habitat.
- Conservation/preservation of the larger section of upland habitat area.
- Expand Opportunities for water views and scenic overlooks.
- Protect the habitat and water quality of Kingston Point Beach.
- Provide shoreline habitat enhancements.

OPEN SPACE VISION

Conservation Targets. Look to permanently protect approximately 500 acres of land in the "Hudson Uplands" area. This conservation target is based on securing permanent protection on a portion of the vacant/underutilized uplands area currently in private ownership that are to be dedicated to open space through the development process. This figure also recognizes the potential that a major conservation partner (Scenic Hudson) may be purchasing the lands of the Kingston Landing/AVR project.

Along the Hudson Riverfront, a target of approximately 5,000 additional linear feet public access is recommended. This figure represents a goal of securing public easements/ownership and installing improvements as/if needed on about 2/3rds of the shoreline area that is currently in private ownership along the Hudson.

The Rondout Creek Corridor, Shoreline and Uplands

From its confluence with the Hudson River up to the falls in Eddyville (about 3.6 miles upstream), the Rondout Creek is a tidal estuary and an important spawning area for migratory fish and an overwintering area for bass. The rich history of the Rondout corridor is still evident in many ways along the waterfront. Today the Rondout Creek corridor continues to transition to a more complete tourism and recreational corridor with several popular marinas, restaurants, historic sites and other attractions and featuring a popular waterfront promenade. The Rondout offers tremendous continued opportunity for the city. Specific open space opportunities and ideas identified include:

- Develop a greenline trail system for the entire creek corridor: a more formal promenade in

IMPORTANT HABITATS

As highlighted in the Kingston Natural Resource Inventory. "Aquatic systems also contain and influence a great deal of the important habitats and rare biodiversity resources that remain within the city limits. Important deep open- water, tidal and inter-tidal mudflats, shoreline habitats and submerged aquatic vegetation communities are home to some of the most significant and rare species in Kingston."

Photo of the rare plant Delmarva Beggar-ticks (Bidens bidentoides) (Image by Timothy G. Howard from New York Natural Heritage Program. 2017. Online Conservation Guide for Bidens bidentoides. Available from: http://acris.nynhp.org/guide.php?id=8750. Accessed October 29th, 2018.)

the lower reaches, with a more informal shared-use path in the upper reaches.

- Develop a blueway trail on the creek with access for paddlers and rowers.
- Collaborate with the owner of the Island Dock property as a combination open space park and low impact development site—consider making site for a "paddler's paradise".
- Protect upland undeveloped vacant lands and open spaces as parks and preserves, using low impact conservation-based design, taking advantage of southern aspect/solar orientation and views.
- Limit fragmentation of woodlands—develop management plans and "Friends-of" groups for protected open spaces.
- Preserve and restore naturalized shoreline including vegetated buffers for stream corridors leading to and including (where feasible) the Rondout and recognize, protect and restore the habitat resources that led to the designation by NYS of the Rondout Creek as a Significant Coastal Fish and Wildlife Habitats under the Coastal Management Program.

Figure 29. *Boats on the Rondout.*

- Improve trash can / trash pickup along the waterfront.
- Make upgrades to the existing dock access and additional marina space.

Conservation Targets. In the forested areas above the creek, the "Rondout Uplands," the target of approximately 60 additional acres would be permanently protected. The Natural Resources Inventory recognized the large area of intact forest in the city; yet very little of the uplands above the Rondout are protected with conservation easements or similar designation. The 60-acre target is a fairly ambitious goal which would protect about half of the intact forest in the Rondout Uplands.

Along the Rondout shoreline, establishing a target of approximately 5,000 additional linear feet of public accessible shoreline is recommended. In terms of opportunity, there is a total of about 15,000 linear feet (+/- 3 miles) of shoreline in total along the Rondout in the city plus an additional 5,000+ feet along the shore of Island Dock. The public access could be visual/pedestrian access such as an improved promenade and/or include physical access such as kayak launches/landing areas, as well as

more naturalized areas. It is noted that not all of the shoreline needs to be hardened with bulkheads and that more naturalized shoreline treatment should be encouraged where appropriate and feasible in areas outside of docking areas or areas planned for bulkheads or similar treatments. (See for example the Hudson River Estuary Program on sustainable shorelines www.hrnerr.org/hudson-river-sustainable-shorelines)

The Esopus Creek Corridor and Lowlands

This relatively intact open space corridor comprises a broad, flat basin containing rich alluvial soils that supports an abundance of agricultural and farming operations. Specific open space opportunities and ideas identified were:

- Create walking paths along the water, with trail/open space connections to Ulster County Linear Park rail trail. The O&W Rail Trail, which runs from Washington Avenue to the town line and Hurley beyond, is an excellent start to continue building off of.
- Create appropriate sites for kayak and canoe launches along the south side of the creek.
- Recognize and support the Hudson Valley Farm Hub's mission and the Native American Seed Sanctuary project and build upon this unique and compelling project. *http://hvfarmhub.org/about/seed-sanctuary/*
- Recognize the existing farmland, floodplain and wetlands along the creek that provide good opportunities for long-term conservation as preserved land.
- Improve shoreline management and the removal of debris, management of the tree canopy, including vegetated shoreline buffers.

Conservation Targets. Working toward a 10-year goal for permanently protecting 50 additional acres of land including active farmland and natural areas is recommended. This 50-acre target represents a majority of land in agricultural use in the city. Given it is such a rare occurrence and agriculture is such an important part of the city's history, the target was set to protect most of the remaining land in agriculture. Woodlands, wetlands and other natural buffers to farmland could be included in this acreage target. (Note: this target does not include urban gardens; a separate category.)

Other Stream Corridors

The city's upland watershed and tributary streams including Main Street Brook, Tannery Brook and the Twaalfskill systems are important resources in themselves and for their impact on the water quality and health of the receiving waters. The Tidal Rondout Creek Watershed Management Plan (Milone and MacBroom, 2015) has a goal that is applicable city-wide: "Restore tributary streams and subwatersheds to improve water quality." By reducing sediment and pollutant loading in the city's watersheds, the overall goal of improving water quality and long-term health of the receiving waters

Figure 30. *One of the many stream corridors in Kingston.*

can be achieved.

In addition to treatment of stormwater before it enters a receiving stream, in the city's watersheds that are more highly developed, it will be important to identify ways to also treat the stormwater that has already entered tributary streams before discharging into the Hudson, Rondout or Esopus. As noted in the Rondout watershed plan, this method entails the capture of a portion of the silt and sediment load before it reaches these water bodies through the use of water quality and sediment basins at key locations along the tributary streams within the subwatersheds. This subwatershed-scale approach requires the strategic siting of facilities such as bypass channels and large basins to handle stormwater runoff from subwatershed drainage areas.

A very informative and inspiring project by Emily Vail assessed the land use history, patterns and processes around the Tannery Brook (www.tracingtannerybrook.com). That Tannery Brook initiative recommended consideration of entire watersheds, including both above and below-ground components and suggested a wide range of tactics to address stormwater management that can be considered for application in other watersheds in Kingston as well.

Conservation Targets. A goal of restoring/improving the natural character of approximately 2,500 linear feet of stream corridor is recommended as a 10-year goal. As a reference for this target, Tannery Brook and its major tributary, Main Street Brook run a total of about 12,700 linear feet through the city. With these corridors as a basis, this target would naturalize about 20% of the length of these corridors into more of their native riparian habitat—to the extent this is practicable. This effort would include stream bed and stream bank restoration, reestablishment of natural cover (plantings) and similar treatments; recognizing that these streams are challenged with the existing

urban environmental conditions including high runoff related to the land cover character of the contributing watershed area. The 2,500 foot restoration target represents a beginning of what would be a process of more extensive restoration with a long-term goal to be established in future phases and after more detailed feasibility analysis.

Neighborhood Parks and Open Spaces

Expanding access to open space and recreation facilities was a common theme heard during the public outreach, particularly within some urban core neighborhoods where there is an abundance of hardscape and relative lack of greenspace. Fortunately, the city has benefitted from the foresight and generosity of earlier generations who developed the park system along with current generations who continue the tradition of adding to the Kingston's park system in response to the evolving community needs. Of note, the importance of offering outdoor recreation and nature experiences to children is increasingly recognized.

This open space plan reflects one of the important guiding principles of the Parks and Recreation Master Plan for the City of Kingston (January 2013) which strongly supported providing recreational opportunities near residential populations—in particular in areas where there was not a nearby open space or park resource available. One of the neighborhoods noted during this open space planning process was the Midtown area, particularly north of Broadway. It is recommended that this need can be addressed in a number of ways, including expanding the city's existing greenway trail and linear park system, and adding small pocket park opportunities along the trail. It is also recommended that the city secure and improve a new open space and recreation site within the midtown neighborhood. Ideally, this new site or sites could provide active recreation (e.g., field play/indoor recreation) combined with passive recreation (e.g., walking paths, landscaped parklands, community gardens) in a location convenient to the surrounding neighborhood.

