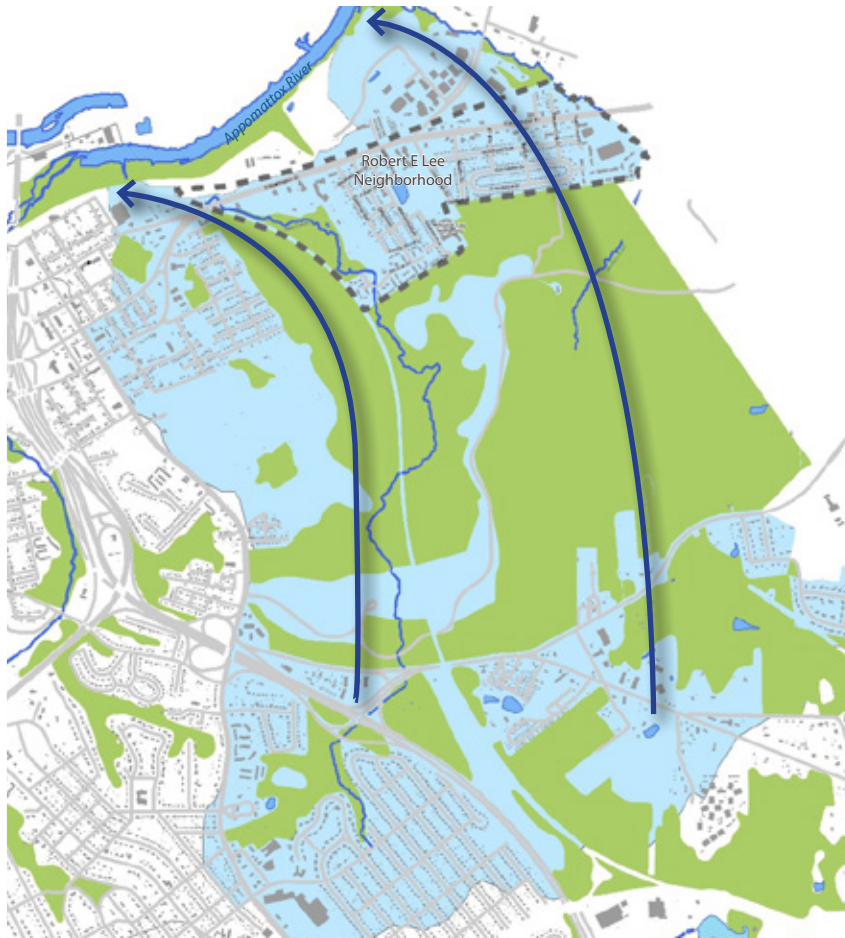


# Petersburg Walkable Watershed Concept Plan



Rain that falls within Poor Creek watershed (shown in blue) flows to Poor Creek or Harrison Creek, then to the Appomattox River and ultimately the Chesapeake Bay.

In urban areas, the stormwater drainage system, which includes a series of underground pipes, open stream channels, street gutters and ditches, can carry pollutants from streets, yards and businesses to the creek.

A walkable watershed includes neighborhood features that improve stormwater and pedestrian safety simultaneously.

## Overview

The Petersburg Walkable Watershed Concept Plan develops a shared vision and set of strategies to address flooding and improve quality of life for the Robert E. Lee (REL) neighborhood. This concept plan was developed in collaboration with the City of Petersburg, James River Association and the REL Neighborhood Watch Association.

The concept plan is based on a walkable watershed approach, which integrates the flow of water and people into a cohesive strategy to improve the overall health of a community and the surrounding watershed. Through multiple community meetings, surveys, mapping and analysis and input from project partners, this plan identifies opportunities to:

- **Improve chronic flooding** in areas identified by residents.
- **Increase community connection** to nearby natural resources.
- **Add on-street features** to reduce traffic speed, litter, and flooding.
- **Engage and educate residents** to celebrate nearby waterways and greenspaces.

Please visit: [www.walkablewatershed.com](http://www.walkablewatershed.com) or contact Darryl Walker, City of Petersburg at (804) 733-2355 or [dwalker@petersburg-va.org](mailto:dwalker@petersburg-va.org) for more information.

