Green and Complete Streets

BUILDING BLOCKS FOR SUSTAINABLE COMMUNITIES

Camden, New Jersey
Next Steps Memorandum

June 27, 2016

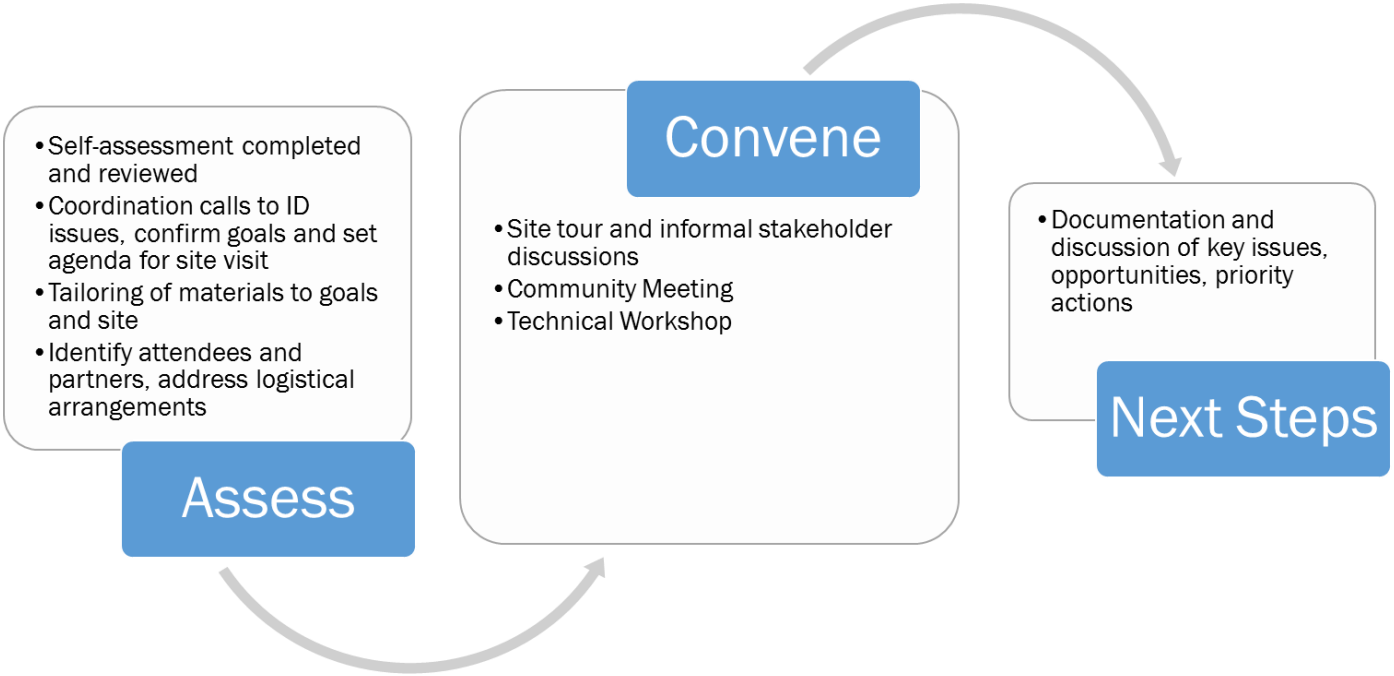
EPA United States Environmental Protection Agency

Photo credit: Tetra Tech

INTRODUCTION

The core mission of the U.S. Environmental Protection Agency (EPA) is to protect human health and the environment. EPA's Office of Sustainable Communities (OSC)—or the Smart Growth Office—helps to support this mission by working with communities to reach development goals that create positive impacts on air, water, public health, economic vitality, and quality of life for residents. OSC created the Building Blocks for Sustainable Communities program to provide quick, targeted technical assistance on specific smart growth development topics by bringing subject matter experts to communities.

The Building Blocks program is designed to move a community through a process of assessment, convening, and action planning—helping learn about a given topic and create a plan to move forward on implementation. The program helps a community identify potential challenges, as well as realize opportunities that already exist to make progress. It includes a series of pre-and post-workshop conference calls, a self-assessment, and an on-site convening of stakeholders to discuss issues, next steps, and actions related to advancing the community's specific goals. These efforts help a given community gain a deeper understanding of a particular smart growth issue and identify specific steps necessary to move them closer to implementation. The diagram below outlines the typical flow of the Building Blocks technical assistance program.



THREE STAGES OF TECHNICAL ASSISTANCE (CREDIT: RENAISSANCE PLANNING)

This memo documents the key outcomes of the technical assistance to Camden, New Jersey with the Green and Complete Streets tool, identifying key community issues, prioritized goals, and specific actions to incorporate green infrastructure concepts in transportation projects. A green and complete street uses green infrastructure to manage stormwater runoff within the transportation

corridor while also providing a safe and accessible route for all users. The community identified several challenges and opportunities regarding the implementation and integration of green and complete streets and established three goals on which to focus through the Building Blocks workshop. These goals are:

- Promotion, education, and branding of green and complete street benefits
- Coordination among agencies, local officials, and funding agencies
- Enabling and enforcing effective green and complete streets implementation

COMMUNITY CONTEXT

Camden, New Jersey is situated between two water ways, the Delaware and Cooper Rivers with Newton Creek. Combined with its proximity to Philadelphia, its location contributed to the early rise of industry in the city. The system of ferries and the stage service, which linked Camden to all the important towns of southern New Jersey, helped Camden attract many early manufacturing business enterprises in the first half of the 19th century.

