North Camden Infrastructure Assessment Study

Prepared For:

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In Partnership with: Camden Redevelopment Agency



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NORTH CAMDEN INFRASTRUCTURE ASSESSMENT STUDY

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EXECUTIVE SUMMARY

Traffic Planning and Design, Inc. (TPD), in cooperation with ABR Consultants, LLC (ABR), has been retained by Cooper's Ferry Development Association, Inc. (CFDA), in partnership with the Camden Redevelopment Agency (CRA), to complete a Transportation and Utility Infrastructure Assessment and Evaluation for the North Camden section of the City of Camden, Camden County, New Jersey. The infrastructure study focused on an in-depth assessment and comprehensive evaluation of the existing roadway and utility infrastructure of North Camden. The purpose of the infrastructure study is to advance previous successful planning efforts toward design, as outlined in North Camden Neighborhood Plan, dated March 2008. The Project Team has completed the Transportation and Utility Infrastructure Assessment and Evaluation as outlined below:

- The study area for the North Camden Infrastructure Assessment consists of all roadways, alleyways, and intersections within Coopers Poynt and Pyne Poynt census tracts. The area, in its entirety, is bound by Route 676/Federal Street to the south; Delaware River to the west and north; and Cooper River to the east.
- An inventory of the existing infrastructure was conducted at each midblock location within the study area. The assessment encompassed approximately 238 individual city blocks throughout the study area.
- The Project Team coordinated with the following entities that are involved in various capacities in the North Camden neighborhood:
 - City of Camden Public Works
 - Camden City Municipal Engineers Office
 - Camden County Buildings and Operations
 - Camden County Municipal Utility Authority
 - Camden Lutheran Housing, Inc.
 - ➢ Camden Bible Tabernacle
 - > Children's Opportunity Center
 - Fair Share Housing Development Corporation
 - ➢ Hopeworks 'N Camden

- ➢ My Brother's Keeper
- New Jersey Tree Foundation
- ≻ PSE&G
- ➢ Respond, Inc.
- State Street Housing Corporation
- United Water of Camden
- > Volunteers of America
- ➢ Walt Whitman Arts Center
- The existing infrastructure was evaluated based on the following established rating system:
 - ➢ Good adequate to handle existing demand (no significant repair needed);
 - ➤ Fair functionally adequate, but in need of repair to handle existing demands;
 - Poor inadequate to handle existing demand (in need of major repair and/or replacement);
 - \blacktriangleright N/A not present.
- Based on the infrastructure assessment, the majority of the roadway infrastructure (including storm water management) and transportation system throughout the study area is currently not suitable and in need of systematic upgrades.
- Based on the infrastructure assessment, the following outlines the existing utility infrastructure conditions within the study area:



- The sewer system within the study area is a combined system that is not permitted under current New Jersey Department of Environmental Protection (NJDEP) regulations requiring segregation of the stormwater sewer and sanitary sewer.
- All areas are provided with service, with the water lines ranging from 2" to 30" ductile iron pipe. However, conversations with residents within the study area suggest that "brown water" flows from their taps intermittently. The existing water tower, located adjacent to the existing prison site, is a functional tower that services areas in North Camden. There are no plans to demolish or relocate the tower at this time.
- A majority of the area is provided with service, with the gas mains and lines ranging from 8" cast iron pipe (CIP) to 2" plastic pipe. Conversations with PSE&G identified that the gas mains are currently under low pressure and identified interest in upgrading to a high pressure system if given the opportunity. PSE&G is currently coordinating with Camden County regarding implementation of such upgrades in conjunction with the reconstruction of State Street Bridge.
- A two-phased community outreach program, facilitated by CFDA and Save Our Waterfront (SOW), was developed and implemented to gauge the current priorities of the North Camden community. SOW was instrumental in providing guidance through this program, as they are the central community organization in North Camden. The first phase of the community outreach was to present a detailed summary of the preliminary findings of the infrastructure inventory and assessment. Discussions followed with the SOW North Camden Steering Committee to outline the priorities moving forward. The second phase of the input/outreach program was to gain an understanding of the projects currently planned and/or programmed for the study area through attendance at the monthly SOW North Camden Steering Committee meetings.
- Based on the thorough assessment of the existing infrastructure and outreach efforts with the community and municipal agencies, this infrastructure upgrade plan focusing on the systematic implementation of the goals outlined in the Neighborhood Plan has been identified.

As a result of the Transportation and Utility Infrastructure Assessment and Evaluation, the following recommendations were made:

- An infrastructure upgrade plan, as outlined below, focusing on the systematic implementation of the goals outlined in the Neighborhood Plan should be implemented:
 - First Phase Enhance Neighborhood Gateways
 - State Street, from Front Street to 7th Street;
 - 7th Street, from Linden Street to Erie Street.
 - Second Phase Promote Neighborhood Development
 - Vine Street, from 6th Street to 10th Street;
 - Elm Street, from 7th Street to 10th Street;
 - Linden Street, from 7th Street to Penn Street.

> Third Phase – Connect Core Neighborhood to Future Waterfront Development

• Erie Street, from 2nd Street to 9th Street.