## Project Partners

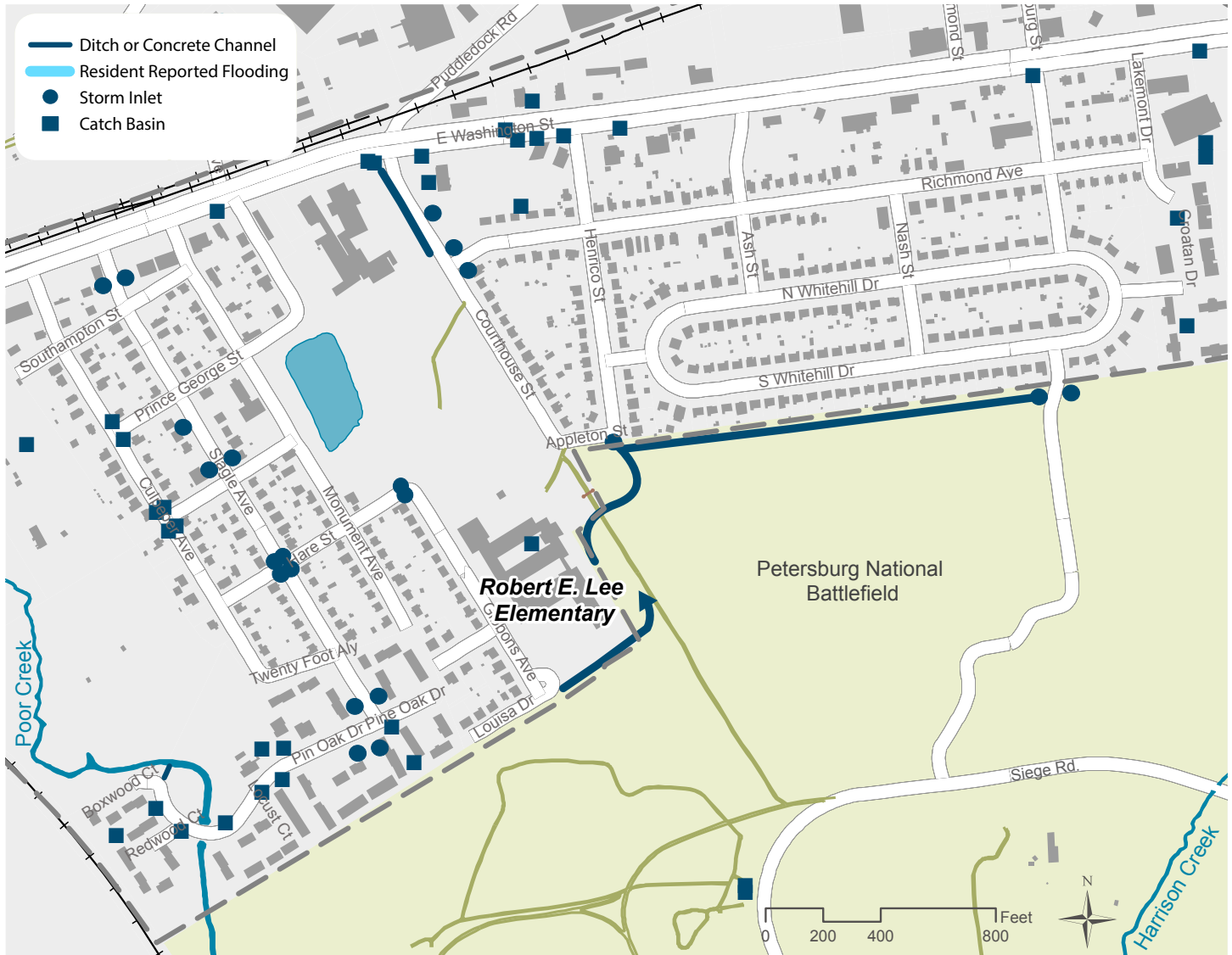
*This project is made possible by a grant from the National Fish and Wildlife Foundation.*



## Community Partner

*A special thanks to the Robert E. Lee Neighborhood Watch Association and Mr. Williams for their time and feedback.*

