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MEMORANDUM

To:	Massachusetts Division of Ecological Restoration and Inter-Fluve, Inc.
From:	HR&A Advisors, Inc.
Date:	June 30, 2015
Re:	Hoosic River Programming: Program and Feasibility Recommendations

HR&A was engaged by the Massachusetts Division of Ecological Restoration (DER) to develop a programming concept, assess potential visitation, and conduct a feasibility analysis for a research and educational center focused on urban river restoration on the Hoosic River in North Adams, MA. The program concept for the facility will be integrated into the broader flood chute naturalization plan currently being developed by Inter-Fluve, Inc. and Sasaki Associates.

This memorandum presents our analysis and recommendations for the facility, including key findings from our needs assessment; a recommended program concept; preliminary visitation estimates; projected costs and funding opportunities, including capital and operations; and governance considerations.

The needs assessment identified a unique opportunity to establish a research and testing facility on the Lower Reach of the Hoosic River in North Adams that focuses on developing alternatives to traditionally engineered flood solutions for urban river flood management in the near-term, as well as long-term study of urban river habitat restoration following the implementation of these solutions. There is also an opportunity to integrate additional community-facing components, including research-related tours/demonstrations, a local skills-training program, and educational art exhibit space focused on urban river education.

The small size, low-density typology, and limited accessibility of North Adams constrains feasibility, as research findings may not be translatable to larger markets and the center could not easily be accessed by national and international researchers. However these constraints are not insurmountable. There is potential demand for a more regionally oriented facility, which could serve as a testing ground for solutions that meet the needs of similarly sized New England cities with comparable engineered flood solutions, while also drawing visitation and generating community benefits. Viability will depend on the facility's ability to secure a strong lead university or research partner with the necessary resources to raise funding, bring credibility, and provide staff to create and operate the facility. In addition to necessary start-up capital funds of approximately $1.3M to $2.5M, this partnership would need to be able to secure approximately $335,000 to $520,000 in annual funding to cover operating costs.

Development of a new facility of this type in North Adams can generate significant benefits for the city. HR&A estimates that the facility could draw 2,500 to 4,500 annual visitors from the regional area to its research and community-facing programs. Visitors may include policymakers, professional researchers/scientists, university students, school groups, local residents, and visitors passing through North

Adams to visit other cultural destinations in the area. Visitation to the facility will generate economic and fiscal benefits for the city, which may include ancillary spending at local businesses, increased tax revenues, and job creation. The implementation of community-facing programs alongside the Hoosic River naturalization project will create educational and recreational opportunities for the local community and allow residents to actively engage with the river. The development of a skills-training program will provide local residents with the tools needed to obtain employment in conservation and related industries. The success of such a facility may catalyze the development of additional programs or projects in the future that will create economic and community benefits for North Adams and advance ongoing city-wide revitalization efforts.

METHODOLOGY

Needs Assessment and Program Concept

To determine the need for a research and education center, HR&A interviewed three categories of organizations/individuals: 1) industry experts, which included non-profit organizations, public agencies, environmental consultants, engineers, and landscape architects; 2) precedent facilities, including directors of urban river watershed alliances, environmental institutes, and university-run urban river centers; and 3) potential partners, including contacts at local academic institutions, research entities, and programming partners. Interviewees included contacts provided by DER and Inter-Fluve, as well as additional targets identified by HR&A through interviews and additional market research.

To date, HR&A has completed 22 interviews. An additional 30 interviewees were also contacted, but did not result in interviews during the four-week study period. A full list of completed interviews can be found in the Appendix, along with a summary of key findings (mission, programs, visitation, size, capital and operations costs, funding, and governance) at the interviewed precedent facilities. HR&A supplemented these interviews with additional research on the potential for market penetration of potential program concepts.

HR&A synthesized key findings from the needs assessment to develop a recommended program concept for the facility that fills market need and maximizes DER's threefold goals of 1) advancing urban river-related research and testing, 2) generating benefits for the local community, and 3) increasing visitation to North Adams. This program concept was defined through discussions with DER and the team.

Visitation Analysis

HR&A's approach to estimating visitation considers the targeted visitor types for each of the program elements of the facility, which includes the research/testing component, related tours and demonstrations, skills-training component, and educational exhibits.

The research/scientific component and related tours and demonstrations would attract key groups interested in the specific research focus: local school-groups (K-12) and universities, visiting researchers/scientists, policymakers, and regional visitors with interest in urban river conservation. To evaluate visitation generated by these program elements, HR&A considered visitation estimates at comparable urban river research and education facilities, along with the intensity of their public-facing programs, the population of their surrounding cities, and the geographic reach of their visitation. HR&A compared these visitation precedents against the key groups that may utilize these programs in North Adams and the surrounding area. To

evaluate the size of this group, HR&A considered demographic characteristics in North Adams, such as the percentage of the population that is school-aged. HR&A also considered general visitation to the city of North Adams, as well as the number of students enrolled at educational institutions in the region, including the Massachusetts College of Liberal Arts (MCLA) and Williams College.

The educational exhibit program element would attract the greatest number of visitors from the general public, which may include, in addition to the key groups mentioned above, local residents and visitors traveling to North Adams to enjoy other nearby cultural destinations. To evaluate the size of this group, HR&A considered North Adams' population, general visitation, as well as visitation to nearby cultural destinations such as MASS MoCA.

The skills-training program will draw minimal visitation, which will be dictated largely by the size of the program. HR&A evaluated the size of the program against the size of the young adult population in North Adams to ensure that there is demand for this type of program.

Feasibility Analysis

To assess the feasibility of the recommended program concept, HR&A developed a high-level capital and operations model to determine order-of-magnitude start up and operating costs, sources of revenue from programs, and the potential funding gap. HR&A assessed potential sources of funding, including public and foundational grants, as well as other private philanthropic sources specific to the local area and the region, to fill the funding gap. Based on the identified operating model, HR&A identified key considerations and opportunities for a governance structure to oversee the facility, taking into account local stakeholders, potential outside partners, oversight, and roles and responsibilities.

HR&A developed assumptions for our feasibility model and governance concept through interviews with precedent facilities, research into potential funding sources and capital costs, prior project experience in North Adams, and industry expertise.

NEEDS ASSESSMENT: KEY FINDINGS

HR&A's needs assessment analysis for a new urban river restoration-focused research and educational facility in North Adams focused on four key items:

1. Market need for a facility focused on research, testing, and/or best management practices. Through interviews with industry experts, HR&A assessed the prevalence of similar facilities in New England and across the country to determine gaps in the existing market that a new facility in North Adams could fill. As part of this research, HR&A also assessed the potential focus area need for this facility, both in terms of activities conducted (e.g. research or testing) and potential focus area of the activities (e.g. flood management, BMPs/stormwater management, stream daylighting).

2. Potential market and geographic reach implications. HR&A assessed the potential implications that the size, built environment, and accessibility of North Adams might have on the facility's ability to attract regional, national, and international visitors, as well as the potential for the research/testing conducted at the facility to be applicable to other river systems and towns located in the region, across the country, and/or elsewhere internationally.

3. Other potential complementary programs to draw visitation and create community benefits. HR&A assessed existing best practices in urban river-related educational and recreational programming opportunities across the country to determine potential program concepts for a new facility in North Adams. Educational programs may include demonstrations and tours to showcase ongoing research/testing in urban river restoration; workshops and classes to provide general urban river-related education; and job-training programs to teach skills related to urban river restoration. Recreational programs would focus on creating awareness about the presence of the river in North Adams by bringing visitors to the river, and could include activities/programs such as kayaking, fishing, and public art.

4. Preliminary funding and governance considerations. For the different programming concepts, HR&A assessed the potential order-of-magnitude funding needs and sources, including public funding, philanthropy, and program-generated earned income. HR&A also investigated potential governance structures that would likely need to be in place to establish and run the program concept, taking into account potential interest, public vs. private involvement, and division of roles and responsibilities.

Market Need: Research and Testing Facility

Interviewees indicated that there is a need for integrated research and testing facilities, especially ones with opportunities to test directly on urban rivers. Interviewees indicated that there is a lack of existing facilities that are able to integrate urban river restoration research with actual testing and implementation. There was a consensus that a facility that allowed researchers to test solutions directly on rivers prior to implementation on projects would be valuable. Interviewees indicated that facilities focusing on best management practices (BMPs), particularly stormwater, were already widespread.

