

**Title of Project:** Leading Green: Creating a Green Infrastructure Hub and the Ulster County Office Campus C007476

**NYS HREP:** Watershed

**NEI Job Code:** 0100-113-008

**Project Code:** 2012-054

**Contractor:** County of Ulster

**Contact:** Amanda LaValle, UC Dept. of the Environment (845) 338-7455, alav@co.ulster.ny.us

**Project Period:** 1/7/2013 to 12/31/2013 (Original)\*  
1/7/2013 to 6/30/14 (Amended)

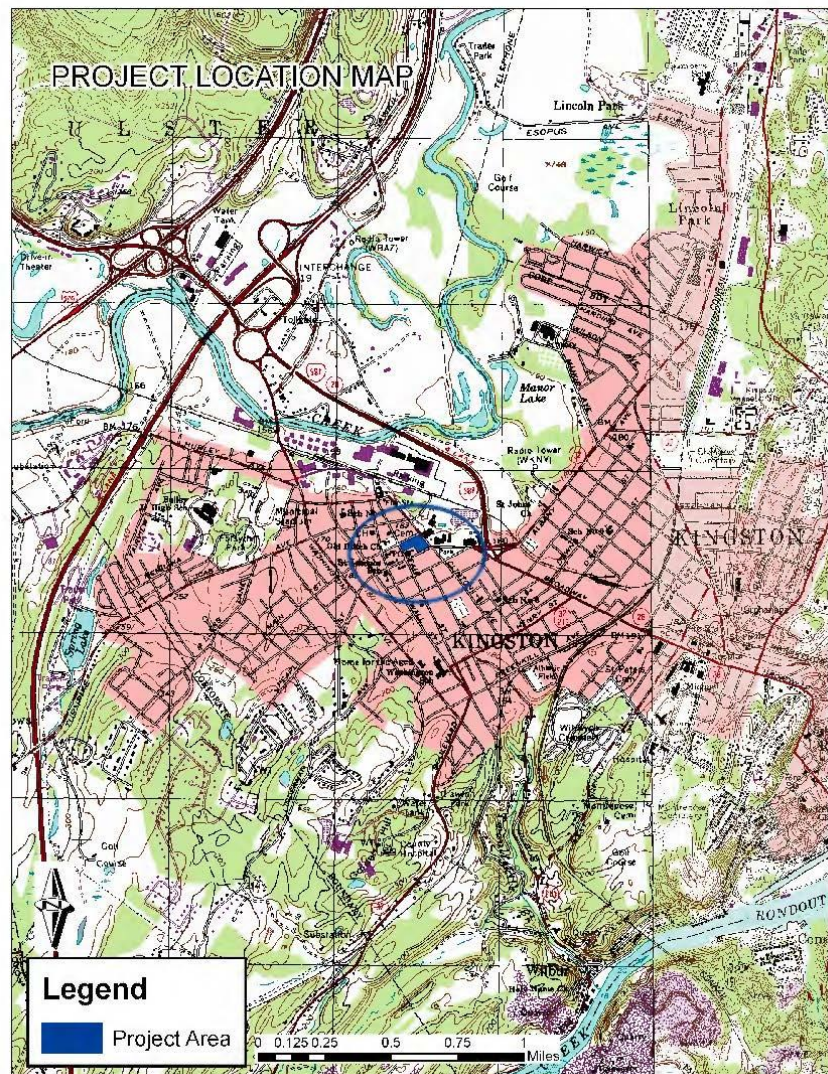
\*A request was granted to extend the Project Period through June 30, 2014

## Final Report

### GENERAL OVERVIEW

This project resulted in the installation of a green infrastructure stormwater retrofit for the Ulster County Office Building campus - located in a highly visible and well-traveled area in Kingston, New York. The project consisted of tree plantings/tree pits, installation of permeable pavers, and creation of a large bioretention area – all of which will have direct benefits to the Tannery Brook and the Lower Esopus Creek (a 303(d) water body). This project furthers ongoing efforts to establish a hub of demonstration Green Infrastructure practices at the County Office Building campus and will include outreach and educational opportunities.

This project expanded upon two existing green infrastructure practices - a 300+ square-foot rain garden on County property and 4,000 square feet of permeable pavers on an adjacent property.



