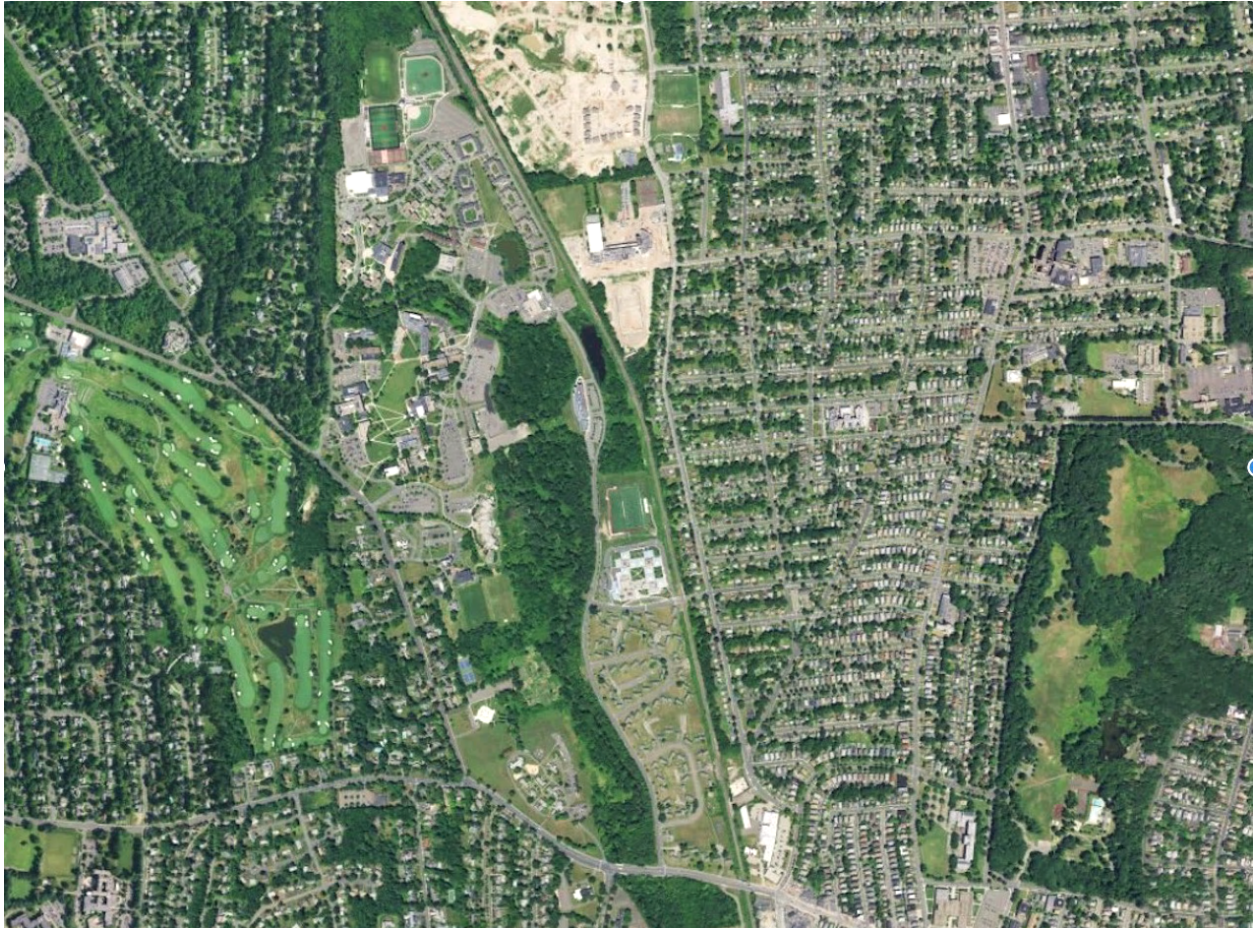


# ENVIRONMENTAL EDUCATION

*Learning How to Conserve and Revitalize the North Branch Park River*



North Branch Park River upstream of Albany Avenue – 2019 (*Apple Maps*)





*Conditions surrounding the North Branch riparian corridor  
at the University of Hartford pedestrian bridge – 2015 (esri map)*

*Special thanks to*

Margaret Miner of Rivers Alliance of Connecticut

Ann-Marie Mitroff of Groundworks USA

*for supporting local environmental stewardship as a regional and national community value*

Alan Hadad University of Hartford Professor of Physics

*for his patience and good humor*

and Marc

*a quietly reliable champion*

# ENVIRONMENTAL EDUCATION

*Learning How to Conserve and Revitalize the North Branch Park River*

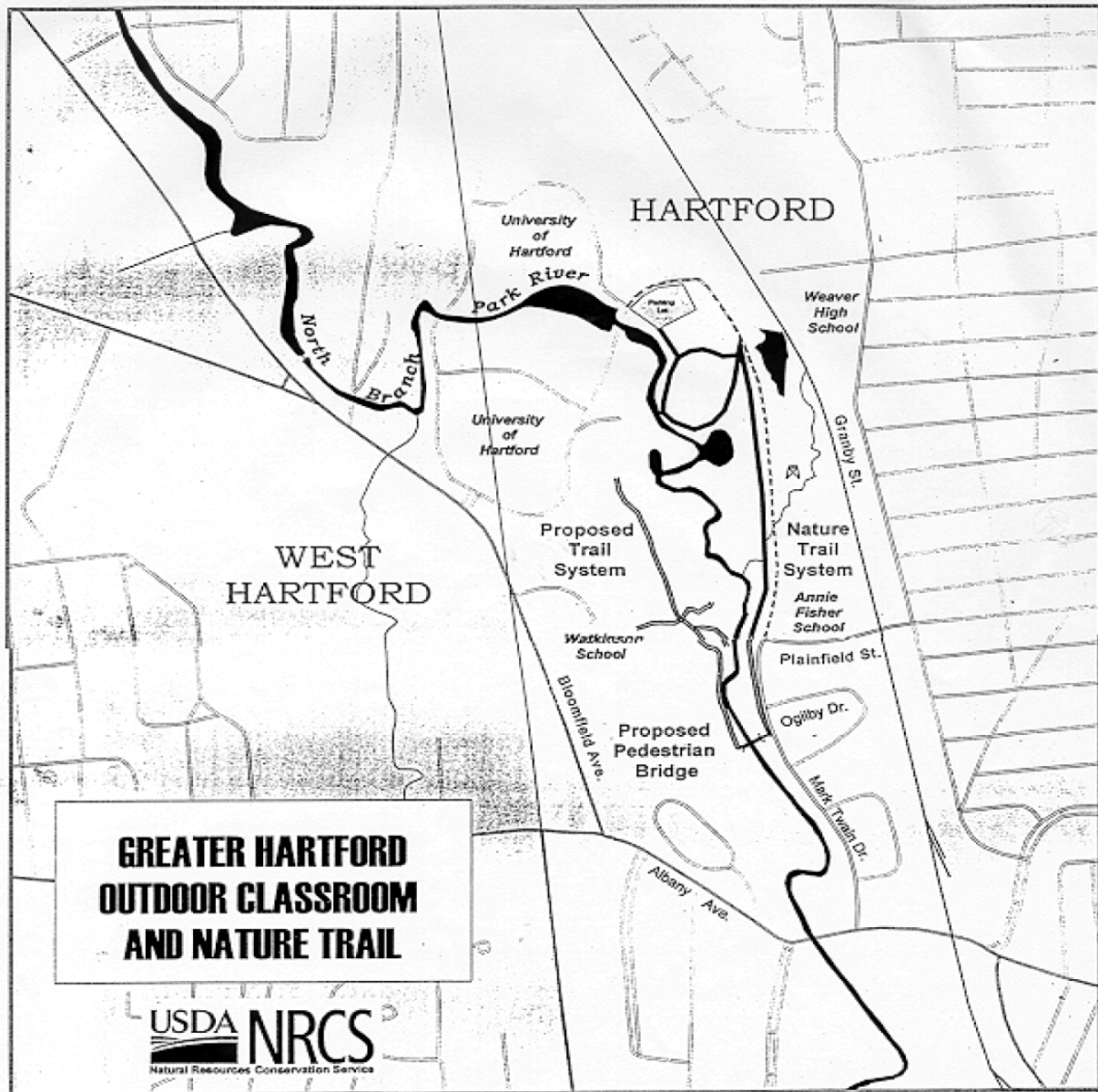
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## ASPIRATION – *Urban Outdoor Classroom and Nature Trail*