There is a unique opportunity in North Adams to study the implementation of more natural solutions to traditionally engineered flood structures as well as subsequent habitat restoration in urban rivers. Many New England towns, such as Haverhill, MA; Lowell, MA; Manchester, NH; Bennington, VT; and Hartford, CT use concrete flood walls as a means of flood control; however, this outdated solution negatively impacts the river ecosystem and limits access to the river. The flood chutes currently along the Hoosic River present an opportunity for researchers to test or pilot alternative, more natural solutions to heavily engineered flood structures while still managing the risk of a flood event. Varying conditions and design of the flood chutes, as well as different edge conditions (e.g. urban vs. rural) along sections of the Hoosic River create an opportunity to test solutions in a range of conditions along a single river. In the long-term, the facility could also study and monitor urban river habitat/ecosystem restoration during and following the implementation of natural solutions. Research and testing on this subject area in North Adams could be translated to other New England towns currently using hard engineered flood structures.

Interviewees also indicated that due to the size of North Adams, there may be an opportunity to test town-wide approaches to green infrastructure implementation, which would not be possible in larger urban cities.

Potential Geographic Reach

The location, size, and accessibility of North Adams is likely unable to support a nationally-focused research/education facility. Interviewees indicated that North Adams' distance from major highways and urban centers would likely limit the reach of its programs nationally as well as visitation from outside the immediate area. A research facility may be more likely to attract widespread visitation than an educational facility, which would have trouble attracting visitors beyond the local community. In addition, North Adams' relatively low-density built environment would likely render certain research and testing, such as town-wide green infrastructure implementation, irrelevant to larger, higher-density cities.

However, there is an opportunity to create a center in North Adams that serves as a model for urban river restoration for other similarly sized New England cities. Interviewees indicated that there is a lack of urban river research facilities that focus on New England cities of 10,000 – 25,000 in population. There was consensus among interviewees that a center in North Adams could either serve as a model city for other New England towns located on rivers, or be part of a wider regional network of research facilities. This could lead into the facility convening regional conversations on watershed issues and unlocking research and testing capacity in towns across New England.

Other Potential Programs

There may be an opportunity to develop a community education program that focuses on environmental and conservation-related skills-training. Given North Adams' high unemployment rates and growing young adult workforce, there may be a specific opportunity to develop a job- and skills-training program that teaches young adults basic job skills related to conservation. These skills could easily translate to projects potentially implemented near the center in North Adams or at many of the surrounding natural destinations in the region, such as Mt. Greylock.

There may be an opportunity to include other educational and recreational river-related programs, potentially in partnership with the Hoosic River Watershed Association (HooRWA) and the Massachusetts Museum of Contemporary Art (MASS MoCA). Nearly all interviewees saw potential for educational programs that would educate local community members on specific research and testing occurring at the center; these programs could take the form of exhibits or demonstrations and tours. Interviewees were also supportive of general education and recreational programming to raise awareness of the river. Given the existing presence of the nearby HooRWA in Williamstown, an organization that promotes general education and awareness on the Hoosic River, there is an opportunity to partner to develop a range of programs that complement one another and are not duplicative. HooRWA has indicated preliminary interest in working with the center in North Adams to develop specific ideas for beneficial educational and recreational river-related programs. MASS MoCA has also indicated preliminary interest in partnering to develop educational exhibits at the center that would be targeted towards the local community and focus on environmental education through art.

Funding and Governance Considerations

Lead involvement by a university or college will be critical to creating and operating a new research facility. Interviewees indicated that having a college or university take the lead would be the simplest way to funding the development and operations a new research facility, whether through grants and funding

secured by the university, or through direct support by the university through its existing budget and resources. At the University of New Hampshire Stormwater Center, a stormwater management research, testing, and educational center, the university and its researchers are solely responsible for securing grants to fund the center, as well as providing staff and overseeing programs. At the Sarah Lawrence College Center for the Urban River at Beczak, a research, monitoring, and educational center on the Hudson River operated in partnership between Sarah Lawrence College and the Hudson River Valley Environmental Education Institute non-profit, Sarah Lawrence College underwrites approximately 30 percent of the center's operating costs through a combination of trustee funding and the college's operating budget, in addition to providing back-office staff (accountants, HR officers, marketing officers). Funding for a recent expansion of their facility was also provided by the College through its trustees. In return for its significant role in funding the center, the College has oversight over the research and other programs at the facility. Interviewees indicated that independent research facilities (i.e. without university involvement) are rare, and typically require large, one-time contributions by philanthropic donors. For example, the Cary Institute of Ecosystem Studies, a leading independent environmental research and education center located in Millbrook, NY, is largely supported by a $60 million endowment funded by the Mary Flagler Charitable Trust, which was established by the founding family of the institute.

Nearby academic institutions may not have the capacity to undertake a new facility at this time. HR&A conducted interviews with the MCLA, a public liberal arts university located in North Adams, as well as Williams College, a private liberal arts college located in nearby Williamstown to assess interest in potentially partnering with the facility. HR&A's interview with Elena Traister, Chair and Coordinator of the Environmental Studies program at MCLA, indicated that MCLA may be interested in partnering with the center, but does not have the staff and other resources to sponsor and operate the center at this time. Ralph Bradburd, Chair of the Center for Environmental Studies at Williams College, also expressed interest in partnering with the center, but was unable to indicate if the institution would be interested or have the resources to fund and operate the facility. While MCLA has an interdisciplinary environmental studies undergraduate program and Williams College offers two undergraduate majors and one concentration at its Center for Environmental Studies, neither have graduate environmental science programs. Graduate programs are typically more likely to have the staff and research interest in external research facilities. There may be potential to partner with other colleges or universities that have general graduate environmental or fluvial geomorphology programs in the region, including University of Massachusetts Amherst and Dartmouth College.

There may be an opportunity to partner with the United States Army Corps of Engineers (USACE) and/or the USACE Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi. Because USACE has strict guidelines for the maintenance and care of the existing North Adams flood chutes, the proposed facility will likely need to work closely with USACE to determine the scope of the research/testing program. There may be potential for the center to partner directly with USACE to advance ongoing research and flood management programs currently operated by the Corps; for example, the center could host USACE-sponsored research projects on flood solutions, or the center could serve as an extension of ERDC, which currently focuses on research in public engineering and environmental sciences. ERDC currently has seven laboratories across four states (Mississippi, New Hampshire, Illinois, and Virginia) as well as seven field sites across seven additional states (Alaska, Washington, Wisconsin, North Carolina, Texas, Maine, and South Carolina). Partnership with USACE could introduce federal funding as well as increase the likelihood of winning research-related grants at the facility. HR&A's interview with Mark Lulka, Program Manager at the USACE New York District office, indicated that USACE-NY may be interested in conducting research on flood

solutions at a facility in North Adams. The District office is unlikely to support a full field site or additional lab in North Adams, however Lulka suggested investigating whether ERDC would have the capacity to partner to develop a satellite facility in North Adams. HR&A has not been able to reach staff at ERDC to discuss the viability of this partnership.

A center with community-facing programs would likely require a combination of research/scientific and non-profit partners. A facility run solely by an organization that engages in research and testing may have difficulty engaging the local community, attracting visitors, and translating hard science into digestible, public-facing programs. There is potential for other cultural institutions and/or non-profit partner(s) to spearhead community programs.

A diversity of programs may also increase funding potential. Interviewees indicated that most research and testing facilities are funded largely through grants from public agencies and foundations. However, most grants are targeted towards specific research/testing focus areas. Involving a diversity of programming concepts and local non-profits across different sectors can allow the facility to apply for a wider variety of grants; for example, a skills-training program may be eligible for funding through the Department of Labor. Community outreach programs typically do not generate significant revenue, but contribute to the reach and brand of the facility, which is an important factor in securing grant funding.

RECOMMENDED PROGRAM CONCEPT

Mission

Based on the needs assessment findings above and DER's goals for the project, HR&A recommends an urban river center with the following three goals:

1. Advancing more natural solutions to traditionally engineered flood structures and subsequent river ecosystem rehabilitation, and potentially city-wide green infrastructure implementation through research and testing;
2. Increasing local and regional awareness of urban river restoration related to engineered flood solutions as well as general environmental education for all; and
3. Creating community benefits through a related skills-training program for local young adults and conservation/river-related public art exhibits.

