City of Hudson Industrial Development Agency

September 25, 2023

Thomas P. DiNapoli New York State Comptroller Office of the State Comptroller 110 State Street Albany, NY 12236

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RE: Notice of Disposition of Real Property by Negotiation - NY Public Authorities Law §2897(6)(d)

Pursuant to §2987(6}(d) of the New York Public Authorities Law ("PAL"), the following explanatory statement is being provided at least ninety (90) days prior to the disposal of property by negotiation.

Explanatory Statement

As authorized by PAL §2897(6)(c), the City of Hudson Industrial Development Agency ("HIDA") intends to dispose (by sale) of property by negotiation to Columbia Land Conservancy not less than 90 days from the date of this notice. The proposed disposition is within the purpose, mission or governing statute of the HIDA and therefore, is exempted from publicly advertising for bids pursuant to PAL §2897(6)(c)(v) and obtaining fair market value pursuant to PAL §2897(7)(ii).

1. <u>Description of the Parties involved in the Property Transaction:</u>

a. City of Hudson Industrial Development Agency (HIDA), with address 1 Hudson City Centre, Suite 301, Hudson, New York 12534, Grantor

One Hudson City Centre, Suite 301, Hudson, NY 12534 | 518.828.4718 | Fax 518.828.0901

Received by ABO 10/3/2023

b. Columbia Land Conservancy Inc., with address 49 Main Street, Chatham, New York 12037, Grantee.

2. Justification for Disposing of the Property by Negotiation:

a. <u>Consistent with HIDA Mission and Purpose</u>: Land conservation is integral to the economic health of the City of Hudson. There are a number of benefits including preserving natural habitats, protecting water quality, promoting public access to the waterfront, supporting recreational activities, and enhancing the overall quality of life in the community. Additionally, it can help to prevent development that could negatively impact the ecosystem and preserve the scenic beauty of the waterfront for future generations.

The 2007 report "The Economic Benefits of Land Conservation" issued by The Trust for Public Land, examines the role of parks and open space in attracting businesses and affluent retirees. In a 5-year study mentioned in the report, 174 small business owners were surveyed and quality of life was their main reason for choosing the area they relocated to, expanded in, or launched in, and small-business decision makers rated the presence of park, recreation, and open space amenities as being most important factor in the measure of quality of life.

The proposed project is a public benefit project which will provide new access to nature via a connector trail between Hudson and Greenport. The design and construction of trails, sign installation and parking lot construction will most likely be led by Build Hudson, a workforce development program, providing a new skill that is unlikely to otherwise be offered. In addition, CLC will work closely with the Hudson High School and Kite's Nest to create a trail that can be used for sports and education programs.

This disposition in within the mission and purposes of the HIDA to attract and retain existing enterprises to Hudson in order to increase employment opportunities. Many individuals make their decisions on where to work based on the quality of life in the geographic vicinity of a business. Park and recreational opportunities are a major component of defining quality of life.

b. <u>Disposal for less than fair market value</u>: Columbia Land Conservancy has committed fundraising to ensure the long-term care of the property including trail maintenance, educational signage, and future expansion of the trail network including the potential of an ADA trail – all at no cost to the City of Hudson. Project costs total \$750,000 and include, land related costs, legal costs, and endowment of long-term care of the land. Providing the land to the CLC protects the City's natural resources, preserves open space and park area within our urban community, and protects wildlife habitat.

3. Identification of the Property:

The parcel, is identified as a 51.5+/- acre parcel located in the City of Hudson, Columbia County, Tax Parcel 110.5-1-1.2.

4. Estimated Fair Market Value of the Property:

Attached, is an Opinion of Value letter, indicating a Fair Market Value of \$54,000.

The letter reiterates Crawford & Associates assessment. Much of the property is impacted by the North Bay wetlands and is either considered a NYSDEC wetland or is in a designated flood plain. Approximately 1.3 acres, which is upland, is identified as potentially developable but is not accessible to the road frontage without crossing large area of wetlands. Therefore, the development of this parcel is restricted by wet lands, reducing its value from other adjacent lots and the market would be extremely limited

5. <u>Proposed Sale Price of the Property:</u>

\$1.00

6. <u>Size of the Property:</u>

Approximately 51.5 +/- acres

7. Expected Date of the Disposition:

February 1, 2024

As described above, publicly advertising for bids and obtaining fair market value is not required because the proposed disposition satisfies the exemptions set forth in PAL §2897(7)(ii), as such disposition is within the mission and purposes of HIDA to attract and retain existing enterprises to Hudson in order to increase employment opportunities. Increasing the amount of park and open space amenities enhances the quality of life of the workforce in and around the City of Hudson, and ultimately, attracts business owners and employees.

If there are any questions or comments related to the proposed disposition, they may be sent to HIDA at the address noted below.

Sincerely,

1 Julas Tude

F. Michael Tucker Administrative Director City of Hudson Industrial Development Agency

CONCRA APPRAISAL ASSOCIATES

Real Estate Appraisal & Consulting Professionals

August 25, 2023

Mr. F. Michael Tucker President & CEO Columbia Economic Development Corporation One Hudson City Centre, Suite 301 Hudson, NY 12534

Re: Value of real property, owned by the City of Hudson IDA, North 2nd Street Extension, City of Hudson, and Columbia County, New York State.

Dear Mr. Tucker,

In accordance with your request, the subject property has been inspected and the concept plan and engineer's assessment has been reviewed. Per your request, we have analyzed the value potential of the subject property. Please see our findings and conclusions detailed below.

The subject contains a total of 51.50 acres, which fronts on the Hudson Amtrak line. As portrayed in the master plan, the Columbia Land Conservancy plans to deem the property a conservation site coined the North Bay Recreation and Natural Area. The engineer assessment, prepared by Crawford & Associates, explains that much of the property is impacted by the North Bay wetlands and is either considered a NYSDEC wetland or is in a designated flood plain. The report details a small portion of the property, which is upland, having development potential, but further explains that this area is not accessible to the road frontage without crossing a large area of wetlands. The engineer's final determination was that development of the property would be infeasible.

In order to provide a value determination, we must be able to locate comparable sales. A comparable sales analysis is then developed and used to point to a valuation. Vacant land sales are extremely limited to begin with in the City of Hudson. The lack of development potential further complicates the search. Sales of developmentally restricted lands are limited throughout the entire county. We were able to locate one sale that totaled 8.10 acres of land. The parcel has no road frontage, fronts on the Hudson River, and is undevelopable due to wetlands.

While we are unable to develop an analysis with one sale, we will explore this sale. The sale was transferred for \$5,185 per acre. The subject is nearly seven times larger than this parcel. The subject has unusable road frontage, a significant amount of land that is underwater, and the property does not have access to the river. Based on this sale, it is our opinion that the per acre price of the subject would be 80% less. This would leave the subject value around \$1,050 per acre or \$54,000. The market for the subject property would be extremely limited.

Respectfully submitted,

Anthony R. Concra, SRA New York State #46-4360

MDT enc.

Jack D. On

Mark D. Taylor New York State #48000051026

Mail: P.O. Box 20, Hudson, New York 12534 Office: 363 Fairview Ave., Hudson, New York 12534 Telephone 518.828.2092 Facsimile 518.828.2615 E-mail: office@concraappraisals.com

Crawford & Associates Engineering & Land Surveying, PC

Engineering Consultants, Planners, Geologists & Surveyors Hudson Office – 4411 Route 9 Suite 200 • Hudson, NY 12534

Tel: (518) 828-2700 • Fax: (518) 828-2723 • www.crawfordandassociates.com

PRESIDENT Jennifer Crawford P.E.

PRINCIPAL EMERITUS David J. Crawford, P.E.

Via Email: jgabriel@columbiaedc.com

August 21, 2023

ASSOCIATES Andrew P. Aubin, P.E., LEED Daniel J. Russell, L.S. Donna M. Verna, P.E.

Jessica Gabriel Vice President of Economic Development Columbia Economic Development Corp. One Hudson City Centre, Suite 301 Hudson, NY 12534

RE: Assessment of HIDA Land on North Second St. C&A JOB #5655.0

Dear Jessica:

Crawford & Associates performed an assessment of an approximate 51.5 acre parcel of land owned by the Hudson Industrial Development Authority (HIDA) on North Second St. in the City of Hudson to identify any potential development areas. The property is shown as the hatched parcel on the attached map. The property is characterized by a significant Class I wetland area on the west side of the parcel and a sloped mound on the east side that was formerly mined for clay. The assessment included review of readily available environmental data on the property as well as a visual curbside assessment.

The findings of this assessment are as follows:

- North Bay State Wetland comprises the majority of the land to the west of North Second St. as shown on map downloaded from the NYSDEC Environmental Resource Mapper. The map shows the wetland and the checkzone which extends to the east side of North Second St. Prior to any potential development of the area the edge of the wetland would need to be field delineated. Based on a visual assessment of the area, portions of the land east of the road would likely be considered part of the North Bay Wetland. Disturbance of the wetland area, and 100 foot adjacent area would require permitting through the NYSDEC and USACOE.
- 2. The entire west side parcel and portions of the east side parcel are considered floodplains per the Columbia County SDG Map Portal for Columbia County. Access to the higher elevation of the property would need to be constructed through the floodplain.
- 3. The NYSDEC Environmental Resource Mapper indicates that the site is considered a generalized location of animals and plants that are rare in NYS, including but not limited to those listed as Endangered or Threatened. The site is also indicated as a Significant Natural Community which is the location of rare or high-quality wetlands, forests, grasslands, ponds, streams and other types of habitats, ecosystems and ecological uses.
- 4. The eastern portion of the parcel includes a Class C stream.
- 5. The topography of the land on the east side of the road is generally characterized by several

Re: Assessment of HIDA Land on North Second St. C&A JOB #5655.0

steep slope areas.

6. The soils on the east side of the parcel are largely Hudson Vergennes (soil types HvA, HvE and HvB) which are classified as either somewhat limited or very limited for the construction of small commercial buildings. This area was formerly mined for clay.

Although there appears to be a limited upland area that could be developed on the east side of North Second St., this area is not accessible from a road frontage without crossing all the above noted impediments which would render it economically infeasible in our opinion. Since the majority of the land on the west side of North Second St. is a wetland/ flood plain, and the noted impediments to developing the land on the east side of the North Second St., our evaluation of the property is such that development of any portion of the property is reasonably infeasible.

Sincerely, Crawford & Associates Engineering & Land Surveying, P.C.

Donna M. Verna

Donna M. Verna, PE General Manager

Attachments

Cc:

\\Crwfd-eng\cad-data\WORK\5655.0 CEDC North Second St Development Study\2023-08-21 HIDA Parcel Assessment Letter.docx



LEGEND	
1208	EXISTING PROPERTY LINE EXISTING/PROPOSED EASEMENT / RIGHT OF WAY EXISTING CONTOUR MINOR INTERVAL
1210 	EXISTING CONTOUR MAJOR INTERVAL EXISTING WATERBODY EXISTING/PROPOSED TREELINE
** **	EXISTING/PROPOSED CONIFER TREE
	EXISTING/PROPOSED DECIDUOUS TREE
	EXISTING/PROPOSED ROAD EDGE EXISTING/PROPOSED SIDEWALK EXISTING/PROPOSED FENCE
	EXISTING BUILDING
OE OE	EXISTING/PROPOSED OVERHEAD ELECTRIC EXISTING/PROPOSED UTILITY POLE





LANDS OWNED BY HIDA APPROX. 51.5 AC

DEVELOPABLE AREA APPROX. 1.3 AC



CONCEPT MASTER PLAN

HUDSON NORTH BAY RECREATION AND NATURAL AREA

City of Hudson, New York



Prepared by Columbia Land Conservancy



The Columbia Land Conservancy is very pleased to present this Concept Master Plan for the North Bay Recreation and Natural Area. The vision presented here includes a particularly exciting combination of features that go to the heart of our work.

We are a conservation organization, and we are fortunate to work in a county that is uniquely rich in lands that are high in conservation value – farmland, forests, wildlife habitat, sensitive ecosystems and scenic landscapes, very prominently including the lands and ecosystems along the mighty Hudson River. But at CLC our work with people and communities has always been equally important as our work with the land. Thus, when presented with an opportunity to develop a plan that would at once restore a riverfront wetland and upland forest, establish badly needed grassland bird habitat along a critically important migratory flyway, make available public access to these areas with some of the most breathtaking river and mountain views to be found, include a significant educational component about the rich natural world and the story of human interaction there, and provide a pedestrian connection from the City of

Hudson to our 714-acre Greenport Public Conservation Area – all within a short walk or bicycle ride from the County's most densely populated residential district, we were only too glad to take it on. This, truly, is a great conservation project that strengthens connections between people and the land.

We recognize that the information presented here is nothing more than an idea – a well developed idea, to be sure, but in the end, a concept. It will be up to City of Hudson and Columbia County officials to decide whether and how to implement it. CLC would welcome the opportunity to partner in the project and to assist in the search for funding or in any other capacity if and as they move forward, which we earnestly hope they will do.

We are very grateful to the Hudson River Foundation, which had the foresight to recognize the ecological importance of this idea and its transformational potential for the people of Hudson and Columbia County. We are grateful to the leadership, past and present, of the City of Hudson and Columbia County, which supported the idea of this study.

Peter R. Paden

A. D.D.a.

Executive Director

Prepared by Columbia Land Conservancy Staff

Consultant Team:

Applied Ecological Services, Inc. Crawford & Associates Engineering, PC Sneeringer Monahan Provost Redgrave Title Agency, Inc. Alvin B. Huehnel Professional Land Surveying, a Division of Crawford & Associates Col-East, Inc. Aerial Photography & Mapping With additional assistance from AKRF, Inc.

Funded by the Hudson River Foundation's Catskill-Olana Viewshed Mitigation Fund







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This Concept Master Plan for a Hudson North Bay Recreation and Natural Area outlines a proposal to transform a former landfill and surrounding open space into a public park and conservation area that will offer exceptional beauty, the natural resources of the Hudson River estuary, education about human settlement and industry along the river, and access to a trail network covering potentially 1,000 acres, all within walking distance of downtown Hudson.

This idea originated with the recognition, almost ten years ago, that the North Bay shelters important habitat and could also be a significant recreation resource for the City of Hudson and the region. The 2002 City of Hudson Comprehensive Plan called for a trail network and interpretive program at the North Bay and, later that year, the City passed a resolution to establish discussions with the Columbia Land Conservancy (CLC) for improvements that would link the North Bay with the Greenport Conservation Area, which CLC manages for the not-for-profit Open Space Institute.

CLC has undertaken this planning effort with the support of the City of Hudson and Columbia County, under a grant from the Hudson River Foundation. Its focus is a North Bay Study Area of roughly 117 acres that lies along the Hudson River, north of lower Warren Street, including a former landfill now owned by Columbia County, and adjacent lands owned primarily by the City of Hudson.

The objective of the plan is to provide a focus for discussion and decision-making by the City, the County and other key stakeholders about the future of the greater North Bay Area. The information provided is intended to convey the potential benefits of establishing a publicly accessible natural area – a goal consistent with the City's Draft Local Waterfront Revitalization Program – and to outline a strategy, time frame and probable costs associated with such a project. The next step will be for the City and County to decide whether and how to proceed.

Columbia County residents may not be aware that an area so rich with tidal and forested wetlands, grassland habitat and scenic views exists within downtown Hudson. The North Bay – from the Dutch, "norder bought" – has been a focus for settlement over some four hundred years. It has been re-shaped by a succession of industrial uses, the introduction of the railroad, and its mid-20th Century transformation as a landfill, which was officially closed in the mid-1990's.

Today we have an opportunity to take a fresh look at the North Bay in its present-day context. The Bay and landfill are now surrounded by a mix of



residences, business uses, municipal facilities, a major conservation area, City park land, and institutions that include significant recreation and open space acreage, as well as the Hudson River. At the same time, the North Bay is at the southern limit of an approximately 1600-acre State-designated Significant Coastal Fish and Wildlife Habitat that stretches seven miles up the Hudson River into the Town of Stuyvesant, and it is recognized for its education and research significance as part of the Hudson River National Estuarine Research Reserve. Conserved tracts of this size are exceedingly rare within the Hudson River Estuary and its migratory flyway.

It can be said that this intersection of the City and the natural world is the North Bay's most powerful characteristic. Urban parks are now recognized for playing a broad role in towns and cities as communal space, for contributions to health and wellness, in economic development and to create new publicprivate partnerships. The value of the North Bay as a conservation and public recreation area is multiplied by the opportunities for partnerships that surround it, and potentially by financial incentives from alliances with conservation organizations, higher education and government.

While the landfill is only one quarter of the North Bay Study Area, it is the heart of the site, and it offers the greatest engagement with the varied surroundings and near and distant views. The concept master plan recommends uses for the landfill area that work with its constraints and complement its management requirements. Landfills have been converted for recreation use for more than a century. The best known conversions include Flushing Meadow Park in Queens, New York, site of the 1939-40 World's Fair, and the 2,200-acre Fresh Kills park project on Staten Island that will be developed over a period of three decades. Landfill-park conversions may require little or no acquisition costs, and they reclaim abandoned or misused areas of a community. They also bypass the most significant costs of dealing with such a site when conceived after landfill closure. However, conversion is also highly regulated due to the unique site conditions and natural aging processes of a landfill, including ground settlement and gas emissions.

The North Bay landfill is now approximately halfway through a post-closure, 30-year life span of regular inspections. The Columbia County Department of Public Works (DPW) has oversight and management responsibility for these inspections, which are carried out by an engineering firm, and the New York State Department of Environmental Conservation (NYSDEC) has regulatory authority. Additional monitoring beyond the initial thirty years could still be required at the North Bay, subject to further testing. In the meantime, any change of use must be reviewed and permitted by DEC.