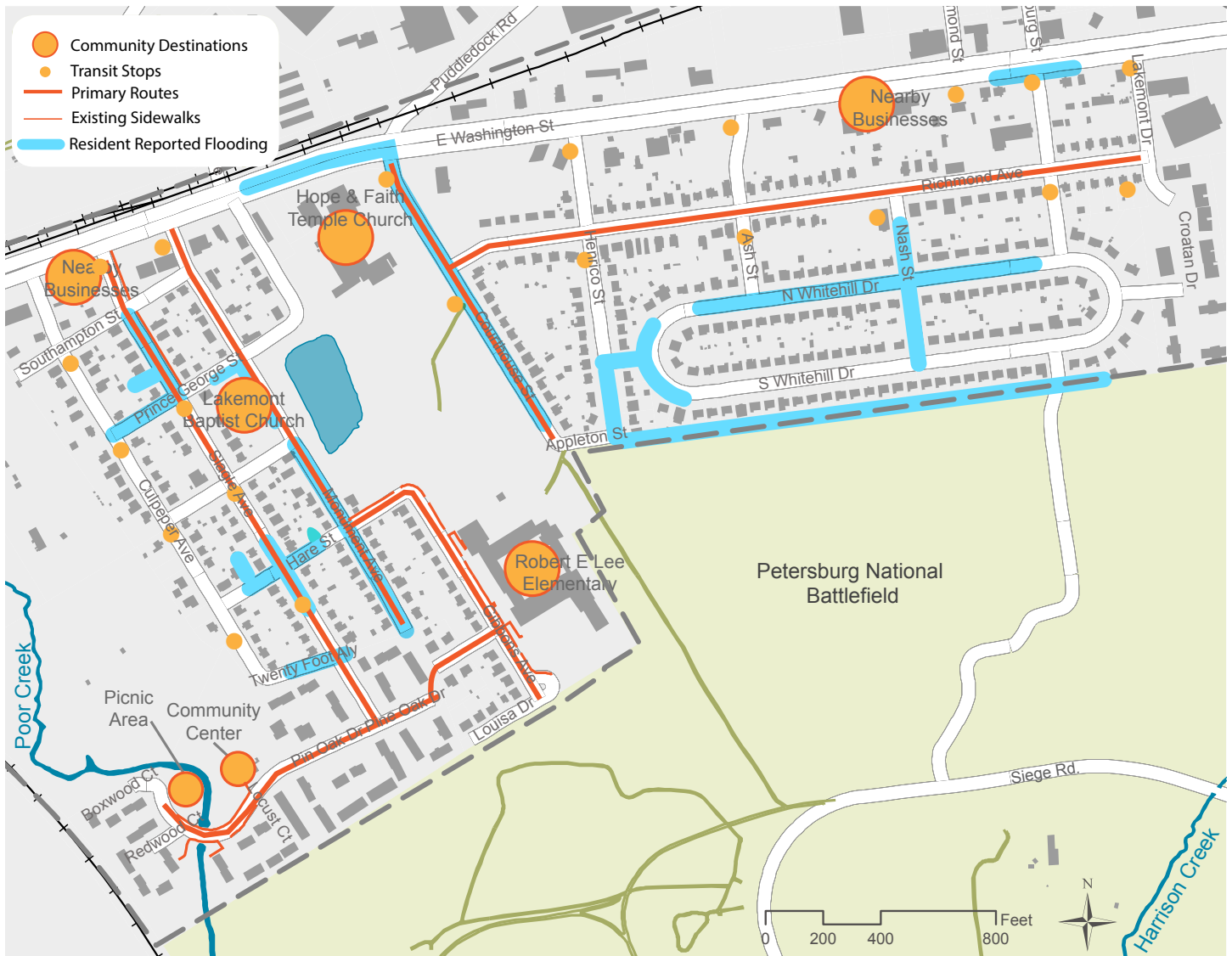
# EXISTING CONDITIONS



Residents reported that regular flooding during and after storm events cause flooding on many streets in the REL neighborhood, shown in the photos that residents took above. A combination of clogged or under sized storm inlets and lack of sidewalks makes walking difficult in these conditions. In the event of heavier rainfall, roads in the neighborhood can be

hazardous to drive on due to the depth of stormwater flooding the streets. Especially when stormwater floods impervious areas, it can collect litter, debris and hazardous materials such as oil from roads. These hazardous materials, will eventually drain into storm inlets and ultimately reach the Chesapeake Bay and contribute to water pollution.