Research and testing at the center would serve the greater regional area of New England, specifically towns of populations 10,000 – 25,000 with similar urban river-related issues. Educational programs related to research and testing at the facility would serve the local and potentially regional area, the skills-training program would serve local residents in North Adams, and exhibits would serve local residents and potentially the regional area.

There may be additional opportunities to develop other general community facing educational and recreational programs to raise awareness of the river, such as kayaking, concerts, and environmental workshops, in partnership with HooRWA. *HR&A has not included these programs in the feasibility analysis, since the existence of these programs will largely depend on future conversations with HooRWA on potential partnership opportunities.*

Programs

Research and Testing

In the short term, the research and testing component would focus primarily on developing alternative solutions to engineered flood structures in urban rivers, a common problem in several New England cities. The existing presence of the flood chutes along the Hoosic River would provide researchers with the unique opportunity to test more natural solutions to flood management while managing risk of an actual flood event. Consistent with the recommendations of the Inter-Fluve and Sasaki team, the center would be located and initially focus on developing and testing solutions for the Lower Reach of the South Branch of the Hoosic River, due to the higher concentration of flood chutes in this area. Focus on the Lower Reach would maximize the potential for innovation and testing of alternate approaches for engineered flood solutions. There may also be potential to expand the research and testing focus to the North Branch of the Hoosic River during later phases. In the long term, the facility could focus research/testing on the process of restoring the natural habitat and ecosystems of the Hoosic River during and following the implementation of the naturalization plan.

Alternatively, the facility could also focus on city-wide research, testing, and implementation of green infrastructure options in North Adams. Specific examples of green infrastructure implementation include increasing green space and vegetation throughout urban cores; preserving water-absorbing soils near floodplains; constructing green roofs; and installing permeable concrete, asphalt, and paving materials along city streets and lots to provide for stormwater drainage as well as structural support. The facility could work with city and county land use and site planners to identify potential sites for green infrastructure on public and private property. This initial research and testing phase could lead into recommendations into city-wide implementation, which would require the facility to secure the site, find funding, and oversee or subcontract construction and maintenance of the infrastructure. *Note that development of this concept would need to take place in partnership with local city and county agencies; this concept has not been included in the feasibility analysis.*

Findings from the flood management and green infrastructure research and testing would translate into strategies for other New England cities of similar size, built environment, and relationships with urban rivers.

Educational and Community Programs

Educational programs would include tours and scientific demonstrations focusing on the research/testing taking place at the facility and the field sites. Tours could include both a highly scientific and specialized program catering specifically towards environmental professionals, policymakers, university students, and other visitors specifically interested in better flood solutions on urban rivers, as well as a less technical tour catering towards school groups in the local and regional area.

HR&A estimates that the center could potentially support up to 15 to 30 technical tours and demonstrations per year, based on a conservative assumption of bi-weekly to weekly tours during weather-permitting months (April to October). Because these tours would be highly specialized in content and draw regional visitors, HR&A assumes that the facility could charge a fee of approximately $50 per person. This assumption is based on the cost of a similar program at the UNH Stormwater Center.

HR&A estimates that the center could support 10 to 20 school group-focused (including summer school programs) tours and demonstrations per year (or 1 to 2 tours per month during April to October) in addition to the specialized tours discussed above; this is based on the frequency of similar programs at precedent facilities as well as the size of North Adams' school population. HR&A assumes that the facility could charge approximately $10 to $15 per student for this type of tour, based on the cost of similar programs at precedent facilities.

A curated art exhibit focusing on general environmental and urban river education would cater to local residents, school groups, and visitors traveling to North Adams to visit other nearby cultural destinations. The exhibit could be operated through a partnership with local cultural and other programming organizations, such as MASS MoCA. This program element would not charge a visitor's fee.

The skills-training program for young adults would focus on river and general conservation-related skills to prepare participants for employment in conservation-related jobs. The program would include classes, workshops, and field work on the Hoosic River as well as on nearby nature trails and destinations. This would be run in partnership with local non-profits and focus on job-readiness skills training for North Adams residents. HR&A estimates the skills-training program could support one cycle of approximately 15 students per year, based on a similar program operated by Groundworks Hudson Valley, a non-profit organization based in Yonkers, NY that runs various environmental programs for local residents in economically distressed neighborhoods.

By offering a range of educational programs with varying target audiences and costs, the facility can maximize the reach of its programs to all audiences and generate benefits for both the local and regional community.

Site and Sizing

The center would be comprised of an approximately 4,000 square foot anchor facility along the Lower Reach of the Hoosic River in North Adams, along with three satellite field sites located along different areas of the river. This is in line with other precedent facilities with similar programs, including the West River Watershed Alliance and the Sarah Lawrence College Center for the Urban River at Beczak. Other interviewees also indicated that this size would be appropriate for this type of facility in North Adams.

The anchor facility would consist of lab space, offices, and a multi-purpose classroom, exhibit, and event space, along with an acre of outdoor space along the Hoosic River for outdoor research/testing and tours. This amount of outdoor space is common to other precedent facilities, including the UNH Stormwater Center as well as the Sarah Lawrence College Center for the Urban River at Beczak. The satellite field laboratory sites could vary in space and equipment, ranging from an outdoor test site with minimal complementary indoor components, to more built-out satellite laboratories with indoor equipment.

Interviews with precedent facilities indicated that acquisition and renovation of an existing structure may be the most cost effective approach to developing the facility, particularly if the facility forms a partnership with the City, County, or State and is located on publicly own land. North Adams' vacant, formerly industrial structures may provide a range of options to locate the facility's anchor facility. Local stakeholders indicated that there may be sites within or near the City-owned Western Gateway Heritage State Park/Greylock Market development that might be viable for reuse. A second opportunity may be the existing site of City

Hall, the relocation of which the Inter-Fluve/Sasaki team is proposing as part of the greater naturalization plan. Both the City Hall site and Greylock Market are located within "The Gateway," which Inter-Fluve/Sasaki are envisioning will be the primary entry point for visitors to downtown North Adams, and includes mixed-use development as well as gathering space for public events. A location in this area would allow the facility to integrate into this new vision for downtown, attracting and contributing to visitation. There may also be an opportunity to explore locating the facility on sites jointly controlled by MASS MoCA and the City near the former Brien Center/proposed Phoenix Mill Commons site and surrounding area. Locating the facility in this area could facilitate cross-over visitation from MASS MoCA and serve as a connector between the museum and downtown North Adams. There may also be a potential opportunity to locate the facility within MASS MoCA-owned property along the southern bank of the Hoosic River; however, this option requires more investigation. *Note that no conversations have taken place with the landowners of these sites to determine current plans or potential interest; identification has been made purely based on conversations with stakeholders, potential site fit, and location. As identified below, discussions with landowners (including the City of North Adams) is an essential next step in determining a viable site for the facility.*

Figure 1. Map of Potential Sites

Staffing and Operating Approach

Interviewees indicated that staffing needs at precedent facilities of similar sizes ranged from four to six full-time staff in addition to up to ten part-time staff, depending on the size, funding base, and existing partnerships of the facility. Research facilities typically have difficulty attracting primary researchers/scientists without a large funding base and affiliation with an established university or other research partner.

HR&A assumes that a facility in North Adams would begin operations with a lean staffing and operating approach, which would include three to five full time staff, comprised of researchers/scientists and program coordinators. Additional visiting researchers and scientists could be recruited through partnerships with local

and regional institutions. The facility could charge a nominal fee for outside researchers and students to use laboratory and testing spaces. Interviewees indicated that this approach may be more cost effective than attempting to attract permanent scientists, and could be feasible if the facility does not secure a stable funding sponsor.

Public facing programs, including tours/demonstrations, the skills-training program, and the educational exhibit, could be run by a programming partner (presumably non-profit) and funded primarily through grants and other philanthropic contributions. More information on potential funding and governance is included below.

