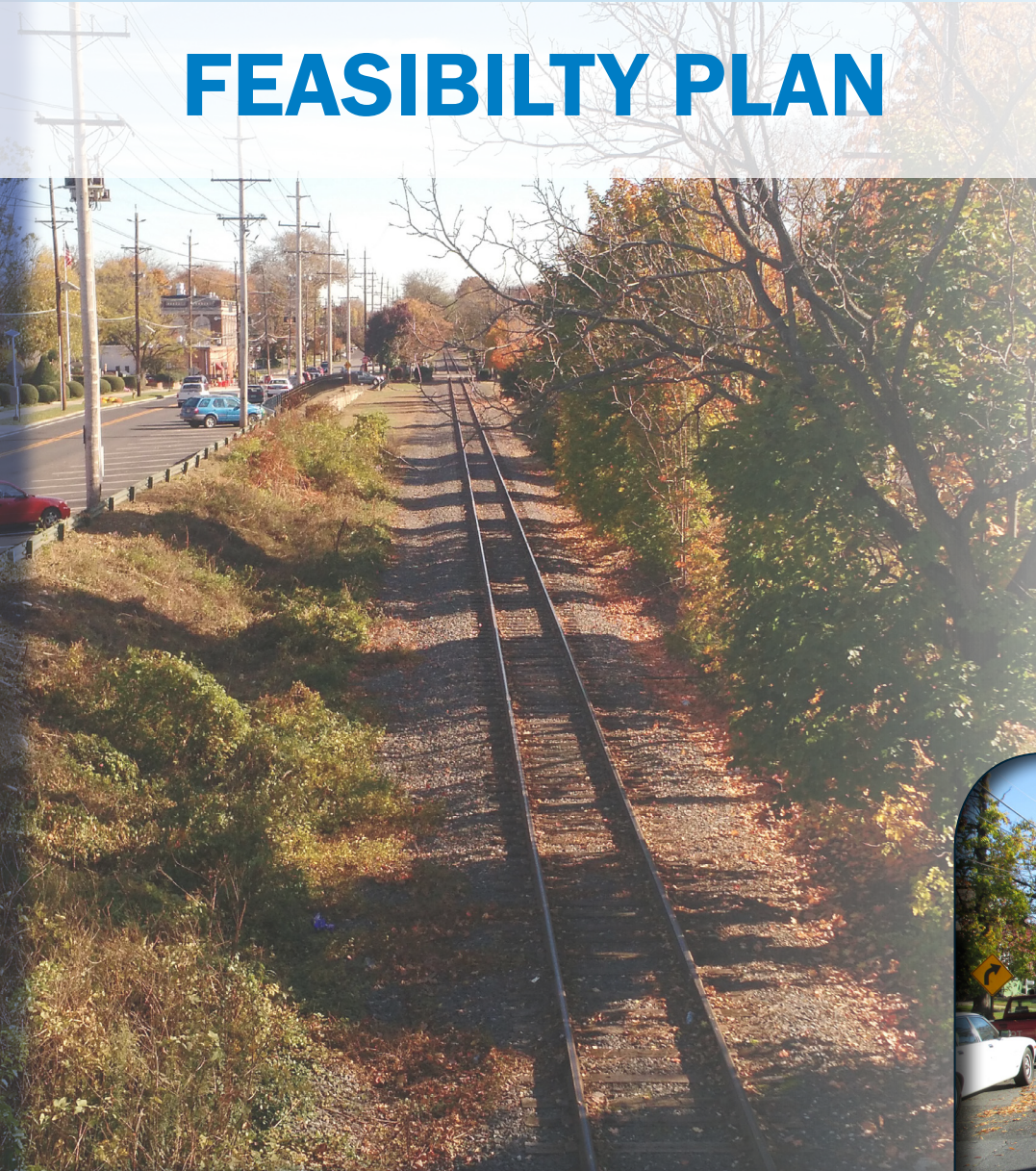


CROSS CAMDEN COUNTY TRAIL

FEASIBILITY PLAN



camden  county

Making It Greener, Together.

BOARD OF FREEHOLDERS



JUNE 2017

Acknowledgments

Thank you to the members of the Cross Camden County Trail Study Review Committee and the citizens of Camden County who contributed comments. This trail will be a one of a kind treasure for the citizens of Camden County.

Client

Camden County Division of Environmental Affairs

Study Review Committee Members

Name	Representing
Freeholder Jeff Nash	Camden County
Mayor John Ward	Audubon Borough
Sandi Kelly	Collingswood Borough
Bruce Schwartz	Cherry Hill Township
Mayor Meredith S. Dobbs	Hi-Nella Borough
Mike Cannon	Laurel Springs Borough and Bike Camden County
Algiers Holmes	Lawnside Borough
Mayor Betty Ann Cowling-Carson	Magnolia Borough
Brian Carson	Magnolia Borough
Bonnie Taft	Oaklyn Borough
Mayor Gary Passanante	Somerdale Borough
Chuck Riebel Jr.	Somerdale Borough
Mayor Barry Wright	Winslow Township
Jack Sworaski	Camden County Division of Environmental Affairs
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Matthew Zochowski	Camden County Division of Planning
Patricia Hearey	Camden County Dept. of Health & Human Services
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Kevin Becica	Camden County Engineer
Chris Mrozinski	Camden County Open Space Advisory Committee
Steve Jandoli	NJ DEP Green Acres Program
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Justin Dennis	New Jersey Conservation Foundation
Liz Sewell	Rails-to-Trails Conservancy
John Boyle	Bicycle Coalition of Greater Philadelphia
Bill Troutman	Citizen

Consultant Team



Photo Credits: All photos in this report, unless otherwise noted, are courtesy of NV5, Inc.

Special Thanks to Camden County Freeholder Jeffrey Nash for championing this project!

Table of Contents

Executive Summaryv

Project Overview1

Trail Study Methodology3

1. Listen3

2.Gather Information.....6

3.Analyze7

4.Recommend Alternatives.....8

5.Determine Impacts.....8

Recommended Alignment9

Trail Alignment Evaluation.....10

Design Standards.....11

Rail-With-Trail12

Summary of Potential Property Impacts.....12

Regional and National Connections.....13

Segment 1 - Camden Waterfront15

Segment 2 - Cooper River North.....19

Segment 3 - Cooper River South25

Segment 4 - Browning Road.....31

Segment 5 - Newton Lake35

Segment 6 - Atlantic Avenue.....41

Segment 7 - Atlantic Avenue.....47

Segment 8 - Atlantic Avenue.....51

Segment 9 - Atlantic Avenue.....55

Segment 10 - Atlantic Avenue59

Segment 11 - Atlantic Avenue63

Segment 12 - Atlantic Avenue67

Segment 13 - Atlantic Avenue73

Segment 14 - Clementon-Pine Hill Connector.....77

Segment 15 - Great Egg Harbor Greenway81

Segment 16 - New Brooklyn County Park85

Segment 17 - Winslow Wildlife Management Area.....89

Economic Impact Analysis93

Health Impact Analysis.....105

Operations, Maintenance, &Security108

Enviromental Impacts & Access.....110

Funding Sources111

Case Studies of Similar Trails116

References118

Table of Contents

Appendix

A: Study Review Committee Meeting #1, October 26, 2016

B: Project Media & Outreach Materials

C: Public Input Session #1 Materials, December 2016

D: Survey Results, December 2016

E: WikiMap Results, December 2016

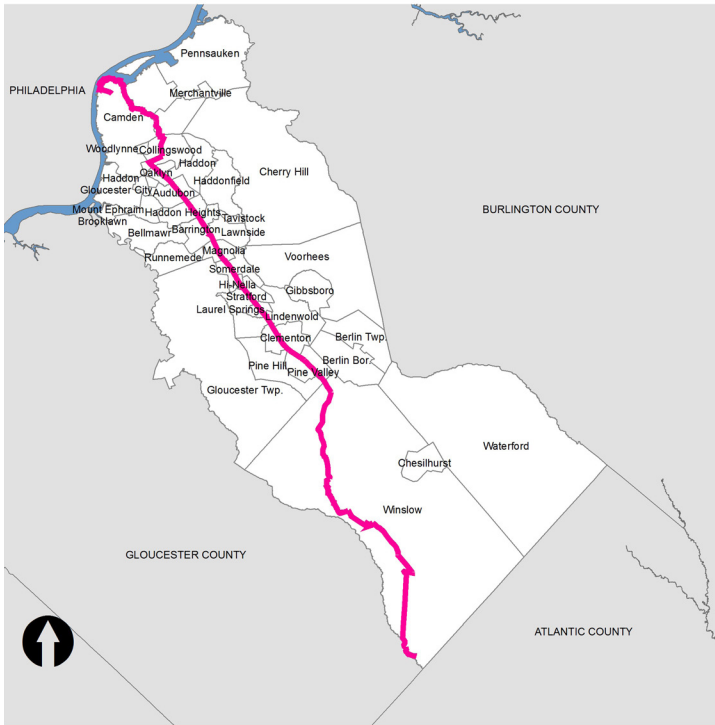
F: Study Review Committee Meeting #2, February 2, 2017

G: Study Review Committee Meeting #3, May 3, 2017

H: Public Input Session #2 Materials, June 8, 2017

Executive Summary

Camden County is undertaking the ambitious goal of constructing a bicycle and pedestrian trail across the length of the county, beginning at the Delaware River waterfront and extending to the southeastern county line, a distance of approximately 33 miles. This trail will act as the backbone of the future county-wide trail and bike lane network that was recently planned in conjunction with the Delaware Valley Regional Planning Commission. The purpose of this document is to show the technical feasibility of this backbone trail, and the physical, economic, health, and maintenance impacts that trail will have.

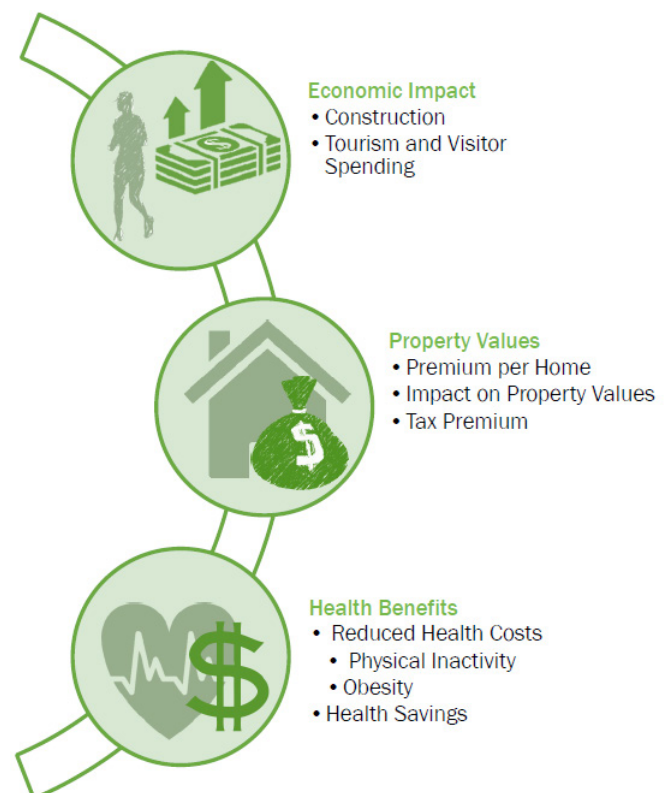


Camden County and its trail planning consultant team, led by NV5, Inc. (formerly The RBA Group), took on an extensive public outreach campaign to educate the public about the potential for a cross county trail. A series of public meetings, online surveys, and mapping exercises were used to help the county and its consultant team determine where citizens want to go, what type of facility makes them comfortable, and what type of amenities they want to see on the future trail. A stakeholder team consisting of municipal partners, county officials, and local non-profits assisted county and consultant staff with recommendations for the location of the trail. The consultant team took an all-encompassing look at potential trail corridors across the county, studying environmental, right-of-way, and structural impacts, and investigated the overall technical feasibility of the selected corridor. The evaluation of these technical components, coupled with input from project stakeholders and county citizens, produced the route of a single cross county trail that will combine current trails with future trail segments. In addition to examining the engineering components of

the potential trail, the consultant team investigated the potential economic impacts this trail could have on Camden County. As a result of the construction of the full trail and the subsequent influx of users (both Camden County Residents and out-of-town trail users), the proposed Cross Camden County Trail is estimated to:

- Infuse over \$19.5 million per year into Camden County's local economy through tourist spending
- Support a total of \$9.8 million in economic output
- Add 114 jobs along the route
- Add \$4.2 million in labor income to the county
- Inject \$963,000 in local and state taxes per year

These estimates could very well end up being far too conservative, as the \$19.5 million in additional spending by out-of-town trail visitors represents just 2.3 percent of current tourism spending within Camden County (\$844 million) and 1.3 percent of existing tourism employment (9,015 jobs). As portions of the Camden County trail are developed and trail surveys are implemented, more detailed estimates of trail usage and spending will enable a more refined analysis of the economic impact from tourism spending in Camden County as a result of the proposed trail.



Over the years, many studies have indicated an enhancement in residential property value due to proximity (a “proximity effect”) to trails and greenways, and this premium (typically ranging from five to 10 percent) is found with direct adjacency as well as with distances extending up to a mile. Based on our proximity effect analysis, on average, property values for the 51,100 single-family homes located within a mile of the proposed trail are likely to increase by approximately \$7,300 per home, with this increase in value as high as \$11,500 for homes located immediately adjacent to the trail. With a total real estate premium of approximately \$373.4 million, the total real estate value captured by these single family homes, alone, provides Camden County with an additional \$14.0 million in general tax revenue per year.



Camden Middle School students ride along the Delaware River. (Photo by Anya Saretzky, Rails-to-Trails Coalition)

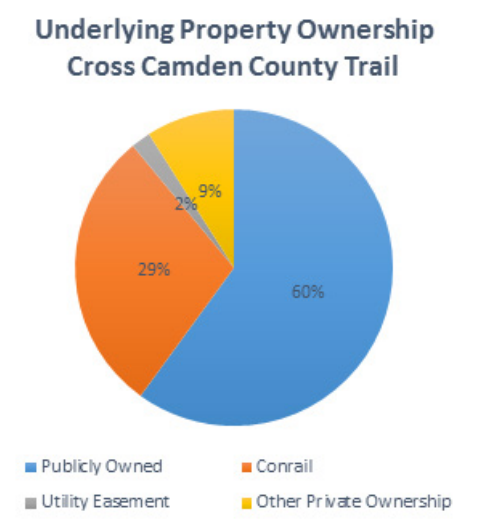
The health benefits to this county-wide trail are significant as well. According to 2016 County Health Rankings data, rates of physical inactivity and obesity (BMI of 30 percent or more) among adult persons in Camden County (27 and 29 percent, respectively) are both higher than those found within the State, overall (24 and 25 percent, respectively). In addition to the elevated health risk associated with physical inactivity and obesity, the associated medical costs in Camden County are significant. In Camden County, obesity-related absenteeism, alone, (102,110 obese adults) costs between \$9.0 and \$15.3 million per year, while physical inactivity (108,470 adults) cost nearly \$87.0 million in medical costs per year.

Fortunately, trails have a significant return on investment (ROI) when considering healthcare cost savings. It is estimated that implementation of the Cross Camden County Trail could yield approximately 8,520 new exercisers in Camden County, yielding an estimated healthcare savings of over \$6.8 million per year from reductions in physical inactivity alone. Recent case studies suggest that for every dollar spent on bicycle and pedestrian trails, there is a conservative healthcare cost savings of approximately two dollars.

A small section of the proposed Cross Camden County Trail is already completed, or is in the design and permitting stages. Of the approximately 33 miles of trail, nearly two miles of the trail are completed, and about one mile of trail is under preliminary or final design. About another 1.5 miles of the trail have been completed, but will require widening to bring it up to the design standards set forth by this study.

Even more encouraging is that approximately 62% of the land required for this 33-mile trail is publicly owned or within utility easements. Another 29% of the land required is owned by one entity: Conrail. Camden County and other project partners will work with Conrail to obtain easements or acquire the surplus property adjacent to their active rail line to help make this trail a reality. The remaining 9% of the trail alignment that is on other private parcels will only require small easements along the fringes of parcels.

With the completion of this study, Camden County and its municipalities can move forward with a unified vision of the cross-county trail. Funding can be obtained from outside sources to design, permit, and construct this trail by segment (or groups of segments). Someday, with the help of regional and state partners, this trail could be part of the first off-road bicycling connection between the Delaware River and the Atlantic Ocean, opening up the possibility of a Philadelphia to Atlantic City trail or bike and pedestrian route.

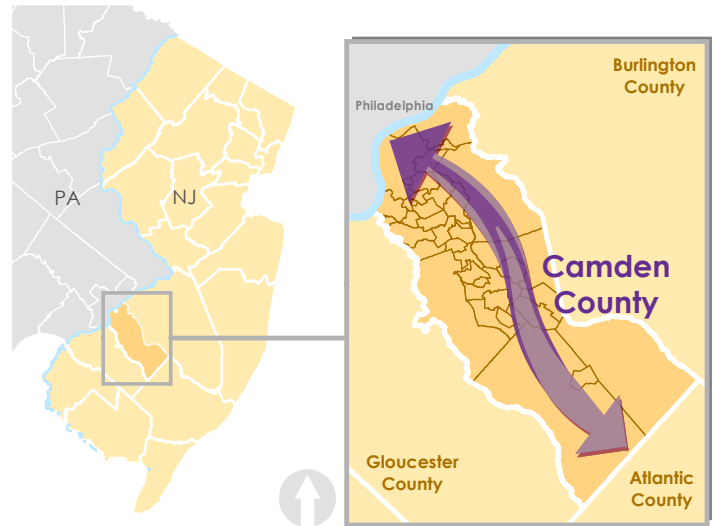


Project Overview

In 2014, Camden County completed a Bicycling & Multi-Use Trails Plan, which identified nearly 500 miles of trails and on-street bicycle lanes that will eventually connect cities, townships and boroughs to create a full network across the county. Camden County currently has about 60 miles of trails and bicycle lanes, but these facilities are typically short segments scattered all across the county.

In order to realize the potential that a robust bicycle and pedestrian network can have, and to keep the momentum of the ambitious Bicycling & Multi-Use Trails Plan moving forward, the county decided to investigate a central route that will serve as the “backbone” of the entire built-out system. Camden County officials envisioned a route that would cut across the county, from the Ben Franklin Bridge in Camden, through various suburban boroughs, to the preserved open spaces in the rural parts of the county. Future trail and bike lane construction would then be able to connect to this central trail, helping to accelerate the build-out of the system.

While one of the major goals of this initial route is to create a recreational trail that will connect to parks and open space, it is also a goal to create a practical route that will encourage daily bicycle commuting and utilitarian trips, such as for getting groceries or going out to eat. The potential tourism component is a significant factor to consider as the route is investigated.



The Cross Camden County Trail will provide a continuous route for pedestrians and bicyclists from the Camden Waterfront to the county line in Winslow Township. It will be an accessible, safe, and valuable resource for both recreation and commuting, helping to connect people and communities throughout the Delaware Valley and beyond.

In mid-2016, Camden County engaged a team of consultants led by NV5 (formerly The RBA Group) to assist with a feasibility study to look at a central trail across the county, from the Delaware River in Camden to the Atlantic County line. The project team, consisting of Camden County staff, NV5, Cooper's Ferry Partnership, 4ward Planning, and Promatech, Inc., worked closely with each other to determine a trail route, detail its engineering challenges, and look at the potential impacts of the trail. This trail is now known as the Cross Camden County Trail (CCCT).

This report is a detailed summary of the efforts made to determine the trail route across the county, the engineering and legal challenges of building this ambitious project, and what the future impacts of the trail might be.

Project Goals

1

Establish an uninterrupted trail across Camden County that will act as the backbone of a county-wide system.

2

Route the trail to create a high demand bicycling and walking corridor that will act as a stimulus of economic development throughout the county.

3

Create an enhanced level of user experience in varying settings throughout the entire transect of Camden County.

4

Connect citizens of Camden County to publicly owned open space and parks.

5

Create an All Ages and Abilities trail for the full length of the county.

Trail Study Methodology

1. Listen

Before determining where a trail across Camden County could be placed, it was important for the county to listen to its constituents. The project team developed a multi-level strategy to gather a wide range of public input.

In order to have a place to start the conversation about a single, cross-county trail, County staff had determined one potential route across the county, based on routes in the 2015 Bicycling & Multi-Use Trails Plan. This initial cross-county route utilized available rights-of-way and publicly-owned open space to maximize practicality. The route helped the public and stakeholders begin to visualize. The project team then developed a study corridor, outlining the boundaries of the feasibility study detailed in this report.

A series of input sessions were held in the fall of 2016 so that the project team could listen to the wishes and concerns of the citizens and visitors of Camden County.

The first major group assembled consisted of the Study Review Committee (SRC). The goal of the SRC was to gather representatives from various local and state agencies, municipalities, and non-profits who have a vested interest in this trail across Camden County.

Agencies/Non-Profits		Municipalities	
NJDEP Green Acres Program	Rails-to-Trails Conservancy	New Jersey Conservation Foundation	Bicycle Coalition of Philadelphia and Camden County
Camden County Open Space Advisory Committee	Camden County Division of Engineering	Camden County Division of Environmental Affairs	Camden County Division of Planning
Camden County Division of Health & Human Services			

On October 26, 2016, the first SRC meeting was held at the Camden County Parks Department in Cherry Hill. At this meeting, the project team presented on several topics, including:

- How to create the highest demand for this trail, increase the initial return on investment, and leverage public support to expand the system.
- The importance of trail designed to a standard known as All Ages and Abilities (AAA), where people as young as 8 years-old to 80 years-old can ride or walk independently on any stretch comfortably.
- The potential physical constraints of the project including issues like property ownership, street parking, and environmental conditions would be studied along all potential routes.
- The reason for creating this plan is to show potential funding sources (such as NJDOT, DVRPC, or NJ DEP) that the County and local municipalities are serious about creating this major trail, that it would be technically feasible, and to have reliable cost estimates for construction.



After receiving feedback from the SRC, the project team started gathering input from the general public. This effort involved several different approaches to gather information from the citizens and visitors of Camden County:

- **Formal Public Meeting** The project team hosted an open house meeting on December 1, 2016, where members of the public could view information about the proposed trail. The materials presented at this formal public meeting included informational boards on the project goals, explanations of the location of the preliminary county selected corridor, and views of some of the potential challenges of the trail design and construction. Attendees could leave comments on the interactive WikiMap or the hard copy map, and take the survey.



- **Pop-Up Public Meetings** The project team conducted two “pop-up” sessions at the Camden County WinterFest ice skating rink on two consecutive weekends in early December 2016. The project team used the pop-up to connect directly to the citizens of Camden County, and increase awareness of the project. All materials from the formal public meeting were available at the pop-up sessions and fliers listing the project website were handed out so that individuals could visit at their convenience.

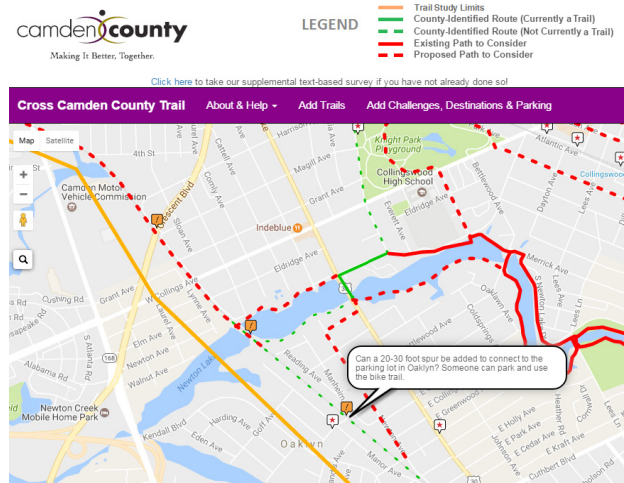


- **WikiMap** The project team utilized the online WikiMap platform to solicit geographic based comments on the trail corridor. Citizens and potential trail users added suggested routes, points of interest, and locations of safety concern on the WikiMap. This map was accessible at all public outreach sessions, as well as through the project website. A list of Wikimap comments is available in Appendix E.
- **Survey** A survey was developed to solicit general comments on the trail, gather input on amenities and location, and ask potential users what type of on-street infrastructure makes them most comfortable. This survey was available in both online and paper formats. The results of the survey are available in Appendix D.
- **Project Website** All of the materials described above were available at the website CamdenCounty.com/Trails, This was especially helpful for residents who could not attend a public meeting. This website (and accompanying QR Code) were advertised on fliers handed out at the public meetings, as well as in social, print, and online media.
- **Social Media Outreach** Camden County and the project team used social media platforms to help get the word out about the public meetings and the project website.
- **Online & Print Media** Feature stories in the Camden Courier-Post, Philadelphia Inquirer, and South Jersey Observer helped publicize the public meetings and project website.

This public outreach effort garnered:

- Over 80 participants at the three public meetings
- 118 online and paper survey responses
- Over 150 individual point and line comments on WikiMap
- 60 followup comments on WikiMap feedback
- Countless exposure to the project via social, online, and print media

The data gathered from this public outreach effort is valuable not only for this trail feasibility study, but it will also be useful for the final design stages of the project.



WikiMap allowed potential trail users to comment on prospective routes



Camden County used social media, in addition to traditional media, to spread the word about public input sessions.

