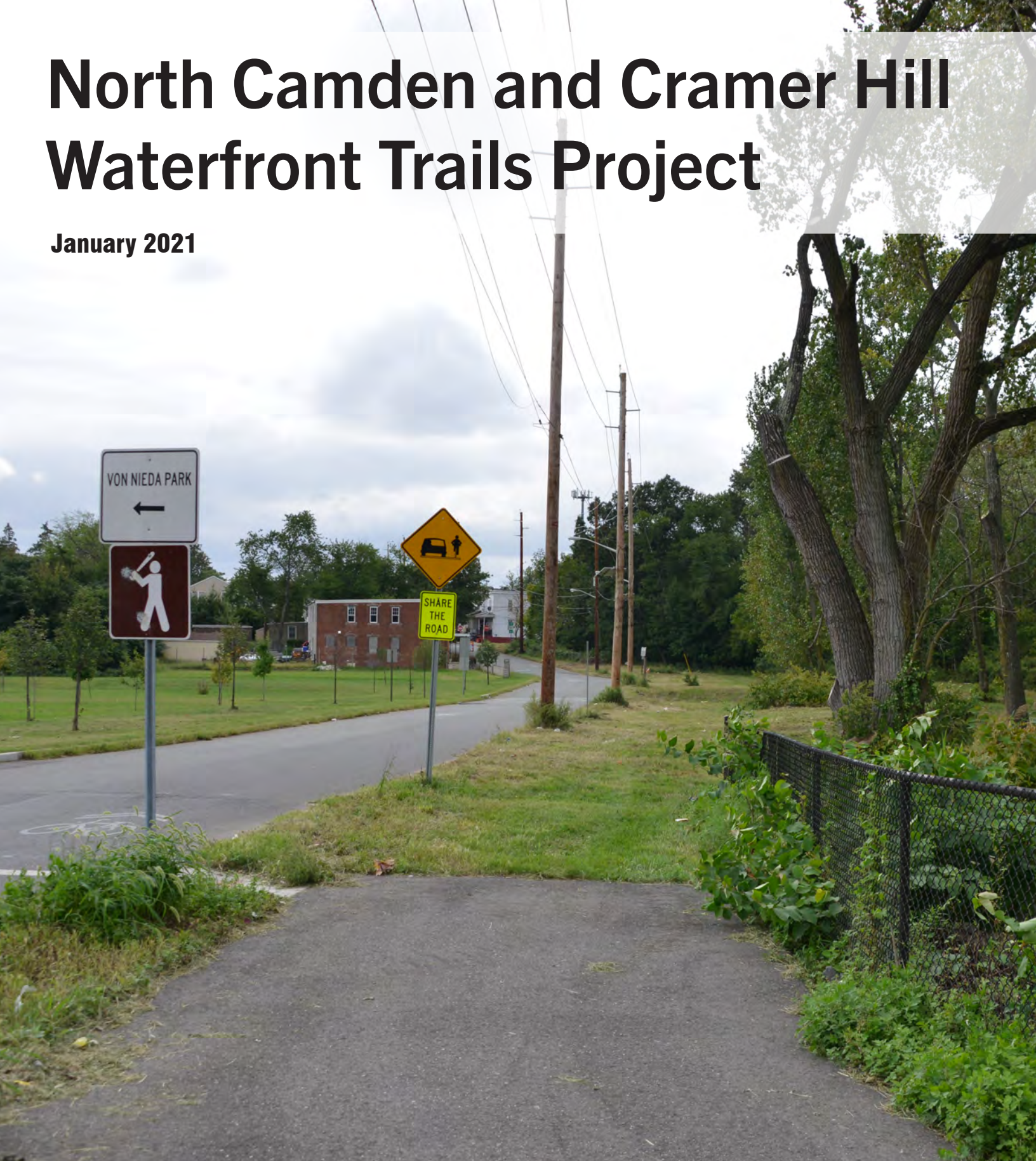


North Camden and Cramer Hill Waterfront Trails Project

January 2021



Prepared For:



Prepared By:

AECOM



Acknowledgments

Cooper's Ferry Partnership

Sarah Bryant, AICP

Consultant Team

AECOM

Douglas Robbins, AICP, PP

Keyleigh Kern, AICP, RLA

Alex Schieferdecker, AICP

Mayuresh Khare, AICP, PE

Chris Salvatico, AICP

Joel Cummings, PE

Mary Martin, PE

Pennoni

Zhenya Nalywayko

Bob Melvin, AICP, PP

Envision

Nicole Johnson, MBA, CEP, LEED AP

Project Overview	1
Summary of Nearby Projects	3
Regional Trail Networks	5
Summary of Past Plans	7
Existing Waterfront Development Regulations	9
Existing Conditions	11
Existing Trail and Bike Facilities	11
Property Ownership	15
Land-Based Constraints	19
Water-Based Constraints	23
Threatened and Endangered Species	27
Summary of Constraints in the Project Area	31
Conceptual Design	33
North Camden Alignments	35
Trailhead at Benjamin Cooper House	39
Connection at Sadler's Poynt	41
Cramer Hill Alignments	43
Kroc to 27th Street	47
27th Street to Baldwin's Run	51
Baldwins Run to 36th Street	55
Implementation Plan and Cost Estimate	62
Potential Project Phasing	63
Basis of Estimate	65
Summary By Project Area	66
Potential Funding Sources	81

1. Project Overview

In accordance with the 2008 North Camden Neighborhood and Waterfront Park Plans and the 2009 Cramer Hill Neighborhood and Waterfront Plan Plans, Cooper's Ferry Partnership, the City of Camden, Camden County, and a variety of partners are working to design and construct continuous, multi-modal trails along both the North Camden and Cramer Hill Waterfronts.

These waterfront trails are important links in the Camden GreenWay trail network (the City of Camden's trail system) and the larger regional Circuit Trails Network, which has an objective of establishing 750 miles of trails across nine counties in South Jersey and Southeastern Pennsylvania. The North Camden segment is also a part of the Camden County Link, a 33-mile trail

in development linking the City of Camden southeast to the Gloucester County line in lower Winslow Township.

Cooper's Ferry Partnership has been working over the last decade with public agencies including the City of Camden, Camden County, the Delaware Valley Regional Planning Commission, the New Jersey Department of Transportation, and numerous non-profit and community-based partners to increase the number of trails in the City of Camden to meet the City's goal of being a walkable and bikeable community.

This study builds on the significant progress made in the last ten years to realize this vision, by developing a concept plan, with community input, for trails in the North Camden and Cramer Hill areas.

Waterfront Trail Goals

Safe

Trail users should be exposed to as few conflict points as possible. Trail design and intersection modifications will make crossings intuitive and safe for bikes, pedestrians, and vehicles. Signage and natural barriers can help make it harder to become lost or disoriented and make it easier for emergency personnel. Lighting and clear sightlines will be used at trailheads to increase personal safety on the trail and make a more inviting experience.

Accessible

The trail needs to be accessible to a broad audience of trail users, including families, seniors, and people with disabilities. The location and design of trailheads should make it easy for users to find and access the trail.

Enjoyable

There are a lot of reasons people use trails. The proposed trail should cater to a variety of experiences, providing connections to nature, opportunities for solitude and reflection, areas to exercise, vantage points to look upon the river, and direct pathways and "scenic routes" between local destinations. Trails may also provide efficient connections to employment hubs, schools, services, and places of business.

Low Maintenance

The long-term life of the trail will depend on its ability to be maintained in a state of good repair. This means the trail needs to be constructed from robust materials, be resistant to vandalism, be resistant to climate impacts, and make a minimum impact on the natural edge of the river.



Few places in the region feel so removed from a waterfront while being so physically close. In order to understand how close a trail can get to the waterfront this project will consider various factors including property ownership, natural features, environmental hazards, transportation infrastructure, and utilities.

Summary of Nearby Projects

In North Camden, Cooper's Ferry Partnership is proposing to extend the trail west from Sadler's Poynt Waterfront Park, a new park which will be under construction in 2021.

North Camden Project Area

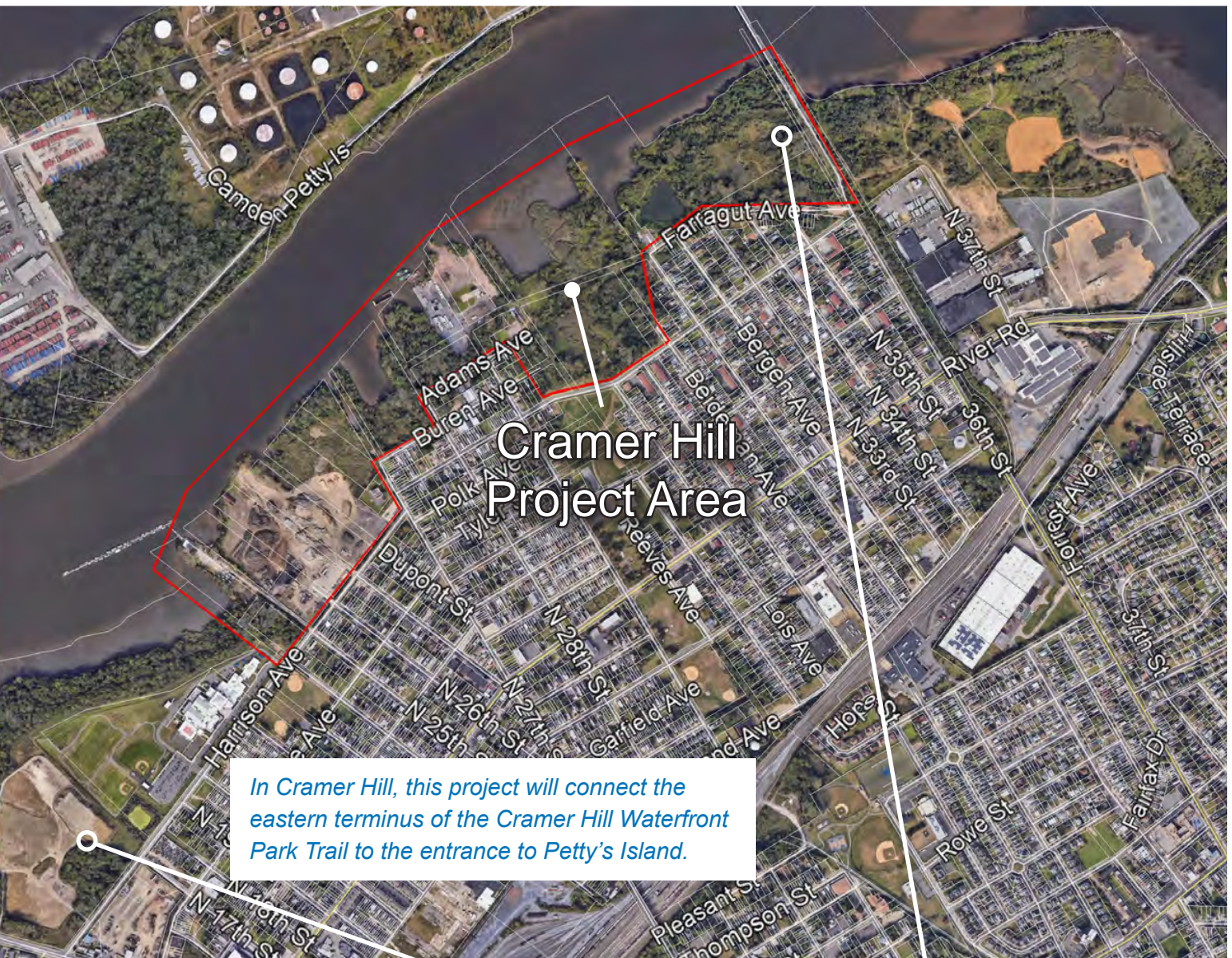
Cooper's Poynt Waterfront Walkway

Concept development was completed in summer 2020. A walkway will extend under the Ben Franklin Bridge between Cooper's Poynt Waterfront Park (0.3 mi) and Camden's Central Waterfront (1.0 mi).

Sadler's Poynt Waterfront Park

Construction will begin on Sadler's Poynt Waterfront Park in 2021. Located to the west of Pyne Poynt Park, it will include a kayak/ canoe launch and a half mile of multi-purpose trail.





Cramer Hill Project Area

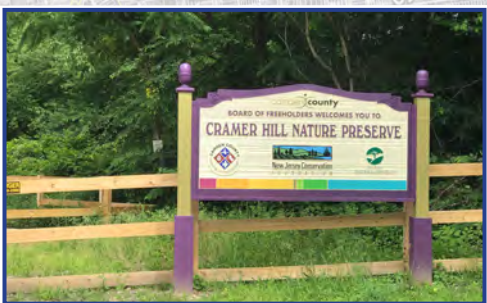
In Cramer Hill, this project will connect the eastern terminus of the Cramer Hill Waterfront Park Trail to the entrance to Petty's Island.

Cramer Hill Waterfront Park

A former landfill is being transformed into a 62-acre park with views to Philadelphia and water access to the Cooper and Delaware Rivers.

Cramer Hill Nature Preserve

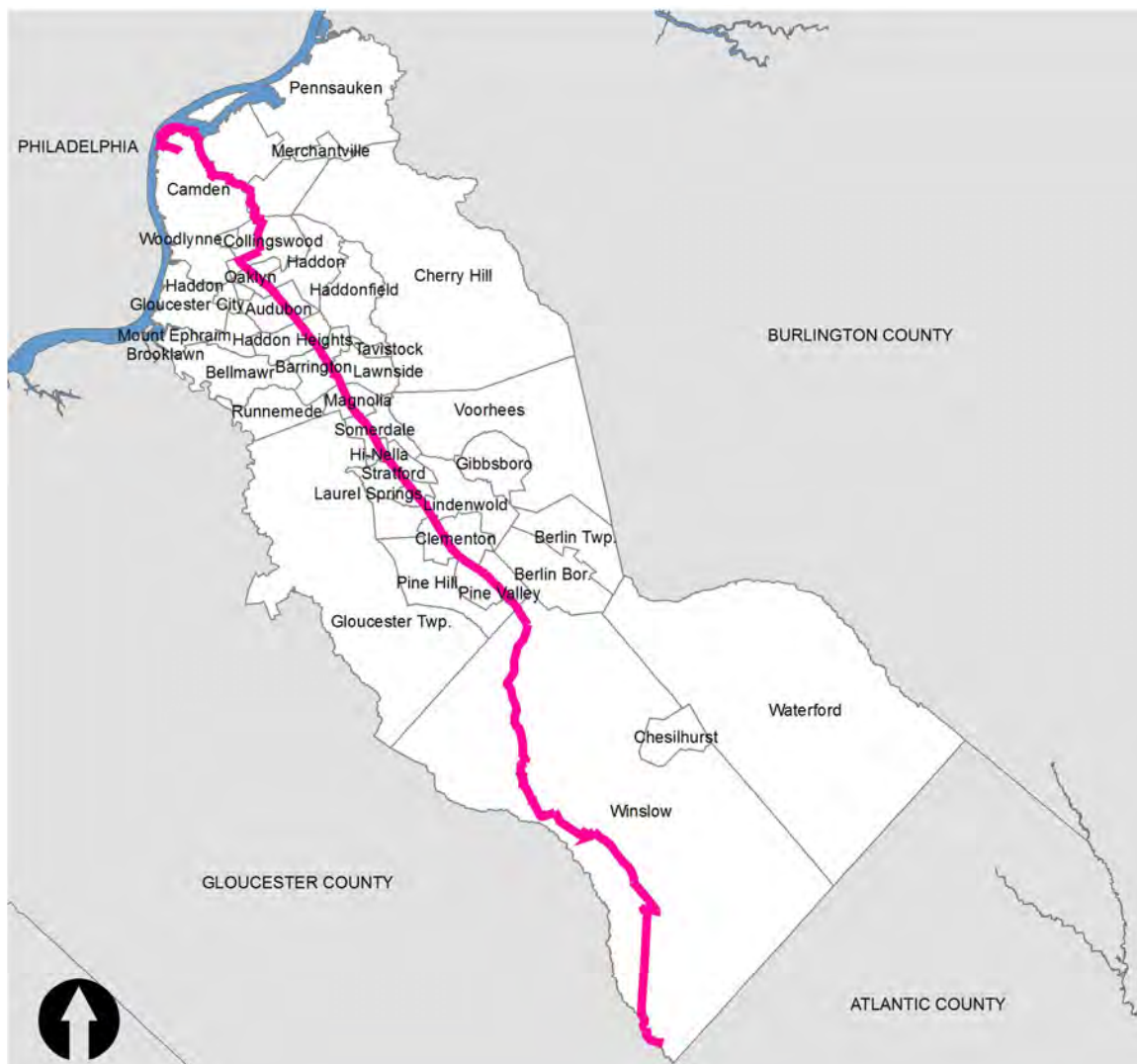
This recently opened 35-acre urban forest will offer direct access to the Delaware River along a largely untouched stretch of natural shoreline.



Regional Trail Networks

The North Camden Project Area is part of the Link—a planned 33-mile trail that crosses the entire County from the City of Camden to the Gloucester County line in lower Winslow Township. This project is in the preliminary design phase and the first phase of construction is scheduled to begin by 2022. This project will be the primary implementor of the North Camden Project Area's trail alignment.

Both the Link and the North Camden Project Area fall within the expansive Circuit Trail Network. The Circuit Trails include a combined 300 miles of multi-use paths and routes that connect the region's communities and provide endless opportunities for recreation and commuting. An additional 50 miles are in progress. When complete, the Circuit will include 750 miles of trails in total, crossing the nine-county region of Southeastern Pennsylvania and Southern New Jersey.



Source: Cross Camden County Trail Feasibility Plan, 2017

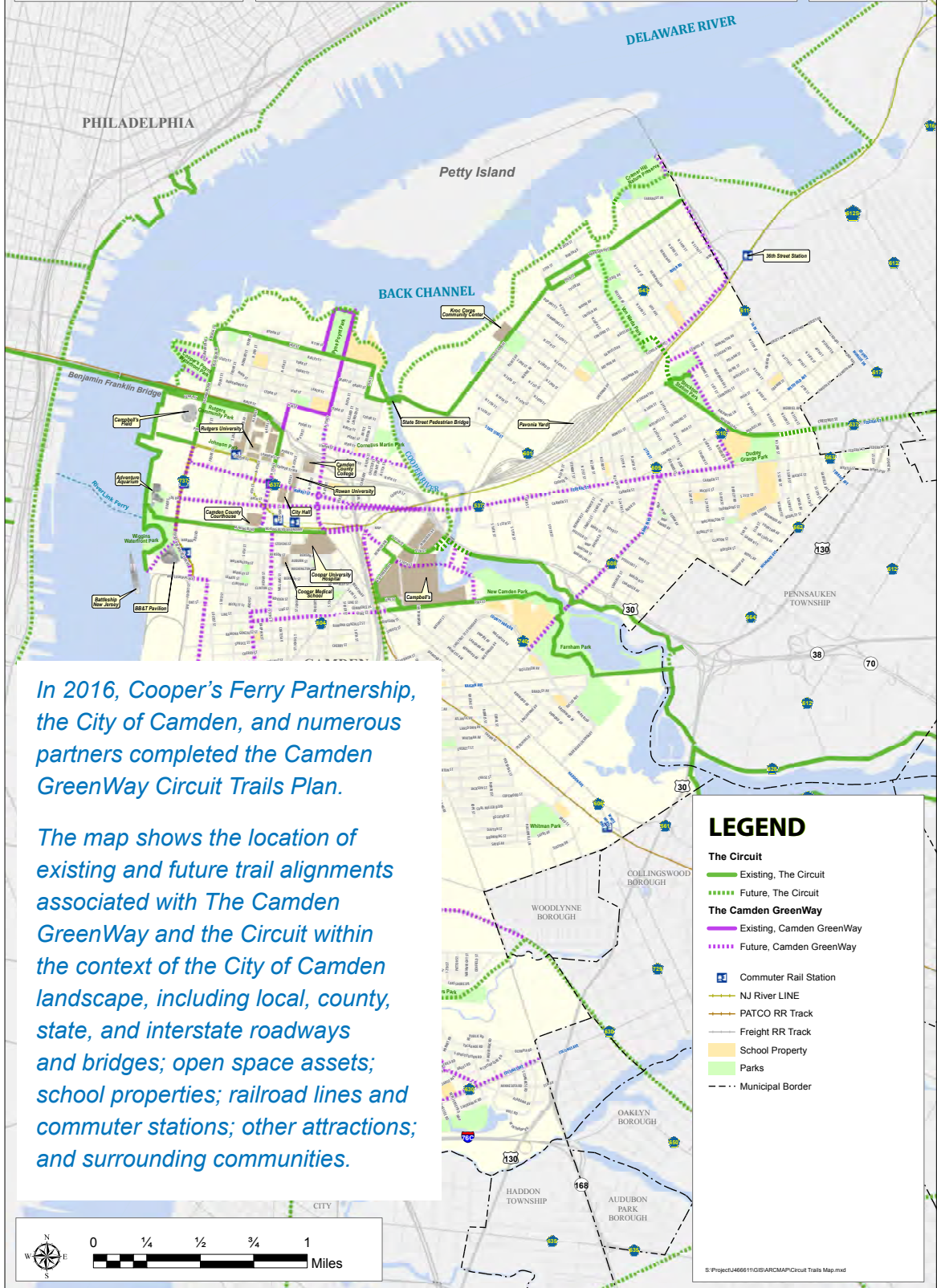


Circuit Trails Plan

Camden, New Jersey

RBA

Date: 1/14/2016



In 2016, Cooper's Ferry Partnership, the City of Camden, and numerous partners completed the Camden GreenWay Circuit Trails Plan.