Any change of use on the landfill itself, which includes an additional \pm 9-acre privately ownedproperty, must be protective of the landfill cap system and avoid changes to site hydrology and anything that could deform or penetrate the two-foot deep soil barrier protecting the landfill cap. Geotechnical studies would be required to locate a pedestrian circulation system and placement of any improvements. In general, permanent trails should be avoided over the cap and no permanent structures or facilities may be built. Vehicular access must be limited to emergency use.

This concept master plan outlines these and other issues that must be considered before a final plan can be implemented, from ownership questions to environmental impacts. But the study and analysis to date suggest strongly that such a plan build upon the synergies of nature and culture offered by the North Bay in its urban context. The plan must also embrace and enhance the North Bay and Hudson River waterfront that has been obscured by historical development, and seize upon the opportunities that already exist to expand a network of pedestrian, trail and open space resources. At the same time, the plan must recognize the rich ecosystem of the North Bay, which is continuous with the Greenport Conservation Area and other forested lands around it. Improvements must conserve and enhance habitat, in part by recognizing the North Bay as a natural laboratory for research and education. And finally, a plan for the North Bay should be flexible enough to take advantage of any new opportunities that may

arise after the expected monitoring life of the landfill, in approximately 2026.

The schematic plan included in this document maps out recommended site access points, a circulation system, and major interpretive locations and site features for a Hudson North Bay Recreation and Natural Area. The text offers a more detailed discussion of specific design recommendations for the park program, landscape character, internal and external circulation, site structures, and an interpretive program. This discussion is followed by a proposed implementation plan that spans a period of approximately nine years, in three phases; an Estimate of Probable Costs; and permitting requirements and potential funding sources. The appendices include two studies that are the basis of the plan's analysis and recommendations: a natural resource inventory and landfill condition report.

Before any further planning for redevelopment of a Hudson North Bay Recreation and Natural Area, the ongoing ownership and oversight responsibilities need to be determined, particularly for the landfill itself. Several options can be envisioned: continued separate ownerships with joint agreements; designation of a separate entity for construction and management; transfer of ownership to a new entity, with cooperative agreements with private owners; or development of a joint City-County public recreation area, in partnership with a private not-for-profit. Hudson's North Bay is an unexpected scenic and ecologically rich landscape at the northern edge of the City – a tidal marsh at the foot of upland fields, clay bluffs and stream-fed forested ravines. While it is just a short walk on North Second Street from Hudson's urban neighborhoods and downtown commercial district, the North Bay is a high quality wetland and rich habitat supporting diverse plants and wildlife. The varied topography there offers superb views that, along with the tides, the weather and the seasons, are constantly changing.

With all its natural richness, the landscape we see today has largely been shaped by human activity – particularly the construction of a railroad embankment in the mid-19th century that has restricted the tidal influence on the bay. Even by the early 1800's, areas of the tidal wetland were being filled in for commercial uses. A century after the rail line construction, a landfill overtook a large area of the bay's surrounding lowlands. The landfill was finally capped and officially closed by 1997. By that time, the North Bay had already generated interest as a potential bird and wildlife sanctuary, and the City's 2002 Comprehensive Plan called for developing a network of trails there.

This concept master plan begins to pull together the pieces of this complex landscape as the first step toward realizing just such a trail network in a Hudson North Bay Recreation and Natural Area. The plan has been developed with a grant from the Catskill-Olana Viewshed Mitigation Fund at the Hudson River Foundation. The Fund was established by the Athens Generating Company in conjunction with Scenic Hudson in the course of the regulatory process leading to approval and construction of the Athens Generating Plant.

The work leading up to this document has included a complex title search, boundary and topographical surveys, a landfill condition report, a natural resource inventory, and a site feasibility study. The natural resource inventory, the landfill condition report and the site survey are included as appendices. This work provided the basis for development of a set of principles to guide the concept plan.

The objective of this plan is to provide a focus for discussion and decision-making by the City, the County and other key stakeholders. The information and analysis presented here are intended to convey the potential benefits of establishing a Hudson North Bay Recreation and Natural Area, and to outline a strategy, a time frame and costs associated with such a project. The next step will be for the City and County to decide whether and how to proceed to realize a vision such as that described in this document.



Background



View toward North Bay from Thomas Cole property, attributed to Cole, 1837. Courtesy of Ruth Piwonka



View toward North Bay and "clavers" at right. Signed and dated Henry Ary, 1849. Courtesy of Ruth Piwonka



North Bay, showing shore at Mill and North Second Street, D.G. Beers Atlas, 1888. Courtesy of Ruth Piwonka

The City of Hudson, Columbia County's seat of government, lies approximately 100 miles north of New York City and less than 30 miles south of Albany, on the east side of the Hudson River. With one and one-half miles of Hudson River shoreline, it was established as the whaling port Claverack Landing in 1783. Hudson was once the northern limit of ship navigation on the river, with natural harbors at the north and south bays that attracted commerce and industry.

The North and South Bays are said to have earned their names – "norder bought" and "souder bought" – as early as the 1600's when the area was owned by a German immigrant who purchased it from Native Americans. By the early 18th century, a gristmill, wharves and storehouses were located at the North Bay, followed later by slaughterhouses and tanneries for shoe leather.

The name "Claverack" is actually derived from "clavers," or "klavers," the Dutch name for the fingerlike bluffs that line the North Bay into Greeport, where clay soils were exposed by stream flow. The clay bluffs supplied raw material for brick manufacturing, a major industry from the early 19th into the 20th century. Remnants remain from the Greenport Brick Corporation that operated on the northern extension of North Second Street in the Town of Greenport. Nineteenth century maps show the Byrne and Bogardus brickyards.

What we know today as the North Bay is actually a tidal marsh formed by the introduction of the railroad in the 1850's. The railroad helped attract a variety of new industries to the waterfront. A portland cement maker located on the southern limit of the bay, where a distillery had once stood. A knitting mill later occupied the same site (one of its brick buildings still stands). Brewing was also common, with the Phipps and Evans Brewery giving way to the C.H. Evans & Company Brewery.

In the 20th century, the lowlands surrounding the bay were used for burning refuse and the wetland edge was "reclaimed" with the resulting ash deposits until that practice was banned by the NYSDEC in 1970. Household refuse was deposited on the site from 1962 to 1984. Responsibility for the landfill was turned over to the County in 1982, and in 1986, the County, the City and NYSDEC entered into an Order on Consent requiring that landfill operations cease and the site be closed. When closure was delayed, a second Order on Consent was issued. NYSDEC approved the closure plan in 1995 and closure was finally completed in 1997. Subsequent repairs and changes to the site drainage design were required and completed in 2000.

By the time the landfill was closed in 1997, there was already interest in the site as grassland bird habitat and for recreation. The Estuarine Research Reserve office at Bard College sent a letter to the County that year noting the site's potential significance. The 2002 City of Hudson Comprehensive Plan called for a bicycle and pedestrian trail network that would include the North Bay area, with foot and water trails, a perimeter boardwalk, and an interpretive signage program. The City passed a resolution later that year that established formal communications with the Columbia Land Conservancy (CLC) to explore common interests in improvements that would link the North Bay with the Greenport Conservation Area immediately north, in the Town of Greenport. The Greenport Conservation Area is owned by the Open Space Institute and managed by CLC. In 2004, the City obtained a letter from the NYSDEC Region 4 that approved the concept of establishing a post-closure passive park development on the landfill.

In 2007, the Hudson River Foundation issued a Call for Proposals to the Catskill-Olana Viewshed Mitigation Fund for projects to enhance scenic preservation and recreation opportunities for communities within the Catskill-Olana Scenic Area of Statewide Significance (SASS). SASS regions are designated by the New York State Division of Coastal Resources and are afforded protection through required reviews of projects that involve government actions. CLC submitted a successful proposal to the fund that year on behalf of and with the support of the City of Hudson and Columbia County to study and prepare a preliminary conceptual plan for a recreation area at the North Bay that will provide access for enjoyment of its scenic beauty, for recreation, and for environmental education, a goal consistent with the City's Draft Local Waterfront Revitalization Program.



1941 aerial photograph, Hudson, the North Bay, and environs. Courtesy of Hudson River Estuary Program, NYSDEC

Current Ownership and Land Use

Visit the North Bay, and you begin to understand that while its name and its significance as habitat derive from the tidal marsh and Class 1 wetland. the North Bay area is in fact a much larger complex of natural, cultural and historic resources. It consists of multiple ownerships and land uses - municipal infrastructure, light industry, residential, recreational and institutional – existing side by side, if not in partnership with one another. For the purposes of this project, the study area has been drawn to encompass approximately 117 acres including the landfill area, open space, and current and former commercial/light industrial properties. When combined with adjacent recreation and open space, however, the site's value multiplies into a natural habitat, land and water trail network that would cover more than 1,000 acres, stretching south and east into the City's neighborhoods, commercial district and parks, and north through the Greenport Conservation Area into the Town of Stockport, and including the Hudson River itself.

Based upon the title work conducted in 2009 and subsequent developments, the current ownership within the study area consists of, clockwise (see Ownership Key Plan):

- A. ±27 acre landfill area on the northeast portion of site, owned by Columbia County.
- B. Adjacent industrial building and ±9 acres, including portions of the landfill, owned by the principal of the former commercial tenant, Hudson Fabrics.
- C. ±14 acres of undeveloped upland and ±39 acres of tidal wetland, owned by the City of Hudson Industrial Development Agency.
- D. ±12 acres on the southeast limit, in development as an expansion of the Charles A.
 Williams Park with funding from the New York State Office of Parks, Recreation and Historic Preservation, owned by the City of Hudson.
- E. Parcels totaling ±18 acres at the southwest limit, including portions of the tidal wetland and the former Foster Refrigeration "brownfield" site, owned by the City of Hudson.

Previously, the multiple parcels making up the landfill were owned by the City and by the Fireman's Association of New York State (FASNY), which signed an agreement with the City in 1967 allowing use of its land to expand the landfill. Since the mid-1980's the FASNY portions have been acquired by either the City or by what is now the City Industrial Development Agency. (See site survey, Appendix A.)

Area B was previously owned by the City Industrial Development Agency and in 2009 was conveyed to the owner of the former commercial tenant, Hudson Fabrics. This parcel includes an asphalt parking area on a portion of the landfill as well as an area of turfcapped landfill south of the building. The building was constructed there in approximately 1996, at the time of the landfill closure, and an addition was built in approximately 1998. The property is on the market for sale or lease as of this writing.

The title search revealed that some lands thought to be owned by the City were in fact owned by the State of New York. As a result of certain deed restrictions, those lands west of a line established by the original water grants reverted to State ownership because they had not been developed for commercial use. The City worked with the State to negotiate a land swap, which was consummated in 2010, that restored ownership of the lands to the City in exchange for a ±9-acre parcel under water lying west of the railroad tracks.

North Second Street is a public city street up to approximately a building owned and occupied by COARC (originally, the Columbia County Association for Retarded Children) a nonprofit organization that operates employment and training programs for adults with disabilities. The City has a 50 foot rightof-way that permits its extension and dedication as North Second Street Extension from that point to the landfill and industrial building.



Ownership Key Plan

Adjacent Land Use

The study area's adjacent land uses open up multiple opportunities for a trail network accessible to diverse users. The most significant of these, from the standpoint of access to open space and the conservation of significant habitat, is the 714-acre Greenport Conservation Area in the Town of Greenport. It abuts the northern limit of the landfill and tidal marsh. The Conservation Area offers almost five miles of trails through meadows and deciduous forest, including a one mile long Access-for-All trail, which can be used by people with mobility and sight problems. A spur trail leads to a second trailhead at the Greenport Town Park. CLC is currently working with Scenic Hudson to build a 1.6 mile connector trail that will link the Greenport Conservation Area trail system to Harrier Hill Park to the north, in the Town of Stockport.

The lands east of the study area are owned by the Hudson City School District and the Fireman's Association of the State of New York (FASNY). Hudson High School already has cross-country trails that lead as far west as the North Bay site and also tie into the Greenport Conservation Area. The FASNY property consists of the Museum of Firefighting and the Firemen's Home, a residential retirement facility for volunteer firefighters, both on Harry Howard Avenue. It also has two ball fields that are connected to the main facilities by a lighted sidewalk and are visible from the upland, southeast portion of the study area.

The southern portion of the study area is bounded by Mill Street, with its small residential neighborhood of single-family residences, including several built by Habitat for Humanity, and the expansion site of Charles A. Williams Park, a city park. What is known as the "old ball field" is across Mill Street. The street dead-ends east of the park site, where an asphalt paved bicycle route leads uphill and eastward to Harry Howard Avenue.



Property of the Firemen's Association of New York State (FASNY)



Greenport Conservation Area, Greenport, NY. Owned by Open Space Institute and managed by Columbia Land Conservancy



Harrier Hill Park, Stockport, NY. Owned by Scenic Hudson, Inc. and managed by Columbia Land Conservancy



Existing access to North Bay site leading from Hudson City Schools property



Charles A Williams Park expansion site, Mill Street, Hudson, NY



Habitat for Humanity houses, Mill Street, from upland meadow

Bicycle Trail from Harry Howard Avenue to Mill Street and Charles A. Williams Park expansion



City of Hudson sewage treatment facility

The COARC facility is located at the terminus of North Second Street, north of the Mill Street intersection. To the west of the intersection, municipal and light industrial properties including a city bus garage and city sewage treatment plant are located on Dock Street. The former knitting mill site on the river at the end of Dock Street was recently donated to the City, which is offering it for redevelopment (one late 19th century building still stands.)

The City also owns a parcel at the extreme southwest limit of the study area where there is a potential water access site adjacent to the CSX railroad tracks. The site is located very near a trestle over the inlet from the Hudson River to the North Bay, which offers access to and from the Hudson River for canoes and kayaks. Seasonal cabins and houseboats in this area currently occupy what is known as the Furgary Boat Club. This location is a short walk from Promenade Hill and the City's Henry Hudson Waterfront Park.



Former knitting mill – an adaptive re-use opportunity



Seasonal cabins known as Furgary Boat Club

The topography of the North Bay area obscures most views of the bay itself until a visitor actually arrives at its heart. Travel away from commercial Warren Street on North Second Street and you eventually descend a steep hill to Mill Street, with a row of modest residences on your right. The expansion of Charles A. Williams Park is in development at the end of Mill street. Recently graded steep clay bluffs rise above the park where a field and forested ridgeline can be seen.

At the left side of the North Second Street intersection is a partially dismantled "brownfield" site, with a former industrial building that has been included in the study area. At the west end of Dock Street is the marsh limit and railroad embankment where boats and the cabins of the Furgary Boat Club occupy the southern extent of the study area. Presently, these city streets appear somewhat derelict and abandoned, with unkempt vacant lots and broken pavement.

Traveling north from the Mill Street intersection, North Second Street extends to approximately the COARC building and then continues as a right-ofway, ascending past scrub forest and winding through grassy slopes, until it terminates at a large asphalt parking area and currently vacant industrial building at the center of the landfill. So far, the entire landscape has been shaped by *ad hoc* development over many decades.

The landfill, however, has been deliberately shaped into mounds that shield the capped refuse and provide for the hydrology necessary to protect the landfill cap's integrity. A walk over the 27-acre landfill offers changing scenic views of the surroundings, while a perimeter maintenance track allows closer inspection of the extensive tidal marsh. Isolated rust-colored areas expose patches where chemically-affected groundwater has seeped from the edge of the landfill. Where the tallest mound ascends, away from the marsh, there are areas of rip rap lined drainage swales that were placed due to slope failure a few years after the landfill closed. The landfill site is dotted with methane vents that are routinely monitored to detect remaining emission levels.

Prior to the final landfill closure, the asphalt parking area and the major part of the industrial building were constructed on re-graded landfill. These areas are still required to be monitored regularly as part of the post-closure monitoring and maintenance supervised by the County.

East of the industrial building is a sloped successional field topped by a clay bluff that offers spectacular western views. The entire panorama of marsh,

river, mountains, forested bluffs and City spires is visible from that hill. There are also fine views at high points on the northernmost limit of the landfill and, south of the landfill, from the meadow above Charles A. Williams Park. From those high points there is also visual access to the FASNY and Hudson High School properties, and an unmarked rough trail to the High School. Much of the eastern portion of the site consists of approximately 25 acres of forested slopes and ravines with approximately six acres of successional fields.



North Second Street leading to the North Bay



North Bay landfill access road (North Second Street Extension)



View over landfill to the North Bay

Natural Resources

The North Bay is situated in what is classified as the Northern Ridge and Valley physiographic region of the east coast, which stretches as far south as Maryland and is characterized by broad, parallel mountain ridges and river valleys that serve as migratory bird pathways. As part of the Hudson River estuary, the North Bay is one piece of a huge hydrologic network that connects the river's headwaters and all of its tributaries to the Atlantic Ocean. Locally, as part of the Upper Hudson River Estuary, the North Bay is at the southern extent of the approximately 1600-acre Stockport Creek and Flats, a NYS Department of State-designated Significant Coastal Fish and Wildlife Habitat that extends for seven miles from Hudson north to the Town of Stuvvesant. This habitat is also one of four sites designated by the National Oceanic and Atmospheric Administration (NOAA) and NYSDEC as part of the Hudson River National Estuarine Research Reserve, which identifies it as an important site for research and education. The North Bay is also one of 15 sites along the Hudson River that have been identified as high priorities for restoration projects.