VISITATION ANALYSIS

HR&A estimates that the recommended program concept could potentially attract 2,500 to 4,500 visitors per year, comprised of:

- 10 to 15 visiting researchers and scientists;
- 750 to 1,500 visitors to tours and demonstrations;
- 2,000 to 3,000 visitors to the public educational exhibit; and
- Approximately 15 adults enrolled in the skills-training program.

The research and testing program component of the center is expected to attract researchers and scientists from the region; actual visitation generated from this component will be minimal. The facility may attract professional researchers/scientists who would conduct research/testing at the facility on a yearly or more permanent basis, as well as undergraduates and graduate students from nearby universities. This estimate is based on the research/scientist population at comparable facilities such as the UNH Stormwater Center and Cary Institute of Ecosystem Studies, evaluated against the size and capacity of the envisioned facility in North Adams.

Public facing programs, including tours and demonstrations and exhibits, will be the largest driver of visitation and may include local as well as regional visitors. The tours and demonstrations component will attract both a targeted group of visitors interested in the specific research focus of the facility, which may include environmental researchers and practitioners, policymakers, students from the region, and other visitors with specific interests in urban rivers, as well as K-12 school groups. This visitation estimate is based on an assumption of 25 to 50 tours per year and an average tour size of 30 persons, similar to comparable programs at precedent facilities. River-related exhibits will be the largest driver of visitation and will primarily attract local residents as well as visitors traveling through North Adams to visit other cultural destinations such as MASS MoCA. This visitation estimate is based on North Adams' population as well as visitation to the Kidspace Gallery at MASS MoCA, a local exhibit program with a similar mission of educating and engaging local residents.

The skills-training program will be limited to the local community (North Adams and potentially surrounding towns, which may include Florida, Clarksburg, and Adams) and generate a minimal amount of visitation limited to the capacity of the program. The size of this program is based on a similar program at Groundwork Hudson Valley.

FEASIBILITY ANALYSIS

To assess the financial feasibility of the program concept, HR&A estimated preliminary order-of-magnitude start up and operating costs of the program concept, and compared this to potential revenues generated from programs to identify the potential funding gap. To fill the gap, HR&A identified the range of possible foundation and government grants and philanthropic contributions that may be applicable to the region and subject focus area.

Capital Funding Approach

Capital Costs

Total capital costs for the facility are estimated to range from $1.3 million - $2.5 million. HR&A assumes that development of the facility would involve the retrofit of an existing building, and not the ground-up development of a new structure, and that the facility would be located on publicly-owned land with minimal acquisition and/or land lease costs; these costs have been excluded from the feasibility analysis. Capital cost estimates are comprised of approximately $1 million - $1.4 million in renovation costs for a 4,000 square foot building with research/lab, office, and multi-purpose space components. Construction of a minimally programmed outdoor area surrounding the facility may range from $25,000 - $35,000 for one acre of space. Fit out of the facility, including standard furniture and specialized research equipment may range from $200,000 - $750,000, depending on the type of equipment. Construction of additional field and testing sites may range from $90,000 - $300,000, depending on the intensity of the field site (e.g. outdoor test site only vs. indoor laboratory space). There may be an additional cost for rehabilitating the outdoor area surrounding the facility to be suitable for research and public programs; this cost is to be determined.

Capital cost assumptions were derived from costs at similar precedent facilities, including the Westport River Watershed Alliance, the UNH Stormwater Center, and the Urban Ecology Center.

Figure 2. Projected Capital Costs

Item	Low	High	*Key Assumptions*
Building rehabilitation	$1,000,000	$1,400,000	*4,000 SF facility at $250 to $350 PSF*
Outdoor space	$25,000	$35,000	*1 acre of outdoor space at $25,000 to $35,000 per acre*
Field sites	$90,000	$300,000	*3 field sites at $30,000 to $100,000 per field site*
Research equipment	$200,000	$750,000	*Fixed amount based on precedent facilities*
Total	$1,315,000	$2,485,000	

Sources of Funding

Capital costs could be funded by a combination of funding from a lead university or research partner and government and foundation grants. As described in the needs assessment findings above, the Sarah Lawrence College Center for the Urban River at Beczak fully funded its recent expansion through donations from the college's trustees. A similar model could be used to fund the capital construction of the facility in

North Adams. A partnership with USACE could also potentially bring federal funding to the facility. In addition to university and other support, government and foundation grants may also be available for the construction of the facility, including the Massachusetts Cultural Council Facilities Fund, which funds construction and capital improvements to nonprofit cultural facilities in the state, as well as the US Department of the Interior (US DOI) Hurricane Sandy Coastal Resiliency Competitive Grant Program, which supports projects that reduce communities' vulnerability to risks from flood and other natural threats. These grants may award between $350,000 and $1.7 million.

Figure 3. Potential Grants - Capital Funding

Item	Typical Grant Award - Low	Typical Grant Award - High
Massachusetts Cultural Council Facilities Fund	$250,000	$675,000
U.S. DOI Hurricane Sandy Coastal Resiliency Competitive Grant Program	$100,000	$1,000,000
Total	$350,000	$1,675,000

The facility may be in a strong position to receive capital funding for building acquisition and renovation from the Massachusetts Cultural Council Facilities Fund. In 2015, MASS MoCA secured two Cultural Council grants totaling $610,000 for facility upgrades. The Westport River Watershed Association also won $450,000 for facility renovations. If the facility is able to demonstrate strong community benefits and collaborations, then it may also be well-positioned to compete for the Hurricane Sandy Coastal Resiliency Grant Program to support capital costs associated with its research and testing program. DER was awarded $4.5 million from this program in 2014 to remove ten fish barriers that cause flood damage across the State.

A partnership with a lead university or USACE would likely be helpful in securing grant funding, providing the research credibility to win a greater amount of grants. A detailed description of potential eligible grants is available in the Appendix.

There may also be an opportunity to offset capital costs through private philanthropy. HR&A's past experience in North Adams has indicated that there is an established philanthropic base in and around North Adams that may be a resource. The facility's ability to raise ongoing philanthropic funds will depend on the strength of its mission and alignment with the interests of its constituents.

Operations & Maintenance Approach

Operations & Maintenance Costs

Total operations and maintenance costs from the facility may range from $360,000 - $580,000 per year. This estimate is comprised of approximately $20,000 - $40,000 in baseline facility operations cost for a 4,000 square foot facility; $3,000 - $5,000 for the maintenance of one acre of outdoor space; $2,000 - $5,000 for annual equipment maintenance; $45,000 - $90,000 for field site maintenance; $210,000 - $330,000 for staffing; and $80,000 - $110,000 for programming, including public-facing tours/demonstrations, a year-round public exhibit, and the skills-training program for local residents. Operating cost assumptions were derived from costs at similar precedent facilities, including the Westport

River Watershed Alliance, the UNH Stormwater Center, and the Sarah Lawrence College Center for the Urban River at Beczak, and MASS MoCA.

Earned income from programs are estimated to generate a minimal amount of revenue, resulting in a significant funding gap. Annual revenues from tours and demonstrations and visiting researcher/scientist fees are estimated to generate between $30,000 and $65,000 per year, based on revenues generated at similar programs at the UNH Stormwater Center, Sarah Lawrence College Center for the Urban River at Beczak, and the Westport River Watershed Alliance. Based on these revenues, it is estimated that the center will have an annual funding gap of approximately $335,000 - $520,000.