The map shows the location of existing and future trail alignments associated with The Camden GreenWay and the Circuit within the context of the City of Camden landscape, including local, county, state, and interstate roadways and bridges; open space assets; school properties; railroad lines and commuter stations; other attractions; and surrounding communities.

Summary of Past Plans

North Camden Neighborhood Plan - 2008

The North Camden Neighborhood Plan is a comprehensive neighborhood plan that was spearheaded by an engaged community brought together by the desire to take control of the future of the neighborhood.



North Camden Waterfront Park Plan - 2008

A Waterfront Park Plan was created in tandem with the Neighborhood Plan. The plan called for the reclamation of the North Camden waterfront for public use.

The central element of the plan was the development of a continuous waterfront park and trail extending from Wiggins Park on the Central Waterfront through North Camden and into neighboring Cramer Hill.



Cramer Hill NOW Neighborhood Plan - 2009

Galvanized by the failed Cherokee development plan, the Cramer Hill neighborhood came together to produce a comprehensive neighborhood plan in 2009.

The plan's key goals included:

- Create a resident-driven blueprint for the community
- Create a social service network tailored to Cramer Hill

- Connect to the Waterfront
- Revitalize River Avenue
- Improve local parks and schools
- Create a mixed-income community
- Promote Cramer Hill as a cleaner and safer community for families



Cramer Hill Waterfront Park Master Plan - 2009

The Waterfront Park Master Plan was developed concurrently with the Cramer Hill NOW Neighborhood Plan.

Key recommendations included:

- Extend portions of the street grid to the river, connecting to a waterfront trail
- Create a “natural waterfront” in the area between Von Nieda Park and 36th Street



Existing Waterfront Development Regulations

Camden City has a “Stream and River Corridor Protection and Management Overlay Zone,” which extends 150 feet inland from the mean high-water mark of the Delaware River, Cooper River, and Newton Creek within Camden. This overlay zone restricts certain general uses defined as polluting or detrimental to the health of the water bodies defined above—such as landfills, gas stations, concrete plants, etc. —within that 150 feet. It also restricts additional detrimental uses—such as paving with impermeable materials and the clear-cutting of trees—within:

- 35 feet of the mean high-water line in residential zones
- 50 feet of the mean high-water line in commercial and industrial zones
- 100 feet of the mean high-water line in CV-1 and CV-2 (conservation) zones

New Jersey Department of Environmental Protection (NJDEP) Coastal Zone Management Rules

Under the Coastal Zone Management Rules, NJDEP regulates development within tidal waters, coastal wetlands, and upland waterfront areas. The upland waterfront area extends the lesser of 500 feet landward of the mean high-water line or to the first roadway or property line generally parallel to and at least 100 feet from the waterway. Further analysis will be required to determine the exact extent of the upland waterfront area in each waterfront parcel. However, as a waterfront trail, the project almost certainly falls within this area. It is noted that the Coastal Zone Management Rules generally encourage the use of waterfront areas for public water access and recreation.



View from the river edge in Cramer Hill looking out at Petty's Island

Existing Trail and Bicycle Facilities

This project will interact with existing trail and bike facilities. Through the work of Cooper's Ferry Partnership and numerous partners, a significant amount of trail development

has occurred in the last decade. These completed projects are described below and separated as either on-road or off-road facilities.

North Camden Trail and Bicycle Facilities

On-Street

North Camden is served by two types of on-road facilities, sharrows and conventional bicycle lanes. The bike lanes include a painted buffer and exist on Delaware Avenue in both the northbound and southbound directions. They continue to Erie Street, until Front Street where they transition into sharrows. This transition occurs primarily because the street narrows, requiring bikes and cars to share the same lane.

Off-Road

Off-road bike connections around the North Camden Project Area include two projects: Pyne Poynt Park and the future Sadler's Poynt Waterfront Park. The Pyne Poynt Park includes revitalized recreation facilities, parking, and an off-road bicycle path. Between Pyne Poynt Park and the North Camden Project Area, the future site of Sadler's Poynt Waterfront Park includes a kayak and canoe launch in addition to a half-mile of off-road trail.





Signage along Erie Street highlights the confusing transition from lanes to sharrows



Legend

Sharrows	● ● ● ● ● ● ● ●
Conventional Bike Lane	=====
Sidepath	■ ■ ■ ■ ■ ■ ■ ■
Shared Use Path	▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬
Boardwalk	

Cramer Hill Trail and Bicycle Facilities

On-Road

Cramer Hill is served by a mix of on-road facilities. Harrison Avenue includes on-road bicycle lanes west of 24th Street. At 24th St., the bicycle lanes transition to sharrows until the intersection at 27th St. Similar to Erie Avenue in the North Camden Project Area, the transition is largely due to the change in roadway width that forces cars and bicycles to share the same space. East of 27th St. sharrows form a one-way couplet between Harrison and Polk Avenues letting bicycles share one-way traffic in the east or west direction. Sharrows continue on Harrison Ave to the edge of the Project Area at 36th St.

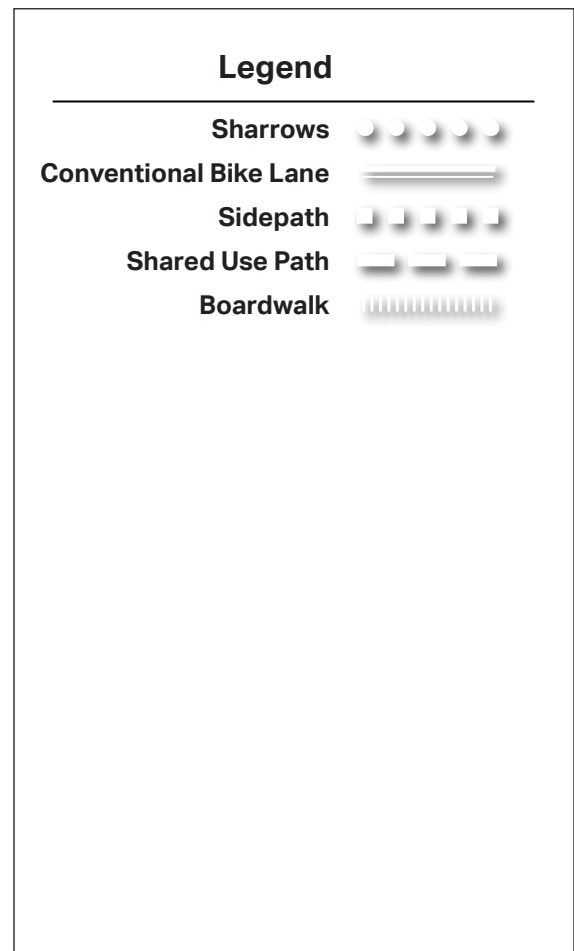
Off-Road

Within the Cramer Hill Project Area, only one small piece of off-road trail currently exists. It is a boardwalk structure over Baldwin's Run, accessible from near the intersection of Lois Avenue and Harrison Avenue, across Harrison Avenue from the north entrance to Von Nieda Park. A 0.5 mile segment of off-road trail is currently nearing completion within Cramer Hill Waterfront Park, terminating at 24th St. The park and trail will open in the fall of 2021. That project will form the western connection point for the Cramer Hill conceptual alignment.





Sharrows like these shown on Harrison Avenue are common in the Project Area



Property Ownership

Property Ownership

Property ownership for parcels within the Project Area was determined using GIS-based tax parcel information obtained from the New Jersey Office of Information Technology, Office of Geographic Information Systems (NJOIT - OGIS). Though these tax parcel lines or associated ownership data should not be used to represent legal boundaries or to provide a legal determination of land ownership, they are sufficient for planning purposes and have been used here for preliminary ownership assessment. They are for planning purposes only.

Public vs. Private

Public versus private land ownership was determined by examining the ownership information included within the tax parcel database and manually assigning each parcel into a group.

Land- vs. Water-based

Determining a land- or water- based business was accomplished by first extracting the ownership information from the tax database for parcels that bordered the Delaware River, then by cross-

checking this information with recent aerial photography to determine whether the business was dependent on having access to water.

Tidelands

Unless officially granted or leased, the State of New Jersey maintains claims to all currently and formerly flowed tidelands. The Tidelands claims line depicts natural waterways now or formerly tide-flowed at mean high water. Since the mean high water line may change because of rises in sea level, the line does not represent the current mean high water line. Rather it depicts the mean high water line at the time of mapping and the historic mean high water line predating artificial alterations.

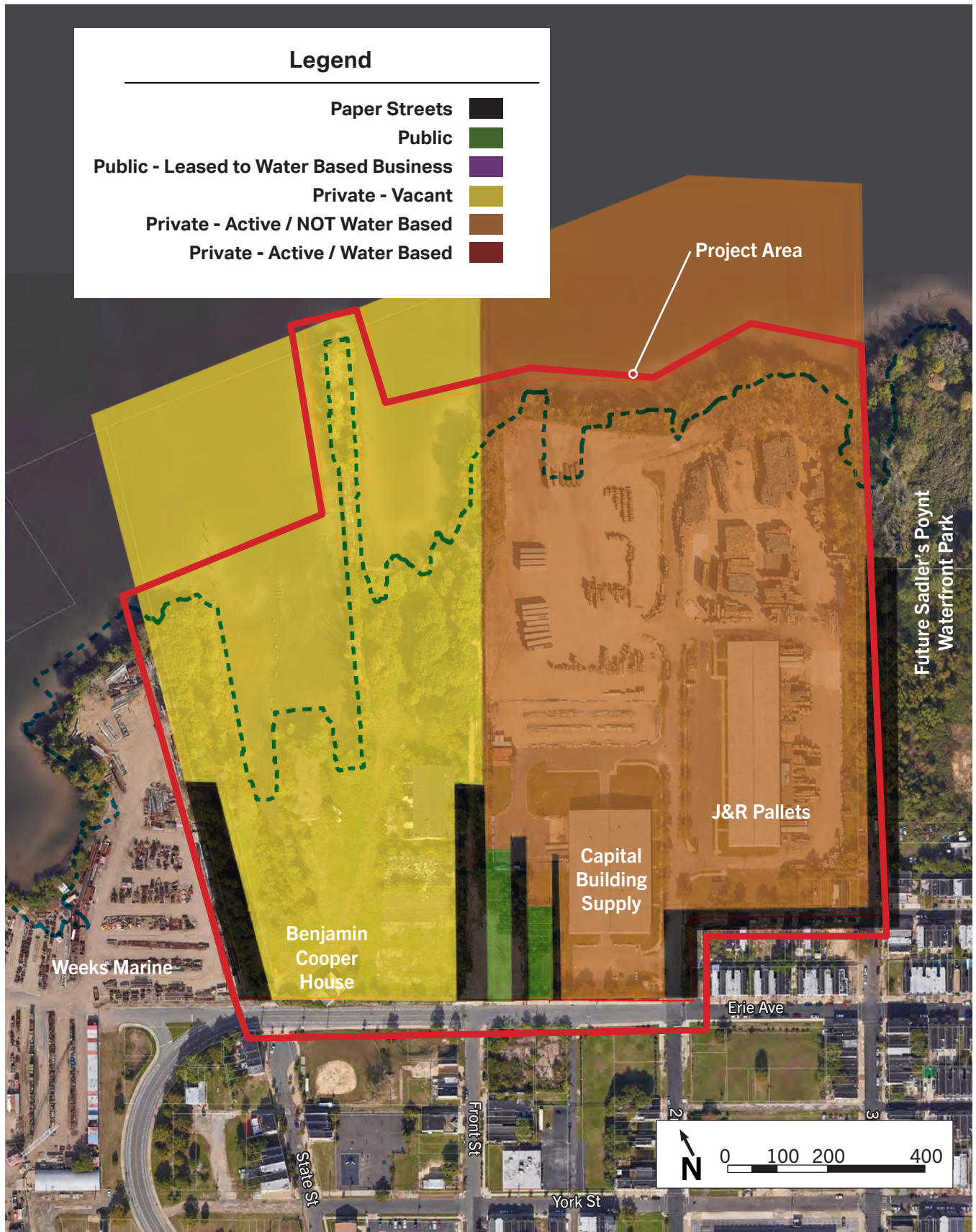
The Tidelands claim line GIS layer is solely for reference. Only the actual promulgated tidelands maps, at the production scale of 1:2400, can be used to locate the legally valid tidelands riparian claim line. Coordination with NJDEP Bureau of Tidelands Management will be needed to obtain these maps, determine where tidelands have been previously granted or leased and if additional grants or leases will be necessary for the proposed trail.

Property Ownership - North Camden

Property ownership in the North Camden Project Area is predominately comprised of privately-owned parcels. One large parcel on the western side of the Project Area has been recently cleared and is the subject of a plan for redevelopment. The eastern half of the Project Area is comprised of two active, privately-owned businesses. Both businesses are land-based and do not

currently require access to the Delaware River waterfront. There are several paper streets from Front Street to Third Street that extend toward the river. The location of these paper streets is shown in the figure on page 19. A small collection of vacant parcels off Front Street are currently owned by a community development corporation.

North Camden Property Ownership



Property Ownership - Cramer Hill

Property ownership in the Cramer Hill Project Area is varied, with large sections of contiguous public land on the northeast side of the Project Area and privately-owned land and water-based businesses on the southwest end.

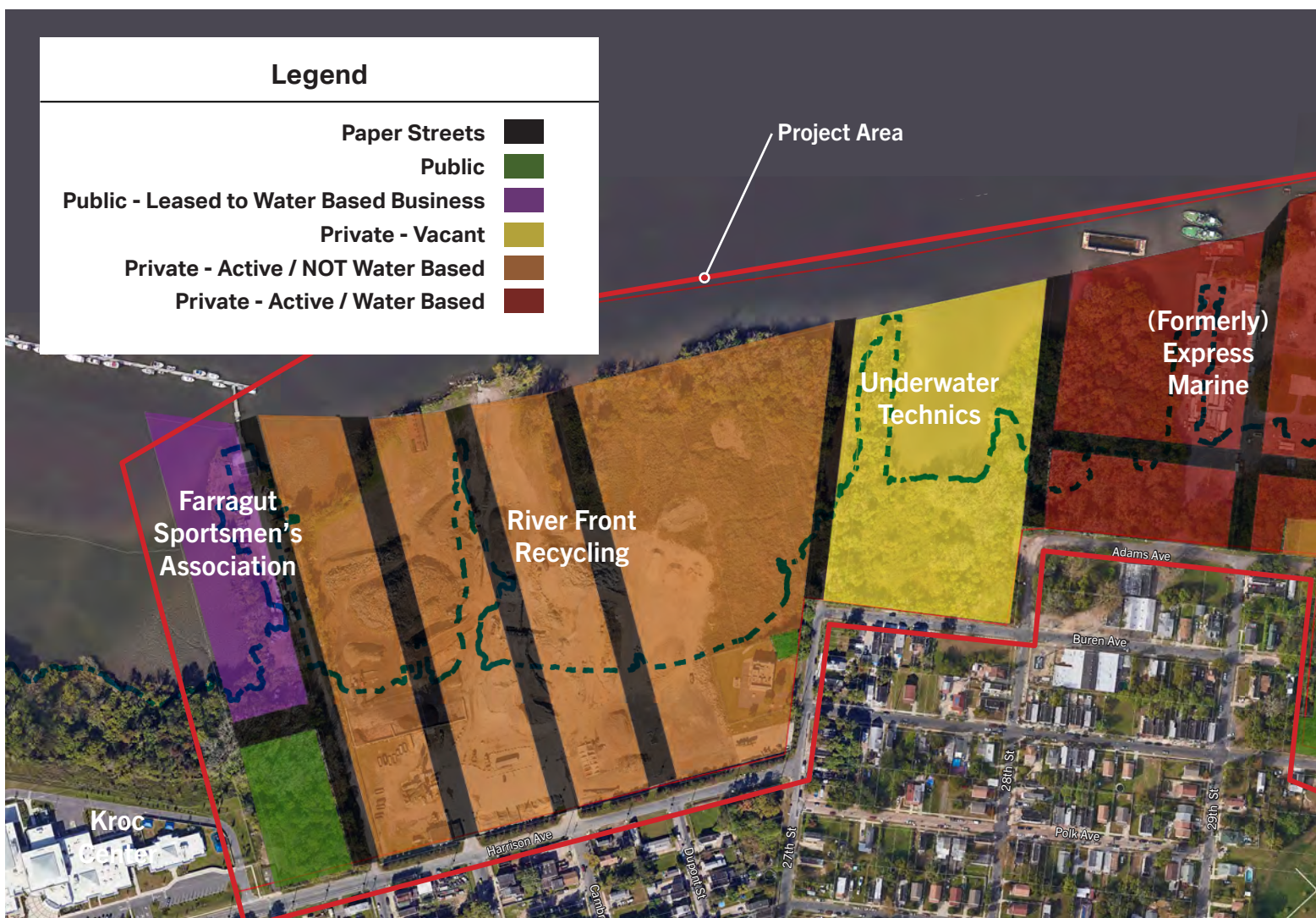
Public Land

The Project Area is bookended by public land. A heavily wooded parcel located just north of the Kroc Center is owned by the Camden Redevelopment Authority.

Driveway access on 25th Street leads to a publicly-owned parcel that is currently leased to a private boating club.

The parcels between Baldwin's Run and 36th Street are either publicly owned or under conservation easements by the State of New Jersey. The largest parcel between 32nd Street and 36th Street off Farragut Avenue is owned by the Camden County Municipal Utilities Authority (CCMUA) but has conservation easements from the State of New Jersey.

Cramer Hill Property Ownership



Private Land

In between the blocks of public land at the northern and southern end of the Project Area are a series of privately-owned parcels. They are a mix of active and inactive parcels. Two of the largest parcels are also currently listed on commercial real estate sites as being for sale and marketed for redevelopment.

Land-based

The largest privately-owned parcel in the Project Area is a large land-based recycling center. Although the business operates continuously from 25th Street to 27th Street, there are three paper streets that cut through the parcel.

Water-based

The private business near 29th Street and Adams Avenue was a water-based business called Express Marine. It has been sold to a new private owner who is looking to lease out the space. The waterfront is not presently used.



Land-Based Constraints

For the purposes of this project, land-based constraints are defined as parcels that contain historic properties, have some form of groundwater contamination, or are identified as a brownfield development area.

Cultural Resources

Architectural and archaeological resources are protected by the National Historic Preservation Act. NJDEP State Historic Preservation Office (SHPO) maintains a dataset of known resources that are:

- Listed as a National Historic Landmark
- Included in the New Jersey or National Registers of Historic Places
- Determined to be eligible for inclusion in the registers
- Designated as a local landmark
- Identified through cultural resource survey or other documentation

While historic properties and districts are mapped with exact boundaries to the extent possible, archaeological resources are mapped in ½-mile grids. For projects in the vicinity of mapped historic properties or districts, or projects falling within an archaeological grid, consultation with SHPO is required in order to determine the level of project effect on these resources and appropriate next steps.