Figure 31. *The Kingston Parks & Recreation Master Plan*

Conservation Targets. Creating one new neighborhood park in the midtown of the city is recommended to address the dire need for this area that has been described as a "park desert", and to serve a core environmental justice area of the city. Recognizing the city has an extensive park system, this target of establishing a new neighborhood park in the Midtown Kingston area was drawn from the Natural Resources Inventory which highlighted the lack of park resources in this densely populated area of the city and this need was reiterated during

Figure 32. *Kingston's history can be understood in many ways by looking through the lens of the park system—from Academy Green Peter Stuyvesant negotiated a peace treaty with the Esopus Indians on July 15, 1660 to the parks created during and after the city's industrial heyday to the newest additions including the Midtown Linear Park being developed along the former Ulster & Delaware Railroad corridor. Fortunately, Kingston's park history has been well documented including Kingston's Magnificent City Parks, 1992, by Ron Woods (Author), William Dederick (Illustrator), and the brochure on the city's park and recreation department's website offers a quick and interesting snapshot of the park history and an overview of available facilities and programs.*

the public involvement activities conducted as part of the open space planning process. Designed primarily for informal recreation often with paths, benches and attractive landscape architectural elements, neighborhood parks often have playgrounds and ideally are large enough (1+acres) to provide open lawn areas that enable varied use and free play. This city's Parks and Recreation Master Plan recommended a new park of half-acre (minimally) to an acre, but preferably between two-and three-and-a-half acres in size.

In the short-term, a smaller "pocket park" of one-quarter acre or more may be more feasible to establish, with the larger neighborhood-scaled site would be further explored as part of a community visioning session to determine the park type, size, character and facilities and a feasibility study to evaluate potential sites and select a preferred site.

Urban Agriculture

With leadership from local agencies like the YMCA, urban agriculture is recognized in Kingston as an important aspect of city life—for adults as well as for young people. The Kingston YMCA's Farm Project works with preschoolers through high-schoolers bringing young people to the farm in Midtown to work and learn about nature, agriculture and where their food comes from. Participants 14-18 years old can also help run the farm stands and earn an hourly wage. (Kingston Land Trust's South Pine

Street Farm is an earlier urban agriculture demonstration project and originated the "Dig Kid Project" later incorporated into the student farming program operating at the YMCA Farm.)

The city's comprehensive plan notes the opportunity to potentially acquire through purchase, blighted properties and vacant lots in order to provide new public spaces either solely or as part of a larger public/private redevelopment project. These public spaces could be used for traditional pocket parks or urban agriculture and community gardens as appropriate. More than 800 acres of land in Kingston are classified as vacant, including 38 acres owned by the City of Kingston. While every effort should be made to promote investment in blighted properties, those properties that are beyond saving and that tend to be located in the most at-need areas of the city should be considered for incorporation into the network of community gardens. The Kingston Land Bank, for example, is well positioned to work in collaboration with other local agencies and non-profits for identification of vacant/underutilized parcels suitable for conservation uses such as community gardens.

Once a predominant land use in the city's history, there remains several larger areas of working farmland in the city. These are located along the Esopus Valley, taking advantage of those fertile floodplain soils. The valley farmlands, though fragmented by development including roads and highways, are part of the core of agricultural resources being actively promoted by a local organization: The Hudson Valley Farm Hub. The Farm Hub is a non-profit education and demonstration farm founded in 2013 with a mission to foster equity and ecological resilience in the regional food system. Its service area stretches southward from the City of Kingston through the towns of Ulster, Hurley and Marbletown across the vast fertile land known as the "Hurley Flats." This landscape was shaped by the receding glacier 10,000 years ago, leaving a legacy of mineral rich soil—some of the best farmland in New York State. http://hvfarmhub.org/about/history/

A unique and important project taking place in Kingston's open space resources at the Farm Hub is the Native American Seed Sanctuary. In partnership with the Akwesasne Mohawk Tribe of northern New York and the support of Seedshed (https://seedshed.org/) the project is growing Native American varieties of corn and sunflowers for the purpose of seed saving, and, by extension, helping to preserve the rich agricultural and cultural heritage of the Native American people. Once harvested, the seeds and the food they grow are repatriated to their home communities to keep these varieties and their stories alive.

Figure 33. *The Native American Seed Sanctuary at the Hudson Valley Farm Hub.*

The importance of these types of agricultural

activities as part of the community's natural and cultural heritage is recognized. As the history of the growth of the city and region has demonstrated, farmland is the place where development eventually takes over. Protecting the remaining productive farmland in Kingston is a key element of this open space plan. Working with the farmland owners to create a long-term farmland protection strategy will provide a foundation for the continuance of agricultural uses. The strategy would include taking full advantage of all tools available including securing funding support through the New York State Department of Agriculture and Markets Farmland Protection Program and a similar program offered through the United States Department of Agriculture.

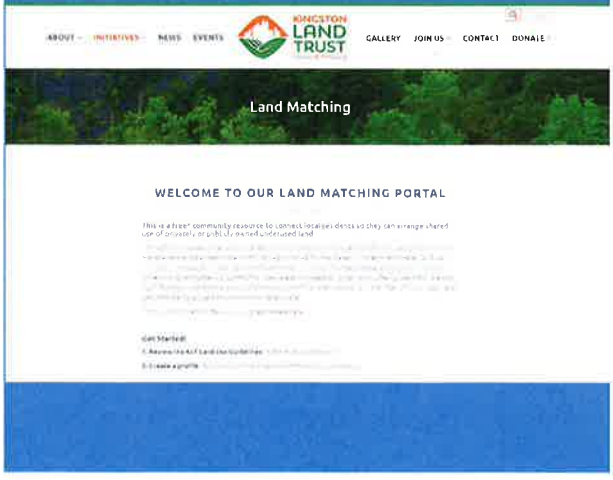
Conservation Targets. Creating one new community garden per year over the next ten years is suggested as a reasonable goal to bring the benefits of urban agriculture to a broader base of Kingston residents, particularly in areas where they can help to serve environmental justice areas.

Kingston's Urban Forest

Kingston is well established as a "Tree City USA" city, a recognition from the Arbor Day Foundation. The city has completed a monumental task of completing a tree inventory characterizing 3,937 street trees and park trees. The report is available on the city's website (www.kingston-ny.gov/trees). Neighborhoods graced with healthy canopies of street trees add tremendously to the aesthetics, livability, and local ecosystem; providing beauty, relief from the 'hardscape' of the city and filtering

LAND MATCHING

The Kingston Land Trust has launched an online resource that allows residents in and around Kingston to make use of underutilized private and public land. Through the website portal, approved stewards (people seeking land) and landholders (people who own or manage land and are seeking stewards) can search for each other based on location and shared land use interests. Land listings can range from a corner of a residential yard to an entire agricultural field. The land matching portal will help foster beneficial uses, such as gardening, farming, community gatherings, wellness activities, foraging, ecological land management, outdoor classrooms and play spaces.



the air of dust and producing oxygen while absorbing carbon dioxide, a greenhouse gas.

While a tremendously valuable resource, maintaining a healthy street tree and urban forest system is labor intensive and costly. Sometimes poorly planned trees cause damage to sidewalks, curbs, and other expensive infrastructure. Fortunately, there are methods to accommodate street tree planting and healthy growth in a variety of urban conditions.