THE RIVER FRONT IN CAMDEN IS CRITICAL TO REDEVELOPMENT (CREDIT: gordoncooper.com)

The latter half of the 19th century was the most significant period in the developmental history of the City of Camden. Industrial expansion, urban growth, and new immigration radically transformed the City. Where census takers in 1860 had counted eighty manufactures and factories in Camden, there were 125 in the same area in 1870, and many of them were already major enterprises.[1] The world headquarters for the Campbell Soup Company is among the corporations that took root in the city during this decade and is still around today.

The City's economic fortunes and population began to turn downward in the 1960's. While the City in 2016 still retains a few legacies of its industrial past, most of the manufacturing jobs have left. A result of these losses is that, among 555 cities surveyed by US Census Bureau in 2013, Camden was the poorest city in the nation, with the lowest median income ($21,191). The poverty rate (43.9 percent) is more than four times the New Jersey state average. Violent crime in Camden is almost seven times the national average. Since 1960, the City's population has declined by nearly 40,000 people. This has left 15.3 percent of Camden's housing stock long-term vacant, which is more than three times the rate of vacancy for adjacent, and more affluent, Camden County. Camden's industrial past has also left many brownfields, impacting environmental conditions for the remaining predominantly poor and minority residents.

[1] http://www.ci.camden.nj.us/history/)

Numerous economic revitalization plans have been developed to restore prosperity to Camden. The Downtown Camden Strategic Development Plan, which established the blueprint for anchor institution-led development in Camden, includes a targeted five-part model: clean and safe streets; vibrant commercial corridors; stable neighborhoods; vibrant arts and culture; and human capital programming that builds capacity among Camden's residents.

Camden SMART (Stormwater Management And Resource Training) Initiative is another program aimed at revitalization that was founded in 2011 by a coalition of six entities - Cooper's Ferry Partnership (CFP – a local non-profit focused on the city's economic development), the City of Camden, Camden County Municipal Utilities Authority (CCMUA), Rutgers Cooperative Extension Water Resources Program (RCE), New Jersey Tree Foundation (NJTF), and the New Jersey Department of Environmental Protection (NJDEP). The Camden SMART Initiative is a community-driven movement to protect human health, improve conditions for economic development, improve water quality, and enhance the quality of life for Camden, its residents, and the Delaware River watershed through the broad use of green[2] and gray infrastructure[3] techniques for stormwater management.

EPA's Region 2 office—which covers New York and New Jersey— is also deeply involved in revitalization efforts in the City. Region 2 helped form the Camden Collaborative Initiative (CCI), which is a partnership among the City, CFP, CCMUA, and NJDEP to help develop a sustainability framework for the community. These organizations formed the CCI, modeled after Camden SMART, to realize the many opportunities to maintain, restore, and enhance the environmental resources in the city. The CCI is facilitating and leveraging partnerships for proactive, holistic, and innovative solutions to help Camden become a vibrant sustainable city.

The EPA also funded and collaborated with Cooper's Ferry Partnership to identify and recommend revisions to barriers in multiple city codes and policy documents to encourage the design and implementation of green and complete streets. That effort resulted in a document called *Green Infrastructure Barriers and Opportunities in Camden, New Jersey: An Evaluation of Local Codes and Ordinances.*[4]

Through these efforts, Camden is working to become a more sustainable community. The City adopted a complete streets policy[5] in 2013 to improve safety for pedestrians, bicyclists, transit riders, drivers, children, older residents, and non-drivers. This policy also provides street connections for, bicyclists and pedestrians to destinations including jobs, educational institutions, residential areas, recreation, retail centers, and public facilities. However, the policy does not include references to water quality improvements or treating stormwater runoff with green infrastructure. This Building Blocks

[2] Green infrastructure refers to sustainable pollutant-reducing practices that utilize natural functions to reduce pollution in stormwater runoff while providing other ecosystem services.
[3] Gray infrastructure refers to traditional practices for stormwater management and wastewater treatment, such as pipes and sewers.
[4] https://www.epa.gov/sites/production/files/2015-10/documents/camden_gi_evaluation.pdf
[5] The City of Camden passed a resolution in 2013 requiring that all City streets be designed and constructed to include accommodations for pedestrians, bicyclists, public transit and motorists. Complete streets accommodate users of all ages and abilities. City of Camden Complete Streets Policy: http://www.smartgrowthamerica.org/documents/cs/policy/cs-sc-camden-resolution.pdf

technical assistance workshop focused on how those elements could be added to Camden's current complete streets plan and be incorporated into future projects.

This Next Steps Memo is the primary outcome of the Building Blocks workshop in Camden, and helps provide Camden with options for promoting water quality and street improvements by incorporating green infrastructure into Camden's current complete streets policy.

COMMUNITY CONVENING

Representatives from the city of Camden, key community stakeholders, the U.S. Federal Highway Administration (FHA), the U.S. Department of Housing and Urban Development (HUD), and EPA officials, gathered in Camden for a two-day workshop on April 26 and 27, 2016. Consultants from Tetra Tech and Renaissance Planning led the workshop along with staff from EPA's Region 2 and the Cooper's Ferry Partnership. The workshop included a tour of the city of Camden, a community meeting, and a full-day workshop at the Camden County Municipal Utilities Authority.