- The First Phase of the Infrastructure Upgrade plan identifies improvements to the neighborhood gateways including the separation of the combined sewer system, reconstruction of the identified roadways, and repair/replacement of deficient sidewalk. The First Phase also includes streetscape upgrades along the Neighborhood gateway corridors.
- As it relates to State Street, CFDA and SOW should coordinate efforts with the Camden City's Sewer Reconstruction Project in order to fund and complete the reconstruction of State Street, with a separated stormwater and sanitary sewer system.
- The Second Phase of the Infrastructure Upgrade plan identifies improvements in conjunction with planned infrastructure improvements and planned development projects. The improvements include the specific recommendations outlined in the Neighborhood Plan pertaining to direction of travel, multi-modal accommodations, and streetscape improvements.
- As it relates to Elm Street, the Second Phase of the upgrade plan includes the separation of the combined sewer system, reconstruction of the roadway, and streetscape improvements.
- The Third Phase of the Infrastructure Upgrade plan (Erie Street) requires future scope refinement, based on the developing plans for the prison site and the waterfront park area. Improvements ultimately should include the separation of the combined sewer system along Erie Street to connect the previous infrastructure upgrades (Phase 1 and 2) to the stormwater systems along the waterfront. Since Erie Street is receiving a resurfacing project in the short term, ultimate improvement of this street and its infrastructure is appropriate for a Third Phase priority.
- As it relates to Erie Street in the near future, the Camden City's Roadway Resurfacing Project will upgrade the roadway surface, curb, and sidewalk. The City should coordinate scheduling efforts with the New Jersey Tree Foundation (NJTF) to insure that street trees are incorporated along Erie Street.
- The Waterfront Infrastructure should highlight the connection of the core neighborhood to the waterfront by having similar characteristics as the existing neighborhood streets, including a 60-foot right-of-way width and a 38-foot cartway width. Once the waterfront plans are developed in more detail, the waterfront infrastructure should be designed in accordance with the guidelines presented in the Waterfront Park Plan.
- As it relates to the utility infrastructure, the design and location of the stormwater management for the waterfront developments should plan for the potential connection of the surrounding core neighborhood systems, including those proposed to be improved as part of this project. The design of the utilities for the new waterfront roadways (water mains, gas mains, and electric) should account for the potential waterfront development as a whole, so as to minimize post-development utility upgrades.



INTRODUCTION

Traffic Planning and Design, Inc. (TPD), in cooperation with ABR Consultants, LLC (ABR), has been retained by Cooper's Ferry Development Association, Inc. (CFDA), in partnership with the Camden Redevelopment Agency (CRA), to complete a Transportation and Utility Infrastructure Assessment and Evaluation for the North Camden section of the City of Camden, Camden County, New Jersey. The infrastructure study focused on an in-depth assessment and comprehensive evaluation of the existing roadway and utility infrastructure of North Camden. The purpose of the infrastructure study is to advance previous successful planning efforts toward design, as outlined in North Camden Neighborhood Plan, dated March 2008.

STUDY AREA

The study area for the North Camden Infrastructure Assessment consists of all roadways, alleyways, and intersections within Coopers Poynt and Pyne Poynt census tracts. The area, in its entirety, is bound by Route 676/Federal Street to the south; Delaware River to the west and north; and Cooper River to the east. The infrastructure study encompasses approximately 238 individual city blocks throughout the study area.

INFRASTRUCTURE INVENTORY

An inventory of the existing infrastructure was conducted at each midblock location within the study area. A comprehensive field visit, performed from August 10-13, 2009, consisted of the collection of the following information within the study area:

Transportation Infrastructure

- Directions of travel and intersection controls;
- Number of travel lanes;
- Roadway material;
- Cartway width;
- Presence of curb (and reveal, if applicable);
- Presence of sidewalk (and width, if applicable);
- Presence of on-street parking;
- Presence of pedestrian crosswalks;
- Presence of ADA ramps;
- Presence of streetscape elements, including:
 - ➤ Street Trees;
 - Street Lights (standard and ornamental pedestrian lighting).



Utilities Infrastructure

- Presence of inlets (type and number, if applicable);
- Presence of manholes (type and number, if applicable);
- Presence of water lines;
- Presence of gas lines
- Presence of fire hydrants;
- Presence of utility poles;
- Presence of groundwater monitoring wells.

In addition to the comprehensive field inventory completed by the Project Team, TPD and ABR coordinated with the applicable entities currently servicing the study area to verify the transportation and utility infrastructure observed in the field. Based on coordination with the City of Camden, the Camden City Municipal Engineers Office, the Camden County Municipal Utility Authority (CCMUA) and the Project Team, it was determined that the utility infrastructure for the North Camden Neighborhood is currently serviced by the following entities:

- Stormwater/Sanitary CCMUA.
- Water United Water of Camden;
- Gas PSE&G;
- Electric PSE&G.

The existing transportation infrastructure is summarized in **Sheets 1 and 2**, respectively. A photographic journal of the study area midblock locations depicting the existing transportation and utilities infrastructure is provided in **Appendix A**. The completed roadway infrastructure database for the study area and a sample of the midblock checklist utilized to complete the comprehensive field inventory is included in **Appendix B**.

INFRASTRUCTURE ASSESSMENT

The existing infrastructure was evaluated based on the following established rating system:

- ➢ Good adequate to handle existing demand (no significant repair needed);
- ➢ Fair functionally adequate, but in need of repair to handle existing demands;
- Poor inadequate to handle existing demand (in need of major repair and/or replacement);
- \blacktriangleright N/A not present.



Transportation Infrastructure Assessment

Based on our investigation of the North Camden Neighborhood, the majority of the roadway infrastructure (including storm water management) and transportation system throughout the study area is currently not suitable and in need of systematic upgrades, as shown in **Sheet 3** – **Overall Transportation Conditions Assessment**. In order to develop this overall assessment, the results of the field investigation of the existing pavement, curbing, inlet, and sidewalk conditions were considered collectively. The existing conditions of the transportation infrastructure, including the pavement, curbing, inlets, and sidewalks, are summarized in **Sheets 4 through 7**.

Table 1 below outlines the overall assessment of the existing North Camden transportation infrastructure.

Overall	Study Area Roadways		
Condition	East-West	North-South	
Good	Erie Street (btw Delaware Ave/ 2^{nd} St) Grant Street (btw 3^{rd} St/ 4^{th} St) Vine Street (btw Delaware Ave/Front St)	Chester Street Delaware Avenue Summit Street 7 th Street (<i>btw Vine St/State St</i>)	
Good to Fair		Front Street 2 nd Street	
Fair	Penn Street	Howard Street Point Street 3 rd Street 4 th Street 10 th Street 11 th Street	
Fair to Poor	Cedar Street Elm Street Grant Street Linden Street Pearl Street State Street Vine Street York Street	5 th Street 6 th Street 8 th Street 9 th Street	
Poor	Bailey Street Birch Street Byron Street Danenhower Street Fern Street Kimber Street Larch Street Park Drive	Beach Street Borton Street Linwood Street Ray Street Raymond Street Willard Street 7 th Street	

TABLE 1NORTH CAMDEN TRANSPORTATIONINFRASTRUCTURE ASSESSMENT



Existing Utilities Infrastructure Conditions

Stormwater and Sanitary System

Historically, stormwater management in urban areas did not take into account the need to detain stormwater for water quality management purposes. The design was to combine the stormwater and sanitary sewer, as is the case in a majority of the City of Camden. The sewer system within the study area is a combined system that is burdened with both stormwater runoff and sanitary waste. The majority of the system's main structures are constructed of brick, with the minor arteries constructed of vitrified clay or reinforced concrete pipe (RCP). Within the study area, the capacities of the sewer lines range from 6" to 72" RCP combined with numerous ovate shaped brick sewers denoted as 18"x24", 16"x20", etc. Based on the observations made during the field survey, a majority of the stormwater inlets were filled with earth or debris, causing temporary flooding in the area. Conversations with residents within the study area confirmed that during heavy rain falls, stormwater and sanitary sewer spews from clean-outs.