## Community Priorities

At a community meeting held during the REL Neighborhood Watch Association's monthly meeting, residents identified the following community priority challenges. Priorities highlighted in **bold** represent top priority areas for participants:

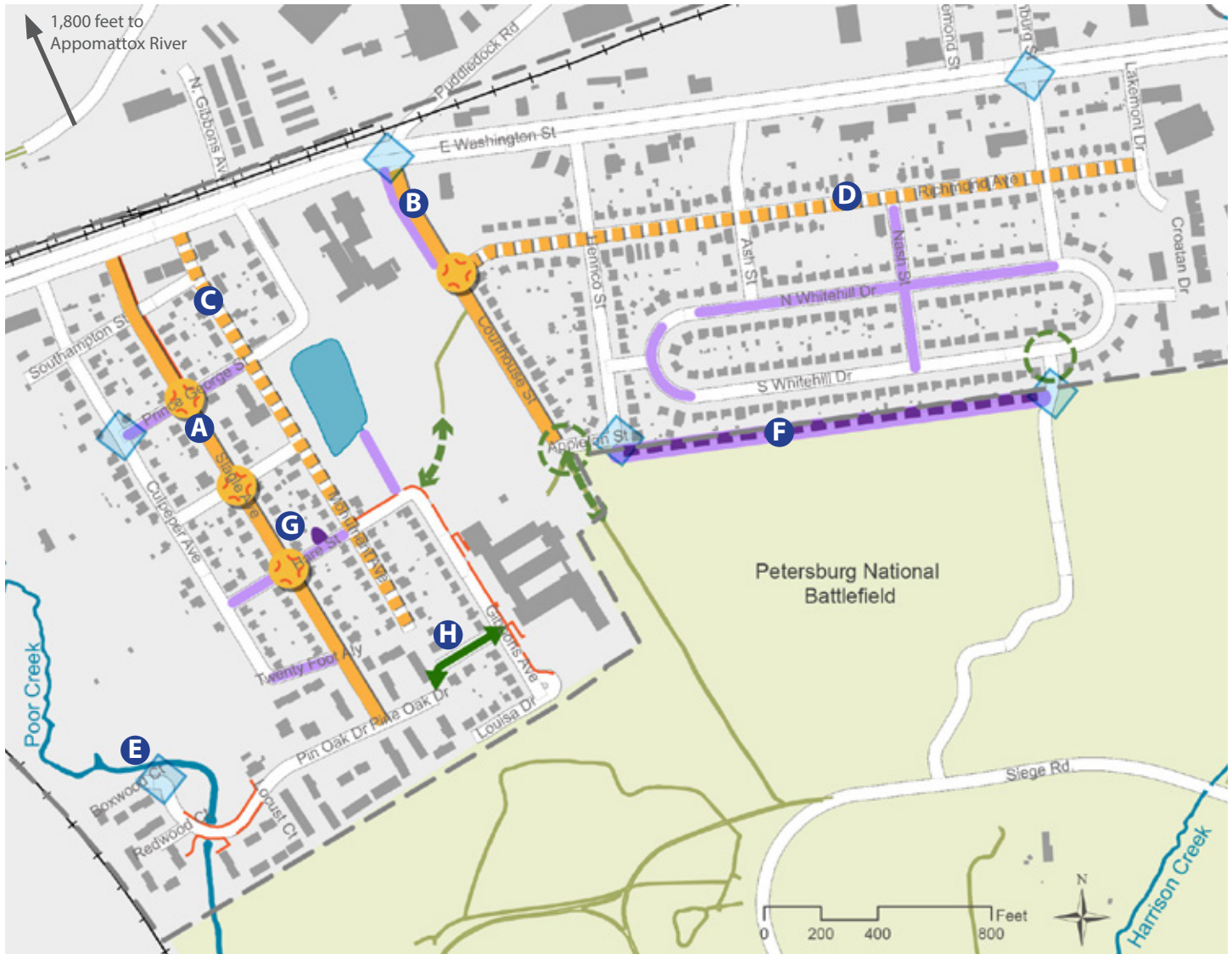
- Few sidewalks
- Few play areas
- **Flooding in streets and yards**
- Littering on streets
- Few areas to walk and interact with nature or the creeks
- Perception and awareness of creeks
- **Public safety**
- **Speed of traffic**
- Few public gathering places
- **Home ownership**
- **Street lighting**
- Distance to nearest grocery store
- Few trash cans