With the construction of the railroad embankment in the 19th century, which isolated areas of the naturally meandering river shoreline, the subsequent changes in the frequency and velocity of water flow altered the properties of the marsh and species diversity. The resultant high value habitat is a significant breeding ground and nursery for various fauna. The varied terrain of the North Bay and its adjacent upland areas is itself a contributor to its overall species richness and diversity. The identified habitats there include tidal and forested wetlands, floodplain forest, mixed deciduous upland forest, and successional fields. There are two stream-fed wetland/ stream complexes east of the landfill as well as pocket wetlands within the forests, all of them ecologically valuable.



Stockport Creek



Stockport Creek and Flats

The floodplain forests within the bay area are particularly sensitive and buffer the marsh from impacts from upland areas, which are significantly fragmented by impervious surfaces. The marsh itself has historically been exposed to a wide range of contaminants from landfill impacts, the sewage treatment plant, dumping and industrial uses. Invasive plant monocultures have established in both the marsh and upland areas. The landfill consists of mostly non-native grasses, and frequent mowing prevents other species from establishing there. Nevertheless, the tidal marsh and its waterways are functionally important for stormwater management, flood control and filtration.

The Natural Resource Inventory (Appendix D) provides detail on the site, its natural communities and plant and potential animal species, as well as recommendations for management and restoration. It endorses the concept of managing the open space on the landfill and elsewhere in the study area for grassland bird nesting habitat, while providing perimeter trails with ample opportunities for visitors to experience and enjoy the site.







View northeast over landfill, with gas vents



View north from landfill to marsh

View west to marsh, Hudson River and Catskill Mountains

Northern perimeter of landfill adjacent to Greenport Conservation Area

Landfill

The most significant controlling factor for redevelopment of the North Bay site is the landfill, with its constraints and requirements. (See landfill condition report, Appendix D.) While it covers somewhat less than 30 acres, or about one quarter of the study area, the landfill is at the heart of the North Bay, where a visitor has the greatest engagement with the varied surroundings and outward views, where you can see where it is that you want to go, and what you want to do. It is not until you mount or circle the landfill that you really sense the magnitude of the surrounding landscape, from the uplands to the river and mountain views beyond. This element of anticipation and fulfillment is what is so satisfying about a visit to the North Bay.

While the landfill is now closed, it is only approximately halfway through its 30-year monitoring lifespan. It is thus still settling and emitting the leachate and gases that are the by-products of a landfill's natural processes. This poses physical constraints for use of the site as well as management and monitoring responsibilities that are mandated by law and highly regulated. New York State landfills are under the jurisdiction of the NYSDEC. The Columbia County Department of Public Works (DPW) currently has oversight and management responsibility for monthly and annual inspections of the North Bay landfill. Inspections are carried out by an engineering firm under contract with the DPW. Mowing and routine maintenance are performed by County staff. Any proposed improvements or plans for new uses there must be submitted to NYSDEC for approval and coordinated with the County.

The landfill consists of three mounds elevated 50 to 60 feet above the marsh perimeter. Originally the landfill consisted of two areas bisected by a stream flowing west from the clay bluffs. Heavy equipment routinely crossed the stream to deposit trash on either side. A culvert was installed in the 1970's, and then replaced with a pipe for the entire length of the stream where it crossed the landfill to the bay. That portion of the site was subsequently filled with additional refuse.

In the 1990's, before final closure of the landfill, an area east of the refuse mounds we see today was excavated and regraded. An asphalt parking lot and a 70,000 square foot light industrial building were built there. Thus, portions of landfill remain beneath the building and asphalt, which function as part of the capping profile in those locations. These areas are included in the landfill gas venting system and are subject to the same monitoring responsibilities as the undeveloped areas. Any changes to the parking lot

and building would also be subject to DEC approval during the monitored life of the landfill. The building was occupied originally by the Emsig Manufacturing Corporation and is now vacant and for sale or lease.

Closure of the landfill took almost four years to complete. Later repairs were made in 2000 for slope failures due to surface water effects. The site's hydrology plays an essential part in maintaining the integrity of the landfill cap and it would be a critical consideration in any plan for new uses at the landfill.

The capping system consists of an approximately 5' deep barrier system with a gas venting layer at the lowest level, topped by a low permeability clay soil cap, a protective soil barrier, and a topsoil/turf layer, as well as regularly spaced raised gas vents. The closure work included excavating refuse along the edge of the wetland and replacement with a broad leachate barrier system where a maintenance route is now located.

PARKING LOT CAP \ CAPPING SYSTEM "B"

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Power of the Urban Park

The North Bay's assets as a natural area are abundantly clear from a visit there, and they are well documented by the Natural Resource Inventory and the state and federal designations already cited. There are many constraints and complexities involved with the site due to past and ongoing uses, different ownerships, and simple neglect. But it can be said that the single most exciting opportunity of the North Bay derives from its location at the intersection of the City and the natural world. City residents and tourists alike could easily walk and bike there from their neighborhoods, from businesses and from the train station. Hikers from the Greenport Conservation Area could pass through and visit the City for lunch; students from the City's high school could walk to field classes there; residents of the FASNY facility and visitors to the Museum could use an accessible trail to access the upland areas of the site with its fabulous river and mountain views.

Increasingly, urban parks draw support for their broader role to function as part of a town or city as a communal space, to contribute to public health and wellness, to assist economic development by animating the park and its environs, and to open up opportunities for new programmatic partnerships with municipal agencies, neighborhood groups, businesses and cultural organizations. The municipal infrastructure at the North Bay offers interesting opportunities for education and interpretation that do not exist in a wilderness park. The location of a building within the site and others on its perimeter suggests opportunities for adaptive reuse to create a year-round education and interpretation center as well as income-generating related businesses and concessions.

Synergies

The value of the North Bay as a public recreation area is multiplied by the opportunities for partnerships that surround it. The North Bay is positioned at the center of a recreation and open space network linking the City's waterfront and urban parks, Charles A. Williams Park, Underhill and Oakdale Lakes, playing fields at FASNY and the Hudson City schools, and the Greenport Conservation Area, with its connections to the Greenport Town Park and Harrier Hill Park in the Town of Stockport. This network can be the basis for health and wellness programs such as the City of Hudson and Columbia County Health Care Consortium are working on now to promote healthy walking and biking in the City. There are one- and two-mile walking loops in the City that reach from the hospital to Promenade Hill, and could easily link to the North Bay as well.

The Draft LWRP for the City of Hudson proposes that commercial and industrial land uses continue along Dock Street. But this does not preclude a transition over time to businesses that are compatible with recreation and waterfront uses. As this part of the City evolves, as buildings become vacant or obsolete, there will be new opportunities to introduce commercial uses that are compatible with a waterfront location, tourism and recreation. In the meantime, there are opportunities for partnerships with the current businesses for staff wellness programs and for business sponsorship of improvements and programs at the North Bay.

What might seem to be incompatible uses around the bay – the landfill itself, the railroad, the City's sewage treatment plant, and the Foster Refrigeration "brownfield" site – at the same time present opportunities for interpretation and education about natural processes and the interaction of these uses with the natural environment.

Bobolink in North Bay upland meadow

Ecological Significance

The value of the North Bay as an ecosystem is well documented by government studies and designations. As noted above, it is part of the Stockport Creek and Flats, a NYS Department of State-designated Significant Coastal Fish and Wildlife Habitat. It is also one of four sites that comprise the Hudson River National Estuarine Research Reserve, an area dedicated to environmental research and education. The Hudson River Estuary Habitat Restoration Project, conducted by the U.S. Army Corps of Engineers along with NYSDEC and the Department of State, has identified the Hudson North Bay as one of fifteen sites to be a high priority for restoration. The NYSDEC action agenda for the Hudson River Estuary has recommended a number of specific actions that relate to conditions in the North Bay.

Conserved tracts of this size are exceedingly rare within the Hudson River estuary and its migratory flyway. Management of the North Bay as a recreation and natural area offers opportunities to work with these research and restoration objectives – invasives management or removal, re-establishment of grassland habitat, wetlands enhancement, and reforestation. And there are technical and financial incentives to do so, as well as opportunities for partnerships with conservation organizations, higher education, and government.

Research and Education

The North Bay's position as part of the Hudson River National Estuarine Research Reserve designates it as an important site for research and education. The Natural Resource Inventory (Appendix D) makes specific recommendations for biological surveys that will be valuable, and notes that the "on-site freshwater tidal marsh is a suitable candidate for the consideration of high ecological and conservation value by the New York Natural Heritage Program." To obtain that status, "specific documentation of significance criteria would be required through a more intensive biological investigation."

In addition to the inherent value of documenting the ecological importance of the site, other benefits include the opportunities it brings for funding for conservation, improvement and habitat management; partnerships with educational institutions and conservation organizations; the potential for prestigious ecological recognition, for example, by the National Audubon Society, as an Important Bird Area, and others. In the short-term, ecological documentation will be required to obtain permits to locate and construct some proposed improvements.

Education and interpretation of the site's habitats are important both for their benefits to North Bay visitors as well as being another means of protecting the site's conservation values. The North Bay offers rich opportunities for an interpretive signage program that would explain the site's ecosystem, highlight animal and plant species found there, and offer activities for self-study. CLC has found a large audience for its environmental education programs for children, families and adults, and participants in these programs often go on to be active volunteers who assist with programming and site management.

Site History

The North Bay site is imprinted with many layers of history – from its pre-history to the establishment of Claverack Landing, the City's heyday as a whaling port, and the succession of commercial and industrial uses that form the timeline of Hudson's last century or so. Making this history visible to the public through park improvements, interpretive signage, artwork, educational programming, and partnerships will be the basis for a rich experience, as much as that offered by the site's recreational and ecological value.

Park history interpretation in this country dates back into the 19th century, when National Park Service "talks" were probably colorful if not accurate. Park interpretation has evolved and now incorporates the latest interactive technology as well as more traditional approaches. The field of industrial archaeology has developed in recent decades to promote the study, preservation and appreciation of industrial sites and infrastructure. The forty-year old Gas Works Park in Seattle Washington is renowned for its success at utilizing the industrial remains of a gasification plant and is still the model for an approach that is now widely replicated.

While the North Bay's early history has been built over, the clay bluffs or "clavers" that supplied the brick making industry still remain. Remnants of a former brick works on the Greenport Conservation Area site to the north, which would be connected by a trail, would provide an interpretation opportunity in addition to the environmental and historic value of interpreting the landfill itself, the sewage treatment plant, brownfield site and other features of the North Bay. Each of these opportunities can invite partnerships with schools, colleges and a variety of organizations.

Remnants of brick works at Greenport Conservation Area

Landfill Reclamation

Landfills have been reclaimed for recreation use for more than a century. Until recently, the most famous conversion was probably Flushing Meadows Park in Queens, New York, the site of the 1939-40 World's Fair. Today, Fresh Kills on Staten Island, New York, is arguably the best known project. This 2,200 acre park will be developed over a period of three decades, transforming what was once the world's largest landfill into a sustainable design that supports diverse natural habitats along with recreation and cultural facilities. There is no figure for how many landfillpark conversions there are in the United States, but the Trust for Public Land has estimated that there may be more than 1,000. Their obvious advantage as parkland is that there are typically no, or low, acquisition costs, and landfills that are already closed bypass the most significant costs of dealing with such sites. These parks also reclaim unsightly, abandoned or misused areas of a community and may help reverse historic instances of environmental injustice.

At the same time, a landfill may pose issues with unique site conditions such as ground settlement and gas management, the two most significant challenges, as well as seepage and groundwater contamination. There are a number of examples in the literature of problems with landfill-to-park conversions from years when these conditions and their causes were not so well understood, particularly with landfills closed prior to 1991, when the federal Environmental Protection Agency set standards for construction and closure of municipal landfills, their monitoring and the management of landfill by-products. (In New York, regulation has been delegated to the NYSDEC, whose standards meet or exceed federal standards.)

The North Bay landfill is now halfway through its 30-year monitoring life span, which is scheduled to extend to at least 2026, subject to further testing. Both ground settling and gas production have thus moderated but apparently still continue. Part of the pre-design phase of developing public recreation uses at this site must be to evaluate the degree of settlement to date. Settlement would change the "load" or weight capacity of the landfill cap and the ability to locate physical features there. Geotechnical studies must be conducted in order to locate the pedestrian circulation system and placement of amenities. Hydrology and erosion issues must be considered in any design and construction plans for new uses.

All new uses must be protective of the landfill cap system, avoiding changes to the hydrology and anything that might penetrate the protective soil barrier (2 feet deep, below the 6" topsoil/turf level). For example, differential loading could cause shifts, alter the topography and even cause penetration with blunt pressure. Areas of concentrated loads have the potential to create ruts. Vehicular access must be limited to emergency uses. Trails should be carefully sited, avoiding steep slopes and slope repair areas, which are still vulnerable. There should be no addition of impervious surfaces that would concentrate and intensify stormwater effects. No permanent structures or facilities should be built on the landfill cap itself and temporary facilities would have to be carefully designed and sited. Areas of fill are possible, but graded cuts are not. With proper design, it would be possible to vary vegetation on the landfill, even to establish trees and shrubs on a limited basis.

Although the landfill condition report (Appendix D) notes that methane levels have diminished over time, with some vents showing no emissions at all, additional testing will be needed before establishing any new uses on the landfill. The report also states that, according to NYSDEC, removal of some vents prior to 2026 may be possible based upon such testing. The landfill does not meet thresholds to qualify as a landfill gas-to-energy project.

There are several discolored groundwater seepage areas along the leachate barrier at the edge of the landfill. This is an expected outcome and the seeps have been monitored for several years. While unsightly, these are thought to be harmless, but further testing would be called for to determine that conclusively. In recent years, some of the locations have remained dry. NYSDEC requires that actual "leachate" be collected for on-site treatment or collection and disposal, and testing for toxic levels. If there is residual seepage, a long-term strategy should be designed to address that. One strategy could be to create a constructed wetlands treatment system within the marsh.

Groundwater and surface water laboratory sampling is reported to be done on an annual schedule. According to the landfill condition report, yearly samples show that contaminants are declining and, in some years, "barely exceed" standard levels. NYSDEC has not issued any requirement for remediation.

Fresh Kills Park meadow concept, Courtesy of James Corner Field Operations

Ownership, Roles & Responsibilities

The parcels on which the landfill is located were at one time owned by the City of Hudson and the Fireman's Association of the State of New York (FASNY). The FASNY parcels were subsequently acquired by the City or City Industrial Development Agency. Columbia County has owned the landfill parcels since 1995, with the exception of that portion where the industrial building is located. That has switched hands between the City Industrial Development Agency and private industrial owners under the terms of PILOT (Payment in Lieu of Taxes) agreements. As of 2009, the building is owned by the owner of the former Hudson Fabrics, the most recent tenant. It is currently vacant and available for sale or lease. The City and the City Industrial Development Agency presently own the balance of the North Bay site.

Before any further planning for redevelopment at the North Bay, the ongoing ownership and responsibility for maintenance and oversight of the landfill need to be determined, as well responsibility for liabilities and risks associated with the property. Columbia County could continue ownership and the required monitoring and maintenance of the landfill; the County could enter into a joint agreement with the City or some other entity; or, the City could transfer some or all responsibilities and liability to another entity altogether. The City and County have had some preliminary discussions about long-term ownership, management and monitoring.

The same issues remain for redevelopment of the larger site as a recreation and natural area. One option is to continue the current separate land ownerships in a public-private partnership with longterm joint use agreements, possibly with a separate entity created or designated to oversee construction, management and operations. Another option would be to transfer ownership of the public lands to a new entity, with cooperative agreements with the private owner(s). Alternately, the City and/or County could choose to own and develop the site themselves as a public recreation area, perhaps in partnership with a private not-for-profit organization, a model like The Olana Partnership, or the Central Park and Battery Park Conservancies in New York City.

Whatever ownership and management models are adopted, the long-term stewardship plan for a Hudson North Bay Recreation and Natural Area should address the evolving nature of the site in a dynamic urban environment, and as a natural laboratory with ongoing opportunities for ecological restoration, and potential for new design and programming elements once the landfill monitoring period concludes.

Environmental Impacts

As the Natural Resource Inventory (Appendix D) observes, "Rarely does one location contain the array of attractive ecological features that this property does." It goes on to urge that the "life histories" of the wildlife at the site should be considered when designing ways for the public to explore and enjoy the area. If habitat is degraded by the design and function of the recreation area – e.g., destroying breeding grounds, altering hydrology and producing run-off – that will ultimately lower the quality of the park experience. The key is to strike a balance between the natural and human uses of the site in a way that they enhance each other.

Extra care should be taken to protect the freshwater tidal marsh ecosystem and its functions for reproduction, feeding and refuge for many species by not further fragmenting its buffer and causing upland impacts. Submerged vegetation along the shoreline of the marsh is especially vulnerable and shading should be avoided or limited. The marsh is important functionally for stormwater management, flood control and the filtration of contaminants and sediments. Maintaining the quality of this area provides a superb opportunity for wildlife observation that will be one of the hallmarks of the site.

At the same time, this site is heavily infested in some areas with invasive buckthorn and Phragmites, which limit plant diversity. The submerged vegetation zone is dominated by water chestnut in some areas, and that degraded diversity in turn affects the quality of habitat for fish and migrating waterfowl. There are significant areas of dumping, such as in the sensitive floodplain forest strip. The forested areas behind the sewage treatment plant and brownfield site are degraded by negative impacts.

There are areas of successional fields that should not be disturbed as they provide critical habitat, and offer education on the natural process of how fields transition to forests. On the other hand, the landfill, with mostly non-native grasses, offers very low ecological value, especially as it is kept mowed. This management regime also invites unauthorized use by motorized recreation and road vehicles, which rut and scar the vulnerable 6" topsoil and turf layer covering the cap. A tire rut can easily exceed that depth and thus expose the protective soil barrier to surface water and erosion. Development of park uses, along with limited annual mowing for grassland habitat protection, would serve to deter these misuses.