Water Mains

United Water of Camden is the company that services the water demands within the study area. All areas are provided with service, with the water lines ranging from 2" to 30" ductile iron pipe. Conversations with residents within the study area suggest that "brown water" flows from their taps intermittently. An existing water tower, located adjacent to the existing prison site, is a functional tower that services areas in North Camden. There are no plans to demolish or relocate the tower at this time.

Gas Mains

Gas mains and lines are prevalent throughout the entire study area, with the exception of Elm Street, from 5th Street to 7th Street. The gas mains and lines range from 8" cast iron pipe (CIP) to 2" plastic pipe. Meetings with representatives from PSE&G disclosed that major networks of gas mains are more than capable of handling the current demand within the Study Area. However, PSE&G identified that the gas mains are currently under low pressure.

PSE&G noted that the North Camden area is serviced by a main line along Front Street. PSE&G would like to upgrade the system to a high pressure system that will be serviced from an access at the State Street Bridge. As such, PSE&G is coordinating with Camden County regarding the feasible of incorporating such utility infrastructure upgrades into the reconstruction of the bridge.

The existing utility infrastructure was created from a combination of the City of Camden maps, United Water documents, PSE&G documents, field surveys, interviews with the CCMUA, and residents of North Camden. The existing utilities infrastructure pertaining to the combined storm/sanitary sewer, water service, and gas service is summarized in **Sheets 8 through 10**. A summary of the utility infrastructure for the study area is included in **Appendix C**.



COMMUNITY INPUT AND OUTREACH

In cooperation with CRA and facilitated by CFDA and SOW, a two-phased community outreach program was developed and implemented to gauge the current priorities of the North Camden community. The first phase of the community outreach was to present a detailed summary of the preliminary findings of the infrastructure inventory and assessment. Discussions followed with the SOW North Camden Steering Committee to outline the priorities moving forward. The second phase of the input/outreach program was to gain an understanding of the projects currently planned and/or programmed for the study area. Input was solicited from the following entities:

- City of Camden Public Works
- Camden County Buildings and Operations
- Camden Lutheran Housing, Inc.
- Camden Bible Tabernacle
- Children's Opportunity Center
- Fair Share Housing Development Corporation
- Hopeworks 'N Camden

- My Brother's Keeper
- New Jersey Tree Foundation
- State Street Housing Corporation
- Respond, Inc.
- Volunteers of America
- Walt Whitman Arts Center

In addition to the community outreach program, TPD participated in the inter-governmental task force meetings hosted by the Delaware River Port Authority (DRPA). These meetings allowed the Project Team with the opportunity to present and engage various public sector agencies including New Jersey Department of Environmental Protection (NJDEP), New Jersey Economic Development Authority (NJEDA), New Jersey Schools Development Authority (NJSDA), and other agencies.

Planned Infrastructure Improvement Projects

The following infrastructure improvement projects are planned in the study area. The planned infrastructure improvement projects programmed in the study area are also depicted in **Sheet 11** – **Planned Infrastructure Improvement Projects**.

<u>Sewer Reconstruction Project, Phase 2 (Area 1)</u>, Camden City, active sewer reconstruction project includes Vine Street between 6th Street and 10th Street. The scope of the project includes the reconstruction of the sewer main that is part of the combined sewer system and repaving within the limits of work, from curb to curb. The project is currently funded in cooperation with the New Jersey Environmental Infrastructure Trust (NJEIT) and the American Recovery and Reinvestment Act of 2009 (ARRA). The project was recently awarded and currently scheduled to begin immediately with construction by the end of 2010.

<u>Sewer Reconstruction Project, Phase 3</u>, Camden City, programmed sewer reconstruction project for several roadways in the North Camden area. The scope of the project includes the reconstruction of the sewer main that is part of the combined sewer system and repaying within the limits of work, from curb to curb. The project is currently funded in cooperation with the New Jersey Environmental Infrastructure Trust (NJEIT) and the American Recovery and Reinvestment Act of 2009 (ARRA). The project has not been awarded, but is currently



scheduled to be by January 2010. This project includes the following roadway segments in the North Camden area:

- Fern Street from 8th Street and 9th Street
- Pearl Street from 8th Street and 10th Street
- York Street from Point Street and 3rd Street
- York Street from 6th Street and 8th Street
- Front Street from Erie Street toward Delaware River
- 5th Street from Cedar Street and Vine Street
- 5th Street from Bailey Street and Erie Street
- 10th Street from Penn Street and Kimber Street

<u>Sewer Reconstruction Project, Phase 4</u>, Camden City, programmed sewer reconstruction project includes State Street between Front Street and 10th Street. The scope of the project includes the reconstruction of the sewer main that is part of the combined sewer system and repaving within the limits of work, from curb to curb. The project is currently programmed and seeking funding.

<u>Roadway Resurfacing Project</u>, Camden City, programmed city-wide resurfacing project. The scope of the project involves the milling and resurfacing of the identified roadways, construction of curb and sidewalks, curb ramp installation, and drainage work. Within the study area, the scope of the project currently includes Erie Street (between 2nd Street and 9th Street), 3rd Street (between Birch Street to State Street), and 4th Street (between Elm Street and State Street). The project has been included on the Transportation Improvement Program (TIP) with economic stimulus funding under the American Recovery and Reinvestment Act of 2009 (ARRA). The project has not been awarded but is currently scheduled to be advertised the beginning of 2010 with construction to commence the spring of 2010.