Site Tour

The site tour began at the Cooper's Ferry Partnership office in the heart of the downtown waterfront redevelopment. The tour concentrated on existing neighborhood conditions and opportunities for implementing green and complete streets concepts in Camden, starting at a planned pilot project on 7th Street between Erie Street and Linden Street. The tour also highlighted several projects around the city that were implemented to manage stormwater and improve water quality including bioretention areas [6]at the Salvation Army Kroc Center, Von Neida Park, Baldwin's Run Urban Daylighting project, Waterfront South Rain Gardens, and bioretention areas and planter boxes at the Ferry Avenue Branch Library. The team also visited the recently completed Phoenix Park, which is an effort to restore community access to the Delaware River, which has been cut off from the community for several generations by industrial uses

WIDE SIDEWALK IN A PLANNED PILOT PROJECT AREA (CREDIT: TETRA TECH)

[6] Bioretention areas are shallow stormwater treatment devises consisting of mostly plant and soil components, (often) with a flexible underdrain discharge pipe. https://www.epa.gov/green-infrastructure

Community Meeting

A highly engaged, group of local residents, EPA staff, and local stakeholders met on the evening of April 26 for a community meeting at the Ferry Avenue Branch Library to discuss existing conditions and future opportunities for green and complete streets projects in Camden. The workshop began with an overview of the many benefits of green infrastructure and how green street concepts can be integrated with the existing complete streets policy to provide additional stormwater management and environmental benefits. The Camden SMART Initiative was discussed as an example of effective partnerships that have been formed in an effort to improve water quality and revitalize the community.

A PLANTER BOX AT THE FERRY AVENUE BRANCH LIBRARY (CREDIT: TETRA TECH)

Attendees had several ideas for incorporating and encouraging green streets and green infrastructure concepts including:

- Integrate the use of green infrastructure in City codes and ordinances and remove barriers in the code to incorporating green infrastructure into street and site design.
- Include requirements for green infrastructure as a condition for public funding of development and street improvement projects.
- Evaluate opportunities for collaborative maintenance of street projects.

The attendees also expressed two main concerns. The first is frequent flooding in low lying areas that may be exacerbated by clogged stormwater drains and insufficient drain capacity. The second was the need for greater collaboration among local, regional, state, and federal agencies in efforts to revitalize the community.

Flooding often occurs around the Ferry Avenue Branch Library causing basements in the surrounding residents to flood. Residents indicated that the main issues causing flooding are insufficient capacity in the combined sewer, which handles both wastewater and stormwater, and a general lack of maintenance. Trash, especially plastic bags, cover storm drains during rain events preventing proper drainage and also causing flooding. Several solutions were proposed and discussed during the

meeting including trash collection or more effective street sweeping. These approaches could prevent flooding in smaller events.

One resident also suggested a campaign to require reusable bags to prevent disposable plastic bags from littering the streets and clogging the storm drains. Ordinances banning or restricting the use of plastic bags have been adopted by 20 countries including more than 125 municipalities in the United States[7].

Several other areas in the city, including the intersection of Pine Street and Mt. Ephraim Avenue, were identified as areas that flood by residents who attended the community meeting.

TRASH IN THE INLET NEAR PINE STREET AND MT. EPHRAIM AVE. (CREDIT: GOOGLE EARTH)

Community meeting attendees also recommended greater collaboration between local, regional, state, and federal agencies, particularly in the preparation and coordination of grant applications for transportation projects. In Camden, a highway official reported that streets have sometimes been repaired by state or county highway departments without the knowledge of local officials. These repairs may be a missed opportunity to include green and complete street features.

In addition to these issues, attendees also identified the areas around Haden Avenue from Euclid to Vesper, 7th Street at Pine Street, and the triangle formed by Pine Street and Mt. Ephraim Avenue as potential opportunities for green and complete street demonstration projects. Additional opportunities were identified at the technical workshop.

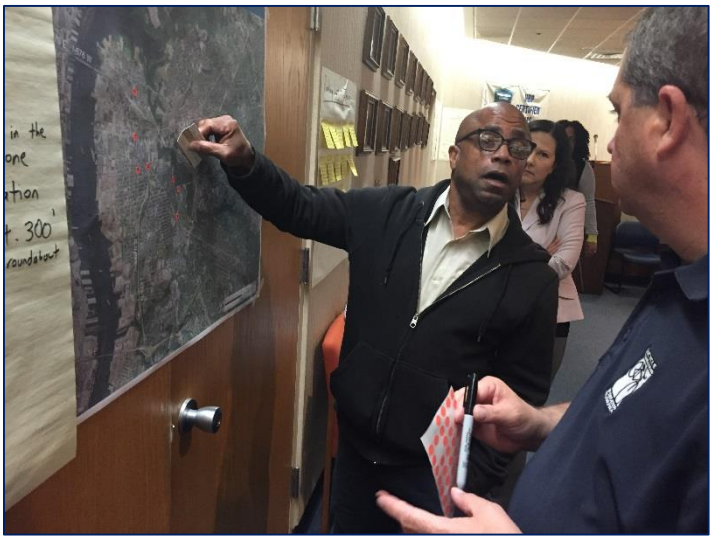
Technical Workshop

A group of key local stakeholders reconvened the next morning at the CCMUA to review the discussion from the community meeting and further discuss opportunities to incorporate green street concepts into existing policies and future complete streets projects. The morning began with an overview of green and complete streets concepts and benefits to provide a common definition of green infrastructure and green streets and to show examples of how green infrastructure has been implemented as a component of a complete street in other communities across the country. This led to a facilitated discussion of how green and complete streets could be implemented in Camden, along with potential barriers towards implementation. Participants also engaged in a planning-level design exercise to identify potential green and complete street opportunities in Camden. The workshop concluded with an action planning exercise to identify specific next steps the City and other stakeholders can take to encourage the implementation of green and complete streets and to ensure that green streets concepts are part of the typical planning and street design process.