Hazardous Materials

NJDEP maintains several GIS datasets that may provide insight into potential hazardous material contamination, including:

- Known contaminated sites
- Groundwater contamination classification exception areas
- Currently known extent of groundwater contamination
- Brownfield redevelopment areas
- Historic fill
- Deed notice areas
- Underground storage tank facilities

Review of these layers is the first step in determining the likelihood of encountering contaminated materials during project construction. Should these layers overlap the Project Area, a phase I environmental site assessment may be warranted to further analyze what may be present below ground and the likelihood of encountering it.

Open Space

Open space preserved via the use of NJDEP Green Acres Program funding becomes encumbered by associated Green Acres Program regulations. Should a project require diversion or disposal of encumbered open space, approval from the Green Acres Program is required.

Land-Based Constraints - North Camden

Review of land-based constraint mapping reveals that there are several hazardous material concerns for the North Camden Project Area. The Project Area encompasses a known contaminated site, Camden Ship Repair Company Incorporated. The eastern part of the project site falls within a deed notice area associated with Poets Row Industrial Park. The waterfront area is comprised of historic fill, which has the potential to

contain hazardous or regulated materials. Lastly, most of the site falls within the North Camden Brownfield Development Area.

As for cultural resources, the Benjamin Cooper House is a State Register-listed historic property that fronts Erie Street. The Project Area also falls within two eligible archaeological site grids.

Mapped open space in the vicinity of the North Camden Project Area includes Dominick Andujar Park south of Erie Street.

North Camden Land-Based Constraints



Land-Based Constraints - Cramer Hill

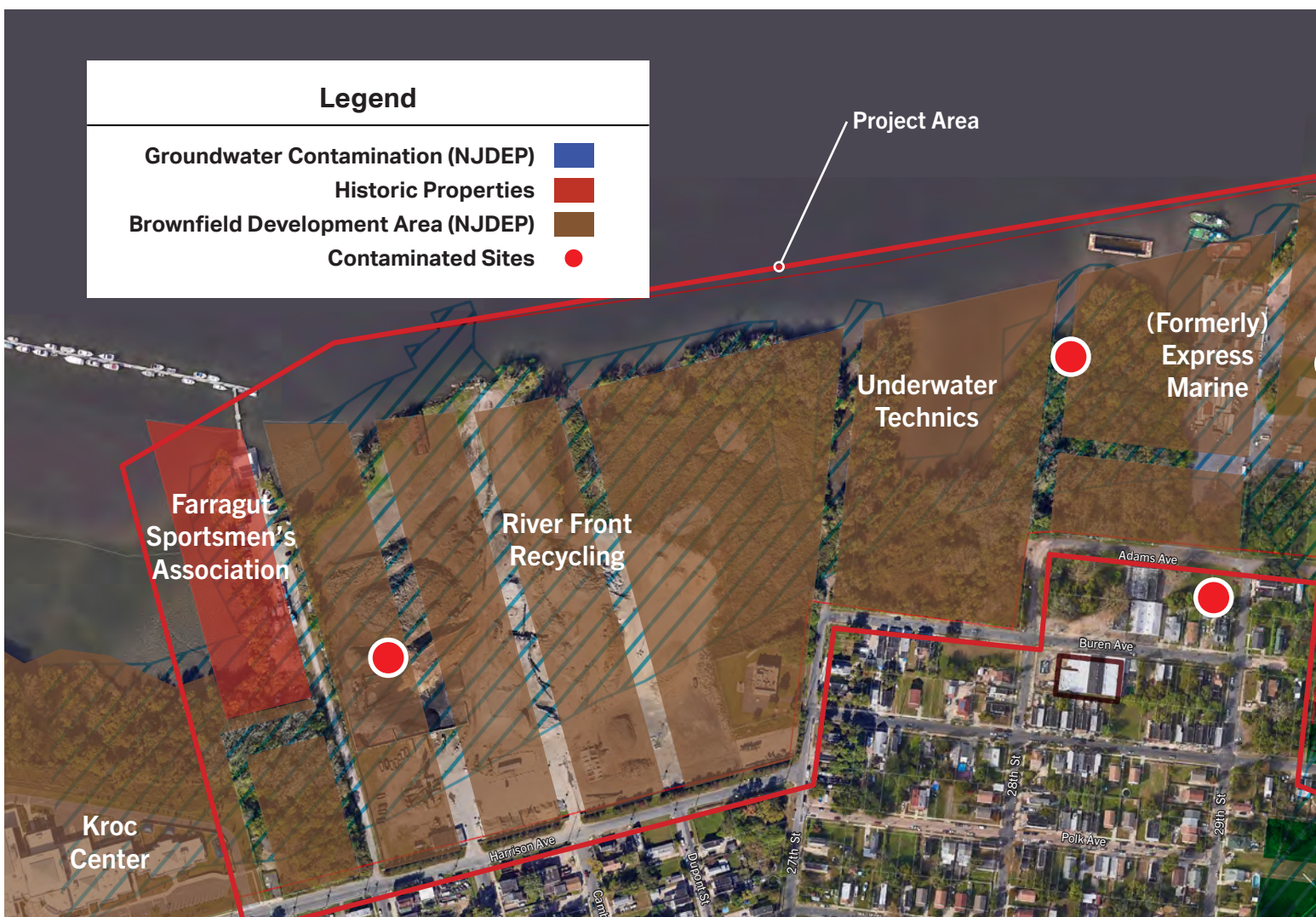
The majority of the Cramer Hill Project Area is underlain by historic fill. A known contaminated site and associated deed notice area, Lingo Inc., is located near the corner of 28th Street and Buren Avenue, and a terminated underground storage tank facility, Baldwins Run Pump Station, is present west of the intersection of 27th Street and Harrison Avenue. A large area surrounding Baldwins Run, called SJPC Wetlands Mitigation, is mapped as a groundwater classification exception area. Nearly the entire west side of the Project

Area is within the Cramer Hill Brownfield Development Area.

At the west end of the Project Area, Farragut Sportsmen's Association is an eligible historic property. Parts of the Project Area also fall within identified archaeological site grids.

Much of the aforementioned SJPC Wetlands Mitigation Site is also considered open space, along with Von Neida Park across Harrison Avenue. Further investigation is required to determine if these parcels are Green Acres-encumbered.

Cramer Hill Land-Based Constraints





Entrance to Express Marine site, located within a Brownfield Redevelopment Area



Water-Based Constraints

Water-based constraints include streams, riparian zones, flood hazard areas, wetlands, and stormwater management infrastructure. Many of these resources are regulated by NJDEP or other agencies and have the potential to impact project implementation.

Freshwater Wetlands

Freshwater wetlands are regulated by NJDEP under the Freshwater Wetlands Protection Act (FWPA) Rules. NJDEP maintains mapping of potential freshwater wetlands, based on topography and aerial photography. This mapping, is for planning purposes only; the presence and extent of freshwater wetlands on site should be field verified by a wetland scientist.

Each freshwater wetland has a transition area (buffer) of zero, 50, or 150 feet, depending on the resource value of the wetland.

Within freshwater wetlands and their transition areas, cutting vegetation, earthwork, and paving, require NJDEP approval under the FWPA Rules.

Coastal Wetlands

The Upper Wetlands Boundary (UWB) was delineated as part of the Wetlands Act of 1970, based on the presence of 25 common tidal marsh species as well as the extent of tidally flowed bare ground at that time. Coastal wetlands, all wetlands waterward of the UWB, are regulated under the NJDEP Coastal Zone Management (CZM) Rules. The UWB line is shown on the maps below. As with other similar layers, this is to be used as a reference only. Any impacts to coastal wetlands will require NJDEP approval under the CZM Rules.

Flood Hazard Areas

Development within flood hazard areas is regulated by NJDEP under the Flood Hazard Area Control Act (FHACA) Rules. Flood hazard areas are determined by several methods stated in the rules. Within tidally influenced areas, the flood hazard area is generally equal to the FEMA 100-year floodplain. In non-tidal areas, the flood hazard area is often larger than the FEMA 100-year floodplain. The FEMA 100-year floodplains are shown on the maps below. Further investigation may be required to determine the exact extent of regulated flood hazard areas. NJDEP approval under the FHACA Rules is required for construction within the flood hazard area.

Streams and Riparian Zones

Under the Flood Hazard Control Act Rules, NJDEP regulates certain waters and riparian zones (buffers). Riparian zones extend 50 to 300 feet from top of bank. It is anticipated that streams within the Project Area will have 50- or 150-foot riparian zones, depending on the presence of threatened or endangered species that are critically dependent on the waterways. However, further analysis is required to make an exact determination of riparian zone width in the Project Area. NJDEP approval under the FHACA Rules is required for impacts to streams and riparian zones.

Stormwater Management

Stormwater management infrastructure may have been installed to comply with local or NJDEP regulations. As such, impact to stormwater management infrastructure may require approvals and should be avoided to the extent practicable. NJDEP maintains mapping of combined sewer overflows (CSOs), as shown on the map below.

North Camden Water-Based Constraints



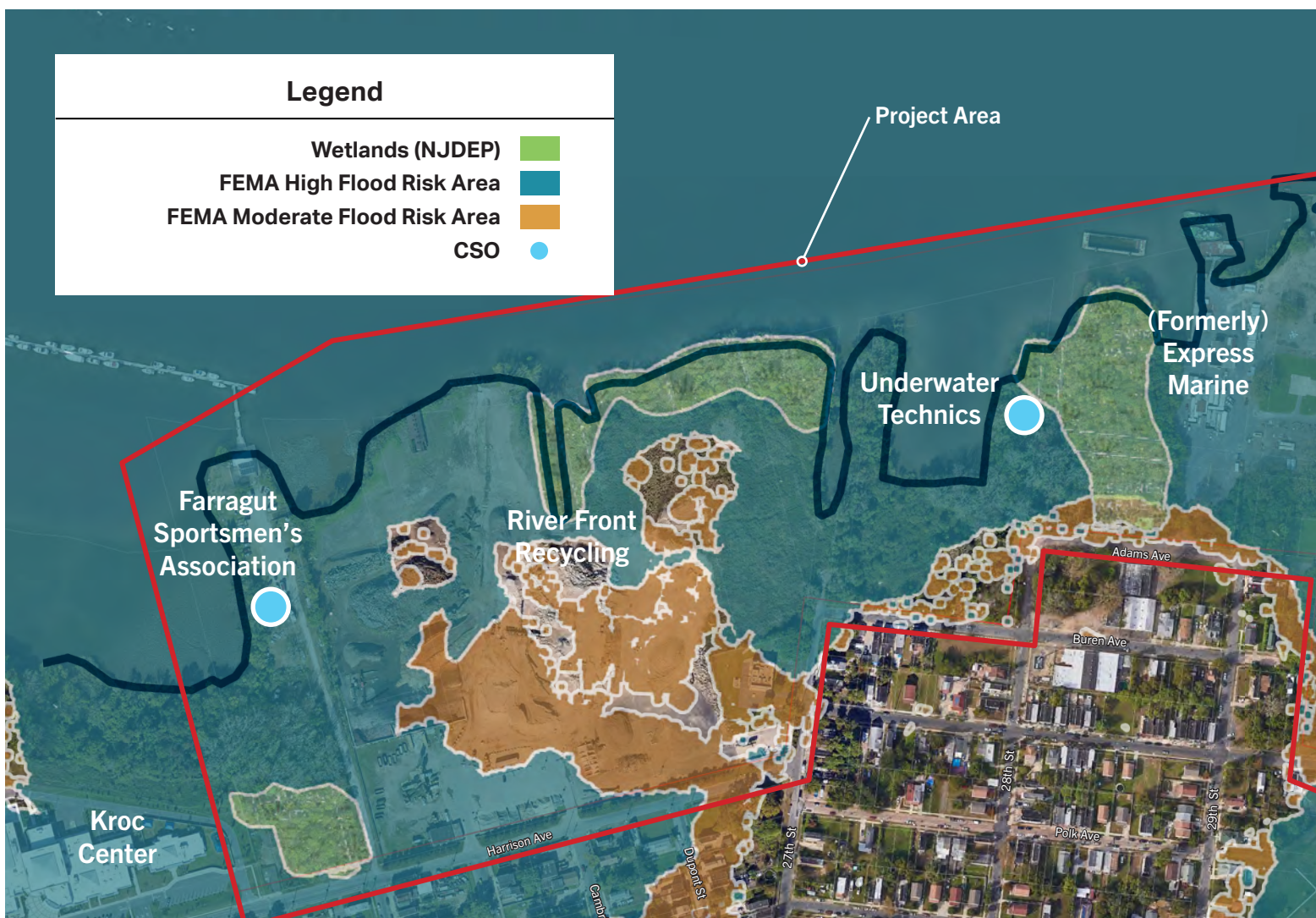
Additionally, projects that involve 5,000 square feet or more of earth disturbance require preparation of a Soil Erosion and Sediment Control Plan (SESCP) to ensure that impacts to nearby waters are minimized during construction. The SESCO must be submitted to and certified by the local soil conservation district.

Lastly, any project disturbing more than one acre of land or proposing more than one quarter acre of new impervious surface is considered a major development and must comply with the NJDEP Stormwater Management Rules.

Water-Based Constraints - North Camden

Most of the North Camden Project Area falls within a 100-year floodplain as mapped by FEMA, and thus a regulated flood hazard area. The waterfront area is also within the riparian zone of the Delaware River. Freshwater wetlands are mapped in several parts of the project area and coastal wetlands may be present along the river's edge. A CSO is located in the northwest corner of the Capital Building Supply parcel, along the Delaware River.

Cramer Hill Water-Based Constraints



Water Based Constraints - Cramer Hill

Similar to the North Camden Project Area, much of the Cramer Hill Project Area is located in a FEMA 100-year floodplain and thus a flood hazard area. Riparian zones are present along the Delaware River and Baldwin's Run. Freshwater wetlands are mapped throughout the Project Area, including a large wetland complex associated with Baldwin's Run that, research suggests, may be preserved as a wetland mitigation site. Three CSOs are approximately equally spaced along the Delaware River throughout the Project Area.



Threatened and Endangered Species

NJDEP maintains mapping of state and federally threatened and endangered wildlife species habitat. Threatened and endangered plant species are mapped using a grid system, as the exact location of plant populations may not be precisely known. Both layers are displayed on maps below. NJDEP also maps natural heritage priority sites, which are rare and protected plant communities, as well as potential and confirmed vernal pools and habitat. These layers were reviewed but are not shown on the maps below.

The U.S. Fish and Wildlife Service (USFWS) online planning tool was used to determine the possible presence of federally-listed species that do not have mapped habitat and therefore may be missing from NJDEP mapping.

Should protected species or their habitats be present within the Project Area, consultation with USFWS and/or NJDEP may be required to ensure that impacts to such resources are avoided or minimized to the greatest extent practicable.

Threatened and Endangered Species - North Camden

NJDEP mapping indicates that the adjacent stretch of the Delaware River serves as habitat for federally endangered Atlantic and shortnose sturgeon (*Acipenser oxyrinchus* and *Acipenser brevirostrum*). Foraging habitat for state endangered bald eagle (*Haliaeetus leucocephalus*) is mapped in the river and along its banks. State endangered peregrine falcon (*Falco peregrinus*) nesting habitat is mapped within or directly adjacent to the Delaware River. USFWS indicates that habitat for federally threatened red knot (*Calidris canutus rufa*) may be present within the project area as well. No vernal habitat or endangered plants are mapped in the vicinity of the project area.

Threatened and Endangered Species - Cramer Hill

NJDEP mapping indicates that the adjacent stretch of the Delaware River serves as habitat for federally endangered Atlantic and shortnose sturgeon (*Acipenser oxyrinchus* and *Acipenser brevirostrum*). Nesting, foraging, and wintering habitat for state endangered bald eagle (*Haliaeetus leucocephalus*) is mapped in the river and much of the waterfront area. NJDEP has confirmed that there is an active bald eagle nest along the waterfront in the Cramer Hill Nature Preserve. USFWS indicates that habitat for federally threatened red knot (*Calidris canutus rufa*) may be present within the project area as well.

North Camden Threatened and Endangered Species



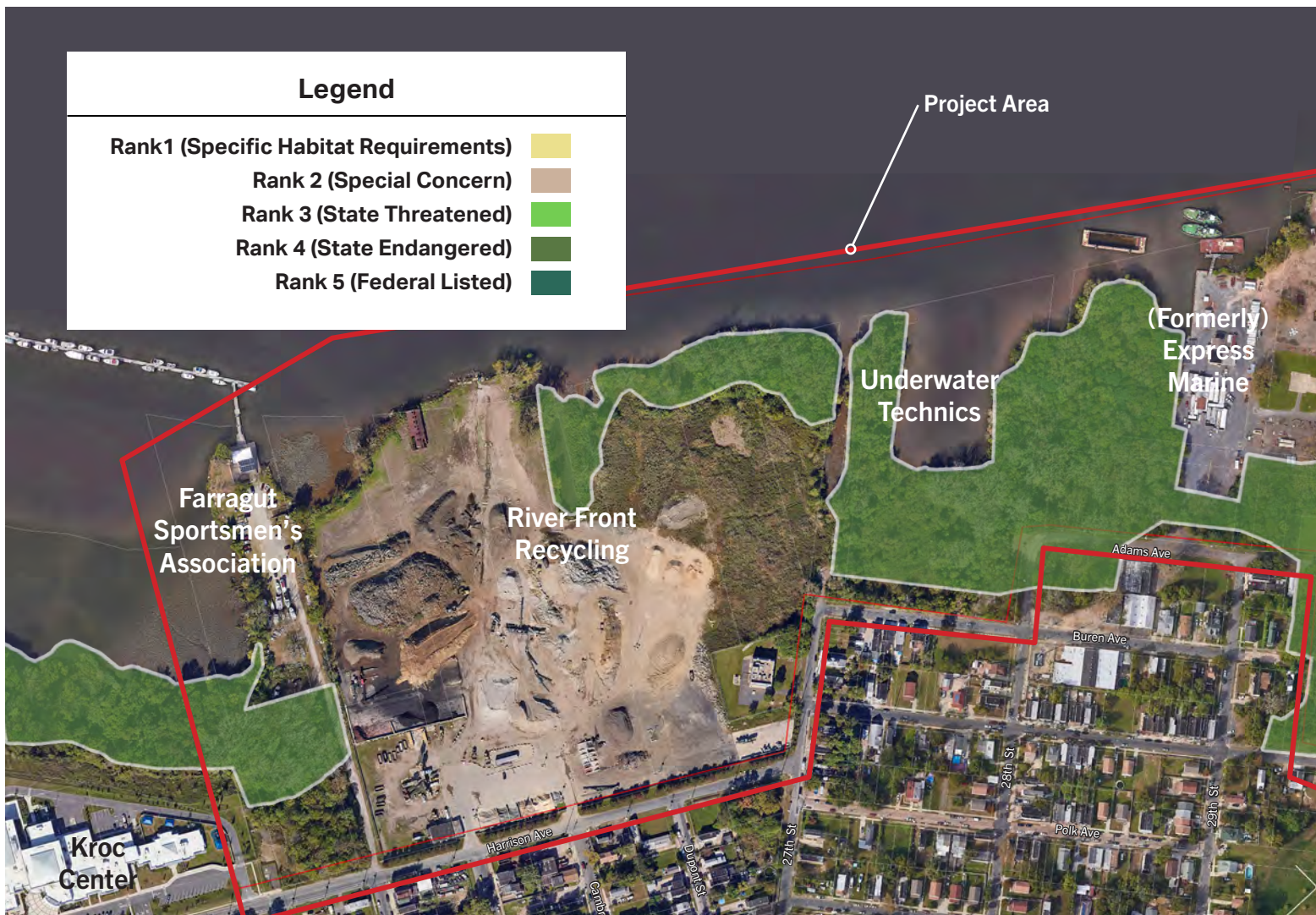
Threatened and endangered plant mapping indicates the possible presence of state endangered Nuttall's mudwort (*Micranthemum micranthemoides*) and several species of special concern. Fish House Cove, a natural heritage priority site consisting of a rare freshwater tidal marsh community, is also mapped along the eastern edge of the project area.