*Original Hartford Urban Outdoor Classroom and Nature Trail project proposal, circa 1999*

Concepts proposed for an urban outdoor classroom, nature trail system and pedestrian bridge predate development of computer imaging, geographic information systems, the internet, and the evolution of K-12 schools along the North Branch. Advantages of new technology now augment science, technology, engineering and math learning exercises, enabling real-time relationships between classrooms and dynamic natural resources. Lessons learned from the trail work completed twenty years ago, most notably the challenges of maintaining a rigid path within an ever-changing riparian zone, ought to inform new approaches to field research. Environmental education does not depend upon a rigid path. Audio guides can be made available through mobile telephones. Field observations can supplement and ground-truth online data. For example, statistics from the U.S. Geological Survey North Branch stream gage are available on the National Water Information System web interface. Data collected by students and citizens is helping scientists identify and track migratory birds and bobcats along the North Branch.

## ASPIRATION – *Urban Outdoor Classroom and Nature Trail*

**Twenty years ago**, a diverse network of stakeholders identified the benefits of developing a Hartford Urban Outdoor Classroom and Nature Trail network along the North Branch Park River. The project was intended to provide students, teachers, and neighborhood residents greater access to nature along the North Branch riparian corridor, and ultimately to cultivate interdisciplinary knowledge. A fundamental intent, which remains relevant, is described as follows:

*“Students from public and private schools will be brought together at all levels (elementary, middle through high school and university) to gain experience from an urban open space environment. It will also provide surrounding community residents an opportunity to appreciate the environment. The project will serve as a learning tool highlighting environmental education as an interdisciplinary subject that is easily incorporated into a planned curriculum to enhance learning experiences. The implementation of this project will provide a community resource extending the educational value beyond the normal school day.”*

Original Hartford Urban Outdoor Classroom and Nature Trail Project Summary,  
presented by Eastern Connecticut Resource Conservation and Development (RC&D)

Construction of the trail system began in 1999 along the eastern edge of the North Branch riparian corridor near the Annie Fisher Elementary School. Successful installation of thirty-five learning stations, which represented 60% completion of the nature trail system, was celebrated on Earth Day of the following year. A fact-filled, 4-inch thick three-ring binder was distributed as a teacher’s guide. Administrative issues as well as seasonal impacts of flooding and snow piling curtailed completion of a proposed handicap accessible pedestrian bridge that was to link stations located on the east and west sides of the North Branch.

During the two decades that have passed, interdisciplinary educational opportunities have greatly expanded along the North Branch. Construction of three new K-12 schools, plus the renovation of three other existing K-12 schools have furthered a unique concentration of eight public and private K-12 schools located along the North Branch. While the development of new and renovated school building projects temporarily diverted attention from the nature trail, a new generation of students, teachers and parents are emerging with fresh interest in local natural resources and environmental education.

Meanwhile, the internet has altered education. An abundance of interdisciplinary information is available online. Heavy 3-ring binders are no longer needed. Science, technology, engineering and math (STEM) education has evolved, along with arts to further interdisciplinary learning. Annually there are now more than 2000 youth, as well as 7000 college and university students enrolled in learning programs within walking distance of the North Branch Park River. The cluster of K-12 schools and other institutions surrounding the North Branch offer Hartford a unique opportunity to integrate nature into city life.

**Now is the time to invest in the North Branch as a unique interdisciplinary learning environment**, where science, technology, engineering and math skills – as well as arts and humanities can be cultivated. Site specific field stations can be established as permanent or temporary data collection points, without costly construction and maintenance of a rigid trail. Students can locate and manage environmental monitoring equipment, such as wildlife cameras and weather stations, which will strengthen classroom learning by connecting textbook lessons to open-ended field research experiences through new technology.

## CURRENT – *Observations and Recommendations*

**Environmental education** does not depend upon a rigid path. The *Hartford Urban Outdoor Classroom and Nature Trail* project recognized how environmental education offers relevant interdisciplinary experience, which is an increasingly valuable message. Acceleration of climate change foregrounds the need for environmental education as well as stewardship of local natural resources. School communities, government leaders and neighbors have new resources that can merge learning with practical steps toward change. Recommendations for educators, parents, students and others working to further environmental education through field research are as follows:

- **Establish annual school events dedicated to gathering and sharing knowledge** – School leaders can encourage school community appreciation of the North Branch through annual events, such as the Wild & Scenic film festival or “STEAM” student poster presentations. Annual events can foster consistent interest and support for on-going North Branch research and stewardship projects.
- **Arrange supplemental field learning experiences as unique time blocks** – Summer environmental learning programs, like Summer Place, or after school service activities can offer environmental science programs to allow students and teachers time for in-depth field experiences.
- **Secure funding to develop interdisciplinary research focused on the North Branch** – Investment in local environmental research is needed to advance educational programs that are reliable and relevant. National and regional grants for development of place-based environmental education are available.
- **Develop a reference website to gather, share and store information about North Branch** – Data collection stations such as stream flow gages, weather stations, and wildlife cameras linked into a North Branch knowledge website can be studied in classrooms, public libraries, or wherever there is an internet connection. Data collection can extend upstream to schools in Bloomfield and West Hartford.

*Observation* – Experiential learning is essential to understanding natural resources. Teachers from numerous schools and non-profits routinely utilize the North Branch as a learning environment for formal and informal environmental education. Arranging a field trip to fit into a tightly scheduled semester of lessons is challenging. Weather and the availability of equipment can curtail field research. Nevertheless, field trips prove to be memorable experiences that help students connect textbook lessons to life.