[7] http://www.surfrider.org/pages/plastic-bag-bans-fees

KEY COMMUNITY ISSUES

The most urgent issue in Camden is poverty. Camden is one of the poorest cities in the nation with significant property abandonment and deterioration. Because of this poverty, there is no consistent revenue stream for the City, especially the Department of Public Works, to maintain existing infrastructure or to implement retrofit projects. While Camden has adopted progressive policies to attempt to revitalize the community and protect public health, stormwater management and water quality is not the focus of those policies. In 2013, the City adopted a complete streets policy to encourage alternative modes of transportation, however, the policy does not encourage incorporating green infrastructure concepts for stormwater management.



WORKSHOP ATTENDEES DISCUSS POTENTIAL RETROFIT LOCATIONS (CREDIT: RENAISSANCE PLANNING)

Despite the challenges present by severe poverty in Camden, there are strong champions in the community who have been successful at funneling funds and support for revitalization. These groups, including Cooper's Ferry Partnership and the Camden SMART Initiative, have implemented several pilot and demonstration projects in the community to demonstrate green infrastructure concepts and educate the community on the impacts of stormwater runoff. The challenge in Camden is to integrate green streets and green infrastructure concepts into the everyday policies and practices of the City and County of Camden. The goal would be that projects, like those planned and implemented by CFP, become part of the standard procedure rather than an exception only initiated when grant funding is available. The City of Camden took an important step toward this goal by adopting a Sustainability Ordinance requiring an Environmental Impact and Benefits Study for new development and redevelopment projects and that stormwater measures that reduce runoff be implemented to mitigate the impacts of stormwater[8]. Collaboration between the numerous entities that have jurisdiction in Camden and a few basic revisions to the current codes and ordinances could continue the effort and have a significant impact on how the design community and municipal managers view green infrastructure and make implementing green infrastructure concepts through new development and transportation projects the preferred approach rather than an exception. Updating the Land Development Ordinance to expressly allow the use of bioretention and other green stormwater infrastructure practices within the areas between curbs and sidewalks and the curb standards to allow curb cuts or flush curbs was recommended in the *Green Infrastructure Barriers and Opportunities in Camden, New Jersey: An Evaluation of Local Codes and*

[8] http://www.sustainablejersey.com/fileadmin/media/Grants_and_Resources/Small_Grants/Past_Grantees_Projects/Camden_City_2013_PSEG_20K_Sustainabilty_Ordinance.pdf

Ordinances[9] and could help to integrate green and complete streets into the typical operations of the street department.

Strengths

The City of Camden has several strengths that can promote the benefits of green and complete streets and have set the foundation for the implementation and incorporation of green infrastructure concepts into city policies and ordinances related to street design and development including:

- **Strong Champions**: There are a number of partnerships and collaborations that have formed in Camden that are champions for economic growth and revitalization including the Camden Collaborative Initiative and the Camden SMART (Stormwater Management And Resource Training) Initiative. These initiatives are promoting green infrastructure in Camden and have received grant funding for pilot projects.
- **Passionate Community Activists**: There are several active community groups advocating for improvements and public welfare in Camden for a variety of initiatives, including promoting walkable and bikeable communities that could incorporate green infrastructure. These groups, including Hopeworks 'N Camden, Cross County Connection, Bicycle Coalition, and the South Jersey Urbanists, were represented at the technical workshop and provided valuable insight and recommendations. They have a passionate base that can help be catalysts for change and advocate for revisions to codes and ordinances.
- **Demonstration/Pilot Projects**: There are already several projects demonstrating green infrastructure practices, along with a very visible green and complete street in the design phase (North 7th Avenue). These projects serve as examples to the community of the benefits of green infrastructure and help residents, public officials, and local engineers visualize how a green and complete street could be configured.
- **Anchor Institutions:** The City has several anchor institutions including Rutgers University and Cooper University Hospital. These institutions are described as anchors because they have made a long term commitment to remain in the city, and have a natural interest in supporting citywide improvements. Rutgers University is currently conduction research on the benefits and effectiveness of green streets, including volume and pollutant reduction. The Voorhees Transportation Center at Rutgers University is developing design details specific to the regain and is supporting the design and implementation of green and complete streets in Camden, including the design of the pilot project on 7th Street between Erie Street and Linden Street.

These strengths can help to promote green and complete streets to highlight potential benefits and encourage any changes in perception of the challenges of implementing green and complete streets or policy necessary to help make green and complete streets part of the standard operating procedure for design and maintenance in Camden.