2. Gather Information

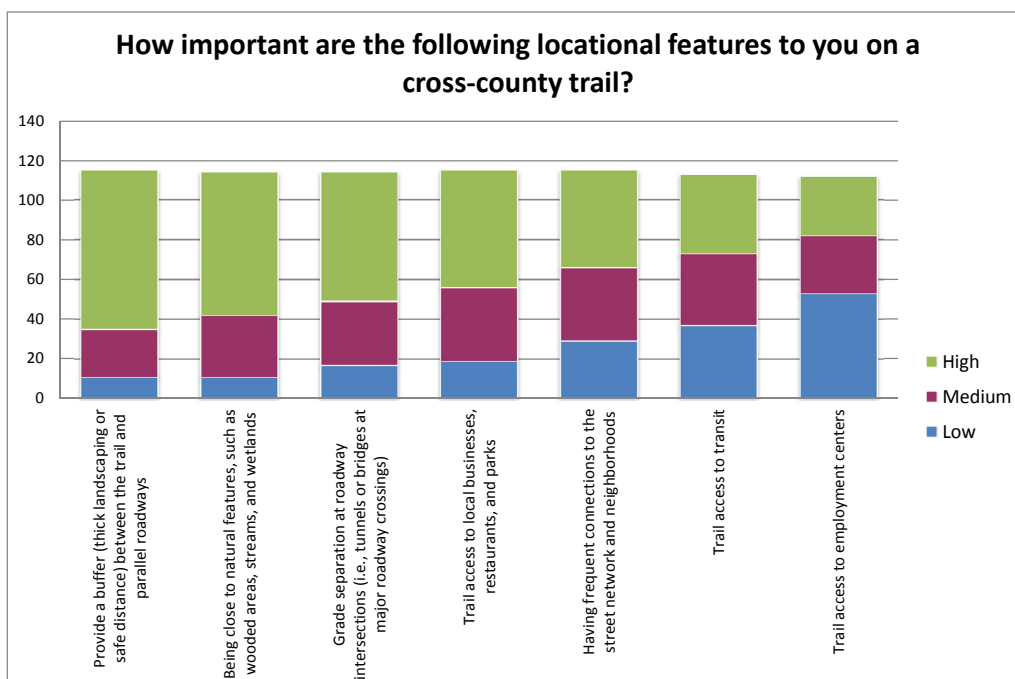
Concurrent with the **Listen** stage of this feasibility study, the project team took the opportunity to assemble pertinent information on the project corridor. This information included relevant Geographical Information Systems (GIS) data from Camden County, Delaware Valley Regional Planning Commission (DVRPC), New Jersey Department of Environmental Protection (NJ DEP), and other appropriate parties. This GIS data included:

- Right-of-Way, property lines, and ownership information
- Environmental features and constraints, including wetlands, streams, historical sites, and known contaminated areas
- Parks, open space, and existing trails
- Topography (contours)
- Recent aerial photography
- Employment centers, schools, and business districts

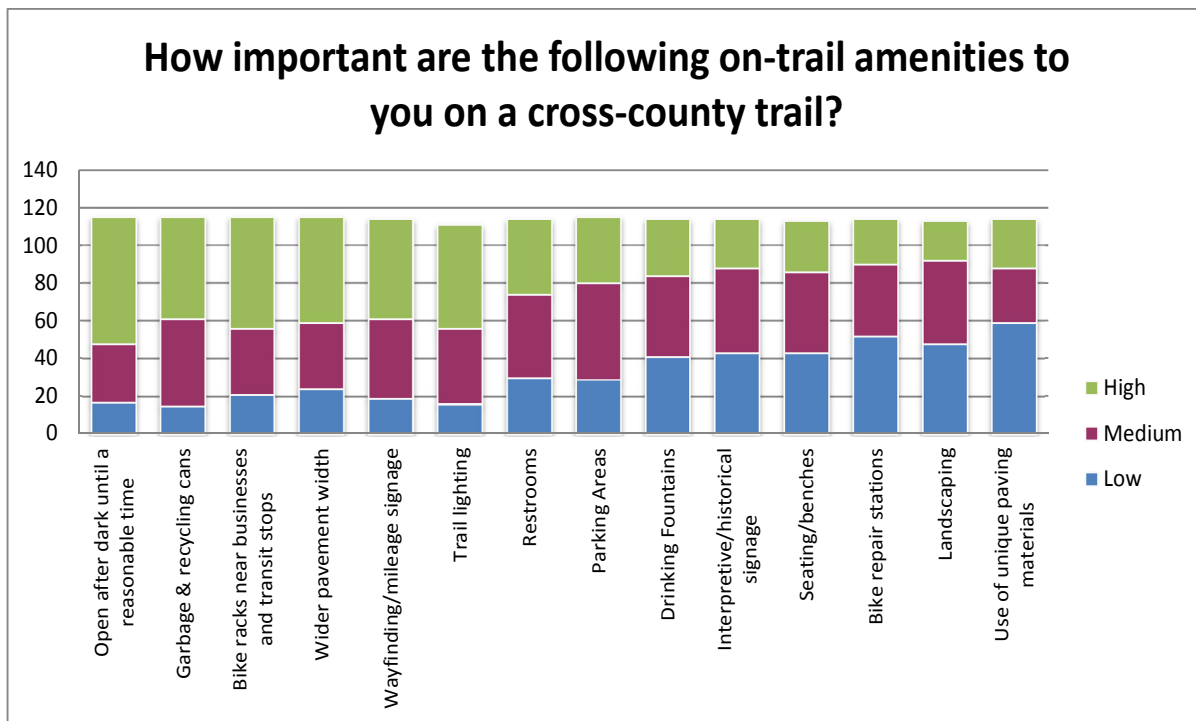
The project team also reviewed past studies related to this feasibility study, including:

- Camden County Open Space and Farmland Preservation Plan (2004)
- East Atlantic Ave. Bikeway Feasibility Study (2004)
- North Camden Neighborhood Plan (2008)
- Central Camden Bicycling & Multi-Use Trail (2009)
- Glassboro-Camden Line EIS (2013)
- Great Egg Harbor Greenway Feasibility Study (2013)
- Camden County Bicycling and Multi-Use Trails Plan (2014)
- Camden County Highway Plan (2015)
- Atlantic Ave. Corridor Multi-Use Study (TCDI) (2016)
- Camden GreenWay Circuit Trails Plan (2016)
- Newton Lake Trail Feasibility Study (2016)
- Various municipal Master Plans throughout the corridor (various dates)

WikiMap and survey data collected during the public input sessions was also used to help find out what specific type of bicycle and pedestrian facilities are preferred by the public. For example, residents rated trail buffers and being close to natural features higher than access to transit or employment centers.



The results of two survey questions (continued on page 11) reveal the preferences of potential trail users. See Appendix D for full survey results.



3. Analyze

Once data was collected, the project team performed a desktop analysis of the information. This involved a study of each of the specific trail routes identified in previous studies that are located within the project corridor. Using GIS information, Google Street View, and other information available online, the project team could look at potential alternatives and screen for opportunities and constraints. As was stated in the first Study Review Committee meeting, one of the goals of this project is to develop a county-wide trail that is intended for All Ages and Abilities. The project team kept this goal at the forefront of the alternatives screening.

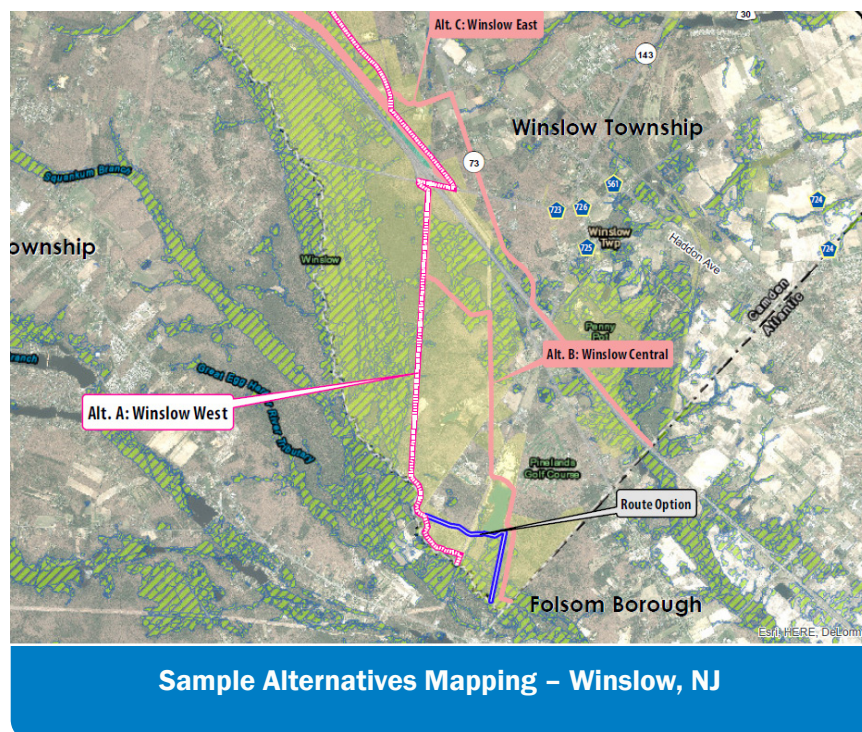
After performing the desktop analysis of potential trail routes, the project team completed several on-site visits to the corridor to confirm alternatives. During the on-site visits, the project team evaluated the feasibility of bicycle/pedestrian infrastructure, confirmed measurements made during the desktop analysis, took numerous photographs of features within the project corridor, and assessed the trail user experience and safety.



Project team members used fat bikes and GPS equipment to scout out the more remote sections of potential trail routes in the southern portion of Camden County.

4. Recommend Alternatives

Using all of the information gathered from the Study Review Committee, public outreach, previous studies, and the desktop and field analysis, the project team mapped a set of alternative trail alignments for each segment. These alignment alternatives were presented to the Study Review Committee on February 2, 2017. After receiving final input from Study Review Committee members and Camden County staff, as well as performing a qualitative balancing act of construction costs, economic benefits, constructability analysis, and property needs, the project team developed the preferred trail route. Maps of the preferred trail route can be found in the Recommended Alignment section of this study.



5. Determine Impacts

It will be important to know what kind of impacts the trail can have on Camden County and the surrounding communities. Done right, this trail can have much more than a recreational impact on local residents. It can also help attract visitors and new residents to Camden County. In order to get an understanding on those impacts, the project team developed a set of analysis topic summaries, which are further described in separate sections later in this report.

- **Trail User Demand**

How many cyclists and pedestrians can we expect to see on the trail?

- **Trail Economic Impact**

While economic impacts were studied qualitatively during the initial routing alternative analysis, a quantitative study was performed for the preferred alternative to obtain estimates on actual economic impact that the trail can have.

- **Health Impact Analysis**

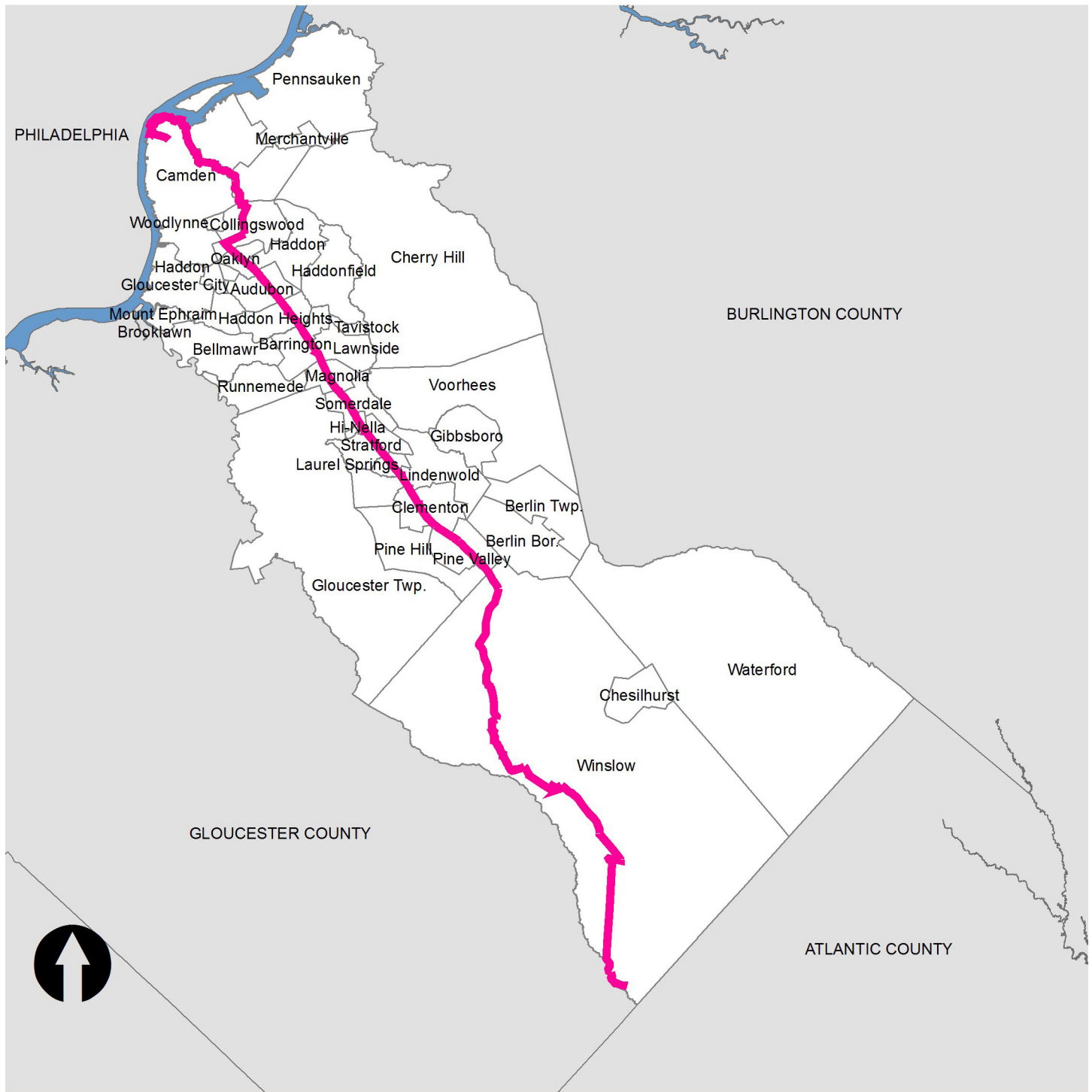
What are the health benefits (both physical and financial) that this trail can have on Camden County residents?

- **Trail Operations, Maintenance, and Security**

After trail construction is complete, how will the trail be taken care of? What about police and medical response to emergency situations?

Recommended Alignment

The project corridor has been broken down into 17 separate segments. Each segment of the corridor represents the different contexts in which the trail will exist, and areas where similar challenges and opportunities will occur.



Trail Alignment Evaluation

A series of trail alignment options were compared to each other by evaluating the following criteria:

- **Property or Right-of-Way (ROW) Impacts:** Utilizing GIS data, as well as the Camden County Clerk's Online Property Records, the project team investigated ROW widths and property ownership locations for potential trail alignments. All publicly owned property (as well as utility easements) were mapped out to determine if those areas could be used for trails.
- **Environmental Constraints:** Using NJ DEP records and GIS data, the project team investigated historical properties, potential wetland locations, and other environmental constraints.
- **Business District Connections and Economic Benefits:** One of the goals of this project is to capitalize on the demand and economic potential of a cross-county trail. Making connections to business districts, employment centers, and other areas where investment (or reinvestment) can be made around trail oriented development is a great way to maximize the return on investment of the construction of the trail.
- **Overall Network Connectivity:** This trail should make as many connections as possible to future routes identified in the Camden County Bicycling and Multi-Use Trails Plan, as well as neighborhood street grids, and regionally significant corridors, like the East Coast Greenway and Circuit Trails. These facilities can connect to the Cross Camden County Trail.
- **Utility Relocation Impacts:** Trails and utility corridors typically go hand-in-hand, usually because they are both located in open spaces of undeveloped land. While routing trails within utility corridors can help make vital connections between different segments, performing major utility relocations should be avoided to keep construction costs reasonable.
- **Constructability Issues:** Too often, trails are designed without considering how construction equipment will impact structures, area residents, and the environment. It is also important to keep construction costs practical, while still delivering a high-quality trail user experience.



Placing the trail in appropriately zoned areas that will allow for bicycle and pedestrian oriented development to occur will have a positive economic effect to the area, and reduce the land required for parking.



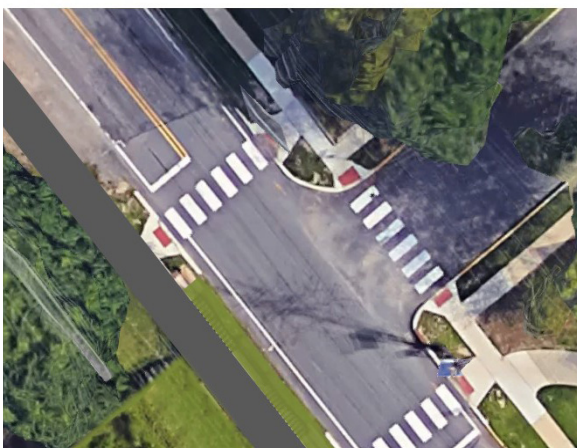
Fiber optic, gas, and electrical utilities are common along the proposed trail route. Reaching out to the specific third-party companies and obtaining approval for the trail route will be important.

- **Trail Opportunities:** There are many ways to maximize the trail user experience, including connecting to parks and open space, maintaining separation from motor vehicle traffic, and connecting to local attractions. This study attempted to identify and take full advantage of features that will enhance the experience and create a special corridor, unique to New Jersey and the region.
- **Trail Constraints:** The project team investigated physical, environmental, and environmental justice constraints to building the trail throughout the project corridor. These constraints have varying levels of difficulty to overcome. At different times during the planning, design, and construction process, these must be addressed.

Design Standards

Before generating a design for proposed segments of the Cross Camden County Trail, a consistent approach should be developed as to what design standards should govern the trail. The following guidelines or recommendations should be considered during the future final design stage of each segment:

- The trail should be designed to AASHTO standards (refer to the Guide for the Development of Bicycle Facilities, 2012, Fourth Edition or future subsequent update), including the use of the MUTCD for regulatory signage.
- For most of its length, the trail should be a paved, 12' wide trail with 2' compacted granular stone shoulders where possible. Exceptions to this guideline include Segment 1 in Camden, with a 20' wide promenade and a 14' wide section soft edge trail will be constructed, as governed by the Camden GreenWay Design Guide. The trail may narrow down to 10' wide in Segment 17, within the Winslow Wildlife Management Area. Segments where a median separated trail are proposed should be a minimum of 7' in each direction. Other physical constraints may prevent the trail from reaching the full 12' width, but in no case shall the trail be less than 10' wide.
- The trail is planned to be an off-road, separated facility for the entire stretch across the county, designed for All Ages and Abilities. The trail may share space in the right-of-way with automobile traffic, but the trail itself shall be a dedicated, separated, hard surface, closed to any motor vehicular traffic (except maintenance vehicles). This design is sometimes referred to as 8-80 Design, as it allows anyone between 8 and 80-years old to utilize the trail alone, including crossing major intersections.



Connections to the street grid should be placed every few blocks.

- At major street crossings, curb bumpouts should be considered. Bumpouts give trail users a shorter distance across the street, and higher visibility to automobile drivers. Other trail crossing safety features should be investigated, such as raised crosswalks, rectangular rapid flashing beacons (RRFBs), centerline islands, or all-way stop signage.
- Along Atlantic Avenue, there should be crosswalks to neighborhood streets every few blocks for maximum connectivity. These crosswalks should be accompanied by proper signage and other countermeasures, such as raised crosswalks or RRFBs.

Rail-With-Trail

A significant portion of the trail is proposed to be aligned adjacent to active Conrail railroad tracks. There are over 220 successful trail projects throughout the United States that are considered “rails-with-trails”. Research performed by the Rails-to-Trails Conservancy (RTC) suggests that a rail-with-trail facility may actually be safer than no trail at all.

Providing a well-designed trail alongside a rail corridor reduces an individual’s incentive to trespass or use train tracks as a short cut, a recent national survey by RTC shows that only 56% of rail-with-trails include fencing. Where a crossing is needed, a fence can be erected to make sure trail users don’t short-cut to the other side. While appropriate in some cases, fences are costly and create maintenance issues, and some time are removed after the trail becomes established. Finally, the distance between the tracks and the trail will vary, but can be less than 10 feet.



The Frisco Trail in Fayetteville, AR, is located just several feet away from the railroad tracks. Image Courtesy Google StreetView

The Conrail track in question on the proposed alignment (known as the Conrail Shared Assets Operations, Beesley’s Point Secondary Line), typically sees one to two trains per day, usually running at speeds of less than 25 miles per hour.

More information on rails-with-trails can be found at:

<https://www.railstotrails.org/resource-library/resources/americas-rails-with-trails/>

Summary of Potential Property Impacts

A summary table of potential property impacts is listed with each of the segments. This table only shows private, utility, and railroad property owners, and does not include public agency property owners, such as Camden County, New Jersey Department of Transportation, New Jersey Department of Environmental Protection, and municipal-owned parcels such as parks. This list is meant to assist Camden County or municipal partners in potential easement acquisition for trail construction, and does not, under any circumstance, indicate that the entire parcel will need to be acquired. In many cases, only a very small corner of a parcel may be required for trail construction. In all cases, easement acquisition would have a minor effect on the property, and would not adversely affect the current use of the property.

Regional and National Connections

The Circuit Trails is a planned 750-mile system of trails throughout the greater Philadelphia region. This network of trails will stretch throughout southeastern Pennsylvania and southern New Jersey, and will connect rural, suburban, and urban neighborhoods throughout the vicinity. There are currently over 320 miles of The Circuit Trails completed, with another 70 miles of trail currently in planning or design.

At this time, the current Cooper River Trail and the planned East Atlantic Bikeway are designated as Circuit Trails. It is anticipated that the entirety of the Cross Camden County Trail will fit within The Circuit Trail guidelines, and will be designated as a part of the regional trail network.



It is anticipated that the entire Cross Camden County Trail will become a part of The Circuit Trails. (Image courtesy The Circuit Trails)



The East Coast Greenway route in New Jersey connects Camden to Trenton and New York City (Image courtesy East Coast Greenway)

The East Coast Greenway is a planned national trail that will someday connect the Florida Keys to the Canadian border at Calais, Maine. It is sometimes referred to as the urban sister to the Appalachian Trail. The East Coast Greenway's route through New Jersey begins at the Ben Franklin Bridge in Camden, and continues north along the Delaware River. The first segment of the Cross Camden County Trail will coincide with the East Coast Greenway route, before the two split off at State Street in Camden.

Segment 1 - Camden Waterfront

End of Proposed Ben Franklin Bridge Ramp (at 5th & Pearl Streets) to State Street

Proposed Length: 2.7 Miles (all new trail)

Municipalities Involved: Camden City

This segment of the Cross Camden County Trail will be the gateway to Camden for users of the East Coast Greenway and The Circuit from Philadelphia. The aesthetics of the trail here should give users an enhanced experience, and tie into the context of the river and the adjacent neighborhood development. The development of the trail in this segment should be in line with potential redevelopment and previous planning efforts, such as the 2008 North Camden Neighborhood Plan.

- **Property or Right-of-Way (ROW) Impacts:**

Roughly 40% of this proposed trail segment lies within what is currently privately owned property. The North Camden Neighborhood Plan envisions the entire riverfront becoming public park property, which could complement adjacent private development. Cooper's Ferry Partnership is currently working with the City of Camden and Camden County to develop an access strategy.

- **Environmental Constraints:** Much of the area along the riverfront has a history of industrial uses and likely has contaminated soils. The trail area between Front Street and N. 6th Street is listed as a brownfield by NJ DEP, and wetlands are located throughout this area as well. Soil remediation would be likely be required in this area.

- **Business District Connections and Economic Benefits:** The main route of the Cross Camden County Trail through the City of Camden circles, but does not make a direct connection to the central business district. Implementation of the Camden GreenWay Plan by the city and Cooper's Ferry Partnership will help make on-street connections available to attractions and transit in the Camden CBD. Trail construction along the riverfront can be complementary to anticipated mixed use and neighborhood redevelopment in North Camden and support the image that Camden is a connected, thriving and healthy place to live.

- **Overall Network Connectivity:** Starting the trail at the base of the Ben Franklin Bridge will allow for connections to the regional trail network, The Circuit, as well as the East Coast Greenway. It is anticipated that the permanent East Coast Greenway route will be co-located on this section of the Cross Camden County Trail. North Camden's street grid will allow for many connections to the neighborhood from the

riverfront. The terminus of the trail is just a few blocks from PATCO and River Line transit connections.

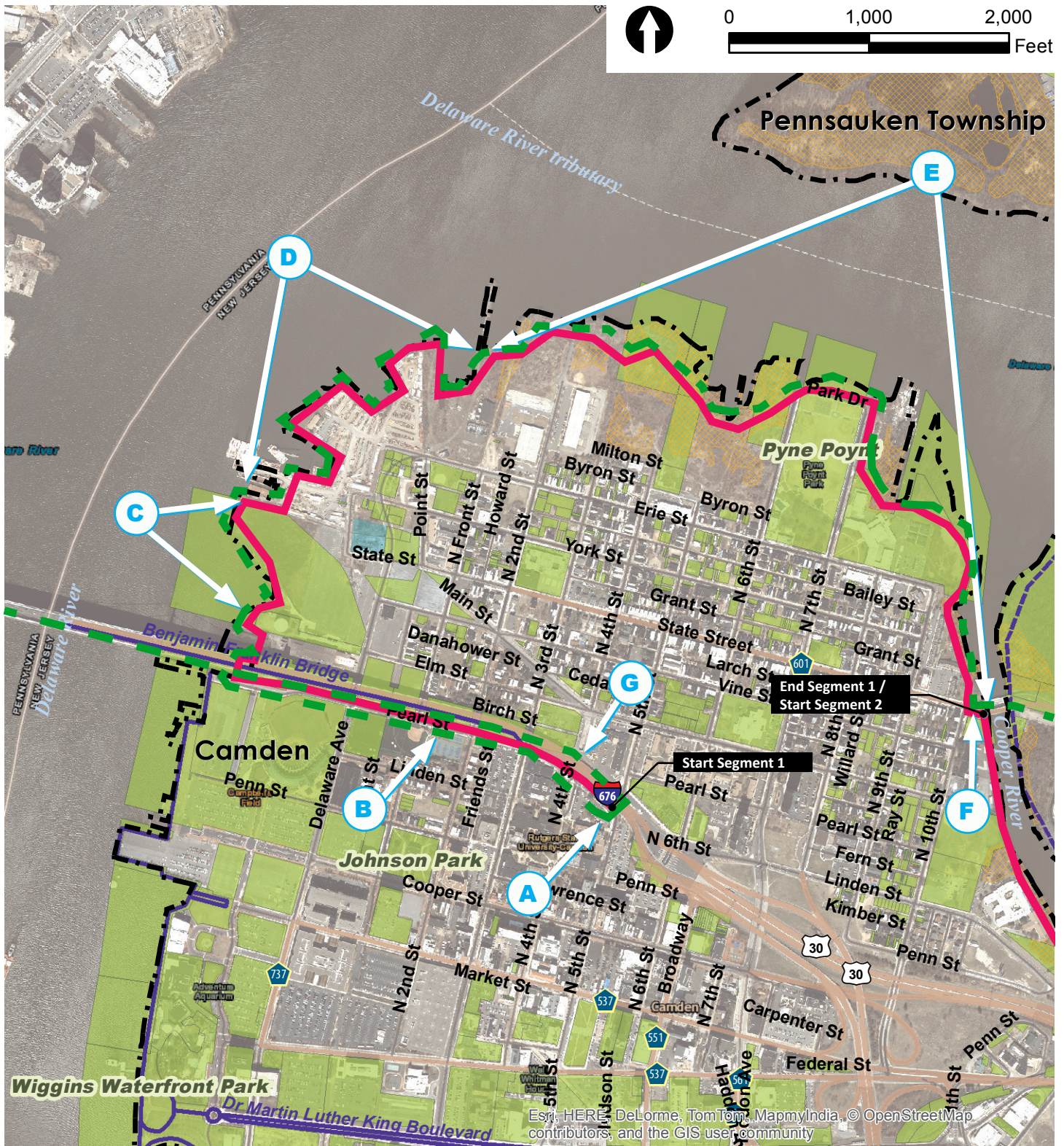
- **Utility Relocation Impacts:** It is anticipated that utility impacts will be low for this segment.