Site Access

Parking: North Second Street in Hudson provides access to the North Bay through the City's commercial district and residential neighborhoods. From the end of North Second, the road continues as a 50' right-of-way, known as North Second Street Extension, that leads to the asphalted portion of the landfill. This is the access way for the existing building, as long as that remains a private commercial use. This configuration raises issues of shared use and use conflicts, as well as intensity of use. Park visitor access and parking at this location would position the main entrance to the North Bay right at the landfill, where use should be limited. More intense vehicular use there would create pedestrian traffic conflicts. Heavy vehicular use might even create wear and tear on the asphalted portion of the landfill.

Alternatively, there is a cleared area south of the landfill, and west of the right-of-way, that could be easily developed for parking in the early phases of development of the North Bay Recreation and Natu-

Current access to landfill and industrial building

Potential permanent parking area and Gateway at North Second and Dock Streets

ral Area. This location is well positioned for visitors to access both upland and lowland trails, including a proposed ADA-Accessible trail. It is less favorable as a permanent site, however, as it is adjacent to the sensitive forested wetlands on the edge of the marsh. Limited handicap parking could be located there, with the balance of the area re-vegetated to create a protective buffer zone.

An optimal location for permanent parking is the old Foster Refrigeration property, a "brownfield" site, at the intersection of North Second, Mill and Dock streets. This location could be developed in a later phase of park construction, subject to remediation of the site. It is central to two other locations that offer good secondary access points to the North Bay Recreation and Natural Area – Charles A. Williams Park on Mill Street, and a proposed small boat access site at the end of Dock Street (where a commercial redevelopment could also offer limited shared-use parking for small boat access).

Potential Phase 1 parking and permanent handicap access parking

Secondary park access and parking for small boat users

Trails: To protect the landfill cap as well as the sensitive ecosystem of the site, access north of the parking area should be limited to foot traffic only. Trails should be limited on the capped landfill itself, both to minimize landfill impacts and to maximize its benefits as grassland habitat for migrating birds. The landfill marsh perimeter, on the other hand, is well suited for trail access as it is already constructed as a maintenance access route, consisting of a 30-foot wide leachate barrier. Geotechnical studies will be necessary to determine specific locations for trails. Grassland mowing should be limited to times of the year that would not interfere with nesting birds.

Limited pedestrian access into the marsh could be provided with a boardwalk, requiring careful siting and subject to permitting. There is no good boat access to the tidal marsh itself from the landfill perimeter due to water levels and fluctuating tides. However, the area identified at the end of Dock Street, adjacent to the railroad tracks, is a good location for a small boat launch. Its use would be subject to tidal changes, particularly for boats wishing to access the Hudson River through the adjacent trestle. High tide conditions are best for access to the North Bay itself, but the trestle route is only navigable for access to and from the river at low tides.

Careful trail siting and construction will be required in the forested ravines where there are sensitive habitats and the potential for erosion on steep slopes. Trails should be avoided in the remnant floodplain forest along the edge of the tidal marsh as it is one of the most sensitive habitats and buffers the marsh from upland uses. At the present time, there is evidence there of a considerable amount of dumping.

Another concern for wildlife habitat is dogwalking, and particularly off-leash access by dogs. It is highly tempting to let a dog run free in a city park. Opportunities to locate a controlled dog-run area elsewhere within the North Bay area should be pursued.

Rail trestle access to inland bay at Greenport Conservation Area \circledast 2011 Paul R. Abitabile

Existing maintenence access route around landfill marsh perimeter

Maintenence access route along marsh

Deep rutting that could affect landfill cap

Build On Synergies of Nature & Culture

The greater North Bay site is both a valuable ecosystem and a complex of land uses - each of them with their own value. The most sustainable way to protect this ecosystem is to acknowledge and integrate the site's cultural values. Within this principle there are opportunities to re-shape those uses that threaten the site's ecology. The integrity of the landfill cap can be protected by the same measures that promote biodiversity. The functional value of the tidal marsh for filtering contaminants is an argument for its survival as a healthy ecosystem and scenic and recreational resource. A Hudson North Bay Recreation and Natural Area has potential to promote economic development on and adjacent to the site, and to attract tourism, with the location of compatible, water and recreation related businesses and industries. A network of trails at the edge of the City can be programmed with diverse partners to promote health and exercise with youth, adults and seniors, nearby residents and workers. These same users can then become active stewardship volunteers.

The education goals of local schools can be met with programs that showcase the North Bay ecosystem, or use the site's infrastructure - the railroad, landfill, sewage treatment plant - to teach about natural processes. The industrial history of the waterfront can be the basis of a history curriculum. Schools and colleges can build research efforts around the documentation, research, restoration and monitoring goals for the North Bay. Hudson's robust art community can collaborate with the North Bay and its natural materials and systems in ways that educate and engage the general public. Seasonal programming and management can permit activities in part of the year that may be damaging at other times. For example, snow shoeing in winter on frozen ground will not have a negative impact to the cap, or to wildlife, that hiking off of approved trails would have during summer months. The site's abundant educational, cultural, recreational and conservation values create multiple opportunities, as well, for partnerships among neighboring institutions, which will be able to learn from each other and conserve resources. Such possibilities also bring opportunities for funding to finance the development and stewardship of the North Bay.

Embrace the Waterfront

There are still too few places along the Hudson River where there is physical or even clear visual access to the riverfront. On the eastern shore, this is largely due to the rail line as well as industrial uses that are incompatible with healthy shoreline habitat and quiet, scenic enjoyment. Hudson is fortunate to have the Henry Hudson Waterfront Park, which also provides a venue for entertainment. But natural areas such as are found at the North Bay site – offering water access, proximity to high value ecosystems and exceptional opportunities for wildlife observation – are exceedingly rare, especially in such close proximity to an urban center.

The North Bay offers a very different way to experience the river, yet within easy walking and biking distance of the Waterfront Park and Promenade Hill. The landfill, ironically, has prevented conventional riverfront development. Thus, this is one of the few public locations where it is possible to have an unobstructed panoramic view of the river, tidal marsh and the scenic Catskill Mountains viewshed. These views are an asset that helps to define the character of the City and region, and promoting access to them makes good sense for tourism and recreation-based economic development.

Planning for the North Bay should protect these views and also provide for small boat water access in ways that protect the sensitive tidal marsh. Commercial opportunities, such as the knitting mill building at Dock and Front Streets, should focus on water-enhanced and water-dependent uses that can complement the North Bay's natural and recreational assets.

Expand Connectivity

One of the strongest arguments for developing the North Bay as a recreation and natural area is that it is already at the center of existing pedestrian, trail, and open space resources. Thus it offers the potential to create a major regional recreation destination in the City of Hudson. The North Bay can be part of a multi-mile network of walking and hiking opportunities by linking these resources together – the City walking loops; new links to the Greenport Conservation Area and nearby parks and recreation areas; and existing and proposed bicycle routes. The proposed small boat launch facility can be another stop on the Hudson River Greenway Water Trail, which extends the length of the river and promotes both daily and extended exploration of the river, its natural attractions and urban and cultural features. One part of this new connectivity would involve creating the actual trail links. The other equally important part is to develop the partnerships with the City, neighboring institutions and not-for-profit groups, and to create programming that takes advantage of these opportunities and promotes their enjoyment.

Conserve & Enhance Habitat

Site development as well as the programming and management of a North Bay Recreation and Natural Area must be done in a manner that conserves and enhances the rich ecosystem there. The chief strategy is to avoid fragmentation of habitat by instead selectively making use of existing infrastructure and already disturbed areas – roads, paved areas, buildings and paths.

A related strategy is to maintain continuity with adjacent habitat, including the Greenport Conservation Area. Along with the FASNY and Hudson City School properties, the North Bay and Greenport Conservation Area form a large tract of forest, grasslands, and tidal marsh that will be significant for maintaining biodiversity. The Natural Resource Inventory notes that grassland protection and restoration have not been as prominent in conservation strategies as has the conservation of forests, wetlands, and open space in general. Partnering opportunities do exist to support such conservation efforts.

The Natural Resource Inventory documents the site's habitats and makes specific recommendations for appropriate site development and management strategies, as well as for restoration efforts to enhance this valuable ecosystem. The recommended phasing for site development incorporates such recommendations.

Encourage a Natural Laboratory

A North Bay Recreation and Natural Area can be a permanent classroom and field research laboratory for the study of its ecosystem and natural processes. The site has already been designated for research and education by NYSDEC and NOAA as a part of the Hudson River National Estuarine Research Reserve (HRNERR). Potential partners include such nearby colleges as Columbia-Greene Community College, part of the SUNY system, SUNY Albany itself and several other Albany area schools, as well as Bard College (Annandale), and Vassar and Marist Colleges (Poughkeepsie).

As a model, Bard established an Ecology Field Station in 1972 that was expanded in 1984 by the NYSDEC HRNERR. It is a research collaboration between those entities and the locally-based environmental research and education organization Hudsonia Ltd., which provides high school-level, undergraduate, graduate and professional field work opportunities, and also collaborates with the New York Natural Heritage Program and the Beacon Institute for Rivers and Estuaries. Another model is the John Heinz National Wildlife Refuge in Philadelphia, Pennsylvania, a tidally influenced freshwater wetland on the fringe of the City surrounded by oil refineries, a major interstate and airport. Several colleges and universities conduct graduate-level biological research programs there, where there is also an environmental education center and a "Marsh Machine" that demonstrates bioremediation of waste water.

These research efforts can attract attention and funding to the North Bay as well as provide critical information for how to optimally manage the site.

Plan for Succession

By the year 2026, the North Bay landfill will have reached the end of its minimally required monitoring life. The NYSDEC does not yet have a protocol in place for how it will review and respond to landfill conditions after the thirty year period expires. It can be expected that, subject to additional testing and reporting, monitoring could be extended or not. That does not mean that redevelopment options will change dramatically, but there may be new opportunities, not the least of which is the potential ability to thoroughly remove the vent system. This may also be an opportunity for redevelopment or restoration of the industrial building site, road and asphalt parking area.

Whatever the ongoing ownership and management of the North Bay, these opportunities should be anticipated and factored into a long-term site management plan. They may also usher in a set of complex decisions regarding the site's ecosystem, which has evolved over time – including its hydrology and flora.

Land Use Objectives

The overall goal for development of the Hudson North Bay Recreation and Natural Area is to utilize its location within the City of Hudson and the many opportunities that presents for programming and partnerships to accomplish the land use objectives identified for both the natural and public use areas.

A primary objective is to provide access to the Hudson River – both visual and physical – for recreation, education and passive enjoyment. A trail system can be established that provides this access while protecting the landfill cap as well as the valuable grassland habitat there. The value of these trails will be greatly enhanced by being part of a much more extensive trail and open space network linking the North Bay with nearby opportunities.

The Natural Resource Inventory and multiple governmental designations for the North Bay provide abundant proof that any new uses must also promote conservation of its rich ecosystem. This is possible using low-impact design standards for the location and construction of appropriate improvements and compatible vegetation management. By embracing the site as a natural laboratory, it will be possible to promote good stewardship and conservation practices while providing educational opportunities and additional modes of site use. The most sensitive habitats need to be protected from further impacts, especially the tidal marsh, but also the floodplain forests, ravine forests and wetlands, and the successional fields that provide wildlife corridors between forested areas.

Finally, the site also must be understood as an evolving ecosystem encompassing human uses along with the natural environment. Development and interpretation of the North Bay site should tell the story of its interconnected hydrology and habitats, including the human habitat, over time. Built improvements and ongoing management must consider the opportunities and challenges of the succession of uses at an urban site such as this one.

Landfill: Although the 27-acre landfill presents specific constraints for redevelopment and management for recreation, there are also opportunities to complement landfill management objectives. The turfed cap area can be managed for grassland bird habitat as tall grass cover for much of the year. This would limit human activity on the cap, which is necessary at least until 2026, the life of the landfill closure, and when monitoring requirements are expected to conclude. It would also mitigate the visual impact of the gas vents, and limit public access to them. Strategic siting of viewing and trail opportunities is needed.

The asphalted cap parking area and industrial building must remain accessible for regular monitoring through at least 2026. Activity on the asphalted cap should be moderate to protect the cap. Any plans for redevelopment of the landfill site or major changes to the building must be reviewed and approved by the New York State Department of Environmental Conservation.

Tidal Marsh: The tidal marsh area is a high value habitat and Class I wetland. It is also the central feature of the North Bay site, with great educational as well as recreation value. Park improvements should offer controlled access to the marsh – visual and physical – that promotes stewardship but does not harm its ecosystems. There should be ongoing study of the marsh habitats and careful consideration of restoration opportunities. Any work on upland areas must first consider the impacts to the marsh and to the sensitive floodplain forest that buffers it.

Upland Fields & Forests: The upland areas of the North Bay may be overlooked as an asset because they are currently less accessible. However, they also provide excellent opportunities for hiking and wildlife observation. And they offer the finest views to the marsh, Hudson River and Catskill Mountains, to Mount Merino, and to the City's own church spires and high points. Some upland areas will be more sensitive for trail siting, as documented in the Natural Resource Inventory. Carefully implemented, access to these areas will offer opportunities for education, ongoing study, restoration and stewardship.

Approach and Arrival: The North Bay is largely unknown to City residents today, and yet it is a major land use within the downtown commercial district and easily accessible by car, bicycle and on foot. A redevelopment plan for the North Bay area should take advantage of this position and strengthen the physical and visual relationship with the City.

The existing city streets provide a hierarchy of approaches to the North Bay. These can be upgraded to be attractive streetscapes that invite pedestrians and cyclists with improvements such as distinctive pavement, street trees and landscaping, signage and other amenities. This could also be an opportunity to incorporate sustainable "green streets" concepts such as planted swales and other stormwater management practices to address water quality.

A wayfinding system can identify this part of the City as an important destination within a network that includes key routes and features – the City bicycle route, Warren Street, Amtrak station, Henry Hudson Waterfront Park, Promenade Hill, Charles A. Williams Park, as well as Hudson North Bay Recreation and Natural Area entrances, parking, and small boat access. Vehicular access to the North Bay site should be clearly signed but limited. The primary entrance should be signaled by a gateway feature that embodies the qualities of the North Bay.

Compatible Commercial: The City's current and draft zoning for the North Bay area both provide for ongoing commercial and industrial uses. The transformation of the North Bay provides an opportunity to identify compatible commercial uses for available sites that would be consistent with the goals of the Draft Local Waterfront Revitalization Program (LWRP), such as "green" industries, water-dependent and water-enhanced business uses, as well as tourism and recreation-oriented concessions.

It is a high priority that one of these sites accommodate an environmental education facility that can extend the educational and recreation benefits of the North Bay. Such a facility could be provided as part of another development – perhaps one of new uses in the Dock Street area, or as part of redevelopment on the former Foster Refrigeration "brownfield" site, north of the intersection of North Second, Mill and Dock streets, which this report identifies for Phase II parking for the North Bay. The industrial building on the landfill itself, formerly Hudson Fabrics, is one logical location right at the center of the North Bay site.

Specific Design Recommendations (Map 3)

Program: A Hudson North Bay Recreation and Natural Area should offer diverse ways to experience the site, including hiking, boating, wildlife observation, nature study, and educational activities. Programming should also take advantage of the site as a living, mutable system with great value for research purposes. Each of these uses also suggests opportunities for community partnerships.

 <u>Redevelopment of the site should emphasize access for the public for passive recreation uses with low site impacts.</u> Improvements should provide access for users of all ages and abilities with a variety of trail experiences, including small boat access to the marsh and Hudson River. There should be a well-developed wayfinding and interpretive signage system that will encourage use of the site. The specific improvements, their siting and construction must consider impacts to the landfill and sensitive habitats.

- The North Bay should serve the immediate city neighborhoods, residents and commercial community. The site can be the hub of a broad network of recreation, educational, and even commercial opportunities that serves the surrounding community. A public outreach component should create relationships with community groups, the health and education sectors, and the business community, to determine improvements and program activities that will integrate the park with city life and provide mutual benefits.
- <u>Create a destination that can be an</u> <u>economic development asset for the City,</u> <u>county and region.</u> The North Bay can be a rich, varied recreation and educational destination, and encourage economic development that will provide amenities for residents and visitors alike.
- Take advantage of the site's rich natural resources and history for educational programming. The North Bay is a natural classroom and offers many opportunities for partnerships with city and regional education institutions, and not-for-profit conservation groups, as well as with the health care community. The site's interpretive signage program should provide unstructured education value for all users by highlighting site history and presentday features – the landfill, estuary, wildlife, landform and geology, clay soils and the brick making industry, and more.
- Build research partnerships that can study and document the natural resources of the North Bay. The North Bay is part of the Hudson River National Estuarine Research Reserve and has been identified as an important site for research as well as education. This presents an opportunity to partner with colleges, research institutions, and government agencies for funding and mutually beneficial research endeavors that become the basis for site management as well as public education.

Landscape Character: The North Bay site offers rich contrasts of nature and culture, land and water, internal as well as panoramic views, and a variety of terrain and vegetative covers. This landscape variety should be retained and reinforced by the site's redevelopment.

- <u>Streetscape improvements and the choice</u> <u>and design of plantings should maintain</u> <u>that temporal and spatial transition that</u> <u>already exists</u>, moving from the City streets to the North Bay – from dense urban development to an increasingly open landscape.
- The objective of redevelopment at the • North Bay should be to enhance the existing character of the natural site. While the landscape today is largely man-made, varied and rich habitats have developed there that should be preserved or enhanced and incorporated into site programming. For example, the turfed landfill can also be managed as grassland bird habitat. The marsh vegetation can be the basis of education programming about bio-filtration processes. The upland meadow can be managed as a successional landscape with enhanced wildlife observation value.
- <u>Major development should be located in</u> <u>already disturbed areas.</u> Public uses should be sited to avoid fragmentation of natural communities and disturbance of wildlife corridors. The existing road network and vacant or transitioning industrial sites should be utilized for site access, parking, visitor amenities, compatible business uses or concessions, and an environmental education center, etc.
- <u>Site design should capitalize on the North</u> <u>Bay's panoramic views.</u> These views are a large part of the site's appeal as a recreation area. They also help reveal its relationship as a natural area within the City and its symbolic connections within the Hudson River Valley. That visual relationship should be maintained and reinforced.