[9] https://www.epa.gov/sites/production/files/2015-10/documents/camden_gi_evaluation.pdf

Challenges

The City of Camden faces many challenges in implementing green and complete streets including a lack of funding for what is often viewed by those responsible for street design and maintenance as ancillary components of street design, and the lack of awareness among many agencies and institutions of the many long and short-term benefits of green infrastructure and complete streets.

- **Funding**: While there has been funding available to Camden through grants and loans, there is no consistent source of funding for the City or County of Camden to pay for required green infrastructure maintenance, or to incorporate green infrastructure into public works policy and projects.
- **Education/Perception**: While it appears that individual members of a number of public entities that have jurisdiction in Camden have knowledge of green and complete street concepts, they are not yet integrated into their funding programs or standard approaches to design. While there is local interest in green and complete streets, it takes time to integrate new green and complete street design elements and approaches into long-standing practices.
- **Existing green infrastructure policies are tethered to new development**: Green infrastructure requirements that are in place are typically tied to new development. Areas where there are no opportunities for new development are not as likely to gain the benefits of green and complete street infrastructure, as it is not required. The City of Camden Sustainability Ordinance requires an Environmental Impact and Benefits Study for new development and redevelopment projects and that stormwater measures that reduce runoff be implemented to mitigate the impacts of stormwater[8].
- **Stormwater Elements Are Not Eligible for NJ DOT Funding**: Workshop attendees reported that some stormwater management components of street improvement projects are not covered under most NJ DOT funding programs. Funding can only be applied to specific transportation elements such as paving.
- **Coordination between NJ DOT and NJ DEP**: According to workshop participants, the state departments of transportation and environmental protection have inherently different missions. Participants expressed that the DOT has its traditional standards and methods for maintaining and upgrading streets. Their work is driven by their goal to move people and vehicles, and that stormwater is a problem to be solved in a cost effective manner. Participants noted that the NJ DEP sees stormwater as a major issue threatening the health of the state's waterways. Green infrastructure can be a win-win strategy, addressing the concerns of both agencies. Design guidance for local engineers could help address this challenge.
- **Technical Support**: There are multiple concerns from some of the leaders in the design and transportation planning community in Camden that must be addressed. These concerns may be preventing green and complete streets concepts from being widely implemented, including a concern that bump outs will impede snow plowing and green infrastructure elements will require constant maintenance attention. Currently, mid-block bump outs require a special exemption from the city of Camden. The demonstration project and standard details described in the next steps section can help address this challenge.

Opportunities

While there are a few challenges to address, Camden is primed and has many opportunities to implement green and complete streets and be an example to the rest of the country. Those opportunities include:

- **Promise Zone**[10]: Camden was recently named a Promise Zone, which can help bring in new resources and potentially break down any silos that may exist between federal agencies.
- **Permitting**: There is an opportunity to educate and encourage green and complete streets through the permitting process. According to workshop participants, The NJ DOT must obtain land use permits for any road or highway projects from the NJ DEP. This provides an opportunity for the NJDEP to collaborate with the NJ DOT to identify and incorporate green and complete street opportunities in projects lead by the NJ DOT.
- **Complete Streets Policy**: The city of Camden has implemented a complete streets policy. There is an opportunity to revise the policy to include green streets.
- **Code and Ordinance Review**: EPA recently provided resources, through the Green Infrastructure Technical Assistance Program, for outside experts to conduct an evaluation of local codes and ordinances to identify and evaluate any potential barriers to implementing green infrastructure and green and complete street concepts. The evaluation was intended to highlight code areas for Camden SMART to consider as they continue to integrate green infrastructure throughout the City.
- **City of Camden Green Infrastructure Design Handbook:** Guidance that is specifically tailored to the urban conditions in Camden has already been developed and is available for use by engineers and developers.
- **Revolving Fund**[11]: The NJDEP has a large fund that provides loans to communities for water infrastructure upgrades. Camden has yet to use the program because the revolving fund is a loan program, rather than a grant, and would ultimately generate increased debt for the City.
- **Demonstration Opportunities**: Camden tends to have wide sidewalks that are perfect opportunities for retrofits and to incorporate green and complete street concepts, such as bioretention areas[6], without significant loss of usable space for pedestrians. A revision to the city ordinances, including Articles XVIII and XXIX of the 2010 Land Development Ordinance, would have to be made to expressly allow the use of bioretention and other green stormwater infrastructure practices within the areas between curbs and sidewalks to effectively demonstrate green street concepts. In addition, there are approximately 900 city-owned parcels managed by the Camden Redevelopment Agency that could be potential locations for green infrastructure retrofits and demonstration projects. Those opportunities, and a number of others, were identified at the technical workshop.

[10] The Promise Zone designation partners the Federal government with local leaders who are addressing multiple community revitalization challenges in a collaborative way. www.hud.gov/promisezones http://portal.hud.gov/hudportal/documents/huddoc?id=PromiseZoneCamden.pdf

[11] The New Jersey Clean Water State Revolving Fund provides loans to finance a wide variety of projects that help to protect, maintain and improve water quality. http://www.nj.gov/recovery/infrastructure/cwsrf.html

The workshop features a design exercise on Day 2 to identify specific locations that could be suitable for implementing green and complete street improvements. A list of these locations is provided in the table below.