Figure 4. Projected Stabilized Year Operating Budget

Item	Low	High	*Key Assumptions*
Revenues			
Programming			
Tours and demonstrations			
Specialized (scientists, policymakers, etc.	$20,000	$40,000	*15-30 tours per year; 30 visitors per tour at $50 per person*
Educational (K-12)	$3,000	$9,000	*10-20 tours per year, 30 visitors per tour at $10-$15 per perso*
Skills-training program	$0	$0	*No revenues collected through this program*
Year-round exhibition	$0	$0	*No revenues collected through this program*
Visiting researchers	$5,000	$15,000	*~5 professional visiting researchers per year at $1-$2.5k per researcher (no fee for additional 5-10 student researchers)*
Subtotal	$28,000	$64,000	
Operating Expenses			
Staffing	($210,000)	($330,000)	*3-5 FTEs + 1 PTE; average salary of $60k per year*
O&M			
Facility	($20,000)	($40,000)	*4,000 SF facility at $5 to $10 PSF*
Outdoor space	($3,000)	($5,000)	*1 acre at $3,000 to $5,000 per acre*
Equipment contingency	($2,000)	($5,000)	*Fixed amount based on precedent facilities*
Field sites	($45,000)	($90,000)	*3 field sites at $15,000 to $30,000 per field site*
Programming			
Tours and demonstrations			
Specialized (scientists, policymakers, etc.	($15,000)	($35,000)	*Costs at 80% of revenues*
Educational (K-12)	($2,000)	($7,000)	*Costs at 80% of revenues*
Skills-training program	($30,000)	($30,000)	*Fixed amount based on precedent program*
Year-round exhibition	($35,000)	($40,000)	*1,000 SF at $35 to $40 PSF*
Subtotal	($362,000)	($582,000)	
NOI	($334,000)	($518,000)	
Funding Gap	($334,000)	($518,000)	

Sources of Funding

This annual funding gap may be filled wholly or in part by a university or other research partner and supplemented by government and foundation grants. As in the case of the Sarah Lawrence College Center for the Urban River at Beczak, a lead university partner could fill the operating gap by raising additional funds through donors and trustees, lending existing university staff to offset some of the cost of staffing at the center, or directly underwriting a portion of operating costs through its endowment. A partnership with USACE could also potentially bring federal funding to the facility.

Government and foundation grants may also be available for the operations and maintenance of the facility, including:

- Environmental Protection Agency (EPA) Urban Small Waters Initiative, which funds urban restoration efforts that engage, educate and empower local underserved communities;
- US DOI Developing the Next Generation of Conservationists Program, which supports organizations that are developing innovative conservation job opportunities for youth adults aged 16-25;
- US DOI Hurricane Sandy Coastal Resiliency Competitive Grant Program, as mentioned above;
- EPA Environmental Workforce Development and Job Training Program, which funds training programs that provide unemployed and under-employed individuals with skills needs to pursue careers in the environmental field;
- National Endowment for the Arts (NEA) Challenge American Grant Program, which supports projects that extend the reach of the arts to underserved populations; and
- NEA Our Town Grant Program, which supports arts engagement, cultural planning, and design projects that use the arts to transform communities.

Together, these grants may generate between $95,000 and $755,000 to fund operations of the facility per year.

Figure 5. Potential Grants - Operations & Maintenance Funding

Item	Typical Grant Award - Low	Typical Grant Award - High	Maximum Length of Award (Years)	Typical Yearly Grant Award - Low	Typical Yearly Grant Award - High
EPA Urban Small Waters Initiative	$40,000	$60,000	2	$20,000	$30,000
U.S. DOI: Developing the Next Generation of Conservationists Program	$0	$75,000	1.5	$0	$50,000
U.S. DOI: Hurricane Sandy Coastal Resiliency Competitive Grant Program	$100,000	$1,000,000	2	$50,000	$500,000
EPA Environmental Workforce Development and Job Training Program	$0	$200,000	3	$0	$65,000
NEA Challenge America Grant Program	$10,000	$10,000	1	$10,000	$10,000
NEA Our Town Grant Program	$25,000	$200,000	2	$15,000	$100,000
Total Potential Grant Funding	**$175,000**	**$1,545,000**		**$95,000**	**$755,000**

The facility may be well-positioned to secure operating funding from the EPA Urban Small Waters Initiative and both U.S. DOI grant programs. The EPA Urban Small Waters grant is directly targeted at urban river restoration facilities that engage with underserved communities through education programs. The Mystic River Watershed Association in eastern Massachusetts won two $60,000 EPA Urban Small Water grants in 2014 and runs a strong outreach and education program. If the facility is able to demonstrate strong community benefits and collaboration, it may also be well-positioned to compete for the Hurricane Sandy Coastal Resiliency Grant Program to support operating costs associated with its research and testing program. The facility also has the potential to secure funding from the U.S. DOI for its skills-training program if the program is positioned to benefit the Bureau of Land Management, Bureau of Reclamation, and/or US Forest Service

lands. The remaining three grants (EPA Environmental Workforce Development and Job Training, NEA Challenge America, and NEA Our Town) are considered low priorities mostly due to the location of North Adams and its lack of a robust arts program or partnership. If the facility is able to partner with other cultural organizations, such as MASS MoCA, the likelihood of winning these grants will be improved.

As mentioned above, university and USACE involvement will likely increase the chances of winning grants. A detailed description of potential eligible grants is available in the Appendix.

There may also be an opportunity to fund the center through private philanthropy and membership dues. As with capital costs, there may be an opportunity to galvanize the local philanthropic community to support the mission-driven community-facing aspects of the facility, such as the local skills-training program and the educational exhibit. A membership program may also generate additional funds; a program at the facility could mimic the existing membership program at HooRWA, which currently charges $40 per membership.

PRELIMINARY GOVERNANCE CONSIDERATIONS

Governance Structure Considerations

The governance structure of the facility could involve a partnership between a local or regional academic institute, science research institute, or other research partner, such as MCLA, Williams College, or USACE, and community or non-profit partner, with some guidance from a coalition of other local and regional stakeholders. Interviewees indicated that concentrated leadership by one or two partner organizations is preferable to a larger board of directors pulling from several organizations, as a governance structure with a greater number of partners may limit the facility's ability to make quick decisions and react to grant opportunities.

As discussed in the needs assessment findings, a university or research partner could potentially have oversight over the research and testing program at the facility, in addition to primary oversight over baseline operations and maintenance and capital programs of the center. In addition to providing funding through trustees and/or directly through its operating budget, or in the case of USACE, bringing federal funding, a lead partner would also be critical in obtaining research-related grants, which will likely make up a significant portion of the center's funding.

A partnership with USACE would likely require more direct involvement in the center by DER, as USACE typically routes its research collaborations through state entities such as DER. According to USACE, direct collaborations with City entities are less common and collaborations with institutions and non-profits are unlikely.

In addition to a potential university or research entity partnership, an existing or newly-formed community or non-profit partner would be valuable in translating research and testing at the facility into successful community and skills-training programs and serving as the public "face" of the center. Interviewees expressed concern that research focused facilities sponsored by universities and other scientific research organizations may have difficulty engaging the local community, attracting visitors, and translating hard science into digestible, public facing programs.

To complement the leadership of the university/research and non-profit partnership, an advisory board could be formed by other interested academic institutions, cultural facilities, community non-profit organizations, and public bodies to inform the operations, programming, and other elements of the facility. This could attract partners that do not have the financial and staffing capacity to be the lead sponsor and operator of the facility, but have interest in contributing to the facility. This advisory board could provide guidance to the academic and non-profit partnership without having any formal oversight over the facility.

Potential Partners

Academic and Other Partners

As discussed in the needs assessment key findings, preliminary conversations with the chairs of the MCLA and Williams College environmental studies departments revealed an early interest in a potential partnership, but limited ability to commit to being the primary sponsor of the facility. There may be an opportunity to engage other academic institutions in the regional area with environmental studies departments, including the University of Massachusetts Amherst, Bennington College, and SUNY Albany. There may also be an opportunity to engage academic institutions outside of the regional area with focused fluvial geomorphology research programs, including the University of Minnesota, Dartmouth College, North Carolina State University, and Utah State University.

There may also be potential to partner with the USACE New York District office to fund specific research/testing studies related to flood solutions. In addition, there may be potential to partner with the USACE ERDC to develop a satellite research facility in North Adams.

Academic partners with the interest, capacity, and funding to support the creation and operations of the center could serve as the lead partner, while other institutions with interest but without the resources to sponsor the facility could serve on the advisory board.

Local Stakeholders and Non-Profit Partners

Potential partners include HooRWA, the Hoosic River Rival, MASS MoCA, and other community organizations. Depending on their interest, these existing community stakeholders, cultural institutions, and non-profit organizations could collaborate to form a new non-profit that would serve as the public-facing lead of the center. Interested organizations that do not have the capacity to serve as lead partner, but are interested in contributing to the center could serve on the advisory board.