Through this specific project, more than 1,200 square feet of asphalt in the heart of uptown Kingston have been replaced with green infrastructure, including:

*Tree Plantings and Tree Pit* - A new planting bed with two deciduous trees has been created resulting in a reduction of the size of the aisle in the parking area adjacent to the Pearl Street entrance to the parking lot. Native grasses and shrubs comprise the understory plantings.

*Bioretention Area* - The bioretention area is part of a new landscape plan that includes the new trees along the entrance to the parking lot and an extended and renovated planting area along the Carr Building portico and entrance. It replaces two parking stalls and a small planting strip along the sidewalk. The bioretention area has a gravel diaphragm and mulch layer, and has also been planted with native shrubs, grasses and perennials. The soil mix conforms to the guidance in Appendix H, page 5, of the *NYS Stormwater Management Design Manual 2010*.

## **PROJECT OBJECTIVES**

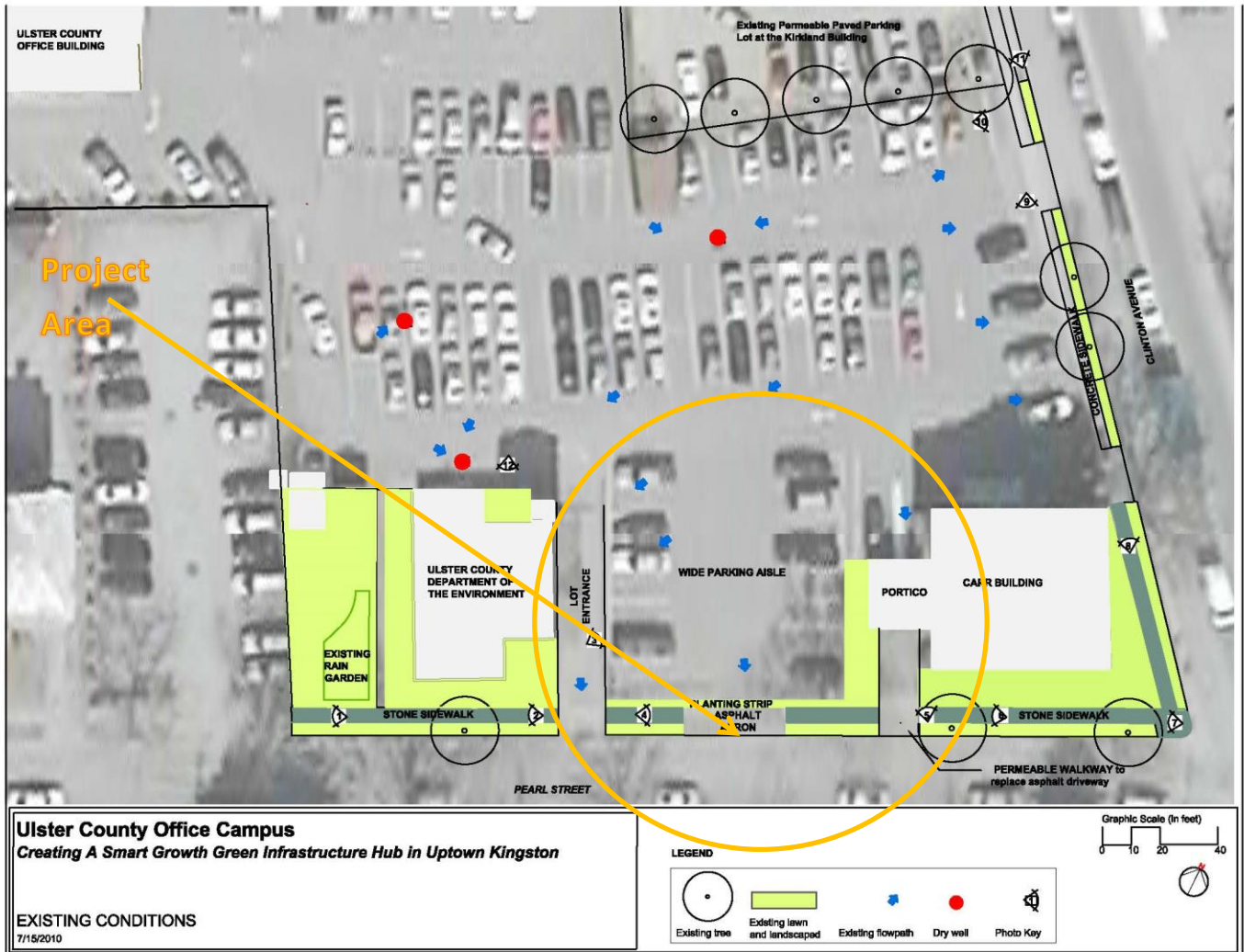
The primary objective of “Leading Green: Creating a Green Infrastructure Hub at the Ulster County Office Campus” was to improve the quality and reduce the quantity of water that enters the storm sewer and ultimately the Esopus Creek and Hudson River after each storm event. To accomplish this, more than 1,200 square feet asphalt has been replaced with two types of approved green infrastructure. Another objective, due to its location in a highly-visible area, is for this project to serve as a showcase or a model to demonstrate the benefits of various green infrastructure practices.