The Walkable Watershed Concept Plan on the following page identifies opportunities to begin to address community priorities.

## Existing Conditions Summary

There is a strong connection between existing stormwater infrastructure and where chronic flooding occurs in the neighborhood. By gaining a better understanding of location specific issues, stormwater infrastructure can be improved using both traditional and green infrastructure methods. As these improvements are made, residents will have increased access to walking routes and community destinations. Additionally, residents will feel more connected with where water goes from their neighborhood, the surrounding green space including Petersburg National Battlefield, ownership in maintaining and reporting stormwater issues and improved quality of life.

# CONCEPT PLAN



## On-Street Opportunities

### Sidewalks and Natural Drainage

- Primary Route
- - - Secondary Route

### Safe Crossing

- ⊗ Intersection Retrofit

### Natural Drainage Retrofit

- Swales

### Existing Infrastructure

- ◊ Stormwater Infrastructure Improvements

## Off-Street Opportunities

### Natural Drainage Retrofit

- - - Planted buffer along improved swale
- Rain Garden

### Trails

- - - Connect to Existing Trails
- On-Street Route
- ⊗ Trailhead Access
- Existing Sidewalks
- Existing Trails



Example of how grassy swales along streets without sidewalks could address on-street flooding by providing holding space for stormwater during rain events.

## Reduce Flooding through Natural Drainage and Complete Streets

### Primary Routes

- A Slagle Avenue** - Add sidewalk on side of street to connect with new sidewalk. Narrow traffic lanes to help slow traffic. Integrate natural drainage strip between sidewalk and streets to absorb stormwater. Include on-street parking on one or both sides of street.
- B Courthouse Avenue** - Widen swale on east side of road. Clean and maintain storm drains. Consider upgrading drainage pipe at at Courthouse and Appleton.

### Secondary Routes

- C Monument Avenue** - Consider installing a drainage swale on the west side of the street to allow stormwater to drain off the road and away from homes.
- D Richmond Avenue** - Add pedestrian safety amenities, such as sidewalks, or natural drainage strip where feasible.



### Safe Crossings - Intersection Retrofit

Add natural drainage strategies like a vegetated traffic circle and/or bioretention curb extensions. Integrate bus stop and amenities such as trash cans. Add crosswalks to slow traffic at intersections.

### Swales

Consider installing grassy swales to catch and hold stormwater during major rain events to reduce flooding.



### Stormwater Infrastructure Improvements

- E Boxwood Court** - Consider moving trash dumpster to reduce trash and litter entering Poor Creek.

**Pin Oak, Appleton, National Battlefield fire road, and Prince George** - Inspect, repair and maintain storm inlets. Consider updating infrastructure to accommodate possible increase in runoff to reduce flooding.

### Planted Buffer Along Improved Swale

- F** Coordinate with National Battlefield (NPS) to install a swale or buffer to address flooding in backyards along Whitehill Drive.

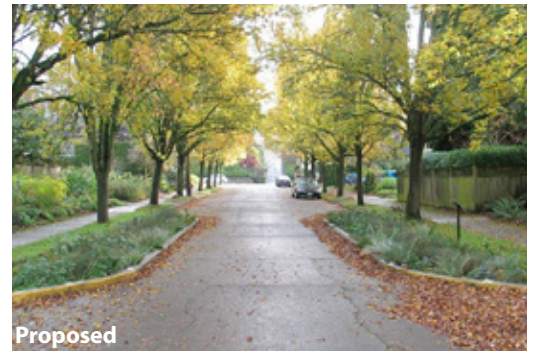


### Rain Garden

- G** Consider installing rain garden off Hare Street to reduce on-street stormwater flooding backyards and alley.