No vernal habitat is mapped in the vicinity of the project area.

Bald Eagles in the Project Area

Bald eagles are often sighted in and around the project areas. The U.S. Fish and Wildlife Service – Bald Eagle Management and Conservation Guidelines provide the following guidance in regards to protecting bald eagle nesting sites in the vicinity of construction areas.

To avoid disturbing nesting bald eagles, it is recommended that a natural forested buffer be maintained around nest trees. This buffer area serves to minimize visual and auditory impacts associated with human activities near nest sites.



Visibility plays a significant role as bald eagles are more prone to disturbances when an activity occurs in full view. Therefore, activities in areas with open vistas must be located at a greater distance from the nest site than activities shielded by topography, trees, or other screening factors.

In a nest that is clearly visible from the project area, a buffer of at least 660 feet must be maintained. However, if a similar activity is closer than 660 feet to the nest site, the buffer may be as close to the nest as the tolerated activity. All activities within this 660 foot buffer should be restricted to the non-breeding season. Maintain all currently established landscape buffers that screen human activity from the nest.

In a nest which is not clearly visible from the project area, a buffer of at least 330 feet must be maintained. However, if a similar activity is closer than 330 feet to the nest site, the buffer may be as close to the nest as the tolerated activity. All activities within this 330 foot buffer should be restricted to the non-breeding season. Maintain all currently established landscape buffers that screen human activity from the nest.



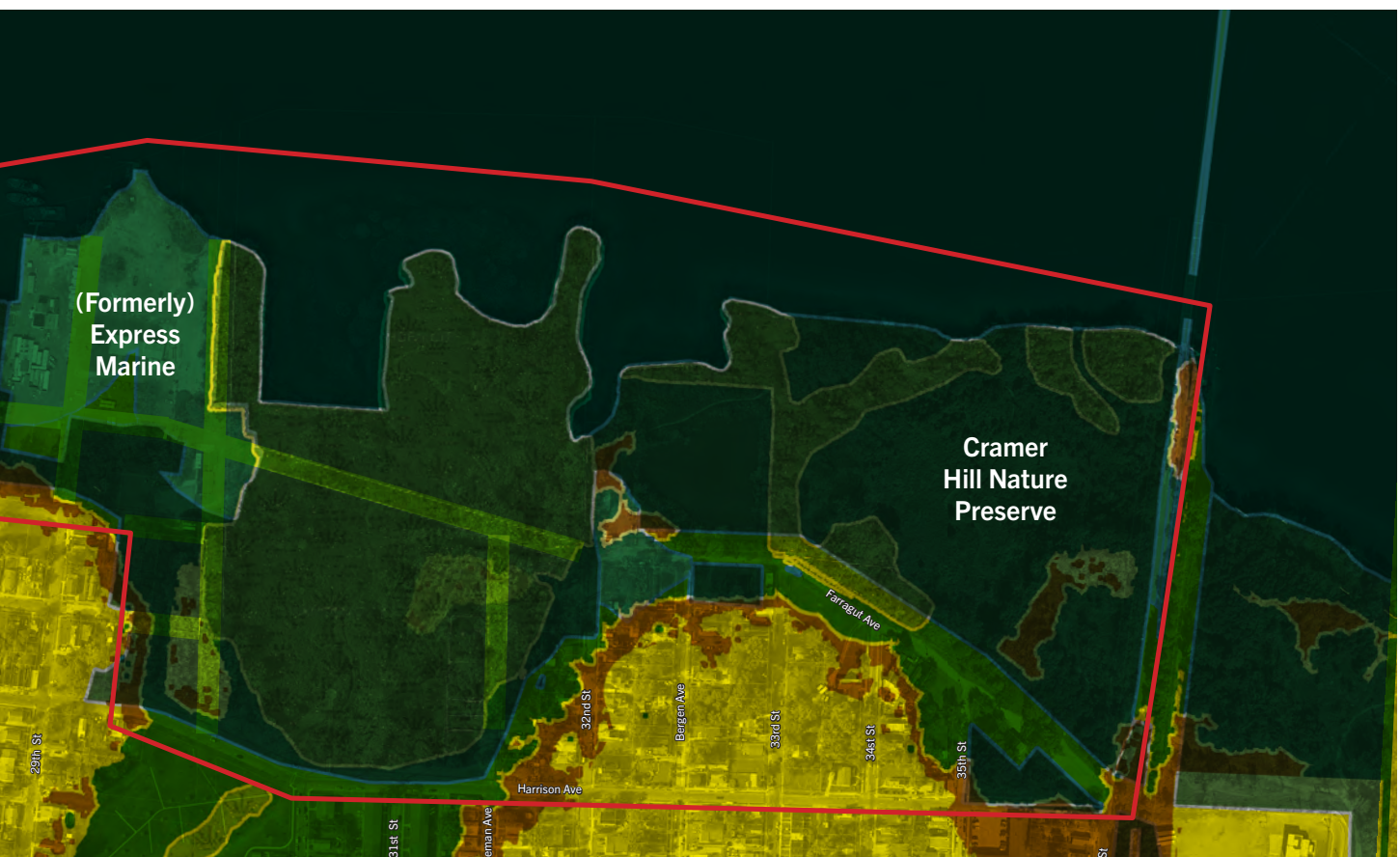
Summary of Constraints in the Project Area

One useful way to summarize the data gathered in the feasibility study is to see where land is constrained in the Project Area and more difficult to develop. It is important to recognize that a naturally landscaped trail can occupy environmentally constrained areas much easier than buildings or other types of industrial uses. Flood plains can be constraints for buildings but not necessarily for trails. This creates an opportunity in our Project Area where land is usable for trails but not for other types of development. This provides an opportunity for trails to occupy the water's edge through much of the two project areas based solely on the fact that the land in the interior of the project areas have fewer constraints on development.

Constraint Summary Mapping

The maps show each project area colored along a spectrum from yellow to orange to green. Yellow is the least environmentally constrained and the darker green shows the most constrained. Layers such as floodplains and habitats make a parcel harder to develop. Opportunities such as brownfield redevelopment areas and paper streets created more opportunity for development and work to counterbalance some of the environmental constraints.





3. Conceptual Design

This section of the study will discuss the proposed alignment as well as the design requirements of the trail itself. The varied physical and environmental conditions within the project study areas show an opportunity for the trail to utilize waterfront land that would be difficult to develop with buildings or other non-recreation uses.

With few exceptions the design of the trail alignment follows the Camden GreenWay Design Guide completed in 2017. Using the GreenWay Design Guide provides consistency in the dimension and character of the proposed trail. There are 14 distinct bicycle and pedestrian facilities in the Design Guide that served as a “menu” of sorts for the types of facilities recommended in this plan.

The overarching design goal is to provide a safe trail facility and provide options for a range of potential trail users. This results in a mix of on- and off-road facilities to create transportation alternatives and provide outdoor recreation to residents and visitors.

The maintenance and operation of the trail is also a driver in the design. The materials and access to facilities for maintenance trucks is important in the long-term life of the trail.

On-Road

The plan uses the existing curb-to-curb dimension on the city streets as guideline for on-road facilities. More protective facilities are recommended where there are opportunities to reduce the width or number of vehicle travel lanes. In cases where this is not possible, a shared road condition is recommended. Bicycle and vehicles sharing the road is marked and signed along many streets in the Project Area. The plan acknowledges that this is not the best scenario and recommends traffic calming on shared roadways to slow down vehicle traffic in areas of documented speeding or crashes.

Off-Road

The off-road trail is designed with a minimum trail width of 12 feet to allow for two-way pedestrian traffic and to permit maintenance and emergency vehicles to access the entire length of trail. Additional width may be needed at trail access points so that vehicle turning radius requirements are satisfied.

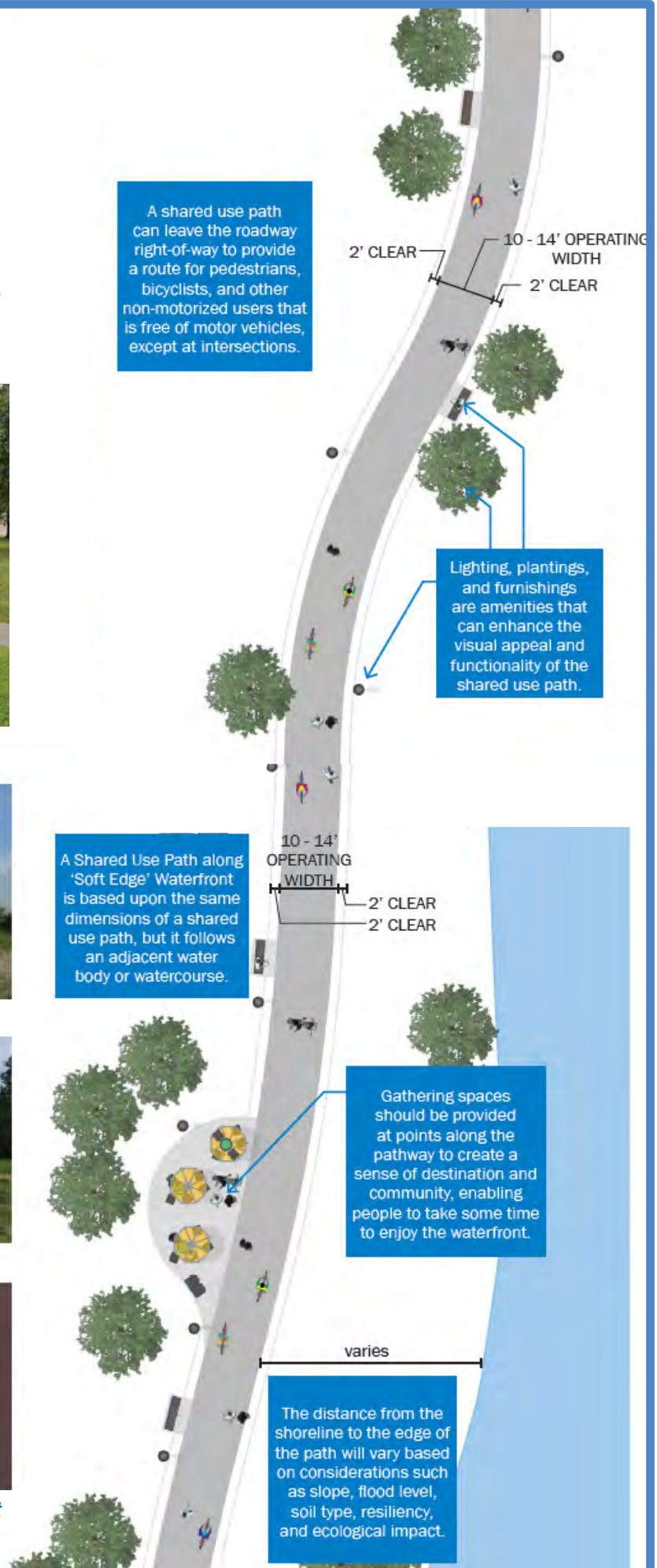
The design guidelines for off-road trails in this plan will adhere to the guidance from the Camden GreenWay Design Guide. The images on this page show the relevant dimensions and amenities associated with off-road trail design.



Path at Von Nieda Park



Three images above show existing waterfront soft edge on Park Drive in Pyne Poynt Park



North Camden - Potential Trail Alignments

The Project Area in North Camden sits in between an existing on-road bike lane on Delaware Avenue and the planned trails at Pyne Poynt Park. Due to the predominance of privately owned and occupied parcels in the study area the proposed alignment takes advantage of paper streets and parcel edges in order to minimize the impact to existing or future development.

Character of Trail

The proposed trail transitions bike riders from on-road facilities on Delaware Avenue to a path that runs along the River. This transition happens right after Delaware Avenue turns into Erie Avenue and wraps around the historic Cooper House. This portion of the trail focuses on transitioning from the more urban street conditions to natural waterfront conditions present east and north of this segment.

On-Road

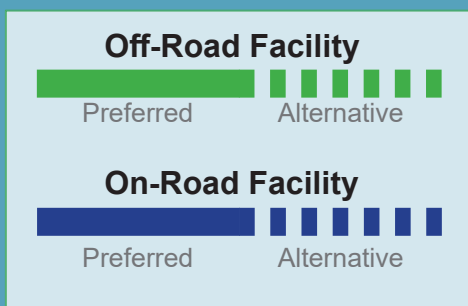
Cyclists currently utilize on-road bike lanes on Delaware Avenue that are buffered from traffic only by paint. This plan recommends that the bike facilities be consolidated into a two-way cycle track on the western edge of the road for improved protection. Moving the cyclists entirely to the west side of Delaware Avenue also reduces conflicts at a blind corner where sightlines are heavily restricted with vegetation and houses.

The historic Cooper House would function as a trail entrance to the off-road facility.

After a short distance off road around the Cooper House and along the frontage of Block-1 Lot-1 the alignment will reach a fork. The on-road option transitions back onto Erie Avenue. Due to the changing width of the street between Front Street and 2nd Street, sharrows are recommended from this location east to State Road. There simply is not physical room to accommodate parked cars, traveling cars, and a separate bike facility. Traffic calming measures are recommended at high speed or high-injury locations to improve the safety for all modes.

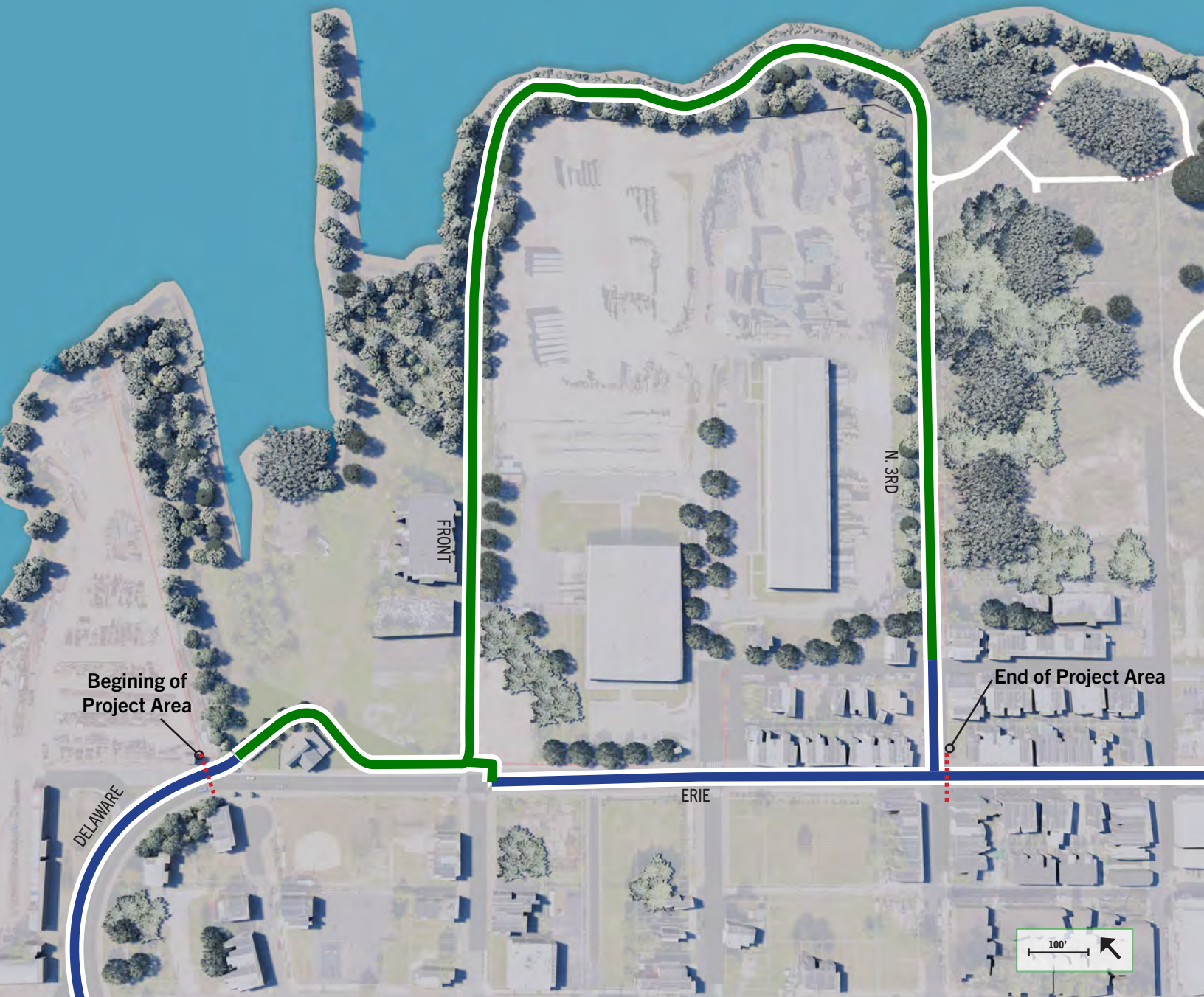
Off-Road

After wrapping around the historic Cooper House, the off-road alignment will follow the N. Front Street paper street towards the river. Following the paper street helps to preserve the developability and accessibility of the private parcels in this area. As the trail alignment approaches the water it bends to the east and begins to follow the water's edge within the proposed 50-foot waterfront protection zone. The trail will get as close to the water as feasible while preserving existing vegetation on the shoreline. The intent is for the trail to naturally wind back and forth staying parallel with the water's edge. The southern edge of the waterfront trail zone would be fenced to secure the two businesses that occupy the waterfront parcels. Neither business currently requires waterfront access but



would need some physical separation from the trail. As the alignment moves to the east it makes an important connection, near the terminus of the now vacated Third Street ROW, to the planned trails within Sadler's Poynt Waterfront Park. It is

at this connection that a user will be able to choose to stay off-road by continuing on the Pyne Poynt Park trails or through Sadler's Poynt Waterfront Park to move south along the Third Street right-of-way to connect back to the on-road network.



North Camden - Trail Types

The proposed trail facilities in the North Camden Project Area were developed to create a set of on-road and off-road alignments that are interconnected but independent of each other.





On-Road Facilities

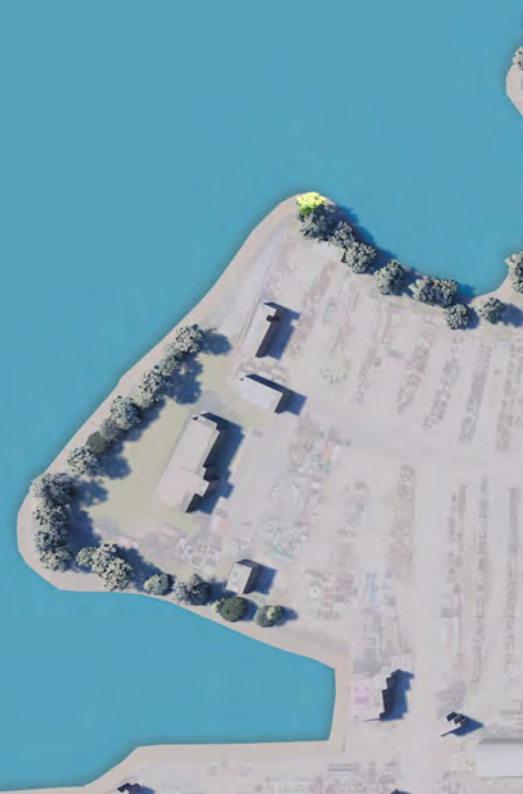
The proposed North Camden on-road facilities are split into two types based on the traffic conditions and physical constraints – a two-way protected bicycle lane and sharrows. The most significant change from the existing condition is to consolidate the painted on-road bike lanes along Erie Avenue into a buffered two-way bicycle lane. This configuration will give bike riders the safest facility when confronted with the high-speed corner at Erie and Delaware Avenues. The limited sight lines also contribute to the dangerous condition, especially for cyclists traveling north. In order to give cyclists a safe option to get off-road at the Cooper House they first need access on the western/northern edge of the road.