Street trees and the larger urban forest are recognized as key components of the open space resources in the city and implementation of an enhanced management program will support the many benefits these trees provide while helping minimize the expense of maintaining a healthy urban forest. A top priority for city neighborhoods is continued management of the city's extensive street tree program; adding/replacing trees as needed and pruning and maintaining the existing stock and introducing street trees in areas where there are few to no street trees, deploying the latest methods of landscape architecture and urban forestry to create a beautiful, healthy and long-lived canopy of trees for the people to enjoy. Specific open space opportunities and ideas identified for the urban forest include:

- There is wide consensus on the need for more neighborhood parks, playgrounds in the urban residential neighborhoods, particularly in Midtown.
- Thanks to the tree inventory, the city has detailed digital data on every street tree—

Figure 34. *Kingston Gold: A striking ginkgo biloba tree in full fall glory gracing a historic Kingston neighborhood.*

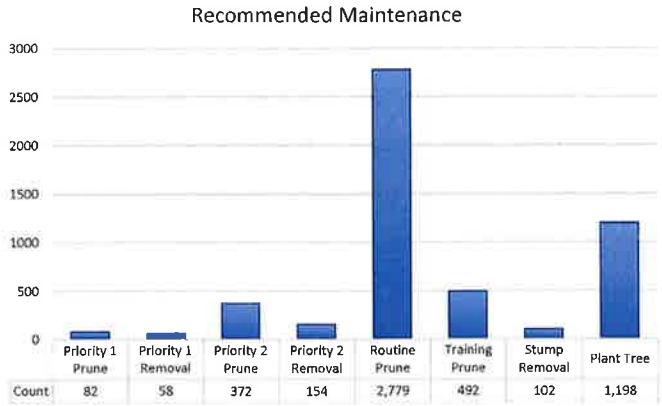


Figure 35. *The Kingston tree inventory provides details on the size, species, age, health and life expectancy of over 3,000 street trees in the city. This report identifies specific trees for priority removal and pruning, as well as recommends the planting of over 1,000 new trees to replace lost inventory.*

Figure 36. *Protecting existing trees appropriately when doing needed construction. Utilization of structural soil for street tree plantings along sidewalks and other paved areas allows installation of hardscape features such as concrete or bluestone walks and granite curbs without damage from healthy tree root growth. Underneath the tree in the image below is a large bed of CU ™Structural Soil extending several feet in either direction around and below the root ball.*

species, diameter, height, age and anticipated lifespan—which can be used to develop and implement a comprehensive street tree planting program that will start to fill in and identify empty spots for planting, trees which will need replacement in upcoming years, and a rotation schedule. This planting effort is perfect for a sponsorship or adopt-a-tree program.

- The city code should be reviewed with an eye toward finding requirements in the city tree ordinance that complicate or undermine the goals of this open space plan.
- Pollinator habitats should be encouraged and promoted throughout the city to help support the regional bee population and other pollinators.

Open Space for Stormwater Management

Urban stormwater management in American cities historically could be considered as an "out of sight, out of mind"-type of approach where streams were channelized and directed into large culverts and street-side catch basins and storm sewers shunted the flow into a combined sewer system that was sent into receiving rivers. Many Hudson River cities like Kingston still are challenged with retrofitting the remnants of those combined sewer

systems into a more sustainable approach. As cities continue to improve wastewater treatment systems and separate storm sewers from sanitary sewers, an expanded perspective is emerging.

The expanded perspective first recognizes the importance of maintaining intact natural areas of natural stream corridors, floodplains and upland forests so these resources can perform their respective "ecological services" that help maintain surface water quality. These natural "green infrastructure" systems left undisturbed will keep water resources clean and healthy. However, we live in a world that is continually being more intensively used where undisturbed natural systems are becoming increasingly modified and fragmented by all forms of human use. Maintaining natural areas as green infrastructure is an important strategy to maintain high quality surface waters. For urbanized areas, where development processes have occurred and will continue, the idea of employing natural processes in formalized stormwater management systems is emerging as a proven method of maintaining and even improving stormwater runoff quality. This "green infrastructure" approach to urban stormwater management is a refreshing alternative to relying increasingly on solely "grey infrastructure" approaches that often contribute to declining quality as stormwater flows through the system.

And so, the resource protection priorities in this open space plan reflect an ecological approach to stormwater management:

- Protect large areas of intact forests and natural areas.

GREEN INFRASTRUCTURE

The green infrastructure concept recognizes the interconnected ecosystem of forests, rivers, farms, parks, wetlands, naturalized stormwater management facilities and other natural and naturalized man-made features that, when fully deployed will help ensure clean air, water and food. These natural systems sustain our environmental health, economy and quality of life. Just as we need to maintain the built infrastructure of our roads, utilities and buildings to sustain the economic activity—our green infrastructure must also be protected and maintained to keep a balanced system to sustain our health and well-being.

Watershed-based stormwater ponds can provide:

- *Flood storage capacity*
- *Water quality improvement*
- *Outdoor recreation*
- *Fish and wildlife habitat*

- Recognize the importance of maintaining naturalized stream corridors.
- Improve compromised natural areas and restore/replant with trees, shrubs and grasses/perennials.
- Reduce impervious areas and introduce permeability into parking and similar areas with constructed stormwater management solutions such as raingardens and bioswales.
- Identify key drainage basins to retrofit using green infrastructure techniques for stormwater management.

Looking forward using a green infrastructure approach, it may be possible, for example, to address the need for a new city park in Midtown Kingston by also incorporating other needed stormwater management improvements. In a larger sense, the open space plan can be considered the foundation of the green infrastructure system for the city.

City-wide Trail Systems

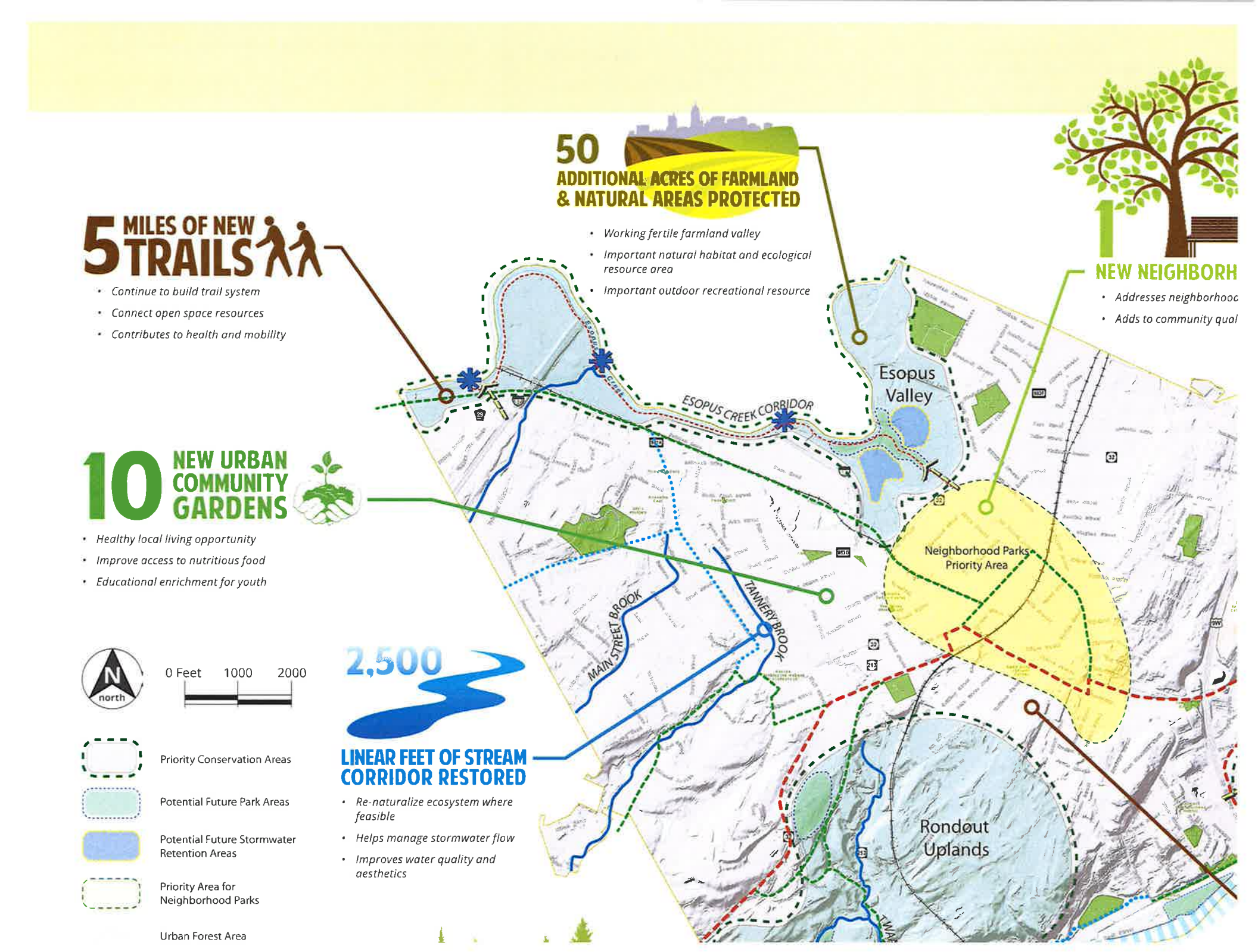
Kingston has been working for many years on creating a city-wide network of shared-use paths and trails connecting key areas of the city together. This open space plan recognizes those efforts and incorporates the notion of a city-wide system as an important amenity for the community. This overall system, branded by the Kingston Land Trust and the city as the Kingston Greenline, would also serve as a hub to regional trails including the Empire State Trail which is expected to be completed by 2020.