Drainage outfalls along the river will need to be accounted for during the final design of the trail.

- **Constructability Issues:** Proposed promenade sections will need to be investigated to determine what level of bulkhead rehabilitation or reconstruction is needed. Geotechnical investigations along the entire riverfront (in coordination with environmental studies) will be crucial to determining pavement sections and soil remediation needed.

- **Trail Opportunities:** This section of trail will not only serve as the gateway to the Cross Camden County Trail, but it will serve as the gateway to New Jersey for travelers on the East Coast Greenway and The Circuit coming from Philadelphia. This section of trail is expected to see high usage as a waterfront park. As this section of the trail is designed, a serious look at the landscaping components should be evaluating how the natural environment can tie into the trail, and how the trail, the riverfront, and the future development can all be fit into one contextual relationship. This section of trail will be highly used, and design should account for the high number of users and for an enhanced landscaping experience. The development of park space along the Delaware River should provide ample opportunities for trailheads, parking, and restroom facilities.

- **Trail Constraints:** Environmental and property ownership issues are currently the major constraints to trail development.



Segment 1 - Camden Waterfront

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- - - Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space
- DVRPC Suburban Retail District
- - - Future East Coast Greenway Route

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 1 - Map Notes

A	An ADA-accessible ramp from the Ben Franklin Bridge to 5th Street will be completed by the end of 2018.
B	Construct a 14' wide trail parallel to Pearl Street and under the Ben Franklin Bridge.
C	This section of trail has been constructed as a part of the former Camden Prison site redevelopment project.
D	Continue the Delaware River Promenade up to Front Street in conjunction with future redevelopment. Exact route of trail will depend on layout of potential development.
E	Construct a minimum 14' wide trail between Front Street and State Street. This trail will likely be part of a new string of parks and environmental enhancements along the riverfront per the North Camden Neighborhood Plan. A portion of the trail is built (but currently close to the public) between Erie Street and State Street, but will require widening.
F	Convert the intersection of State Street and 10th Street to a 3-way stop. Enhance the junction of the trail with the old State Street Bridge into a neighborhood plaza that provides placemaking, shade, and seating.
G	Explore opportunities to make direct connection to Benjamin Franklin Bridge from here for the convenience of daily commuters (via Elm or Pearl Streets).



An ADA-accessible ramp from the Ben Franklin Bridge to 5th Street will be completed by the end of 2018. Picture courtesy Bicycle Coalition of Greater Philadelphia

Segment 1 - Camden Waterfront

Next steps to trail implementation:

Cooper's Ferry Partnership is currently working with the City of Camden and Camden County to develop an access strategy for the trail along the riverfront.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
1	3rd Street	Intersection will remain a 4-way stop.
	2nd Street	Intersection will remain a 4-way stop.
	Front Street	Intersection will remain a 4-way stop.
	Jersey Joe Walcott Blvd	Intersection will remain a 4-way stop, but could use curb bumpouts to narrow intersection crossing distance.
	State Street	Investigate a 3-way stop here. This intersection is the junction of the CCCT, State Street bike lanes, old State Street bridge, and East Coast Greenway, so many multi-modal turns will be made here.

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 1	PRIVATE	2600	NW ERIE & POINT STS CAMDEN
	PRIVATE	1200	NE ERIE & POINT ST CAMDEN
	PRIVATE	850	ERIE ST CAMDEN
	UNKNOWN OWNER	100	CAMDEN
	UNKNOWN OWNER	320	CAMDEN
	PRIVATE	720	NO 8TH ST CAMDEN
	PRIVATE	770	

Segment 2 - Cooper River North

State Street to Kaighn Avenue

Proposed Length: 2.35 Miles (1.6 miles new, .75 miles existing trail)

Municipalities Involved: Camden City, Pennsauken

This segment of the Cross Camden County Trail will be one of the most challenging segments from an engineering viewpoint. In addition to a ¼ mile long boardwalk above the Cooper River, a separate, new bridge will be required, and modifications to a current vehicular bridge will be needed.

- **Property or Right-of-Way (ROW) Impacts:** Most of the existing sections of trail in this segment lie within property owned by public entities, such as DRPA, NJDOT, or Camden County. There are several privately owned parcels on the proposed trail route that would require easements. This includes three parcels just south of State Street along the Cooper River. An easement or property acquisition will also be required behind the Speedway gas station along Admiral Wilson Blvd. (US Highway 30).
- **Environmental Constraints:** Wetlands may exist along the State Street-to-railroad section of the trail along the Cooper River. Flood modeling and permitting will be required for the Cooper River bridge crossing and boardwalk.
- **Business District Connections and Economic Benefits:** This section of the trail provides connections to Campbell Soup of America Headquarters and the future Subaru Company World Headquarters (part of the Knights Crossing development). As with the Camden Riverfront, the trail here can be complementary to ongoing development in this area.
- **Overall Network Connectivity:** The Cooper River and Admiral Wilson Blvd. are barriers to street grid connections to the trail in this segment. It will be important to make Camden GreenWay connections to the trail wherever possible. It would also be prudent to make a direct, on-street connection to the Ben Franklin Bridge ramp from the southern portion of the Cross Camden County Trail for everyday commuters that do not want to take the longer loop along the riverfront. Pearl or Elm Streets could be used to make this connection to the 5th Street Tunnel.
- **Utility Relocation Impacts:** It is anticipated that utility impacts will be low for this segment. Drainage outfalls along the riverfront will need to be accounted for during the final design of the trail.
- **Constructability Issues:** The proposed boardwalk along Admiral Wilson Blvd. in the Cooper River would be a large, significant structure, similar to the boardwalk located in the Schuylkill River between Locust and South Streets in Philadelphia. An alternative to this type of structure in the river would be a cantilevered structure, launched from the area between the highway Jersey barrier and the top bank of the river. There is anywhere from 10' to 15' of land available between the barrier and the top bank of the river.
- **Trail Opportunities:** Having existing trails in place for a portion of this segment will help facilitate the future buildout of the rest of the trails that are required. However, improvements are needed at Baird Boulevard so that users can cross safely. Reconfiguring the slip ramps to perpendicular stops on the south side of the intersection is necessary for a proper trail crossing. A grade separated crossing of Baird Blvd. under the existing bridge is technically feasible, but would see frequent flooding and require regular maintenance attention. Routing the trail along the existing 11th Street/Flanders Avenue bridge over Admiral Wilson Blvd. and under the current railroad bridge prevent the need for separate structures that would greatly increase construction costs. However, final design of these areas must maintain a high level of user experience to compensate for the proximity to speeding traffic. The so-called Pub Connector will close the existing trail gap near Kaighn Avenue, and provide a safe street crossing to the existing trail segment along Park Drive (Segment 3).
- **Trail Constraints:** The proposed cost of structures and structure modifications are a significant constraint in this segment. Alternatives may be proposed that explore crossing the Cooper River with a second bridge to the south side between Campbell Soup and Baird Blvd.



Segment 2 - Cooper River North

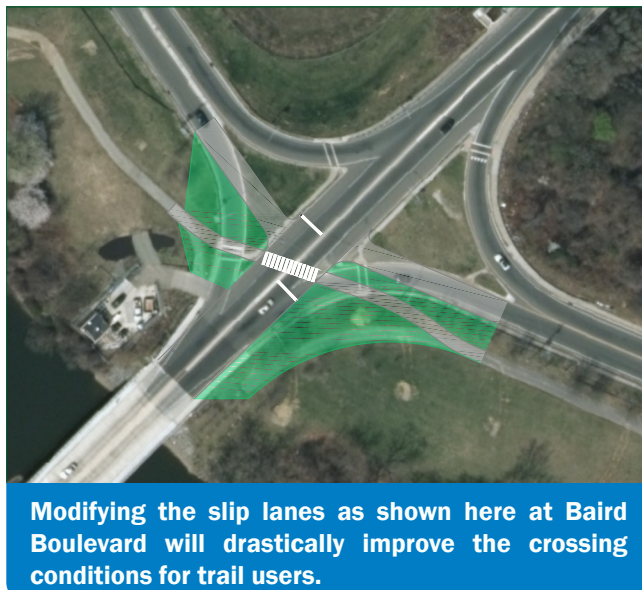
- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- - - Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- DVRPC Suburban Retail District
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 2 - Cooper River North

Segment 2 - Map Notes	
A	Explore opportunities to make direct connection to Ben Franklin Bridge from here for the convenience of daily commuters (via Elm or Pearl Streets, see map of Segment 1).
B	Trail routes under Conrail/RiverLine road bridge. Barrier will be needed between trail and exit ramp. Landscaping is recommended to help visually screen the highway.
C	Shrink Flanders Avenue & Federal Street intersection to remove “porkchop” island and create normal 3-leg intersection. Create three-way stop and add crosswalk markings.
D	Modify deck on existing bridge over US 30 by narrowing the existing 3 vehicular lanes to 11’ wide each. Remove the guardrail and current sidewalk on the east side of the bridge, and reconstruct a new 12’ wide trail. Install new barrier between widened sidewalk and narrowed travel lanes.
E	New prefabricated steel pedestrian bridge: 12’ clear width, approximately 210’ long.
F	Construct a 14’ wide concrete deck boardwalk structure, approximately 1400’ long.
G	Utilize existing trail here; no new construction necessary.
H	Modify Baird Blvd. intersection to create all-way stop for trail crossing. Create safe bicycle and pedestrian access to trail on south side of Cooper River. See illustration below.
I	Utilize existing trail here; no new construction necessary.
J	Proposed Pub Connector project.
K	Install new crosswalk at Kaighn Ave. with curb bumpouts and yield signage.

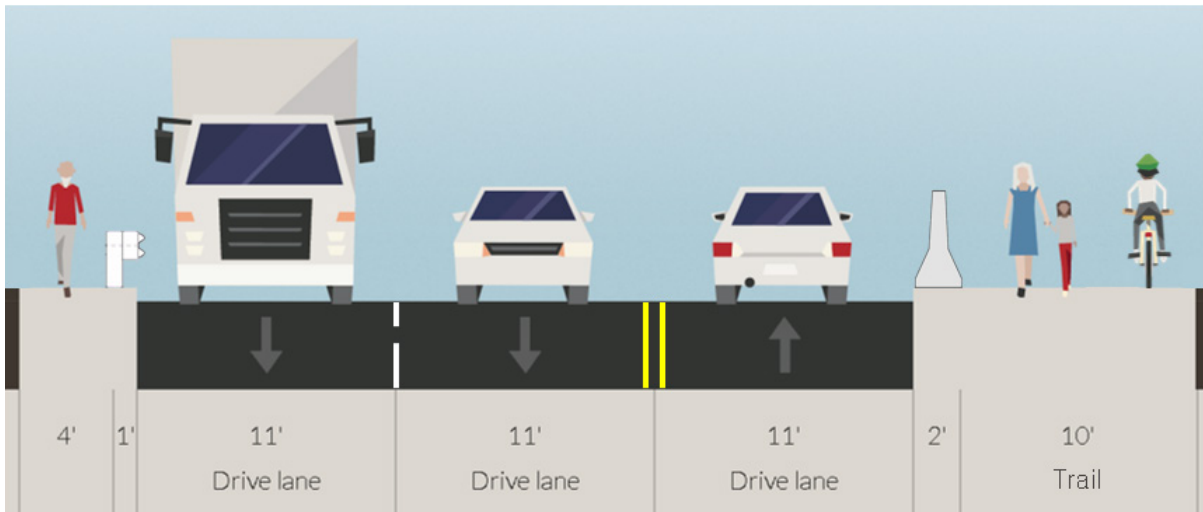


Modifying the slip lanes as shown here at Baird Boulevard will drastically improve the crossing conditions for trail users.

Segment 2 - Cooper River North

Next steps to trail implementation:

Coordinate with DRPA and NJDOT (property owners) to determine what type of structure is allowed along Cooper River and Admiral Wilson Blvd. Proceed to preliminary design. Acquire necessary easements.



This section represents the modifications that could be made to the Flanders Avenue bridge over Admiral Wilson Boulevard to accommodate the trail.



The boardwalk proposed in the Cooper River, like this one on the Atlanta BeltLine, can be a simple, curvy structure that has multiple overlooks to allow for trail users to stop and relax.

Segment 2 - Cooper River North

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
2	State Street	Investigate a 3-way stop here. The intersection is the junction of the CCCT, State Street bike lanes, old State Street bridge, and East Coast Greenway, so many multi-modal turns will be made here.
	Federal Street	Remove porkchop island, reduce curb return radii, and create 3-way stop.
	Baird Boulevard	Create an all-way stop and trail crossing by removing southern slip lanes (see illustration on map).
	Kaign Avenue	Create curb bumpouts and add yield signage/pavement markings.

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 2	PRIVATE	525	NO 10TH ST CAMDEN
	PRIVATE	800	LINDEN ST CAMDEN
	PRIVATE	1130	ADMIRAL WILSON BLVD CAMDEN
	PRIVATE	415	ROUTE 38 PENNSAUKEN TWP

Segment 3 - Cooper River South

Kaighn Avenue to S. Park Drive/Browning Road

Proposed Length: 0.95 Miles (0.05 miles new, .90 miles existing trail)

Municipalities Involved: Pennsauken, Collingswood

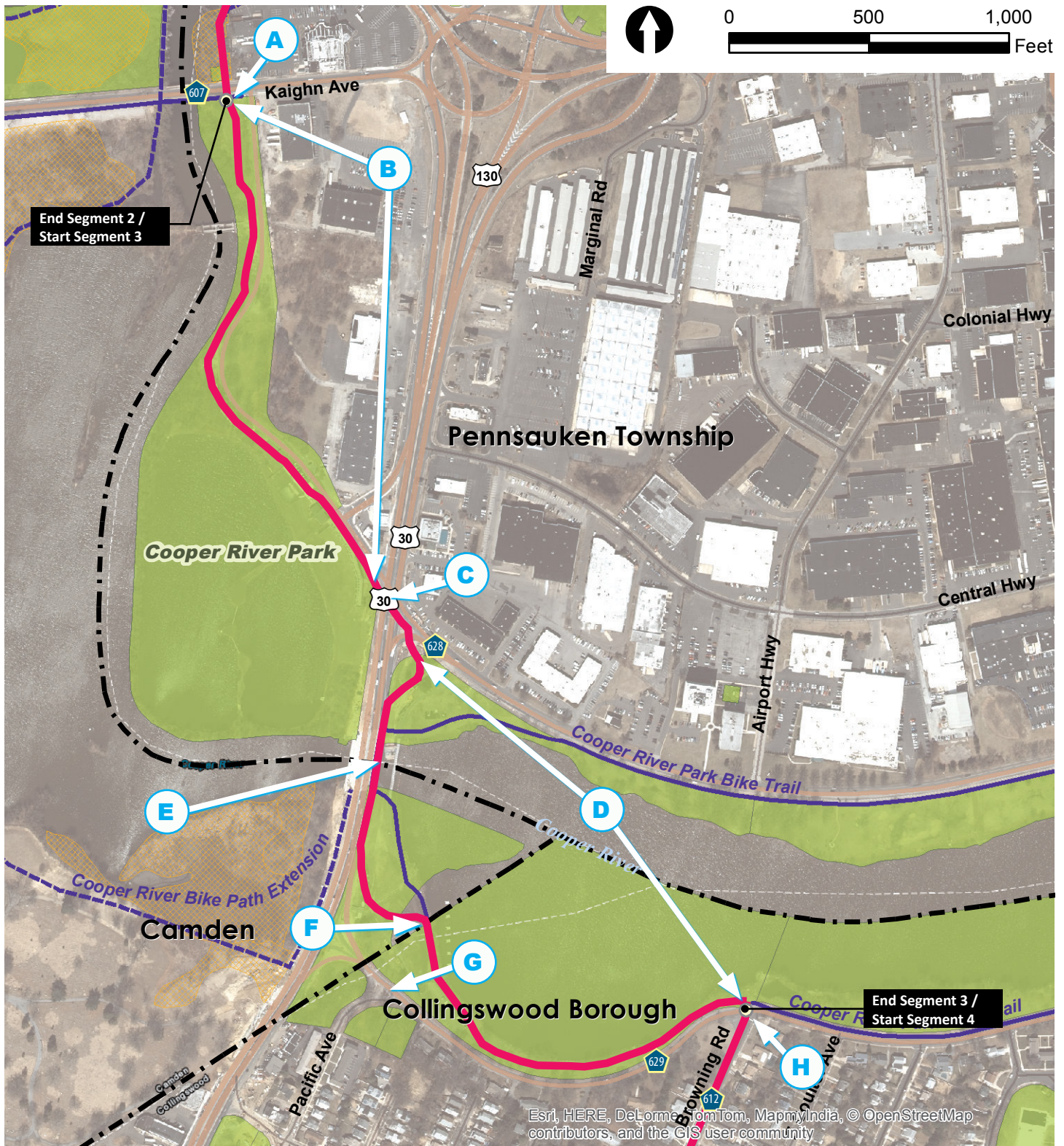
For the most part, this segment of the Cross Camden County Trail is completed, but some safety and comfort enhancements are needed to make this segment functional for All Ages and Abilities.

A long-term possibility for this segment would investigate a bridge on the west side of Crescent Boulevard (US 30/130) that would cross over the Cooper River and Crescent Boulevard. The feasibility and costs of this bridge were not investigated for this study.

- **Property or Right-of-Way (ROW) Impacts:** The existing trail and proposed improvements are all within public ROW or Camden County property.
- **Environmental Constraints** None.
- **Business District Connections and Economic Benefits:** This section does not make any direct connections to central business districts.
- **Overall Network Connectivity:** This segment makes vital connections to the continuation of the Cooper River Trail (on both sides of the River). A connection to Pacific Avenue should be considered to make a direct on-street connection to the Ferry Avenue PATCO Station.
- **Utility Relocation Impacts:** No relocations are anticipated.
- **Constructability Issues:** Constructability will not be an issue in this segment.
- **Trail Opportunities:** A few minor improvements on this segment can go a long way to making this trail feel much more comfortable to users. Currently, trail users must cross three legs of the Crescent Boulevard & N. Park Drive intersection. This can take trail users up to 4 minutes to get across the intersection, and increases their vulnerability of being struck by turning vehicles. By adjusting signal phasing and timings, and adding a full width crosswalk with new ramps, pedestrians and bicyclists can safely get through this large intersection.

While the sidepath on the new Crescent Boulevard bridge over the Cooper River is sufficiently wide, it feels uncomfortable to trail users as there is no separation between the sidepath and expressway-like traffic (apart from for a 6" curb). It is recommended that a cast-in-place Jersey barrier with aesthetic enhancements be added to the shoulder of the highway. The existing parking space south of the Cooper River can serve as a trailhead. The County should explore the addition of restroom facilities here that can be directly on the trail.

- **Trail Constraints:** The proposed crosswalk on Crescent Boulevard may garner resistance, as it could increase vehicle traffic delay and queuing, but it should be noted that a recent cyclist death at this intersection and proposed trail volumes should warrant this new crosswalk.



Segment 3 - Cooper River South

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- NJDEP Wetlands
- DVRPC Suburban Retail District
- Gov't/Publicly owned parcels or open space

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 3 - Map Notes

A	Install new crosswalk at Kaighn Ave. with curb bumpouts and yield signage.
B	Utilize existing trail here; no new construction necessary.
C	Add a crosswalk and pedestrian signals to south side of intersection; modify signal timing to accommodate trail. Construct new curb ramps to accommodate the full width of the trail. Create a raised crosswalk in the southeast corner slip lane for increased safety. Make a direct,intuitive connection to the through trail with a 150' connection from the southeast corner of the intersection. Over the long term, a grade separated crossing here should be investigated.
D	Utilize existing trail here with noted enhancements.
E	Add 500' of cast in place Jersey barrier to the edge of the existing sidepath on this bridge to create a separation between traffic and trail users.
F	Stripe centerline of trail through this area to clearly delineate to users in both direction the through trail that should be used.
G	Consider crosswalk to Pacific Avenue to create direct on-street route to Ferry Avenue PATCO Station.
H	Add ramp to access Cooper River Trail from Browning Road. Make Browning Road & S. Park Drive intersection an all-way stop with crosswalks.

Segment 3 - Cooper River South

Next steps to trail implementation:

Coordinate with NJDOT on proposed improvements within their ROW. The design and construction of this segment could be accomplished as a separate project, or coupled with Segment 2 or Segment 4 work.



Adding a crosswalk on the south side of the Crescent Blvd & N. Park Drive intersection will help improve safety and comfort for trail users.

Segment 3 - Cooper River South

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
3	Kaign Avenue	Create curb bumpouts and add yield signage/pavement markings.
	Crescent Boulevard (US 130)	Add a crosswalk and pedestrian signals to southern leg of intersection. Conduct a traffic study to determine new signal phasing and timing. Create a raised crosswalk at southeastern slip lane.
	S. Park Drive	Add a 3-way stop here, and reduce curb return radii.

Segment 4 - Browning Road

S. Park Drive to Collings Avenue

Proposed Length: 0.9 Miles (all new trail)

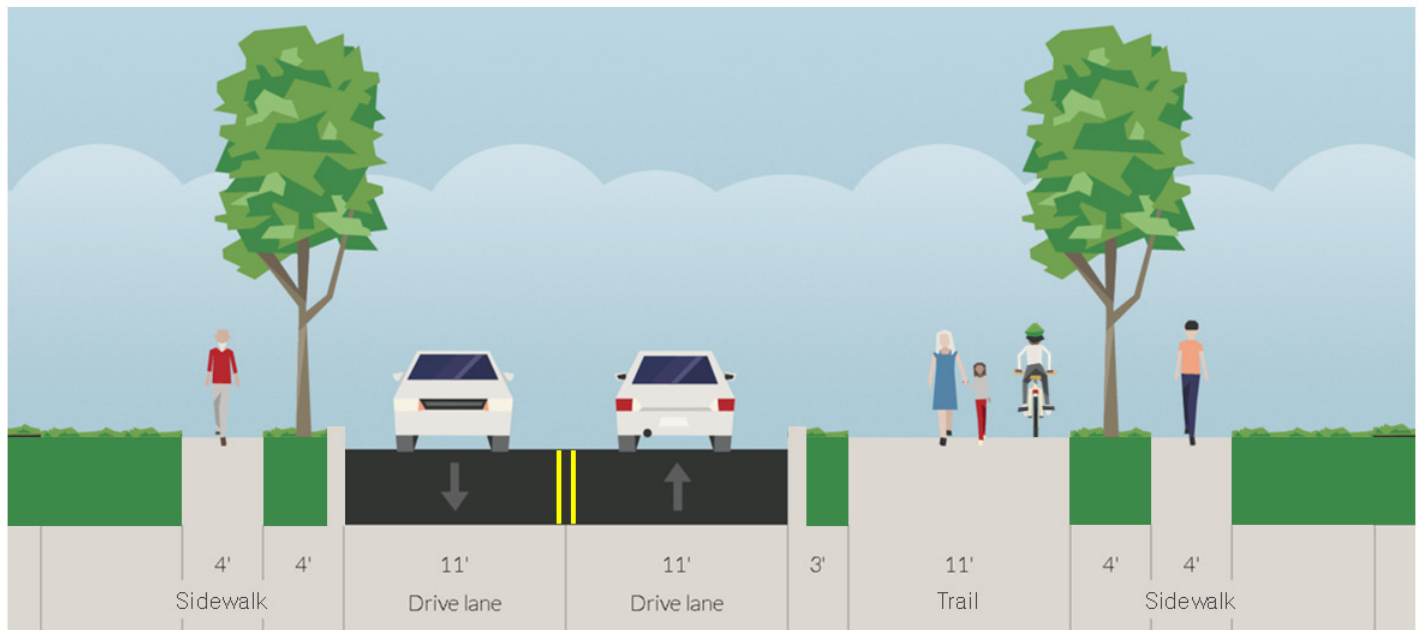
Municipalities Involved: Collingswood

The Collingswood street grid is the “gap” between the Cooper River Trail network and the Conrail rail-with-trail segment. Browning Road was identified as one of the street right-of-ways to utilize to fill that gap, because of its direct connection to the Cooper River Trail, the wide underpass at the PATCO rail tracks, and its proximity to Knight Park and Newton Lake Park.

- **Property or Right-of-Way (ROW) Impacts:** Complete right-of-way impacts are unclear, but it is anticipated that little to no right-of-way would be needed for this segment. Browning Road is generally a 66 foot wide ROW, according to GIS and deed documentation. A property survey will be necessary to determine where exactly the ROW line is located along the east side of the street, but GIS indicates that the line is approximately 5’ east of the current sidewalk.
- **Environmental Constraints:** None anticipated.
- **Business District Connections and Economic Benefits:** This section does not make any direct connections to central business districts, but a spur route along Collings Avenue, Haddon Avenue, or Park Avenue could connect the Cross Camden County Trail to Collingswood’s CBD and PATCO Station.
- **Overall Network Connectivity:** This segment makes a connection to the Cooper River Trail on the south side of the river, as well as the walking paths within Knight Park. This portion of trail could be continued along Browning Road south of Collings Avenue to connect to the Newton Lake Trail.
- **Utility Relocation Impacts:** The design of the Cross Camden County Trail that is proposed in this segment attempts to mitigate major utility relocation. Some utility poles may still require relocation as the trail design balances safety, ROW acquisition, and parking needs.
- **Constructability Issues:** Storm drain inlets will require relocation, as well as the associated storm drainage lines. Green Stormwater Infrastructure practices could be implemented, but ROW space is limited.
- **Trail Opportunities:** This trail, as proposed in this plan, is a unique opportunity to make Collingswood stand out along the Cross Camden County Trail. The trail can shift within the right-of-way, depending on trees, utilities, parking, and driveways. Browning Road is a county route has been identified by the 2015 Camden County Highway Plan as a street that is a candidate for a Safety Countermeasures, and revert to borough jurisdiction. This project would be a great opportunity to implement those measures.
- **Trail Constraints:** The utility poles and trees along the street, originally viewed as a constraint, can be integrated into the trail design to save costs and create a unique trail experience. Trail layout at specific locations, such as intersections and Newbie Elementary School, can be worked out during the design phase.