Remediation, Restoration and Management:

The Natural Resource Inventory lays out specific recommendations for habitat-centered remediation or restoration, and site management. Some actions would require special funding, and such funding exists for work within the Hudson River Estuary, in tidal wetlands, endangered floodplain forests, important bird habitat and salamander habitat. Development of a complete management and restoration plan for the North Bay site is recommended, and should include such measures as these that follow.

- <u>Convert the turfed landfill area to native</u> <u>grassland</u>. Replace the non-native forbs and grasses with native species, and manage the grassland as nesting habitat with strategically timed annual mowing.
- <u>Restore the upland meadow.</u> This area currently has low ecological value. A few restoration options are suggested. One is to allow natural succession to occur. Another is to allow it to evolve into a scrub-shrub meadow, which is a valuable bird habitat. It can also be restored as native grassland or, alternatively, reforested. Based upon further testing, if sufficient dense, varved clay were found there, as some test digging has shown, a clay barren plant community could be developed.
- <u>Remove invasive monocultures common</u> <u>at the North Bay.</u> The most detrimental of these are large infestations of buckthorn (Rhamnus), as well as common reed (Phragmites). These are labor intensive projects requiring removal and immediate replacement, such as with taller-growing species, and active management to deal with re-sprouting.
- Add valuable floodplain forest. Once Phase II parking is established, the area to the north identified for Phase I and handicap access parking could be re-vegetated as floodplain forest. It has the advantage of being sparsely vegetated now.
- <u>Utilize bioremediation to address discolored seepage areas.</u> Several discreet locations of seepage occur along the landfill perimeter, evidenced by their rusty color. Vegetation could be established at these locations to filter the seepage water before it enters the tidal marsh.
- Integrate the North Bay with the Charles A. Williams Park Expansion. The Park and the North Bay offer different experiences and can be assets for each other. The Park is also a logical secondary trailhead for the North Bay as it is a link from the existing bicycle trail from Harry Howard Avenue.

The two recreation areas are separated only by a massive clay slope, and the park would benefit from strategies to avoid erosion of those bluffs, including terracing and stormwater interception. The trail connection could also make an asset out of the slope's liabilities, as the slope's dense clay might also be utilized creatively along the way in terracing, for stormwater runnels, or decorative clay reliefs.

• The North Bay site and Greenport Conservation Area make up one contiguous ecological area and should be managed jointly or on the same basis. This would have great impact on biodiversity over close to 1,000 acres. This would be increased exponentially if joint management agreements could be made with other adjoining landowners of contiguous forestland.

Circulation – External: The plan should provide for limited vehicular access and emphasize the transportation alternatives that a central city location can offer.

- <u>Designate North Second Street as the</u> <u>primary vehicular approach route from</u> <u>downtown Hudson.</u> Provide limited visitor parking at a North Bay 'Gateway' at the Mill, Dock and North Second Street intersection. Locate handicap parking immediately adjacent to ADA-Accessible trails (site of Phase I Parking on Map 3. Concept Plan, Appendix B). Plan for a turnaround for drop-offs, public buses and shuttles.
- Designate Front, Dock and Mill Streets, already signed as City bicycle routes, as approach routes for cyclists and pedestrians. These streets lead to secondary visitor access points at the small boat launch and Charles A. Williams Park, where there can be limited parking:
 - Small Boat Launch at Dock and Front Streets. Establish a canoe/kayak launch here, which would be an attractive stop on the Hudson Valley Greenway Water Trail. This is the only recommended boat access location within the site. It is adjacent to the rail trestle where there is access to the Hudson River from the North Bay during low tides. All other potential launch points could have a negative impact on habitat and would often be inaccessible due to tidal

fluctuations. No interior pedestrian trail is envisioned from this location due to the sensitivity of the marsh perimeter and floodplain forest. Visitors should use Dock Street to access the rest of the North Bay site from here. Shared parking can be incorporated into the projected commercial development located on the south side of Dock Street.

- <u>Charles A. Williams Park on Mill Street</u> is located at one end of an existing bike route between Mill Street and Harry Howard Avenue. Another trail connection to city neighborhoods could be made upslope from Mill Street to Strawberry Alley, where the remnants of stairs remain.
- Implement a hierarchy of streetscape improvements to identify the primary (vehicular) and secondary routes; and to give identity to the waterfront area, e.g., distinctive pavement, sidewalks, lighting, additional street trees and landscaping, and a wayfinding and interpretive signage system.

Circulation – Internal: North Bay trails should be designed for pedestrian uses, with the exception of those ADA-Accessible trails that can accommodate wheelchairs. The visitor parking area should provide bicycle parking facilities. Recommended trail locations are too sensitive for mountain biking (landfill cap and erosion-prone steep grades). Motorized uses should not be permitted at all except for emergency purposes and if needed for landfill monitoring and maintenance. Vehicular access to the industrial building within the landfill should be limited according to the uses located there, not for park use.

The primary goal of ecological trail design is to strike a balance between the need to protect coherent habitat while creating worthwhile user experience. This is a matter of accessing the key vantage points and connections on the site without creating barriers for wildlife or fragmenting habitat. A loop trail design can avoid this fragmentation while also allowing access to the North Bay's two major features – the tidal marsh and the variety of upland views.

Trails through grassland areas should be sited to avoid bisecting fields. On the landfill cap, this will be consistent with the need to avoid cap impacts and circumvent problems with ground settling. Siting


EXISTING HABITATS AND LANDFORM: RECOMMENDED UPPER TRAIL LOCATION - NORTH BAY RECREATION AREA - HUDSON, NEW YORK









trails along the edges of grasslands will afford views to the forests, fields, tidal marsh and other adjacent land uses. Trails through forested ravines must be carefully sited due to the sensitive habitat as well as steep slopes and the potential for erosion. At the same time, they offer great educational value.

- Locate the principal trailhead at the start of a one-mile perimeter trail loop that will circle the tidal marsh using the existing maintenance route, continue northeast around the landfill perimeter, and return via an upland open and forested route that offers panoramic views.
 - Create a .3 mile ADA-Accessible trail on the marsh perimeter portion leading to a boardwalk and observation tower
 - Provide one location where visitors can access the marsh to learn about the richness of the wetland and its bird life. The tidal marsh is largely inaccessible by small boats due to the low water levels. It is also highly sensitive habitat. The Natural Resource Inventory identifies a location for a boardwalk and wildlife viewing tower that would be accessible from the ADA-Accessible portion of the perimeter trail. The boardwalk would be a minimal incursion into the wetland at the best vantage point for bird observation.
 - Continue the perimeter loop trail clockwise for .7 miles to the principal trailhead. The loop would offer a vigorous hike through diverse habitats and varied terrain – forest and ravine, wetland, successional field – with several observation areas.
- <u>Establish secondary trails that connect the</u> <u>perimeter trail with adjacent recreation</u> <u>and trail opportunities.</u>
 - Establish a spur trail to the historic brick works site within the Greenport Conservation Area, from the northern portion of the perimeter trail.
 - At the high point of the perimeter trail, establish an observation and seating area.
 - Improve the existing trail spur that continues onto the Greenport Conservation Area, leading to Hudson High School, and cut a secondary spur trail

from there to the Greenport Conservation Area "Yellow Trail."

- Where the perimeter trail turns south through ravine habitat, identify sensitive habitat viewing locations.
- South of the northernmost ravine, establish an observation tower to capture panoramic views from the successional slope above the landfill industrial building.
- Cut a spur trail route southeast from there to the High School, from the existing clearing and gate.
- Where the perimeter trail doubles back to the principal trailhead, establish a secondary trail to continue south through a second forested ravine, with sensitive habitat viewing locations.
- Continue the trail southward to the upland meadow and observation tower.
- From the upland meadow:
 - Establish an ADA-Accessible trail eastward to the FASNY ball fields and the established sidewalk there that connects to Harry Howard Avenue.
 - Cut a mowed trail westward, downslope to the main access road (and Phase I Visitor Parking/Phase II Handicap Parking).
 - Create a mowed trail south and down-slope to Charles A. Williams Park, the site of a secondary trailhead.
- Establish another secondary trailhead at the small boat launch site on the tidal marsh, adjacent to the rail trestle with access to the Hudson River.
- Trails should be low-impact design with construction appropriate for their locations. ADA-Accessible trails should be at least 6' wide of crushed stone on a graded stone base. Upland trails on turf areas should be 6' wide, mowed. Forested trails should be cleared natural-surface footpaths, minimal width in steep slope ravine areas, and 5' cleared, natural-surface paths elsewhere. Natural water management techniques should be used as much as possible – e.g., water bars, bog bridges, grade reversals, etc.

• Trail signage should include trail characteristics – user suitability, trail features, trail surface, slope, length and other conditions. Trailhead signage should provide trail safety and contact information.

Structures: All structures within the North Bay site – pavements, gates/fences, signage, wildlife observation towers, boardwalk, stormwater management, buildings – should incorporate sustainable material choices and construction technologies, and must be sited and designed to avoid impacts to the landfill capping system as well as sensitive habitat. Examples are the use of local or on-site materials, porous pavements, dual-purpose structures, incorporation of solar and wind generation, etc. This is also an opportunity to create structures designed to interact with the environment in ways that educate the public about the site and its natural processes.

- <u>A "gateway" treatment or structure should</u> <u>provide a sense of arrival and represent</u> <u>the qualities of the North Bay site in its</u> <u>form and materials</u> – e.g., its hydrolology and relation to the Hudson River estuary, flora and fauna, and its regeneration from an abused site. This could be the focus of an environmental art competition and commission that would bring attention to the North Bay.
- <u>A site-specific design theme and standards</u> <u>should be established</u> for information kiosks at trailheads, trail markers, the boardwalk, seating, wildlife observation structures, interpretive signage and the wayfinding system.
- Site designs should take advantage of on-site materials. Collaborations with the region's robust art community can produce interpretive features with meaning. On-site clays could be used for interpretive reliefs, pavements, stormwater runnels, and similar features. Clearing of invasive plants could provide material for ephemeral art installations, and possibly for site structures. Reclaimed debris from the site – tires, glass bottles, bricks – could be used imaginatively to create structures.
- <u>Permanent structures and impervious</u> <u>surfaces must be avoided on the landfill</u> <u>cap.</u> Signage or trail markers within the landfill area must be specifically designed, sited and installed to have no impact on the landfill capping system.

- Redevelopment of the "brownfield" site is an opportunity to incorporate the environmental values of the North Bay in a park structure, or even a compatible business development. This location is ideal for permanent parking and a visitor center. Additionally, it is large enough to accommodate a compatible business – a manufacturer of green building materials or technologies; an agri-business development such as greenhouses for year-round food production; a boat-building and sales operation - and could involve a job-training partner such as COARC. The facility could be developed through a regenerative design competition.
- The existing, privately owned, industrial building within the landfill could be incorporated into the North Bay site through conversion or at least with redevelopment as a compatible commercial/light industrial use. All or a portion of the site could be made available for a site-enhancing operation – boat-building, environmental education, food concessions. Re-use as an interpretive facility could feature exhibits about landfill technologies and water quality. Redevelopment must take into consideration that any reconfiguration of the building and surroundings will be subject to NYSDEC review.
- <u>The landfill methane vents should be re-</u> <u>moved at the earliest opportunity subject</u> <u>to testing.</u> Testing will determine whether current methane levels will permit the removal of some vents prior to 2026. Current methane levels are not sufficient to support a methane recapture system. In the interim, managing the cap area as bird habitat will limit the public's physical and visual access to the vents.

Site Interpretation: (See Appendix B., Map 4., Tables 1 and 2.) An interpretive program should be a chief feature of the North Bay utilizing signage, structures and creative displays, interpretive podcasts linked to downloadable maps, and other interactive technologies. Many aspects of the site can be effectively interpreted – its habitats, specific flora and fauna, and site history such as brick making, whaling and other historical commercial uses of the North Bay. Creative interpretive approaches could be developed around the landfill itself and the sewage treatment plant, which would also teach about natural processes.

Examples of points of interest:

- <u>Viewpoints offer opportunities for site</u> <u>history and geology interpretation</u> including Catskill Mountain geology, through maps, text, and environmental art. In-situ cross-sections constructed with Plexiglas can be used to interpret local geology and the clay bluffs.
- <u>Landfill reclamation and grassland restora-</u> <u>tion</u> can be explained with signage, bird silhouettes and model nests, but also demonstrated with nesting boxes and mounted spotting scopes.
- <u>Landscape ecology and forest succession</u> can be explained with a series of exhibits and demonstrated with tree ID tags, or cast animal tracks.
- <u>The invertebrate life of the riparian forest</u> can be taught with magnifier stations to observe organisms.



Implementation Plan

The implementation plan for development of the Hudson North Bay Recreation and Natural Area has been developed for planning purposes as a threephase, 9-year time frame. (See Appendix C, Phasing Plan, Map 5, Action Matrix, Table 3.) The actual timeframe will be subject to many variables including the details of the final design, the time required for permitting, and of course the availability of funding. The plan assumes that there will be a thorough public process, and resolution of ownership and responsibility issues prior to Phase I, and that the required SEQR review can be satisfied through the LWRP process, or otherwise.

The first area recommended for development is the western portion and perimeter trail, followed by the upland trails, and then improvements to city streets and development of a visitor and environmental education center. Each portion of development involves a series of steps – from pre-design and permitting through final design and construction – that will overlap in phases over the years.

Pre-design studies are those that must precede construction or permitting, or that might be a critical factor in determining the actual feasibility of some recommended improvements, or buildability on some areas of the site. For example, the results of biological surveys will inform the appropriate placement of trails, overlooks, interpretive opportunities and other site elements in order to minimize harmful impacts. These surveys are ranked on a continuum from low to high priority depending on whether they might trigger regulatory review. The regulatory agencies may dictate what studies must be performed. Table 4. is a matrix of recommended additional studies with details including related permits.

Permitting requirements will be dictated by the potential for impacts on sensitive species or ecosystems; potential impacts on the landfill infrastructure; and permits related to construction activities. Because of the sensitive nature of the ecological systems at the North Bay, regulatory agencies should be included in the early stages of planning. Permitting for affected improvements will also require coordination with issuing agencies during design as well as construction. Any changes to structural or functional landfill closure elements – the cap, vents, etc. – will require filing of a request for a Closure Plan Modification with NYSDEC, including proposed changes to the current vegetation plan, bioremediation of leachate or selective removal of gas vents. Table 5. lists major permits and their requirements.

Design in each phase will involve detailed site analysis including geotechnical studies and possibly additional surveys, followed by concept and design development, and construction documentation.

Phase I

Phase I would include most pre-design studies including additional biological surveys, landfill condition assessments and engineering feasibility studies. Permitting would include, principally, the Landfill Closure Modification Plan that is required by NYSDEC for any change of use or development, as well as NYSDEC Freshwater Wetlands Construction and Protection of Waters permits, and local permits, all specific to the actual proposed construction.

Phase I design and construction would consist of establishing the North Bay gateway, parking and principal trailhead, and development of the marsh perimeter trail, including the boardwalk, and the two trail connections to the Greenport Conservation Area. These improvements will be based on existing infrastructure, such as the existing roadway, that can be available immediately and upgraded. These improvements will also provide a high-impact experience that will help generate support for completing future phases. The interpretive program would be developed along with the trail program. Design for Phase II trail construction would begin during Phase I.

Most financing and fundraising should be initiated during Phase I, including targeted grants for trail development and associated improvements, environmental education, and habitat improvements, among others. It is not uncommon for applicants to re-submit proposals for consecutive grant cycles before being funded. Grant research must be ongoing as sources expire or new sources develop.

Restoration projects are multi-phase activities that should begin early and are identified to begin with the development of a plan in Phase I and then continue through installation and maintenance through Phase III, subject to available funding.

Phase II

The focus of Phase II would be construction of the upland trail system, including completion of the one-mile perimeter trail, the wildlife observation structures, and trail links to adjacent properties – the Hudson High School and FASNY – and establishment of the secondary trailheads at Charles A. Williams Park, with those trail connections, and the small boat launch at the west end of Dock Street. Planning and design for Phase III improvements, including a visitor/education center, would begin during Phase II. Restoration projects would continue, subject to funding.

Phase III

The major goal for Phase III would be construction of a visitor and environmental education center. This could involve redevelopment of an existing building, or new construction. Phase III would also see the construction of off-site streetscape improvements in coordination with the City of Hudson. Restoration projects would continue, subject to funding.

Estimate of Probable Development Costs & Potential Funding

The total estimate for development of the North Bay is close to \$2.4 million (see Table 6.) This does not include remediation on the "brownfield" site, design and installation of a new leachate bioremediation system, gas vent removal, building redevelopment or construction, utilities, or city streetscape improvements. Designed items such as a gateway treatment and kiosks, interpretive features and signage, and similar structures are provided for in the budget by an allowance amount.

The proposed Phasing Plan spreads costs over the nine-year time frame to allow for multiple fundraising strategies to be pursued. The plan is flexible, subject to required studies and permitting, and thus can be adjusted as funding requires. Table 7. lists a number of potential funding sources.