*Observation* – In order to further environmental education, consistent year-to-year long-term support needs to be established. A non-profit could host a place-based educator to provide educational materials respective of grade levels and topical interests. For example, National Fish & Wildlife Services staff provide environmental education programs to schools, scout troops and public events throughout the Connecticut River watershed, which is the Silvio O. Conte National Fish & Wildlife Refuge. Staff dedicated to North Branch schools and communities could provide consistent annual assistance to teachers and informal groups, as well as coordinate seasonal volunteer community service activities. In addition, a dedicated North Branch educator could also maintain a shared reference website that posts project work and field data along with documentation of changing conditions within the dynamic riparian zone.

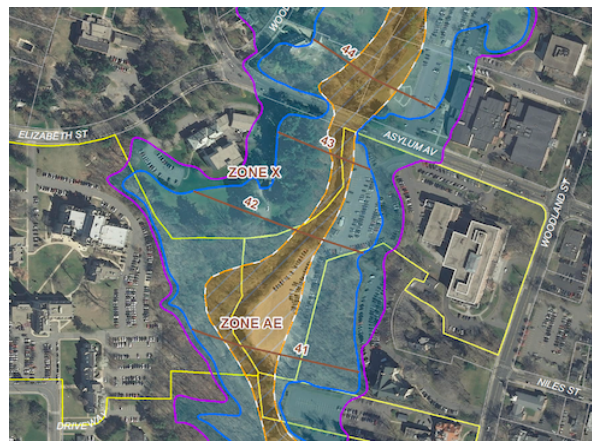
## CURRENT – Observations and Recommendations

**Property management** and administrative long-term planning concerns are fundamentally different from classroom priorities. However, experiential education encourages development of new skills through real world project work. Students can research existing conditions, review historic precedent, outline pragmatic conventions, and explore innovative alternatives. Moreover, student proposals can help leverage grant funding awards that subsequently support professional design development and implementation.

- **Design research** – Faculty can arrange interdisciplinary design teams to apply science, technology, engineering and math skills to site specific conditions along the North Branch. Design exploration of relevant opportunities, such as a pedestrian bridge or floodplain restoration, could give advanced students a chance to work on an interdisciplinary team, further strengthening professional aptitude.



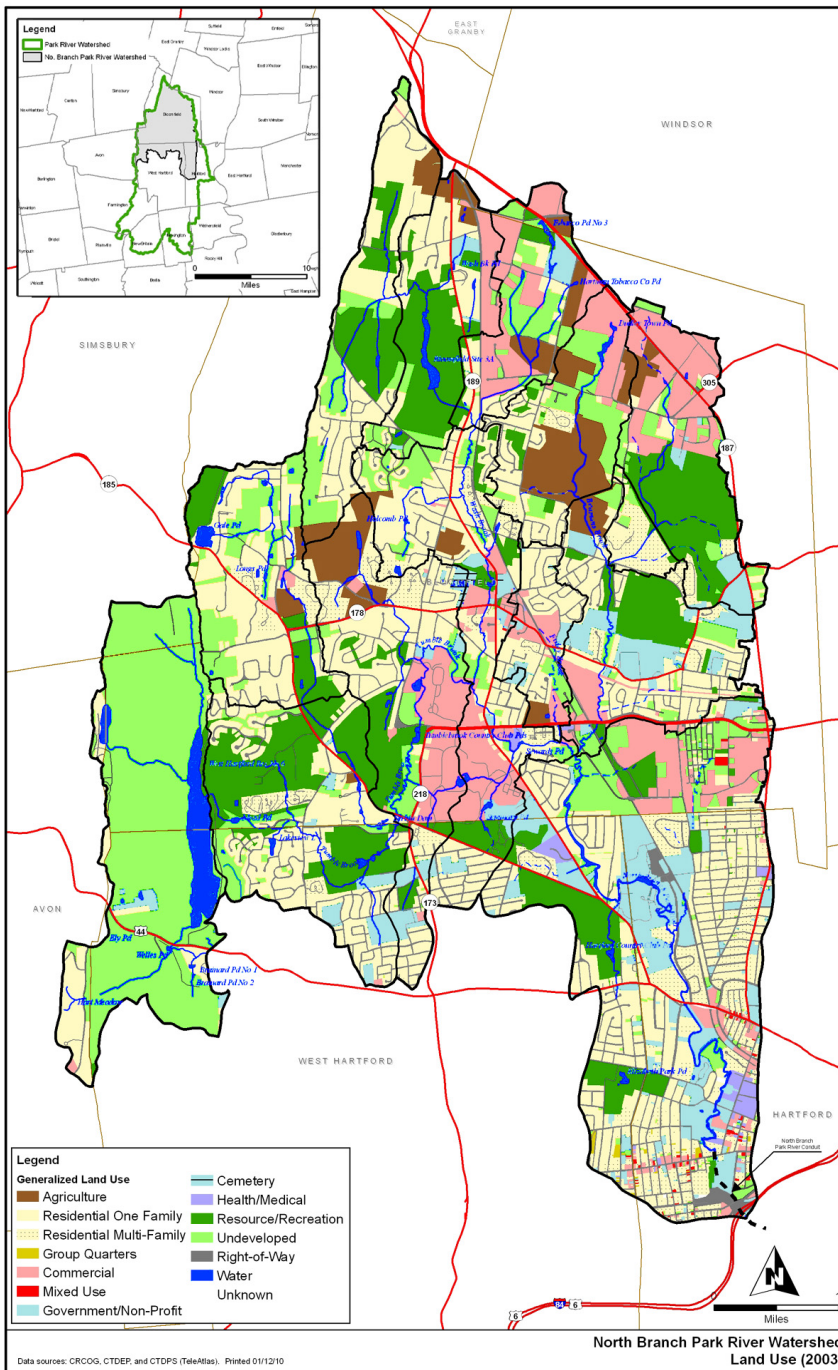
University Science & Engineering High School and *Goal 2 River Ambassador* studies students noticed that a pedestrian bridge across the North Branch could reduce walk travel time to/from University of Hartford classes. Site specific projects expand design learning experiences.



The UConn School of Engineering, Environmental Engineering program students identified two-acres of floodplain degraded by an abandoned parking lot on State land east of the UConn School of Law campus. Further design research could leverage available funds.

- **Update the 2010 North Branch Park River Watershed Management Plan** with emphasis on comprehensive planning strategies that inform site-specific urban design proposals, especially revitalization of degraded floodplains. Form a Steering Committee with stakeholders able to articulate concerns shared by property owners, such as flooding, deteriorating water quality, liability issues, and urban design planning for cost-effective conservation and revitalization of riparian zone ecosystems.
- **Funders interested in strengthening collaboration among stakeholders** could offer incentives for research and implementation of site-specific projects, such as a pedestrian bridge or restoration of the floodplain. The Quinnipiac River Fund, a model of support managed by The Community Foundation for Greater New Haven, offers generous grants for research, conservation and advocacy dedicated to the Quinnipiac River and its watersheds. This fund has been instrumental in documentation, as well as increasing community awareness and civic engagement in Quinnipiac River revitalization.
- **Observation** – Building and maintaining a permanent trail network that extends across various multiple institutional, municipal and residential properties is costly and logistically challenging. Management of a regional natural resource, such as ecosystems along the North Branch riparian corridor, is simply **not** a priority within the mission goals of institutional property owners, such as schools and museums.