The trail system can serve as a linear park and as a transportation alternative, offering walking, and bicycling opportunities providing both recreation and mobility benefits. A well-designed trail system can become a great amenity to neighborhoods, starting in part as a "complete streets" approach to accommodating non-vehicular paths along existing streets, and later evolving to become dedicated off-road multi-use paths where space and funding permit. "Complete Streets" is a term used to describe ordinary city streets that are designed to encourage people of all ages and abilities, by any mode of transportation to use them. The concept of complete streets is an adopted policy of the city and since 2010 the Complete Streets Advisory Council was established by the Common Council to advise the city on ways Kingston can implement complete streets principles in its planning, design and construction activities.

Figure 37. *KINGSTON POINT RAIL TRAIL — The Kingston Greenline is an example of an urban railway corridor being converted into a successful multi-use path and cherished community amenity. The city continues to expand this route and connect through the downtown and part of a linear park and loop system. Photo courtesy of the Kingston Land Trust.*

Conservation Targets. Five miles of new trails of dedicated and shared-use paths. There are many trailway projects being planned, designed and constructed in the city. This five-mile trail target supports the concept of completing the ongoing/planned projects on what would be equivalent to the total approximate distance of an east-west corridor and a north-south corridor of shared-use paths dedicated to use for pedestrians and bicyclists in the city over the next decade. Recognizing some projects planned underway—such as the Empire State Trail—would be part of this goal, the segments of on-road bike lanes would not be counted in measuring the target for this category. (Note: some overlap exists between this category and the shoreline public access category.)

As part of this trails effort, steps should be taken to ensure that the trail corridors preserve portions of vegetated space along the trail route which enhance the natural beauty of the route, provide buffers from commercial activity where needed and provide bee pollinators and habitat for small wildlife.


5 MILES OF NEW TRAILS
Continue to build trail system
Connect open space resources
Contributes to health and mobility
50 ADDITIONAL ACRES OF FARMLAND & NATURAL AREAS PROTECTED
Working fertile farmland valley
Important natural habitat and ecological resource area
Important outdoor recreational resource
1 NEW NEIGHBORH
Addresses neighborhooc
Adds to community qual
10 NEW URBAN COMMUNITY GARDENS
Healthy local living opportunity
Improve access to nutritious food
Educational enrichment for youth
2,500 LINEAR FEET OF STREAM CORRIDOR RESTORED
Re-naturalize ecosystem where feasible
Helps manage stormwater flow
Improves water quality and aesthetics
ESOPUS CREEK CORRIDOR
Esopus Valley
Neighborhood Parks Priority Area
Rondout Uplands
MAIN STREET BROOK
TANNERY BROOK
north
0 Feet 1000 2000
Priority Conservation Areas
Potential Future Park Areas
Potential Future Stormwater Retention Areas
Priority Area for Neighborhood Parks
Urban Forest Area

OPEN SPACE VISION

MANY NEW YORK STATE COMMUNITIES HAVE ESTABLISHED CONSERVATION FUNDS

In the Hudson Valley Region:

In November 2006, New Paltz town and village voters overwhelmingly approved a $2 million bond to implement the open space plan. The Towns of Gardiner and Marbletown also approved open space bonds in the amounts of $1.5 million and $1 million respectively in 2006.

In November 2005, voters in the Town of Beekman, Dutchess County, NY supported a $3 million open space bond by a 2.5 to 1 margin.

In 2003, voters in the Town of Red Hook, Dutchess County, NY approved a $3.5 million open space bond by an approximately 80 percent margin to purchase the development rights from interested farmers. The Town's investment is being leveraged with dollars from a Dutchess County matching grant program, technical assistance from Dutchess Land Conservancy, and follows significant investment by Scenic Hudson, a regional conservation organization. The Town adopted an open space plan in 2000.

In 2000, voters in the Town of Warwick, Orange County, NY approved a $9 million bond for open space and farmland protection. The local goal is to protect approximately 3,000 acres of the Town's farmland and open space. A study for the Town of Warwick estimated that the continued development otherwise would cost taxpayers an estimated $4 to $5 million per year in additional school taxes.

In New York State:

In 2004, voters in the Town of Webster, Monroe County, NY approved a $5.9 million bond program, and subsequently

LAND TRUSTS IN KINGSTON

Land trusts are private not-for-profit organizations dedicated to the mission of preserving land. Many land trusts preserve land through the use of a voluntary conservation easement. This is a flexible tool that restricts development of a property. Conservation easements can be donated by landowners for significant tax benefits. In communities with a purchase of development rights program, they can also be sold. Conservation easements are a good way to preserve land while keeping property on the tax rolls.

Each land trust in the region has a specific mission and geographic area of interest. If a landowner is interested in conservation, the best way to obtain more information is to explore the websites and contact a relevant land trust working in the Kingston area:

Kingston Land Trust

www.kingstonlandtrust.org

(845) 877-LAND

Scenic Hudson

www.scenichudson.org

(845) 473-4440

CONSE

Open Space Local Appropri

Local government can appropriate fun budget authority) collected through pr purchase lands or development rights, budget allocation can be a one-time ar or a multi-year appropriation. Local ap limited to available funds and are weig public costs, often producing limited re conservation.

Municipal Bonds

A local government can issue a bond to projects, such as open space preservat bond allows a municipality to raise cap investment in capital projects and repa principal and interest) over time. Bond 20 years or 30 years, for example. A m placed on a ballot during a local electio or it can be subject to permissive refer permissive referendum, the municipal action without a vote, however, voters to petition the decision and require a b Successful municipal bonding requires outreach and education, but provides t obtain dedicated funds for an open spa

Recreation Fees

The city already collects a recreation fe which is used to meet recreational nee In the future, the amount collected sho confirm adequacy toward meeting the the city as it grows.

A partnership approach is recommended to advance the open space plan. With that approach as a guiding principle the following partnerships can become the foundation for advancing the plan:

Partners

> "Plans are only good intentions unless they immediately degenerate into hard work."
>
> *~ Peter Drucker, Business Consultant*

- ***Landowners***—These are very important partners with whom the city will collaborate to advance the conservation vision expressed in this plan. Organized efforts to reach out to landowners—in particular those with large acreage holdings in priority conservation areas will be important to discuss potential shared vision and goals and to explore ways to work together for the long-term conservation of the important resources present on the land.
- ***Land Trusts***— Continued and expanded collaboration with land trusts including the Kingston Land Trust and Scenic Hudson will be tremendously important to turn the vision in the plan into reality. The Kingston Land Trust has extensive information on the economic benefits of open space, which can be used to help generate support from the local business community.
- ***Other Non-profits***—As organizations vested in securing positive futures for the community, expanding relationships with non-profit organizations and forging new relationships centered on common goals will yield mutual benefits. Organizations like the YMCA and Hudson Valley Farm Hub, for example, are already working on projects that are perfectly aligned with the plan. Environmental advocacy organizations including Riverkeeper, among others, have been fastidious in efforts to protect and improve water quality in the Hudson and the related benefits to fisheries, water supplies and long-term economic sustainability. Look to strengthen these relationships and expand relationships with other similar non-profits that have program goals that can be matched with the open space plan.
- ***Ulster County and New York State Agencies***—The city and the county have partnered on numerous open space and related initiatives and this open space plan provides a solid foundation upon which expanded partnership opportunities can be framed. Natural partnerships already exist with agencies like the New York State Department of Environmental Conservation Hudson River

Estuary Program (funding partner for this open space plan), the NYS Department of State and Hudson River Greenway. The elements of the plan can be matched with the program objectives and funding priorities for each of these and the several other state agency partners of the city.

- ***Federal Agencies***—Forestland and farmland conservation have long been priorities, respectively, of the U.S. Forest Service and the U.S. Department of Agriculture. Building relationships with these and other federal agencies can be helpful in securing financial and other support for the forestland, farmland and other natural resource protection elements of the open space plan.
- ***General Public***—Citizens and property owners in the city can continue to be volunteers in service to support the city's programs and projects and also serve as shareholders of the benefits that will accrue as the plan is implemented. At some point in time, the city may need to secure additional public support for funding open space projects and the ongoing support of the general public will be of great importance.
- ***Business Community***—The private sector can continue to be a key partner. For example, in the real estate development process, the private sector can help participate in the creation of the amenities envisioned in the plan such as public waterfront access—resulting in a benefit to both the development project and the general public.