Segment 4 - Map Notes

A	Add ramp to access Cooper River Trail from Browning Road. Make Browning Road & S. Park Drive intersection an all-way stop with crosswalks.
B	Modify the Browning Road street section, with the goal of placing a minimum 11' wide trail in the right-of-way, while keeping the existing street trees and utility poles in place.
C	Current underpass at PATCO line is sufficiently wide for street and trail.



This section represents an example of how a trail can fit within the Browning Road right-of-way while keeping the existing street trees in place. The trail can shift when trees are not in conflict to create a wider buffer or parking space.

Segment 4 - Browning Road

Next steps to trail implementation:

Collingswood or Camden County to initiate preliminary design stage so that a survey of the street corridor can take place and design can determine the impacts of the proposed layout.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
4	S. Park Drive	Add a 3-way stop here, and reduce curb return radii.
	Highland Avenue	Highland Avenue approach to remain a stop.
	Maple Avenue	Maple Avenue approach to remain a stop.
	Haddon Avenue	This intersection will remain signalized, but pedestrian signal heads need to be added. Signal timings may need to be adjusted.
	Park Avenue	Park Avenue approach to remain a stop.
	Knight Park	Park driveways to remain a stop.
	Collings Avenue	Consider signalizing intersection or creating a 4-way stop.

Segment 5 - Newton Lake

Collings Avenue from Browning Road to Conrail ROW, and Conrail ROW from Collings Avenue to Oakland Avenue

Proposed Length: 1.5 Miles (all new trail)

Municipalities Involved: Collingswood, Haddon Township, Oaklyn

Collings Avenue will take on a similar character as the Browning Road segment (Segment 4) to make the connection to the Conrail ROW. Within the current Conrail ROW, the Cross Camden County Trail will utilize the clear space west of the current tracks.

- **Property or Right-of-Way (ROW) Impacts:**

Similar to Browning Road, full right-of-way impacts on Collings Avenue are unclear, but it is anticipated that little to no ROW would be needed for this segment. Collings Avenue's ROW is narrower than Browning Road, at 60 feet according to GIS and deed documentation. A property survey will be necessary to determine where exactly the ROW line is located along the south side of the street, but GIS indicates that the line is approximately 1-2' south of the current sidewalk. The section of trail adjacent to the Conrail tracks would be wholly contained within the current Conrail ROW; no other easement or acquisition would be required south of Collings Avenue. A potential spur near Clinton Avenue would take place on Oaklyn Borough property.

- **Environmental Constraints:** There are three major environmental issues to be aware of on this segment:

- o West Collingswood Train Station and Old Newton Friends Burial Ground: Camden County is currently pursuing a historic designation for this area between the Conrail ROW and Lynne Avenue. The trail will be contained within the current Conrail ROW at this location, and it is not anticipated that this designation would affect the trail.
- o Potential contamination within the former rail bed: Environmental testing will need to take place along the limits of disturbance within the Conrail ROW.
- o Bridge crossing over Newton Lake: It would be beneficial to the project to reuse the existing, unoccupied bridge superstructure on the Newton Lake crossing. Reuse of this structure would keep all work outside of the FEMA-delineated floodway of Newton Lake.

- **Business District Connections and Economic Benefits:** This trail segment directly connects to two business districts: a small cluster of businesses at White Horse Pike and Collings Avenue in

Collingswood, as well as downtown Oaklyn. Businesses in downtown Oaklyn are currently comprised of restaurants, bars, shops, and a brewery, all which would see benefits from the nearby trail connection.

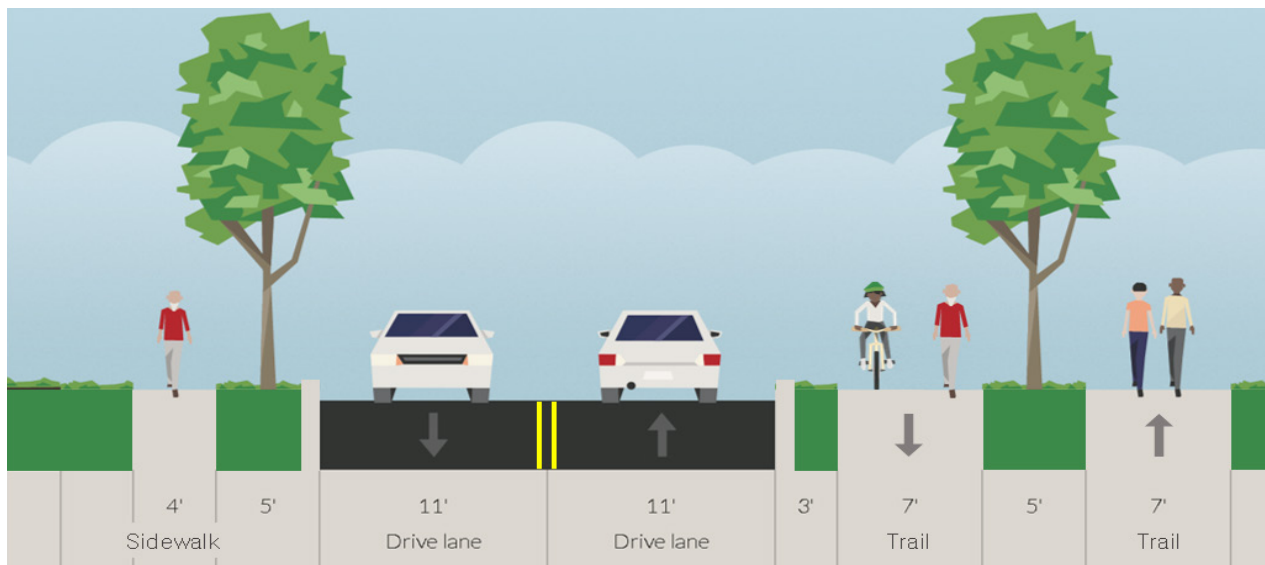
- **Overall Network Connectivity:** This segment of trail becomes a part of the Collingswood street grid along Collings Avenue. A potential continuation of the multi-use path along Collings Avenue could be continued eastward to Haddon Avenue to build out the borough bicycle network. Due to physical constraints, the only location to make an outside connection to the trail along the Conrail portion of the trail in this section is through the Oaklyn Borough parking lot near Clinton Avenue. Parking stalls along Clinton Avenue can be reconfigured to allow for a trail spur to connect to the intersection Clinton Ave. and Manor Avenue.

- **Utility Relocation Impacts:** This will make a great location for a trailhead, and the addition of drinking water and/or restrooms should be explored. Cross Camden County Trail that is proposed in this segment attempts to mitigate major utility relocation. Some utility poles may require relocation along Collings Avenue, but the hope is to maintain their location within the trail median. A fiber optic line is located in the Conrail ROW, west of the tracks. This line would at the very least require relocation at the Newton Lake Bridge Crossing.

- **Constructability Issues:** Storm drain inlets will require relocation on the south side of Collings Avenue, as well as the associated storm drainage lines. It would be beneficial to the project to reuse the existing, unoccupied bridge superstructure on the Newton Lake crossing. A new steel and concrete deck could be added to this bridge, with ample clearance to be usable by Conrail/CSX maintenance equipment as well as trail users, and potential emergency equipment. The existing bridge structure over Clinton Avenue appears to be suitable to use for the proposed trail crossing.

Segment 5 - Map Notes

A	Consider extending trail along Browning Road to Newton Lake Park Trail.
B	Modify the Collings Avenue street section, with the goal of placing a minimum 12' wide trail in the right-of-way, while keeping the existing street trees and utility poles in place.
C	Trail will utilize open space west of current railroad tracks between Collings Avenue and Oakland Avenue.
D	Salvage existing, unused rail bridge superstructure across Newton Lake by adding new concrete decking and new steel railings.
E	Create a trail spur through the Oaklyn Borough parking lot to the intersection of Clinton Avenue and Manor Avenue.
F	Proposed trail crosses the railroad tracks at Oakland Avenue.



This section represents an example of how the trail can fit within the Collings Avenue right-of-way while keeping the existing street trees in place. The trail can shift when trees are not in conflict to create a single trail and wider buffer.

Segment 5 - Newton Lake

- **Trail Opportunities** This trail within the Collings Avenue corridor gives the street a distinctive landscaping feel that no other place in the county (or even the region) will have. This design balances several important issues within the corridor: utility relocation, keeping existing trees, and respecting private property. The 7' wide single-direction lane is wide enough to allow bicyclists to pass pedestrians going in the same direction. Where the median is not required, the trail can rejoin as a single, 12' wide trail. A tangential benefit to the street narrowing is a traffic calming effect, brought on by the narrower curb lines and parking buffer.
- **Trail Constraints** The narrower right-of-way on Collings Avenue makes the inclusion of a trail difficult, but certainly not impossible. If the current unused bridge over Newton Lake cannot be used, a new structure would have higher construction costs, and would require new abutments, or modifications to the current rail abutment.

Next steps to trail implementation:

Collingswood or Camden County to initiate preliminary design stage so that a survey of the street corridor can take place and design can determine the impacts of the proposed layout.

Segment 5 - Newton Lake

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
5	Browning Road	Consider signaling intersection or creating a 4-way stop.
	Heights of Collingswood Driveways	Driveways to remain a stop.
	White Horse Pike (US 30)	This intersection will remain signalized.
	Richey Avenue	Richey Avenue approaches to remain stops.
	Cattell Avenue	Cattell Avenue approaches to remain stops.
	Comly Avenue	Comly Avenue approaches to remain stops.
	Taylor Avenue	Taylor Avenue approaches to remain stops.
	Champion Avenue	Champion Avenue approaches to remain stops.
	Clinton Avenue	Trail will be on existing Conrail bridge over Clinton Avenue. Connection spur will be built to Clinton Avenue & Manor Avenue intersection.
	Oakland Avenue	Consider a raised crosswalk. Add yield signage and pavement markings.

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 5	CONRAIL	4700	CONRAIL ROW HADDON TWP, OAKLYN

Segment 6 - Atlantic Avenue

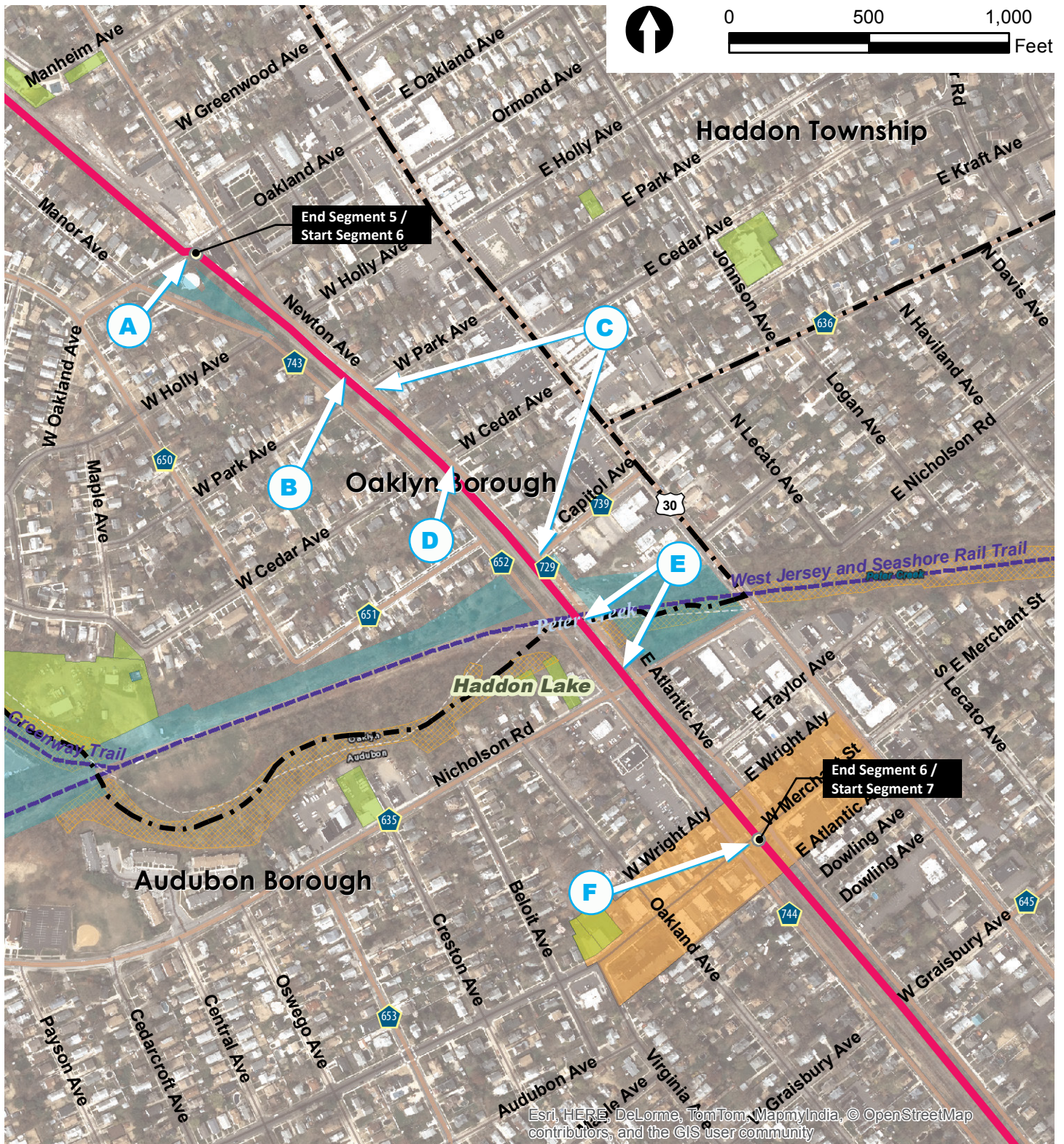
Conrail ROW from Oakland Avenue to Merchant Street

Proposed Length: 0.55 Miles (all new trail)

Municipalities Involved: Oaklyn, Audubon

The trail shifts from the west side of the tracks to the east side at Oakland Avenue, to take advantage of two unused railroad bridges.

- **Property or Right-of-Way (ROW) Impacts:** Almost all of the trail in this segment would be contained within the current Conrail ROW or the Newton Avenue/E. Atlantic Avenue ROW. An easement may be needed at the Train Station Dental office along Merchant Street to facilitate a trail crossing, and potentially add landscaping.
- **Environmental Constraints:** Environmental testing may be required within the former railroad bed. Utilizing the existing bridge over the former West Jersey & Seashore (WJ&S) railroad corridor avoids wetland permitting.
- **Business District Connections and Economic Benefits:** This trail segment directly connects to the Audubon business district, which contains various shops and cafes.
- **Overall Network Connectivity:** Besides connections to the street grid at either end of this segment, crosswalks on Newton Avenue can connect to the neighborhood east of the tracks at Park Avenue and Capitol Avenue. A future connection to the WJ&S Rail Trail would require a spur trail from the intersection of Capitol Avenue and Newton Avenue.
- **Utility Relocation Impacts:** A fiber optic line is located in the Conrail ROW, east of the tracks. Some minor utility pole and guy wire relocations will likely be necessary.
- **Constructability Issues:** Storm drain inlets will require relocation on the west side of Newton Avenue to accommodate the trail width. The side slope of the area between the rail and Newton Avenue may require the use of short retaining walls. Based on field observations, the existing bridge structures over the WJ&S ROW and Nicholson Road appear to be suitable to reuse for proposed trail crossings. Observations were made from below the structure, and the project team was unable to determine the bridge deck condition, although it will likely need some minor rehabilitation.
- **Trail Opportunities:** Reuse of existing rail bridges are an opportunity to keep a piece of historic rail line infrastructure, and prevent the cost of obtaining new, prefabricated bridges.
- **Trail Constraints:** The existing rail bridges as described above are narrower than the trail, with a clear width of 10.5'. However, this width is still above minimum AASHTO guidelines for bridge clearance.



Segment 6 - Atlantic Avenue

- Recommended Alignment
- Utility owned parcels
- DVRPC Suburban Retail District
- Existing Off-Road Bicycle Facility *
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space
- Proposed Off-Road Bicycle Facility *

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 6 - Map Notes

A	Proposed trail crosses to the east side of the railroad tracks at Oakland Avenue. Trail will utilize open space east of current railroad tracks for the entirety of this segment.
B	Narrow Newton Avenue to 24' wide minimum between Holly Avenue and Cedar Avenue to accommodate trail. Relocate drainage inlets and install new curb.
C	Install crosswalks and pedestrian ramps at Park Avenue and Capitol Avenue.
D	At Cedar Avenue, remove remnants of tunnel structure on east side of tracks. Cap tunnel and fill in structure.
E	Reuse former rail bridge structures over WJ&S RR corridor and Nicholson Road.
F	A small easement may be required at Train Station Dental to facilitate a trail crossing at Merchant Street. Install yield signs or RRFB signals at Merchant Street crossing.

Segment 6 - Atlantic Avenue

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail. Once right-of-way is secure, preliminary and final design may proceed.



The currently unused east superstructures of the existing Conrail bridges over the WJ&S ROW and Nicholson Road appear to be fit for reuse for this trail.

Segment 6 - Atlantic Avenue

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
6	Oakland Avenue	Consider a raised crosswalk. Add yield signage and pavement markings.
	Nicholson Road	Trail will be on unused Conrail bridge over Nicholson Road.
	Merchant Street	Install yield signs or RRFB signals at Merchant Street.
	Note: Crosswalks will be installed from the trail to the street grid east of railroad tracks every 2-3 blocks. Locations to be determined during final design. These crosswalks will have stop or yield control.	

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 6	CONRAIL	2900	CONRAIL ROW OAKLYN, AUDUBON
	PRIVATE	800	E ATLANTIC AVE AUDUBON BORO

Segment 7 - Atlantic Avenue

Conrail ROW from Merchant Street to Station Avenue

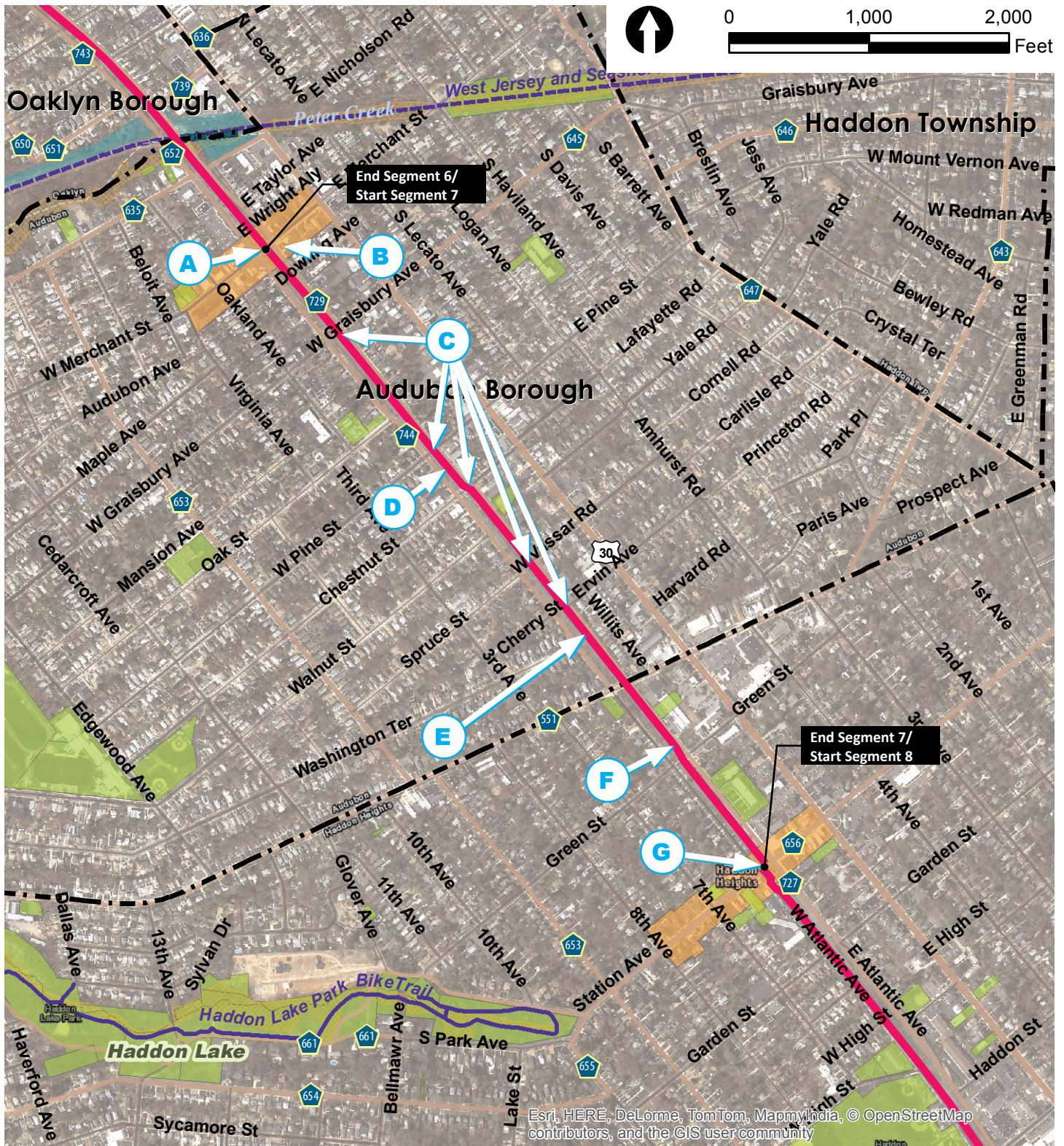
Proposed Length: 1.1 Miles (all new trail)

Municipalities Involved: Audubon, Haddon Heights

The trail continues on the east side of the tracks through Audubon, and heads to downtown Haddon Heights.

- **Property or Right-of-Way (ROW) Impacts:** All of the trail in this segment would be contained within the current Conrail or E. Atlantic Avenue ROW.
- **Environmental Constraints** Environmental testing may be required within the former railroad bed.
- **Business District Connections and Economic Benefits:** This trail segment directly connects to the Haddon Heights and Audubon business districts.
- **Overall Network Connectivity:** Various linkages to the street grid can be made throughout Audubon and Haddon Heights. The trail will not directly connect to Kings Highway.
- **Utility Relocation Impacts:** A fiber optic line is located in the Conrail ROW, east of the tracks. Minor guy wire relocations will be required.
- **Constructability Issues:** In order to minimize earthwork, and maximize street grid connections, it is envisioned that this segment of trail will be located closer to E. Atlantic Avenue, rather than the railroad tracks. It is anticipated that the pedestrian bridge at Green Street will remain for the time being, and the trail should route around and make connections to the structure. Retaining wall may be needed here to keep the trail grade “high” around the bridge pier. The retaining wall between Green Street and Station Avenue can remain in place. The trail will be located just below the wall. The community may also want to consider replacing or retrofitting this bridge for ADA accessibility.
- **Trail Opportunities:** There is ample clear space on this side of the railroad tracks.
- **Trail Constraints:** Parking will need to be reconfigured south of Merchant Street and between Pine

and Chestnut Streets in order to have space for the trail, and reduce the amount of tree clearing. Some amount of tree clearing will need to take place elsewhere in order to keep the trail a safe distance from the street.



Segment 7 - Atlantic Avenue

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space
- DVRPC Suburban Retail District

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 7 - Map Notes

A	A small easement may be required at Train Station Dental to facilitate a trail crossing at Merchant Street. Install yield signs or RRFB signals at Merchant Street crossing.
B	Formalize parallel parking south of Merchant Street to allow room for trail where gravel parking is now.
C	Install crosswalks and pedestrian ramps at Graisbury Avenue, Pine Street, Chestnut Street, Vassar Avenue, and Ervin Avenue.
D	Convert head in parking between Pine St. and Chestnut St. to parallel parking. If more parking is needed, investigate open space south of Chestnut Street.
E	Trail will utilize open space east of current railroad tracks for the entirety of this segment.
F	Keep existing pedestrian bridge intact and make safe connection to trail. Consider retrofit or replacement to make bridge crossing ADA accesible.
G	Trail crosses back to the west side of the railroad tracks at Station Avenue. Install a new crosswalk, curb bumpouts, and RRFB signals.

Segment 7 - Atlantic Avenue

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail. Once right-of-way is secure, preliminary and final design may proceed.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
7	Merchant Street	Install yield signs or RRFB signals at Merchant Street.
	Pine Street	Install yield signs or RRFB signals at Pine Street.
	Chestnut Street	Install yield signs or RRFB signals at Chestnut Street.
	Kings Highway	Kings Highway is on existing bridge over the future trail.
	Green Street	Make connection to existing pedestrian bridge. Consider retrofit or replacement to make bridge crossing ADA accesible.
	Station Avenue	Install curb bumpouts and RRFB signals.
	Note: Crosswalks will be installed from the trail to the street grid east of railroad tracks every 2-3 blocks. Locations to be determined during final design. These crosswalks will have stop or yield control.	

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 7	CONRAIL	2300	CONRAIL ROW AUDUBON, HADDON HTS

Segment 8 - Atlantic Avenue

Conrail ROW from Station Avenue to Clements Bridge Road

Proposed Length: 0.70 Miles (all new trail)

Municipalities Involved: Haddon Heights, Barrington

The trail shifts to the west side of the tracks through Haddon Heights to take advantage of park and school connections, as well as a safer underpass crossing at I-295.

- **Property or Right-of-Way (ROW) Impacts:** One private parcel will likely be impacted on this segment, the old station just south of Station Avenue. Other than this small private parcel adjacent to the railroad tracks, the trail in this segment would be contained within the current Conrail or W. Atlantic Avenue/Barrington Avenue ROW.
- **Environmental Constraints:** Environmental testing may be required within the former railroad bed.
- **Business District Connections and Economic Benefits:** This trail segment directly connects to the Haddon Heights and Barrington business districts.
- **Overall Network Connectivity:** Various linkages to the street grid can be made throughout Haddon Heights and Barrington.
- **Utility Relocation Impacts:** Minor utility pole relocations will be required.
- **Constructability Issues:** A retaining wall will likely be required between High Street and Lippincott Lane to keep the trail up on the bank above the railroad tracks. Removal of trees here will also be required.
- **Trail Opportunities:** While the trail is technically feasible on both sides of the tracks in this segment, the placement on the west side allows for connections to the park and Seventh Avenue Elementary School, as well as a comfortable crossing under the Interstate 295 bridge. The baseball fields could make a great trailhead location, with the addition of formal parking, and restrooms.
- **Trail Constraints:** Space is limited near the old station just south of Station Avenue. During the final design stage, further study of parking impacts and potential replacement of parking can be considered south of the current parking areas. A preliminary investigation suggests that the parallel parking spaces lost on W. Atlantic Avenue can be replaced by adding head-in

parking on both sides of the tracks south of the current paved parking areas.