Appendix A

Site Survey & Existing Conditions

Map 1. Site Aerial/Survey



Map 2. Site Survey



Appendix B Concept Plan



PROPOSED NORTH BAY RECREATION & NATURAL AREA

CONCEPT PLAN

—	Proposed North Bay Recreation and Natural Area
	Municipal Boundaries
	Parcel Boundary
	Buildings
	River
	Tidal Wetland
	Forested Wetland
	Upland Grassland
	Upland Forested
	Landfill Grassland
	Compatible Commercial
	Accessway
	Developed Land Outside North Bay Area
	Gateway Feature
	Overlook/Interpretive Point
	Public Access Point
	Interpretive Point
	Park Feature
	Gateway
-	Existing Pedestrian/Bike Path
••••	Footpath
•••	ADA/Accessible Trail
	Boardwalk
	Streetscape Improvements
	DLUMBIA
518 39	92 5252 www.clctrust.org
	Map 3



PROPOSED **NORTH BAY RECREATION &** NATURAL AREA

INTERPRETIVE PLAN

—	Proposed North Bay Recreation and Natural Area
	Municipal Boundaries
	Parcel Boundary
	Buildings
	River
	Tidal Wetland
	Forested Wetland
	Upland Grassland
	Upland Forested
	Landfill Grassland
	Compatible Commercial
	Accessway
	Developed Land Outside North Bay Area
	Gateway
	Existing Pedestrian/Bike Path
	Footpath
	ADA/Accessible Trail
	Boardwalk
	Streetscape Improvements
	Phase 1 Improvements
	Phase 1 & 2 Improvements
	Phase 2 & 3 Improvements
(\mathbf{A})	Interpretive Point
See Opp	Table 2. Typical Interpretive ortunities, for Letter Descriptions
	· · · · · · · · · · · · · · · · · · ·
C	
518 3	392 5252 www.clctrust.org
	Map 4

Table 1. Site Signage Type

SIGN TYPE	DESCRIPTION	SUGGESTED LOCATION
Wayfinding: Primary Map/ Informational Kiosk	Large display(s) to convey visitor informa- tion, site orientation, rules and regulations	Main entrance
Wayfinding: Primary Directional	Sign with trail information: name(s) of trails (with color code), direction to trail, distance, approved uses	Trail intersections
Wayfinding: Secondary Directional	Sign with trail information: name(s) of trails (with color code) and direction	Trail intersections
Wayfinding: Blaze	Small but conspicuous graphic with color code for trail, and direction (if necessary)	Trail intersections/decision points and at regular intervals along trail
Wayfinding: Property Boundary	Conspicuous sign clearly identifying pre- serve property boundary	At property boundaries where pedestrians or vehicular traffic accesses site
Cautionary	Warning of hazards, temporary closures, trail conditions	At trail head/intersection to affected trail
Interpretive	Site specific information based on pro- grammatic goals	Points of interest

Table 2. Typical Interpretive Opportunities

LOCATION	SUBJECT/CONTENT	EXAMPLE
А	Site information; Tidal wetland hydrology & vegetation	Interpretive signage
B, C, S	Wayfinding; Bicycle route	Pole-mounted sign; Road striping
D	Site introduction; Parking information; Wayfinding	Kiosk and/or Information Center
Е	Wayfinding	Mounted sign
F	Trailhead; Site interpretation	Environmental Art; Mounted sign; Mounted Braille sign
G	Tidal wetland hydrology & vegetation; Wildlife informa- tion; Landfill information	Interpretive signage; Pedestal-mounted spotting scope
Н	Tidal wetland hydrology & vegetation; Wildlife informa- tion	Interpretive signage; Pedestal-mounted spotting scope; Nesting boxes
Ι	Riparian forest; Turtle Pond; Brick works	Interpretive signage; Magnifier station; Cast animal tracks; Tree ID tags; Environmental art
J	Landfill reclamation; Grasslands information; Bird Mi- gration; Ecosystem Edges	Interpretive signage;Bird silhouettes Model nests; Nesting boxes
K,M,O,R	Site information; Wayfinding	Mounted signs
L	Viewshed; Catskill geology; Successional habitat Bird migration; Sedge/fern wetland; Rare wetland species	Interpretive signage; Pedestal-mounted spotting scope; Bird silhouettes; Environmental art
N	Vernal pool; Emergent marsh; Reptiles & amphibians	Interpretive signage
Р	Landscape ecology: old field, forested floodplain island, river, forest edges; Passerine migration; Cultural factors	Interpretive signage; Pedestal-mounted spotting scope; Bird silhouettes
Q	Clay bluffs/geology; Viewshed; Brickmaking	Interpretive signage; Environmental art; Stormwater devices; In-situ cross-section

Appendix C Implementation Plan **Implementation Plan:** The Implementation Plan for a North Bay Recreation and Natural Area consists of three phases. A detailed list of tasks and their associated phases is shown as Table 3. Action Matrix.

Table 4. Recommended Additional Studies: A significant number of biological surveys are needed prior to any planning, design, or construction work on the public access infrastructure. The results of these surveys, with information about critical habitat features and precise nesting locations, will inform the appropriate placement of trails, overlooks, interpretive opportunities, and other site elements to avoid negative impacts to sensitive flora and fauna, minimize habitat loss, fragmentation and habitat avoidance due to human intrusion. The majority of studies are recommended for Phase 1, Years 1 and 2. Many of them can be performed concurrently.

Additional studies associated with the landfill, e.g. with regard to leachate seepage, are recommended early in Phase 1 due to potential permit implications (described below). This issue may also affect public perception and should be addressed early for that reason.

Recommended studies are shown as high, medium, or low priority, in part depending on whether they are associated with site improvement work that will trigger regulatory review and permitting requirements. For example, any work with potential impacts on the marsh will require freshwater wetland permits, and require documentation from the relevant biological surveys noted. Medium priority studies are those associated with site improvements that may trigger other permit requirements. It is advisable to have data available before proceeding with planning, design, and/or construction. Low priority studies are recommended, although site planning and development may proceed before these studies are completed. As an example, selective gas vent removal may be desirable for public perception, but is not a pre-condition for beginning trail planning. Such studies can be conducted later in Phase 1.

The need for the listed surveys is project specific, and the medium or low priority designation may change once engagement with local regulatory agencies begins. NYSDEC may request or require that certain surveys be performed. Determining factors may include regional population trends, habitat availability, and land-use changes. Only the regulatory agency can offer specific guidance.

Table 5. Regulatory Review and Permitting:Different aspects of the development andimplementation of site improvements will generate a

need for permits or other forms of regulatory review and oversight. Generally, review and permits fall into several broad categories: (1) potential impacts on sensitive species and/or ecosystems; (2) potential impacts on landfill infrastructure; and (3) permits related to construction activities such as erosion and sediment control, post-construction stormwater management, building codes, and zoning.

Permitting early in Phase 1 is associated with several biological surveys (e.g., marsh-nesting breeding bird survey, seining and electrofishing for anadromous fish concentration). Time should be allotted to acquire necessary scientific collection permits before scheduling field work.

Regulatory review of proposed site improvements for the landfill area should occur early in Phase 1. Permits are not required for any site improvements that will not impact the closure cap, leachate collection system, or gas venting system. Any changes to structural or functional landfill closure elements will require approval from NYSDEC. This approval is not a permit, but rather a filing of a request for a Closure Plan Modification, in the form of a letter and supporting site documents detailing all proposed improvements. These documents are to be filed with NYSDEC Region 4. The following items recommended in the Natural Resource Inventory constitute changes that need to be addressed in a request for a Closure Plan Modification:

- Ecological restoration/changes to the current vegetation management plan.
 Documents should indicate proposed planting and invasive species management strategies and make clear that proposed restoration of native plant communities will not compromise the integrity of the clay cap.
- <u>Bioremediation of confirmed leachate</u> <u>seepage.</u> According to Richard Forgea, a solid waste engineer with NYSDEC Region 4, if leachate is actually seeping out beyond the landfill cap, this would constitute a permit violation and require attention. Documents should indicate that appropriate investigation will occur to determine the nature and source of the apparent seepage. NYSDEC has approved bio-remediation of seepage as a strategy on other landfill projects (e.g., Hunter landfill).
- <u>Selective removal of gas vents.</u> The North Bay landfill is reaching the point at which methane generation is expected to be

minimal and it may be possible to remove some of the vents. The request for a Closure Plan Modification should include permission to conduct gas monitoring to document that no methane is present.

Potential permits for other site improvements are related to construction in or near wetlands (e.g., tidal marsh boardwalk), the presence of threatened and endangered species or habitats, and stormwater discharges. Compilation of data for constructionrelated permits usually begins in the design phase.

Because of the sensitive nature of the ecological systems associated with this project, and because regulators can provide important guidance as this project develops, it is strongly recommended that regulatory agencies be included from the outset. This project is already on file with NYSDEC as a result of the Natural Heritage Database Request that was filed during the preparation of the Natural Resource Inventory.

Planning and Design: A number of planning and design tasks can occur early in Phase 1, concurrent with additional studies (e.g., addressing property ownership issues and formalizing rules and public messages). Other planning and design tasks (e.g., determining the alignment of the marsh boardwalk) are dependent on the results of different studies and so will occur after these have been completed.

Construction: It is recommended that early efforts (Phase 1) be focused on completing the Gateway area and the ADA-Accessible trail components. The existing roadway infrastructure can be used immediately and then upgraded. This portion of the visitor circulation network will provide a high-impact experience and generate support to complete the remaining segments. Connector trails offsite to the Greenport Conservation Area, which exist in part, are included in Phase 1 to expand user opportunities and support. No trails should be developed on the upland east side of the site into sensitive forested wetland and woodland areas before the completion of studies and appropriate planning and design. Other trail connections are also recommended in later phases to ensure protection of potentially sensitive species and habitats.

Ecological Restoration: Restoration of natural areas is a multiphase activity that should begin early in the process of site improvement. Development of an ecological restoration and management plan can begin as biological surveys in Years 1 and 2 are completed. Installation activities can begin in Year 3. Establishment maintenance is projected to run through Year 7 (Phase 3).

Grant Funding: Table 6. Estimate of Probable Development Costs indicates that total project development is likely to exceed \$2 million dollars. Therefore, an effort has been made to spread costs out over three phases (up to nine years) to allow for a variety of fundraising strategies to be pursued. This includes grant funding, which is subject to grantor calendars. With adequate funding in place, and assuming all required surveys have been completed, site improvements scheduled for Phases 2 or 3 could be advanced and worked on concurrent with other Phase 1 projects.

Table 7. Potential Funding Sources describes sources of funding for projects related to ecological restoration, environmental education, and recreational trail development. Grant applications should be initiated as early as possible. It is not unusual for applicants to resubmit a proposal for several consecutive grant cycles before funding is awarded. Early contact with granting agencies is advised to confirm availability of funds, submission deadlines and project selection criteria (which may change over time). Many grantors also offer assistance to applicants in strategizing and submitting applications. Since some grant programs expire or are defunded, while new ones are initiated, grant research should be an on-going activity.

Collaborations and Partnerships: Collaborations and partnerships may facilitate implementation of site development and program goals through additional funding sources; in-kind services; increased visibility, public use and support; and other opportunities. Potential partners include:

- Educational user groups (elementary through secondary schools, colleges and universities);
- Public agencies (e.g., NYSDEC, Natural Resource Conservation Service, US Environmental Protection Agency, Columbia County Soil & Water); and
- Allied environmental organizations and citizen science groups (e.g., National Audubon Society, The Nature Conservancy, Cornell Laboratory of Ornithology Bird Count, Scenic Hudson, Open Space Institute).

Several goals stated in The City of Hudson Comprehensive Plan suggest areas of potential partnership with city development agencies and the local business community, including economic development (e.g., eco-tourism, quality of life as economic asset); pedestrian streetscape improvements; development of a bicycle and pedestrian trail network; and park and recreation improvements.



PROPOSED NORTH BAY RECREATION & NATURAL AREA

PHASING PLAN

Proposed North Bay Recreation and Natural Area – – Municipal Boundaries --- Parcel Boundary Buildings River Tidal Wetland Forested Wetland Upland Grassland Upland Forested Landfill Grassland Compatible Commercial Accessway **Developed Land** Outside North Bay Area **Gateway Feature** Overlook/Interpretive Point Public Access Point nterpretive Point Park Feature Gateway Existing Pedestrian/Bike Path Footpath ADA/Accessible Trail Boardwalk Streetscape Improvements Phase 1 Improvements Phase 1 & 2 Improvements Phase 2 & 3 Improvements **COLUMBIA** LAND CONSERVANCY 518 392 5252 www.clctrust.org

Map 5

Table 3. Action Matrix

		PHASE 1	-		PHASE 2			PHASE 3	
TASK DESCRIPTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9
ADDITIONAL STUDIES									
Biological Survey: Marsh Nesting- Breeding Birds	Х								
Biological Survey: Breeding Raptors	Х			-					
Biological Survey: Seining and Elec- trofishing	Х								
Biological Survey: Threatened & En- dangered Plant Species	Х								
Biological Survey: Bog Turtle Habitat Assessment	Х								
Landfill Existing Topographic Condi- tions	Х								
Landfill Seepage Assessment	Х								
Feasibility: Bioremediation of Sus- pected Leachate	Х								
Feasibility: Brownfield Remediation of Proposed Permanent Visitor Parking	Х								
Ecological Restoration and Manage- ment Plan		Х							
Biological Survey: Migratory Birds (Waterfowl, Shorebirds)	Х								
Biological Survey: Wintering Birds	х	Х							
Biological Survey: Nocturnal Birds	х								
Biological Survey: Point Count Breed- ing Birds	Х	Х							
Biological Survey: Neotropical & Tem- perate Migrant Birds	Х	Х							
Biological Survey: Pitfall Trapping (Amphibians)		Х							
Biological Survey: Vernal Pool Habi- tat/Ambystomatid Breeding		Х							
Biological Survey: Basking Turtle Trap	х								
Biological Survey: Calling Amphibians	Х	х							
Biological Survey: Reptile/Amphibian Drift Fence	Х	Х							
Biological Survey: Stream Transects (Amphibians)	Х	Х							
Feasibility: Selective Gas Vent Re- moval			х						
Feasibility: Boat Launch Improve- ments			х						
Feasibility: Adaptive Reuse of Existing Landfill Building				Х					

Table 3. Action Matrix (Cont'd)

		PHASE 1			PHASE 2	;		PHASE 3	;
TASK DESCRIPTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9
PERMITTING									
Scientific Collection and Call Playback (preceeds biological surveys)	Х	Х	Х						
NYSDEC Landfill Closure Modifica- tion Plan (contingent on detailed studies)	Х								
NYSDEC Freshwater Wetland Construction (specific to proposed construction)		Х							
NYSDEC Protection of Waters (specific to proposed construction)		Х							
SPDES NOI, SWPPP, PCSMP (specific to proposed construction)		Х							
City of Hudson Local Zoning (specific to proposed construction)		Х							
PLANNING & DESIGN									
Address property ownership issues	Х								
Formalize rules & public messages (e.g., Leave No Trace Ethics)	Х								
Install temporary signage at entry and interim parking area	Х								
Install temporary signage (existing trails to remain open or to be closed)	Х								
Permanent signage (rules, wayfinding)	х								
Pedestrian/bicycle trail improvements, Segments A1-C	Х								
Accessible trail improvements, Seg- ments B-C-M-K-J	Х								
Marsh Boardwalk, Segments M-L-J		х							
Develop interpretive features plan		х							
Visitor Gateway, Segment A1-A	х								
Accessible Trail Improvements, Seg- ments C-E-F			Х						
Trail Improvements, Segments F-G-H			х						
Trail Improvements, Segments H-I-J		х							
Trail Improvements, Segments F-N-O			х	х					
Trail Improvements, Segment B-O			х				2. 		
Trail Improvements, Segments C-D-E					Х		2. 		
Overlook/Wildlife Observation Struc- ture 1 (location F)				Х					
Overlook/Wildlife Observation Struc- ture 2 (location O)				Х					
Connector Trail: Segment O-P			х						

Table 3. Action Matrix (Cont'd)

		PHASE 1	L		PHASE 2	2		PHASE 3	8
TASK DESCRIPTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9
Connector Trail: Segment F-F1			х						
Connector Trail: Segment H-H1		х							
Connector Trail: Segment I-I1		х							
Connector Trail: Segments O-O1-O2			х						
Permanent visitor parking			х						
Off Site Streetscape Improvements:									
-Second St.					х	х			
-Mill St.					х	х			
-Dock St.					Х	х			
-North Front St.					Х	х	-		
Leachate remediation (contingent on detailed studies)	Х								
Visitor Education Center					Х	х			
Boat/canoe/kayak launch				х					
CONSTRUCTION									
Begin installation of permanent sig- nage (rules, wayfinding)		х							
Pedestrian/bicycle trail improvements, Segments A1-C		х	х						
Accessible trail improvements, Seg- ments B-C-M-K-J		Х	Х						
Marsh Boardwalk, Segments M-L-J		х	х						
Begin implementation of interpretive features plan		х							
Visitor Gateway, Segment A1-A		х							
Accessible Trail Improvements, Seg- ments C-E-F				х					
Trail Improvements, Segments F-G-H				х					
Trail Improvements, Segments H-I-J			х						
Trail Improvements, Segments F-N-O				х					
Trail Improvements, Segment B-O				х					
Trail Improvements, Segments C-D-E						х			
Overlook/Wildlife Observation Struc- ture 1 (location F)						х			
Overlook/Wildlife Observation Struc- ture 2 (location O)						Х			
Connector Trail: Segment O-P						Х			
Connector Trail: Segment F-F1						х			
Connector Trail: Segment H-H1			х						

Table 3. Action Matrix (Cont'd)