City of Kingston

- ***Conservation Advisory Council (CAC)/City Staff***— It is important to recognize the significant level of effort that will be required to properly implement the open space plan. After the adoption of the plan, the city staff and the CAC will focus on implementing the plan and will need to create a more detailed action agenda and timeline to help guide the overall advancement of the program. Some communities have identified the need for an open space coordinator and/or appointed an open space commission or added that responsibility to an existing staff or board member to take lead responsibility. Collaboration with other city boards and departments will continue to be important, in particular those with missions that overlap with the action and policy recommendations outlined in this open space plan.

Additional Planning/Technical Work

This plan provides an overall vision for the future of open space in the city. It will become a "point of departure" for more detailed planning that will be needed to fully establish the scope and details of future conservation projects. Some of the next steps (future phases include):

- Establishing priority sites for protection—this would be a more detailed look at the priority areas to identify parcels, potential partners and specific implementation requirements such as project financing strategies and grant applications. For local parks, a neighborhood-centered conversation will be required to identify what type of park the neighborhood needs, what features and program elements should be developed.
- Detailed planning and design development—Individual or groups of projects will need site-specific conservation plans including delineation of areas to conserve, areas where development may be appropriate. There will be the need to identify potential green infrastructure opportunity areas for example and coordination with other/future planning project such as a bike/trail master plan.
- Zoning and code amendments—The city will consider potential modifications to the city code including zoning ordinance, subdivision regulations, urban forestry, and stormwater management to conform to the recommendations outlined in this open space plan.

Figure 38. Conservation Targets Summary - Kingston Open Space Plan

Local Resource	Ten-year Goal for Protection / Enhancement	
Street Trees	1,000	Additional street trees planted.
Hudson Uplands	500	Additional acres permanently protected.
Hudson Riverfront	5,000	Additional linear feet public access.
Rondout Uplands	60	Additional acres permanently protected.
Rondout Shoreline	5,000	Additional Linear feet public access.
The Esopus Creek Valley	50	Additional acres farmland and natural areas permanently protected
Other Stream Corridors	2,500	Linear feet naturalized stream corridor restored
Neighborhood Parks	1	New neighborhood park in Midtown area
Urban Agriculture	10	Number of new urban community gardens
Greenway Trails	5	Miles of new trails

CONCLUSION

It's a spring day in 2030, you and a friend decide to ride your bikes around town. You head toward the Hudson and start up Hudson Uplands Overlook Trail and take a rest to enjoy the commanding viewpoint looking east from the upper edge of the 300-acre preserve rising above the bustling neighborhood at the former Hutton Brickyard. A dedication plaque at the overlook recognizes the contributors to the preserve project dedicated in 2025. Eagle, hawk and osprey are riding the updrafts right in front of you. On the river below the water is clear -- still too cold for most kayakers but the sailboats are cutting across the waves getting ready for the weekend regatta. You roll downhill to the Empire State Trail along the Hudson and head south to wrap around Kingston Point then upriver along the Rondout. It's so busy on the eastern end of the waterfront promenade that you get off and walk your bikes and check out the kayak shack, where rentals begin next weekend.

After enjoying a beverage at your favorite waterfront restaurant, you roll the bikes onto the self-serve solar-powered ferry (cool quiet ride is worth the $5 scan of your credit card) and cross over to the new park at the foot of Island Dock, where you count at least 100 people walking the Island Loop path. You think about coming back next here weekend for the annual Island Dock Spring Festival—lots of food and games for the kids—could be nice.

Riding back to the mainland, past the new Rondout kayak launch, you observe the construction progress on an historic complex being renovated and a new building complementing the old going up right nearby. The bike path narrows slightly as Wilbur hamlet comes into view and it's time for a few slices and a decision—do we pedal power up the hill along the Twaalfskill or walk our bikes up along the new nature path. Walking up the path was a good decision and time for a rest at the overlook shelter, jointly named after the benefactor and land trust that partnered for its completion. At the top of the rise Midtown now is in view and its time to visit the new neighborhood park. Your friend is impressed with the small stream that used to run under the new park that was daylighted thanks to a grant from New York State and is now a centerpiece of the park's design. Kids are lining up to ride the mini zip line and the small community garden is just starting to sprout green.

As you roll down the bike path, feeling tired but refreshed, you are glad the last stop is the Esopus Park and Preserve at the bend of the river. Looking down the quiet side street, the new street trees are budding out nicely. After locking the bikes up at the preserve, the row of colorful outdoor hammocks lined up along the Esopus are perfectly inviting as you climb in to enjoy the well-deserved nap. The air is fresh and clean, the sun is perfectly warming and the rest has never been better.

This is what the City of Kingston envisions for our future, a multi-faceted network of outdoor spaces and activities which not only enhance our quality of life but also function as a strong attraction for tourists, businesses and future homeowners to come to this city. In this way, the open space amenities described in this plan act as an economic generator, providing Kingston with the recreational and aesthetic features more and more families value in choosing where to live, work and play. We believe that with strong leadership and concerted effort, this vision can become realized.

We hope that you will join us in this very important effort.

> "Whether you think you can, or you think you can't—you're right."
>
> *~ Henry Ford*

APPENDIX A

PUBLIC MEETING NOTES & COMMENTS

MEMO

BEHAN PLANNING AND DESIGN

October 3, 2018

Kingston Open Space Plan
Public Workshop Notes

On September 25, 2018, a public workshop was held at the Kingston Public Library to present an overview of the Kingston Open Space Plan, and solicit input from the public. After the initial presentation, the participants were invited to participate in table mapping discussions at three different tables. The following is a summary of the notes collected at each table.

Table One Notes: City Wide Map

1. **Rondout Creek.** Need access for paddlers, rowers, etc. The area along East Strand Street was specifically identified.
    a. Trash cans and pickup needed along Kingston Point Rail Trail.
    b. More trash pickup along waterfront.
    c. Dock access needs to be upgraded in the area around TR Gallo Waterfront Park / Island Dock / Wurts Street crossing.
    d. Island Dock – this peninsula should be made into a park.
    e. Block Park – a walkway is needed here which connects the park.
2. **Esopus Creek**. Protect the floodplain here.
    a. Remove debris from waterway so it can be used for paddling. Log jams block the way.
3. **Hudson River.** Waterfront promenade which follows river from Kingston Point Beach north to city line.
4. **Land for Preservation.** The currently undeveloped land west of the railroad tracks, in the vicinity of Wilbur Avenue, Chapel Street and Mason Hill Road – this land area should be preserved.
5. **Clearwater Park.** Bring back Clearwater Park.
6. **Lawton park property.** Bring back Lawton Park.
7. **Rail Trail.** Complete the rail trail along the abandoned rail line.
8. **Cemeteries**
    a. Houghtaling cemetery marker
    b. Houghtaling cemetery at Pine Street Professional park
    c. African-american burial ground on Pine Street

112 Spring Street, Suite 305
Saratoga Springs, New York 12866
Phone (518) 583-4335

151 South Main Street, Suite 200
New City, New York 10956
Phone (845) 499-2060

info@behanplanning.com Fax (518) 583-6970 www.behanplanning.com

9. **Industrial park.** Need trails in open areas around Arconic manufacturing plant.
10. **General Observations**
    a. Need more playgrounds
    b. Need more pocket parks
    c. More benches that face each other

Table Two Notes: City Center Map

11. **Lack of greenspace / playspace / street trees.** The residential neighborhood generally between Route 32 and O'Neil Street, north of Broadway has a lack of greenspace, park or street trees.
    a. This area would benefit from a local pocket park or playground.
    b. A park is needed on the block bounded by Oneil, Bruyn, Smith Ave and Downs Streets – Kingston Housing Authority property.
12. **St. Mary's Cemetery.** A former open field and playfield across the railroad tracks from St. Mary's Cemetery (owned by the cemetery) used to be used as a playfield. Now that cemetery is expanding into this area, that local greenspace is lost.
13. **The Lace Mill.** Property at The Lace Mill, corner of Cornell Street and Progress Street – needs new plantings – very barren landscape right now and not attractive.
14. **Kingston Plaza.** This site generates a lot of traffic / activity and is a major local circulation hub. Many improvement opportunities here.
    a. Large parking lot – a lot of impervious area, could benefit from green infrastructure program to soften area, manage stormwater better.
    b. Need sidewalks which connect plaza to uptown areas.
    c. Should ideally have a vehicular + pedestrian connection from Albany Ave, crossing 587, to the back/side of Kingston Plaza. Currently have to drive all the way around through city to get to this plaza.
    d. Have 587 revert to highway, plan for greenspace.
15. **Esopus Creek.** Need to open up parts along the Esopus for walking paths, outdoor enjoyment.
    a. Add more kayak launches, next nearest launch is quite a ways away.
16. **The Greenline**
    a. Opportunities to have small parklettes, green space along the Greenline. Potential for more formal park where Greenline comes out of tunnel to Kingston Plaza.
17. **Academy Green**
    a. This existing park space is underutilized. No one uses it. Opportunity to make this better and more interesting.

b. City removed benches to discourage homeless people from using it.

c. Was the subject of a green infrastructure proposal, but that didn't get funded.