Segment 8 - Atlantic Avenue

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space
- DVRPC Suburban Retail District

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 8 - Map Notes

A	Remove parallel parking on West Atlantic Avenue. Shift vehicular lanes west, as well as head-in parking so that head-in parking can remain in use. Shift trail around old station building. Investigate if lost parallel parking needs to be replaced elsewhere.
B	Trail construction between High Street and Lippincott Lane will require removal of trees and installation of retaining wall.
C	Install crosswalks and pedestrian ramps at Garden Street, High Street, Lippincott Lane, and Kingston Avenue.

Segment 8 - Atlantic Avenue

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail. Haddon Heights to investigate parking needs, and coordinate with private property owner on trail and parking options. Once right-of-way is secure, preliminary and final design may proceed.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
8	Station Avenue	Install curb bumpouts and RRFB signals.
	Clements Bridge Road	Coordinate trail crossing with existing traffic and rail signals. Add crosswalk and pedestrian heads.
	Note: Crosswalks will be installed from the trail to the street grid west of railroad tracks every 2-3 blocks. Locations to be determined during final design. These crosswalks will have stop or yield control.	

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 8	PRIVATE	190	ATLANTIC AVE W HADDON HEIGHTS BORO
	CONRAIL	2900	CONRAIL ROW HADDON HTS, BARRINGTON

Segment 9 - Atlantic Avenue

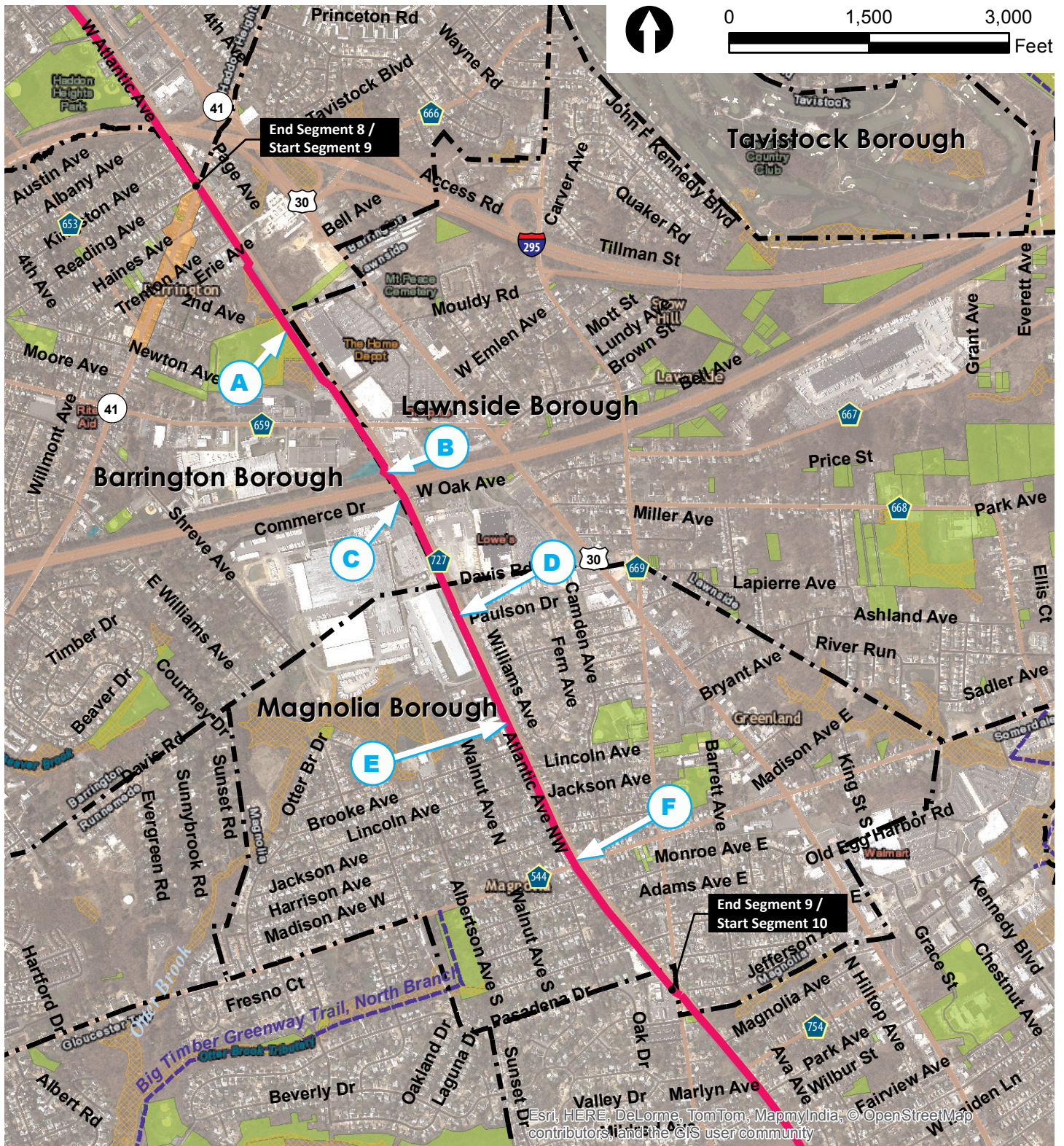
Conrail ROW from Clements Bridge Road to Warwick Road

Proposed Length: 1.9 Miles (all new trail)

Municipalities Involved: Barrington, Magnolia, Somerdale

The trail enters a stretch of secluded wooded land and industrial areas before returning to a suburban landscape.

- **Property or Right-of-Way (ROW) Impacts:** Other than Conrail and public ROW, some private parcels that may be impacted include:
 - o Transcontinental Gas Pipe Line Corp and New Jersey Turnpike ROW may need to be utilized at the Conrail spur crossing.
 - o An easement may be needed on FedEx property contingent on the rail siding discussions with Conrail (see Constraints paragraph below).
- **Environmental Constraints:** Environmental testing may be required within the former railroad bed. Some wetlands may be present in the area between Erie Avenue and the New Jersey Turnpike.
- **Business District Connections and Economic Benefits:** This trail segment directly connects to the Barrington business district.
- **Overall Network Connectivity:** Connections to local street grids will be more limited in this section due to the large parcels abutting the trail, and limited street crossings at Atlantic Avenue. An on-road connection to the Woodcrest PATCO station should be signed (via Oak Avenue).
- **Utility Relocation Impacts:** Large utility poles are located within the trail corridor adjacent to the FedEx facility south of the New Jersey Turnpike. If the Conrail rail siding cannot be removed, it may be more prudent to obtain easement from FedEx rather than relocating the poles.
- **Constructability Issues:** No major constructability issues, outside of the mentioned rail spur crossing and potential rail siding removal.
- **Trail Opportunities:** The west side of the tracks in this segment is generally much wider than the east side. There are opportunities here to add landscaping to create a buffer between the trail and the railroad tracks. The parking lot for the shopping center at Warwick Road will act as a de facto trailhead, due to the ample parking available.
- **Trail Constraints:** As discussed earlier, the removal of the second Conrail siding will be required to avoid utility or private easement impacts along the FedEx property.



Segment 9 - Atlantic Avenue

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- DVRPC Suburban Retail District
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 9 - Map Notes

A	Utilize paper street south of Erie Avenue to route trail into wooded area for a short segment, and create a connection to Woodland Elementary School. Construct a spur trail to Newton Avenue.
B	Coordinate with Conrail/CSX on rail spur usage. It is suggested that an at-grade crossing be allowed here due to low or no usage of the spur.
C	Mitigate drainage issues south of Commerce Drive.
D	Discuss with Conrail the usage of the sidings adjacent to the FedEx facility. If the second siding is not used, it should be removed to allow for trail construction. If it must remain, some easement will likely be needed from FedEx to allow the trail to be routed around the large overhead utility poles along the ROW line. The potential easement needed from FedEx would not impact their operations.
E	Trail stays on west side of railroad track throughout this segment.
F	Trail will be located between old Magnolia Station and railroad tracks.

Segment 9 - Atlantic Avenue

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail, and include discussions on the rail spur north of the Turnpike. Once right-of-way is secure, preliminary and final design may proceed.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
9	Clements Bridge Road	Coordinate trail crossing with existing traffic and rail signals. Add crosswalk and pedestrian heads.
	Gloucester Pike	Coordinate trail crossing with existing traffic and rail signals. Add crosswalk and pedestrian heads.
	Commerce Drive	Trail crossing with existing traffic and rail signals. Add crosswalk and pedestrian heads.
	Lincoln Avenue	Consider stop or yield signage at new crosswalk.
	Evesham Avenue	Coordinate trail crossing with existing traffic and rail signals. Add crosswalk and pedestrian heads.
	Warwick Road	See illustration in next segment for intersection modifications required. Coordinate crossing with existing traffic and rail signals.
	Note: Crosswalks will be installed from the trail to the street grid west of railroad tracks every 2-3 blocks south of Brooke Avenue. Locations to be determined during final design. These crosswalks will have stop or yield control.	

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 9	CONRAIL	7000	CONRAIL ROW BARRINGTON, MAGNOLIA, SOMERDALE
	TRANSCONTINENTAL GAS PIPE LINE CORP	50	E GLOUCESTER PIKE BARRINGTON BORO HADDON HTS, BARRINGTON
	PRIVATE	200	S COMMERCE DR BARRINGTON BORO

Segment 10 - Atlantic Avenue

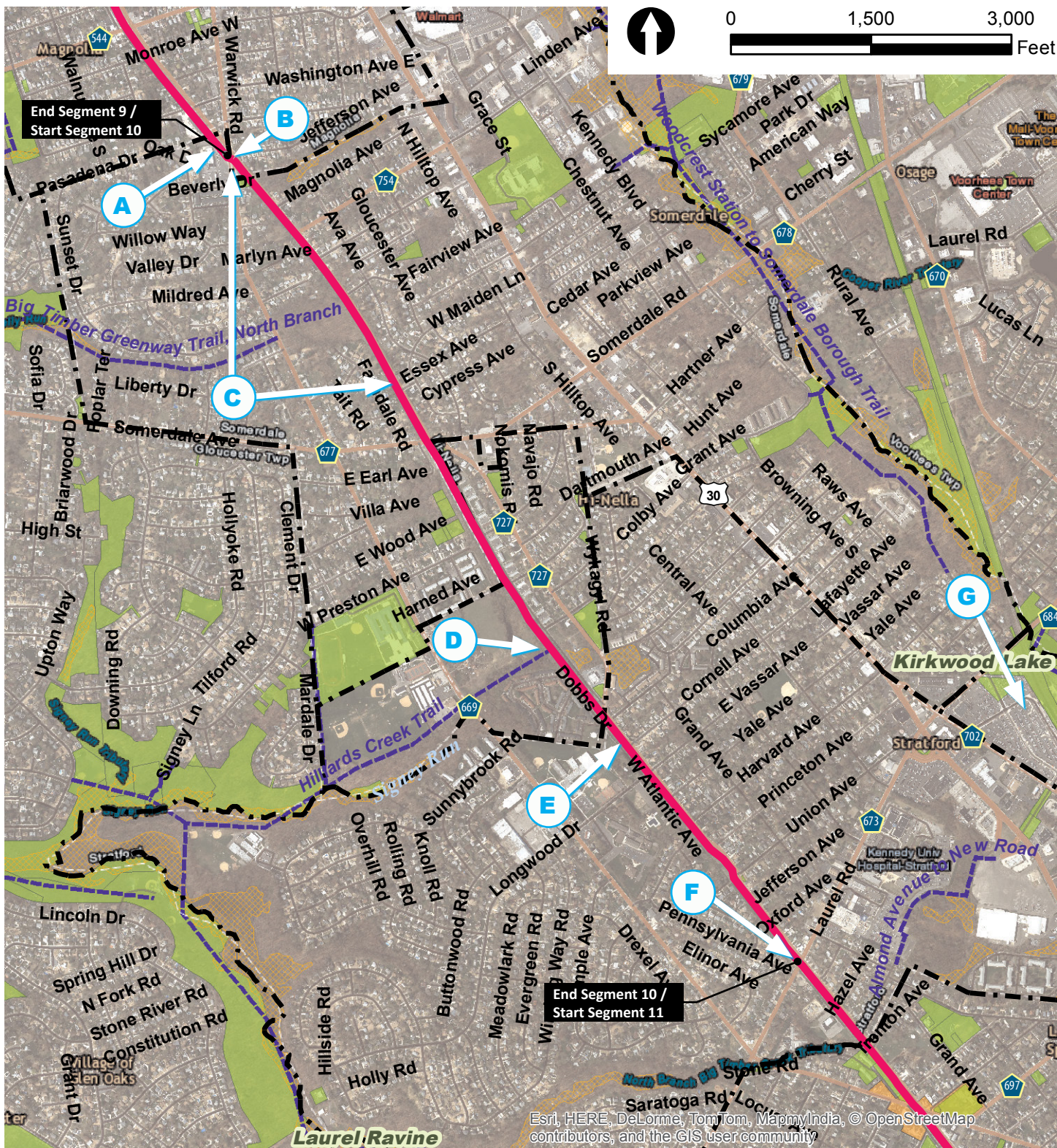
Conrail ROW from Warwick Road to Laurel Road

Proposed Length: 2.0 Miles (all new trail)

Municipalities Involved: Magnolia, Somerdale, Hi-Nella, Stratford

The trail moves back to the east side of the railroad tracks to take advantage of open spaces and connections to the area street grid.

- **Property or Right-of-Way (ROW) Impacts:** The trail is contained within Conrail and public ROW for the entirety of this segment.
- **Environmental Constraints** Environmental testing may be required within the former railroad bed.
- **Business District Connections and Economic Benefits:** There are a handful of businesses adjacent to this segment of trail, but there are no central business districts located along the trail.
- **Overall Network Connectivity:** Connections to local street grid on the east side of Atlantic Avenue will be fairly straightforward to create. Connections to the west side of the tracks will only be possible made at streets that cross the railroad tracks. Street grid connectivity is much more limited west of the tracks. An on-road connection to the Lindenwold PATCO station via Laurel Road and the future Medical Center Drive (see Figure 25 of the 2015 Camden County Highway Plan) should be made. It should be noted that placing the trail on the east side of the railroad tracks may pose a challenge to a future Big Timber Greenway Trail connection at Hi-Nella. The trail connection may need to occur via Vassar Avenue.
- **Utility Relocation Impacts:** The railroad signal cabinet at Laurel Road may need to be relocated. A natural gas line is located on the east side of the railroad tracks within this segment. A South Jersey Gas distribution building is located near Minnetonka Road, which will require the trail to route around the back side.
- **Constructability Issues:** This segment sees areas of ponding water along the area between the railroad tracks E. Atlantic Avenue. Engineering design of the trail will need to account for proper drainage of the street and trail.
- **Trail Opportunities:** Between Warwick Road and Somerdale Road, the available width between the tracks and E. Atlantic Avenue is relatively narrow. However, south of Somerdale Road, this area opens up, and can allow for landscaping space, park areas, and other recreational programming that will have easy access to adjacent neighborhoods. The space between Princeton Avenue and Union Avenue in Stratford could be a great opportunity for a trailhead.
- **Trail Constraints:** In order to create the needed space for the trail between Warwick Road and Somerdale Road, modifications to the existing street layout will need to be made. The merging/acceleration lane on southbound E. Atlantic Avenue, south of Warwick Road will need to be eliminated, as well as the current bike lane, to accommodate the trail. The “porkchop” island on the southwest corner of the intersection will need to be widened as well, to accommodate pedestrian ramps and trail users waiting at the stoplight.



Segment 10 - Atlantic Avenue

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space
- DVRPC Suburban Retail District

*from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 10 - Map Notes

A	Investigate source of ditch flow and determine stormwater management alternatives upstream.
B	Trail shifts from west to east side of tracks at Warwick Road. Make modifications to the Warwick Road intersection as shown in illustration below.
C	Remove southbound bike lane as necessary between Warwick Road and Essex Avenue to accommodate trail and curb installation.
D	Future trail connection.
E	Trail stays on east side of railroad track throughout this segment.
F	Train signal controller cabinet at Laurel Road will require relocation, or investigate shifting Atlantic Avenue lanes to the east to gain space.
G	Sign and mark an on-street connection to Lindenwold PATCO Station.



A schematic layout of potential changes to the East Atlantic Avenue & Warwick Road intersection to allow for trail construction.

Segment 10 - Atlantic Avenue

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail. Once right-of-way is secure, preliminary and final design may proceed.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
10	Warwick Road	See illustration for intersection modifications required. Coordinate crossing with existing traffic and rail signals.
	Somerdale Road	Coordinate trail crossing with existing traffic and rail signals. Modify crosswalk and add pedestrian heads.
	Vassar Avenue	Coordinate trail crossing with existing traffic and rail signals. Modify crosswalk and pedestrian heads.
	Laurel Road	Coordinate trail crossing with existing traffic and rail signals. Add crosswalk and pedestrian heads.
	Note: Crosswalks will be installed from the trail to the street grid east of railroad tracks every 2-3 blocks. Locations to be determined during final design. These crosswalks will have stop or yield control.	

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 10	CONRAIL	8100	CONRAIL ROW MAGNOLIA, SOMERDALE, HI-NELLA, STRATFORD

Segment 11 - Atlantic Avenue

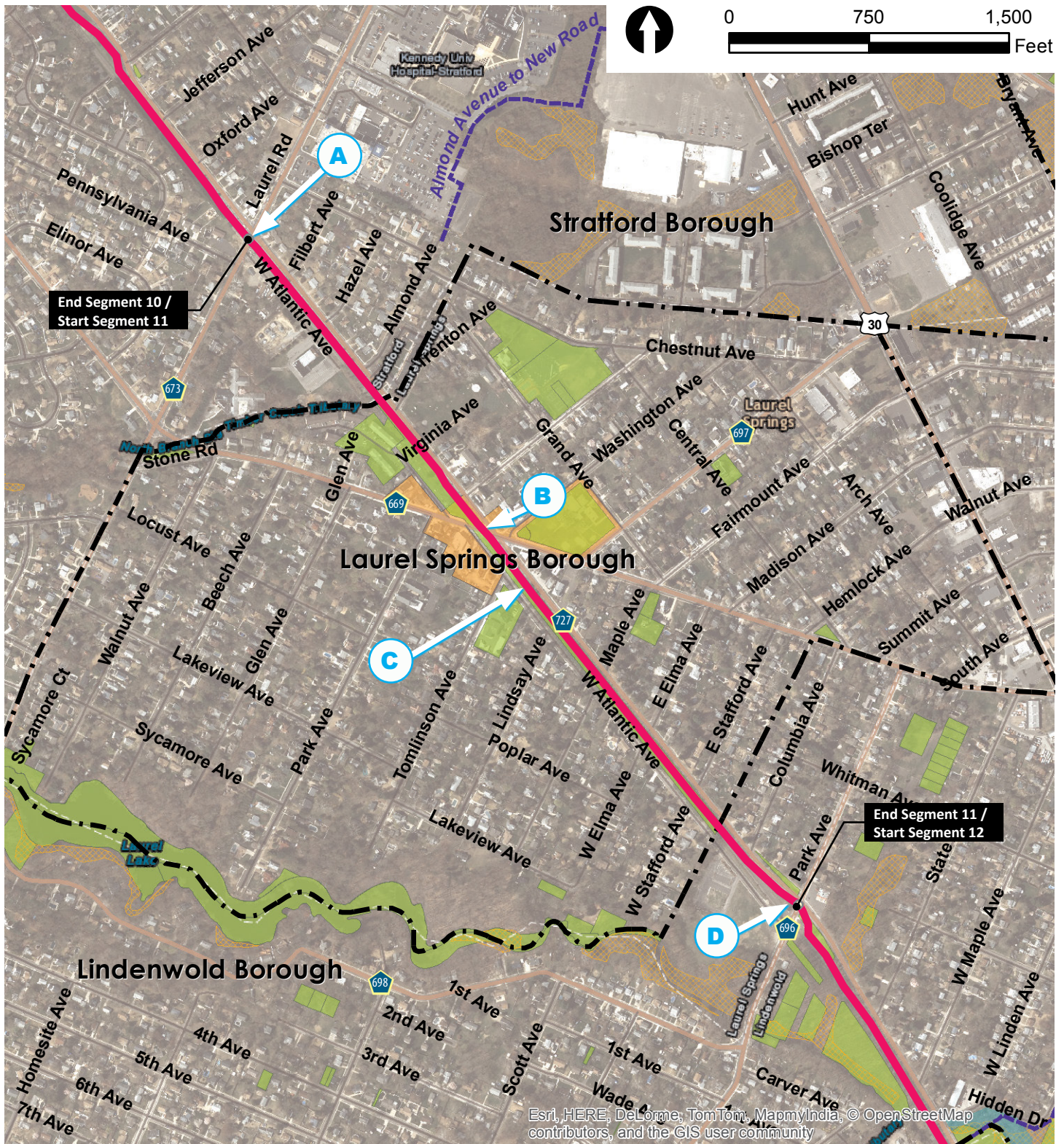
Conrail ROW from Laurel Road to Park Avenue

Proposed Length: 0.9 Miles (all new trail)

Municipalities Involved: Stratford, Laurel Springs, Lindenwold

The trail stays on the east side of the railroad tracks, and stays with the rail through the Laurel Springs cut.

- **Property or Right-of-Way (ROW) Impacts:** The trail is contained within Conrail and public ROW for the entirety of this segment.
- **Environmental Constraints:** Environmental testing may be required within the former railroad bed.
- **Business District Connections and Economic Benefits:** The trail connects directly to the downtown business district of Laurel Springs.
- **Overall Network Connectivity:** Connections to local street grid on the east side of Atlantic Avenue will be fairly straightforward to create. Connections to the west side of the tracks will only be able to be made at streets that cross the railroad tracks. Street grid connectivity is much more limited west of the tracks.
- **Utility Relocation Impacts:** The railroad signal cabinet at Stone Road may need to be relocated. Guy wire relocation will be required just south of Laurel Road. A fiber optic line is located on the east side of the railroad tracks within this segment.
- **Constructability Issues:** Between Stone Road and Park Avenue, the railroad tracks enter an earthen cut, and leave steep slopes beside both East and West Atlantic Avenue. These slopes make it difficult to build the trail adjacent to either street, but there is some room adjacent to the existing rail within the trench. Placing the trail within the trench will require some retaining wall construction, but will ultimately be a better alternative than attempting to build the trail up on the top of either slope.
- **Trail Opportunities:** Trail users will be able to make on-street connections to the attractions in Laurel Springs.
- **Trail Constraints:** There may be concerns about the section of trail located within the rail cut (between Stone Road and Park Avenue). This part of the trail gets cut off from the street grid, and could give users a feeling of being “trapped” between the cut slopes. However, this is a short section of trail (about 0.5 mile), and lighting and cameras could be added to this section to address security concerns. The trees planted just north of Stone Road are part of a memorial and should be kept in place.



Segment 11 - Atlantic Avenue

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- DVRPC Suburban Retail District
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 11 - Map Notes

A	Train signal controller cabinet at Laurel Road will require relocation, or investigate shifting Atlantic Avenue lanes to the east to gain space.
B	Install a set of RRFB signals at the Stone Road crossing.
C	Trail stays on the east side of the tracks within this segment. The trail will follow the rail into the cut for about 2,000 feet.
D	Add a 4-way stop at the intersection of Park Avenue and E. Atlantic Avenue.

Segment 11 - Atlantic Avenue

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail. Once right-of-way is secure, preliminary and final design may proceed.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
11	Laurel Road	Coordinate trail crossing with existing traffic and rail signals. Add crosswalk and pedestrian heads.
	Stone Road	Intersection will require more investigation for appropriate crossing treatment during final design. Geometric changes to the intersection may be required for safe, intuitive crossing. An RRFB signal may be the most appropriate treatment.
	Park Avenue	Consider an all way stop at the Park Avenue/E. Atlantic Avenue intersection.
	Note: Crosswalks will be installed from the trail to the street grid east of railroad tracks every 2-3 blocks north of Stone Road. Locations to be determined during final design. These crosswalks will have stop or yield control.	

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 11	CONRAIL	1660	CONRAIL ROW STRATFORD, LINDENWOLD
	*GIS records indicate the Conrail tracks within Laurel Springs Borough limits are on a parcel owned by NJDOT		

Segment 12 - Atlantic Avenue

Conrail ROW from Park Avenue to Blackwood-Clementon Road

Proposed Length: 0.9 Miles (all new trail)

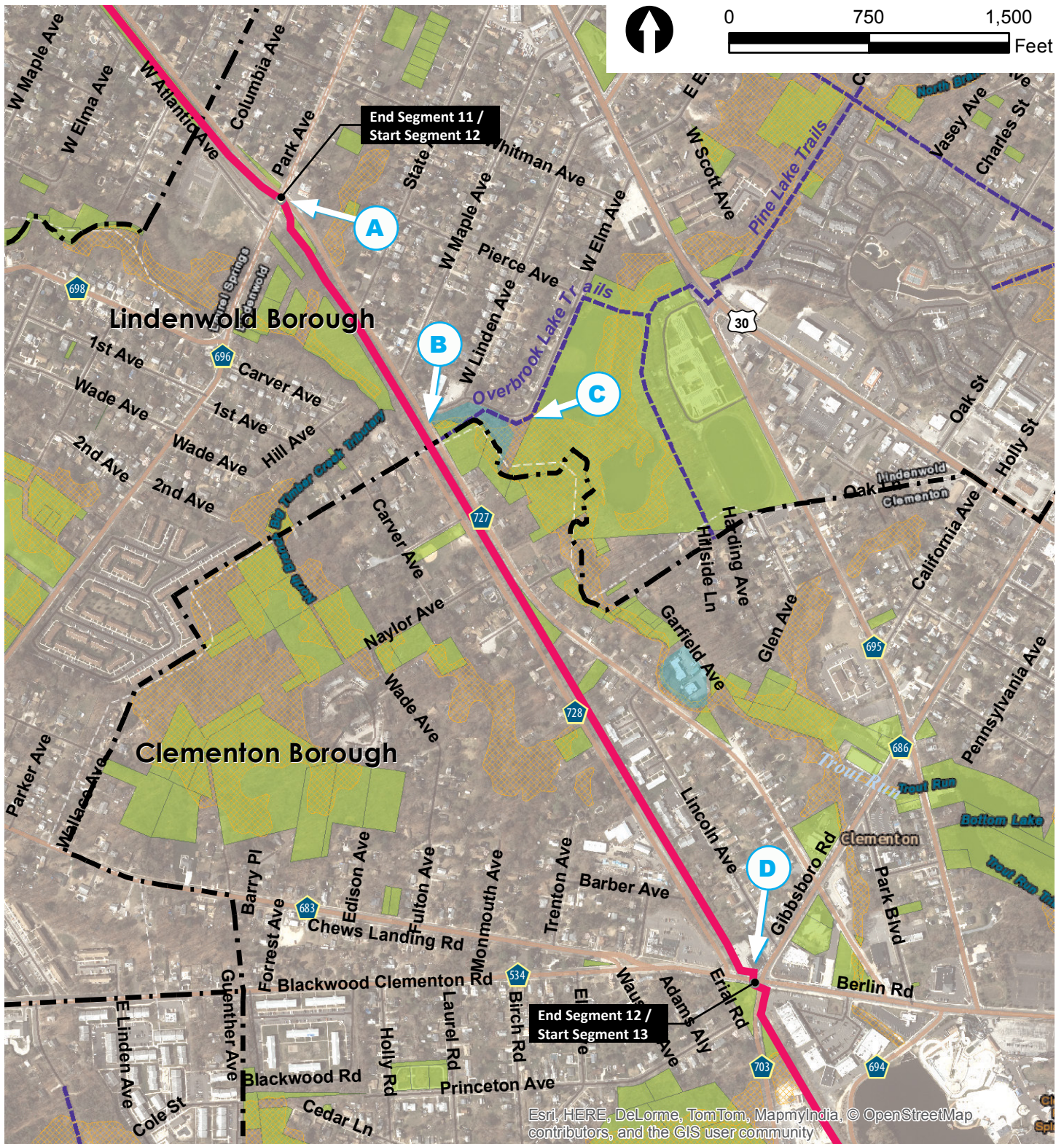
Municipalities Involved: Lindenwold, Clementon

The trail starts to leave the suburban environment and transitions to a more wooded setting.