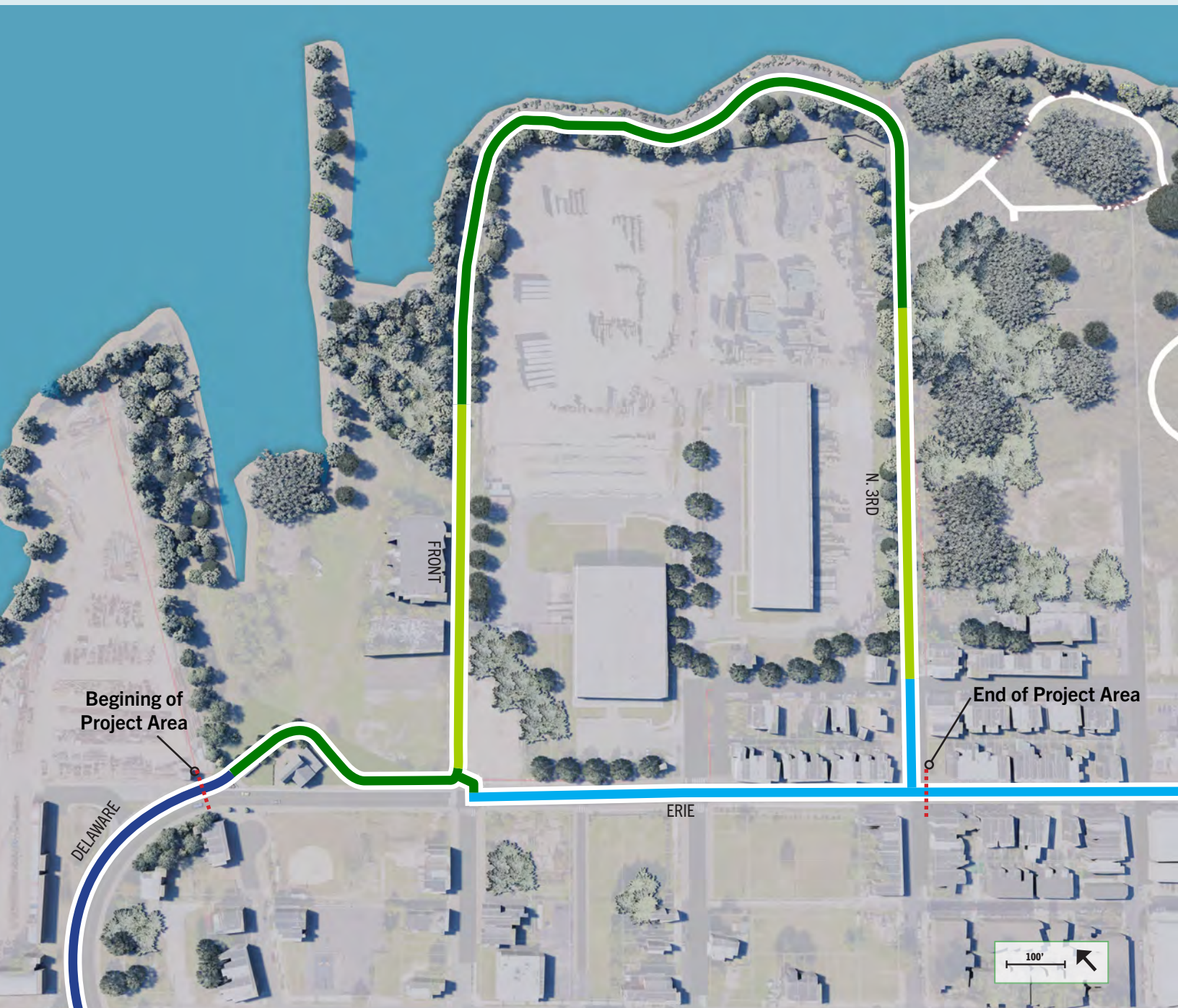
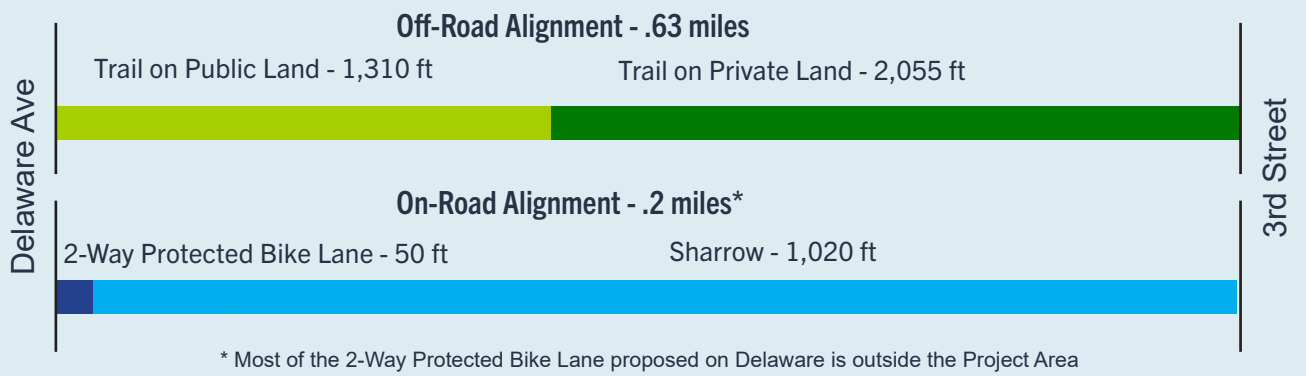
Past the Cooper House, the width of Delaware Avenue is reduced from 45 feet to 32 feet between First and Second Streets. This means there is no longer room for a buffered bike lane without significant changes to the curb location or removing on-street parking. Recent repaving of the roadway within these blocks makes this street a low priority for capital dollars in the short- or mid-term, so the on-road configuration will transition to sharrows.

Off-Road Facilities

The proposed off-road facilities seek to maximize the amount of trail built on public land, particularly paper streets. The plan envisions that the shared use path will run parallel to the waterfront with a “soft edge” before connecting again to a trail built along the Third Street paper street. A small segment of sharrow would be needed to transition the Third Street shared use path back to Delaware Avenue through adjacent neighborhoods.

Off-Road Alignment		On-Road Alignment	
	Trail on Paper Street		Sharrow
	Trail on Active Private Land		2-Way Protected Bike Lane





TRAILHEAD AT BENJAMIN COOPER HOUSE

The Benjamin Cooper House and grounds is an ideal location for providing a welcoming entrance and trail amenities for the Camden County Link Trail. The Benjamin Cooper House was built in 1734 and is one of the earliest remaining buildings in Camden. Over the years, the building has been used as a residence, a British Army Headquarters during the Revolutionary War, a saloon, and a shipyard office, but is currently unoccupied.

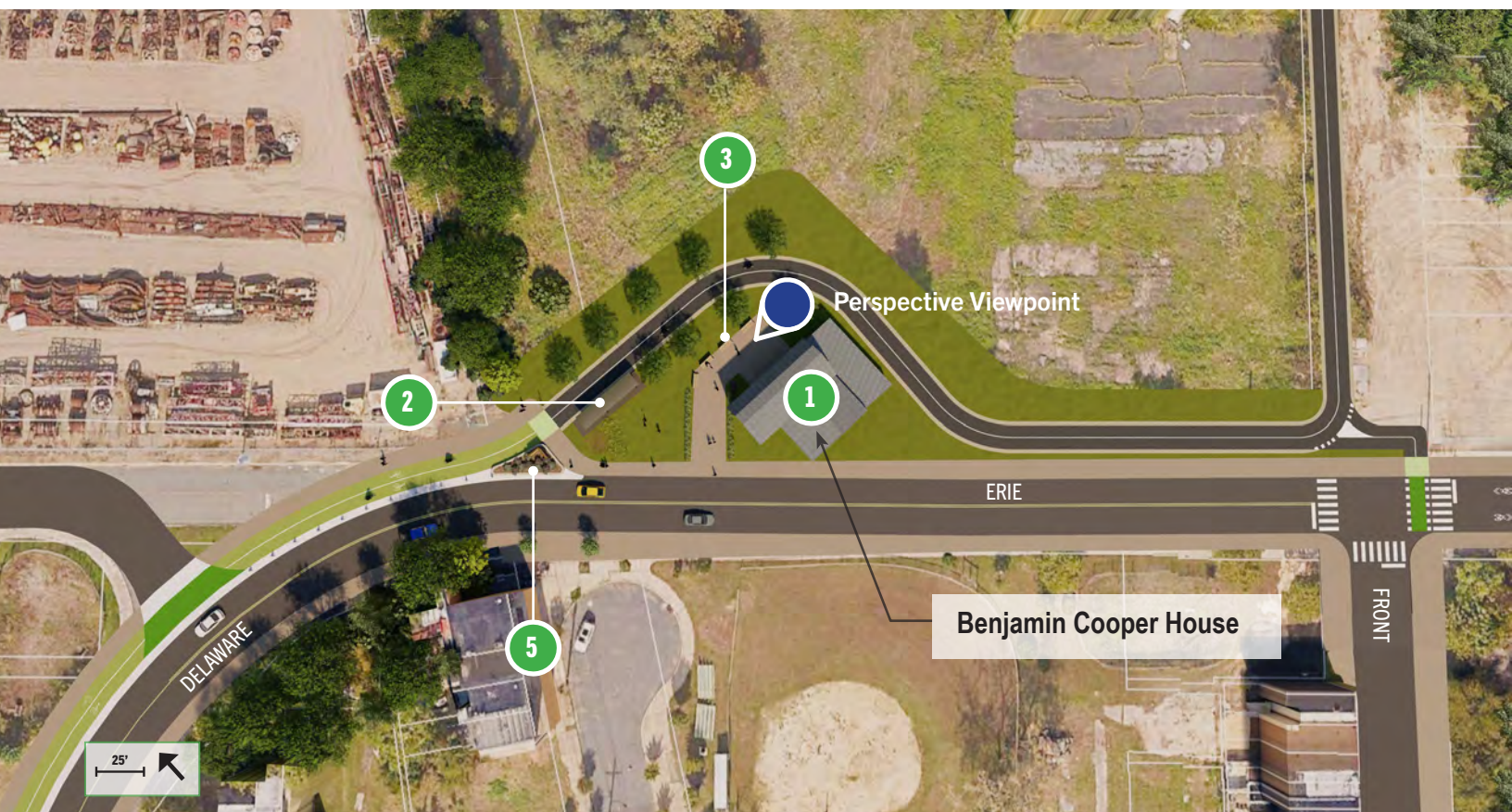
The building is on the State Register and the National Register of Historic Places. As of 2019, the Camden County Historical Society was advocating for the building to

be converted into the South Jersey Museum of the American Revolution or similar use devoted to telling the story of South Jersey's role during the Revolutionary War. Whatever its ultimate use, there is strong sentiment for the building to be preserved and accessible to the public in the future.

Bringing a museum or visitor's center to the building itself would create a great opportunity to use the grounds around the site a trailhead and transition between urban on-road bike facilities and more river focused trails.

Potential trail amenities on-site could

Plan Detail Of Trail Alignment Around Benjamin Cooper House





Rendering of Potential Trail Entrance at Benjamin Cooper House

include:

- Comfort station, including restrooms and water fountains
- Covered bicycle storage and bicycle repair stations
- Welcome plaza and seating
- Trail signage and wayfinding
- Gateway landscaping treatments



CONNECTION TO SADLER'S POYNT WATERFRONT PARK

The proposed waterfront trail segment behind J&R Pallets/Capital Products focuses on encouraging users to experience the natural edge of the Delaware without radically disrupting the ecology of the place. This segment will turn south near the now vacated ROW for North Third Street to connect to the trail currently under construction at Sadler's Poynt Park. The trail would run within 50 feet of the mean high-water line and would be subject to restrictions in the Stream and River Corridor Protection and Management Overlay Zone as well as NJDEP Coastal Zone Management Rules. Neither of these

regulations would prevent a trail, but they would drive choices about trail materials and the level of disturbance to existing wildlife and vegetation.

The waterfront area also falls within the Threatened and Endangered Species area and serves as nesting or foraging habitat for several endangered birds, including bald eagles. The final alignment of the trail through this area should be determined by evaluating routes for their impact to existing high value vegetation, impacts to current uses on site, and future impacts to the property owner.

Plan Detail of Trail Alignment at Sadler's Poynt





*Rendering of shoreline behind J&R Pallets/
Capital Products*

Potential improvements at the connection to Sadler's Poynt could include:

- 1 Riparian edge restored to natural state
- 2 Maintain privacy and security for adjacent properties
- 3 Lighting and wayfinding signage
- 4 Connection to adjacent Sadler's Poynt Park improvements currently under construction and expected to be complete in 2021.



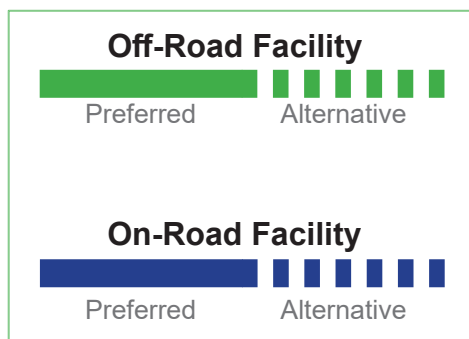
Potential Trail Alignments – Cramer Hill

The Cramer Hill Project Area extends from the eastern edge of the Kroc Center to the Petty's Island Bridge. Similar to North Camden, independent on- and off-road alignments are proposed. Additional alternative alignments for both on- and off-road segments are also shown as a dashed line.

Preferred Routes

The proposed on-road route will run along Harrison Avenue to 27th Street, then split between Harrison and Polk to 29th Street, and follow Harrison again from 29th to 36th Streets.

The off-road route will extend from the current terminus of the waterfront trail behind the Kroc Center, follow the paper street/access road at 25^h Street currently used by the marina, and will hug the waterfront edge until connecting back at



Harrison Avenue just past 29th Street. The trail would continue along Harrison for the length of Baldwin's Run, and would loop back toward the waterfront at Beideman Avenue, connecting into the Cramer Hill Nature Preserve. The trail would run along the edge of the Petty's Island Bridge to connect back to Harrison Avenue at 36th Street.

Alternative Routes

An alternative on-road alignment is proposed between 27th and 36th Streets. It would run as close as possible to the waterfront without being on private

property, running along Buren, Adams, and Farragut Avenues. While this route is closer to the waterfront, it is significantly longer and is further away from the adjacent community. In addition, the streets along this alignment are not lit, and Farragut Avenue is not curbed.

One alternative off-road alignment is proposed through Baldwin's Run. This connection would allow trail users to stay off-road the entire way between the Kroc Center and 36th Street, but would impact Baldwin's Run, and the construction of most of the trail connection would require a boardwalk trail design that lifts the trail above the wetlands. The permitting and coordination needs, as well as potential construction costs, would be significantly higher than pursuing an on-road connection.



Potential Trail Types – Cramer Hill

The Cramer Hill Project Area includes a little more than a mile of shoreline, with multiple land use and property owner types. It includes active waterfront businesses as well as sensitive conservation areas, including a bald eagle nest. The street conditions and widths also vary – from providing ample room for a dedicated side path within public right of way to narrow widths that will require the use of sharrows on residential streets. The Cramer Hill trail types are covered in greater detail on the following pages.

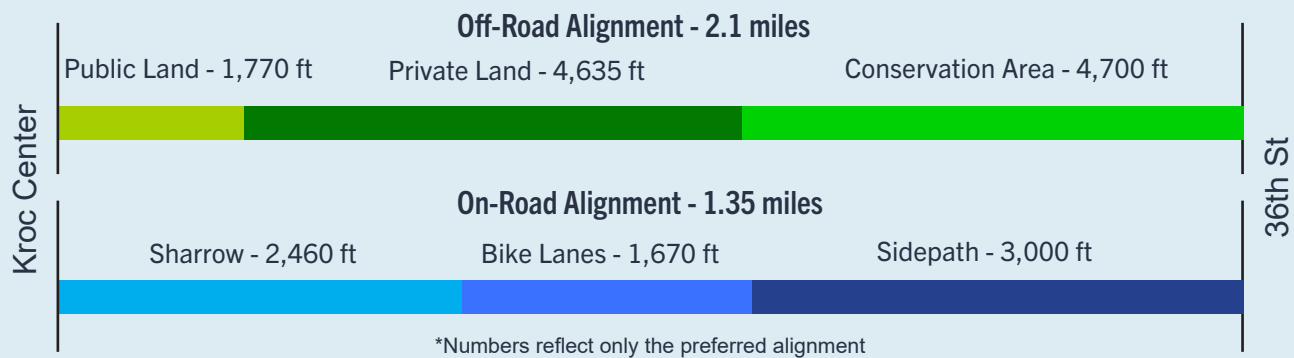


Off-Road Alignment

- Trail on Paper Street
- Trail on Active Private Land
- Trail on Vacant Private Land
- Trail Through Conservation Area
- Boardwalk

On-Road Alignment

- Sharrow
- Sidepath
- Bike Lane



Potential Trail Types - Kroc To 27th Street

The primary goal within this sub-area is to extend the Cramer Hill Waterfront Trail further to the east to link to other existing high-quality outdoor spaces. The majority of this area is currently in use as a recycling center. Recommended on- and off-road trail alignments take into consideration the needs and operations of the current property owner. While the recycling center is not water-based, Farragut Sportsmen's Association, located immediately west of the recycling center, is

largely due to similarities in ownership and maintenance responsibility. A side path is proposed for the entire length of Harrison Avenue between State and N. 27th Streets. Although this study does not extend west of 25th St., there is an opportunity to add traffic calming along Harrison Avenue and install a side path all the way to State Street. This would also create an opportunity to install a continuous line of Green Stormwater Infrastructure (GSI) to address persistent drainage issues in the area. Within the Project Area, the proposed side path would extent east on Harrison Avenue wrapping around the recycling center at N. 27th Street and continue toward the water until transitioning to an off-road trail.

On-Road Facilities

Although the GreenWay Design Guidelines consider a side path an "off-road" facility, this study defines side paths within a public right-of-way as on-road facilities,

Key Map



Off-Road Alignment

- Trail on Paper Street
- Trail on Active Private Land
- Trail on Vacant Private Land
- Trail Through Conservation Area
- Boardwalk

On-Road Alignment

- Sharrow
- Sidepath
- Bike Lane

Off-Road Facilities

The preferred off-road trail alignment was developed to minimize impacts to the parcel between the Kroc Center, the recycling facility, and the heavily wooded area behind it. The trail would split off from Harrison Avenue at the access road for the Farragut Sportsmen's Association and continue to the rear of the property along the waterfront. The recycling center had no water-based activities as of 2020. The trail alignment would hug the waterfront as closely as possible without disturbing

existing vegetation. This is important because bald eagle nesting habitat is present in the Cramer Hill study area, as well as other threatened animal and plant species. Proposed off-road facilities are recommended to be multi-use paths. The majority of the multi-use paths are proposed as soft-edge waterfront paths on private property. The waterfront path is punctuated by small segments that are within paper streets. The waterfront portion of the trail would tie back into the side path on Harrison Avenue via paper streets at the boat club and 27th Street.