# NORTH BRANCH PARK RIVER – *Existing Conditions*



The North Branch sub-watershed is a 28.6 square-mile drainage basin within the larger, Park River regional watershed. The Park River drains a 78 square-mile area into the Lower Connecticut River. Watershed science can measure the impacts of development on water quality and stream flow.

The North Branch Park River drains tributaries flowing from the Town of Bloomfield. The mainstem forms south of Cottage Grove Road, at the convergence of Beamans and Wash brooks. Flowing visibly through residential neighborhoods in Hartford and West Hartford, the North Branch pours into a buried conduit north of Farmington Avenue. The Park River begins as North and South branches converge beneath I-84.

Expansive development upstream as well as increasingly intense rainfall caused by climate change is aggravating downstream flash flooding. Although only 11% of the North Branch watershed is within Hartford city limits, non-point source pollution from West Hartford and Bloomfield impair downstream water quality. The undeveloped riparian landscapes of the North Branch Park River are essential to ecosystem health.

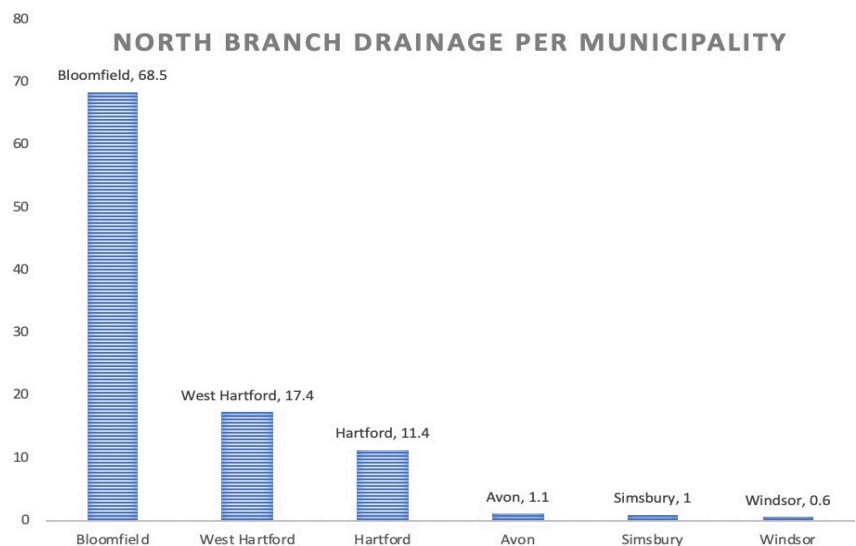
A comprehensive synthesis of regional planning, engineering, conservation and urban design is needed to address the complex environmental, economic, cultural, and civic interests that converge along the North Branch. Currently regional land conservation is a patchwork of properties that are not aligned with respect to riparian ecosystem connectivity or watershed-scale protections for urban-suburban waterways. A comprehensive design could update flood control measures, restore damaged floodplains, increase connectivity, and so improve ecosystem health, while also appropriately positioning recreational amenities.



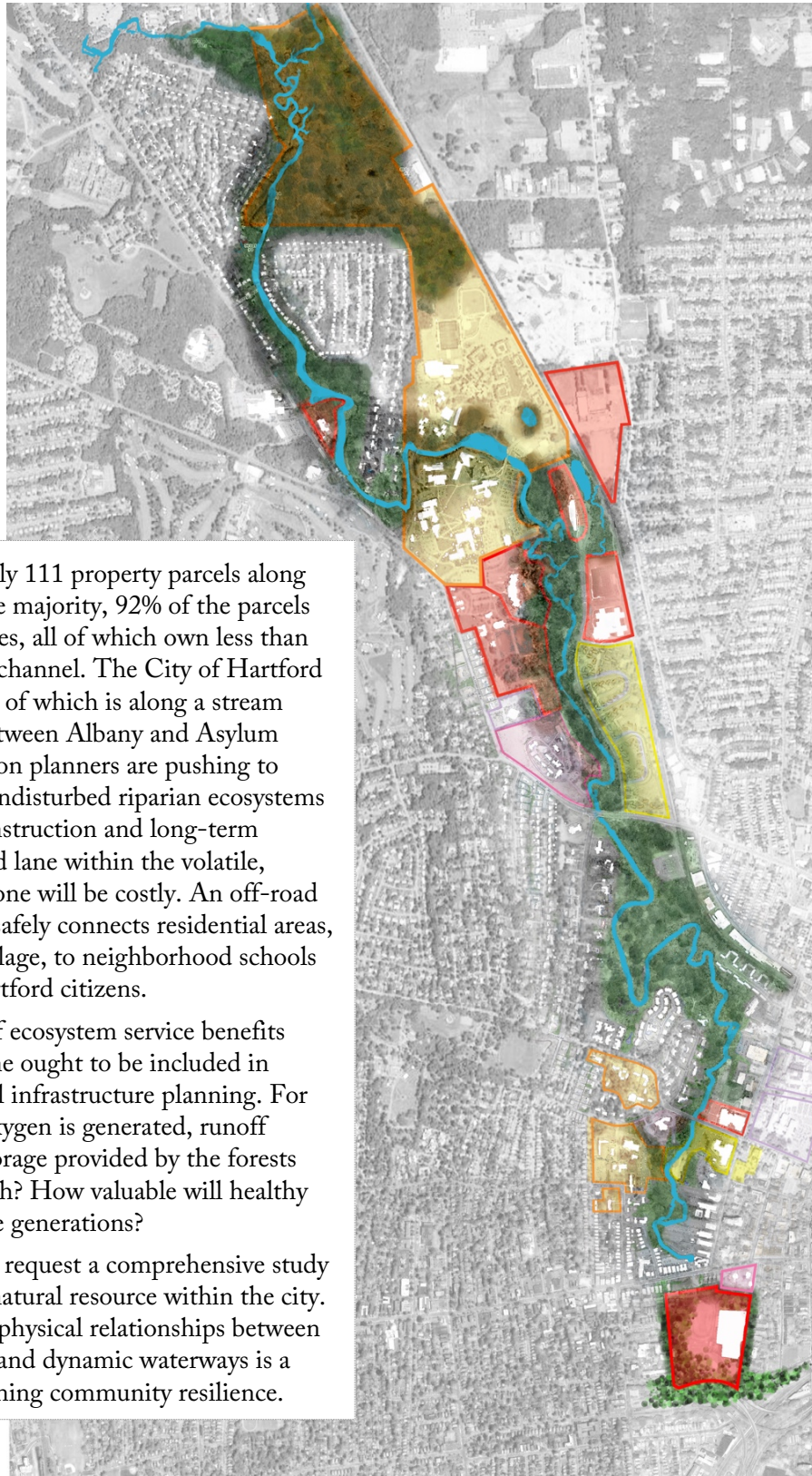
## INTERDISCIPLINARY – *Broad Interests*