<u>*Traffic Signal Upgrade Projects*</u>, Camden City, programmed traffic signal upgrade project includes the intersections of State Street and 7th Street; and State Street and 8th Street.

<u>State Street Bridge Replacement</u>, Camden County project, includes the construction of a new bridge (adjacent to the existing bridge) as well as roadwork associated with the approaches. The existing bridge will be converted to pedestrian only. The project is currently in the final design phase, scheduled to be completed in March/April 2010. The construction is anticipated to start in June/July 2010 with an estimated duration of eighteen months to complete.

Planned Development Projects

The following development projects are planned in the study area. The planned development projects in the study area are also depicted in **Sheet 12 – Planned Development Projects**.

<u>Pyne Poynt Park Renovations</u>, located on the northern side of Erie Street between 6^{th} Street and 7^{th} Street. The project includes rehabilitation of the 13-acre public park and associated infrastructure improvements to the adjacent roadways. Phase One rehabilitation of Pyne Poynt Park includes Sixth Street from Erie Street to Park Drive, Seventh Street from Erie Street to Park Drive, and Park Drive from Sixth Street to Seventh Street. Construction is slated to start in the fall of 2010.



<u>Northgate Park Renovations</u>, located on the northwest quadrant of the intersection of Elm Street and 6th Street. The project is a city-owned park where Creative Opportunity for Living Together In North Camden (COLT, Inc.), SOW, and Fairshare Housing are working with the residents of the Northgate community to raise funds for phased improvement throughout the public park. Green Acres has made an initial commitment and the project team is looking for matching funds.

<u>Walt Whitman Arts Center</u>, in partnership with local organizations, is proposing a pocket park at the southwest quadrant of the intersection of 2^{nd} Street and York Street. The proposed park will include outdoor performance space and classroom space for children learning.

<u>State Street Fellowship</u>, in partnership with Campbell's Soup, beautified the Blocks of 300 through 700 of State Street in October. The improvement project focused on streetscape improvements in this section of North Camden.

<u>*Camden Fire Station*</u>, a proposed new fire station at the northeast quadrant of the intersection of 7th Street and State Street, with an anticipated construction start date of the first quarter of 2010 and a completion date of the first quarter of 2011. It is our understanding that the design of the building is currently under review/revision.

<u>Pyne Poynt School Renovations</u>, located at the northeast quadrant of the intersection of Erie Street and 7th Street. The project involves renovation and expansion of the existing middle school; including mechanical, electrical and plumbing system upgrades, and major interior and exterior renovations. The project has an anticipated completion date of July 2012.

<u>*Camden Bible Tabernacle*</u>, a proposed new church at the parcels bordered by Vine Street, Elm Street, Willard Street, and Linwood Street.

<u>*Urban Gateway Renewal*</u>, a proposed retail development anchored by a supermarket at the northeast quadrant of the intersection of 7^{th} Street and Linden Street. SOW and Respond, Inc. are aggressively working with both the private and public sectors to identify and recruit a developer for the site.

<u>Respond Urban Renewal</u>, a proposed 3-story, 41-unit senior housing building between the 400 and 500 Blocks of Erie Street. A new street connecting Byron Street between 4th Street and 5th Street is proposed in conjunction with the project.

<u>Hopeworks 'N Camden – C.R.I.B. Project</u>, a proposed residential community for college bound at-risk youth. The proposed project includes a 13-bedroom, three-story residence and adjacent garden/greenway.

<u>*Camden Lutheran Housing*</u>, is developing an 18-unit housing project on Blocks 20, 38, and 39 in the Cooper Poynt section of North Camden (700 and 800 Blocks of 2^{nd} Street, 100 and 200 Blocks of State Street) and a 16-unit housing project on Blocks 804 and 805 in the Pyne Poynt section (bordered by Elm, Pearl, 10^{th} and Ray Streets).

<u>New Jersey Tree Foundation</u>, through their Urban Airshed Reforestation Program (UARP), has been offering free street trees to Camden residents, churches, schools, and non-profits since 2002. The trees planted by the NJTF are appropriate for urban environments, staying relatively small, and are unlikely to ever raise sidewalks or interfere with underground utilities. Every tree is adopted for at least two years by a Camden resident or employee, agreeing to maintain and take care of each tree during that timeframe. In addition, the NJTF offers Camden



residents a free TreeKeepers workshop series, which covers basic tree biology, proper planting and maintenance techniques, recognition of hazardous trees, and environmental issues related to urban forestry. To date, the NJTF has successfully planted a total of 611 trees in North Camden and over 3,400 trees throughout the city.

INFRASTRUCTURE UPGRADE PLAN

As outlined in Section 6.0 (Circulation and Infrastructure) of the Neighborhood Plan, specific recommendations relating to the public infrastructure within the core neighborhood were identified. Under the plan, the focus was to make systematic upgrades to improve the neighborhood's infrastructure, both above and below street level. Other goals included calming traffic, enhancing pedestrian safety, and beautifying the neighborhood's gateways. Based on the thorough assessment of the existing infrastructure within the study area and outreach efforts with the community and municipal agencies, an infrastructure upgrade plan focusing on recommendations for the systematic implementation of the goals outlined in the Neighborhood Plan was identified. To determine the phasing of the infrastructure upgrade plan, the Project Team focused on three main themes: (1) enhance the neighborhood to future waterfront development.

The infrastructure upgrade plan is outlined below and depicted in Sheet 13 – Phased Infrastructure Improvement Projects:

- First Phase Enhance Neighborhood Gateways
 - State Street, from Front Street to 7th Street;
 - ➢ 7th Street, from Linden Street to Erie Street.
- Second Phase Promote Neighborhood Development
 - > Vine Street, from 6^{th} Street to 10^{th} Street;
 - Elm Street, from 7th Street to 10th Street;
 - Linden Street, from 7th Street to Penn Street.
- Third Phase Connect Core Neighborhood to Future Waterfront Development
 Erie Street, from 2nd Street to 9th Street.