“Leading Green: Creating a Green Infrastructure Hub at the Ulster County Office Campus.” directly relates to the priority topic, *Watershed Restoration through Green Infrastructure*, and supports at least four goals outlined in the *2010-2014 Hudson River Action Agenda*. This project clearly supports Goal #4 (Streams and Tributaries of the Hudson River Estuary Watershed), Goal #8 (Education), Goal #10 (Water Quality), and Goal #11 (Contaminant Reduction), in several, direct ways.

Now constructed, this project contributes to protecting and restoring the Tannery Brook and the Lower Esopus Creek, a significant tributary to the Hudson River and the estuary, improving the health and well-being of Hudson Valley residents and this critical ecosystem. By better managing stormwater from this location, these innovative practices will then be used as a tool that can be continually applied not only on other County properties, but throughout the entire Hudson River Estuary.

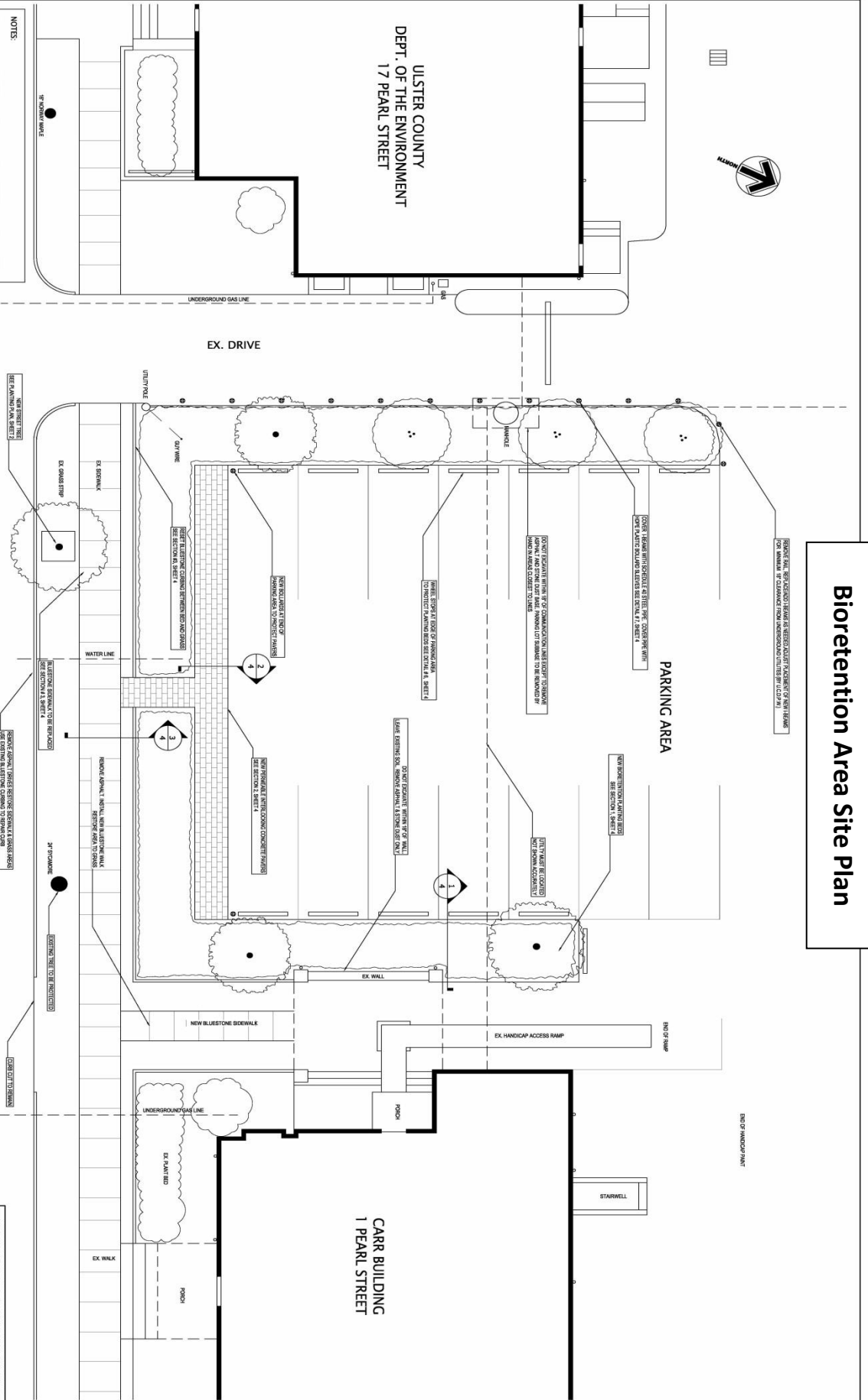
We expect that as a result of this project and its educational components, the public will not only have a better understanding of green infrastructure, but also the critical role that local municipalities and residents can play in alleviating stormwater impacts to the Hudson River, which in-turn benefits the life it sustains, the Hudson’s vital role in the global ecosystem, and having a clear understanding of the present day challenges the river faces and how they can be met.