Number (see Fig. 1)	Description of Green and Complete Street Opportunity
1	Haddon Ave corridor, Euclid to Vesper
2	The triangle formed by the intersection of Pine @ Mt. Ephraim
3	North 7th Corridor
4	7th and Pine intersection
5	Thorn and Copewood intersection (flooding reported as an issue here)
6	Davis and Copewood intersection (PATCO Station area)
7	MLK and Haddon (lots of asphalt, potential for a roundabout)
8	Admiral Wilson Blvd corridor (flooding reported as an issue here)
9	Pedestrian Bridge over Admiral Wilson Blvd
10	Ferry Ave Corridor (flooding reported as an issue here. The CCMUA is located in the area and interested in improvements)
11	Delaware Ave corridor (flooding reported as an issue here)
12	Stockton Park (flooding reported as an issue here)
13	Riverbirch Trail (potential for a connection at 11th and Admiral Wilson Blvd)
14	Conrail Yard
15	New Family Dollar development at 7th and Linden (potential for green infrastructure to manage stormwater)
16	Mt. Ephraim Ave (suggestion to add bike lanes)
17	Fairview (flooding reported in this area)
18	Cooper Plaza (Opportunity for pocket parking with a pervious surface)
19	Federal Street East corridor (suggestion to add bike lanes)
20	Delaware Ave north of Cooper (potential for a protected bike lane with green infrastructure)
21	Complete the Camden Greenway through North Camden
22	Mickle Blvd corridor (median strip could be used for green infrastructure. It's 10 feet wide and could be an example for other medians in the city)
23	Excess asphalt in front of the children's garden
24	Harrison and State Avenues (bike lanes go left creating a difficult transition. There may be space for a protected bike lane with green infrastructure)
25	Stockton Station Trail (completion of the trail will present opportunity for green infrastructure in the right of way)
26	East Camden (planting strips are common in residential neighborhoods and could be used to filter stormwater)
27	Centerville and Waterfront South (many opportunities in these neighborhoods)

LOCATIONS FOR POTENTIAL GREEN AND COMPLETE STREETS IMPROVEMENTS IDENTIFIED BY WORKSHOP PARTICIPANTS (CREDIT: RENAISSANCE PLANNING)

The city has already taken several steps to integrate green infrastructure and complete streets concepts into city policy, including the adoption of the complete streets policy and the review of local codes and ordinances. As agencies continue to collaborate, particularly through the Camden

SMART Initiative and the Camden Collaborative Initiative, the knowledge of the benefits of these approaches will expand and more opportunities for green and complete streets will be identified.

NEXT STEPS

The discussion at the technical workshop confirmed many of the community's strengths, identified a few challenges that need to be addressed, and provided a number of opportunities that could be pursued to effectively implement green and complete streets as part of the standard operation of street design and maintenance in Camden. Workshop participants identified three main focus areas to educate community leaders and municipal staff on the benefits of green and complete street infrastructure, increase coordination between staff who support green and complete streets, and enable more effective green and complete street implementation including:

1. **Promotion, education, and branding of green street benefits:** Provide resources to the various city, county, and state agencies to encourage collaboration to infuse green street concepts into the common vernacular for any agencies that oversee, or are involved in, development and redevelopment, including transportation, in Camden. Developing and adopting technical guidance, including standard details, could help to encourage incorporation of green streets into complete street design. This could possibly ease some concerns regarding the impact to standard operations of a typical street. Demonstration projects, particularly projects implemented on city property, could also provide an opportunity for community members to observe the benefits of green infrastructure. Having examples implemented in typical transportation configurations will allow for the refinement of any design standards to address concerns regarding the impact of green and complete street concepts on typical street functions including snow removal, traffic patterns, or impacts to pedestrians.
2. **Coordination among Agencies, Local Officials, and Funding Agencies:** There are several staff at a number of local agencies who are knowledgeable about the benefits of green infrastructure and have been encouraging the incorporation of green and complete streets. However, there is still a lot of work to be done to institutionalize the use of green infrastructure into local agencies' day to day business. Facilitating coordination between those staff would allow for collaboration in promoting green and complete streets and identify educational and implementation opportunities within their respective agencies. One option to explore is the addition of a permanent position that would be responsible for facilitating coordination between the agencies. NJ DEP staff expressed an interest in this idea during the workshop.
3. **Enabling and Enforcing Effective Green and Complete Streets Implementation:** The code and ordinances must expressly allow and encourage green infrastructure concepts to be incorporated into new development, redevelopment, retrofit, and transportation projects to be able to require and enforce the implementation of green and complete streets. The evaluation of local codes and ordinances funded by the EPA in 2013 provides several recommendation for specific code revisions including updating the language in Articles XVIII and XXIX of the 2010 Land Development Ordinance to expressly allow the use of bioretention and other green stormwater infrastructure practices within the areas between curbs and sidewalks. Curbing standards should also be updated to allow curb cuts or flush curbs with curb stops to be utilized as an alternative to raised curbs. While there are barriers to implementing green and complete streets, a number of code revisions would encourage or

more expressly allow green infrastructure. An update to the complete streets policy to encourage incorporating green street concepts to manage stormwater runoff in the transportation corridor could also encourage and enable the implementation of green infrastructure.

These actions are options for the community to consider and may require additional vetting, evaluation, and discussion among municipal staff and elected officials before they can be implemented. The group may also consider and develop additional options that were not identified by the workshop participants.