		PHASE 1			PHASE 2			PHASE 3	;
TASK DESCRIPTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9
Connector Trail: Segment I-I1			х						
Connector Trail: Segments O-O1-O2									
Permanent visitor parking				х					
Off Site Streetscape Improvements:									
-Second St.							х		
-Mill St.							х		
-Dock St.							х		
-North Front St.							х		
Leachate remediation (contingent on studies, permitting)		Х							
Visitor Education Center							х	х	х
Boat/canoe/kayak launch					Х				
ECOLOGICAL RESTORATION									
Native Warm Season Grasses			х	х	х	х	х		
Reforestation			х	х	х	х	х		
Shrub-Scrub			х	х	х	Х	х		
Invasive Species Removal			х	х	х	Х	х		
GRANTS AND FUNDRAISING									
Habitat Restoration	х	х							
Habitat Creation	х	х							
Environmental Education		х							
Trails (Transportation Initiatives, Rec- reational Trails)		Х	Х						
Brownfield Reclamation			х						
Sustainable Stormwater Management		х							
POST INSTALLATION/ CONSTRUCTION									
Initiate monitoring system for visitors(no.s, behaviors) and trail conditions			Х						
Continue monitoring indicators; implement repairs, changes as needed					Х				
Assess parking needs		Х			Х				
COLLABORATION/ PARTNERSHIPS									
Explore partnerships to implement improvements		X							
Begin Education Center Capital Campaign		Х							

Table 4. Recommended Additional Studies

PHASE	ASSESSMENT TYPE	SITE LOCATION	TIMEFRAME	DURATION	ESTIMATED COST ¹	CONSULTANT / EXPERTISE	ASSESSMENT FOCUS	PERMIT	PRIORITY ²
1	Biological Survey Marsh-Nesting Breeding Birds	Marsh	May Year 1	4 site visits	\$5,000	Wildlife Biologist/ Avian Ecologist	Threatened & endangered (T&E) species implications (Least Bittern, Pied Billed Grebe). Specific to tidal marsh.	Scientific collection and call playback. License to col- lect and possess: Scientific. 6NYCRR Part 175, ECL 11- 0515(1)	High Prior to boardwalk and trail design
1	Biological Survey Breeding Raptors (eagle/osprey target)	Marsh, forested portions	Dec – Feb (nest building phase) Year 1 Potentially repeat peri- odically (every winter)	5 visits	\$5,000	Wildlife Biologist/ Avian Ecologist	To determine early detection signs of breeding bald eagle on site Potential habitat impacts of board- walk and trail		High Prior to boardwalk & trail design
1	Biological Survey Seining & Electrofishing (anadromous fish concentration area/ short nose sturgeon)	Marsh	Spring (April), then fall (Sept) Year 1	2 nights (spring), 2 nights (fall), 4 visits total	\$10,000	Wildlife Biologist/ Icthyologist	Determine composition of fish spe- cies in marsh waters (T&E implica- tions) Potential habitat impacts of trail	Scientific Collection Permit	High Prior to boardwalk design
1	Biological Survey Threatened & Endangered Plant Species (Golden club, heartleaf plaintain, Del- marva beggars ticks, tidal spikerush)	Tidal marsh	Spring or fall Year 1	6 visits	\$15,000	Botanist	Implications for threatened and endangered species	Scientific Collection	High Prior to boardwalk and trail design
1	Biological Survey Bog Turtle Habitat Assessment	Freshwater wetlands Emergent vegetative wetlands in forest ravines	Spring Year 1	3 visits	\$6,000	Wildlife Biologist/ Herpetologist Qualified Bog Turtle Surveyor	Implications for threatened and endangered species	Coordination with NYSDEC required	High Prior to trail design
1	Landfill Existing Topographic Con- ditions	Landfill	Late winter, early spring (Feb – Mar) Year 1	1 week (field data collection, survey docu- ment produc- tion)	\$15,000	Surveyor	Surface features, topography (evi- dence of subsidence), relationship of clay cap to surface features (park- ing lot, roadway, former EMSIG building slab foundation)		High Prior to site design
1	Landfill Seepage Assessment	Landfill/surrounding habitats (downslope)	Spring Year 1		\$20,000	Landfill Engineer/ Hydrogeologist	Determine whether landfill is dis- charging leachate outside of permit- ted collection system		High Leachate discharge consti- tutes permit violation
1	Feasibility Bioremediation of Suspected Leachate	Landfill/surrounding habitats (downslope)	Spring – Fall Year 1		Contingent on seepage assessment	Ecological Engineer/ Ecological Res- toration	Create natural system clean-up of suspected leachate (functional and aesthetic solution)	Landfill alteration, WL buffer (potentially exempt)	High Leachate discharge consti- tutes permit violation
1	Feasibility Brownfield Remediation of Proposed Permanent Visitor Parking	Proposed visitor parking area	Year 2		\$30,000	Environmental Engineer	Phase 1, 2 Environmental Assess- ments Remediation Plan	Environmental (e.g., clean- up, groundwater) Zoning	High Prior to parking design
1	Ecological Restoration and Manage- ment Plan	Entire site	Year 2	1 year	\$45,000	Ecological Restoration	Enhance the overall ecological health of the property. Provide educational opportunities through restoration efforts.		High After biological surveys completed
1	Biological Survey Migratory Birds: Waterfowl (WF) Shorebirds (SB)	Marsh and river	November (WF) Aug – Sept. (SB) Feb – Mar (WF) Mar – April (SB) Year 1	4 fall winter visits/4 winter spring visits	\$3,500	Wildlife Biologist/ Avian Ecologist	Value of site for migrant birds/criti- cal habitat implications specific to tidal marsh		Medium
1	Biological Survey Wintering Birds	Open fields and marsh	Early Dec. – Late Feb. Begin Year 1 Repeat year 2	4 visits per survey season	\$3,500	Wildlife Biologist/ Avian Ecologist	T&E implications specific to tidal marsh and landfill/open space		Medium (High if NYSDEC requires) Potential wintering habitat for Northern harrier (Circus cyaneus), short- eared owl, Asio flammeus) Significance for bald eagle

NORTH BAY RECREATION AND NATURAL AREA

Table 4. Recommended Additional Studies (Cont'd)

PHASE	ASSESSMENT TYPE	SITE LOCATION	TIMEFRAME	DURATION	ESTIMATED COST ¹	CONSULTANT / EXPERTISE	ASSESSMENT FOCUS	PERMIT	PRIORITY ²
1	Biological Survey	Forested areas and field/open	May – June	3 visits	\$4,000	Wildlife Biologist/	Determine breeding status of Whip-		Medium (High if
	Nocturnal Bird Survey (e.g., Whip-poor Will)	space	Year 1			Avian Ecologist	poor win on site		Prior to interior forest trail design
1	Biological Survey Point Count Breeding Birds	Forest, field, edge of marsh	May 25 – June 30 Year 1 Repeat Year 2	6 surveys	\$7,000	Wildlife Biologist/ Avian Ecologist	Critical habitat for protected bird species (song birds) Potential habitat impacts of trail		Medium (High if NYSDEC requires) Prior to trail design
1	Biological Survey Neotropical & Temperate Migrant Birds	Entire site	April – May through Aug – Oct Year 1 Repeat Year 2	3 (spring), 5 (fall), 8 visits total	\$15,000	Wildlife Biologist/ Avian Ecologist	Determine value for sensitive migrants/educational/trail design/ attraction Potential habitat impacts of trail Strategic trail alignment for ecologi- cal, educational, aesthetic value		Medium Prior to trail design and strategic trail placement in interior forest
1	Biological Survey Pitfall Trapping (Amphibians)	Forested areas and field/open space	Spring/fall Year 3	2 separate 7-day trapping events (14 days total)	\$7,000	Wildlife Biologist/ Herpetologist	Identify key areas for onsite reptiles and amphibians	Scientific Collection	Medium Prior to interior forest trail design
1	Biological Survey Vernal Pool Habitat/Ambystomatid Breed- ing	Forested wetlands	Late winter, early spring (Feb – Mar) Year 3	2 weeks	\$3,500	Wildlife Biologist/ Herpetologist	Potential habitat impacts of trail	Scientific Collection	Medium (High if NYSDEC requires) Prior to interior forest trail design
1	Biological Survey Basking Turtle Trap	Marsh	April–May Year 1	30 days	\$15,000	Wildlife Biologist/ Herpetologist	Specific to tidal marsh Potential habitat impacts of trail	Scientific Collection Permit	Low Prior to boardwalk layout/ habitat impacts
1	Biological Survey Calling Amphibians	Streams, wetlands and marsh	March – July Begin Year 1 Repeat Year 2	8 visits per survey season	\$4,500	Wildlife Biologist/ Herpetologist	Determine critical habitat and spe- cies composition of frogs and toads in tidal marsh/forested wetlands		Low Prior to trail layout/habitat impacts
1	Biological Survey Reptile/Amphibian Drift Fence	Forest and field habitats	Spring/fall Year 1 Repeat Year 2	2 weeks (spring), 2 weeks (fall)	\$15,000	Wildlife Biologist/ Herpetologist	Coordinate with pitfall efforts. If T&E snake species is potential/oth- erwise educational	Scientific Collection Permit	Low (High if NYSDEC re- quires for C. a. amoenus) Prior to interior forest trail construction
1	Biological Survey Stream Transects (Amphibians)	Streams	Early spring and late fall Year 1 Repeat Year 2	Spring and fall, 2 days total	\$3,000	Wildlife Biologist/ Herpetologist	Educational	Educational	Low
1	Feasibility Selective Gas Vent Removal	Landfill	Year 3	1 year	\$10,000	Landfill Engineer	Demonstrate no significant meth- ane production from vents to be removed	Landfill alteration	Low
1	Feasibility Boat Launch Improvements	Fugary Boat Club	Year 3		\$8,000	Landscape Architect, Civil Engineer	Ownership, water quality issues, structural condition and deficiences	Wetland buffer construction (potentially exem0t)	Low
2	Feasibility Adaptive Reuse of Existing Landfill Build- ing	Landfill	Year 4		\$15,000	Architect, Civil Engineer	Structural condition and deficien- cies, code violations, probable needed repairs with order of magni- tude costs; adaptive re-use potential (including ADA requirements); permit requirements; LEED certifica- tion potential	Landfill alteration (possibly, if ground is broken), building permits/zoning	Low

¹No cost guarantee is implied or expressed. Estimated costs provided for planning purposes only.

²**High** = Required prior to site planning and development work

Medium = Strongly recommended prior to site planning and development work

Low = Recommended; site planning and development work may proceed

NORTH BAY RECREATION AND NATURAL AREA

Table 5. Regulatory Review and Permitting

AGENCY	PERMIT/ REVIEW	REVIEW PERIOD	SUBMISSION REQUIREMENTS	NOTES
NYSDEC Region 4 Headquarters 1130 North Westcott Road Schenectady, NY 12306-2014 Richard Forgea, Solid Waste Engineer (518) 357-2243	Closure Plan Modi- fication (Applies to changes to landfill structures or func- tional elements, e.g., additional topsoil, vegeta- tion management plan, access road on leachate bar- rier, removal of gas vents)	30 days	Plans, engineer's re- ports, other documents describing proposed site improvements	Site improvements that will not impact the landfill cap, leachate collection system, or gas venting do not require any approvals. Provide letter (subject line: Amendment to Closure Plan) describing proposed improvements for all phases. Conceptual basis is acceptable. There should be no changes that penetrate landfill cap; disturb leachate collection structures; or disturb gas vents. Include discussion of proposed ecosystem restoration to demonstrate there will be no root penetration of landfill cap. Proposal to remove gas vents selectively should include request to conduct gas monitoring to document no methane is present. NYSDEC has approved bioremediation of leachate on other sites (e.g., Hunter landfill) but if there is leachate beyond the cap, technically constitutes a violation. Use of bioremediation constitutes a modification to the leachate control structure.
NYSDEC Region 4 Headquarters 1130 North Westcott Road Schenectady, NY 12306-2014 Regional Permit Administrator: Wil- liam Clarke (518) 357-2456	NYS Freshwater Wetland Permit (Construction in HN-2 wetland or 100' buffer zone)	Major proj- ects: 90-day review; Minor projects: 45- day review	Submitted as Joint Ap- plication with Protec- tion of Waters Permit	Contact regulatory agency to determine whether General Permit applies instead, possible exemptions
NYSDEC Region 4 Headquarters 1130 North Westcott Road Schenectady, NY 12306-2014 Regional Permit Administrator: Wil- liam Clarke (518) 357-2456	NYS Protection of Waters Permit (Construction in HN-2 wetland or 100' buffer zone)	Major proj- ects: 90-day review; Minor projects: 45- day review	Submitted as Joint Ap- plication with Protec- tion of Waters Permit	Contact regulatory agency to determine whether General Permit applies instead, possible exemptions
NYSDEC Division of Water 625 Broadway, 4th Floor Albany, New York 12233-3505 (518) 402-8111 dowinfo@gw.dec.state.ny.us	SPDES General Permit for Storm- water Discharges from Construction Activity GP-0-10-001	90 days	Preconstruction Notice of Intent (NOI) and Stormwater Pollu- tion Prevention Plan (SWPP) Postconstruction Storm- water Management Plan (PCSMP)	PCSMP required for changes to amount of impervious cover If leachate or stormwater discharge is collecting at toe of slope beyond landfill cap, it may require a SPDES permit modification and remediation.

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AGENCY	PERMIT/ REVIEW	REVIEW PERIOD	SUBMISSION REQUIREMENTS	NOTES
NYSDEC Division of Fish, Wildlife and Marine Resources 625 Broadway, Albany, NY 12233-4752. (518) 402-8993 pxmartin@gw.dec.state.ny.us Please include the Part number when emailing.	Scientific collection and call playback. License to col- lect and possess: Scientific. 6NYCRR Part 175, ECL 11- 0515(1)			Required for biological assessments/additional studies
City of Hudson Planning Commission 520 Warren Street Hudson, NY 12534 Donald Tillson Jr. – Chairman (518) 828-7228	Site Plan Review		Site plan Environmental Assess- ments	Local zoning requirements may change pending outcome of Lo- cal Waterfront Revitalization Plan

¹Permitting information is provided for planning purposes only. Additional permits and approvals may be required.

Table 6. Estimate Of Probable Development Costs

PHASE	ITEM DESCRIPTION	UNIT	QTY.	UNIT COST	TOTAL	NOTES			
Additional Studies – High Priority									
1	Biological Survey: Marsh Nesting- Breeding Birds	LS	1	\$5,000	\$5,000				
1	Biological Survey: Breeding Rap- tors	LS	1	\$5,000	\$5,000				
1	Biological Survey: Seining and Electrofishing	LS	1	\$10,000	\$10,000				
1	Biological Survey: Threatened & Endangered Plant Species	LS	1	\$15,000	\$15,000				
1	Biological Survey: Bog Turtle Habi- tat Assessment	LS	1	\$6,000	\$6,000				
1	Landfill Existing Topographic Conditions	LS	1	\$15,000	\$15,000				
1	Landfill Seepage Assessment	LS	1	\$20,000	\$20,000				
1	Feasibility: Bioremediation of Suspected Leachate	LS	1	TBD	TBD				
1	Feasibility: Brownfield Remedia- tion Permanent Visitor Parking	LS	1	\$30,000	\$30,000				
1	Ecological Restoration and Man- agement Plan	LS	1	\$45,000	\$45,000				
	1			SUBTOTAL	\$151,000				
Additional Studies – Medium Priority									
1	Biological Survey: Migratory Birds	LS	1	\$3,500	\$3,500				
1	Biological Survey: Wintering Birds	LS	1	\$3,500	\$3,500				
1	Biological Survey: Nocturnal Bird Survey	LS	1	\$4,000	\$4,000				
1	Biological Survey: Point Count Breeding Birds	LS	1	\$7,000	\$7,000				
1	Biological Survey: Neotropical & Temperate Migrant Birds	LS	1	\$15,000	\$15,000				
1	Biological Survey: Pitfall Trapping (Amphibians)	LS	1	\$7,000	\$7,000				
1	Biological Survey: Vernal Pool Habitat/Ambystomatid Breeding	LS	1	\$3,500	\$3,500				
1	Biological Survey: Basking Turtle Trap	LS	1	\$15,000	\$15,000				
1	Biological Survey: Calling Am- phibians	LS	1	\$4,500	\$4,500				
1	Biological Survey: Reptile/Am- phibian Drift Fence	LS	1	\$15,000	\$15,000				
			SUBTOTAL	\$78,000					
PHASE	ITEM DESCRIPTION	UNIT	QTY.	UNIT COST	TOTAL	NOTES			
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Additiona	al Studies – Low Priority								
1	Biological Survey: Stream Tran- sects (Amphibians)	LS	1	\$3,000	\$3,000				
1	Feasibility: Selective Gas Vent Removal	LS	1	\$10,000	\$10,000				
1	Feasibility: Boat Launch Improve- ments	LS	1	\$8,000	\$8,000				
2	Feasibility: Adaptive Reuse of Existing Landfill Building	LS	1	\$15,000	\$15,000				
	-		-	SUBTOTAL	\$36,000				
Site Impr	ovements by Segment								
1	A1 - A								
	Major Gateway Entry	LS	1	\$20,000	\$20,000	Allowance: Architectural/ Artistic Signage Elements, Landscape			
	Streetscape	LF	300	\$150	\$45,000	Concrete sidewalk, 5' width; landscaping/stormwater bmps			
1	A – B								
	Streetscape	LF	600	\$150	\$90,000	Concrete sidewalk, 5' width; landscaping/stormwater bmps			
	Temporary Visitor Parking	SY	700	\$15	\$10,500	Compacted aggregate; 20 car capacity			
	Kiosk/signage	LS	1	\$5,000	\$5,000	Allowance			
	Stormwater management/rain garden	LS	1	\$2,000	\$2,000	Allowance			
1	B – C								
	Multi-use asphalt path, 10' width	LF	300	\$100	\$30,000	Earthwork, construction, ma- terials, stormwater bmps			
1	C – M								
	Crushed stone ADA path, 8' width	LF	1000	\$15	\$15,000	Minor grading, compaction, materials, stormwater bmps			
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance			
	Trail blazes/medallions	EA	3	\$10	\$30	500' intervals			
	Interpretive feature	LS	1	\$2,000	\$2,000	Allowance			
	Temporary fence	LF	1000	\$30	\$30,000				
1	H – I								
	Mown path, 6' width	LF	680	\$1	\$680				
	Trail blazes/medallions	EA	2	\$10	\$20	500' intervals			
	Interpretive feature	LS	1	\$2,000	\$2,000	Allowance			