- **STEAM Education** – Science, Technology, Engineering and Math (STEM) learning can be strengthened by developing monitoring stations along the North Branch that share data, such as from stream flow gages and wildlife trail cameras, through internet connectivity.
- **Cultural Heritage** – Connecticut Historical Society, Mark Twain House & Museum, and the Chick Austin House are located along the North Branch. The history of North Branch illustrates ways in which nature influenced individuals who shaped culture, and how culture shapes municipal planning.
- **Conservation Compacts** – What terms of riparian zone conservation interest property owners?
- **Flood Control** – The Hartford Flood Commission recognizes the need to clear fallen trees and debris from the stream channel. However, the City of Hartford has minimal funding resources for that work.
- **Neighborhood Health** – Pollution, excess noise and dumping negatively impact nature, as well as real estate. Water quality is a fundamental indicator of healthy ecosystems and neighborhood values.
- **Safe Public Access** – Appropriate points of public access ought to be designed with respect to property owner interest and conservation of undisturbed landscapes, which offer vital habitat to migratory birds.
- **Water Quality** – The MDC 2018 LTCP Update has proposed a plan to mitigate combined sewage overflows along the North Branch. Future North Branch water quality will be determined by plan details, which must be approved by the CT Department of Energy and Environmental Protection.
- **Ecosystem Service Benefits and Habitat Assessment** – An assessment of ecosystem service benefits is needed. By endorsing and participating in an assessment of ecosystem benefits, such as habitat and carbon sequestration, city leadership can measure existing conditions so as to develop cost-effective steps towards improving quality of life experiences, neighborhood resiliency and property values.

Property owners along the impaired North Branch Park River in Hartford and West Hartford could benefit from a collaborative planning process that will ensure upstream development approved by the Town of Bloomfield minimizes negative impacts on downstream environmental conditions. 68% of land usage and development in the North Branch drainage basin is determined by the Town of Bloomfield, where 23 industries and 36 facilities are permitted to discharge polluted water into North Branch tributaries.



## STAKEHOLDERS – *Properties along North Branch Park River*



There are approximately 111 property parcels along the North Branch. The majority, 92% of the parcels are residential properties, all of which own less than 400 feet of the stream channel. The City of Hartford owns 9,376 feet, much of which is along a stream segment that bends between Albany and Asylum Avenues. Transportation planners are pushing to divide this and other undisturbed riparian ecosystems with a paved lane. Construction and long-term maintenance of a paved lane within the volatile, flood-prone riparian zone will be costly. An off-road recreational path that safely connects residential areas, such as Westbrook Village, to neighborhood schools would better serve Hartford citizens.

Accurate assessment of ecosystem service benefits within the riparian zone ought to be included in future city and regional infrastructure planning. For example, how much oxygen is generated, runoff filtered, and carbon storage provided by the forests along the North Branch? How valuable will healthy ecosystems be to future generations?

Hartford leaders could request a comprehensive study of North Branch as a natural resource within the city. Developing successful physical relationships between the built environment and dynamic waterways is a new approach to designing community resilience.

# INSTITUTIONAL PROPERTIES

*Table list is roughly ordered from the confluence, 5.9 miles downstream to the (buried) confluence with the South Branch*

Institution north/upstream of Albany Ave.	Grades	# of students	Address	linear feet**	p/ acres
Hebrew High School of New England <i>established 1996, current location 2011</i>	HS	68	300 Bloomfield Ave. WH	1,890' <i>w</i>	
Weaver High School ~1974	9 - 12	300	415 Granby St. Hfd	tributary	HPS
University of Hartford <i>established 1877 - current location 1957</i>	Higher Ed	6620	200 Bloomfield Ave. WH	4,019' <i>east/west</i>	142
Univ. Science & Engineering High School ~2011	9-12	400	351 Mark Train Dr. Hfd	UHart	UH
University CREC Magnet School - 2001	K-5	400	200 Bloomfield Ave. WH	UHart	UH
Annie Fisher STEM Magnet - 2009	K-8	360	280 Plainfield St. Hfd	HfdH	HH
Montessori Magnet at Annie Fisher	preK-8	334	280 Plainfield St. Hfd	HfdH	HH
Watkinson School - established 1881	6 -12 +	244	180 Bloomfield Ave. WH	969' <i>w</i>	72.4
Village for Family and Children			1680 Farmington Av. Hfd	1990' <i>w</i>	31.6
Westbrook Village – <i>Hartford Housing Authority</i>	housing		125-235 Mark Train Dr. Hfd	490' <i>e</i>	
South/downstream of Albany Ave.					
Available property – USGS flow meter			230 Scarborough St. Hfd	629' <i>w</i>	3.75
<a href="#">Wadsworth Atheneum Austin House</a>	cultural		130 Scarborough St. Hfd	181' <i>w</i>	
St Francis Hospital – medical complex			114 Woodland St. Hfd	817' <i>e</i>	12
Classical Magnet	6-12	690	85 Woodland St. Hfd	310' <i>e</i>	HPS/5
South/downstream Farmington Ave.					
UHart Hfd property – Montessori Training				drains <i>w</i>	
Ct Historical Society	cultural		1 Elizabeth St. Hfd	341 <i>w</i>	10.75
UConn School of Law	graduate	288	55 Elizabeth St. Hfd	319 <i>w</i>	19.6
Hartford Seminary	graduate	138	77 Sherman St. Hfd	1,067 <i>w</i>	9.75
Mark Twain House - Museum	cultural		351 Farmington Ave. Hfd	<i>e of buried</i>	
Hartford High School	9 - 12	1300	55 Forest St. Hfd	<i>e of buried</i>	HPS