Strategy #1: Promotion, Education, and Branding of Green Street Benefits

The workshop participants communicated a need for general education on the benefits of green and complete streets. Many agencies and officials simply are not aware of the issue of stormwater management and the effect runoff can have on surface water quality. Guidance could help city staff and residents fully understand how green and complete streets function and how to integrate green infrastructure into transportation corridors. Pilot and demonstration projects could also be beneficial to demonstrate how to construct green and complete streets, along with the many benefits of green infrastructure.

Specific Actions and Timeframe	Why is this important?	Immediate Next Steps	How will we measure success?	Timeframe	Lead and Support Roles	Costs and Implementation Resources
Create a roster of people in the region and state that are interested in green and complete street concepts.	A lot of people are interested in green infrastructure but are not aware of opportunities to collaborate.	Need to get critical stakeholders at the table by working with nontraditional connections.	Gain support from federal agencies and legislative representatives to push critical stakeholders to implement green streets.	Six months to begin having the proper conversations with the appropriate people	Cooper's Ferry Partnership (CFP), HUD, Delaware Valley Regional Planning Commission (DVRPC), City and County of Camden	Staff time
Provide fact sheets on the benefits of green infrastructure, durability, cost, and maintenance for use by any agency implementing or overseeing projects in the transportation corridor. **Outreach to county and municipal engineers on new city street design standards. Include the National Association of City Transportation Officials** **Recruit Rutgers and Cooper's Ferry Partnership to implement green and complete streets design concepts and conduct research.**	Need to know the state of the practice for green and complete streets to cover as many agencies as possible.	Cooper's Ferry Partnership can communicate the benefits and importance of green streets to the City through the Mayor's office.	The availability of guidance for engineers, public officials, and the public.	12 months to develop and distribute guidance.	Rutgers University, Cooper's Ferry Partnership, New Jersey Department of Environment Protection (NJDEP), DVRPC, Mayor's office, and Camden County Municipal Utilities Authority (CCMUA)	Staff time with some printing costs
Identify which of the Camden Redevelopment Agencies 900 properties are most suitable for green infrastructure and complete street concepts.	Represents an incredible opportunity for improvement.	Identify and prioritize the available properties	Integrate green infrastructure concepts into the identified redevelopment properties.	6 months	Camden Redevelopment agency	Staff time

Strategy #2: Coordination among Agencies, Local Officials, Funding Agencies, and a Compliance Coordinator

There are a number of staff in a variety of agencies who have an understanding of green infrastructure and have been attempting to integrate green and complete street concepts into projects and efforts within their respective agencies. Many of these staff have experienced some resistance and have had limited success integrating green and complete street concepts into the standard operating procedures and policies within their departments. Combining the efforts of multiple staff at each cooperating agency could provide momentum and provide opportunities for collaboration on a wide variety of projects and efforts throughout the City and County of Camden.

Specific Actions and Timeframe	Why is this important?	Immediate Next Steps	How will we measure success?	Timeframe	Lead and Support Roles	Costs and Implementation Resources
Organize a meeting between county and local staff including engineers who are designing green and complete street projects and those who are interested. Invite the New Jersey DOT, NJ DEP, Metropolitan Planning Organization (MPO), and the DFP – Water Quality Division.	Need to disseminate the message that implementing green infrastructure will improve the quality of life immediately after the project is completed and the long-term future.	Develop a contact list of staff who are informed and support green infrastructure and complete streets concepts.	Partners coordinate meetings to discuss incorporating green infrastructure.	Winter of 2017	• NJDEP (Division of Water Quality, Site Remediation Program, and Economic Development Program with support from: • New Jersey Department of Transportation (NJDOT) • City and County of Camden • Tri State Transportation Campaign (TSTC) • CFP • DVRPC	Incorporate the paving schedule (Staff Time)
Schedule a meeting with New Jersey DOT and DEP staff to discuss opportunities that implementing green infrastructure and complete streets provides and how both departments can benefit.	Coordination between these two agencies is critical for optimizing opportunities to incorporate green infrastructure into existing policies, projects, and to provide funding and technical support.	Prioritize a list of key areas and projects where green infrastructure could be incorporated into a complete street design and submit to key stakeholders.	The number of projects implemented with green infrastructure and complete street concepts.	Fall 2016	• NJ DEP (Division of Water Quality and Site Remediation Program) with support from: • NJ DOT • NJ Conservation Foundation (NJ CF • TSTC	GIS/Mapping (Staff Time)
New Jersey DEP should participate in the New Jersey DOT Bike/Pedestrian Plan to promote opportunities for green infrastructure in complete streets.	Helps create awareness of the benefits of green infrastructure as a component of a complete street and clear communication between departments.	Find local case studies in progress or recently completed. Determine other groups who should be included.	Leveraging of funding between partner agencies.	Fall 2016	• NJDEP with support from: • NJDOT • TSTC • Bike Coalition of Great Philadelphia (BCGP) • New Jesrsey Bike and Walk Coalition (NJ BWC) • NJCF	Staff Time
Coordinate a federal funding stream, or update current funding, to cover the entirety of a project so that stormwater or green street components can be included and funded in street projects.	To promote communication and connection between entities to integrate concepts and provide a more complete and beneficial project.	Evaluate current projects for an opportunity to include green infrastructure concepts. Present an overview of green streets to the BPAC	Secure private foundation funding including the William Penn Foundation when possible	Ongoing	• NJ DEP with support from: • Camden Collaborative Initiative • Circuit Coalition	Staff Time

Strategy #3: Enabling and Enforcing Effective Green and Complete Streets Implementation

There has been some effort to evaluate and identify barriers to green infrastructure, including a collaborative effort between Coopers' Ferry Partnership and the EPA that resulted in the *Green Infrastructure Barriers and Opportunities in Camden, New Jersey: An Evaluation of Local Codes and Ordinances* publication. This document identified and recommended revisions to barriers in multiple city codes and policy documents. Additional collaboration could be beneficial to ensure that implementing green and complete streets is not only allowed, but is encouraged.