PHASE	ITEM DESCRIPTION	UNIT	QTY.	UNIT COST	TOTAL	NOTES
1	H – H1	·				
	Compacted earth hiking trail, 6' width	LF	510	\$15	\$7,650	Clearing & grubbing, strip topsoil, minor grading, com- paction
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance
	Trail blazes/medallions	EA	2	\$10	\$20	500' intervals
1	I – I1					
	Compacted earth hiking trail, 6' width	LF	425	\$15	\$6,375	Clearing & grubbing, strip topsoil, minor grading, com- paction
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance
1	I – J					
	Mown path, 6' width	LF	200	\$1	\$200	
1	J – K					
	Crushed stone ADA path, 8' width	LF	300	\$15	\$4,500	Minor grading, compaction, materials, stormwater bmps
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance
1	J – L					
	Tidal Marsh Boardwalk	LF	500	\$50	\$25,000	ADA, 8' width min. with railing
	Interpretive feature	LS	1	\$2,000	\$2,000	Allowance
1	L – K	<u>`</u>				
	Tidal Marsh Boardwalk	LF	175	\$50	\$8,750	ADA, 8' width min. with railing
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance
1	L – M					
	Tidal Marsh Boardwalk	LF	400	\$50	\$20,000	ADA, 8' width min. with railing
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance
1	K – M		· · · · · ·	'		
	Crushed stone ADA path, 8' width	LF	300	\$15	\$4,500	Minor grading, compaction, materials
				SUBTOTAL	\$331,525	

PHASE	ITEM DESCRIPTION	UNIT	QTY.	UNIT COST	TOTAL	NOTES
2	C – E					
	Multi-use asphalt path, 10' width	LF	300	\$100	\$30,000	Earthwork, construction, ma- terials, stormwater bmps
2	E – F					
	Crushed stone ADA path, 8' width	LF	700	\$15	\$10,500	Clearing, strip topsoil, minor grading, compaction, materi- als, bmps
2	F – G					
	Compacted earth hiking trail, 6' width	LF	500	\$15	\$7,500	Clearing & grubbing, strip topsoil, minor grading, com- paction
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance
	Trail blazes/medallions	EA	2	\$10	\$20	500' intervals
	Interpretive feature	LS	1	\$2,000	\$2,000	Allowance
	Overlook Platform/Observation Tower	LS	1	\$40,000	\$40,000	Allowance
2	F – F1					
	Mown path, 6' width	LF	900	\$1	\$900	Off site; coordinate with abut- ting property owner
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance
2	F – N					
	Compacted earth hiking trail, 6' width	LF	500	\$15	\$7,500	Clearing & grubbing, strip topsoil, minor grading, com- paction
	Trail blazes/medallions	EA	2	\$10	\$20	500' intervals
2	G - H					
	Compacted earth hiking trail, 6' width	LF	600	\$15	\$9,000	Clearing & grubbing, strip topsoil, minor grading, com- paction
	Trail blazes/medallions	EA	2	\$10	\$20	500' intervals
	Interpretive feature	LS	1	\$2,000	\$2,000	Allowance
	Pedestrian Footbridge, ~30' Length	LS	1	\$20,000	\$20,000	Allowance
2	B – O					
	Mown path, 6' width	LF	800	\$1	\$800	

PHASE	ITEM DESCRIPTION	UNIT	QTY.	UNIT COST	TOTAL	NOTES
2	N - 0		·	·		
	Compacted earth hiking trail, 6' width	LF	500	\$15	\$7,500	Clearing & grubbing, strip topsoil, minor grading, com- paction
	Trail blazes/medallions	EA	2	\$10	\$20	500' intervals
	Interpretive feature	LS	2	\$2,000	\$4,000	Allowance
	Overlook Platform/Observation Tower	LS	1	\$40,000	\$40,000	Allowance
	Pedestrian Footbridge, ~30' Length	LS	1	\$20,000	\$20,000	Allowance
2	0 – P					
	Mown path, 6' width	LF	900	\$1	\$900	
	Trailhead wayfinding signage	LS	1	\$50	\$50	Allowance
	Trail blazes/medallions	EA	2	\$10	\$20	500' intervals
	Interpretive feature	LS	2	\$2,000	\$4,000	Allowance
2	Q					
	Boat access	LS	1	\$30,000	\$30,000	Allowance
				SUBTOTAL	\$236,850	
3	C – D					
	Multi-use asphalt path, 10' width	LF	425	\$100	\$42,500	Earthwork, construction, ma- terials, stormwater bmps
3	D – E					
	Multi-use asphalt path, 10' width	LF	425	\$100	\$42,500	Earthwork, construction, materials, drainage
	Trail blazes/medallions	EA	1	\$10	\$10	500' intervals
3	0 - 01					
	Crushed stone ADA path, 8' width	LF	1275	\$15	\$19,125	Minor grading, compaction, materials, stormwater bmps
3	01 - 02			· · · · ·		
	Crushed stone ADA path, 8' width	LF	510	\$15	\$7,650	Minor grading, compaction, materials, stormwater bmps
3	P - 02		I	· · · ·		
	Multi-use asphalt path, 10' width	LF	1360	\$100	\$136,000	Earthwork, construction, ma- terials, stormwater bmps
				SUBTOTAL	\$247,785	

PHASE	ITEM DESCRIPTION	UNIT	QTY.	UNIT COST	TOTAL	NOTES
	City Streetscape Improvement	S				
3	A1 – P	LF	800	\$150	\$120,000	Pedestrian walk improve- ments; landscaping/stormwa- ter bmps
3	A1 – A2	LF	1300	\$150	\$195,000	Pedestrian walk improve- ments; landscaping/stormwa- ter bmps
3	A1 – A4	LF	680	\$150	\$102,000	Pedestrian walk improve- ments; landscaping/stormwa- ter bmps
3	A2 – A3	LF	400	\$150	\$60,000	Pedestrian walk improve- ments; landscaping/stormwa- ter bmps
	·	·		SUBTOTAL	\$477,000	
1-3	Ecological Restoration					
	Native Warm Season Grasses	AC	4.1	\$5,000	\$20,500	Disc/till, herbicide, seeding, mulch, 5-year maintenance
	Reforestation	AC	8.1	\$20,000	\$162,000	Herbicide, planting/seeding, 5-year maintenance
	Shrub-Scrub	AC	5	\$10,000	\$50,000	Herbicide, planting/seeding, 5-year maintenance
	Invasive Species Removal	AC	15	\$5,000	\$75,000	Herbicide, 5-year mainte- nance
				SUBTOTAL	\$307,500	Costs prorated for each phase subtotal below
	Phase 1 Subtotal				\$695,300	
	Phase 2 Subtotal				\$301,050	
	Phase 3 Subtotal				\$869,310	
		SUBTO	FAL PROJ	ECT COSTS	\$1,558,160	
	Soft Costs					
	Consultant Architecture, Land- scape Design, and Engineering Services	LS	1		\$233,724	15% x Project Costs
	Applications and Permitting	LS	1		\$77,908	5% x Project Costs
	Mobilization	LS	1		\$46,745	3% x Project Costs
	Construction Survey and Staking	LS	1		\$15,582	1% x Project Costs
	Erosion and Sediment Control	LS	1		\$77,908	5% x Project Costs
	Construction Administration	LS	1		\$233,724	15% x Project Costs
	Contingency	LS	1		\$155,816	10% x Project Costs
		SUBTO	FAL SOFI	COSTS	\$841,407	
	PROJECT GRAND TOTAL				\$2,399,567	

- 1. This estimate is for planning purposes only and is based on prices current at time of preparation. Actual costs and quantities may vary due to a number of circumstances including, but not limited to: changes in field conditions, availability and/or cost of materials, methods and timing of construction, and inflation.
- 2. No cost guarantee is implied or expressed.
- 3. Costs do not include brownfield remediation for parking area.
- 4. Costs do not include design and installation of leachate seepage bioremediation system.
- 5. Costs do not include gas vent removal.
- 6. Costs do not include building rehabilitation, demolition, or new building construction.
- 7. Costs do not include lighting and other utilities.
- 8. Costs do not include city roadway improvements for bicycle infrastructure.

Table 7. Potential Funding Sources

PROGRAM/SOURCE	APPLICATION DEADLINE	FUNDING RANGE	COST SHARE	ELIGIBLE APPLICANTS/ PARTNERS	ELIGIBLE ACTIVITIES	COMMENTS
Five Star Matchin g Grants Program Administered by US EPA, National Fish and Wildlife Foundation, and NOAA. The Five Stars are the partner organizations who must be involved to apply for the grant. Contact: http://nfwf.org/programs/5star-rfp.cfm	Early March	\$10,000 - 40,000	1:1 Federal/nonfederal match Nonfederal partner match can be in-kind services and dona- tions	Schools or youth groups Local or tribal governments Local businesses or corporations Conservation organizations or local citizens groups State and federal resource management agencies	Community-based wetland, riparian, and coastal habitat restoration projects that build diverse partnerships and foster local natural resource stewardship through education, outreach and training activities	Projects with long term moni- toring and protection plans are preferred
Pulling Together Initiative Administered by National Fish and Wildlife Foundation (NFWF). Funding for proposals that will help control invasive plant species, mostly through the work of public/private partnerships. Emphasis on demonstrating successful collaborative efforts such as the development of permanent funding sources for Weed Management Areas. Contact: Teal Edelen, Acting Program Director, National Wildlife Refuge Programs teal.edelen@nfwf.org	Online pre-proposal application re- quired: www.nfwf.org/grantapplication June 30 – Pre-proposal deadline September 30 – Full proposal deadline January 31 – Formal announcement of award recipients	\$5,000 – 200,000	1:1 Federal/nonfederal match (1:2 preferred)	Private non-profit (501)(c) organizations Federally recognized tribal governments Local, county, and state government agencies Field staff of federal government agen- cies	 Prevent, manage, or eradicate invasive and noxious plants through a coordinated pro- gram of public/private partnerships Public education about the adverse impacts of invasive and noxious plants Special consideration: address invasive species threats impacting one of the NFWF Keystone Initiative focal topics, e.g., Eastern North America Early Successional Habitat (Wildlife and Habitat, Birds) Shortgrass Prairie (Birds) 	Target a specific and measur- able conservation outcome. Have a clear long-term weed management plan that is based on an integrated pest management approach using the principles of ecosystem management. Include a specific, ongoing, and adaptive public outreach and education component.
Native Plant Conservation Initiative Administered by National Fish and Wildlife Foundation (NFWF) in cooperation with the Plant Conservation Alliance (PCA). Funding for projects that provide conservation benefit for native plants (including associated pollinators), involve multiple partnerships, demonstrate the ability to find matching funds exceeding the minimum requirement, and use innovative ideas (such as landscape approach, shareable new technologies, and teaching by example). Contact: Teal Edelen, Acting Program Director, National Wildlife Refuge Pro- grams teal.edelen@nfwf.org	July 1	\$5,000 - 100,000	1:1 Federal/nonfederal match (1:2 preferred)	Private non-profit (501)(c) organizations Federally recognized tribal governments Local, county, and state government agencies	Multi-stakeholder projects that focus on the conservation of native plants and pollina- tors under any of the following six focal areas: conservation, education, restoration, research, sustainability, and data linkages	Strong preference for "on-the- ground" projects that provide plant conservation benefit according to the priorities established by one or more of the funding federal agencies and to the Plant Conservation Alliance strategies for plant conservation
North American Wetlands Conservation Act Grants Program Administered by US Fish & Wildlife Service, Division of Bird Habitat Conservation. Funding supports public–private partnerships for proj- ects that further the goals of the North American Wetlands Conserva- tion Act. Contact: Standard Grants Program Proposal Coordinators: David Buie (david_ buie@fws.gov) (301) 497-5870 Bonnie Gaukler (bonnie_j -gaukler@fws. gov) (703) 358-2017 Small Grants Program Coordinators: Rodecia Mcknight (rodecia_mcknight@fws.gov) (703) 358-2266 Lacy Alison (lacy_alison@fws.gov) (703) 358-2552	March 5 and July 30	Standard Grants: Up to \$1,000,000 Small Grants: < \$75,000	1:1 Federal/nonfederal match	Private non-profit (501)(c) organizations Federally recognized tribal governments Local, county, and state government agencies Local businesses or corporations	Long-term protection, restoration, and/or enhancement of wetlands and associated up- lands habitats for the benefit of all wetlands- associated migratory birds	

NORTH BAY RECREATION AND NATURAL AREA

Table 7. Potential Funding Sources (Cont'd)

PROGRAM/SOURCE	APPLICATION DEADLINE	FUNDING RANGE	COST SHARE	ELIGIBLE APPLICANTS/ PARTNERS	ELIGIBLE ACTIVITIES	COMMENTS
Recreational Trails Program Administered by NYS Office of Parks, Recreation, & Historic Preservation. Federal Highway Administration funds provided to the states to develop and maintain recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses. Contact: http://nysparks.state.ny.us/grants/recreational-trails/default.aspx#	November 5, 2010 for 2011 funding Five full sets of the application must be postmarked or received in the appropri- ate regional office no later than 5 p.m.	up to \$100,000	Federal reimbursement pro- gram: 80% federal money: 20% project applicant Applicant pays all costs up front; submits expenses for reimbursement	Nonprofit organizations Municipal, state and federal agencies Tribal governments Other public agencies and authorities.	Development of urban trail linkages near homes and workplaces Maintenance of existing recreational trails Development of trail-side and trail-head facilities Provision of features that facilitate access and use of trails by persons with disabilities Acquisition of easements for trails, or for trail corridors identified in a state trail plan Acquisition of fee simple title to property from a willing seller Construction of new trails on state, county, municipal, or private lands	
Land and Water Conservation Fund Program Administered by the National Park Service. Funds provided to the States, and through the States to local agencies for the acquisition, development and/or rehabilitation of outdoor park and recreation facilities. Contact: Commissioner, Office of Parks, Recreation and Historic Preservation Agency Building #1, Empire State Plaza Albany NY, 12238 Tel: (518) 474-0443	Applications Not Currently Available		Matching grant program up 50% of the total project-related allowable costs for the acquisi- tion of land and the develop- ment of facilities for public outdoor recreation	Non-federal governmental agencies/ departments (general purpose or special purpose government unit)	Development of basic outdoor recreation and trail facilities to serve the general public Surveys, planning studies, data collection and analysis, public participation efforts, and other activities essential to production of a Statewide Comprehensive Outdoor Recre- ation Plan (SCORP). Studies of natural, ecological, or recreational resource areas, demonstration studies and topics of statewide significance or national concern related to public outdoor recreation. The study must go beyond "basic research" or simple data collection to provide infor- mation likely to be used for state or local decision-making on outdoor recreation issues and programs, so it may provide specific recommendations for inclusion in the State's published SCORP.	Funded projects must reflect the priorities established in the SCORP, be sponsored by a governmental agency, and meet other state and federal requirements.
 Environmental Protection Fund Parks Program Administered by New York State Office of Parks, Recreation and Historic Preservation Contact: Palisades Interstate Park Commission, Taconic Region Ron Rader OPRHP – Taconic Regional Office, 9 Old Post Road, Staatsburg, NY 12580 (845) 889-4100, Fax (845) 889-8321 	Applications Not Currently Available	52.500 £100.000	Matching grant program	Nonprofit organizations with an owner- ship interest Municipal, state and federal agencies	Land acquisition for development of parks and recreational facilities Preserve, rehabilitate or restore lands, waters or structures for park, recreation or conserva- tion purposes	Must reflect the priorities es- tablished in the NY SCORP
Aquatic/ Ierrestrial Invasive Species Eradication Grant Pro- gram Administered by New York State Department of Environmental Con- servation. Funding through reimbursement for projects to eradicate species identified as being invasive within the boundaries of New York State. Contact: Doug Schmid NYSDEC Division of Lands and Forests 625 Broadway Albany, New York 12233-4253 Iflands@gw.dec.state.ny.us	Applications Not Currently Available	\$2,500 - \$100,000	1:1 State/non-state match	New York State agency or municipality Nonprofit corporation	Proposals to Kill and/or permanently remove plants or animals that meet the definition of aquatic/terrestrial invasive species	

NORTH BAY RECREATION AND NATURAL AREA

Appendix D

Natural Resource Inventory and Ecological Assessment of North Bay Recreation Area, Hudson, Columbia County, New York (External Link)

Hudson Landfill-Phase I Analysis of Current Site Conditions & Recommendations for Transfer of Landfill (External Link)

HUDSON NORTH BAY RECREATION AND NATURAL AREA



This Concept Master Plan for a Hudson North Bay Recreation and Natural Area outlines a proposal to transform a former landfill and surrounding open space into a public park and conservation area that will offer exceptional beauty, the natural resources of the Hudson River estuary, education about human settlement and industry along the river, and access to a trail network covering potentially 1,000 acres, all within walking distance of downtown Hudson.



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