# PROJECT SITE



# Bioretention Area Site Plan

PERMANENT RETENTION TRENCH IS REDESIGNED EXISTING EXISTENCE OF NEW TRENCH FOR ANNUAL 1% CHANCE FLOOD FROM UNDERGROUND UTILITIES BY U.C. CALL #1



NOTES:  
 STAGING AREAS AT THE PROJECT SITE SHALL BE DESIGNATED AND APPROVED BY THE ULSTER COUNTY DEPARTMENT OF PUBLIC WORKS.  
 ALL SAFETY BARRIERS, PROTECTION OF THE PUBLIC FROM OPEN EXCAVATIONS, OPERATION OF EQUIPMENT AND STORAGE OF SUPPLIES SHALL BE APPROVED BY THE ULSTER COUNTY DEPARTMENT OF PUBLIC WORKS.  
 DEPARTMENT OF PUBLIC WORKS

NO OCCUPATION MAY BE MADE UNTIL ALL UNDERGROUND UTILITIES ARE LOCATED AND MARKED IN THE FIELD.  
 CALL DISSEMINATE 2 TO 10 DAYS IN ADVANCE OF START DATE, NOT COMMENCE DATE OF CALL.

PEARL STREET

CARR BUILDING  
1 PEARL STREET

ULLSTER CO. DEPT. OF THE ENVIRONMENT	
KINGSTON, NEW YORK	
BIORETENTION AREA SITE PLAN	
RESTANO DESIGN LANDSCAPE ARCHITECTURE, PC	
P.O. BOX 778 CARLISLEVILLE, NY 12140	TEL: 845-595-0020
OWNER: DCU / DDC	DATE: 2/16/2013
DESIGNER: DCU / DDC	SCALE: 3/16"=1'-0"
DATE: 02/16/2013	REVISIONS/DESCRIPTIONS
	SHEET 1 OF 4

## PROJECT CONSTRUCTION

Although the construction of this project was put out to bid, Ulster County Department of Public Works ended up doing the construction in-house. Unfortunately, the cost of the project, as designed, significantly exceeded the available budget. The County reviewed the possible options and considered revising the scope of the project and putting it out for quote again or constructing the project with in-house labor and using the available budget to pay for materials and supplies. Because of the flexibility and understanding of the DEC/NEIWPC, we were able to keep the scope of the project as planned, and ultimately complete it for the grant budget. In order to accommodate this unfortunate circumstance, both DEC and NEIWPC agreed to let us use budget money that was assigned to a contractor for supplies and granted a no-cost time extension through June 2014.