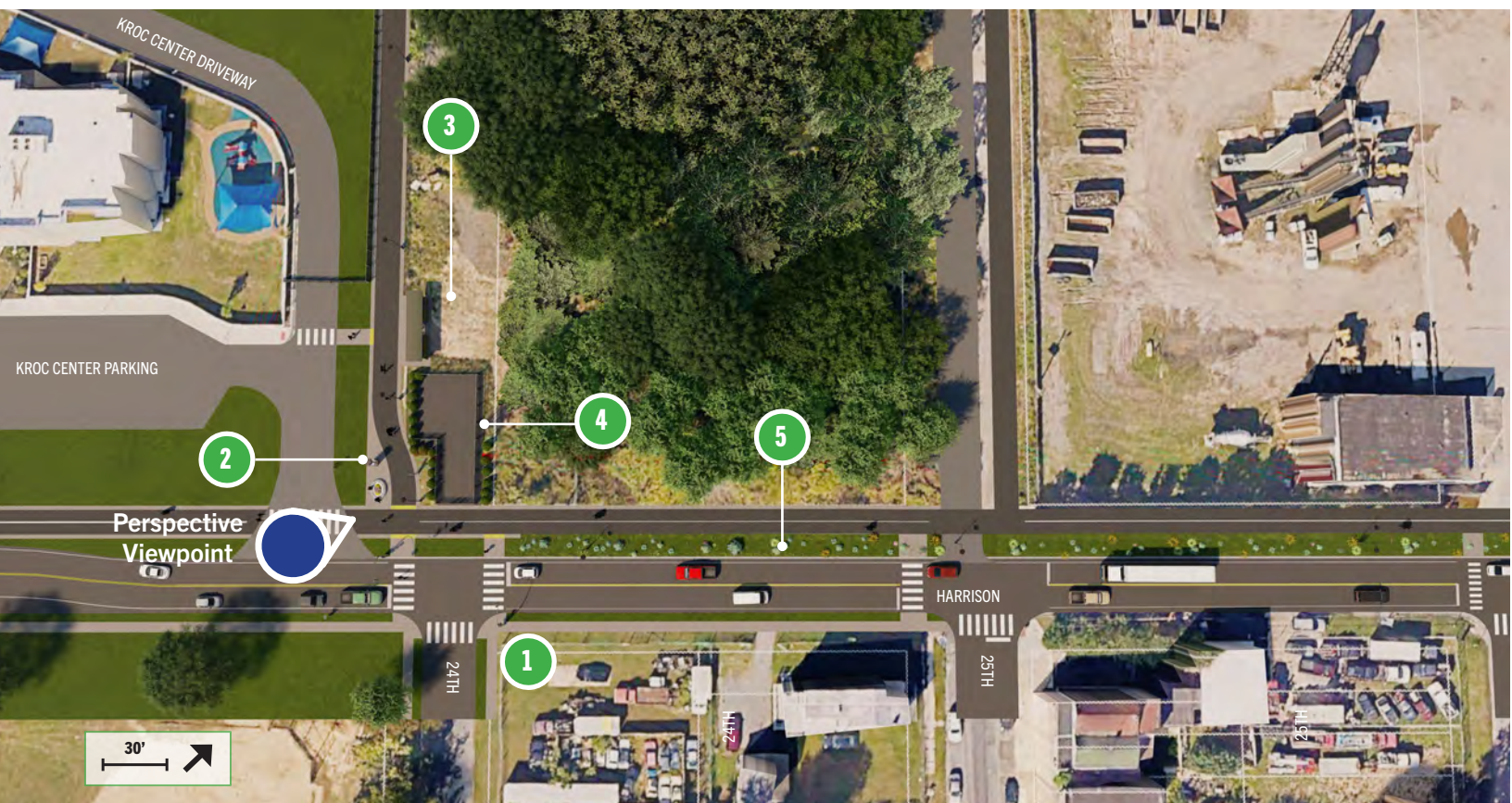


TRAIL HEAD AT KROC CENTER

The Kroc Center is a vital community resource and destination located next to the upcoming Cramer Hill Waterfront Park. The park will become the largest public park in the City of Camden and its proximity to the Kroc Center creates one of the largest community destinations in the entire City. The northern edge of the Kroc Center property is currently a missing link between the Cramer Hill Waterfront Park and the rest of the proposed trail alignments. Early action work is underway now to complete the approximately 300-foot connection between the Cramer Hill Waterfront Park trail and a new side path along Harrison Avenue.

The intersection of these two planned trails is located near the intersection of Harrison Avenue and 24th Street and is an ideal location for a trailhead. The trailhead will serve as an entry point or a place of transition to either trail. This can be reinforced by providing amenities such as a bicycle parking, seating, lighting, and wayfinding to help users find their ways. There is an important CCMUA CSO chamber at this intersection, and any trail alignments or amenities in the area will need to thread around the facility. There is also the opportunity to preserve the secure CSO chamber while improving the fencing and landscaping to create a more pleasant trail entrance.

Plan Detail of Trail Head at Kroc Center





*Rendering of Harrison Avenue Sidepath
Looking East*

Potential amenities at the Kroc Center trailhead could include:

- 1 Additional crosswalks at 24th Street intersection
- 2 Wayfinding signage incorporated into existing Kroc Center signage
- 3 Bicycle storage and maintenance station
- 4 Landscaping or screening of the CCMUA facility
- 5 Linear stormwater management between side path and street edge north of 24th Street



Potential Trail Types – 27th Street to Baldwin’s Run

This segment of Cramer Hill is one of the most challenging areas for incorporating new trail facilities. It includes heavily wooded areas, water-based businesses, and tight road right-of-way.

On-road Facilities

Due to limited street width, the recommended primary alignment would be split between the one-way couplet of Harrison and Polk Avenues. The right-of-way on both streets is too narrow to accommodate any facilities outside of the cartway, and the roadways have parking on both sides. There is no room to accommodate an on-road bike lane without removing parking on one side of the street.

While the parking lanes are not currently at capacity, there is strong community interest in keeping parking on both sides of the street. At 29th Street, there is room for a side path on the west side of Harrison.

The alternate alignment along Buren and Adams Avenues hugs the edge of waterfront properties and could potentially provide an opportunity for a side path, but it is farther from the neighborhood center and would require investment in needed curbs, lighting, and stormwater infrastructure. The area is also a known illegal dumping location, which could signal additional maintenance and safety challenges of placing a trail along Adams Avenue.

Key Map



Off-Road Alignment

- Trail on Paper Street
- Trail on Active Private Land
- Trail on Vacant Private Land
- Trail Through Conservation Area
- Boardwalk

On-Road Alignment

- Sharrow
- Sidepath
- Bike Lane

Off-Road Facilities

The off-road alignment would hug the waterfront edge, before connecting back to Harrison Avenue at Baldwin's Run. The off-road multi-use path along the waterfront would need to pass through an inactive marine business and a heavily-wooded, but currently vacant, private property. The heavily wooded property could pose permitting challenges and any future redevelopment of the marine business could create access and design challenges if they needed access to the waterfront.



27TH STREET AND HARRISON AVENUE

The T-intersection of Harrison Avenue and 27th Street is skewed and has incomplete pedestrian facilities, both of which contribute to a lack of multimodal safety. This intersection is also an important transition point between the proposed side path and sharrows, which split at 27th Street to form a one-way couplet down Harrison and Polk Avenues.

This plan recommends a side path along Harrison Avenue separated from the street by a linear stormwater management feature to help infiltration and drainage in the low elevation area. It would provide a physical separation from vehicular traffic without affecting sightlines. At the intersection, the

route could continue along the street grid and using the one-way on-road sharrows along Harrison and Polk Avenues or continue along the side path on 27th Street that connects to the proposed off-road trail on the Delaware River.

The recommended multi-modal safety improvements would improve safety for the vehicles using the intersection, by creating clear pavement markings and signage. All street markings would preserve existing travel lanes and on-street parking but make it clearer for users where on-street parking is prohibited, which would address the current problem of drivers parking too close to crosswalks, reducing sight lines for pedestrians and drivers.

Plan Detail of 27th Street and Harrison Avenue Intersection





Rendering of 27th Street and Harrison Avenue Intersection

Potential multi-modal improvements at the 27th Street intersection could include:

- 1 High visibility pedestrian crossing treatments
- 2 Bicycle crossing pavement markings to transition from sharrows on Polk and Harrison to side path west of 27th Street
- 3 Side path along Harrison that incorporates linear stormwater management
- 4 One-way pair of sharrows down Harrison and Polk Avenues
- 5 Off-road alignment continuing towards Delaware River



Potential Trail Types – Baldwin’s Run to 36th Street

This area includes many sensitive environmental resources along the waterfront, including Baldwin’s Run and the Cramer Hill Nature Preserve. Any off-road facilities will need to consider bald eagle nests and other threatened or endangered plants and animals near the nature preserve.

On-Road Facilities

The primary on-road alignment is a proposed side path along Harrison Avenue

adjacent to Baldwin’s Run, which would transition to bike lanes from N. 32nd Street to the Petty’s Island Bridge. The alternate alignment is a side path to the bridge that veers off Harrison to follow Farragut Avenue. Farragut could provide more opportunities for multi-modal facilities but is unlit and unpaved in this area, increasing project capital costs to upgrade the street itself to a safe and usable condition.



Off-Road Facilities

East of 33rd Street, the trail would follow an existing informal trail network in Cramer Hill Nature Preserve.

An alternate alignment through Baldwin's Run is also shown. This alternative would require construction of a boardwalk to connect 29th to 31st Streets. This could

be a signature feature of the new trail network but would result in far more impacts to existing sensitive areas, permits associated with them, and a much higher base cost for installing and maintaining a boardwalk than a traditional trail.



BALDWIN'S RUN SIDE PATH

A small, 100-foot section of trail connecting the entrance of Baldwin's Run to the Harrison Avenue pedestrian crossing at Lois Ave is already built and provides access to a wooden boardwalk that extends over Baldwin's Run. The plan proposes to connect to this underused natural resource by extending the side path along the length of Harrison between N. 29th St and Beideman Avenue. Improved multi-modal facilities could also be paired with improved signage and wayfinding between the trails and environmental resources along the shoreline and Von Nieda Park.

The area around Baldwin's Run, including Von Nieda Park, is routinely flooded. There is an opportunity to incorporate green stormwater management to collect road runoff before it makes its way to Baldwin's Run. This would enhance the utility of the buffer between the trail and the street.

At Beideman Avenue there is another transition area where trail users could choose to either continue along Harrison using sharrows and improved sidewalks, or take the path west along the paper street towards the river. This off-road alignment would head directly towards the Cramer Hill Nature Preserve.

Plan Detail of Baldwin's Run Sidepath





Rendering of Baldwin's Run side path

Potential improvements at the Baldwin's Run side path could include:

- 1 Provide landscaped stormwater management along Harrison Ave to improve flood mitigation
- 2 Improved signage and wayfinding emphasizing the natural function of Baldwin's Run
- 3 Transition at Beideman Ave between sharrows and an off-road trail



36TH STREET

The 36th Street / Farragut Ave / Harrison Ave intersection will eventually be the main entrance point for two major publicly accessible natural areas in Camden, the Cramer Hill Nature Preserve and Petty's Island. Both spaces are former industrial spaces that are now under conservation and public control. Farragut Avenue is not paved, and the road edge is hard to judge. When Farragut Avenue is improved and brought up to safety standards, there will be an opportunity to make additional multi-modal connections. The facilities within the preserve will likely follow the existing

informal network and have a lighter touch than others proposed to the west but clear, visible, crossings are still needed for cyclists and pedestrians.

The intersection itself is also difficult to navigate, since it is essentially two "T" intersections less than 100 feet apart. Additional crosswalks and pavement markings can help guide all modes to safely navigate the intersection. Primary access to the trail will happen on the south side of 36th Street, keeping users closer to resources and limiting the need for street crossings.

Plan Detail of 36th Street Intersection





Rendering of Intersection of 36th Street

Potential improvements at the 36th Street intersection could include:

- 1 Improved crosswalks and pavement markings help all modes navigate the tricky three way intersection.
- 2 Newly paved 22' wide Farragut Avenue with a side path and stormwater infrastructure
- 3 Bicycle storage and maintenance station near the entrance to Petty's Island





3. Project Implementation and Cost Estimates

The North Camden and Cramer Hill Waterfront trail study provides a comprehensive set of recommendations for trail alignments along the back channel of the Delaware River. Once implemented, this trail will connect existing trails under construction in North Camden and provide a critical connection in Cramer Hill between the Kroc Center and Petty's Island.

Implementing the recommended trail alignments in this plan will require creative partnerships, funding, and continued community engagement. As Cooper's Ferry Partnership looks to work with the city of Camden and other local, state, and federal partners, it is important to understand the roles and responsibilities for each potential partner.

This chapter of the study provides guidance on implementation, including an a general phasing strategy that is based on the scale and characteristics of various trail segments with corresponding cost estimates for each project phase. The chapter concludes with a discussion of various local and external funding sources to assist with project financing.

Cost Estimates

Cost estimates are essential to properly program capital improvements and create realistic grant applications. All facility designs and associated cost estimates proposed in this plan are conceptual in nature and should undergo final engineering design and review by regulating agencies and departments in order to arrive at detailed project costs.

For this planning effort the estimates for each phase are broken down into the following categories:

1. Engineering and Permitting

It is likely that many of the park and trail alignments will be located within floodplains, and it should be anticipated that permitting will be required for various environmental reasons including wetlands and streams impacts, flood studies and no-rise certifications.

2. Land Acquisition or Easements

This estimate is based on alignments and interaction with existing parcels. This includes both the finished park and trail system as well as any relevant construction easements.

3. Trail Construction

This is the cost to physically construct the proposed trail. These costs will include all hard costs, with associated soft cost estimates, for at-grade trails, ramps, signage, landscaping, lighting, and any furniture/furnishings. Material selection will be in accordance with the Camden GreenWay Design Guide.

4. Maintenance and Operation

Proper maintenance is critical to the long-term safety and success of the proposed trail. Types of maintenance included in the cost estimate are pavement upkeep, landscape maintenance, fencing, snow removal, mowing, litter removal, and sign replacement. Regular, routine maintenance will require continuity and engaged community involvement. Trail inspections and volunteer patrols can prevent issues from becoming safety hazards. The cost estimates for maintenance do not assume volunteer use. Parts of the maintenance estimate could be reduced by using volunteers.

Potential Project Phasing

The proposed trail alignments were designed to be implemented in multiple phases. In both project areas there is an opportunity to implement all the on-road recommendations independent of the off-road facilities. This approach speeds implementation of critical network connections existing streets. The off-road phases are proposed to connect into the on-road alignment so that when completed there are no dead-ends or routes to nowhere.

North Camden Phases

The size and shape of the project area in North Camden lends itself to having no more than two phases. The first phase is to complete the on-road alignment that is concentrated on Delaware and Erie Avenues.

The second phase is the off-road alignment that connects to the on-road bike lanes just west of the Cooper House, turns north along the paper street of Front Street, follows the waterfront until returning down the 2nd Street paper street, reconnecting with the on-road alignment.

Cramer Hill Phases

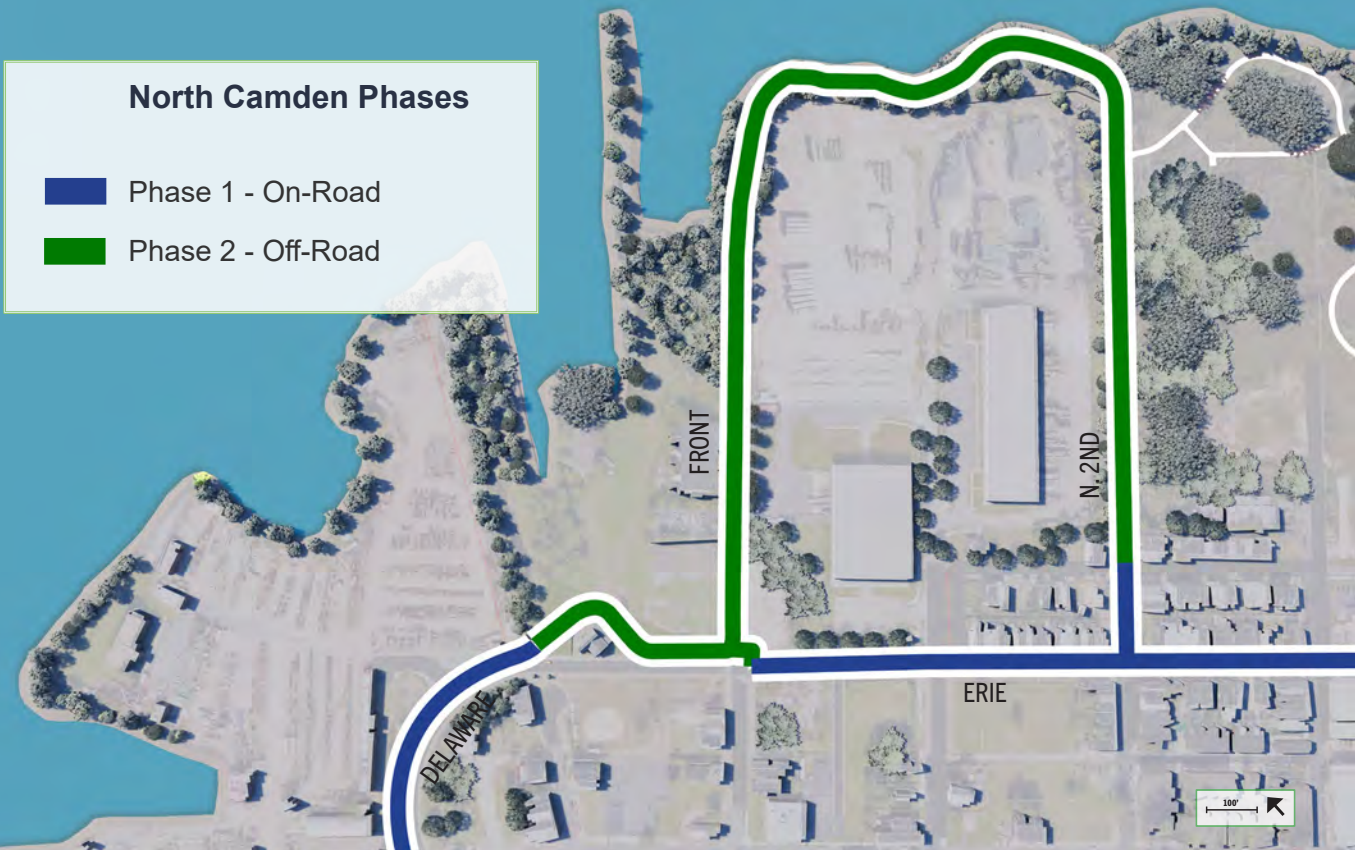
The Cramer Hill project area is much larger than North Camden and is split into five separate phases. The first is identified as an early action phase for a Connector Trail that picks up the trail on the Cramer Hill Waterfront Park and connects it to the existing sidewalk on Harrison Avenue just north of the Kroc Center. This phase is currently under engineering design and will likely begin construction in 2021. Like North Camden, the on-road alignment is addressed as a single phase. Doing this creates the initial bicycle and pedestrian network that future off-road phases will plug into. Recommended designs for the first phase range from physically separated side paths to sharrows.

The off-road phases in the Cramer Hill project are organized into three implementable pieces. Each phase is connected at either end to the on-road alignment to avoid creating dead-ends. Direct waterfront access is included in each section and would include a base set of amenities, including improved lighting, seating, and signage.

Each off-road phase includes an alternative alignment (shown as a dashed line on the phasing maps) that either supplements other network connections or takes a different path. In some cases, future conditions might shift to make these alternative alignments more achievable. This could include changes in parcel ownership, unforeseen environmental conditions, or funding requirements. The solid lines reflect the preferred alignment recommended in this plan.

North Camden Phases

- Phase 1 - On-Road
- Phase 2 - Off-Road



Cramer Hill Phases

- Early Action - Connector Trail
- Phase 3 - 27th to Von Nieda Park
- Phase 1 - On-Road
- Phase 4 - Baldwin's Run to 36th
- Phase 2 - Kroc to 27th



Basis of Estimate

This estimate is to be used as a reference document only, and not an offer to provide, or guarantee the provision of service and/or materials.

