

Buchanan Green Street Project

Abstract:

The Buchanan Green Street project in Mount Rainier will reduce pollution of the Chesapeake Bay by filtering polluted stormwater before it reaches the Northwest Branch of the Anacostia River. To accomplish project implementation, the City of Mount Rainier seeks funding for a final design that includes best practices methodologies, engineering, landscaping, and an estimate of construction costs. Buchanan Street is three blocks long between Queen Chapel Road and Chillum Road.

1. To which Track [Watershed Planning](#) or [Project Design](#) are you applying? (Indicate one.)

Project Design

2. Describe the project. Describe the need for assistance, and be sure to address the criteria for the specific track (Planning or Design) listed in the RFP.

The desired completed design will create a “green street” out of Buchanan Street in Mount Rainier.

The design will provide the City with best practice methodologies to create a green street.

Some of the components that are envisioned include:

- * a stormwater bioretention area in the 3300 block of Buchanan Street that will capture runoff from the Prince George’s Pool parking lot and street gutters.
- * narrowing of the street’s width to accommodate a bicycle lane and bump-outs to slow traffic in an area with heavy pedestrian use.
- * installation of street trees.
- * provision of rain barrels or creation of bioretention areas to capture stormwater from the Queenstown Apartment buildings.
- * resurfacing of Buchanan Street with permeable asphalt.

Each of the envisioned components are described below:

Bioretention Area

The proposed bioretention area will handle runoff from both Buchanan Street and the Prince George’s Swimming Pool.

The designer of the bioretention project will find an existing Buchanan Street that is approximately 68 feet wide in the 3300 block. This width accommodates parallel parking on the south side. The parking lane would be replaced with the proposed bioretention project and the parking shifted toward the current street’s center. The street is overly wide and this allows for excessive traffic speed in an area frequented by children visiting the nearby swimming pool, ball fields, and nature center. Additionally, the block is bordered on the north side by the large Queenstown Apartment complex. Narrowing the street would act to slow traffic in this area heavily used by pedestrians.

The design will require an analysis of how to either move several utility poles, or work around them.

The Neighborhood Design Center, a nonprofit organization provides design assistance to municipalities and nonprofits. NDC has produced an initial concept design for this component of the project. The NDC staff finds that given the excessive width of the current street, it could potentially accommodate a bioretention strip of an approximate maximum width of 19’. However the proposed bioretention design is 8’ in width due to the location of the existing crown of Buchanan Street. With additional site engineering

the width of the bioretention design could be expanded. The bioretention area at a minimum would stretch between the two entry drives into the pool parking lot (xxx feet), but with additional engineering could be extended beyond this.

At the east end of the bioretention area is a stormdrain inlet that takes stormwater under Chillum Road and into the Anacostia River's Northwest Branch which is approximately 500 yards to the east. The final design will need to provide appropriate specifications for rebuilding this inlet. The Prince George's County Department of Public Works and Transportation will be a necessary partner in this part of the design.

Additional features of the bioretention design must include a new concrete curb with a series of strategically placed curb cuts to allow the water to enter the bioretention cell. The new concrete curb and terminating parking islands will also help to more clearly define and accommodate parallel parking on the south side of Buchanan Street.

In addition, the final design should provide traffic calming options that can be installed in conjunction with the project construction.

The native plant materials selected are able to tolerate both extreme wet and dry conditions that occur in our area.

The final design must also provide guidance on maintenance of the bioretention area. The design must strive to be easily maintained by the City's Department of Public Works.

The design of the bioretention area must include the necessary underground piping, etc.

While the NDC has provided an initial concept plan, the City of Mount Rainier is seeking funding to move this project to the next level that would produce a completed engineering design. The completed engineering plan would provide a final plan that the City could then use to seek funding. The City needs to contract with engineers who can determine the final size of the project given the site constraints.

Narrowing of the Street.

The design shall provide construction drawings for best methods of narrowing the street to calm traffic and also to allow for the planting of street trees. In addition, a bicycle lane should be installed as part of the project since several public destinations are within this area of Buchanan Street.

Installation of Trees

The design should identify appropriate placement of new street trees and recommend species.

Rain Barrels.

The design should determine whether the stormwater runoff from the Queenstown Apartments can be directed into a bioretention holding area, or if rain barrels would be a better option.

Street Surface

The design should consider feasibility of resurfacing of Buchanan Street with permeable asphalt, and the cost of such a project.

3) Describe previous or current watershed planning efforts, and how the proposed project meets goals of those efforts.

While funding of the design and engineering phase of the Buchanan Street project is the focus of this grant, the city's Environmental Protection Board and the city officials in the future hope to find funding for a comprehensive green infrastructure plan that will identify and prioritize projects within the city limits. The Buchanan Street project is the priority at this time for several reasons. It is an obvious location where

unfiltered and asphalt-heated stormwater is entering the river and the city owns the land on which a bioretention area could be built, street trees planted, and other best practice methodologies implemented to prevent the pollution. The city receives federal Community Development Block Grant funding to rebuild the street and curbs, the location provides many educational opportunities, and pedestrian safety can be improved. The project has been discussed for over 10 years and the city needs a final design in order to seek funding. Finally, the M-NCPPC is preparing to build a new park adjacent to the privately owned swimming pool and construction of this project could possibly be integrated into that design, or the new park might provide opportunities to expand the filtering of stormwater.