Existing



Proposed

Example of how curb extensions, street parking, and vegetation between sidewalk and street could be added along Slagle Avenue.



Planted Swale Example

## Integrate Public Safety and Enhance Connectivity

### Connect to Existing Trails

Improve walkability and access to community amenities by connecting to other trails and creeks in open space between pond and REL Elementary and at National Battlefield access area.

### Trail Connecting Pin Oak and Gibbons

- H** Improve route amenities such as overhead lighting and connect to existing trails to create neighborhood walking loop.

## Foster Neighborhood Stewardship

Community Programs (see next page)



## A Hare and Slagle Green Intersection Retrofit

### Current Conditions

- Intersection floods regularly.
- Storm inlets regularly clogged with litter.
- No sidewalks, public trash cans or bus waiting areas.
- Cars regularly speed through intersection.

### Potential Opportunities

*Opportunities to reduce flooding, calm traffic and provide public amenities:*

- Add residential scale traffic circle with vegetation to slow traffic and collect stormwater to reduce flooding.
- Add sidewalks and public transportation waiting area to increase pedestrian safety.
- Include crosswalks at intersection of Slagle and Hare Streets.
- Add public trash can at all public transportation waiting areas to reduce neighborhood litter.

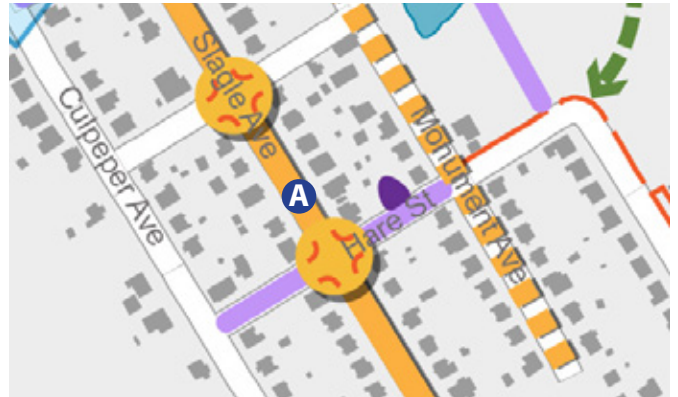
## Complete Street on Slagle and Courthouse

### Current Conditions

- Main roads lack sidewalks.
- Cars regularly speed on residential roads.
- Regular flooding makes walking, biking and driving unsafe after major storm events.
- Wide residential streets, parking on one or both sides and municipal right-of-way on both sides of street.

### Potential Opportunities

- Add sidewalks on one side of street, crosswalks at intersections, and include additional storm inlets where appropriate.
- Include vegetated bump-outs or swales in municipal right-of-way opposite sidewalks where appropriate to collect stormwater off-street and calm traffic.



Example of a vegetated traffic circle in a residential neighborhood that slows traffic, collects stormwater and adds aesthetic value. A drainage study will identify whether there is adequate road width and right of way to accommodate a traffic circle.



### Existing Street Dimensions - Slagle Avenue



### Potential Green Street Retrofit Street Dimensions

With roughly 60' of public right-of-way, there is potential to re-design main roadways to incorporate sidewalks and green infrastructure practices. A potential configuration could include:

Sidewalk: 6'	Street parking: 9'
Curb bump out: 5'	Swale: 13'
Road: 27'	

## H Planted Buffer Along Improved Swale

### Current Conditions

- Existing swale on Petersburg National Battlefield is undersized and filled in with tree roots.
- Residential backyards along swale regularly flood, sometimes up to homes.
- Existing stormwater pipe at Henrico Street for swale is undersized.
- Petersburg National Battlefield needs to maintain vegetative buffer for park aesthetics.

### Potential Opportunities

*Opportunities to reduce flooding and improve aesthetics:*

- Resize existing swale to increase capacity to hold and move water during storm events.
- Redesign swale to include a vegetated berm on the northern side to prevent flooding in residential backyards.
- Consider planting native evergreen water tolerant shrubs to provide a buffer between park and homes.