18. Future Roundabout – Intersection of Albany Ave & Broadway

a. Greenspace here will be lost, but maybe opportunity for new greenspace with future design?

19. Tannery Brook Stream / Twaalfskill Brook

a. Much of these waterways have been covered / paved over. Need to daylight these streams.

b. Program underway to "culturally daylight" the Tannery Brook by celebrating its path and drawing/artwork along route to make people aware of its presence.

c. Emily Vail is doing Masters thesis on Tannery Brook.

20. Broadway

a. General opportunity to provide some pocket parks along Broadway.

b. Corner lot at intersection of Broadway and Henry Street – unpleasant corner. Could this high-visibility corner include greenspace? A pollinator habitat?

c. Vacant lot on Broadway between Henry and Cedar – potential for urban park space.

d. Parking lot behind Deisings Bakery, between Saccoman Lane and Green Line. Could put in a pocket park here, basketball courts, youth activities. Is all of this parking needed?

e. Overpass for Greenkill Avenue, above Broadway. This area is ugly. Used to be able to get from Broadway up to Greenkill, but since they rebuilt bridge, cannot get up anymore. Should be a way to get up and down. People still climb up hill.

f. Intersection of Broadway and Prince Street – Planet Wings. This is a high-visibility corner, opportunity for a park.

g. Need more trash and recycling bins, benches.

h. Students from Kingston High School often travel west along Broadway, and/or cut through YMCA across tracks to neighborhood beyond. Needs to be a safer route.

21. YMCA. YMCA has a community farm off of Susan Street. Working with landscape architect to expand farm and improve it.

a. Potential for multi-use path which would connect from YMCA to cemetery in the south, running parallel to railroad tracks.

b. Cemetery has many people who use it as a park for walking, outdoor enjoyment.

c. Property behind YMCA – reportedly was identified as part of Brownfield Opportunity Area Midtown Forum, potential development by RUPCO as a park.

22. Rail Trail. Proposed rail trail which follows abandoned railbed along Greenkill Ave. Easements with adjacent landowners are needed.

a. Crossing at Wilbur Avenue is potentially an issue – bridge abutment was removed, grade change back up to railbed level from road.

23. **Empire State Trail.** Major new trail through city. Should look at trail route and identify areas for small parks along the path, places where people can stop and relax, and/or access points to get on/off.
24. **Redevelopment.** Industrial building and ballfields at South Clinton Ave and Greenkill – this property is planned to be redeveloped ("Metro").
25. **Active Railroad Line.** Rail traffic is quite loud, shakes nearby houses in neighborhood. There needs to be a sound buffer along active rail line, with trees or vegetation to help mask noise.
    a. High school kids cut through path over railroad tracks by YMCA.
    b. There needs to be a safe crossing for people to get from one side of the tracks to the other – it is a barrier.
    c. Many people use Wiltwyck Cemetery as an open space to walk, enjoy outdoors, like a park.
    d. Parcel adjacent to cemetery – between railroad tracks and Wilbur Ave – this is owned by the city. Is there potential to expand park-like setting of cemetery to here, provide connection across tracks to neighborhoods on the west side?
    e. Twaalfskill Brook runs through this area, gets buried. Should be daylighted.
26. **Lawton Park Property.** This property by South Wall Street was considered for a housing development years ago, but it never happened. Still undeveloped. Potential opportunity to make this into an actual park?
27. **Pine Street**
    a. Vacant flag lot property identified on map is believed to be a historic burial ground for African Americans. Potential for historic site / interpretive / recognition?
    b. Existing commercial/medical office development on Pine Street Professional Plaza. This is currently underutilized, has much more parking than it uses. Site could be consolidated / cleaned up to provide some of that as greenspace. Potential for Food trucks.
    c. Pine Street Professional Park – this site is believed to be historic burial ground.
    d. South Pine Street – there is an existing community garden at 27 S. Pine Street.
28. **Interior Block Open Space.** There is an interior block space bounded by Johnston Ave, Emerson, Main Street and Pearl Street – houses all around it with undeveloped space inside. Could this be an opportunity for a public space?
29. **Community Garden**
    a. There is an existing community garden in the vacant lot on Liberty Street, one block behind Library.
30. **Henry Street / Pine Street neighborhood**

a. There is a need in this residential area for a local playground / park space with adult activities.

31. Large lots on hill, southwest of Washington Ave

a. This area has many large lots, undeveloped forested areas, Some vacant land. Would owners here be interested in conserving the land, protecting their privacy?

b. Vacant parcel shown on map between Conway Place and Marius Street is not actually vacant – has a house on it.

Table Three Notes: City Wide Map

32. Esopus corridor

a. Esopus Creek corridor has some active farm fields including the Native American Seed Sanctuary on an oxbow of the creek just west of the NYS Thruway.

b. Other fields further downstream west of the North Manor Avenue include some habitat near wetland and tributaries noted as fragile by a participant.

c. Area in general very flood-prone. Consider encouraging native tree plantings/maintaining tree cover along stream bank as a riparian buffer (though may need to resolve any issues associated with tree cover with flood control berm located in the area.)

d. Creek has river access on north side at Town of Ulster Park—could create additional access on south (city) side. Creek has tree/debris areas blocking canoe/kayak navigation that is problematic.

e. Participants noted ongoing concern over creek water quality, especially turbidity related to upstream activities including operation of dam/impoundments at Ashokan Reservoir.

f. Corridor adjacent part of O&W Rail Trail project.

g. Concern over combined sewer overflows contributing to water quality problems. Continue to need to retrofit/upgrade storm and sanitary sewer system to address this.

33. Rondout corridor

a. Includes low-lying relatively flat areas prone to flooding as well as very steep upland areas nearby. Erosion problems noted along northern shoreline at outlet to Hudson.

b. River access provided by several marinas important to maintain. Participant noted there was additional demand for boat/marina access that was not being met due to limited supply of dock space.

c. Several larger parcels of primarily wooded land along upland areas along/near Rondout. Many of these have open space/habitat/scenic value. Several large parcels "private estates" in the area.

d. Old hamlet of "Wilbur" at upper reach of Rondout in city perceived as physically disconnected from rest of city due to steepness of terrain and lack of pedestrian facilities (no sidewalks or publicly accessible paths along Wilbur Avenue).

e. Historic area (Bluestone port, Fitch Bluestone Company Office, etc.)

f. Former quarry upland area—steep, wooded, some river views, "ice caves", bat habitat

g. Downstream bike and pedestrian connections would be very good for residents of area connecting from Wilbur along waterfront to Strand Street out to Kingston Point.

34. Hudson corridor

a. River very important habitat—concerns for water quality from discharge from storm sewer system and combined sewer overflows (where sanitary sewer combines discharge with storm sewer during major storm events, bypassing treatment facility). Of particular concern at Kingston Point Beach.

b. Deep channel river access is potential to be recognized (e.g. at former Hutton Brickyard site off North Street).

c. The Kingston-Poughkeepsie Deepwater Habitat (runs about 25 miles from near mouth of Esopus to Wappingers Creek) is one of the largest spawning areas for Atlantic sturgeon and is important for a number of species.

d. Public waterfront access important—waterfront promenade (Kingston Greenline concept). Consider concept of continual connection north into Town of Ulster

e. Lot of great views of Hudson River from this corridor.

f. River shoreline habitat enhancements possible?

35. Other Streams

a. Many participants interested in exploring options to "daylight" some of the streams that have been piped underground over the years; e.g., Tannery Brook.

b. Concept of adding "green infrastructure" to urban environment; e.g., bioswales along drainage corridors, creating wetland treatment systems for stormwater runoff prior to discharge to receiving water, etc.. See https://www.dec.ny.gov/lands/58930.html

36. Street Trees, Parks Greenways, and Trails

a. Interest in continuing to improve street tree management program in city—participants like the tree inventory and concept of infill of urban street trees.

b. Consider updating city code to address street trees (more adaptive to setting, conditions and neighborhood, adding and removing certain species, etc.).

c. Many participants wanted to continue city effort to improve pedestrian and biking facilities to better connect neighborhoods with park, open spaces and other destinations.

d. Improve park connections (e.g., entrance to Hasbrouck Park "worst entrance ever" to a park—kind of invisible between two houses.)

e. Cornell Park could use natural play space, arts/performance space (solar band stand). Consider potential for community garden on land adjacent to park to north.

f. Future pocket park opportunities exist around city—create sites that have nice street frontage and are highly visible from the street to enhance public safety. Green space and park space needed in neighborhood between Albany Avenue and Cornell Street.