Specific Actions and Timeframe	Why is this important?	Immediate Next Steps	How will we measure success?	Timeframe	Lead and Support Roles	Costs and Implementation Resources
Update Camden's Complete Streets Policy to include green infrastructure. **Consider a voluntary ordinance for green infrastructure that would include incentives sufficient to make it attractive (density, expedited review, etc.)**	Will generate more integrated projects providing the opportunity for cost-effective projects that can have positive health affects for everyone.	Add language requiring the consideration of incorporating stormwater management	Revised ordinance is adopted.	6 months to 1 year	Camden Green Team with support from Cross County Connection	Staff time
Amend development ordinances to explicitly allow green infrastructure. **Amend the stormwater control ordinance[12], which is presently at the state minimum, and add a strong mitigation plan that encourages green infrastructure in public rights-of-way.**	Make it easier for people to use green infrastructure rather than just the minimum for stormwater management	1. Review the inventory of development ordinances 2. Identify opportunities 3. Amend ordinances 4. Internal staff memo 5. Train municipal staff including the mayors cabinet	The number of ordinances that are updated and the number of green street projects implemented in Camden.	One to two years	The planning board with support from the city council.	Staff time
Provide standard details of complete street/green street design elements for intersections and street segments.	To share the best practices, make it easier to implement, and provide context to design engineers and developers.	1. The Cooper's Ferry Partnership coordinates with the Voorhees Transportation Center at Rutgers. 2. Develop a problem statement for the FHWA and the VTC. 3. Compile potential best management practices for green streets. 4. Revise the New Jersey guidebook.		One to two years	Public spaces, smart growth America, and the Rutgers University Voorhees Transportation Center.	Funding from the Federal Highway Administration, New Jersey Division

[12] http://www.ci.camden.nj.us/wp-content/uploads/2013/04/zoning_code.pdf

APPENDIX

The self-assessment completed by the community, workshop sign in sheets, and the workshop presentations are attached.

Additional Resources

U.S. EPA Building Blocks for Sustainable Communities

http://www.epa.gov/dced/buildingblocks.htm

Green Infrastructure Barriers and Opportunities in Camden, New Jersey (2013)

EPA worked with the partnership on this report, which presents findings from EPA's review of regulations and standards relevant to stormwater best management practices within Camden. The report identifies opportunities to minimize impervious cover and promote environmentally sensitive site design during development and redevelopment activities. It also identifies potential barriers to implementing structural green infrastructure practices.

- https://www.epa.gov/sites/production/files/2015-10/documents/camden_gi_evaluation.pdf

City of Camden Green Infrastructure Design Handbook (2013)

EPA and the partnership created this handbook to provide residents, builders, city and county staff, and other interested groups with practical information on integrating green infrastructure practices within Camden. The handbook also demonstrates how particular practices can be implemented within new development and retrofit projects.

- https://www.epa.gov/sites/production/files/2015-10/documents/camden_gi_handbook.pdf

EPA's Green Infrastructure Website

A site with many resources on the topic of green infrastructure.

- http://www.epa.gov/green-infrastructure

Enhancing Sustainable Communities With Green Infrastructure: A Guide to Help Communities Better Manage Stormwater While Achieving Other Environmental, Public Health, Social, and Economic Benefits. (2014).

This EPA report aims to help local governments, water utilities, nonprofit organizations, neighborhood groups, and other stakeholders integrate green infrastructure strategies into plans that can transform their communities. Many communities that want to use green infrastructure approaches face technical, regulatory, financial, and institutional obstacles that limit widespread implementation. This report is a guide to develop a plan that can overcome these obstacles for neighborhoods, towns, cities, and regions of all sizes.

- http://www.epa.gov/smartgrowth/enhancing-sustainable-communities-green-infrastructure

Managing Wet Weather with Green Infrastructure Strategy. (2009).

This EPA policy guide can assist municipalities in growing green infrastructure throughout the built environment. As discussed below, collaboration among multiple departments and negotiation of multiple priorities are generally key.

- http://www.epa.gov/green-infrastructure/policy-guides

National Complete Streets Coalition. Sustainable Complete Streets

A webpage with information on sustainable complete streets and links to additional resources.

- http://www.smartgrowthamerica.org/complete-streets/implementation/factsheets/green-streets/

WERF User's Guide to the BMP and LID Whole Life Cost Models Version 2.0. (2009).

This tool helps users identify and combine capital costs and ongoing maintenance expenditures in order to estimate whole life costs for stormwater management.

- https://www.werf.org/a/Ka/Search/ResearchProfile.aspx?WebsiteKey=00bc0f55-bb85-4522-b31f-64e876cfd07d&ReportId=SW2R08

Workshop Attendees

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