Transportation Infrastructure Design

All bi-directional roadways will accommodate on-street parking where currently provided. All converted one-way roadways will accommodate on-street parking and dedicated bicycle lanes as specified in the Neighborhood Plan. The reconstruction of the roadways identified in the infrastructure upgrade plan includes full-depth pavement replacement. All roadway reconstruction will be in-kind roadwork. For the roadways identified for resurfacing only (Vine Street and Linden Street), the resurfacing includes milling of existing bituminous pavement, 50% base repair and installation of a new wearing course.



Utility Infrastructure Design

The underlying concern of the North Camden infrastructure is the antiquated sewer system. The current combined sewer system is not permitted under current New Jersey Department of Environmental Protection (NJDEP) regulations, which requires that the stormwater sewer and sanitary sewer be segregated into two separate systems. However, the complete replacement of the entire system is costly and infeasible. Based on previous experience in the City of Camden, the plan has been to separate the stormwater and sanitary systems in conjunction with surrounding planned public/private projects. While the stormwater system eventually ties back into the existing combined system beyond the limits of the specific project, this plan allows future developments to incorporate stormwater management structures such as basins, rain gardens, and bio-swales into the design. The combination of these utility upgrades gradually alleviates the stormwater tax to the existing system. In addition, the new stormwater sewer lines, unlike the current sewer lines, should be constructed of RCP and the new sanitary lines constructed of PVC pipe.

Specifically, the infrastructure upgrade plan identified Pyne Poynt Park, located at the northern terminus of 7th Street, or the waterfront area to the north of 2nd Street, as areas that could be utilized for stormwater management. These areas are ideal for stormwater management structures, since both are large land masses that are open and able to accommodate the storage of stormwater, while still allowing for appropriate uses; such as parks, fields or residential growth. While drainage in Pyne Poynt Park will help alleviate the stormwater run-off in the area, it will not remedy flooding in all of North Camden. Every project that is developed in North Camden should have a plan to address the stormwater management via rain gardens, modernizing the localized sewer system, bio-swales, porous pavement and other eco-friendly methods. While detention areas in Pyne Poynt can be helpful, it does not relieve the responsibility to manage stormwater local to the development at hand.

Based on the existing infrastructure assessment, it was determined that the water lines in the study area are old and should be upgraded in conjunction with other infrastructure upgrades. The upgraded water lines will help to ameliorate the "brown water" by modernizing the system in a sequential progression. Although the gas mains are capable of handling the current demand of the study area, an upgrade of the mains to a high pressure system would be ideal and should be coordinated with PSE&G when new developments are proposed to assess implementation.

Streetscape Design

The typical streetscape design will include a concrete curb, concrete sidewalks, and street tree planter boxes. For the North Camden gateways (7th Street and State Street corridors), ornamental street lights will be included in the streetscape design.

Street Trees

Based on the New Jersey Tree Foundation's involvement in the North Camden Greening Committee, the NJTF has expressed interest in a partnership to further the greening initiative portion of the infrastructure upgrades as outlined in Section 5.0 (Open Space and Recreation) of



the Neighborhood Plan. Currently, the NJTF is partnering with the Walt Whitman Arts Center to help create an artistic and cultural pocket park on a vacant lot at the intersection of 2nd and York streets. As such, the greening of the roadways identified in the infrastructure upgrade plan should be coordinated with the NJTF. Based on information provided by NJTF, 38 species of trees have successfully been planted in the North Camden neighborhood, including:

- American Hornbeam
- Amur Maackia
- Callery Pear
- Dogwood
- Elm Valley Forge
- European Hornbeam
- Fragrant Snowbell
- Golden-Rain

- Horse-chestnut
- Hedge Maple
- Japanese Cherry
- Japanese Lilac
- Japanese Pagoda
- Magnolia
- Maple
- Mountain Silverbell

- Northern Red Oak
- Okame Cherry
- Persian Ironwood
- Redbud Crabapple
- Sargent Cherry
- Serviceberry
- Winter King Hawthorn
- Zelcova

PHASED INFRASTRUCTURE IMPROVEMENT PROJECTS

First Phase – Enhance Neighborhood Gateways

The First Phase of infrastructure upgrades concentrates on the North Camden gateways. A main theme in the North Camden Neighborhood Plan, the North Camden gateways are the link between the neighborhood and the city and the surrounding region. Due to the unique constraints of the area, the focus to the gateways is essential for the longevity of the improvements proposed for the neighborhood. Based on the infrastructure assessment, the existing infrastructure of the North Camden gateways is in relatively poor condition overall. As such, infrastructure improvements to the North Camden gateways are recommended to play a dominant role in the infrastructure upgrade of the neighborhood.

As part of this infrastructure upgrade plan, the sewer system for the identified sections of 7th, State, Elm, and Erie streets will upgraded to a separate stormwater sewer and sanitary sewer system. Phase 1 of the upgrade plan calls for the separation of the sewer system along 7th Street and State Street and tie-in to the combined system along Linden Street, Front Street and Erie Street. While this will not alleviate the entire tax on the system, it will alleviate the flow in the identified upgrade sections. As other projects develop, areas can be designated for stormwater management structures.

<u>State Street – Front Street to 7th Street</u>

The main east-west gateway to the neighborhood, State Street, has been the primary focus of infrastructure upgrades to date. SOW was instrumental in securing funding to enhance the streetscape along State Street. These streetscape improvements included sidewalk repair/replacement, planting of street trees and installation of pedestrian street lights, along State Street. Section 5.0 (Open Space and Recreation) of the Neighborhood Plan references State Street as a central green corridor throughout the neighborhood and calls for the completion of the Third Phase of the Streetscape Project. In addition, there is a concentration of development planned along this east-west gateway.



Phase 3 of the Camden City Sewer Reconstruction Projects includes this portion of State Street, in addition to the segment between 8th Street and 10th Street. Due to the vital importance of State Street and given its identification as a major neighborhood priority, CFDA and SOW should coordinate efforts with the City's Sewer Reconstruction Project in order to fund and complete the reconstruction of State, with a separated storm and sanitary sewer system.

In conjunction with the recommended separation of the combined sewer system along State Street, the roadway between Front Street and 7th Street will need to be reconstructed in-kind. Two-way traffic will be maintained the entire length of State Street with no change to on-street parking accommodations. In line with the Neighborhood Plan and the central green corridor, sidewalks will be repaired/replaced, decorative street lights will be installed between Front Street to 2nd Street (already completed between 3rd and 7th Streets), and street trees will be planted in order to advance the Streetscape Project previously completed by SOW toward completion and highlight State Street's significance.