State properties along the North Branch Park River – within Hartford city limits

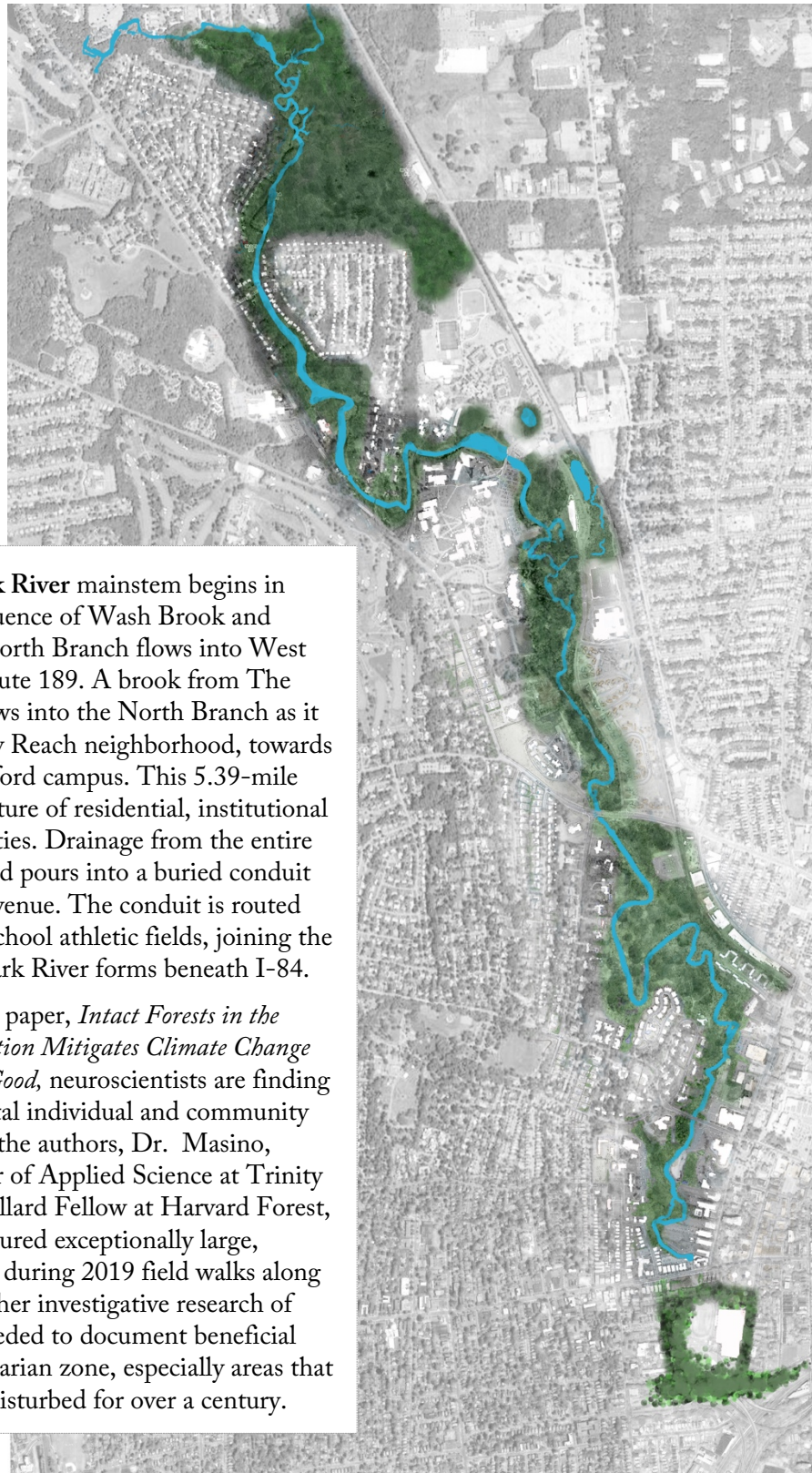
South/downstream Farmington Ave.					
Ct State University System	offices		39 Woodland St., Hfd.	2.5 <i>e</i>	172
Ct Attorney General offices	offices		110 Sherman St., Hfd.	UConn	UConn
Ct State Colleges & Universities	offices		61 Woodland St., Hfd.	1,023 <i>e</i>	CSCU
UConn School of Law	graduate	288	55 Elizabeth St., Hfd	319 <i>w</i>	19.6

Near the North Branch					
Harriet Beecher Stowe Center	cultural		77 Forest St., Hfd		
West Middle School	preK-8th		44 Niles St., Hfd		
CPBN Learning Lab/Media Academy* <i>located within WNPR/CPTV bldg</i>	HS & <i>adult</i>		1049 Asylum Ave., Hfd		
Noah Webster Mirco-Society School	preK-8th		5 Cone St. Hfd		

\* Data included in this table is based on 2016 research conducted by University of Hartford students selected to participate in an independent studies course arranged through the Goal 2 River Ambassador partnership.

# LINEAR LANDSCAPE – *Multiple Civic Benefits*

\*\*Properties are on the east (e) and west (w) banks. Property lines typically adjoin within the variable stream channel.