## Potential Community Programs

### Adopt a Drain Program

Develop an 'Adopt a Drain' program, modeled from other programs around the country. Residents adopt a drain and help keep it clear of trash and debris and report any issues to the City. The program connects residents with their local utility staff. The neighborhood's ~70 drains could be adopted by resident volunteers. Tools could be provided including rakes, brooms, trash bags, safety vests and shovels could be requested via grants.

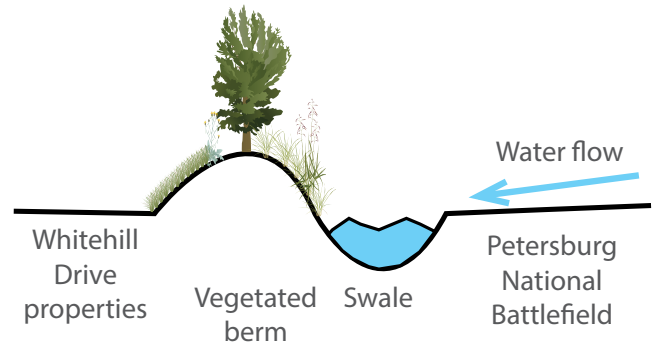
### Litter and Debris Reduction

Coordinate with community organizations on education and outreach on:

- promoting litter prevention and removal
- organizing community clean up days
- installing public trash cans and signs that celebrate Poor Creek, Harrison Creek and the Appomattox River.

### Public Art as Cue to Care/Education

Work with local artists to design storm drain art to illustrate that rainwater drains to local waterways. Engage residents in the design and identifying key locations for storm drain art and/or storm drain markers.



A planted buffer along an expanded swale will allow water draining from the Petersburg Battlefield Park to be collected without flooding residential properties and maintain a visual buffer.



Photos: (Top) residents can Adopt-a-Drain and place medallions on top to educate the community about where stormwater goes; (middle) medallions on a storm outlet; (bottom) public art can be an educational tool to promote education and stewardship.



## Potential Funding Sources

Sources	Deadlines and Funding
National Fish and Wildlife Foundation - Innovative Nutrient and Sediment Reduction Grant	Up to \$750,000. Grant proposal submitted by James River Association in May 2016.
National Park Service - Park Project Planning	As part of their annual budget planning, Petersburg National Battlefield can apply to NPS for funding for specific projects, this could include funds to address the swale project (see H on Concept Plan). A drainage study could inform the design of this drainage system
City of Petersburg - Community Development Block Grant	Up to \$600,000 is awarded to Petersburg each year from U.S. Housing and Urban Development. Deadline for proposals is second Friday in January each year.

## Potential Partners

*The following list includes potential partners for funding and forming a coalition to address stormwater concerns:*

City of Petersburg	Habitat for Humanity
Department of Parks & Leisure	Project Home
Public Works	Petersburg Area Community Development Corporation
Department of Health - Health Educator	Crater Planning District
National Parks Conservation Association	Cameron Foundation
National Park Service	Faith & Hope Baptist Church
Robert E Lee Elementary Parent Teacher Association	WOW Camp
Friends of the Lower Appomattox River	Boy Scouts of America - Area troops
Fort Lee - Corps Volunteer Coordinator	Petersburg City Council - Ward 1 Councilperson

## Principles for Implementation

- **Build Partnerships** - Strengthen existing and develop new partnerships between federal, state and local governments and community organizations for implementation and stewardship.
- **Grow Community Stewardship** - Continue to grow and foster community stewardship through outreach, education and opportunities for community involvement.
- **Engage Youth** - Build on existing youth programs and initiatives to engage youth in environmental education opportunities. As projects move forward, invite youth to participate in the design process and in the designing and building of outdoor play and learning areas.
- **Seek Funding** - Develop a plan to seek funding, including a list of potential grants and associated deadlines. Assemble teams early to develop winning proposals. Continue to seek opportunities that cross programs and initiatives to leverage funding for projects.
- **Phase Projects Over Time** - While some recommendations may be implemented in the near term, some projects will need to be phased over time. Develop an action list to coordinate initiatives and projects among partners. Continue to refine ideas during the design process.
- **Celebrate Successes!** - Sustain momentum and support by celebrating successes along the way.

