

# Albany Green Infrastructure/Hazard Mitigation Planning Project

---

23 MAY 2018

Prepared by:

ENVENTIVE CONSULTING, LLC UNDER CONTRACT TO CSRA INC

## Introduction

This report provides process highlights and lessons learned from recent efforts by the City of Albany to identify green infrastructure projects that will contribute to flood hazard mitigation as part of their overall hazard mitigation planning efforts. The report documents background on the project, support provided, lessons learned, and ideas for other communities to consider when undertaking green infrastructure and flood hazard mitigation efforts.

## Project Background/Key Issues

The City of Albany New York is located on the west bank of the Hudson River, approximately 150 miles north of New York City. The City of Albany has the potential to be affected by a variety of natural hazards, but their top two hazards are flooding and severe winter storms (which can also have flood implications). The City has experienced several significant storm events in the past 10 years that have resulted in flood damage, including the following:

- An unnamed storm in July 2008, with rainfall recorded at the Albany International Airport of 3.92 inches over a three-day period caused flooding and sewer backups throughout the City of Albany.
- On August 21, 2009, the region experienced severe thunderstorms that resulted in heavy rains. Several roads were closed due to high water, including but not limited to Western Avenue at Manning Boulevard and at Fuller Road and Central Avenue at the Interstate 90 overpass.
- September 30 through October 1, 2010, heavy rainfall (3-9 inches) led to widespread flooding and produced strong winds that resulted in damage to trees and power lines and set daily rainfall records at Albany International Airport.
- Hurricane Irene in August 2011 caused 5 injuries and 1 death. It was a declared federal disaster that resulted in over \$240k in flood damage. Tropical Storm Lee followed closely behind in September 2011 and its impacts were included in the impacts from Hurricane Irene. (Albany County was included in the Federal Disaster Declaration for New York following Hurricane Irene.)
- Flash flood event in August 2014 that caused significant disruption in the City largely as a result of sewer system backups and drainage issues.

Like many major cities, a large part of the City of Albany is served by a combined sewer system. This means that during heavy rains and flood events, raw sewage can flow directly onto streets and into receiving streams such as the Hudson River. As a result, water quality is a significant concern in addition to water quantities during flood events.

It is expected that the City will experience more severe storm events in the future due to impacts from climate change. As a result, they are focusing on various efforts to mitigate flood hazards across the City. One of the approaches that can potentially provide a cost-effective way to address both flood water quantity and quality is the adoption of green infrastructure approaches. Green infrastructure uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and create healthier urban environments. At the city or county scale, green infrastructure is a patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the neighborhood or site scale, stormwater management systems that mimic nature soak up and store water close to the source.

To help ensure that the city was taking a comprehensive and collaborative approach to identifying and implementing green infrastructure flood hazard mitigation projects, the City worked with U.S. Environmental Protection Agency (US EPA) to secure facilitation and analytical consulting support from Enventive Consulting to help convene relevant parties, conduct research, and document the details of potential green infrastructure projects. The work took place between May 2017 and March 2018.

## Description of Services Provided

Enventive Consulting provided the following services in support of the City of Albany's Green Infrastructure Hazard Mitigation efforts:

- Conducted background research and reviewed relevant project documents such as the Albany Pool's Long-term Combined Sewer Overflow (CSO) Long Term Control Plan, Albany Climate Change Vulnerability Assessment and Adaptation Plan, and the Green Infrastructure Options for the Capital Region prepared by the New York League of Conservation Voters Education Fund.
- Facilitated conference calls (approximately monthly) with a workgroup that included representatives from the following organizations:
  - City of Albany Department of Water and Water Supply
  - New York State Department of State (DOS)
  - New York State Department of Environmental Conservation (DEC)
  - New York State Division of Homeland Security & Emergency Services (DHSES)
  - United State Environmental Protection Agency (US EPA)
  - United States Department of Homeland Security (US DHS)/Federal Emergency Management Agency (FEMA)
  - Albany County Land Bank Corporation
- Conducted calls with individual workgroup members to gather information about programs, activities, and potential projects.

- Synthesized information from workgroup calls, research, and inputs from team members to prepare an overall report and individual project description worksheets.
- Developed and revised drafts of the report and project description worksheets based on input from the planning team.
- Provided final reports to the team, to the City of Albany, and to the Albany County contractor responsible for preparing the Multi-Jurisdictional Plan.

## Key Results

The primary product was a report for the City of Albany that documented background information and specific project details for green infrastructure projects to mitigate flood hazards. The report also included project description worksheets that were based on templates provide by DHSES. The report served as a stand-alone document, while the associated project description worksheets were incorporated into the Albany County Multi-Jurisdictional Hazard Mitigation Plan.

A side benefit of the project was the networking and information sharing that occurred among workgroup members. In particular, members were able to develop a better understanding of organizational missions, work, and resources. They were also able to share documents and information to further inform their own work related to green infrastructure, low impact development, and hazard mitigation.