- **Property or Right-of-Way (ROW) Impacts:** The trail is contained within Conrail and public ROW along this segment, although an easement may be needed at Harper's Pub to make a full trail width connection to the Gibbsboro Road crosswalks.
- **Environmental Constraints:** Environmental testing may be required within the former railroad bed. Stream impacts are likely with culvert modification.
- **Business District Connections and Economic Benefits:** This segment of trail sees very little in the way of direct connections to businesses or trail related economic benefit. There is a cluster of businesses along the Berlin Road corridor, but the street is more conducive to high volume, fast automobile traffic.
- **Overall Network Connectivity:** This is the first segment of trail that gets into the more exurban areas of Camden County. Traditional street grid is absent, and streets that do cross the trail see higher vehicular speeds and volumes. This will limit the bicycling connectivity to and from the trail unless other trails and bicycle lanes are implemented.
- **Utility Relocation Impacts:** Fiber optic is located on the east side of the tracks in this segment.
- **Constructability Issues:** This segment of trail will more closely follow the railroad tracks, due to the high amount of terrain difference between the street and the tracks. Fill will be needed in some areas to accommodate the trail, as well as tree removal.

Modifications of the existing culverts over the North Branch Big Timber Creek and tributary will likely be warranted, especially a new headwall that can accommodate the trail fill for the larger, southern crossing. Alternatively, if Camden County found it necessary to replace the E. Atlantic Avenue bridge here, a new structure could accommodate the proposed trail. The smaller, northern culvert will see less environmental and cost impacts.

- **Trail Opportunities:** This is the first section of the trail, coming from the north, where it begins to get a little more secluded. There are fewer street crossings, more tree canopy, and longer stretches of uninterrupted trail.
- **Trail Constraints:** The trail crossings over the North Branch Big Timber Creek and tributary will likely require modifications to the existing culverts. The intersection of Gibbsboro Road/Blackwood-Clementon/Berlin Road is fairly large. It is recommended that all four corners receive curb ramp updates to accommodate trail users. Trail users will need to cross two of four legs of the intersection to continue on the trail, and these upgrades will allow them to choose the ones most convenient to them depending on the traffic signal phase at their time of arrival.



Segment 12 - Atlantic Avenue

- | | | |
|--|---|---|
| — Recommended Alignment | Utility owned parcels | DVRPC Suburban Retail District |
| — Existing Off-Road Bicycle Facility * | NJDEP Wetlands | |
| - - - Proposed Off-Road Bicycle Facility * | Gov't/Publicly owned parcels or open space | |

* from Camden County *Bicycling and Multi-Use Trails Plan*, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 12 - Map Notes

A	Add a 4-way stop at the intersection of Park Avenue and E. Atlantic Avenue.
B	Modify existing Conrail culvert to accommodate trail over North Branch Big Timber Creek.
C	Future connection to Overbrook Lake Trails.
D	Improve ramps at all four corners at Gibbsboro Road to accommodate trail traffic. This will allow users to take whatever two legs of the intersection that are most convenient to them when they arrive.

Segment 12 - Atlantic Avenue

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail. Once right-of-way is secure, preliminary and final design may proceed.



This culvert over the North Branch Big Timber Creek appears to be suitable to remain in place for trail construction, although a retaining wall or headwall will be required to allow for full width trail.

Segment 12 - Atlantic Avenue

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
12	Park Avenue	Consider an all way stop at the Park Avenue/E. Atlantic Avenue intersection.
	Linden Avenue	Create a crossing at Linden Avenue for neighborhood access and to accommodate future connection to the Overbrook Lake Trail.
	Blackwood-Clementon Road	Improve ramps at all four corners of Gibbsboro/Erial Road intersection to accommodate trail traffic. Add pedestrain heads where missing.

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 12	CONRAIL	4700	CONRAIL ROW LINDENWOLD, CLEMENTON
	PRIVATE	45	GIBBSBORO RD CLEMENTON BORO

Segment 13 - Atlantic Avenue

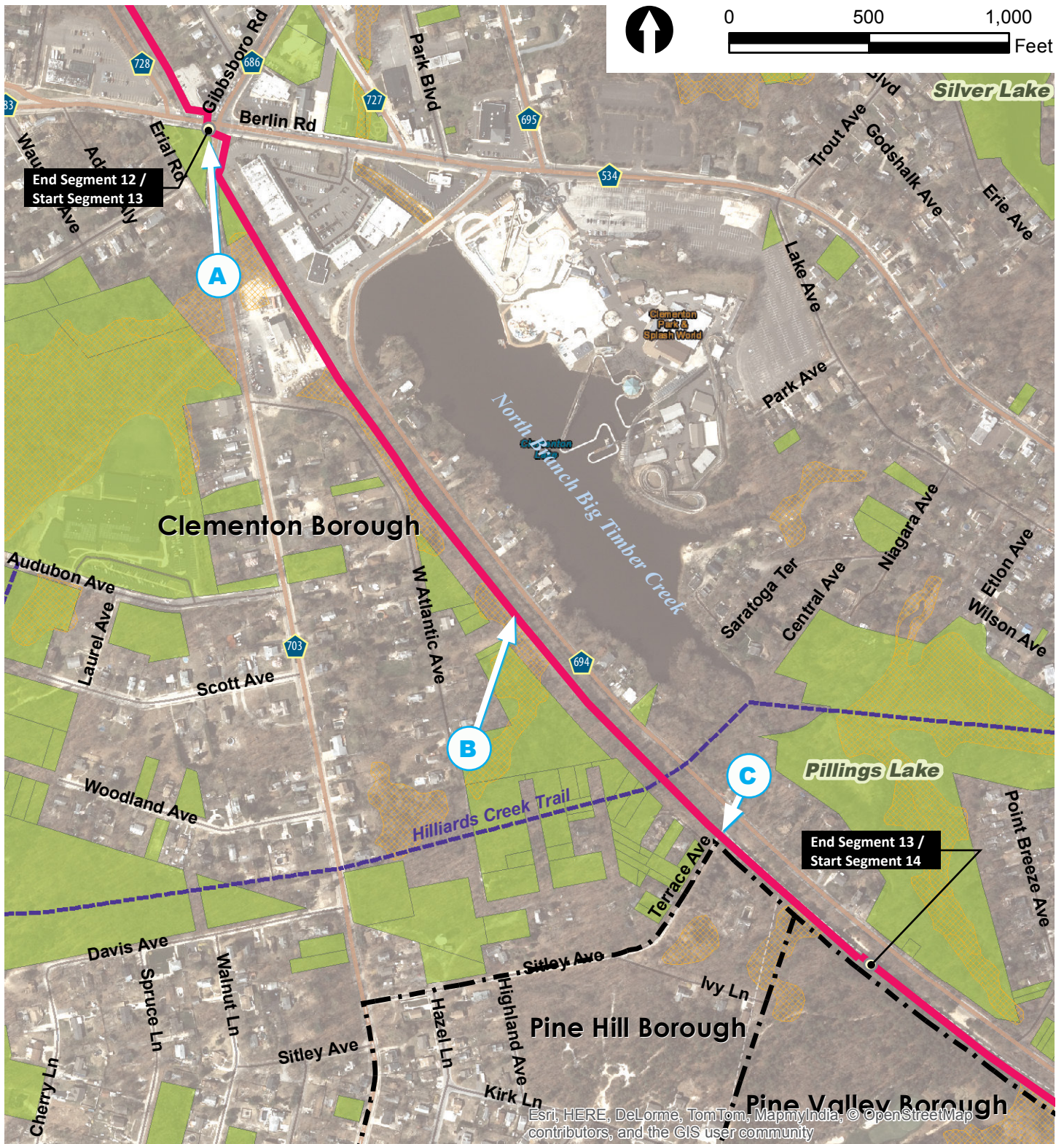
Conrail ROW from Blackwood-Clementon Road to Schwartz Boulevard

Proposed Length: 0.7 Miles (all new trail)

Municipalities Involved: Clementon

The trail moves over to the west side of the tracks, and begins a long uninterrupted stretch through quiet, open spaces.

- **Property or Right-of-Way (ROW) Impacts:** An easement will be required on the southeast corner of Gibbsboro Road & Blackwood-Clementon Road to make the intersection connection. Otherwise, the remainder of the trail is contained within Conrail and public ROW for the entirety of this segment.
- **Environmental Constraints:** Environmental testing may be required within the former railroad bed.
- **Business District Connections and Economic Benefits:** This segment of trail sees few direct connections to businesses or trail related economic benefit. There is a cluster of businesses along the Berlin Road corridor, but the street is more conducive to fast, high volume automobile traffic.
- **Overall Network Connectivity:** There will be no connections to any existing streets, other than at Blackwood-Clementon Road, and possibly at Terrace Road. The future Hilliards Creek Trail will connect here.
- **Utility Relocation Impacts:** There do not appear to be any utility relocations within this segment.
- **Constructability Issues:** This segment of trail will parallel the existing railroad track where it is already relatively graded out, so grading and tree clearing will be minimal. Some minor retaining walls may be needed in areas where sideslopes exhibit erosion.
- **Trail Opportunities:** This segment of trail takes advantage of an already cleared portion of former railbed, and will require little earthwork or clearing.
- **Trail Constraints:** See Segment 12 regarding the intersection of Gibbsboro Road/Blackwood-Clementon/Berlin Road. This section of trail is landlocked between the railroad tracks and residential development. A connection to Terrace Road will be beneficial from an emergency response standpoint.



Segment 13 - Atlantic Avenue

- | | | |
|--|--|--|
| — Recommended Alignment | Utility owned parcels | DVRPC Suburban Retail District |
| — Existing Off-Road Bicycle Facility * | NJDEP Wetlands | |
| --- Proposed Off-Road Bicycle Facility * | Gov't/Publicly owned parcels or open space | |

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 13 - Map Notes

A	Improve ramps at all four corners at Gibbsboro Road to accommodate trail traffic. This will allow users to take whatever two legs of the intersection that are most convenient to them when they arrive.
B	Trail takes advantage of former railbed on western side of current tracks. Some retaining wall may be needed against side slopes.
C	Create connection to trail at Terrace Avenue.

Segment 13 - Atlantic Avenue

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail. Once right-of-way is secure, preliminary and final design may proceed.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
13	Blackwood-Clementon Road	Improve ramps at all four corners of Gibbsboro/Erial Road intersection to accommodate trail traffic. Add pedestrain heads where missing.

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 13	PRIVATE	80	BERLIN RD CLEMENTON BORO
	CONRAIL	3700	CONRAIL ROW CLEMENTON

Segment 14 - Clementon-Pine Hill Connector

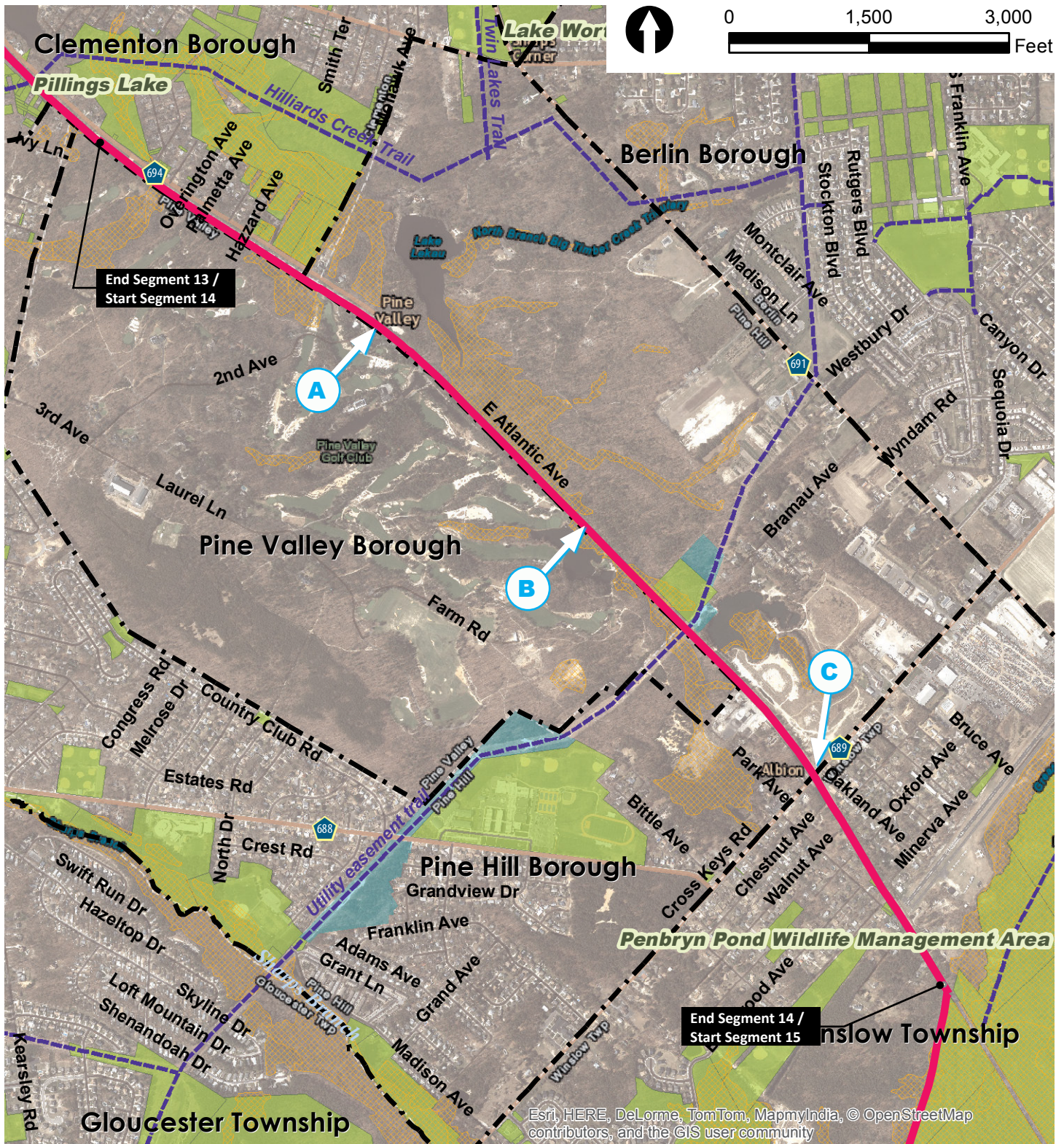
Conrail ROW from Schwartz Boulevard to Great Egg Harbor River

Proposed Length: 2.5 Miles (all new trail)

Municipalities Involved: Clementon, Pine Hill, Winslow

The trail continues along the west side of the tracks to make a connection to the Great Egg Harbor Greenway.

- **Property or Right-of-Way (ROW) Impacts:** The trail is contained within Conrail and public ROW for the entirety of this segment.
- **Environmental Constraints:** Environmental testing may be required within the former railroad bed.
- **Business District Connections and Economic Benefits:** There are no local business connections within this segment.
- **Overall Network Connectivity:** Most of this segment is landlocked between a golf course and the railroad tracks. On-street connections will be made to the end of East Atlantic Avenue, Cross Keys Road, and to the streets south of Cross Keys Road. A trail connection can be made to the Boy Scout Camp at the crossing at the end of E. Atlantic Avenue.
- **Utility Relocation Impacts:** There does not appear to be any utility relocations within this segment.
- **Constructability Issues:** This segment of trail will parallel the existing railroad track where it is already relatively graded out, so grading and tree clearing will be minimal.
- **Trail Opportunities:** This segment of trail takes advantage of an already cleared portion of former railbed, and will require little earthwork or clearing.
- **Trail Constraints:** Most of this section of trail is landlocked between the railroad tracks and a golf course. The vehicular traffic volumes and speeds on Cross Keys Road are significant enough to warrant a traffic signal for the trail crossing. This signal will require integration with the railroad crossing signal. Cross Keys Road will soon undergo design of a widening project. The design of the new Cross Keys Road should consider the future intersection of the Cross Camden County Trail. It may be reasonable to consider a trail crossing up to 600 feet away from the railroad tracks, at Main Avenue or Terrace Avenue. Any further distance would discourage safe and legal crossing of Cross Keys Road.



Segment 14 - Clementon-Pine Hill Connector

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space
- DVRPC Suburban Retail District

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 14 - Map Notes

A	Access point to trail from Boy Scout Camp and E. Atlantic Avenue. There is also a potential to access the future Hilliards Creek Trail from this location.
B	Trail takes advantage of former railbed on western side of current tracks.
C	Due to high vehicular speeds and volumes on Cross Keys Road, a signalized crossing will be required. It is recommended that this crossing be located within 600 feet of the tracks.

Segment 14 - Clementon-Pine Hill Connector

Next steps to trail implementation:

Camden County and Rails-to-Trails to take the lead in negotiations with Conrail. Once right-of-way is secure, preliminary and final design may proceed.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
14	Golf Course entrance	Add stop signs within public right-of-way.
	Cross Keys Road	Add signalized crossing within 600 feet of railroad tracks. Design of Cross Keys Road underway by Camden County will account for future trail crossing.
	Make connections to street grid south of Cross Keys Road, west of railroad tracks.	

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 14	CONRAIL	13,000	CONRAIL ROW LINDENWOLD, CLEMENTON

Segment 15 - Great Egg Harbor Greenway

From Conrail ROW to New Brooklyn County Park

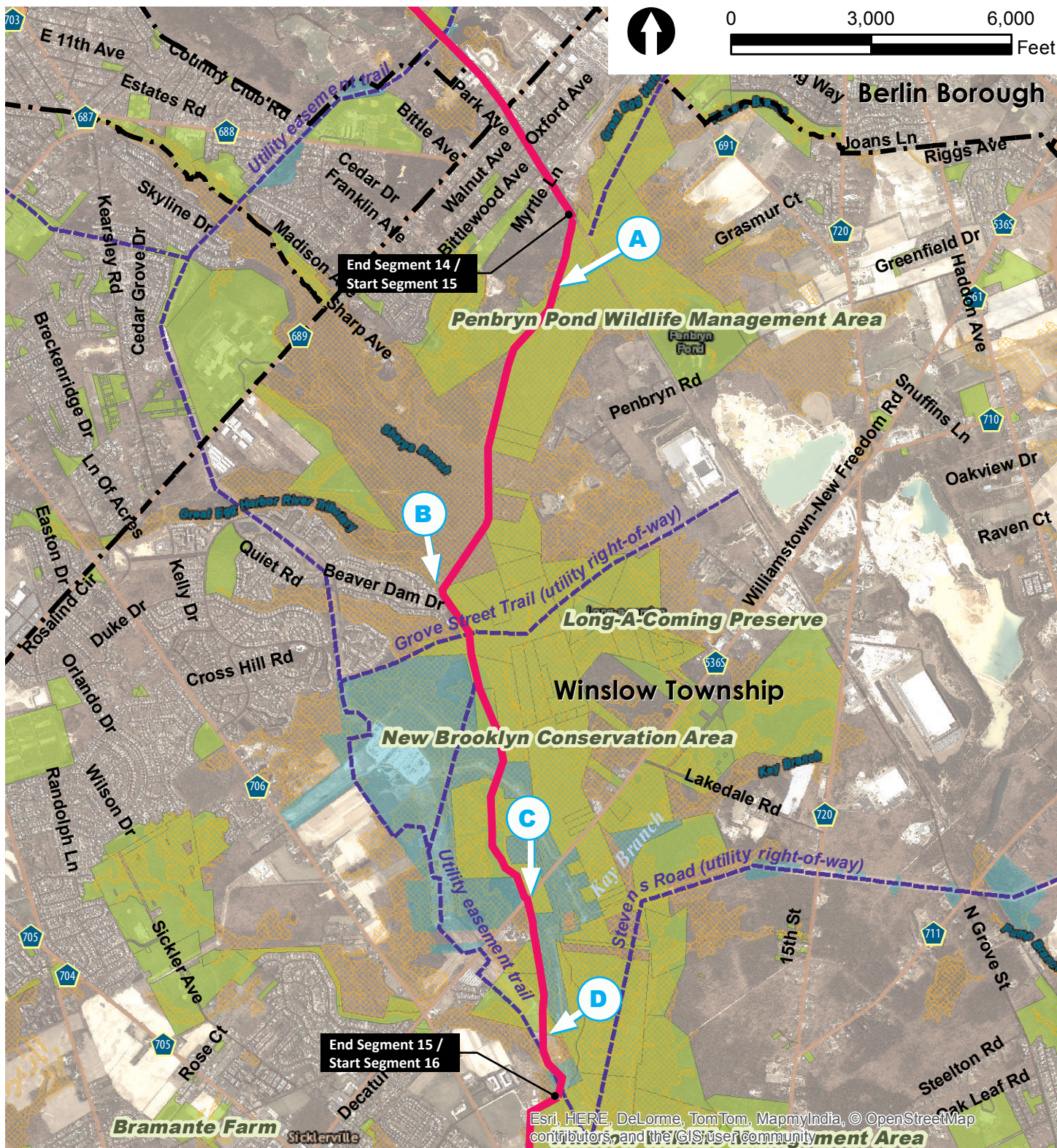
Proposed Length: 4.6 Miles (all new trail)

Municipalities Involved: Winslow

The entirety of this segment of the Cross Camden County Trail will overlap with the future Great Egg Harbor Greenway. This segment of trail will utilize open space owned by Camden County, Winslow Township, and the New Jersey Department of Environmental Protection, and will stay to the west of the Great Egg Harbor River. Due to the flat topography and proximity to the Great Egg Harbor River, the trail corridor sees large areas of wetlands. The exact route of the trail within this segment will be determined during the preliminary design stage when a detailed wetland delineation will take place.

It should be noted that the routing presented in this report for this segment differs slightly from that presented in the Great Egg Harbor Greenway Feasibility Study (Key Engineers, 2013). This report proposes that this segment of trail be paved, and will be placed within public property, but further away from the Great Egg Harbor River so that wetland impacts can be reduced (or eliminated).

- **Property or Right-of-Way (ROW) Impacts:** Pending wetland delineation, it appears that the trail in this segment will require easements on approximately 4 privately owned parcels, including Sunrise Tree Farms and Regency House Apartment. Easements will also be required for about 1400 feet of trail across PSE&G owned properties. Wetland limits could impact the number and area of easements needed.
- **Environmental Constraints:** Wetlands are prevalent across this trail corridor. A wetland delineation will be required for a roughly 500' wide swath along this trail prior to preliminary design. Full identification (flagging) of wetlands will help generate a design of a 12' wide trail with few or no wetland impacts.
- **Business District Connections and Economic Benefits:** There are no local business connections within this segment.
- **Overall Network Connectivity:** This segment is isolated within wooded areas adjacent to the Great Egg Harbor River. There is an opportunity to make connections to the trail at Williamstown-New Freedom Road, as well as Beaver Dam Drive within the Wilton's Corner neighborhood.
- **Utility Relocation Impacts:** There does not appear to be any utility relocations within this segment. The trail will cross PSE&G easements that contain large overhead electrical structures, but no relocation will be required.
- **Constructability Issues:** Wetlands will present a challenge in this segment. Contingent on wetland locations, some portions of the trail may require boardwalks or bridges.
- **Trail Opportunities:** This segment of trail takes advantage of local, county, and state owned land that is rich in natural resources. Small footpath spurs may be constructed alongside this paved trail to allow users to view specific habitats or wetland areas.
- **Trail Constraints:** As already mentioned, the wetlands within the corridor will need to be mapped in order to determine the impacts. Keeping boardwalk structures to a minimum will help keep project costs under control.



Segment 15 - Great Egg Harbor Greenway

- Recommended Alignment
- Utility owned parcels
- DVRPC Suburban Retail District
- Existing Off-Road Bicycle Facility *
- NJDEP Wetlands
- Proposed Off-Road Bicycle Facility *
- Gov't/Publicly owned parcels or open space

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 15 - Map Notes

A	Most of trail stays within public property, with easements needed on some private and utility-owned parcels. Preliminary design stage will determine wetlands limits and a more clearly defined trail route, but it is assumed the trail will be routed outside of wetland limits when possible.
B	Connect a spur trail to Beaver Dam Drive via Wilton's Corner HOA property.
C	Create a crosswalk at Williamstown-New Freedom Road with RRFBs and advance signage.
D	Cross under PSE&G overhead power lines.

Segment 15 - Great Egg Harbor Greenway

Next steps to trail implementation:

Begin preliminary design stage with a wetland delineation within a 200'-500' corridor. Determine a trail route that provides for the fewest environmental impacts.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
15	Williamstown New Freedom Road	Add crosswalk with RRFB signals and advanced yield signage.
	Make connection to Beaver Dam Drive via HOA parcel.	

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 15	PRIVATE	1500	SHARP AVENUE LANDLOCKED WINSLOW TWP
	UNKNOWN OWNER	1500	LANDLOCKED WINSLOW TWP
	PUBLIC SERVICE ELECTRIC & GAS CO	1400	VARIOUS PARCELS WINSLOW TWP
	PRIVATE	360	ERIAL ROAD WINSLOW TWP
	PRIVATE	450	ERIAL ROAD WINSLOW TWP

Segment 16 - New Brooklyn County Park

Conrail ROW from Oakland Avenue to Merchant Street

Proposed Length: 0.55 Miles (all new trail)

Municipalities Involved: Winslow

The entirety of this segment stays within land currently owned by Camden County. Roughly one half of the proposed trail will follow the existing paved trail within the park. However, this trail is currently only 6'-8' wide, and would need to be widened to 12' to comply with the project design standards.