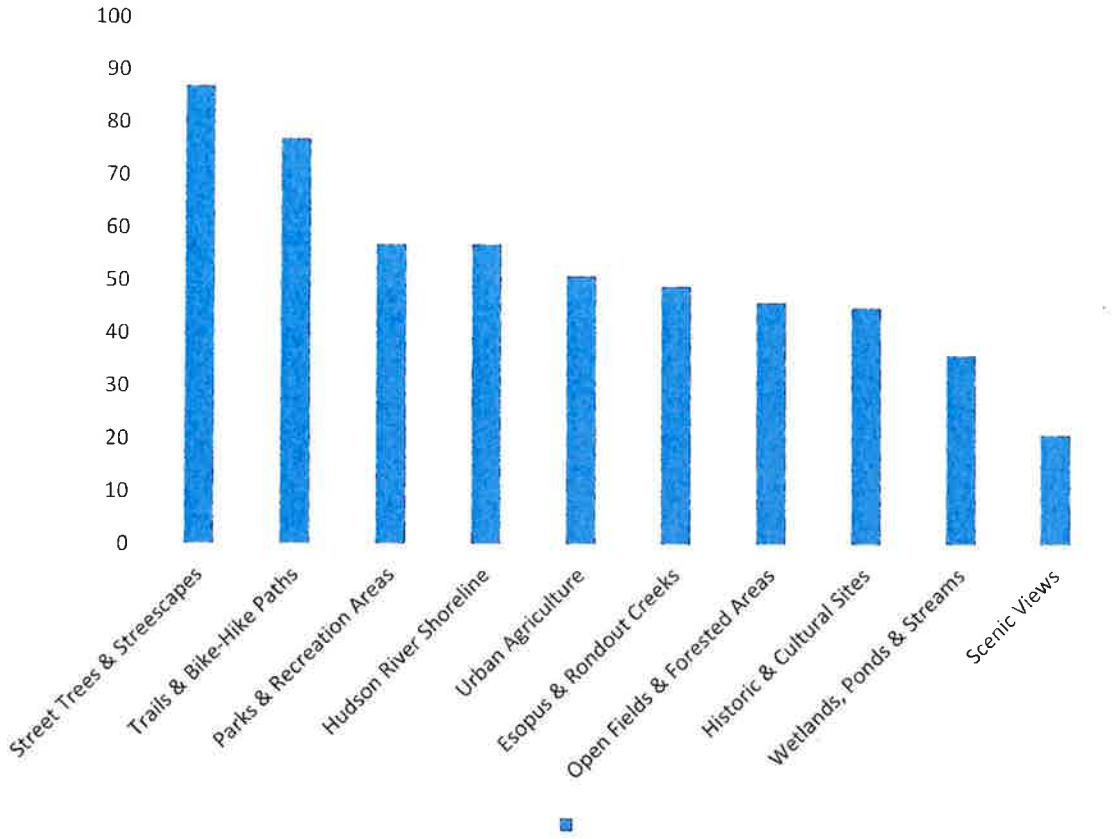
g. Opportunities to protect undeveloped open spaces—in particular larger blocks of open land (e.g. west side of NYS Rt. 9W west of East Chester Street).

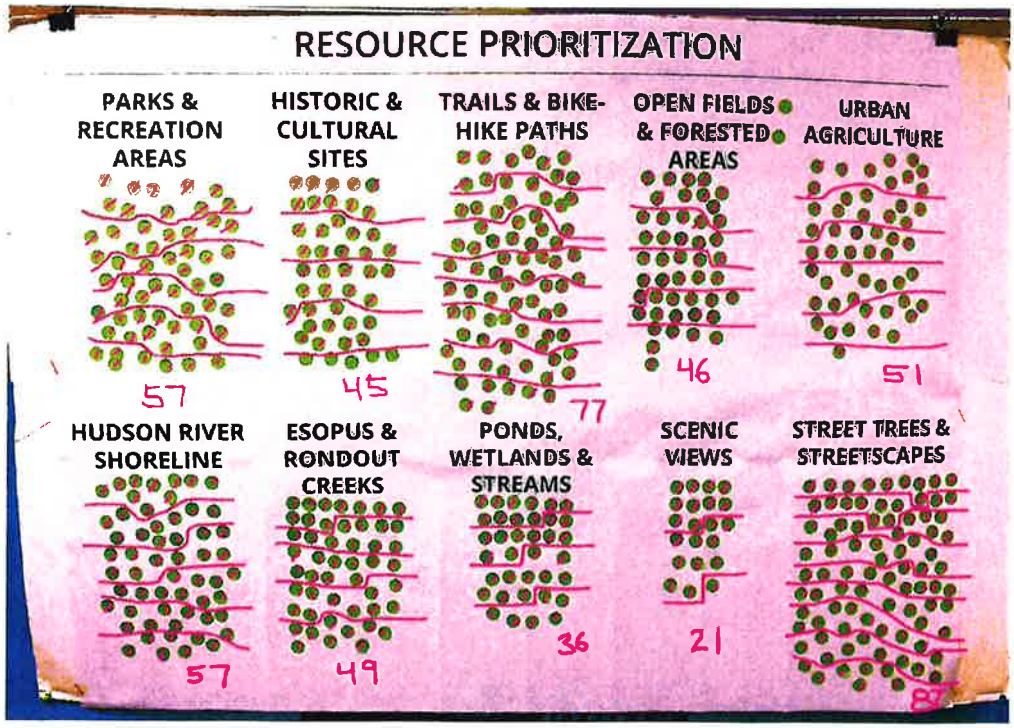
h. Need safe RR crossing near active rail line and Greenkill Avenue.

i. Encourage maintaining and adding pollinator habitat in all open spaces (e.g. species that support butterflies, bees, hummingbirds, etc.,) See https://www.nwf.org/Garden-for-Wildlife/About/National-Initiatives/Plant-For-Pollinators

Results of Prioritization Exercise:

Resource Prioritization Exercise	
Local Resource to Protect / Enhance	**Participant Score**
Street Trees & Streetscapes	87
Trails & Bike-Hike Paths	77
Parks & Recreation Areas	57
Hudson River Shoreline	57
Urban Agriculture	51
Esopus & Rondout Creeks	49
Open Fields & Forested Areas	46
Historic & Cultural Sites	45
Wetlands, Ponds & Streams	36
Scenic Views	21


100
90
80
70
60
50
40
30
20
10
0
Street Trees & Streescapes
Trails & Bike-Hike Paths
Parks & Recreation Areas
Hudson River Shoreline
Urban Agriculture
Esopus & Rondout Creeks
Open Fields & Forested Areas
Historic & Cultural Sites
Wetlands, Ponds & Streams
Scenic Views


RESOURCE PRIORITIZATION
PARKS & RECREATION AREAS
57
HISTORIC & CULTURAL SITES
45
TRAILS & BIKE-HIKE PATHS
77
OPEN FIELDS & FORESTED AREAS
46
URBAN AGRICULTURE
51
HUDSON RIVER SHORELINE
57
ESOPUS & RONDOUT CREEKS
49
PONDS, WETLANDS & STREAMS
36
SCENIC VIEWS
21
STREET TREES & STREETSCAPES

Kingston Conservation Advisory Council
Monthly Meeting FINAL Minutes
Kingston City Hall Common Council Chamber
Date: May 14, 2019 6:00pm

Council Members Elizabeth Broad (excused), Lorraine Farina, Emilie Hauser (Vice-Chair), excused, Lynn Johnson, Kevin McEvoy (Secretary), Julie Noble (Chairperson), Casey Schwarz
Common Council Liaison: Andrea Shaut (excused)
Guests (partial list): John Behan (Behan Planning), Gerald Berke, Tanya Garment, Laura Heady (DEC HREP), Steve Ladin, John Mickelson (Consultant for Kingston Natural Resources Inventory), Rich Schiafo, Rennie Scott-Childress (Kingston Common Council), Greg Shaheen (Kingston Land Trust) Officer Shultis (KPD), Don Tallerman, Emily Vail (HRWA), Ariel Zangla (Daily Freeman). See sign in sheet for full list.