To improve pedestrian safety, sidewalk bump-outs along State Street at several key intersections are recommended. Specifically, the intersection of State Street and 7th Street was identified as the key intersection of North Camden (Section 6.6). As outlined in the Neighborhood Plan, sidewalk bump-outs at all legs of this intersection, along with texture/patterned crosswalks are recommended to stress the importance of the intersection as the major neighborhood gateways.

<u>7th Street – Linden Street to Erie Street</u>

7th Street is the main north-south gateway and the primary link between the community and the region via to its access to Route 676, Route 30, and the Ben Franklin Bridge. As outlined in Section 6.7 of the Neighborhood Plan, infrastructure enhancements to 7th Street were recommended to enhance its role as the main gateway to the community. In addition, Section 5.0 (Open Space and Recreation) of the Neighborhood Plan recommends a central green corridor and green entrance at the neighborhood's main gateway to visually link the neighborhood with the waterfront park at 7th Streets northern terminus.

In conjunction with the recommended separation of the combined sewer system along 7th Street, the roadway between Linden Street and Erie Street will need to be reconstructed in-kind. To promote multi-modal traffic, the corridor will include dedicated bicycle lanes at key locations. Between Linden Street and Elm Street, the roadway has a cartway width of approximately 50 feet and will be restriped to accommodate bicycle travel and on-street parking (Section 6.6). Between Elm Street and State Street, 7th Street narrows to a cartway width of 30 feet which does not provide the proper width for a dedicated bicycle lane. As such, bicycle travel cannot be accommodated properly in this section of the roadway. To improve pedestrian safety, sidewalk bump-outs at all intersections between Linden Street and State Street are recommended.

As highlighted in the Neighborhood Plan, 7th Street will be designated as one-way traffic northbound from State Street to Erie Street. This will allow a greater efficiency for multi-modal traffic (bicycle traffic) and will further promote the connection with Pyne Poynt Park (Section 6.3). On-street parking within this section of 7th Street will be maintained.



In line with the Neighborhood Plan, decorative street lights will be installed between Linden Street and State Street to further the neighborhood gateway streetscape theme. In addition, street trees will be planted along the entire length of 7th Street as specified in Section 5.8 of the Neighborhood Plan.

<u>Second Phase – Promote Neighborhood Development</u>

The Second Phase of infrastructure upgrades concentrates on the areas surrounding neighborhood development. The purpose of the Second Phase is to encourage development in the core neighborhood area and ensure the viability of such projects by upgrading the public infrastructure surrounding the projects. Through community input/outreach, there are several programmed infrastructure projects and planned development projects throughout the study area.

The same sewer system design theory applies to Phase 2 of the upgrade plan. As the combined sewer system is separated, all of the stormwater and sanitary sewer connections will tie into the 7^{th} Street system that was previously modified under Phase 1. If projects within the Phase 2 area are able to accommodate stormwater structures, the separate stormwater system as designed can be adapted and the stormwater can be diverted to the structures without any new infrastructure.

Vine Street, from 6th *Street to* 10th *Street*

Based on discussions with the City of Camden, infrastructure improvements are programmed for Vine Street, between 6th Street and 10th Street. The scope of the infrastructure improvements includes reconstruction (in-kind) of the existing combined sewer system. In addition to this programmed project, there is a planned Camden Bible Tabernacle project along this section of Vine Street. It is recommended that additional infrastructure improvements to this section of Vine Street be completed at the same time as the programmed City improvements. Such improvements include resurfacing of the roadway and repair/replacement of the curbing and sidewalk along Vine Street. Streetscape improvements including the installation of street trees are also recommended. As highlighted in the Neighborhood Plan, Vine Street will be converted from two-way traffic to one-way westbound traffic from 6th Street to 10th Street. The existing roadway has a cartway width of approximately 30 feet and will be restriped to accommodate a dedicated bicycle lane and on-street parking (Section 6.3).

Elm Street, from 7th Street to 10th Street

Based on coordination with the community, Camden Lutheran Housing is planning a housing project along Elm Street in the vicinity of 9th and 10th Streets. In addition, the Camden Bible Tabernacle project will extend south to Elm Street, between Willard and Linwood Streets. In conjunction with these planned development projects, it is recommended that infrastructure improvements to this section of Elm Street be completed. The scope of the infrastructure improvements includes separation of the combined sewer system and the repair/replacement of the curbing and sidewalk along Elm Street. Streetscape improvements including the installation of street trees are also recommended. As highlighted in the Neighborhood Plan, Elm Street will be converted from two-way traffic to one-way eastbound traffic from 7th Street to 10th Street.



The existing roadway has a cartway width of approximately 30 feet and will be restriped to accommodate bicycle travel and on-street parking (Section 6.3).

Linden Street, from 7th Street to Penn Street

There has and continues to be the desire to develop a supermarket at the 7th Street gateway to North Camden along Linden Street (Section 4.6). As outlined in Section 6.4 of the Neighborhood Plan, in order to increase connectivity to the housing south of Linden Street and the proposed Supermarket project, the conversion of Linden Street to two-way traffic between 7th Street and Penn Street has previously been identified as critical. However, implementation of such improvements will need to be closely coordinated with the Delaware River Port Authority (DRPA). In line with the Neighborhood Plan, it is contemplated that the roadway will be resurfaced in order to restripe the roadway to accommodate two-way traffic. In addition, curbing and sidewalk along Linden Street will be repaired/replaced and street trees will be planted along sections of Linden Street currently void of green.

Third Phase – Link Core Neighborhood to Future Waterfront Development

The Third Phase of infrastructure upgrades concentrates on the connection between the core neighborhood and future waterfront development. To allow for successful linkage of the core neighborhood of North Camden to the future development area along the waterfront and the waterfront park area, Erie Street and Delaware Avenue will become the backbone to which the connection will be implemented, as is the case in the Central Waterfront with Delaware Avenue.