IMPLEMENTATION RECOMMENDATIONS

HR&A's needs assessment and feasibility analysis indicate that there is a unique opportunity to develop a new research and testing facility in North Adams focusing on alternatives to traditionally engineered flood solutions with additional community-facing components; however, the success of such a facility will largely depend on securing a strong lead university or other research partner with the necessary resources to raise funding, bring credibility, and provide staff to create and operate the facility. While urban river research facilities are in high demand across the country, the location and accessibility of North

Adams may pose an ongoing challenge to attracting researchers, scientists, practitioners, and other visitors. There is a general consensus that this locational challenge can be overcome by creating a compelling destination via two methods: 1) developing a center focusing on a research segment that is in high demand and specific to the location and urban typology of a city like North Adams, and 2) securing the backing of an established university or other research partner to lend credibility, draw interest, and provide the necessary funding to develop and sustain the center in a high-quality manner. Ongoing efforts in North Adams to find alternative solutions to its concrete flood chutes pose an excellent opportunity to conduct much-needed testing and research on alternatives to engineered flood solutions and subsequent habitat restoration; findings could be translated to other cities in New England, creating a regional focus for the center. The challenge will be to fulfill the second requirement—securing an interested lead partner to develop and operate the facility.

To advance the development of the program concept for an urban river-focused research, testing, and educational facility in North Adams, HR&A recommends the following next steps for DER and other stakeholders.

1. **Advance conversations to find interested university, research, and other community partners.** HR&A recommends that DER continue or begin conversations with USACE and potential local university partners, such as MCLA and Williams College, as well as other regional and national universities with strong fluvial geomorphology programs, to discuss partnership opportunities, and assess interest in serving as lead partner on the facility. HR&A also recommends that DER advance conversations with local community organizations and cultural institutions, such as MASS MoCA and HooRWA, to determine opportunities for programming partnerships and interest in leading the non-profit organization that could serve as the public face of the facility.

2. **Begin conversations with City, County, and State, and other public agencies to identify opportunities for funding and site/land acquisition for the facility.** Conversations with local stakeholders, industry experts, and precedent facilities indicated that direct support from a public agency would likely provide a strong funding base for the facility. In addition, there may be opportunities to locate the facility on land and in buildings currently owned by public agencies, such as the North Adams Redevelopment Authority, which would greatly reduce the required capital and ongoing operating costs related to site acquisition and leasing.

3. **Refine needs and opportunities for community programs by holding charrettes and/or working groups with a wide range of local stakeholders and community members.** In addition to the recommended skills-training program, there may be other community programs that could generate social and economic benefits for the surrounding community. To truly respond to the community's unique needs, HR&A recommends holding a series of public meetings, working groups, or charrettes with local stakeholders and community members to develop a list of community priorities to inform the community-focused mission and programs of the center going forward.

Alternatively, and/or should DER not find sufficient partner interest in developing and operating a new research facility in North Adams, HR&A recommends that DER issue a statewide RFI/RFP to solicit proposals from universities, research institutes, municipalities and other partner organizations to develop a new research/testing facility in Massachusetts. The solicitation would need to include identification of seed funding (operating or capital) to support the project in order to incentivize interested parties to respond. This process

could help identify motivated partners and viable locations within other communities with urban rivers that provide the basis for a new facility focused on developing urban river flood management strategies.

APPENDIX

A total of 52 interviewees were contacted to participate in this study (26 industry experts, 12 precedent facilities, and 14 potential partners). To date, HR&A has completed 22 interviews. An additional 30 interviewees have also been contacted, but have not resulted in scheduled interviews.

* *Signifies interviewees recommended by the Massachusetts Division of Ecological Restoration and Inter-Fluve.*

Industry Experts

Completed

1. *Keith Bowers – Biohabitats, President
2. *Susannah Drake – DLANDstudio, Principal
3. *Carol Armstrong – LA River Works, Director
4. *Diana Toledo & Katherine Boer – The River Network, Director of Science and Policy
5. *Tim Dekker & Craig Taylor – LimnoTech, Senior Engineer
6. *Mia Lehrer – Mia Lehrer and Associates, Principal
7. *Barbara Huberty – MN Legislative Water Commission, Director
8. *Linda Cox – Bronx River Alliance, Executive Director
9. *Robert McDonald – The Nature Conservancy, Senior Scientist, Urban Sustainability
10. *Ann-Marie Mitroff – Groundwork Hudson Valley, River Program Director
11. *Marty Melchior – Inter-Fluve, Regional Director

Contacted

1. *Laura Craig – American Rivers, Restoration Director
2. *Brian Graber – American Rivers, Restoration Director
3. *Hye Yeong Kwon – Center for Watershed Protection, Executive Director
4. *Bob Zimmerman – Charles River Watershed Association, Executive Director
5. *Ken Kopocis – EPA, Dep. Assistant Admin. of Water
6. *Michael Shapiro – EPA, Principal Dep. Assistant Admin. of Water
7. *Anne Breen & Dick Rigby – The Waterfront Center, Co-Directors
8. *Margaret Palmer – University of Maryland, Professor
9. *Jen Steger – NOAA, Seattle Area Restoration Specialist
10. *Carl Alderson – NOAA, Habitat Restoration Specialist
11. *Dan Eckstein – Yestermorrow, Curriculum Director
12. *James Wisker – Minnehaha Creek Watershed Association, Director of Planning and Projects
13. *Patrick Elliott – Milwaukee Metropolitan Sewerage District, Senior Project Manager
14. *David Fowler – Milwaukee Metropolitan Sewerage District, Senior Project Manager
15. *Peter Wilcock – Utah State University, Professor and Department Head, Watershed Sciences

Precedent Facilities

Completed

1. *Thomas Ballestero – UNH Stormwater Center, Director
2. Deborah Weaver – Westport River Watershed Alliance, Executive Director
3. Joshua R. Ginsberg – Cary Institute of Ecosystem Studies, President
4. Ryan Palmer – Sarah Lawrence College Center for the Urban River at Beczak, Director
5. Ken Leinbach – Urban Ecology Center, Executive Director
6. *Jack Schmidt – Utah State University, Director of Intermountain Center for River Rehabilitation

Contacted

1. *John Gullver – Saint Anthony Falls Lab at University of Minnesota, Professor of Civil Engineering
2. Stefan Theimer – Cascade Meadow Wetlands Environmental Center, Education Program Coordinator
3. Catherine Timko – Lake Erie Nature & Science Center, Executive Director
4. Jessica Kozarek – St. Anthony Falls Lab, Manager of Outdoor Stream Lab
5. Patrick Herron – Malden River Urban Waters Partnership, Director
6. Bob Carey – Floodplains by Design Partnership, Strategic Partnerships Director

Potential Partners

Completed

1. Ralph Bradburd – Williams College, Chair of Environmental Studies Department
2. *Elena Traister – MCLA, Coordinator of Environmental Studies Program
3. *Lauren Stevens – Hoosic River Watershed Association, Member of Board of Directors
4. Laura Thompson – MASS MoCA, Director of Education
5. Mark Lulka – U.S. Army Corps of Engineers, New York District – Program Manager

Contacted

1. *Sarah Gardner – Williams College, Associate Director of Environmental Studies Department
2. Daniel Shustack – MCLA, Chair of Department for Environmental Studies
3. Laura Thompson – MASS MoCA, Director of Education
4. Blair Benjamin – Greylock Market LLC, President
5. *Steve McMahon – Hoosic River Watershed Association, Executive Director
6. Rifat Salim – U.S. Army Corps of Engineers, New York District – Program Manager
7. Jose Sanchez – U.S. Army Corps of Engineers, ERDC, Coastal and Hydraulics Laboratory – Director
8. Hwai-Ping Cheng – U.S. Army Corps of Engineers, ERDC, Coastal and Hydraulics Laboratory – Chief of Hydrologic Systems Branch
9. John Kennelly – U.S. Army Corps of Engineers, New England District – Chief of Planning Branch

SUMMARY OF PRECEDENT FACILITIES

HR&A conducted interviews with a total of six precedent facilities to inform programming, visitation, sizing, capital and operations costs, funding, and governance models for the project. Below is a summary of key items for each of the facilities. HR&A did not include Utah State University's Intermountain Center for River Rehabilitation in this summary due to its lack of relevance to this project; the Center is primarily focused on providing decision support for federal agencies regarding the management of large urban rivers.