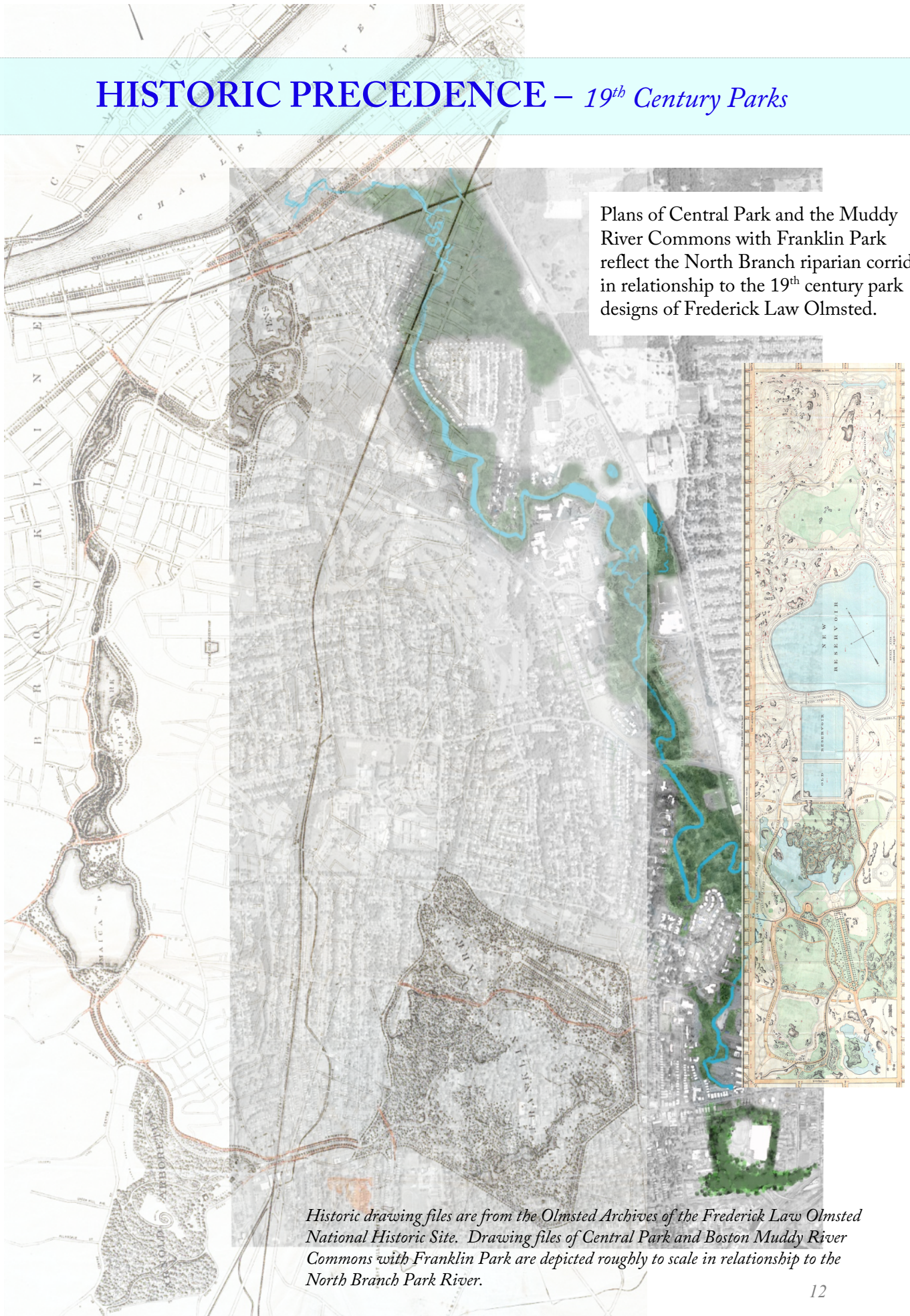


**The North Branch Park River** mainstem begins in Bloomfield at the confluence of Wash Brook and Beamans Brook. The North Branch flows into West Hartford, parallel to Route 189. A brook from The Hartford Golf Club flows into the North Branch as it bends around the Sunny Reach neighborhood, towards The University of Hartford campus. This 5.39-mile waterway is a visible feature of residential, institutional and government properties. Drainage from the entire 28 square mile watershed pours into a buried conduit north of Farmington Avenue. The conduit is routed under Hartford High School athletic fields, joining the South Branch; as the Park River forms beneath I-84.

As described in a recent paper, *Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good*, neuroscientists are finding nature offers fundamental individual and community health benefits. One of the authors, Dr. Masino, Vernon Roosa Professor of Applied Science at Trinity College and Charles Bullard Fellow at Harvard Forest, and her colleagues measured exceptionally large, heritage white oak trees during 2019 field walks along the North Branch. Further investigative research of ecosystem services is needed to document beneficial characteristics of the riparian zone, especially areas that have been relatively undisturbed for over a century.

## HISTORIC PRECEDENCE – 19<sup>th</sup> Century Parks

Plans of Central Park and the Muddy River Commons with Franklin Park reflect the North Branch riparian corridor in relationship to the 19<sup>th</sup> century park designs of Frederick Law Olmsted.



*Historic drawing files are from the Olmsted Archives of the Frederick Law Olmsted National Historic Site. Drawing files of Central Park and Boston Muddy River Commons with Franklin Park are depicted roughly to scale in relationship to the North Branch Park River.*

## TIMELINE – *Building Schools and North Branch Learning Programs*

<i>Educational, Research, Community Outreach and Planning</i>	
Annie Fisher Elementary School (ES) with Ct Dept of Environmental Protection collaborated in America the Beautiful programs. In addition to planting trees and a pollinator garden, over 30 teachers from Annie Fisher ES participate in Environmental Educational Training.	1998
Annie Fisher Elementary School community combats illegal dumping on Mark Twain Drive through clean-ups, public education programs, and letters to local newspapers.	1999
Watkinson School students conduct North Branch water quality research through Project SEARCH, a program of the Ct Department of Environmental Protection, which utilized identification of benthic macroinvertebrates as indicators of water quality.	1989 - 1999
Environmental Review Team Report on the North and South Branches of the Park River, includes recommendations for an Urban Outdoor Classroom and Nature Trail.	2000
35 learning stations are established along a new Urban Outdoor Nature Trail. Trails are blazed to connect stations along the North Branch Park River.	2001
As the University of Hartford Magnet School (K-5) opens, students and teachers collaborate with the Connecticut State Troubadour to write and record a Park River song.	2001
The Annie Fisher Urban Outdoor Classroom and Nature Trail Teacher Educational Guide is completed to describe natural resources, such as trees and wildlife habitat conditions, at 35 learning stations along the North Branch of the Park River.	2002
University of Hartford receives a \$400,000 planning grant from the Woodrow Wilson Foundation, and a grant from the Bill and Melinda Gates Foundation for a new University Science and Engineering Magnet High School, plus support for other area K-12 schools.	2002
Center for Land Use Education and Research (CLEAR) becomes an official UConn center.	2002
A community forum on North Branch citizen stewardship is held at the University of Hartford, in collaboration with The Ecological Cities Project.	2003
Annie Fisher Elementary School moves off-site during renovation construction work.	2004
The Hartford Courant publishes <i>"Just Add Water: Providence, Rhode Island's Capital Offers Hartford a Recipe for Success"</i> an article that highlights the benefits of restoring urban rivers.	2005
Voters in the eight voting member towns approve \$1.6 billion dollars in bonding for The District (the MDC) to fund the Clean Water Project. The Clean Water Project is a Long Term Control Plan (LTCP) mandated by the federal Clean Water Act to reduce combined-sewage overflows into the Park River and its tributaries, which pollute the Connecticut River.	2006
Park River Watershed Revitalization Initiative becomes a five-year project of the Farmington River Watershed Association. This collaboration leverages support for work with others on The Park River Assessment and North Branch Park River Watershed Management Plan.	2006
Univ. High School of Science and Engineering construction begins on Mark Twain Drive.	2007
MDC, US EPA and Ct DEP host <i>Managing Wet Weather with Green Infrastructure</i> , a 2-day workshop that outlines benefits of infrastructure design that includes landscape functionality.	2008
Funding from the Hartford Courant Foundation and The Prudential support a design-build rain garden project with students from the Classical Magnet and Park River Watershed Revitalization Initiative volunteers. The rain garden captures and infiltrates parking lot stormwater run-off flowing into the North Branch Park River.	2008

The Children’s Museum receives US Environmental Protection Agency (EPA) funding for The Park River Assessment. This 2-year program involves stream surveys of Park River tributaries in Hartford and West Hartford. Training programs held at the Watkinson School teach volunteers to conduct the surveys through field activities along the North Branch.	2008 2009
University High School of Science and Engineering (UHSSE) moves to its new school building located on Mark Twain Drive, along the east bank of the North Branch.	2009
On Earth Day, maps with descriptions of the Park River regional watershed and its tributaries are published in The Hartford Courant as a central, double-page ‘A’ Section feature.	2009
North Branch Park River Watershed Management Plan is completed and approved by CT Department of Environmental Protection and US EPA, July 2010.	2010
UConn School of Law created the Center for Energy & Environmental Law	2010
The University of Hartford hosts an Eco-Arts Festival focused on water quality. Artist, Mary Miss orchestrates City as Living Lab, “CaLL” a framework through which diverse artists, scientists, historians and planners collaborate to increase sustainability locally. Her concept is demonstrated through a site-specific installation and guided walk along the North Branch.	2011
Hebrew High School of New England relocates to an 11-acre campus along the North Branch Park River, upstream of the University of Hartford.	2011
Park Watershed is incorporated in April, and subsequently recognized as a 501c3 non-profit watershed stewardship organization dedicated to cultivating healthy urban environments.	2012
North Central Conservation District (NCCD) receives funding through Section 319 of the Clean Water Act to implement the <i>North Branch Park River Watershed Management Plan</i> .	2013
Two of three bioretention basins are installed to capture and infiltrate stormwater runoff from UConn School of Law and Hartford Seminary campus parking lots. This implementation of a <i>Watershed Management Plan</i> recommendation improves North Branch water quality.	2014
Installation of a third bioretention basins to mitigate non-point source pollution that drains into the North Branch from parking lots located east of 110 Sherman Street.	2015
The first class enters Nomad 9, a University of Hartford interdisciplinary Master of Fine Arts program of the Hartt School of Art dedicated to exploring pressing local and global topics.	2016
UConn establishes the <i>Connecticut Institute for Resilience and Climate Adaptation (CIRCA)</i> .	2017
<i>Municipal Conservation Reference–Recommendations from Hartford’s Urban Bird Treaty</i> project highlight findings that the North Branch is significant urban bird migratory habitat.	2017
University Science & Engineering Magnet High School hosts a <i>Project WET Water Festival</i> with Park Watershed and Connecticut Department of Energy & Environmental Protection.	2018
The Metropolitan District Long-Term Control Plan Update, which includes integrated planning proposals for North Branch Park River, is submitted to Ct DEEP.	2018
Weaver High School re-opens after a 133 million-dollar renovation.	2019
National Parks Service Rivers Trails & Conservation Assistance Program complete <i>A Multi-Use Recreational Path Feasibility Study</i> of the North Branch Park River for the City of Hartford.	2019
Town of Bloomfield requests an Environmental Review Team Report of University of Hartford property; an undisturbed landscape at the confluence of Beamans and Wash brooks.	2019
Students from the Ct River Academy at Goodwin College research North Branch conditions.	2019