The County executed a contract on June 10, 2013 with architect Barbara Restaino of Restaino Design, to develop the designs for this project. The final designs for this project have been included as an appended item. The site plan for the bioretention area has been included in section 1.3 above.

**Construction of Phase I** began on November 13, 2013. This initial phase involved removing the asphalt apron near the Carr Building (shown below), removal and replacement of more than 50 linear feet of broken and disjointed bluestone sidewalk. Additionally, an asphalt walkway, more than 20 linear feet long, was also removed adjacent to the Carr Building. The new stone sidewalk was re-set with a slight pitch to encourage stormwater runoff into the adjacent grass strips and bio-retention areas (see “B” below). Phase I construction concluded on November 20, 2013. Images of the construction have been provided below, additional images are also available.

*First piece of asphalt being removed*



*New bluestone sidewalk being laid down along Pearl Street*



**Construction of Phase II** began on May 6, 2014. Phase II started with the removal of additional asphalt (area will be converted to bioretention planting beds and permeable pavers), the removal of the native soil and placement of the suitable bioretention soil mix, the installation of the permeable pavers, installation of the new posts, and curb-stops, resetting of bluestone curbing, creation and installation of an educational sign, and the tree-plantings and additional landscaping in bioretention areas and tree pit. Images on the Phase II construction work have been provided below. In the previous report, the plantings were not completed, but we are happy to report that the trees, shrubs, and other vegetation were planted on June 3 and the new posts have since been installed to complete the project.

***Removal of material from future planting bed***



***Replacement of existing fill (bottom) with the bioretention soil mix (top)***



***New bioretention soil in planting bed areas in addition to placement of the gravel sub-base underneath the permeable pavers.***





***Close-up of gravel sub-base underneath the permeable pavers***



***Installation of the permeable pavers between the bioretention areas and the employee parking area***



***Completed installation of the permeable pavers***



***Delivery of Plants***



***Installation (6/2/14)***



***Finished planting and clean-up***



***Bio-Retention Area during a rain storm (6/5/14)***



***Installed curb-stops and un-painted posts***



## *Final project with painted posts*



## **CONCLUSIONS**

The construction phase of this project is now complete. We will be invoicing NEIWPC in the coming weeks to close-out the contract and address any outstanding issues that may arise. Although a no-cost extension of six months was needed to complete the project (for the reasons mentioned previously), Ulster County is very happy with not only the way the project turned out, but also the understanding and flexibility of NEIWPC and NYSDEC HREP staff in helping to ensure its completion.

We expect that approximately 168,820 gallons of stormwater runoff from the parking lot will now be treated each year by this infiltration and retention project.

The project has already garnered much attention among County staff, particularly those that park in the lot, but also by people that come to the various meetings at our office – as it is an opportune time to explain what the project is all about and why it was done.

Additionally, twelve members of the Ulster County Planning Board toured the site on July 2 as part of their monthly meeting. Department of Environment staff was on hand to talk specifically about what was done, why it was done, and what the expected environmental and aesthetic benefits of the project are.

Previously, on November 14, 2013 - a group from Bard College, accompanied by NYS DEC HREP staff that was investigating green infrastructure practices, toured the worksite. We expect and hope that trend continues well in to the future. We are also committed to furthering GI practices and installations on County-owned properties, specifically in high-visibility areas, such as at the County Office Building Camus and at the former Sophie Finn Elementary School (future SUNY Ulster satellite campus and recent recipient of EFC GIGP grant funding) along Broadway in Kingston.

In the coming weeks, we anticipate doing a press release announcing the projects' completion and touting the benefits that green infrastructure projects of this nature can have, particularly in urban areas such as the City of Kingston. We will be asking NYSDEC HREP and NEIWPC for quotes, for this press release, that can speak to the benefits of this project and perhaps others that showcase the benefits that green infrastructure initiatives can have throughout the Hudson Valley.