Facility Name	City & Population	Mission	Programs	Visitation	Size	Capital Costs	Operating Costs	Funding Sources	Governance Structure
UNH Stormwater Center	Durham, NH – 14,600	Protection of water resources through effective stormwater management. The primary functions of the center are twofold: 1. Research and development of stormwater treatment systems. 2. To provide resources to the stormwater management community currently challenged by the effective design and implementation of required stormwater management.	Research Program • Technical research on various stormwater treatment systems. Public Programs • Stormwater BMP technology demonstration workshops on UNH's field-testing facility for various visitors, including public officials, engineers, planners, landscape architects, and natural resource managers. • Pervious pavement and Subsurface gravel wetland and bioretention design workshops, attended primarily by stormwater management professionals.	Total annual visitation: N/A Comprised of: • ~250 participants in tours and demonstrations on UNH's field-site per year • Other visitation TBD	Located on 1.5 acre site; building SF N/A	Total cost N/A (housed in UNH) Capital cost elements: • Start up equipment: $750,000 • Each test site: $30,000	Total budget: $500,000+ Comprised of: • 4FT & 4-10 PT staff: $500,000 • Operations and maintenance: N/A • Public programs: $40 to $75 per head, total N/A	Primarily funded through federal and state grants, including continuing funding from the National Oceanic and Atmospheric Administration (NOAA) and targeted funding for specific projects from the Environmental Protection Agency (EPA), Rhode Island Department of Environmental Management, Maine Department of Transportation, NH Estuaries Project, Sea Grant, and Department of Environmental Services.	Governed solely through the UNH College of Engineering and Physical Sciences; no other partners or board of directors. Executive Director is employed by UNH.
Westport River Watershed Alliance	Westport, MA – 15,500	Develop programs and projects that promote education for all ages, perform scientific research and advocacy for environmental issues, and celebrate the Westport River watershed.	Research Program • Water quality monitoring program; data used by town and state agencies to document bacterial contamination in the river. Public Programs • Summer education programs for local schoolchildren between the ages of 3 and 16, including kayaking, wildlife science exercises, and ecosystem exploration. • Home school programs that fulfill curriculum needs, such as watershed models and demonstrations, hands-on natural science workshops, and ocean and stream ecology.	Total annual visitation: 9,000+ Comprised of: • 100+ for summer education programs • 3,000+ for home school programs • 6,000 for annual festival	4,000 square foot building	Total cost: $1.4 million (new headquarters) Capital cost elements: • Acquisition of building: $100,00 • Renovation of building: $1.1 million • Science & education equipment: $200,000	Total budget: $450,000 Comprised of: • 6FT staff: $300,000 • Operations and maintenance: $20,000 • Programming and other expenses: $130,000	Primarily funded through individual contributions (80%) and event programming ($395,000). Other sources of funding include grants, sponsorships, merchandise sales, and endowment payouts ($103,000).	Independently governed by WRWA non-profit.
Sarah Lawrence College Center for the Urban River at	Yonkers, NY – 199,800	Advance environmental knowledge and stewardship by providing high quality K-12 environmental education for the local community, establishing a regional hub	Research Program • Academic research, environmental monitoring, and citizen science programs. Public Programs	Total annual visitation: 8,000+ • 5,000 for youth education programs	4,000 square foot building; 2 acre field site	Total cost N/A $160,000 cost to renovate and equip new 1,000 SF expansion of center	Total budget: $250,000 - $275,000 Comprised of 3FT staff, building expenses, and program expenses.	30% of budget underwritten by SLC through trustees and SLC's operating budget, and 40% of funding comes from fees from education programs. The rest is	Governed through a partnership (MOU) between SLC and the Hudson River Valley Environmental Education Institute (non-profit), with support from advisory board. Effectively

Beczak (SLC-CURB)		for research and monitoring focused on Hudson River estuary and urban watershed issues, and serving as a welcoming open community space for a variety of civic and cultural activities.	• Experiential classroom and field-based educational programs for students K-12, intensive college credit courses, and professional development for teachers. • Community programs include lecture series (8 per year), concerts (12 per year), and summer weekend events and camps.	• 3,000 for special events				funded through a mix of individual donors, local and regional foundations, board of trustees, and focused government grants from NOAA, EPA, and the NY Department of Environmental Conservation.	controlled by SLC; SLC has oversight over programming. Advisory board provides guidance and has no oversight over SLC and non-profit. County has oversight over capital projects (facility sites on County-owned land).
Cary Institute of Ecosystem Studies	Milbrook, NY – 1,500	Four goals: 1. Advance understanding about the structure and function of ecological systems. 2. Provide the scientific knowledge needed to solve environmental problems. 3. Enhance the ecological literacy of students, decision makers, and the public. 4. Train the next generation of ecologists and resource managers.	Research Program • Water-related diseases (e.g. West Nile virus), forest and freshwater health, climate change, urban ecology, and invasive species. Public Programs • Educational programs for K-12 students, including schoolyard ecology programs and onsite field trips. • Public lecture series and science and management conference.	Total annual visitation: N/A • 100+ for summer ecology camps	Located on 2,000 acre site; building SF N/A	N/A	Total budget: $10 million Comprised of: • $3 to $5 million for 120 employees and 20 PhD research scientists • Other expenses: N/A	$5 million per year from Mary Flagler Charitable Trust endowment (original owner of land on which institute sits). The Institute also receives approximately $4 million a year from the National Science Foundation (NSF).	Board of trustees independently governs the Cary Institute.
Urban Ecology Center	Milwaukee, WI – 599,200	Provide year-round, replicable urban outdoor science educational programs for kids, families, and adults of all ages.	Research Program • Monitoring and analysis of urban wildlife; facilitates research by opening up field stations to volunteer researchers from local community Citizen Science Program. Public Programs • Hands-on environmental education to K-12 students. • Other programs include summer day camps, youth leadership and internship programs, food education programs, equipment lending programs (2,500 loans), and activities such as rock climbing and kayaking.	Total annual visitation: 230,000 Comprised of: • 200,000 to the Center's three branches • 28,000 K-12 students from 53 schools for environmental education program • 600 for summer day camps	20,000 square foot headquarters; Two ~7,000 square foot satellite branches.	Capital costs for restoration of vacant tavern into satellite facility: $2 million	Total budget: $4.4 million Comprised of: • $3.2 million for NEEP field trip, community improvement, and citizen science programs • $500,000 for general administrative costs, including 3FT researchers • $400,000 for fundraising activities • $300,000 for facility maintenance.	Majority of funding ($3.5 million) comes from private philanthropy (fundraising events, grants, contributions, corporations). Additional $670,000 from earned income from environmental education and facility rental, plus $130,000 from government grants. Local universities also extend a percentage of a grants funding to the Center for support in carrying out community outreach requirements.	Board of directors independently governs the Urban Ecology Center. The Citizen Science program has an advisory board comprised of representatives from local universities to help shape research direction.

SUMMARY OF POTENTIAL GRANT PROGRAMS

HR&A investigated a range of research/scientific, arts, educational, and other public programming grants to determine likely sources of funding for the proposed facility in North Adams. Below is a shortlist of grants, which includes a description of the grant, evaluation criteria, amount and length, geographic focus, relevant program components, past winners, and key considerations for evaluating likelihood of winning the respective grant. HR&A developed this shortlist through conversations with industry experts and precedent facilities, as well as additional research. Aside from the shortlist below, HR&A also considered grants from the National Oceanic and Atmospheric Administration, MassWorks Infrastructure Program, and National Science Foundation American Recovery and Reinvestment Act, but determined that the facility would likely not be eligible or have a high chance of securing these grants due to the program concept.