I. **Welcome Guests and Public Comment:** The Chairperson called the meeting to order at 6:05pm. Steve Ladin discussed the lagoon near Kingston Point Park as an area rich in habitat. Tanya Garment discussed the forest remnants of the Delaware Forest at the Kingston Business Park property as a significant area to be protected.
II. **Modifications to the Agenda:** None
III. **Review and Approval April 2019 Monthly Meeting Minutes:** Upon motion duly made by Casey, and seconded by Lynn, the minutes to the April meeting as amended were approved unanimously by the council members present.
IV. **Open Space Plan Public Meeting: Special Guest John Behan:** Chairperson Julie Noble provided an introduction to John Behan, of Behan Planning, the consultant hired by the City to produce the Open Space Plan. Julie Noble also thanked Kingston Land Trust for their participation in the project. John provided a slide presentation of the draft Open Space Plan and next steps. John began with defining an open space plan as a document which outlines the desired goals for the future preservation and enhancement of both the natural and man-made resources which are important to the quality of life in a community and its benefits to protect water resources, maintain habitat, improve flood control, reduce noise pollution, provide recreation, conserve farmland, conserve scenic resources, steer future zoning policy and protect property values. John continued by presenting the importance of the role of the public in providing input to the plan including the takeaways and highlights from the Sept 25, 2018 public workshop (see notes on City website with link provided at bottom of this section). John read the open space vision from the draft plan. He briefly reviewed the Natural Resource Inventory, which was used in conjunction with CAC input to provide a spatial analysis of various resources to provide prioritization and a composite map which recommended three notable areas for protection, coastal and upland areas along and near the Hudson River, lowlands along the Esopus Creek and coastal and upland regions of and near Rondout Creek. Concerns along the Hudson River such as coastal flooding, invasive species management, brownfield remediation and ongoing effluent pollution were presented with specific recommendations to restore and naturalize the shoreline habitat, complete the Empire State Trail and secure public access, protect larger sections of upland habitat and secure scenic views and overlooks. Rondout Creek was discussed with respect to the Greenline, a blueway trail for kayaks and canoes, protecting upland areas using low impact conservation design and preserving and restoring shoreline habitat and stream corridors in tributaries of the creek. Esopus Creek was presented as providing access for recreational water based uses such as kayaks and canoes, connection to the Linear Park Uptown section of the Greenline, preserving wetlands, farmlands and shoreline habitat. John Mickelson and Laura Heady spoke from the audience concerning the Natural Resource Inventory, the Habitat Summary and the Hudsonia Habitat Map utilized in the development of the draft Open Space Plan.

John Behan then went over the Open Space Vision Map which illustrated 10 year goals including the Hudson shoreline and uplands, the Rondout Creek corridor and uplands, the forest matrix of the City and community gardens, neighborhood parks, protecting and restoring stream corridors and planting new street trees in the built urban sections of the City as well as protecting farmland, wetlands and providing trail access to Esopus Creek area. Greg Shaheen, John Mickelson and Laura Heady, speaking from the audience, each discussed conservation techniques with respect to trail and land management. John Behan discussed implementation of the open space plan and the importance to work with various partners including landowners, land trusts and other non-profits, various governmental agencies, business interests and the public. Next steps presented were adoption of the plan, collaboration between interested partners, establishing priorities, implementation of zoning to include recommendations from the Open Space Plan, documenting input from this meeting, discussing priorities with CAC and revising the draft plan, based on comments heard today and during the public comment period. The Chairperson informed the attendees regarding the open public comment period for the Open Space Plan closing June 14 with comments to be sent via email to: cac@kingston-ny.gov. The City website link to the Open Space Plan is below: https://www.kingston-ny.gov/content/8399/8491/8495/10452/10485.aspx

V. **Adjournment:** Upon motion made by Casey and seconded by Kevin, the Council members present unanimously agreed to adjourn the meeting at 7:28 PM.

Mission: Ensure the conservation of the City of Kingston's natural resources and the enhancement and protection of its environment while fostering unified action on environmental matters.

Note that website links are informational only. The Commission makes no representations as to content therein. These minutes represent a summarization of the meeting and not a transcription.

APPENDIX B

NATURAL RESOURCE SCORING

Kington NY Open Space Plan – Natural Resource Scoring

Water Resources - Prioritization Scoring Criteria

Feature	Points	Notes
NYSDEC Wetlands and 100' regulated buffer area	3 points	NYSDEC wetlands are important to water quality due to their size (12.4+ acre).
National Wetland Inventory wetlands and 100' buffer (*outside NYSDEC*)	3 points: ≤ 100' from DEC Wetland 2 points: > 100' from DEC Wetland	NWI wetlands within 100' of DEC wetland are considered contributing to the NYSDEC network, regardless of size and thus also receive 3 points.
Other wetlands and hydric soils	2 points	
Riparian buffers	3 points	Using 2018 NYNHP layer
Surface waters and streams	3 points: within 100' of Class AA or A 2 points: from 100-200' of Class AA or A 2 points: all non-AA/A surface waters and/or within 100' of Class B, Class C(T) or (TS) 1 point: within 100' of Class C 1 pt – within 50' of All others	For area of overlapping water buffers the highest order buffer is used, buffer areas are not "double counted." Since riparian areas are a more defined type of buffer, the riparian score supersedes the stream buffer score in areas of overlap.
Soil Permeability	3 points: Well/Moderately well drained 2 points: Excessively /Somewhat Excessively drained; Poorly/ Somewhat poorly drained	Want to preserve the best draining soil to allow for storm water infiltration and filtering, however development in less suitable soils (excessive or poorly drained soils) could have a larger negative impact on water quality.
Unconfined aquifers	2 points	Potential drinking water source, can be easily contaminated to downstream communities
Floodplains	1 points: floodplain areas outside of other water buffer zones	
Vernal pools	3 points: Vernal pool plus 300' buffer	

Ecological Resources - Prioritization Scoring Criteria

Feature	Points	Notes
Biologically Important Area - Terrestrial	3 points	
Biologically Important Area - Aquatic	3 points	
Tree canopy	3 points	Areas with >40% tree canopy
Terrestrial corridors	2 points	
Sub Aquatic Vegetation	2 points	Areas within 100 feet of sub aquatic vegetation
Steep Slopes	3 points: 8-25% slope 2 points: > 25% slope	Slopes 8-25% are considered developable, however there is an increased risk of water quality degradation. Slopes over 25% are considered less vulnerable to development due to economics, but still large impact if disturbed.

Cultural & Recreation Resources - Prioritization Scoring Criteria

Feature	Points	Notes
Historic and Cultural Sites	2 points 1 point: within 200' of sites	Used historic districts, cemeteries, and large sites as well as 150' diameter buffer around historic points outside of historic district
Existing Parks	2 points 1 point: within 200' of sites	
Existing and planned trails	2 Points – 75' corridor 1 point: within 200' of corridor	

Agricultural Resources - Prioritization Scoring Criteria

Feature	Points	Notes
Active Farmland	4 points: 10 - 19 contiguous acres 3 points: < 10 contiguous acres *Note largest continuous ag is 19 acres*	Larger areas of farmland provide greater production value and are also more critical to keep in production.
Community Gardens	4 points 3 points: 200' buffer of community garden	YMCA Farm Project, South Pine Street Farm and Rondout Community Garden
Farmland Soils	3 points: Prime 2 points: Statewide Importance 1 point: Prime if drained	Farmland soils, in theory, provide the best conditions for successful agricultural crops
Agricultural land within 200' of watercourse	1 point: Applies to farmland only	Ag land close to streams can support water quality if managed properly
Buffer area of Agricultural land	2 points: Forest within 1/8-mile of farmland 1 point: other non-ag land within 1/8-mile of farmland	Non-ag land in close proximity to farm land buffers the farmland from other uses and also provides areas for potential expansion

Climate Resiliency - Prioritization Scoring Criteria

Feature	Points	Notes
Climate Resiliency	4 points: Far Above Average (>2 SD) 3 points: Above Average (1 SD to 2 SD) 2 points: Slightly Above Average (0.5 to 1 SD) 1 point: Average (-0.5 to 0.5 SD)	The Nature Conservancy (TNC) did an extensive analysis for climate resilient landscapes and their results were used as the basis for the scoring.
Scenic Hudson SLAMM tidal wetland data	4 points: "Resilient" wetlands 4 points: "New wetlands" 1 points: "new wetland conflict" *Conflict refers to areas that are currently developed*	Scenic Hudson modeled future wetlands based on sea level rise models and classified areas that would lose wetlands (lost), maintain wetlands (resilient), and gain wetlands (new or new with conflict). Areas that will maintain wetlands or are areas that could support future wetlands are most important in terms of climate resiliency. Tidal wetland scores are in lieu of TNC resiliency scores where they are higher, otherwise the TNC score is used as TNC included wetlands in their analysis.

This page left intentionally blank.