- **Property or Right-of-Way (ROW) Impacts:** The entirety of this segment is located within Camden County property.
- **Environmental Constraints:** There are likely wetlands located along the portion of the trail parallel to Cedarbrook Road. Boardwalk structure would be required to span over identified wetlands.
- **Business District Connections and Economic Benefits:** There are no local business connections within this segment.
- **Overall Network Connectivity:** It is recommended that crosswalks and advanced signage be added to Erial Road cross streets.
- **Utility Relocation Impacts:** There does not appear to be any utility relocations within this segment. The trail will cross PSE&G easements that contain large overhead electrical structures, but no relocation will be required.
- **Constructability Issues:** Wetlands will present a challenge in this southern portion of this segment. Some portions of the trail may require boardwalks or bridges along Cedarbrook Road. A new pedestrian bridge over the Great Egg Harbor River will be required.
- **Trail Opportunities:** This segment of trail takes advantage of already paved sections of trail within the park, although these sections will require widening. This trail segment also connects to another piece of the Camden County Park system. This park is also a great opportunity to add restroom and drinking water facilities, due to the proximity to the street utilities.
- **Trail Constraints:** As already mentioned, the wetlands within the corridor will need to be mapped in order to determine the impacts. Keeping boardwalk structures to a minimum will help keep project costs under control.



This existing trail can be widened to 12 feet to match the design of the rest of the Cross Camden County Trail.



Segment 16 - New Brooklyn County Park

- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- DVRPC Suburban Retail District
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space

* from Camden County Cycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 16 - Map Notes

A	Widen existing trail within the park to 12' wide. Add new drainage crossings at low points. Ensure that trail does not conflict with disc golf course.
B	Trail will stay on the north side of Cedarbrook Road. Fill or boardwalk structure will be required, pending wetland locations. An approximately 80 foot long bridge will be required at the Great Egg Harbor River crossing.

Segment 16 - New Brooklyn County Park

Next steps to trail implementation:

Begin preliminary design stage with a wetland delineation along Cedarbrook Road to determine structure needs.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
16	Cedarbrook Road	Consider an all-way stop at New Freedom Road, and installing crosswalk there.
	Note: Create or enhance crosswalks along New Brooklyn Blackwood Road so that residents can access New Brooklyn County Park. Crosswalks should be yield controlled, and final design may consider RRFBs.	



Consider replacing this bridge with a prefabricated steel structure.

Segment 17 - Winslow Wildlife Management

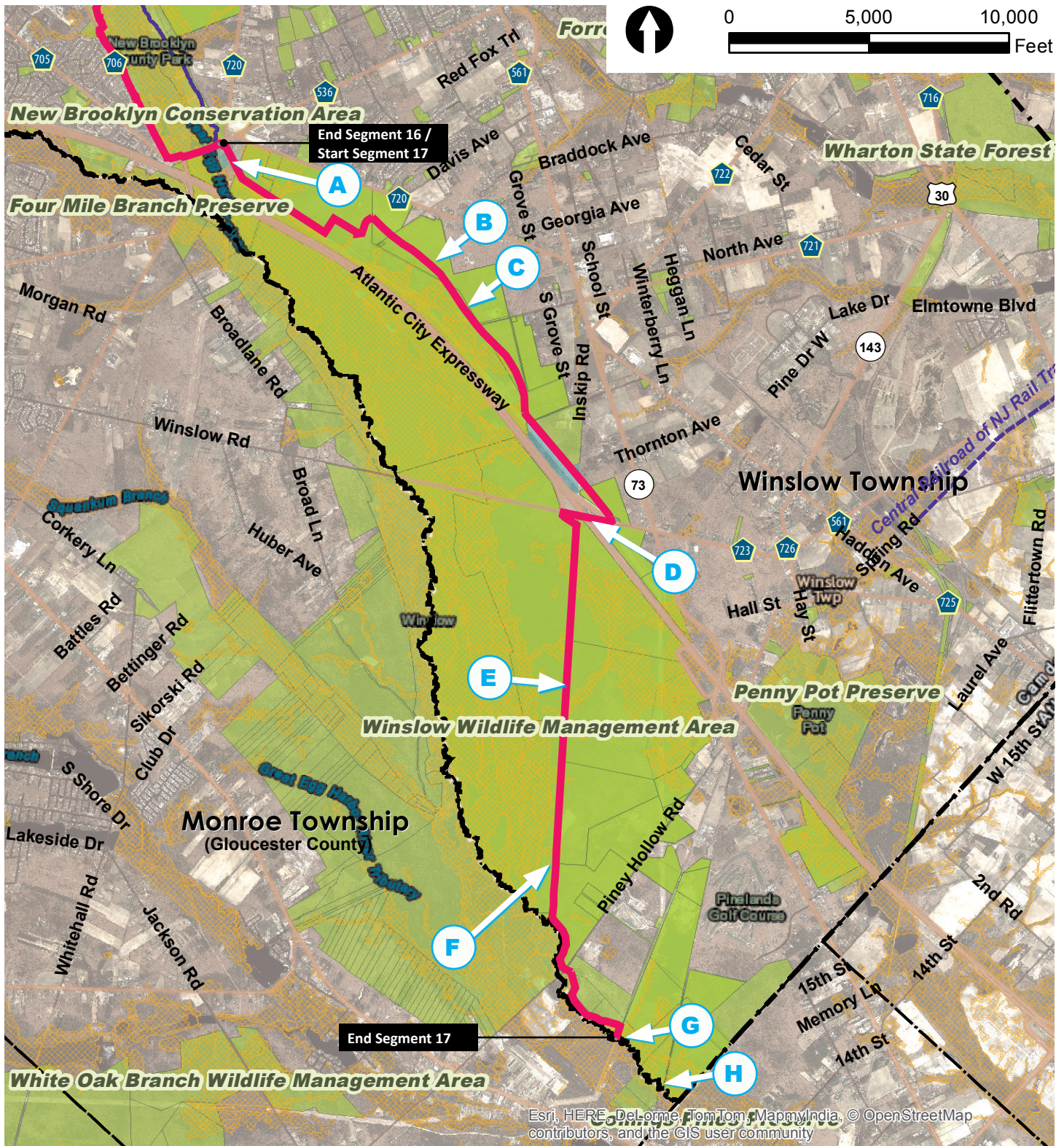
From PSE&G Easement (at New Freedom Road) to Gloucester County Line

Proposed Length: 8.3 Miles (new trail)

Municipalities Involved: Winslow

This final segment of the Cross Camden County Trail will allow residents to visit one of the largest pieces of open space within the county. In order to prevent damage to the Wildlife Management Area (WMA), the intention of this trail route is to place the trail in already disturbed corridors, such as fire roads and utility easements, while not interfering with current fish and game activities. The trail through this segment will be separated from the current vehicular access routes, so that all modes can safely use the corridors.

- **Property or Right-of-Way (ROW) Impacts:** Most of this segment is located on publicly owned lands, but there are four parcels north of the Atlantic City Expressway that would require easements parallel or adjacent to the PSE&G lines. There are also three parcels outright owned by PSE&G that would require easements near Inskip Road. Between Fleming Pike and Piney Hollow Road, most of the trail would be located inside of a 66' wide township right-of-way (Inskip Road).
- **Environmental Constraints:** There are small pockets of man-made wetlands in or adjacent to these disturbed corridors. Final design of the trail will route around these pocket wetlands.
- **Business District Connections and Economic Benefits:** There are no local business connections within this segment.
- **Overall Network Connectivity:** Other than the three roads the trail crosses, there are no other links to streets or attractions in this segment. This trail segment will allow for a safe crossing of the Atlantic City Expressway, and a connection to both Gloucester and Atlantic Counties.
- **Utility Relocation Impacts:** There does not appear to be any utility relocations within this segment. The trail will cross and run within PSE&G easements that contain large overhead electrical structures, but no relocation will be required.
- **Constructability Issues:** Although small wetlands may be present adjacent to the planned trail, they should not present any construction issues. It is the preference of the County to maintain a 12' wide paved trail throughout this segment. Other surface types can be evaluated, such as crushed stone, but permeable pavement is not recommended due to maintenance needs and the likelihood of sandy runoff across the pavement.
- **Trail Opportunities:** This segment of trail takes advantage of already cleared corridors to give access to beautiful public open space. The design of this segment should keep the trail separate from vehicular traffic. There are many smaller foot trails within the Winslow WMA that can be accessed from this main trail.
- **Trail Constraints:** There is concern among the hunting community about trail users within the Winslow WMA. And while this is a very valid concern, there are hundreds of miles of hiking and bicycling trails throughout the United States that traverse through active hunting areas. In fact, over 1,200 miles of the 2,200 mile long Appalachian Trail are located on lands that allow hunting. The American Tobacco Trail, a popular trail located between Durham and Cary, North Carolina, is immediately adjacent to public hunting grounds. On these, and other trails next to active hunting grounds, trail users are advised to wear blaze orange during hunting seasons, and signage and educational campaigns can help both bicyclists and hunters coexist.



Segment 17 - Winslow Wildlife Management Area

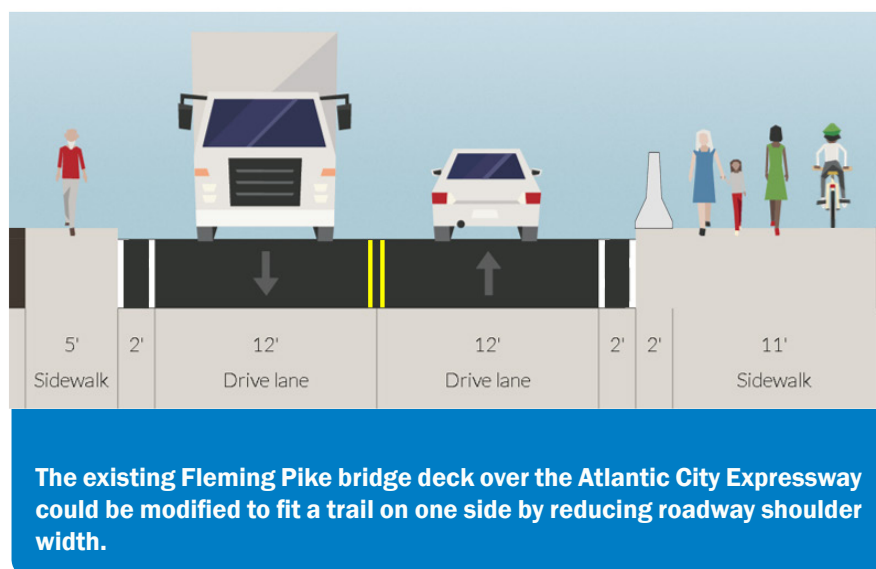
- Recommended Alignment
- Existing Off-Road Bicycle Facility *
- Proposed Off-Road Bicycle Facility *
- Utility owned parcels
- DVRPC Suburban Retail District
- NJDEP Wetlands
- Gov't/Publicly owned parcels or open space

* from Camden County Bicycling and Multi-Use Trails Plan, 2015, DVRPC Publication #13036

Data Sources: [NJ OIT Office of GIS for 2015 Aerial Hi Res Orthophotography, 2016 Parcels, Roads, and Municipal Boundaries.] [NJDEP Land Use/Land Cover 2012 for wetlands.] [DVRPC for Existing/Proposed Off Road Bicycle Facilities and Suburban Retail Districts.] [ESRI World Boundaries and Places for place names.]

Segment 17 - Map Notes

A	Utilize clearing from smaller PSE&G transmission line for first 0.95 miles of trail.
B	Trail will continue to be a 12' wide asphalt, but County may want to explore 10' asphalt or using a compacted gravel base.
C	Trail uses clearing around pond, and fire roads for next 2.2 miles, before rejoining PSE&G easement.
D	Trail crosses Fleming Pike just east of northbound Atlantic City Expressway on-ramp. Add a crosswalk with RRFB signals, and advanced yield signage. Trail continues along the south side of Fleming Pike. Modify the current bridge over the Atlantic City Expressway as follows: -Shift vehicular lanes north, lanes remain 12' wide, reduce north shoulder to 2 feet. -Remove sidewalk on south side of bridge. Replace with an 11' wide sidewalk with new Jersey barrier. Relocate south guardrail on both approaches.
E	West of Fleming Pike bridge, trail will be located within current Inskip Road ROW. New trail should not interfere with motor vehicle traffic.
F	Inskip Road 66' wide right-of-way ends. Trail utilizes NJDEP property to get to Piney Hollow Road.
G	Cross Gloucester County line with approximately 200 foot long prefabricated bridge. Stay parallel to JP Rail Southern Running Track railroad toward US 322.
H	An alternative crossing location could utilize the Caines Mill Road right-of-way across Great Egg Harbor River.



Segment 17 - Winslow Wildlife Management Area

Next steps to trail implementation:

Next steps to trail implementation: Continue conversations with NJ DEP regarding approval of trail route through the WMA and addressing hunter's concerns. Coordinate with Gloucester County on Great Egg Harbor River crossing. Coordinate with JP Railroad on the status of the Southern Running Track, and if rail-with-trail can be utilized. Complete a wetland delineation of the fire roads and utility corridors prior to final design.

Intersection Modifications Required

Segment	Street Name	Potential Modifications or Countermeasures to be Added
17	Cedarbrook Road	Consider an all-way stop at New Freedom Road, and installing crosswalk there.
	Fleming Pike	Add crosswalk with RRFB signals and advanced yield signage just east of expressway on-ramp.
	Piney Hollow Road	Add crosswalk with RRFB signals and advanced yield signage.

Summary of Potential Private Property Impacts

	Property Owner	Potential Linear Feet of Trail	Parcel Address
Segment 17	PRIVATE	450	CEDAR BROOK ROAD WINSLOW TWP
	PRIVATE	650	BLUE ANCHOR ROAD WINSLOW TWP
	PUBLIC SERVICE ELECTRIC & GAS CO	2600	INSKIP ROAD WINSLOW TWP
	PRIVATE	190	SOUTH ROUTE 73 WINSLOW TWP
	PRIVATE	250	SOUTH ROUTE 73 WINSLOW TWP

Economic Impact Analysis

Tourism and Visitor Spending

Background

Tourism is an important engine of economic growth in Camden County. Visitors spend money on food and beverages, transportation, souvenirs, and lodging – injecting significant spending into the local economy. According to a 2016 Tourism Economics report, Camden County currently attracts about \$844 million in direct tourism spending per year, supporting an industry that employs about 9,015 people and generates \$114.9 million in local and state taxes per year. Accordingly, it is important to consider the tourism impact of regional recreational amenities such as the proposed Camden County trail.

While the economic impact of a given trail can vary based on its length, amenities, and connectivity to a larger regional network, case studies typically show that the average non-motorized trail user (hikers, cyclists, etc.) spends around \$20 per day on goods and services like food, beverages, transportation, and equipment rentals. Average total spending rises significantly for an out-of-town visitor who needs accommodation. A 2013 study of the Erie to Pittsburgh Trail in Pennsylvania found that trail users spent an average of \$21 just on soft goods (like food and drink), while overnight users stayed an average of 2.6 nights and typically spent \$80 per night on accommodations. In 2014, the Great Allegheny Passage Trail in Pennsylvania and Maryland had average daily expenditures of \$18 for day users and \$125 for overnight users.

Based on data provided by The Rails-to-Trails Conservancy for comparable trails, non-local trail users (e.g., outside of the county) typically represent 26 percent of all trail users. A 2013 survey conducted by Rails-to-Trails Conservancy examined the characteristics of 88 existing rails-with-trails in 33 states¹. The table on the following page presents data for those existing trails over a mile long, where both trail use and surrounding land-type data is available. Based on this data, average trail use varies widely by location and surrounding land use. For example, while trails in rural areas had approximately 2,300 annual users per mile, trails in suburban and urban areas had 33,700 and 68,200 annual users per mile, respectively.



¹Source: Outdoor Industry Association, 2013; Rails to Trails, America's Rails-with-Trails: Rail-with-Trail List, 2013.

Trail Characteristics by Land Use Type

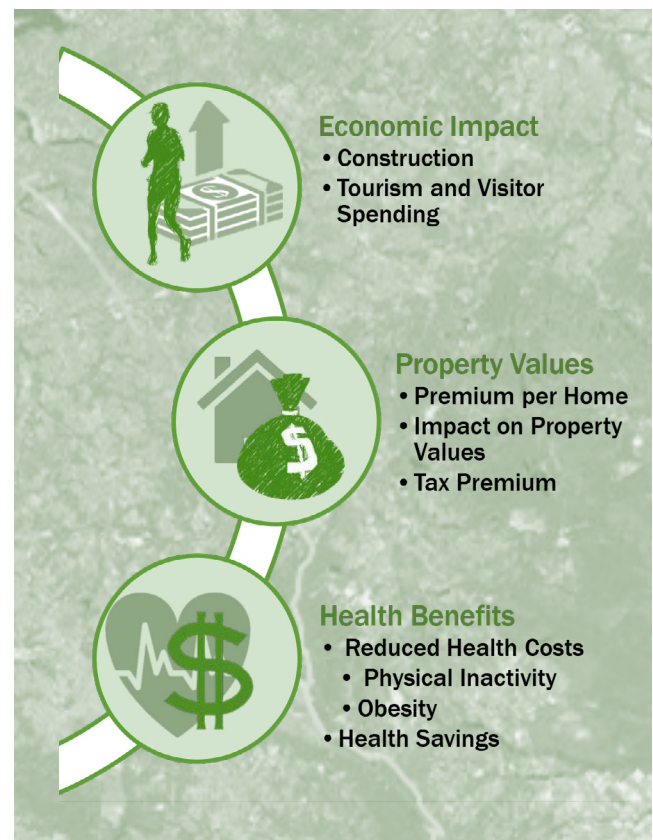
Trail Name	State	Miles	Land Type	Estimated # of Annual Trail Users	Users per Mile
Chase Trail	AK	14.0	Rural	36,500	2,610
Lehigh Gorge Rail-Trail	PA	25.7	Rural	62,800	2,440
La Crosse River Trail	WI	22.0	Rural	40,000	1,820
Average Rural					2,290
Santa Maria Valley RR Trail	CA	1.2	Suburban	7,500	6,250
Fairborn Wright Brothers Huffman Prairie Bikeway	OH	4.6	Suburban	27,000	5,900
WOW Trail	NH	1.3	Suburban	41,000	31,540
Richland Creek Greenway	TN	5.0	Suburban	100,000	20,000
Rose Canyon Bike Path	CA	1.1	Suburban	120,000	109,090
Power Trail	CO	3.9	Suburban	250,000	64,270
Manteca Tidewater Bikeway	CA	3.4	Suburban	100,000	29,410
Peace Trail	WI	7.0	Suburban	25,000	3,570
Average Suburban					33,754
Springfield Connecticut Riverwalk and Bikeway	MA	3.7	Urban	14,000	3,780
Metropolitan Branch Trail	DC	8.0	Urban	150,000	18,750
Mason Trail	CO	4.5	Urban	240,000	53,330
Frisco Trail	AR	1.3	Urban	256,000	196,920
Average Urban					68,195

Source: Rails to Trails, America's Rails-with-Trails: Rail-with-Trail List, 2013

Methodology: Tourism and Visitor Spending

To estimate the increase in overnight out-of-town visitors as a result of the proposed Cross Camden County Trail, 4ward Planning applied average annual trail users per mile based on each segment's land-use type (e.g., 2,300 trail users per mile per year along the rural East Winslow segment). Assuming 26 percent of the estimated 960,200 annual trail users represent out-of-town visitors (based on the experience of other comparable trails, nationally), approximately 249,600 total trail users are out-of-town visitors. In order to estimate annual visitor spending, out-of-town day users are assumed to spend an average of \$20 per day, while out-of-town overnight visitors (assumed to represent a conservative five percent of all out-of-town day visitors) are estimated to spend an additional \$50 on lodging (\$70 total).

Next, 4ward Planning utilized IMPLAN Professional 3.1, a widely used economic impact assessment software system, to evaluate the prospective economic impacts of non-local visitor spending as a result of the proposed Camden County trail. 4ward Planning purchased the most recent economic and



demographic data files (2014) for Camden County. This data file, once combined with the IMPLAN Professional 3.1 software system, permits the creation of a detailed Social Accounting Matrix (SAM) and location-specific multipliers for the area. Annual expenditures are modeled and presented in 2017 dollars.

Annual Visitors by User Type

	West Camden (Urban)	Central Atlantic Ave Rail	East Winslow (Rural)	Total Trail
Miles of Trail	8.05	11.25	13.45	32.75
Trail Users per Mile per Year	68,200	33,800	2,300	
Users per Year	549,010	380,250	30,935	960,195
Out-of-Town Users (26%)	142,700	98,900	8,000	249,600
Overnight Out-of-Town Visitors (5%)	7,135	4,945	400	12,480

Source: Rails to Trails, America's Rails-with-Trails: Rail-with-Trail List, 2013

Increases in Tourism and Visitor Spending

Based on visitor and spending assumptions provided on the proceeding page, the proposed 33-mile Camden County trail is estimated to inject approximately \$19.5 million in a direct annual tourism spending into Camden County's local economy. This increase in tourism spending is projected to result in a total increase of over \$9.8 million in economic output, supporting an additional 114 jobs and nearly \$4.2 million in labor income, and generating \$963,000 in local and state taxes per year. The estimated \$19.5 million in additional spending by out-of-town trail visitors, represents just 2.3 percent of current visitor spending within Camden County (\$844 million) and 1.3 percent of existing tourism employment (9,015 jobs). As portions of the proposed Cross Camden County Trail are developed and trail surveys are implemented, more refined estimates of use and tourism impacts will yield a better understanding of the economic impact of purchasing power imported into the County by implementation of the Camden County trail.

Estimated Impacts from Increase in Tourism Spending

	West Camden (Urban)	Central Atlantic Ave Rail Corridor (Suburban)	East Winslow (Rural)	Total Trail
Direct Tourism Spending	\$13,023,000	\$5,973,000	\$487,000	\$19,483,000
Increase in Economic Output	\$6,512,000	\$3,052,000	\$249,000	\$9,813,000
Jobs Supported	75	36	3	114
Labor Income Supported	\$2,780,000	\$1,301,000	\$106,000	\$4,187,000
Local and State Taxes Supported	\$639,000	\$300,000	\$24,000	\$963,000

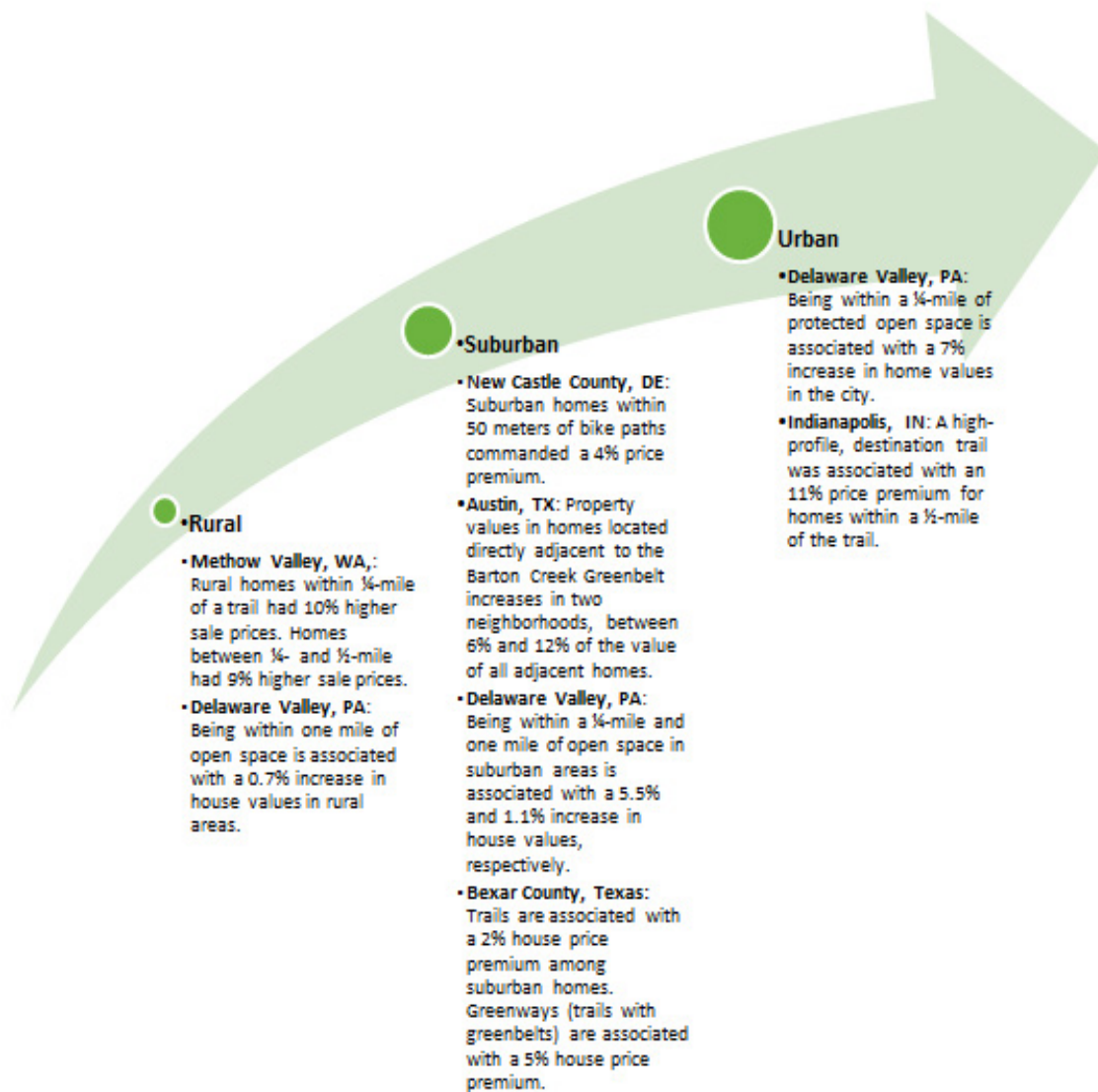
Key Findings: Tourism and Visitor Spending

- \$844 million in existing direct tourism spending: Tourism is an important engine of economic growth in Camden County. Visitors spend money on food and beverages, transportation, souvenirs, and lodging – injecting significant spending into the local economy. According to a 2016 Tourism Economics report, Camden County currently attracts approximately \$844 million in direct tourism spending, supporting an industry that employs about 9,015 people and generates \$114.9 million in local and state taxes per year.
- 249,600 new out-of-town trail users: In order to estimate the increase in overnight out-of-town visitors as a result of the proposed Camden County trail, 4ward Planning applied average annual trail users per mile based on each segment's land-use type (urban, suburban, and rural). This represents an estimate of approximately 960,200 trail users along the proposed 33-mile Cross Camden County Trail. Assuming 26 percent of these trail users represent out-of-town visitors (based on the experience of other comparable trails, nationally), a total of 249,600 trail users are out-of-town visitors.
- \$19.5 million in new direct tourism spending: As a result of the proposed 33-mile Cross Camden County Trail, direct tourism spending is estimated to increase by nearly \$19.5 million per year in Camden County - representing 2.3 percent of current visitor spending within Camden County (\$844 million). This increase in tourism spending is estimated to result in a total increase of over \$9.8 million in economic output, supporting an additional 114 jobs and nearly \$4.2 million in labor income, and generating \$963,000 in local and state taxes per year.