## EDUCATIONAL – *Experiential and Digital Research*

With school communities settling into new school buildings, a new generation of educators and students are finding opportunities to learn from the North Branch riparian zone. A wide variety of textbooks and hands-on experiential environmental learning projects are available to educators. Connecticut has adopted Next Generation Science Standards developed by the National Research Council, the National Science Teachers Association and the American Association for the Advancement of Science. Increasing pressure to educate and prepare students for the challenges of climate change seems to parallel interest in experiential learning. Guidelines that render the North Branch relevant to curriculum goals are helpful. Ct Department of Energy and Environmental Protection staff, Sue Quincy, trains educators to utilize the Project WET toolkit. A national and global foundation focused on water, Project WET provides detailed lessons and teacher guidelines in print and as online publications through its interactive website.

The Montessori Magnet School at Annie Fisher includes learning and care of the environment, such as the Zero Waste Kids initiative, which either compostes or recycles most of the school waste. Tangible projects are integrated into the Montessori curriculum, as described by Erin Sheehan, Parent and President of the Parent Teacher Organization of the Montessori Magnet School at Annie Fisher:

*Erdkinder at AFM is the 7th and 8th grade classroom which is held both in the classroom and on the farm. The children have classroom space at Auer Farm in Bloomfield where they garden, raise pigs and chickens, care for the apple orchards, compost, and make goods, like maple syrup and baked goods, for their micro-economy. In their classroom on Plainfield Street in Hartford, they grow hydroponic vegetables, and raise fish. Annie Fisher Montessori's Erdkinder program has also joined Watkinson School's 7th and 8th graders on environmental projects, as the schools sit on opposite sides of the Park River's north branch. Montessori is education for peace and social justice. Environmental justice is social justice, and the health of our urban watershed is a priority to the Annie Fisher Montessori community.*

Experiential learning that expands upon textbook lessons can help students of all grade levels develop life skills. Dr. Amber Pitt, Assistant Professor & Conservation Ecologist, Environmental Science Program & Department of Biology at Trinity College, assigns students enrolled in the 'Global Perspectives in Biodiversity and Conservation' course to assist area non-profits with community service field work. In 2017 and 2018 interdisciplinary student groups enrolled in this course assisted with planting native vegetation to enhance the bioretention basins along the North Branch. Student groups further researched the topic of their work, which culminated in a poster presentation at the end of the semester.



Watkinson School students of science teacher, Jen O'Brien, captured images of wildlife that travel along the North Branch riparian corridor. Wildlife and migratory birds inhabit the riparian zone, because waterways host a diverse and dynamic web of species, even within the city. New technology is helping educators bridge the distance between classroom learning and data that can ground-truth watershed-scale field conditions.



## WHAT NEXT – *Strengthen Partnerships*



Clearly the concentration of cultural resources along the North Branch presents unique potential for innovative educational programming. However orchestrating consensus seems daunting. Without collective community interest and investment in strategies that ensure conservation, riparian landscapes along the North Branch will be further divided, developed, perhaps eventually buried.

Within the Town of Bloomfield, there are already twenty-three industries and thirty-six facilities permitted to discharge into North Branch tributaries. Impaired before flowing into Hartford, water quality, once listed as Class A, is currently Class C due to pollution. Although only 11% of the North Branch watershed is within city limits, Hartford neighborhoods are increasingly damaged by flash flooding due to upstream development.

Nationally, urban rivers are being revitalized. Most notably, after decades of cleanup, the Cuyahoga River in Cleveland is becoming an Ohio Water Trail. Conservation and restoration of riparian corridors, innovative green infrastructure features, and cultural programs are re-shaping communities that choose to respect local natural resources.

**Park Watershed** will continue to observe, explore, share and evolve. If stakeholders recognize that healthy riparian landscapes are valuable, the North Branch will reflect the collective choices beautifully. By working inclusively together homeowners, educators, scientists, elected officials, government staff, non-profits and stakeholders throughout the watershed can ensure that wonders of nature will be available for future city residents. Hopefully this report will spark citizens to care and act accordingly through discussions, community service projects, donations, serving on a committee, writing grant applications, eco-art, faculty research, innovative design projects, field trips, photographic or audio documentation, citizen science, and by contacting municipal elected officials. Local land-use planning, conservation and development decisions are based on municipal values that shape sites and our planet.

## WHY – *Values*

**Throughout its existence the North Branch** has served the various communities that live around its muddy banks. Local native tribes hunted and fished along the waterway before it became a seventeenth century boundary between New Netherlands and New England. Today, the North Branch, a last landscape hidden within the Capital City, is a vivid glimpse of what was once a terrain of wild abundance. Growing up in the West End, I can attest to the powerful impact the woods surrounding the North Branch have had on my childhood. The riparian zone offered a space for my friends and I to escape the noise of Farmington Avenue and truly get lost in a quiet and serene natural space. Countless hours were spent exploring trails along the river and being in tune with the natural world. Those experiences are something that I have often reflected on and now see tangible evidence that the nature of the North Branch has created the person who I am today. Preservation of the North Branch and its forests will offer current and future city residents a unique place rooted in historic legacy and a fundamentally essential community asset in the wake of global climate change. The nature of the North Branch was a place integral to Hartford's past, and now must be explored again as a significant feature of Hartford's future.

Nevan Carling – *Classical Magnet graduate and freshman at York University*



**September 2019**

***Park Watershed Capacity Building – Education Engagement***

*This report aims to further discussion and collaboration surrounding conservation and management of the North Branch Park River as a valuable and dynamic natural resource. Comments and corrections related to the information presented are welcome as this text will be updated periodically and distributed digitally.*

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**North Branch Park River upstream of Albany Avenue – 1934**  
*from the 1934 Fairchild Aerial Survey of Connecticut #8494\_9909*

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