## Process Observations and Lessons Learned

- **Process and analytical support is critical for this type of effort.** When bringing together multiple parties for a project that is of mutual interest but not necessarily mutual benefit, it is important to have process and analytical support that helps move the project forward without overburdening participants. In this case, support included facilitation support to convene and manage conference calls; research support to investigate background information and explore project details; and documentation support to document results of discussions, research, and inputs from workgroup members.
- **Workgroup participants should be engaged strategically.** For this type of process, where some workgroup members bring specific expertise or resources, they should be engaged strategically to maximize their time and energy. It is helpful to structure call agendas to focus on specific resources or topics and ensure that participants will be on the line to speak to those resources or topics. Similarly, when there are topics to be discussed that are not relevant to a particular member, this should be clear on the agenda so that they can determine whether or not to participate.
- **It was helpful to have a solid starting point for flood hazard information and potential green infrastructure/hazard mitigation projects.** For this effort, the City already had information that served as a starting point for workgroup discussions and project documentation. In addition, they had already completed some green infrastructure projects so they were more knowledgeable about what it takes to implement them. Existing documentation in the form of a CSO Long-term Control Strategy, a draft Multi-jurisdictional Hazard Mitigation Plan, and a

climate vulnerability and adaptation assessment served as good resources for background information about hazards, past flood events, primary areas of concern, and planned or completed infrastructure projects. Where these resources are not available, communities will need to collect similar information as part of the project development process.

- **Consider a broad range of funding sources for green infrastructure projects.** Although FEMA’s Hazard Mitigation Grant Program funding may be a logical resource, the information requirements for the grant funding application may be difficult to collect. Individual projects may not be considered significant from a cost-benefit perspective, especially smaller projects. Other potential sources of funding include:
  - Existing infrastructure maintenance budgets. There may be opportunities to expand these budgets to do things in a “green” way that represents a small increase over traditional “grey” infrastructure approaches.
  - Watershed grants. Given that green infrastructure projects are designed to reduce or improve water quality impacts, there may be opportunities to work with watershed groups to capitalize on available funding to make progress on water quality issues through green infrastructure.
  - Flood Mitigation Assistance grant funding. FMA provides funding to States, Territories, federally-recognized tribes and local communities for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the National Flood Insurance Program. To receive these funds, communities must have hazard mitigation plans in place.
  - Water Quality Improvement Program funding. States may have grant programs in place to address documented water quality impairments. Local communities should reference their state-specific programs for additional information on how to apply for these grants.
  - State Silver Jackets Teams. Silver Jackets Teams are state-led, inter-agency and inter-governmental teams that focus on flood risk management. These teams help states identify, prioritize, and execute flood risk management projects. More importantly, they help connect state officials to federal programs that can provide resources for project implementation.
- **Make a connection to longer-term planning efforts.** It is important to understand what broader planning efforts (hazard mitigation or otherwise) are underway that could connect to the green infrastructure work. Given that green infrastructure projects have a variety of benefits, they can have a connection to a variety of other types of planning efforts. Some of the plans that were referenced during the course of the Albany project included the State Climate Vulnerability and Adaptation Plan, the draft Multi-jurisdictional Hazard Mitigation Plan, the Albany Poll CSO Long-term Control Strategy, and Rezone Albany. Connecting to these longer-term planning efforts can provide several benefits including ensuring efficient use of funds, avoiding duplication of effort, getting broader awareness or support for green infrastructure approaches, and raising the profile of smaller projects.

- **Be aware of timing for hazard mitigation planning and assistance.** Part of making the connection to longer-term planning efforts is being aware of the timing and requirements associated with local hazard mitigation planning. This will help ensure that project teams time their efforts to align with available funding opportunities for project planning and implementation. In particular, all local governments that would like to request funding through the Hazard Mitigation Grant Program, the Pre-disaster Mitigation Program, and the Flood Mitigation Assistance Program for mitigation projects must have a FEMA-approved multi-hazard mitigation plan prior to requesting project implementation funds. These plans can be prepared by a single jurisdiction or multiple jurisdictions as was the case with Albany County. Hazard mitigation plans are revised on a five-year schedule. More information about hazard mitigation planning in New York can be found at the DHSES [website](#). FEMA also has guidance on hazard mitigation plans on their [website](#). Local hazard mitigation plans are not required for planning-related funding opportunities. The work of the green infrastructure/hazard mitigation workgroup should be done before this plan is due so that projects identified through this process can be incorporated into the appropriate level of hazard mitigation plan.

## Process Ideas for Those Interested in Replicating this Work

The steps below highlight some of the key elements of the Albany Green Infrastructure/Hazard Mitigation project. These steps may not be applicable to every community, but they may provide an outline of things to consider as communities undertake similar efforts.