While the City does not have a formal green infrastructure plan at this time, the City of Mount Rainier has a long history of environmental activism and projects. There is a good general understanding within the community and at City Hall of our location in the Anacostia and Chesapeake Bay watersheds and of the need to control stormwater in order to limit its negative impact on the environment.

The City has two tributaries of the Anacostia flowing through it. The Dueling Creek drains the southern portion of the city and empties into the main Anacostia River near Bladensburg. The northern portion of the city drains into the Northwest Branch and also a stream known as the Tributary No. 1 of the Northwest Branch.

The City has a very active Tree Commission (established in 1988) and has been a TreeCity USA since 1990. The commission and city residents understand the importance of street trees in slowing the rainwater as it falls and ability reduce thermal pollution of streams by cooling the asphalt over which stormwater travels.

The city's environmental history includes the following highlights:

The city is one-mile square and is the densest populated municipality in Maryland (9,000 people in that small area). Creating open green space and shading its 17 miles of streets has been a priority.

In 1970, the first of several "pocket parks" were constructed within the residential areas of Mount Rainier. These are small parks (some the size of two or three house lots) funded in part with federal "Parks in the Cities" funding. In 1976, the Mount Rainier Nature Center was opened in a house converted to that use in the 4200 block of 30th Street. This was the first such urban nature center in the county (later rebuilt off of Arundel Road near the proposed bio-retention project). In 2010, the city applied for state Open Space funds to purchase two vacant lots adjacent to the city's business district with the intention of creating a new pocket park for the heavily built city center which includes numerous apartment buildings.

The City aggressively seeks grant dollars each year to fund the planting of street trees. In 1972, 100 red maples were planted along the streets. In 1989, 200 trees were planted as part of the first official celebration of Arbor Day in the city. In 1991, the State Highway Administration enlarged the median island of Rhode Island Avenue to allow for the planting of zelkova trees. The City planted 300 trees between 1990 and 1995 and since then, approximately 200 additional trees have been planted in city parks and along its streets. For the centennial of Mount Rainier in 2010, 100 trees are being planted with city funding augmented with funds from the Prince George's County ReLeaf Program and a grant from the Anacostia Trails Heritage Area Inc.

The Anacostia Watershed Society has partnered with the city and provided street trees as well as planted forest buffers along the Northwest Branch within the city limits.

In 1988, the city council by resolution supported the 1987 Chesapeake Bay Agreement.

The City was named a Chesapeake Bay Partner community (silver level) in 1998.

The City in partnership with the Preserve Our Planet Corn Cooperative, hosts a storage bin for corn that is used by cooperative members as fuel in corn stoves. The storage bin is located on city property that is also the home of the Mount Rainier Bicycle Co-operative at 3601 Bunker Hill Road.

In 2003, the city opened the first “green” (silver LEED level) police facility in the nation. **The City invested six years and \$1.7 million to convert the car shop into the first “green” police facility in the nation. (Press release statement from former Mayor Fred Sissine).** Using the same architects, the city is currently in the design phase of a new municipal complex in the 3400 block of Rhode Island Avenue that will also be a “green” project.

Water

Low flow faucets and toilets were installed to reduce water use. Outdoor impervious surfaces are reduced so that on-site soils capture and filter storm water, which protects the Chesapeake Bay. (Statement prepared by John Spears and Howard Goldstein on “green” features of the police station).

Using federal grant money, the city installed solar panels on the roof of City Hall in August 2010.

As another example of the environmental activism of its residents, the city’s Environmental Protection Board recently sponsored a workshop to assist residents in the construction of rain barrels and also has stenciled “no dumping” on storm-drain inlets around the city.

In an effort to prevent trash from entering storm-drains, the city purchased a street-sweeper.

4) Describe your organization’s experience in completing similar projects.

As a municipality, the city relies on the Prince George’s County Storm Drain Management program through its Department of Environmental Resources. However, major projects like the recent storm drain improvements completed on 33rd and Perry Street require the review and supervision of city staff and the city’s engineering consultant. This project involved reducing the amount of water build-up during heavy torrential rain fall and storms. Additional inlets were installed on residential property as well as infrastructure improvements to redirect the water from city streets.

The city is now involved in another project with funds from CDBG to correct drainage problems at 33rd and Rainier Avenue in the city to improve the water run-off in this area. Both the city’s assistant city manager and engineering consultants are actively involved in this project. Other county storm drain improvements are currently being designed for the 4500 block of 32nd Street.

The city has contracted in the past with architects to provide designs for complex projects. The city has not built a bio-retention project in the past. However, in recent years a new streetscape was installed on Rhode Island Avenue in our city center by the State of Maryland when it constructed the traffic circle.

The city has in several places enlarged the width of tree-lawns by narrowing streets as curbs were rebuilt (using Community Development Block Grant funds). This was done in recognition of the need for shade trees along the streets but that tree lawns in many places are too small to support trees.