- This estimate is based upon the following documents: North Camden and Cramer Hill Waterfront Trails Project document by AECOM and Pennoni, dated September 2020
- This estimate was prepared utilizing labor rates for Camden, NJ, as well as historical cost, and prior related project experience of the project team.
- Labor rates are based upon prevailing wage rates, including benefits, and labor burden, as required.
- This estimate is based on normal working hours, Monday to Friday, 7:00AM to 3:30PM, excluding holidays; no shift work.
- All costs associated with hazmat, asbestos remediation, and/or lead abatement have been excluded from this estimate.
- All soft costs, such as construction management, owner management costs, and land acquisition (with the exception of assumed easements) have been excluded from this estimate.
- This estimate is based on the understanding that all staging and laydown will occur in close proximity to the work site.
- No escalation has been included in the cost as it is unclear when the project will begin. We recommend the addition of 3.5% per annum escalation to estimated costs through mid point of construction once a schedule is known.
- General requirements include costs for contractor project management, trailers, storage, dumpsters, site fencing, Maintenance and Protection of Traffic (MPT), etc.
- This estimate is to be used as a reference document only, and not an offer to provide, or guarantee the provision, of service and/or materials.
- Annual Maintenance and Operations costs include:
 - Trimming of landscaping to occur approx. twice per year
 - Clean shelters (any interior spaces) – once per week
 - Paint shelter once per year
 - Power wash shelter twice per year
 - Inspect fencing and repair as needed – once per year
 - Daily trash pickup
 - Mill and overlay trail surface every 10 years

Estimate Summary By Project Area

- Total cost includes all on- and off-road phases completed at the same time.
- Includes only the preferred alignments

North Camden

1. Engineering and Permitting (11% of Estimated Construction Costs)	\$194,291
--	-----------

2. Land Acquisition or Easements (Listed in Detailed Breakdown Shown for Each Phase)	\$287,414
---	-----------

3. Trail Construction (Detailed Breakdown Shown for Each Phase)	\$1,478,857
--	-------------

TOTAL	\$1,960,572
--------------	--------------------

Annual Maintenance and Operation	\$47,100
----------------------------------	----------

Cramer Hill

1. Engineering and Permitting (11% of Estimated Construction Costs)	\$ 690,101
--	------------

2. Land Acquisition or Easements (Listed in Detailed Breakdown Shown for Each Phase)	\$929,347
---	-----------

3. Trail Construction (Detailed Breakdown Shown for Each Phase)	\$ 5,344,297
--	--------------

TOTAL	\$ 6,963,745
--------------	---------------------

Annual Maintenance and Operation	\$181,600
----------------------------------	-----------

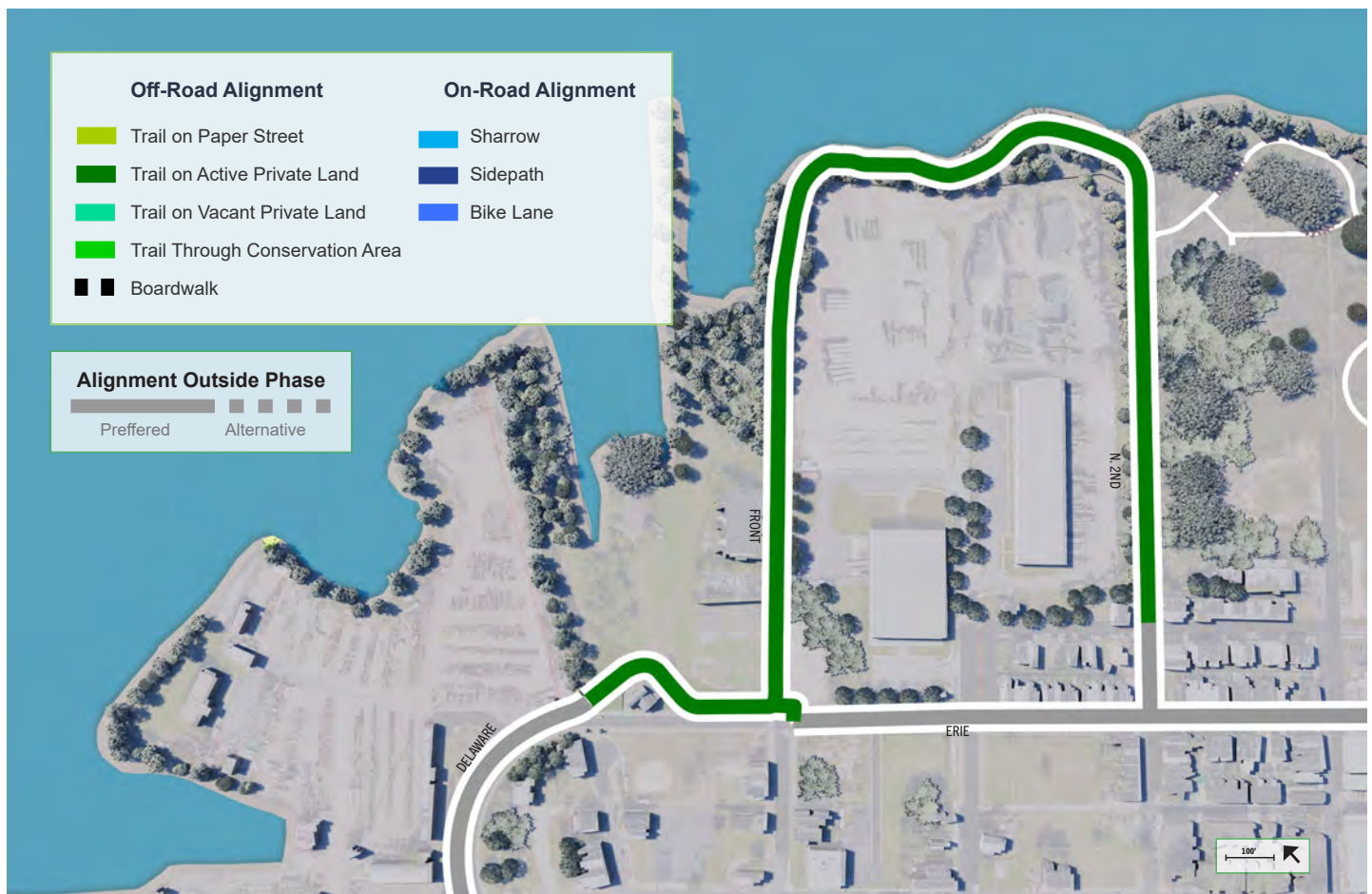


North Camden Phase 1 - On-Road Cost Estimate

1. Engineering and Permitting	\$31,403
2. Land Acquisition or Easements	\$0
3. Trail Construction	\$285,479
TOTAL	\$316,881
Annual Maintenance and Operation	\$15,000

PROJECT: North Camden				TOTALS	
DESCRIPTION	QTY	UNIT		TOTAL UNIT COST	TOTAL
North Camden Phase 1					
01 - GENERAL REQUIREMENTS					
General Requirements (8% of direct costs)	8%			\$ 188,714.22	\$ 15,097.14
Total - 01 GENERAL REQUIREMENTS					\$ 15,097.14
02 - ON-ROAD TRAIL - SHARROW					
Sharrow	6	EA		\$ 125.00	\$ 750.00
Total - 02					\$ 750.00
03 - ON-ROAD TRAIL - TWO-WAY PROTECTED					
Signage	6	EA		\$ 175.00	\$ 1,050.00
Clearing and Grubbing	1	LS		\$ 5,370.00	\$ 5,370.00
Excavation	265	CY		\$ 45.00	\$ 11,925.00
Mill/Overlay existing paving	7111	SY		\$ 20.00	\$ 142,222.22
Pavement markings	2000	LF		\$ 1.50	\$ 3,000.00
Benches	1	EA		\$ 1,000.00	\$ 1,000.00
Trash Receptacles	1	EA		\$ 750.00	\$ 750.00
Trees	3	EA		\$ 2,000.00	\$ 6,000.00
Landscaping	1	Allow		\$ 1,611.00	\$ 1,611.00
Landscaping - Buffer Area	2685	SF		\$ 5.00	\$ 13,425.00
Erosion Control	1	LS		\$ 1,611.00	\$ 1,611.00
Total - 03					\$ 187,964.22
NORTH CAMDEN PHASE 1 Direct Cost					\$ 188,714.22
General Requirements (from above)				8%	\$ 15,097.14
Sales Tax - Included with Materials Only				0%	\$ -
OH&P				15%	\$ 30,571.70
Bonds				1.5%	\$ 3,515.75
Contingency				20%	\$ 47,579.76
Escalation				0.0%	\$ -
NORTH CAMDEN PHASE 1 TOTAL COSTS					\$ 285,478.57

The detailed estimate above includes all land acquisition/easements and trail construction.



North Camden Phase 2 - Off-Road Cost Estimate

1. Engineering and Permitting	\$162,888
2. Land Acquisition or Easements	\$287,424
3. Trail Construction	\$1,193,379

TOTAL	\$1,643,691
--------------	--------------------

Annual Maintenance and Operation	\$32,100
----------------------------------	----------

PROJECT: North Camden				TOTALS	
DESCRIPTION	QTY	UNIT		TOTAL UNIT COST	TOTAL
North Camden Phase 2					
01 - GENERAL REQUIREMENTS					
General Requirements (8% of direct costs)	8%		\$	978,877.22	\$ 78,310.18
Total - 01 GENERAL REQUIREMENTS					\$ 78,310.18
02 - OFFROAD TRAIL on PRIVATE LAND					
Signage	21	EA	\$	175.00	\$ 3,675.00
Clearing and Grubbing	1	LS	\$	19,000.00	\$ 19,000.00
Excavation	938	CY	\$	45.00	\$ 42,210.00
6" Stone Base	3378	SY	\$	10.00	\$ 33,780.00
4" Asphalt Sidewalk Pavement	3378	SY	\$	25.00	\$ 84,444.44
2" Asphalt Sidewalk Pavement	3378	SY	\$	22.00	\$ 74,311.11
2' Dense Graded Agg Stone Shoulders	7600	SF	\$	2.25	\$ 17,100.00
Benches	2	EA	\$	1,000.00	\$ 2,000.00
Trash Receptacles	1	EA	\$	750.00	\$ 750.00
Trees	9	EA	\$	2,000.00	\$ 18,000.00
Landscaping	1	Allow	\$	15,200.00	\$ 15,200.00
Erosion Control	1	LS	\$	5,700.00	\$ 5,700.00
Easement (Active)(allow)	30400	SF	\$	6.25	\$ 190,000.00
Benches - B. Cooper House	4	EA	\$	1,200.00	\$ 4,800.00
Comfort Station - Restroom and Water Fountain - B. Cooper House	1	EA	\$	45,000.00	\$ 45,000.00
Covered Bicycle Storage - B. Cooper House	500	SF	\$	62.00	\$ 31,000.00
Crosswalk Paint/Striping - B. Cooper House	3	EA	\$	650.00	\$ 1,950.00
Gateway Landscaping Treatments - B. Cooper House	440	SF	\$	5.00	\$ 2,200.00
Welcome Plaza - B. Cooper House	1706	SF	\$	20.00	\$ 34,120.00
Lighting - Sadler's Point	38	EA	\$	2,750.00	\$ 104,500.00
Restore Riparian Edge - Sadler's Point	1788	LF	\$	10.00	\$ 17,880.00
Total - 02					\$ 747,620.56
03 - OFFROAD TRAIL on PUBLIC LAND					
Signage	15	EA	\$	175.00	\$ 2,625.00
Clearing and Grubbing	1	LS	\$	13,800.00	\$ 13,800.00
Excavation	681	CY	\$	45.00	\$ 30,645.00
6" Stone Base	2453	SY	\$	10.00	\$ 24,530.00
4" Asphalt Sidewalk Pavement	2453	SY	\$	25.00	\$ 61,333.33
2" Asphalt Sidewalk Pavement	2453	SY	\$	22.00	\$ 53,973.33
2' Dense Graded Agg Stone Shoulders	5520	SF	\$	2.25	\$ 12,420.00
Benches	2	EA	\$	1,000.00	\$ 2,000.00
Trash Receptacles	1	EA	\$	750.00	\$ 750.00
Trees	7	EA	\$	2,000.00	\$ 14,000.00
Landscaping	1	Allow	\$	11,040.00	\$ 11,040.00
Erosion Control	1	LS	\$	4,140.00	\$ 4,140.00
Total - 03					\$ 231,256.67
NORTH CAMDEN PHASE 2 Direct Cost				\$	978,877.22
General Requirements (from above)				8% \$	78,310.18
Sales Tax - Included with Materials Only				0% \$	-
OH&P				15% \$	158,578.11
Bonds				1.5% \$	18,236.48
Contingency				20% \$	246,800.40
Escalation				0.0% \$	-
NORTH CAMDEN PHASE 2 TOTAL COSTS				\$	1,480,802.39

The detailed estimate above includes all land acquisition/easements and trail construction.



Cramer Hill Early Action - Connector Trail Cost Estimate

1. Engineering and Permitting	\$22,465
2. Land Acquisition or Easements	\$37,500
3. Trail Construction	\$166,728
TOTAL	\$226,693
Annual Maintenance and Operation	\$3,700

PROJECT: Connector Trail				TOTALS	
DESCRIPTION	QTY	UNIT		TOTAL UNIT COST	TOTAL
CRAMER HILL Connector Trail					
01 - GENERAL REQUIREMENTS					
General Requirements (8% of direct costs)	8%		\$	135,004.00	10,800.32
Total - 01 GENERAL REQUIREMENTS				\$	10,800.32
02 - OFFROAD TRAIL on ACTIVE PRIVATE LAND					
Signage	3	EA	\$	175.00	525.00
Clearing and Grubbing	1	LS	\$	3,000.00	3,000.00
Excavation	148	CY	\$	45.00	6,660.00
6" Stone Base	667	SY	\$	10.00	6,670.00
4" Asphalt Sidewalk Pavement	667	SY	\$	25.00	16,675.00
2" Asphalt Sidewalk Pavement	667	SY	\$	22.00	14,674.00
2' Dense Graded Agg Stone Shoulders	1200	SF	\$	2.25	2,700.00
Solar Lights	2	EA		\$	-
Trash Receptacles	1	EA	\$	750.00	750.00
Trees	1	EA	\$	2,000.00	2,000.00
Landscaping	1	Allow	\$	2,400.00	2,400.00
Security Camera	1	EA	\$	4,200.00	4,200.00
Easement allow)	6000	SF	\$	6.25	37,500.00
Kroc Amenities					
Black Vinyl Coated Chain Link, 6' (includes demo of existing)	400	LF	\$	60.00	24,000.00
Pedestrian Lighting	2	EA	\$	2,750.00	5,500.00
Entrance Signage	1	EA	\$	250.00	250.00
Replace existing vehicular gate with swing gate	1	EA	\$	3,000.00	3,000.00
New Bollards	3	EA	\$	1,500.00	4,500.00
Total - 02				\$	135,004.00
Total Connector Trail Direct Costs				\$	135,004.00
General Requirements (from above)				8% \$	10,800.32
Sales Tax - Included with Materials Only				0% \$	-
OH&P				15% \$	21,870.65
Bonds				1.5% \$	2,515.12
Contingency				20% \$	34,038.02
CM Services				12% \$	24,507.37
Escalation				0.0% \$	-
CONNECTOR TRAIL TOTAL COSTS				\$	204,228.11

The detailed estimate above includes all land acquisition/easements and trail construction.



Cramer Hill Phase 1 - On-Road Cost Estimate

1. Engineering and Permitting	\$195,829
2. Land Acquisition or Easements	\$0
3. Trail Construction	\$1,780,264
TOTAL	\$1,976,093
Annual Maintenance and Operation	\$64,500

Alternative Routes

On-Road Trail Segments	\$354,018
------------------------	-----------

PROJECT: Cramer Hill				TOTALS	
DESCRIPTION	QTY	UNIT		TOTAL UNIT COST	TOTAL
CRAMER HILL Phase 1					
01 - GENERAL REQUIREMENTS					
General Requirements (8% of direct costs)	8%			\$ 1,176,834.67	\$ 94,146.77
Total - 01 GENERAL REQUIREMENTS					\$ 94,146.77
02 - OFFROAD TRAIL SIDEPATH					
Signage	35	EA	\$	175.00	\$ 6,125.00
Clearing and Grubbing	1	LS	\$	25,200.00	\$ 25,200.00
Excavation	1120	CY	\$	45.00	\$ 50,400.00
6" Stone Base	5600	SY	\$	10.00	\$ 56,000.00
4" Asphalt Sidewalk Pavement	5600	SY	\$	25.00	\$ 140,000.00
2" Asphalt Sidewalk Pavement	5600	SY	\$	22.00	\$ 123,200.00
2' Dense Graded Agg Stone Shoulders	10080	SF	\$	2.25	\$ 22,680.00
Benches	1	EA	\$	1,000.00	\$ 1,000.00
Trash Receptacles	1	EA	\$	750.00	\$ 750.00
Trees	12	EA	\$	2,000.00	\$ 24,000.00
Landscaping	1	Allow	\$	20,160.00	\$ 20,160.00
Erosion Control	1	LS	\$	7,560.00	\$ 7,560.00
Total - 02					\$ 477,075.00
03 - OFFROAD TRAIL SIDEPATH					
Signage	15	EA	\$	175.00	\$ 2,625.00
Clearing and Grubbing	1	LS	\$	10,750.00	\$ 10,750.00
Excavation	478	CY	\$	45.00	\$ 21,510.00
6" Stone Base	2389	SY	\$	10.00	\$ 23,890.00
4" Asphalt Sidewalk Pavement	2389	SY	\$	25.00	\$ 59,725.00
2" Asphalt Sidewalk Pavement	2389	SY	\$	22.00	\$ 52,558.00
2' Dense Graded Agg Stone Shoulders	4300	SF	\$	2.25	\$ 9,675.00
Benches	1	EA	\$	1,000.00	\$ 1,000.00
Trash Receptacles	1	EA	\$	750.00	\$ 750.00
Trees	5	EA	\$	2,000.00	\$ 10,000.00
Landscaping	1	Allow	\$	8,600.00	\$ 8,600.00
Erosion Control	1	LS	\$	3,225.00	\$ 3,225.00
Total - 03					\$ 204,308.00
04 - ON-ROAD TRAIL - TWO-WAY PROTECTED					
Signage	23	EA	\$	175.00	\$ 4,025.00
Clearing and Grubbing	1	LS	\$	21,000.00	\$ 21,000.00
Excavation	1037	CY	\$	45.00	\$ 46,665.00
6" Stone Base	3733	SY	\$	10.00	\$ 37,330.00
4" Asphalt Sidewalk Pavement	3733	SY	\$	25.00	\$ 93,333.33
2" Asphalt Sidewalk Pavement	3733	SY	\$	22.00	\$ 82,133.33
2' Dense Graded Agg Stone Shoulders	8400	SF	\$	2.25	\$ 18,900.00
Benches	2	EA	\$	1,000.00	\$ 2,000.00
Trash Receptacles	2	EA	\$	750.00	\$ 1,500.00
Trees	10	EA	\$	2,000.00	\$ 20,000.00
Landscaping	1	Allow	\$	6,300.00	\$ 6,300.00
Landscaping - Buffer Area	10500	SF	\$	5.00	\$ 52,500.00
Erosion Control	1	LS	\$	6,300.00	\$ 6,300.00
Benches - At Plaza	2	EA	\$	1,000.00	\$ 2,000.00
Covered Bicycle Storage	670	SF	\$	62.00	\$ 41,540.00
Path to Street Transition	2	EA	\$	1,200.00	\$ 2,400.00
Plaza/Path to Street Transition' - Concrete	1325	SF	\$	8.00	\$ 10,600.00
Landscape Stormwater Management - Harrison	1877	LF	\$	25.00	\$ 46,925.00
Total - 04					\$ 495,451.67
Total Cramer Hill Phase 1 Direct Costs				\$	1,176,834.67
General Requirements (from above)				8% \$	94,146.77
Sales Tax - Included with Materials Only				0% \$	-
OH&P				15% \$	190,647.22
Bonds				1.5% \$	21,924.43
Contingency				20% \$	296,710.62
Escalation				0.0% \$	-
CRAMER HILL PHASE 1 TOTAL COSTS				\$	1,780,263.70

The detailed estimate above includes all land acquisition/easements and trail construction.