In the near future it was identified, during the community outreach, that a portion of Erie Street is currently included in a programmed city-wide resurfacing project. The scope of the project involves the milling and resurfacing of the identified roadways, construction of curb and sidewalks, curb ramp installation, and drainage work. The project has been included on the Transportation Improvement Program (TIP) with economic stimulus funding under the American Recovery and Reinvestment Act of 2009 (ARRA) for Year 2009. The project has not been awarded but is currently scheduled to be advertised the beginning of 2010 with construction to commence the spring of 2010. Not specifically part of this infrastructure improvement project, the New Jersey Tree Foundation (NJTF) should coordinate scheduling efforts with the resurfacing project to insure that street trees are incorporated along Erie Street.

Longer term improvements to the infrastructure of Erie Street were identified as a Phase 3 priority at this point in time. A design workshop is currently underway for the waterfront area surrounding the prison site. The outcome of this workshop will provide a better understanding of the future use of the prison site which will help shape the future development along the waterfront. In addition, the Camden County Open Space Commission recently approved design funds for Waterfront Park planning, which will advance the Waterfront Park Plan prepared by WRT to design. With successful implementation of Phases 1 and 2 within the Core Neighborhood and further refinement of the waterfront details, the specific needs of Erie Street can be further developed. As part of that plan, separation of the combined sewer system along



Erie Street will play a vital role in connecting the previous infrastructure upgrades (Phase 1 and 2) to the stormwater systems along the waterfront.

The detailed concept plans depicting the infrastructure upgrades are included in Sheets 14 through 25.

WATERFRONT INFRASTRUCTURE

As outlined in the North Camden Waterfront Park Plan, the Waterfront Park Plan was developed based on six guidelines. One of the guidelines for the waterfront infrastructure was to connect the core neighborhood to the river. As such, a regular grid of streets was proposed to extent the existing street grid in the core neighborhood to the river. The proposed street grid would encourage both vehicular and pedestrian connectivity to the waterfront. In order to provide a proper connection, an implementation strategy geared toward this fundamental guideline will be needed. Specifically, the rehabilitation of certain core roadways that currently connect the core neighborhood to the waterfront will serve as the infrastructure arteries on multiple levels. These core roadways will play a three-fold purpose: (1) provide utility connections and loops for water service; (2) allow traffic flow from the waterfront parcels in and out of the neighborhood; and (3) provide public access to the river. These core roadways include Erie Street, Delaware Avenue, Main Street.

Transportation Infrastructure

Based on the Waterfront Park Plan, approximately 17,500 linear-feet (approximately 3.3 miles) of new waterfront roadways are planned. Since these waterfront roadways will function similar to and in concert with the existing neighborhood street system, and in order to keep with the overall purpose of connecting the neighborhood to the river, it is recommended that the new waterfront roadways have similar characteristics as the existing neighborhood streets. Therefore, it is recommended that these roadways have a 60-foot right-of-way width and a 38-foot cartway width. The proposed cartway width will be able to accommodate two (2) travel lanes with onstreet parking, and an alternative striping scenario of two (2) travel lanes with dedicated bicycle lanes. The proposed right-of-way width will be able to accommodate appropriate sidewalk widths. The design guidelines for the new waterfront roadways should follow the parameters set forth within the Waterfront Park Plan including the "green street" design of certain streets. "Green Street" design integrates stormwater management practices into the roadway right-of-way, reducing the impact the impervious surface has on the surrounding area. These design elements include landscaped sidewalks, porous pavement, infiltration trenches, and rain gardens.

Utility Infrastructure

The North Camden Neighborhood Plan outlines a redevelopment approach that will connect the core neighborhood to the river. The redevelopment guidelines advocate for mixed-use residential and commercial development of varying heights and densities. As previously outlined, the new regulations require that new development projects provide for separate stormwater and sanitary sewer systems. As such, the design and location of the stormwater management for the waterfront developments should plan for the surrounding core neighborhood



systems that are proposed to be improved as part of this project, allowing future connection of the surrounding core neighborhood systems to new stormwater system management structures within the waterfront. The stormwater management for the waterfront should also follow the design guidelines outlined in the Waterfront Park Plan, which includes the implementation of stormwater design into street design.

Additionally, the design of the utilities for the new waterfront roadways (water mains, gas mains, and electric) should account for the potential waterfront development as a whole, so as to minimize post-development utility upgrades.

PRELIMINARY COST ESTIMATE

A preliminary cost estimate for the First Phase and Second Phase improvements to the transportation and utility infrastructure outlined in the Infrastructure Upgrade Plan has been developed. Preliminary cost estimates for Erie Street were deferred as part of this infrastructure assessment as that roadway is programmed to receive a resurfacing project in the short term. The specific needs of Erie Street can be further developed through engineering the waterfront projects. Detailed preliminary cost estimate sheets for the phased improvements are included in **Appendix D**.

First Phase Improvements

The estimated cost for the First Phase infrastructure improvements is 5,900,000; including 2,900,000 in infrastructure improvements to State Street, and 3,000,000 in infrastructure improvements to 7^{th} Street.

The improvements to State Street and 7th Street include separation of the combined sewer system, roadway reconstruction, signal modifications, sidewalk repair/replacement, curb repair/replacement, and streetscape improvements.

Second Phase Improvements

The estimated cost for the Second Phase infrastructure improvements is \$3,000,000; including \$900,000 in infrastructure improvements to Vine Street, \$1,500,000 in infrastructure improvements to Elm Street, and \$600,000 in infrastructure improvements to Linden Street.

The improvements to Vine Street include sidewalk repair/replacement, curb repair/replacement, streetscape improvements, and associated roadway resurfacing. The improvements to Elm Street include separation of the combined sewer system, roadway reconstruction, sidewalk repair/replacement, curb repair/replacement, and streetscape improvements. The improvements to Linden Street include two-way conversion signal modifications, roadway resurfacing, sidewalk repair/replacement, and curb repair/replacement.