Another example of construction experience: The city completes curb, street, and sidewalk upgrades annually using CDBG funds. [Malinda, perhaps provide a dollar amount of the CDBG projects?] The city has a very good reputation with the county in its use of CDBG funds and has been the recipient of reprogrammed funding for that reason.

Community Legacy Funds through the State Neighborhood Revitalization Program has awarded the city \$210,000 for design drawings for a new state of the art library. With the purchase of adjacent property, the architectural firm and construction team are currently designing a municipal complex that includes the library design. This city was also awarded \$150,000 through a State Bond Bill for this project. Since 2002, the city has received funding through community legacy for streetscape enhancements that includes lighting in the mixed use town center, renovation of a former residential property to be utilized as a youth community center and tool shed lending library. This funding totaled \$75,000.

The purchase of the former Bass property in the 3200 block of Rhode Island Avenue has significantly reduced blight in the city's downtown. An environmental impact study was conducted to determine if the razing of the building caused any significant water run-off into the tributaries of the Anacostia River. It was determined that the direction of the water run-off was not disturbed or changed as a result of removing the building on the lot.

5) Describe your plans for ultimate implementation of the project(s) to be identified in a watershed plan (if a planning request) or designed (if a design request).

6) Scope of Work and Qualifications: Include a detailed scope of work, with specific tasks, hours associated with those tasks, and task costs to be accomplished by consultants and any internal staff (if staff time is requested). Qualifications of consultants must be included.

Hiring of consultant that can provide design for the green street components. Ultimately, this will provide a detailed cost estimate for the elements of the project, thus allowing the city to then seek funding for construction of the various components. (A cost estimate in Excel is attached). Estimates of maintenance costs will also be required and the level of expertise to keep the plant materials healthy. It is estimated that hiring of a consultant will take approximately 45 days from advertisement to contract award. The actual implementation is anticipated to take 6-9 months.

7) Please include a map depicting the watershed in which you intend to work, and if applying to the Project Design track, the specific location of your project

8) Is the project identified in an existing prioritized watershed action plan? What is the prioritized rank of the project and/or site? Please include the relevant section or reference to the section of the watershed action plan. If the project is not included a watershed action plan, provide justification for the selection of the project.

The proposed site has several environmental problems that this project could solve. First is the stormwater runoff into a storm drain in close proximity to the Northwest Branch. Second is the deteriorated condition of the street and curb in the area. The city could utilize CDBG funds to assist in implementation of the project once a design and cost estimates are created. Third, is the dangerous nature of vehicle traffic in a high foot-traffic area adjacent to an apartment complex, swimming pool, nature center, and ball fields. The project will assist in traffic calming by reducing the width of the street. And, aesthetically, the improved streetscape will improve the look of the area which is contiguous to a new park being built by the M-NCPPC. The city desires to continue building on its record of environmental activism and use this project as an educational opportunity for residents and especially school-age children.

The project is well situated to provide educational opportunities to the community. The Mount Rainier Nature Center is just to the west of the project area and Thomas S. Stone Elementary School is located two blocks away. The City would encourage the school and the staff of the Nature Center (operated by the Maryland-National Capital Park and Planning Commission) to create educational programming around the project's design, construction, and maintenance. All phases of the project would provide opportunities for the residents to learn about the watershed and the impact of stormwater on the Anacostia and Chesapeake Bay.

9) Describe how the project and site were selected. (Justification for environmental outcomes must be provided.)

The project site was selected due to its close proximity to the Tributary of the Northwest Branch of the Anacostia River. The current width, and asphalt material of Buchanan Street, condition of the street curb and gutter along Buchanan Street makes this an ideal project for buffering with new tree plantings, and controlling the flow of water from both the street and commercial swimming pool.

10) An alternative analysis must be presented: Why was this specific technique chosen to address the problem at the site? What other techniques were considered, and why were they rejected?

The Neighborhood Design Center conducted an analysis of this area and determined that this was an excellent bioretention project due to the enormous amount of asphalt on both traffic lanes of Buchanan Street and the large parking lot at Prince George's Pool. There are other areas in the City (particularly on Perry Street) which were analyzed however this area was more complicated (very narrow streets) and appeared to be currently less cost effective.

11) A clear justification for the design phase must be included. Why is a separate design step warranted for the project?

The city does not retain on staff an environmental engineer who is needed to determine the best approach for implementation and one which is cost effective. The city wants to ensure that the design of the project will best meet the needs and control the run-off into the Anacostia River. The design must also address traffic flow and review by the county's traffic engineers will most likely be required as well. The Prince George's County Department of Environmental Resources was consulted regarding the effectiveness of this project and provided recommendations which are included in the proposed draft design. That is attached.

12) A conceptual site plan sketch and a photo of the restoration site must be included. We would prefer these items be copied and pasted into the narrative MS Word/PDF document, but they may also be uploaded as separate attachments by clicking "Add."

This item is attached.

13) For projects planned on properties owned by an entity other than the applicant, a letter must be attached stating that permission has been granted by the entity owning the land on which the project will be completed. Proposals that demonstrate long-term commitment to keep and maintain the project will receive more favorable review.