Capital Funding

Organization / Grant Name	Purpose	Amount / Length of Grant	Geographic Focus	Eligible Entities	Evaluation Criteria	Relevant Program Component	Past Winners	Priority / Key Considerations
Commonwealth of Massachusetts; Cultural Council Facilities Fund	Funds acquisition, design, repair, rehabilitation, renovation, expansion, or construction of nonprofit cultural facilities in Massachusetts	$250,000 to $675,000 per project: Requires 1:1 cash match; One time grant	State	• Non-profit 501(c) cultural organizations that are primarily concerned with the arts, humanities, or interpretive sciences • Municipalities that own cultural facilities • Public or private institutions of higher education that own cultural facilities	• There must be a demonstrated community need for the project. • The project must be able to demonstrate that it will benefit tourism in the local area. • There must be a demonstrated financial need for a grant. • The project must be able to demonstrate local support.	N/A	• Two 2015 grants (total $610,000) to MASS MoCA for facility upgrades • Between 2007 and 2014, 4 grants to North Adams: 1 to MCLA, 1 to the City for the Mohawk Theater, and 2 to MASS MoCA • $450,000 grant to Westport River Watershed Association for facility renovation • Between 2007 and 2014, 4 grants ($1.4 million) for Clark Art Institute in Williamstown	High: Both North Adams and watershed associations in the region have won grants in the past.
U.S. Department of the Interior; Hurricane Sandy Coastal Resiliency Competitive Grant Program	Supports projects that reduce communities' vulnerability to the growing risks from coastal storms, sea level rise, flooding, erosion and associated threats through strengthening natural ecosystems	$100,000 to $1 million per project; funding up to 2 years	Coastal State	• Non-profit 501(c) organizations • Local governments and agencies • State government agencies Academic institutions	• Increase resilience and capacity of ecosystems and infrastructure to withstand impact of future storms • Actively engage stakeholders, communities, and municipalities in the planning process • Build a local partnership to implement the project and sustain it after grant • Set forth a clear, logical, and achievable work plan • Build a cost-effective budget • Significantly involve youth and/or veterans in the completion of project	Research and testing	• Massachusetts DER awarded $4.5 million in 2014 to remove ten high risk fish barriers that cause flood damage within nine communities across the state	Medium: Facility will have to demonstrate strong community benefits and collaborations to win grant.

Operations & Maintenance Funding

Organization / Grant Name	Purpose	Amount / Length of Grant	Geographic Focus	Eligible Entities	Evaluation Criteria	Program Component	Past Winners	Priority / Key Considerations
Environmental Protection Agency; Urban Small Waters Initiative	Allocates funding for urban restoration efforts that engage, educated, and empower local underserved communities	$40,000 to $60,000 per project; funding from 1 to 2 years	National	• Non-profit 501(c) public or private institutions or organizations • Public and private universities and colleges • Interstate agencies • States, local governments, and territories	• Activities to improve and restore local urban water quality • Engage, educate and empower local residents and entities; • Support community priorities; and • Involve underserved communities	• Research and testing • Skills-training programs • Educational exhibit	• Mystic River Watershed Association won two $60,000 grants in 2014 • Pennsylvania Horticultural Society won grant to provide focused stormwater testing and green infrastructure training	High: Facility's location in underserved community in combination with its job and skills training program makes it likely candidate for this grant.
U.S. Department of the Interior; Hurricane Sandy Coastal Resiliency Competitive Grant Program	Supports projects that reduce communities' vulnerability to the growing risks from coastal storms, sea level rise, flooding, erosion and associated threats through strengthening natural ecosystems	$100,000 to $1 million per project; funding up to 2 years	Coastal State	• Non-profit 501(c) organizations • Local governments and agencies • State government agencies • Academic institutions	• Increase resilience and capacity of ecosystems and infrastructure to withstand impact of future storms • Actively engage stakeholders, communities, and municipalities in the planning process • Build a local partnership to implement the project and sustain it after grant • Set forth a clear, logical, and achievable work plan • Build a cost-effective budget • Significantly involve youth and/or veterans in the completion of project	Research and testing	• Massachusetts DER awarded $4.5 million in 2014 to remove ten high risk fish barriers that cause flood damage within nine communities across the state	Medium: Facility will have to demonstrate strong community benefits and collaborations to win grant.
U.S. Department of the Interior; America's Great Outdoors: Developing the Next Generation of Conservationists	Supports organizations that are developing innovative conservation job opportunities for youth on Bureau of Land Management (BLM) lands and national parks and forests. Provides funding to employ youth and veterans in activities such as trail maintenance, watershed restoration, and forest regeneration.	Up to $75,000 per project; requires 1:1 match; funding from 6 to 18 months	National, public lands	• Non-profit 501(c) organizations • Local governments • Municipal governments • BLM field units • State government agencies • Educational institutions	• Innovative full-time or part-time conservation job opportunities for urban and minority youth (aged 16-25) • Hands-on implementation of on-the-ground restoration, stewardship, monitoring, and other conservation related projects on public land • Partnership building with diverse entities • Mentorship and training opportunities for youth • Benefit missions of public lands agencies: BLM, Bureau of Reclamation (BOR), US Forest Service (FS), US Fish and Wildlife Service (FWS)	Skills-training program	• Sierra Native Youth Conservation Corps in Nevada - environmental job training and educational experiences for Native American youth in design, restoration, and monitoring at four Nevada watershed sites • Operation Fresh Start - engage youth from disadvantaged urban backgrounds in planning, and restoration activities along the lower Wisconsin River	Medium: Facility must submit proposal for a project that benefits BLM, BOR, USFS, and USFWS facilities, programs, or mission. Skills-training program will need to incorporate activities on land overseen by these agencies.

Environmental Protection Agency; Brownfields Program: Environmental Workforce Development and Job Training Program	Fund training programs in local nonprofit organizations and more that provide unemployed and under-employed individuals with the comprehensive skills and certifications needed to enter full-time careers in the environmental field.	Up to $200,000 per project; funding up to 3 years	National	• Non-profit 501(c) organizations • Local governments and associated agencies • Recognized tribes • State government agencies • Public and nonprofit private educational institutions	• Address current environmental, social, public health, and economic challenges in community • Demonstrate how facility will recruit and train unemployed or under-employed individuals of specific population indicative of need • Demonstrate local community and employer partnerships • Demonstrate programmatic capability necessary to execute workforce development and job training projects • Demonstrate an effective use of grant funds through a detailed budget	Skills-training program	• Groundwork Providence - plans to train students for environmental jobs including storm and wastewater management and green infrastructure training • St. Louis Community College - plans to train unemployed and underemployed individuals in stormwater management and waste remediation techniques leading to full-time employment and/or certification	Low: Vast majority granted to large cities (Detroit, Los Angeles, Memphis, Milwaukee, etc., only one in New England)
National Endowment for the Arts; Challenge America Grant Program	Support projects that extend the reach of the arts to underserved populations.	$10,000 per project, requires 1:1 match; One time grant	National	• Non-profit 501(c) organizations • Units of state or local government • Recognized tribes • Local education agencies (school districts)	• Quality of the artists, arts organizations, works of art, or technical services that the project will involve, as appropriate. • Potential of the project to reach underserved populations -- those whose opportunities to experience the arts are limited by geography, ethnicity, economics, or disability. • Ability of project to engage the public and strengthen communities through diverse and excellent art.	Educational exhibit	• City of Berea, Kentucky - public art tour that highlights the city as a home to a thriving population of weavers, instrument makers, furniture artisans, musicians, etc	Low: Grant is typically awarded to more larger-scale art projects. Exhibition program also needs a strong outreach component.
National Endowment for the Arts; Our Town Grant Program	Supports arts engagement, cultural planning, and design projects that help to transform communities into lively, beautiful, and resilient places with the arts at their core.	$25,000 to $200,000, requires 1:1 match; funding up to 2 years	National	Applicants require partnerships that involve at least two primary partners: • Non-profit 501(c) organizations • Local governments and associated agencies One of which must be a cultural (arts or design) organization. Additional partners may include a variety of public and private entities. Federal agencies cannot be monetary partners.	• Strong vision for enhancing the social and/or economic livability of the community. • Responsiveness to the needs of existing residents and institutions in the community. • Support for artists, design professionals, and arts organizations that integrate the arts and design into the fabric of civic life and/or community plans. • Creative approaches to addressing community challenges or priorities. • Partnerships that involve nonprofit organizations and local government entities.	Educational exhibit	• Hudson River Museum of Westchester in Yonkers, NY - creation of public art pieces on the Hudson River Walk - Museum will partner with Groundwork Hudson Valley • City of Pittsfield, MA - helped install mobile pop-up writers and studios, and a new writer's residency program in the city	Low: Grant is typically awarded to more robust art projects. Facility will need to collaborate with MASS MoCA or other partners to strengthen grant application.