RECOMMENDATIONS

The following recommendations were made in relation to the Transportation and Utility Infrastructure Assessment and Evaluation for the North Camden section of the City of Camden, Camden County, New Jersey:

- An infrastructure upgrade plan, as outlined below, focusing on the systematic implementation of the goals outlined in the Neighborhood Plan should be implemented:
 - > First Phase Enhance Neighborhood Gateways
 - State Street, from Front Street to 7th Street;
 - 7th Street, from Linden Street to Erie Street.
 - Second Phase Promote Neighborhood Development
 - Vine Street, from 6th Street to 10th Street;
 - Elm Street, from 7th Street to 10th Street;
 - Linden Street, from 7th Street to Penn Street.
 - > Third Phase Connect Core Neighborhood to Future Waterfront Development
 - Erie Street, from 2nd Street to 9th Street.
- The First Phase of the Infrastructure Upgrade plan identifies improvements to the neighborhood gateways including the separation of the combined sewer system, reconstruction of the identified roadways, and repair/replacement of deficient sidewalk. The First Phase also includes streetscape upgrades along the Neighborhood gateway corridors.
- As it relates to State Street, CFDA and SOW should coordinate efforts with the Camden City's Sewer Reconstruction Project in order to fund and complete the reconstruction of State Street, with a separated stormwater and sanitary sewer system.
- The Second Phase of the Infrastructure Upgrade plan identifies improvements in conjunction with planned infrastructure improvements and planned development projects. The improvements include the specific recommendations outlined in the Neighborhood Plan pertaining to direction of travel, multi-modal accommodations, and streetscape improvements.
- As it relates to Elm Street, the Second Phase of the upgrade plan includes the separation of the combined sewer system, reconstruction of the roadway, and streetscape improvements.
- The Third Phase of the Infrastructure Upgrade plan (Erie Street) requires future scope refinement, based on the developing plans for the prison site and the waterfront park area. Improvements ultimately should include the separation of the combined sewer system along Erie Street to connect the previous infrastructure upgrades (Phase 1 and 2) to the stormwater systems along the waterfront. Since Erie Street is receiving a resurfacing project in the short term, ultimate improvement of this street and its infrastructure is appropriate for a Third Phase priority.



- As it relates to Erie Street in the near future, the Camden City's Roadway Resurfacing Project will upgrade the roadway surface, curb, and sidewalk. The City should coordinate scheduling efforts with the New Jersey Tree Foundation (NJTF) to insure that street trees are incorporated along Erie Street.
- The Waterfront Infrastructure should highlight the connection of the core neighborhood to the waterfront by having similar characteristics as the existing neighborhood streets, including a 60-foot right-of-way width and a 38-foot cartway width. Once the waterfront plans are developed in more detail, the waterfront infrastructure should be designed in accordance with the guidelines presented in the Waterfront Park Plan.
- As it relates to the utility infrastructure, the design and location of the stormwater management for the waterfront developments should plan for the potential connection of the surrounding core neighborhood systems, including those proposed to be improved as part of this project. The design of the utilities for the new waterfront roadways (water mains, gas mains, and electric) should account for the potential waterfront development as a whole, so as to minimize post-development utility upgrades.

CONCLUSIONS

The following conclusions were made as a result of the Transportation and Utility Infrastructure Assessment and Evaluation:

- The study area for the North Camden Infrastructure Assessment consists of all roadways, alleyways, and intersections within Coopers Poynt and Pyne Poynt census tracts. The area, in its entirety, is bound by Route 676/Federal Street to the south; Delaware River to the west and north; and Cooper River to the east.
- An inventory of the existing infrastructure was conducted at each midblock location within the study area. The assessment encompassed approximately 238 individual city blocks throughout the study area.
- The Project Team coordinated with the following entities that are involved in various capacities in the North Camden neighborhood:
 - > City of Camden Public Works
 - > Camden City Municipal Engineers Office
 - > Camden County Buildings and Operations
 - > Camden County Municipal Utility Authority
 - > Camden Lutheran Housing, Inc.
 - > Camden Bible Tabernacle
 - > Children's Opportunity Center
 - > Fair Share Housing Development Corporation
 - Hopeworks 'N Camden

- > *My Brother's Keeper*
- > New Jersey Tree Foundation
- > PSE&G
- > Respond, Inc.
- State Street Housing Corporation
- > United Water of Camden
- > Volunteers of America
- > Walt Whitman Arts Center



- The existing infrastructure was evaluated based on the following established rating system:
 - Good adequate to handle existing demand (no significant repair needed);
 - > Fair functionally adequate, but in need of repair to handle existing demands;
 - Poor inadequate to handle existing demand (in need of major repair and/or replacement);
 - > N/A not present.
- Based on the infrastructure assessment, the majority of the roadway infrastructure (including storm water management) and transportation system throughout the study area is currently not suitable and in need of systematic upgrades.
- Based on the infrastructure assessment, the following outlines the existing utility infrastructure conditions within the study area:
 - > The sewer system within the study area is a combined system that is not permitted under current New Jersey Department of Environmental Protection (NJDEP) regulations requiring segregation of the stormwater sewer and sanitary sewer.
 - All areas are provided with service, with the water lines ranging from 2" to 30" ductile iron pipe. However, conversations with residents within the study area suggest that "brown water" flows from their taps intermittently. The existing water tower, located adjacent to the existing prison site, is a functional tower and there are no plans to demolish or relocate the tower at this time.
 - A majority of the area is provided with service, with the gas mains and lines ranging from 8" cast iron pipe (CIP) to 2" plastic pipe. Conversations with PSE&G identified that the gas mains are currently under low pressure and identified interest in upgrading to a high pressure system if given the opportunity. PSE&G is currently coordinating with Camden County regarding implementation of such upgrades in conjunction with the reconstruction of State Street Bridge.
- A two-phased community outreach program, facilitated by CFDA and Save Our Waterfront (SOW), was developed and implemented to gauge the current priorities of the North Camden community. SOW was instrumental in providing guidance through this program, as they are the central community organization in North Camden. The first phase of the community outreach was to present a detailed summary of the preliminary findings of the infrastructure inventory and assessment. Discussions followed with the SOW North Camden Steering Committee to outline the priorities moving forward. The second phase of the input/outreach program was to gain an understanding of the projects currently planned and/or programmed for the study area through attendance at the monthly SOW North Camden Steering Committee meetings.
- Based on the thorough assessment of the existing infrastructure and outreach efforts with the community and municipal agencies, this infrastructure upgrade plan focusing on the systematic implementation of the goals outlined in the Neighborhood Plan has been identified.