Cramer Hill Phase 2 - Kroc to 27th Street Cost Estimate

1. Engineering and Permitting	\$173,221
2. Land Acquisition or Easements	\$465,740
3. Trail Construction	\$1,108,994
TOTAL	\$1,747,954
Annual Maintenance and Operation	\$42,000

Alternative Routes

Off-Road Trail	\$29,751
----------------	----------

PROJECT: Cramer Hill				TOTALS	
DESCRIPTION	QTY	UNIT		TOTAL UNIT COST	TOTAL
CRAMER HILL Phase 2					
01 - GENERAL REQUIREMENTS					
General Requirements (8% of direct costs)	8%		\$	1,040,970.00	\$ 83,277.60
Total - 01 GENERAL REQUIREMENTS					\$ 83,277.60
02 - OFFROAD TRAIL on ACTIVE PRIVATE LAND					
Signage	27	EA	\$	175.00	\$ 4,725.00
Clearing and Grubbing	1	LS	\$	24,630.00	\$ 24,630.00
Excavation	1230	CY	\$	45.00	\$ 55,350.00
6" Stone Base	5533	SY	\$	10.00	\$ 55,330.00
4" Asphalt Sidewalk Pavement	5533	SY	\$	25.00	\$ 138,325.00
2" Asphalt Sidewalk Pavement	5533	SY	\$	22.00	\$ 121,726.00
2' Dense Graded Agg Stone Shoulders	9960	SF	\$	2.25	\$ 22,410.00
Benches	3	EA	\$	1,000.00	\$ 3,000.00
Trash Receptacles	2	EA	\$	750.00	\$ 1,500.00
Trees	12	EA	\$	2,000.00	\$ 24,000.00
Landscaping	1	Allow	\$	22,320.00	\$ 22,320.00
Erosion Control	1	LS	\$	8,370.00	\$ 8,370.00
Easement (allow)	49260	SF	\$	6.25	\$ 307,875.00
Total - 02					\$ 789,561.00
03 - OFFROAD TRAIL on PAPER STREET					
Signage	14	EA	\$	175.00	\$ 2,450.00
Clearing and Grubbing	1	LS	\$	13,150.00	\$ 13,150.00
Excavation	649	CY	\$	45.00	\$ 29,205.00
6" Stone Base	2922	SY	\$	10.00	\$ 29,220.00
4" Asphalt Sidewalk Pavement	2922	SY	\$	25.00	\$ 73,050.00
2" Asphalt Sidewalk Pavement	2922	SY	\$	22.00	\$ 64,284.00
2' Dense Graded Agg Stone Shoulders	5260	SF	\$	2.25	\$ 11,835.00
Benches	1	EA	\$	1,000.00	\$ 1,000.00
Trash Receptacles	1	EA	\$	750.00	\$ 750.00
Trees	6	EA	\$	2,000.00	\$ 12,000.00
Landscaping	1	Allow	\$	10,520.00	\$ 10,520.00
Erosion Control	1	LS	\$	3,945.00	\$ 3,945.00
Total - 03					\$ 251,409.00
Total Cramer Hill Phase 2 Direct Costs				\$	1,040,970.00
General Requirements (from above)				8% \$	83,277.60
Sales Tax - Included with Materials Only				0% \$	-
OH&P				15% \$	168,637.14
Bonds				1.5% \$	19,393.27
Contingency				20% \$	262,455.60
Escalation				0.0% \$	-
CRAMER HILL PHASE 2 TOTAL COSTS				\$	1,574,733.61

The detailed estimate above includes all land acquisition/easements and trail construction.



Cramer Hill Phase 3 - 27th Street to Von Nida Park

Cost Estimate

1. Engineering and Permitting	\$168,225
2. Land Acquisition or Easements	\$463,607
3. Trail Construction	\$1,065,711
TOTAL	\$1,697,543
Annual Maintenance and Operation	\$40,000

Alternative Routes

Off-Road Trail	\$23,987
----------------	----------

PROJECT: Cramer Hill				TOTALS	
DESCRIPTION	QTY	UNIT		TOTAL UNIT COST	TOTAL
CRAMER HILL Phase 3					
01 - GENERAL REQUIREMENTS					
General Requirements (8% of direct costs)	8%		\$	1,010,948.00	\$ 80,875.84
Total - 01 GENERAL REQUIREMENTS					\$ 80,875.84
02 - OFFROAD TRAIL on VACANT PRIVATE LAND					
Signage	9	EA	\$	175.00	\$ 1,575.00
Clearing and Grubbing	1	LS	\$	8,040.00	\$ 8,040.00
Excavation	397	CY	\$	45.00	\$ 17,865.00
6" Stone Base	1787	SY	\$	10.00	\$ 17,870.00
4" Asphalt Sidewalk Pavement	1787	SY	\$	25.00	\$ 44,675.00
2" Asphalt Sidewalk Pavement	1787	SY	\$	22.00	\$ 39,314.00
2' Dense Graded Agg Stone Shoulders	3216	SF	\$	2.25	\$ 7,236.00
Benches	1	EA	\$	1,000.00	\$ 1,000.00
Trash Receptacles	1	EA	\$	750.00	\$ 750.00
Trees	4	EA	\$	2,000.00	\$ 8,000.00
Landscaping	1	Allow	\$	6,432.00	\$ 6,432.00
Erosion Control	1	LS	\$	2,412.00	\$ 2,412.00
Easement (allow)	16080	SF	\$	4.25	\$ 68,340.00
Total - 02					\$ 223,509.00
03 - OFFROAD TRAIL on PAPER STREET					
Signage	10	EA	\$	175.00	\$ 1,750.00
Clearing and Grubbing	1	LS	\$	8,950.00	\$ 8,950.00
Excavation	442	CY	\$	45.00	\$ 19,890.00
6" Stone Base	1989	SY	\$	10.00	\$ 19,890.00
4" Asphalt Sidewalk Pavement	1989	SY	\$	25.00	\$ 49,725.00
2" Asphalt Sidewalk Pavement	1989	SY	\$	22.00	\$ 43,758.00
2' Dense Graded Agg Stone Shoulders	3580	SF	\$	2.25	\$ 8,055.00
Benches	1	EA	\$	1,000.00	\$ 1,000.00
Trash Receptacles	1	EA	\$	750.00	\$ 750.00
Trees	4	EA	\$	2,000.00	\$ 8,000.00
Landscaping	1	Allow	\$	7,160.00	\$ 7,160.00
Erosion Control	1	LS	\$	2,685.00	\$ 2,685.00
Total - 03					\$ 171,613.00
04 - OFFROAD TRAIL on ACTIVE PRIVATE LAND					
Signage	21	EA	\$	175.00	\$ 3,675.00
Clearing and Grubbing	1	LS	\$	19,050.00	\$ 19,050.00
Excavation	941	CY	\$	45.00	\$ 42,345.00
6" Stone Base	4233	SY	\$	10.00	\$ 42,330.00
4" Asphalt Sidewalk Pavement	4233	SY	\$	25.00	\$ 105,825.00
2" Asphalt Sidewalk Pavement	4233	SY	\$	22.00	\$ 93,126.00
2' Dense Graded Agg Stone Shoulders	7620	SF	\$	2.25	\$ 17,145.00
Benches	2	EA	\$	1,000.00	\$ 2,000.00
Trash Receptacles	1	EA	\$	750.00	\$ 750.00
Trees	9	EA	\$	2,000.00	\$ 18,000.00
Landscaping	1	Allow	\$	15,240.00	\$ 15,240.00
Erosion Control	1	LS	\$	5,715.00	\$ 5,715.00
Easement (allow)	38100	SF	\$	6.25	\$ 238,125.00
Pedestrian Crossing Treatments	2	EA	\$	2,500.00	\$ 5,000.00
Bicycle crossing pavement markings	4	EA	\$	1,500.00	\$ 6,000.00
Sharrow	12	EA	\$	125.00	\$ 1,500.00
Total - 04					\$ 615,826.00
Total Cramer Hill Phase 3 Direct Costs				\$	1,010,948.00
General Requirements (from above)				8% \$	80,875.84
Sales Tax - Included with Materials Only				0% \$	-
OH&P				15% \$	163,773.58
Bonds				1.5% \$	18,833.96
Contingency				20% \$	254,886.28
Escalation				0.0% \$	-
CRAMER HILL PHASE 3 TOTAL COSTS				\$	1,529,317.65

The detailed estimate above includes all land acquisition/easements and trail construction.



Cramer Hill Phase 4 - Baldwin's Run to 36th Street Cost Estimate

1. Engineering and Permitting	\$130,361
2. Land Acquisition or Easements	\$0
3. Trail Construction	\$1,185,101
TOTAL	\$1,315,462
Annual Maintenance and Operation	\$31,400

Alternative Routes

Off-Road Trail	\$658,530
----------------	-----------

PROJECT: Cramer Hill				TOTALS	
DESCRIPTION	QTY	UNIT		TOTAL UNIT COST	TOTAL
CRAMER HILL Phase 4					
01 - GENERAL REQUIREMENTS					
General Requirements (8% of direct costs)	8%		\$	783,405.00	\$ 62,672.40
Total - 01 GENERAL REQUIREMENTS					\$ 62,672.40
02 - OFFROAD TRAIL on PUBLIC LAND					
Signage	60	EA	\$	175.00	\$ 10,500.00
Clearing and Grubbing	1	LS	\$	110,520.00	\$ 110,520.00
Excavation	2729	CY	\$	45.00	\$ 122,805.00
Soil Path-Graded	43200	LF	\$	0.75	\$ 32,400.00
6" Stone Base	6280	SY	\$	10.00	\$ 62,800.00
4" Asphalt Sidewalk Pavement	6280	SY	\$	25.00	\$ 157,000.00
2" Asphalt Sidewalk Pavement	6280	SY	\$	22.00	\$ 138,160.00
2' Dense Graded Agg Stone Shoulders	11304	SF	\$	2.25	\$ 25,434.00
Benches	6	EA	\$	1,000.00	\$ 6,000.00
Trash Receptacles	4	EA	\$	750.00	\$ 3,000.00
Trees	27	EA	\$	2,000.00	\$ 54,000.00
Landscaping	1	Allow	\$	44,208.00	\$ 44,208.00
Erosion Control	1	LS	\$	16,578.00	\$ 16,578.00
Total - 02					\$ 783,405.00
Total Cramer Hill Phase 4 Direct Costs				\$	783,405.00
General Requirements (from above)				8% \$	62,672.40
Sales Tax - Included with Materials Only				0% \$	-
OH&P				15% \$	126,911.61
Bonds				1.5% \$	14,594.84
Contingency				20% \$	197,516.77
Escalation				0.0% \$	-
CRAMER HILL PHASE 4 TOTAL COSTS				\$	1,185,100.61

The detailed estimate above includes all land acquisition/easements and trail construction.

Potential Funding Sources

A number of funding sources can help in the design and construction of the projects. This section details several of those sources and who the awarding agency is.

The major sources of funds for the projects in the region's Transportation Improvement Program (TIP) are the United States Department of Transportation's Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). In addition, monies are made available by the state of New Jersey to match federal funding in varying ratios or to provide 100 percent financing for selected projects on the state highway systems. Counties, municipalities, and private developers or toll authorities, as well as transit operators, may also participate in providing matching funds for federal aid. Federal funding programs for which bicycle facilities are explicitly made eligible are described in this section of the plan.

Cross County Connection Transportation Management Association has also developed a comprehensive funding guide to bicycle and pedestrian facilities that provide detailed descriptions of the available funding sources at the Federal, State, and private level. The link to the entire report is below:

<http://www.driveless.com/wp-content/uploads/sites/5/2020/05/CCCTMA-Funding-Guide-2020.pdf>

Additional language for funding sources comes from the Camden County Bicycling and Multi-Use Trails Plan (2015) prepared by DVRPC. The link the report is below:

<http://www.camdencounty.com/wp-content/uploads/files/bikeplan.pdf>

Better Utilizing Investments to Leverage Development Grant Program (BUILD)

Awarding Agency: US DOT

The Better Utilizing Investments to Leverage Development Program (BUILD) allows the United States Department of Transportation (USDOT) to invest in road, rail and port projects that help achieve national objectives. The grant was formerly known as the Transportation Investment Generating Economic Recovery (TIGER) grant. This program typically funds large scale projects that have an impact on the nation, a metropolitan area, or a region. Unlike other federally funded grants, BUILD is administered directly through the USDOT.

Eligible applicants for BUILD grants include state, local, and county governments, port authorities, transit agencies and MPOs. In previous funding years, the program funded Circuit Trail projects in Camden and Philadelphia.

Transportation Alternatives Program (TAP)

Awarding Agency: DVRPC/NJ DOT

Moving Ahead for Progress in the 21st Century (MAP-21), the current federal transportation authorizing legislation, consolidated three programs that have historically been sources of funding for bicycle and pedestrian projects (Transportation Enhancements, Safe Routes to School, and Recreational Trails) into a single program: Transportation Alternatives.

While many types of projects are eligible, bicycle and pedestrian project eligibility is summarized as follows:

Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic-calming

techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.

- *Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs;*
- *Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other non-motorized transportation users;*
- *Construction of turnouts, overlooks, and viewing areas.*

For the most current information on TAP funding availability and application rounds, please visit the DVRPC website:

<http://www.dvrpc.org/TAP>

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program

Awarding Agency: DVRPC

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds transportation projects that improve air quality and reduce traffic congestion. The program is administered by the regional MPOs. Bicycle and pedestrian projects with a transportation purpose are good candidates for funding through CMAQ.

Due to its complexity, the regional MPOs require a minimum proposal of \$250,000 for construction projects. Municipalities, counties, non-profits and private entities are eligible to apply for CMAQ.

Hazard Elimination Program (Section 1112)

Awarding Agency: NJ DOT

Bicycling and walking hazards are now specifically included in the list of eligible

activities for this program. In addition, the definition of a public road now includes a publicly owned bicycle or pedestrian pathway or trail and traffic calming measures.

Green Acres

Awarding Agency: NJ DEP

The Green Acres program was created by a ballot initiative in 1961 and subsequently renewed through 12 additional ballot measures. The program funds a range of activities through its five program areas: State Park and Open Space Acquisition, Local and Nonprofit Funding, Stewardship and Legal Service, Planning and Information Management, and Office of Natural Resource Restoration. Generally, all Green Acres funding is for the support of outdoor recreation and conservation and must provide public access to these resources.

Recreational Trails Program

Awarding Agency: NJ DEP

This program is funded through the Federal Highway Administration's Recreational Trails Program (RTP) and provides funding specifically for acquisition for, and construction of, trails as well as ongoing maintenance of trails and trail facilities. Project costs may be funded up to an 80% federal share with a 20% local match. The maximum grant award for non-motorized projects is \$24,000.

Cross County Connection Transportation Management Association (CCCTMA)

TDM Reimbursements

Awarding Agency: CCCTMA

This program makes available monies to member organizations to reward them for expanding their use of Transportation Demand Management (TDM) strategies. This money can be used for the purchase and installation of pedestrian and bicycle-

related enhancements such as bicycle racks, crosswalks to enhance safety and visibility, and other improvements.

[Bikeways Grant Program](#)

Awarding Agency: NJ DOT

NJDOT's Bikeways Grant Program promotes bicycling as an alternative mode of transportation and helps further New Jersey's goal of creating 1,000 new miles of dedicated bike paths. These funds can also be used for the preliminary and final design of bicycle facilities in municipalities that are eligible for Urban Aid.

The construction of separated bicycle facilities are given priority in the selection process; however, the proposed construction of any bicycle facility will be considered for funding. Proposals are also evaluated based on the creation of new bikeway mileage, connectivity to existing bikeways and community support.

[Municipal Aid](#)

Awarding Agency: NJ DOT

Municipal Aid is a state grant funded through the Transportation Trust Fund (TTF). The grant is provided to municipalities in order to supplement their own transportation programs, generally funded by municipal bonds. Projects funded by the grant must fall within seven categories, four of which can be used to implement bicycle and pedestrian infrastructure. These categories are pedestrian safety improvements, construction of bikeways, quality of life improvements and roadway safety. Though the grant is mainly used to implement road resurfacing programs, municipalities could incorporate bicycle and pedestrian infrastructure into these projects and maximize the effectiveness of the Municipal Aid program at a low cost.

[Private foundation funding](#)

Awarding Agency: Various

In recent years, regional philanthropic organizations such as the William Penn Foundation have been both generous and ambitious in providing financial support for building the regional trails network. This has occurred both through the creation of new, temporary discretionary funding programs such as the DVRPC-facilitated Regional Trails Program, and on an individual basis to specific grantees in response to individual project proposals. Sponsors with project ideas should consider reaching out to the William Penn Foundation and others to explore funding opportunities that may become available from time to time.

[Other Sources](#)

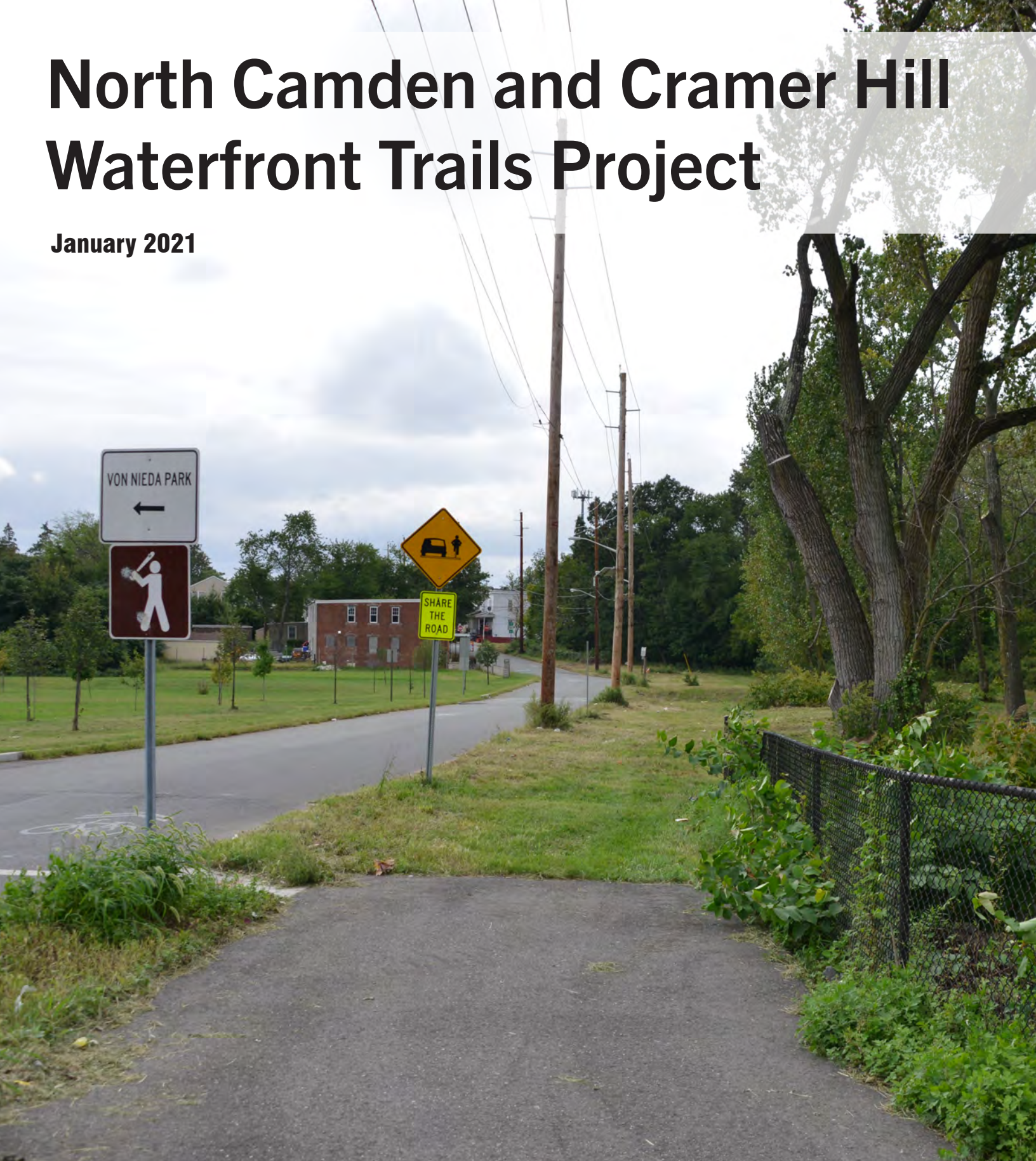
Awarding Agency: Various

Bicycle and pedestrian projects are eligible for other funds, including scenic byways, bridge, transit, safety (non-construction), and federal lands programs.

There are also some non-federal programs that supply smaller grants to the planning and design of bicycle facilities. These include Bikes Belong grants, Kodak American Greenway Awards, and People for Bikes' Community Grant Program. Additionally, as the connection between health outcomes and the ability to walk and bike becomes more visible, a number of health foundations and public health agencies, such as the Robert Wood Johnson Foundation and Shaping NJ, have become emerging sources of funding for completing projects that expand the options for active transportation.

North Camden and Cramer Hill Waterfront Trails Project

January 2021



Prepared For:



Prepared By:

AECOM