1. **Define the key parameters of the project.** This is a critical first step in any project, but especially important for green infrastructure/hazard mitigation projects because these types of projects can go in a variety of directions. Below are some potential questions to ask and answer before starting:
  - a. What is the geographic boundary for the project? (It may not coincide with jurisdictional boundaries.)
  - b. Will the project focus only on green infrastructure projects, or will green infrastructure projects be part of a broader hazard mitigation approach?
  - c. What is the desired end product? (e.g., individual project descriptions, a full hazard mitigation plan, a report)
  - d. Does the product need to fit within or be integrated into another product – now or in the future?
  - e. What level of detail is needed for each green infrastructure project identified? What template will be used to collect data? (This will likely depend on potential sources of funding.)
2. **Identify a core workgroup.** Because green infrastructure projects can be aligned with or of interest to various programs, it is important to have broad representation on the workgroup. Workgroup membership could build over time and ebb and flow based on the work being done. A core workgroup could include the following:

- a. Environmental offices (state, local, federal)
- b. Local/Municipal Parks Department
- c. Emergency management/hazard mitigation (state, local, federal)
- d. Local infrastructure departments (water/utilities, transportation/public works)
- e. Local planning departments
- f. Non-governmental organizations that have interests related to water quality, stormwater, watershed management, and property/land development.

Other entities that communities may want to include are the following: academia, Silver Jackets teams, and elected officials.

3. **Assess parties' interests and expertise.** Assess the operating environment to determine what groups care about. This could be done through the workgroup convening process. Once the workgroup is formed, the workgroup could consider other interested parties that are not at the table that may have an interest. The facilitator can reach out to these other organizations to assess their interest in participating in the process – either as a workgroup member or as a potential resource for the workgroup to access during the process.
4. **Gather existing documentation that might inform potential green infrastructure projects.** Green infrastructure projects can emerge from flood hazard mitigation plans, watershed management plans, stormwater and CSO control plans, redevelopment initiatives, and infrastructure plans. It is important to gather and review these existing resources to identify what work may already be underway, what flood-related priorities have been identified, what is being planned and by what organization, and how current plans or laws may help or hinder efforts.
5. **Conduct regular workgroup meetings to align with project timelines.** Workgroups should plan to meet regularly throughout the life of the project based on the overall project timeline.
6. **Document workgroup decisions and green infrastructure project details.** Those supporting the workgroup effort should carefully document workgroup decisions to ensure there is a consistent record from one meeting to another. This is especially important when members may not attend every meeting. The support team should also work throughout the process to document project details such as background information and project-specific information. Documenting things throughout the process can help spark new ideas and will reveal areas for further research.
7. **Conduct outreach.** The workgroup members should reach out to interested parties throughout the life of the project. This is important to ensure that there are a variety of perspectives involved in the project development process. It can also help ensure that no important related efforts or opportunities for funding are overlooked. This outreach can be done through one-on-one calls, inviting stakeholders to participate in workgroup calls/meetings, or by convening informational meetings with interested stakeholders.

## Recommendations for Further Activity:

Although the workgroup members have completed their intended charge, there could be additional benefit to the following activities:

- Conduct additional outreach with interested stakeholders. The goal of this outreach could be to continue to assess opportunities for collaboration for implementing identified projects or to identify new projects that could be added to future versions of the plan.
- Conduct periodic plan reviews and progress meetings with the workgroup or other interested stakeholders. This will help ensure continued progress on the infrastructure projects and help to ensure that the hazard mitigation plan remains a living document.
- Explore opportunities to develop additional funding guidance to communities on green infrastructure and hazard mitigation projects. EPA recently issued a document titled “STORM SMART CITIES Integrating Green Infrastructure into Local Hazard Mitigation Plans.” This document describes a similar initiative in Huntington, West Virginia, and provides good information about the project and how it was executed. Although it does provide links and references, it would be helpful to have more targeted information for communities about funding sources along with documentation requirements associated with these funding sources. This information could help communities determine what funding options are most appropriate for them based on the types of projects they identify. It would be especially important to identify funding options for smaller projects.

---

### ***Project Title: City of Albany Green Infrastructure and Hazard Mitigation Planning Support***

*Contract Information: EPA Contract EP-W-14-020, Task Order #2, Task 65*

*Project Duration: 4/24/17 – 9/30/18*

**LEAD NEUTRAL/SUBCONTRACTOR:**

*Patrick Tallarico  
Enventive Consulting, LLC  
703-798-7447  
[ptallarico@enventiveinc.com](mailto:ptallarico@enventiveinc.com)*

**CSRA TASK ORDER MANAGER:**

*Mary Apostolico  
(571) 290-4415  
[mary.apostolico@csra.com](mailto:mary.apostolico@csra.com)*

**EPA TOCOR:**

*Terry Fenton  
[Fenton.terry@epa.gov](mailto:Fenton.terry@epa.gov)*

**EPA TECHNICAL LEAD:**

*Maureen Krudner  
212-637-3874  
[Krudner.maureen@epa.gov](mailto:Krudner.maureen@epa.gov)*