Property Values

Background

Over the years, many rigorous analyses have been conducted to determine the best way to capture the effect that park and trail proximity has on residential property values. Many analyses indicate there is an enhancement in property value due to park and trail proximity (a “proximity effect”), and this premium (typically ranging from five to 10 percent) is found with direct adjacency, as well as with distances extending up to a mile. Furthermore, the proximity effect on homes located near parks and trails is higher within urban areas than rural areas, where the amenity is more scarce.



Sources:

Resource Dimensions, Economic Impacts of MVSTA Trails and Land Resources in the Methow Valley. Methow Valley Sport Trails Association, 2005.
 Asabere, P. and F. Huffman, "The relative impacts of trails and greenbelts on home price." The Journal of Real Estate Finance and Economics, 2009.
 Racca, D. and A. Dhanju, Property Value/Desirability Effects of Bike Paths Adjacent to Residential Areas. University of Delaware, Delaware Center for Transportation, 2006.
 Delaware Valley Regional Planning Commission (DVRPC), The Economic Value of Protected Open Space, 2011.
 Lindsey, G., Man, J., Payton, S., and K. Dickson, "Property values, recreation values, and urban greenways," Journal of Park and Recreation Administration, 2004.
 Crompton, et. a, Journal of Leisure Research, The Impact of Greenways on Property Values:

Evidence from Austin, Texas, 2005.

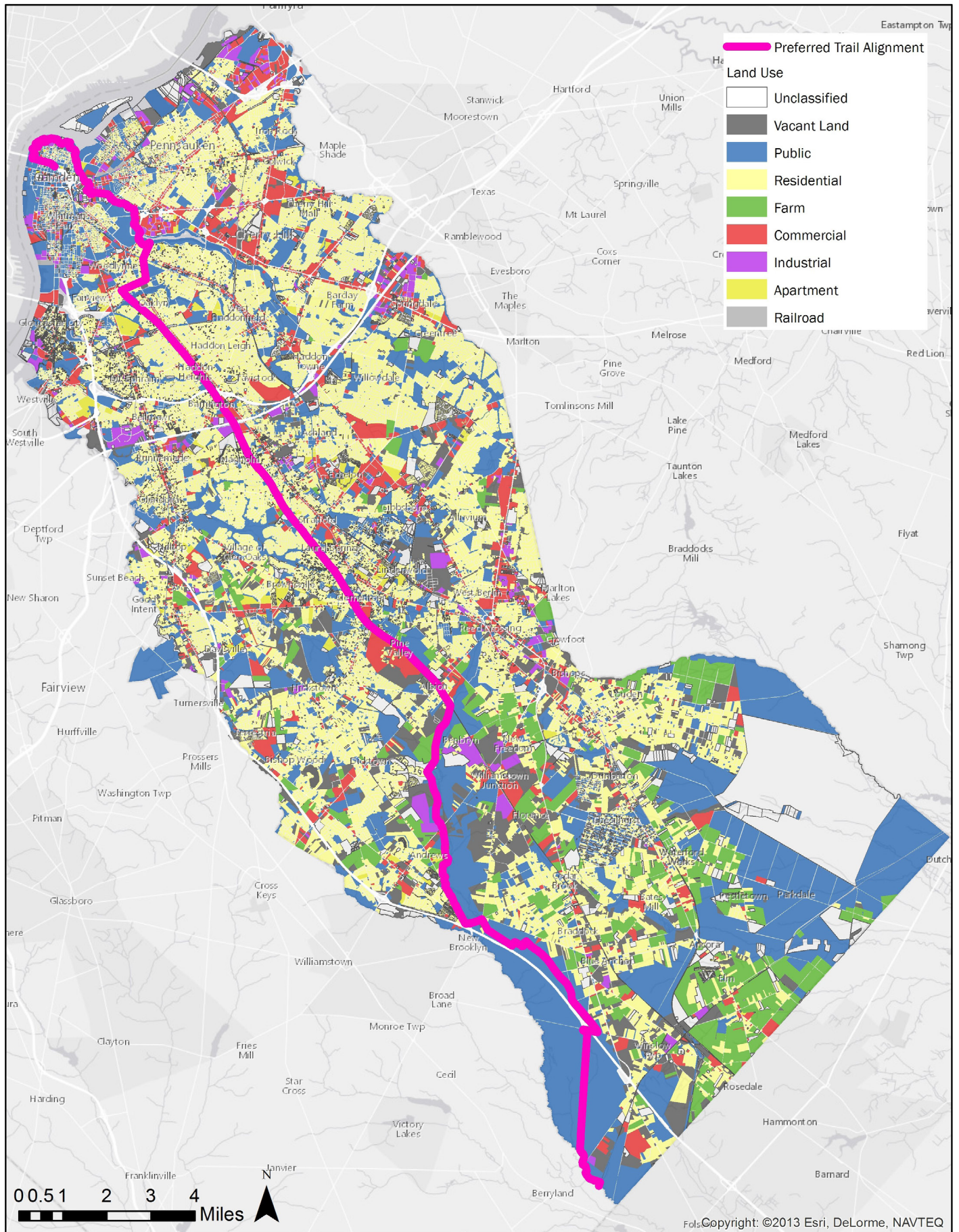
Land Use Surrounding the Trail Alignment

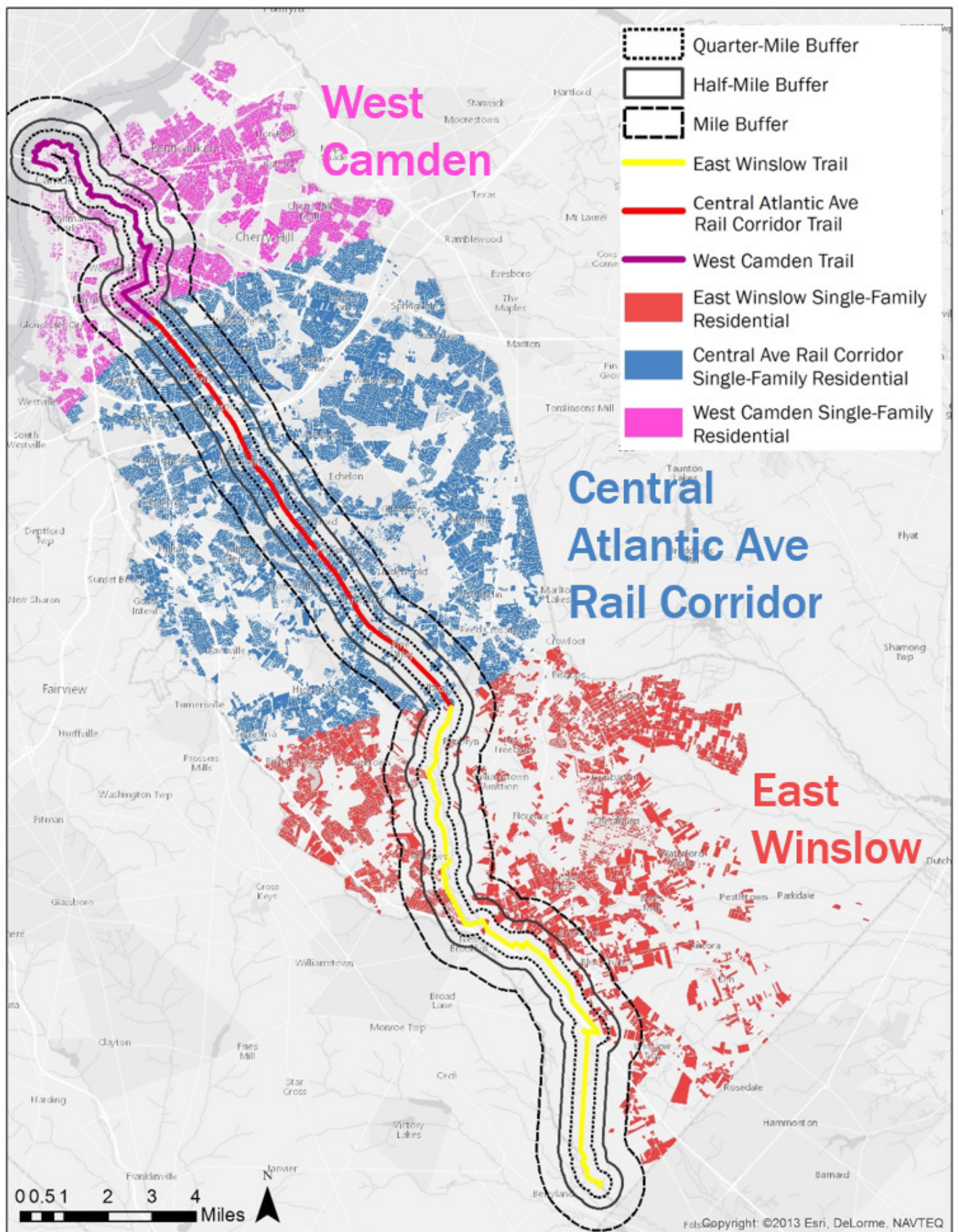
Based on the proceeding review of impact studies, property values for residential land within a mile of the proposed trail will likely be impacted by trail investment due to the “proximity effect.” As summarized in the table below, there are 10,046 acres of residential land located within a mile of the proposed trail (31 percent of total). Of this residential land, 233 acres are located adjacent to the proposed trail, 1,875 acres are located within a ¼-mile radius, 2,335 acres are located between the ¼- and ½-mile radii, and 5,602 acres are located between the ½- and one-mile radii.

Estimated Impacts from Increase in Tourism Spending

Land Use	by Proximity Buffer				Total Acres	
	Adjacent	1/4 Mile	1/2 Mile	1 Mile	1 Mile	Share
Residential	233	1,875	2,335	5,602	10,046	31.1%
Public	4,616	2,685	2,080	3,391	12,771	39.5%
Vacant	578	428	867	1,967	3,840	11.9%
Agriculture	262	300	335	621	1,517	4.7%
Commercial	625	357	538	1,143	2,662	8.2%
Industrial	285	274	72	161	792	2.5%
Apartment	26	108	187	285	606	1.9%
Rail	33	14	18	18	83	0.3%
Total	6,657	6,041	6,432	13,188	32,317	100.0%

Camden County Land Use and Preferred Trail Map





Housing Surrounding the Trail Alignment

As illustrated in the preceding map, the proposed 33-mile Camden County trail will extend from the western portion of Downtown Camden City, along the Atlantic Avenue and Penn Central rail corridor, to the eastern portion of Winslow Township. Since research suggests that the enhancement in property values due to trail proximity is greater in urban areas (where the amenity is more scarce), the impact on single-family homes will likely be highest in the urban West Camden trail segment (8.3 homes per acre), compared to the more suburban Central Atlantic Ave Rail Corridor segment (3.9 homes per acre), and the relatively rural Winslow segment (1.6 homes per acre). A breakdown of housing by trail segment is summarized in the following chart.

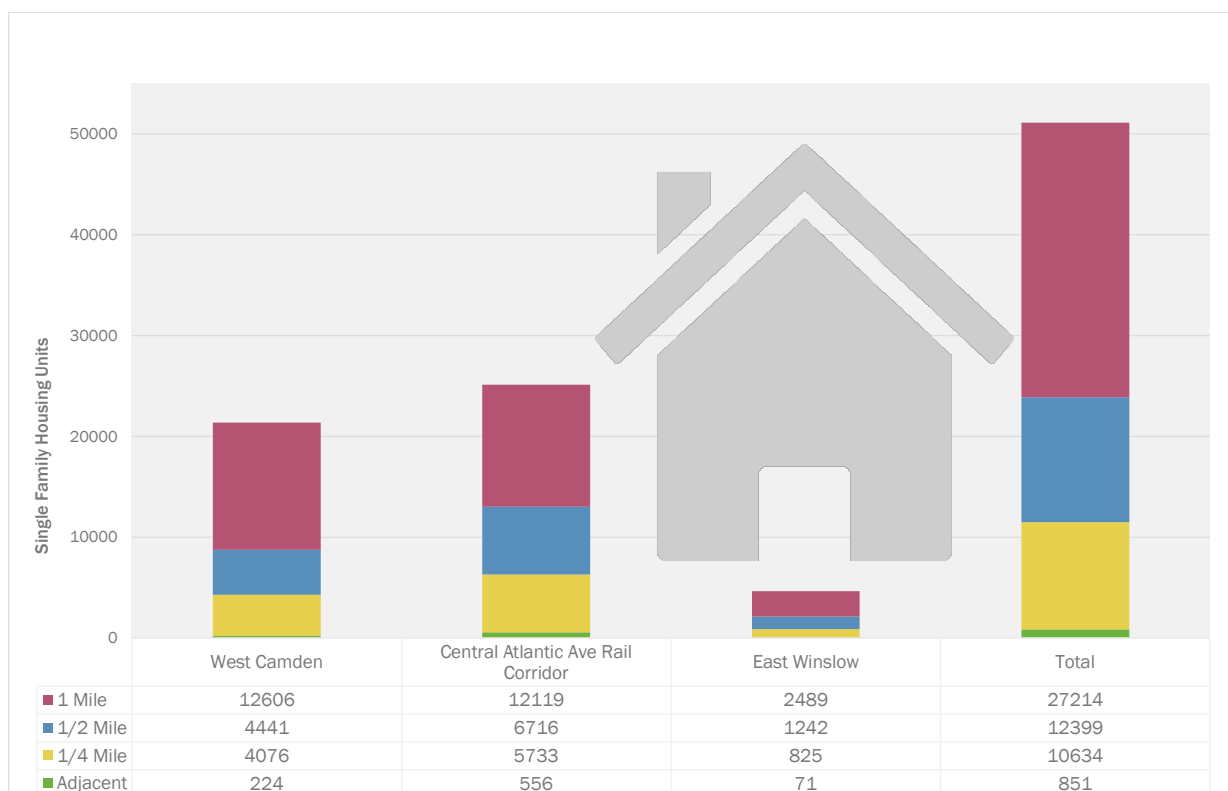
Summary of Housing by Trail Segment

Segment	Miles	Acres	SF Housing Units	Units Per Acre
West Camden	8.4	6,004	21,347	3.6
Central Atlantic Ave Rail Corridor	11.3	21,508	25,124	1.2
East Winslow	14.2	12,748	4,627	0.4
Total	34.0	40,260	51,098	1.3

Source: Camden County Division of Planning; 4ward Planning, April 2017

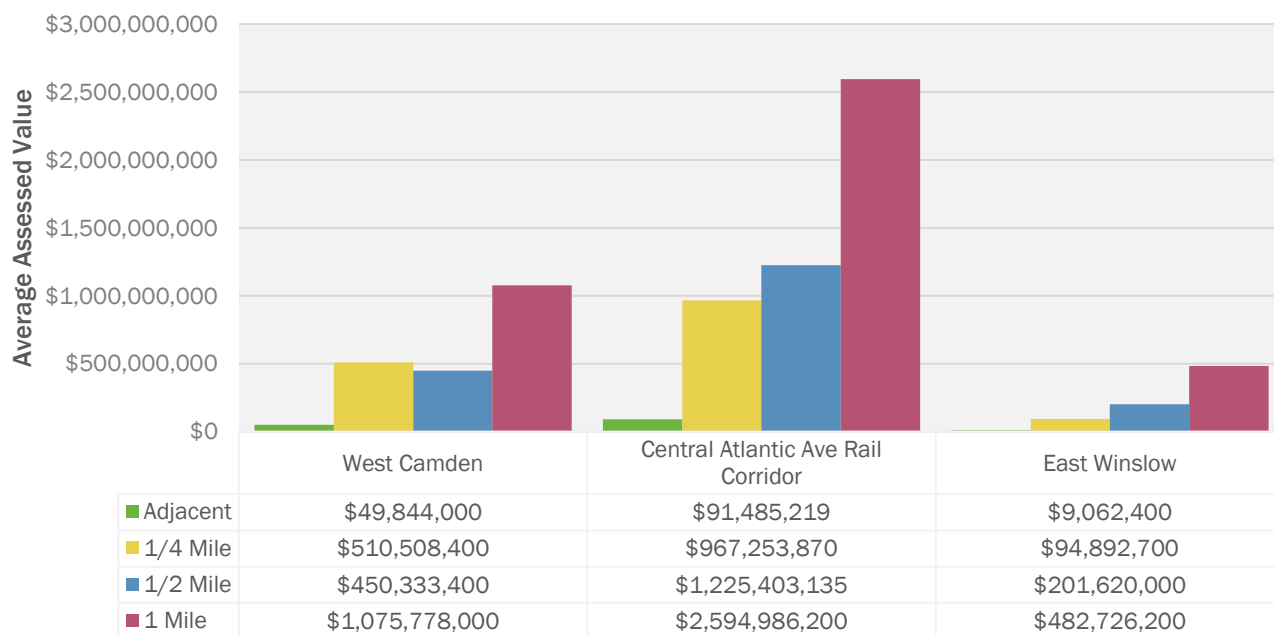
As summarized in the following chart, there are 51,100 single-family homes within a mile of the proposed trail. Specifically, 851 homes are located immediately adjacent to the proposed trail, 10,634 homes are located within the ¼-mile radius, 12,399 homes are located between the ¼- and ½-mile radii, and 27,214 homes are located between the ½- and the one-mile radii.

Single Family Housing Units by trail Segment



As summarized in the following chart, for all single-family homes located within a mile of the proposed trail, West Camden homes have a total assessed value of nearly \$2.1 billion dollars; Central Atlantic Ave Rail Corridor homes have a total assessed value (included both land and improvement value) of nearly \$4.9 billion dollars; and East Winslow homes have a total assessed value of \$788.3 million dollars. Combined, single-family homes located within a mile of the proposed trail currently have a total assessed value of over \$7.7 billion dollars.

Total Assessed Land-Use Value



Source: Camden County Division of Planning; 4ward Planning, April 2017

Methodology: Proximity Effect Analysis

Based on the review of Camden County land use data and recent studies, the following property value impact assumptions (outlined in the graphic below) were applied to single-family homes located within a mile of the proposed alignment of the Cross Camden County Trail.

1. Each segment of the trail was assigned a respective community type (e.g., urban, suburban, and rural) based on average single-family housing density data provided by the Camden County Division of Planning.
2. Based on the review of recent trail impact studies by community type and distance, a conservative 10-, 5-, and 2.5-percent property value effect by community type was applied to single-family homes located immediately adjacent to the preferred trail alignment.
3. Due to the proximity effect, the percent value capture is assumed to decrease by 10 percent along with distance from the trail.

Percent Value Change Assumptions

Segment (community type)	Adj. Prop.	1/4 Mile	1/2 Mile	1 Mile
West Camden (urban)	10.0%	9.0%	8.1%	7.3%
Central Atlantic Ave Rail Corridor (suburban)	5.0%	4.5%	4.1%	3.6%
East Winslow (rural)	2.5%	2.3%	2.0%	1.8%

Real Estate Impact

On average, property values for single-family homes located within a mile of the proposed trail are likely to increase by approximately \$7,300 per home, with this increase in value as high as \$11,500 for homes located adjacent to the trail, and \$6,680 for homes located between the half- and one-mile radii. The total real estate premium attributed to adjacency to the preferred alignment of the proposed Camden County trail, overall, is approximately \$373.4 million. Based on the current general tax rate in Camden County, the total value captured in additional tax revenue from residential property value increases is over \$14.0 million each year.

Average Premium per Housing (2017)

	Adjacent	1/4 Mile	1/2 Mile	1 Mile	Weighted Average
West Camden	\$4,984,400	\$45,945,756	\$36,477,005	\$78,424,216	\$165,831,378
Central Atlantic Ave Rail Corridor	\$4,574,261	\$43,526,424	\$49,628,827	\$94,587,247	\$192,316,759
East Winslow	\$226,560	\$2,135,086	\$4,082,805	\$8,797,685	\$15,242,136
Weighted Average	\$9,785,221	\$91,607,266	\$90,188,637	\$181,809,148	\$373,390,272

Total Impact on Property Values

	Adjacent	1/4 Mile	1/2 Mile	1 Mile	Total
West Camden	\$187,314	\$1,726,642	\$1,370,806	\$2,947,182	\$6,231,943
Central Atlantic Ave Rail Corridor	\$171,901	\$1,635,723	\$1,865,051	\$3,554,589	\$7,227,264
East Winslow	\$8,514	\$80,237	\$153,432	\$330,617	\$572,799
Weighted Average	\$367,729	\$3,442,601	\$3,389,289	\$6,832,388	\$14,032,006

Total General Tax Premium*

	Adjacent	1/4 Mile	1/2 Mile	1 Mile	Total
West Camden	\$187,314	\$1,726,642	\$1,370,806	\$2,947,182	\$6,231,943
Central Atlantic Ave Rail Corridor	\$171,901	\$1,635,723	\$1,865,051	\$3,554,589	\$7,227,264
East Winslow	\$8,514	\$80,237	\$153,432	\$330,617	\$572,799
Total	\$367,729	\$3,442,601	\$3,389,289	\$6,832,388	\$14,032,006

Source: Camden County Division of Planning, NJ Department of the Treasury, 4ward Planning Inc., April 2017.

Notes: The General Tax Rate multiplier is used in determining the amount of tax levied upon each property. It is expressed as \$1 per \$100 of taxable assessed value. The current general tax rate in Camden County is .03758.

Key Findings

- **The value of proximity to trails and greenways is varied but positive:** Over the years, many studies have indicated an enhancement in residential property value due to proximity (a “proximity effect”) to trails and greenways, and this premium (typically ranging from five to 10 percent) is found with direct adjacency, as well as with distances extending up to a mile. Furthermore, the proximity effect on homes is typically higher within urban areas than rural areas, where the amenity is more scarce.
- **\$7.7 billion in current assessed value for homes within a mile of the trail:** Based on data provided by the Camden County Division of Planning, there are 10,046 acres of residential land and 51,100 single-family homes located within a mile of the preferred trail alignment. Currently, these single-family homes have a total combined assessed value of over \$7.7 billion.
- **Average real estate premium of \$7,300 per home:** On average, property values for single-family homes located within a mile of the proposed trail are likely to increase by approximately \$7,300 per home, with this increase in value as high as \$11,500 for homes located adjacent to the trail, and \$6,680 for homes located between the half- and one-mile donut radii.
- **Total real estate premium of \$373 million:** The total real estate premium attributed to adjacency to the preferred alignment of the proposed Cross Camden County Trail, overall, is approximately \$373.4 million. Based on the current general tax rate in Camden County, the total value captured in additional tax revenue from residential property value increases is over \$14.0 million each year.

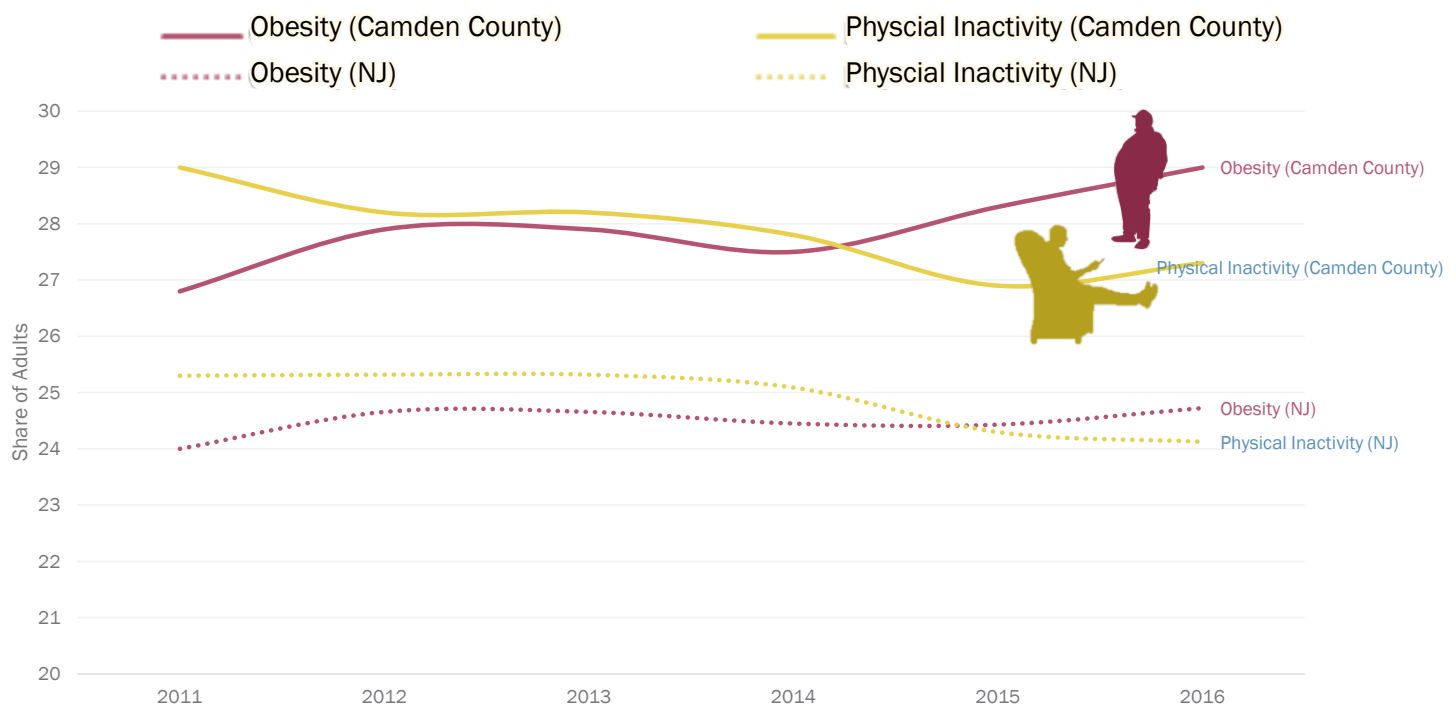
Health Impact Analysis

Background

According to the New Jersey Department of Public Health, obese adults (BMI of 30 percent or more) are at increased risk of morbidity from a variety of chronic health conditions (e.g., hypertension, elevated cholesterol, diabetes, coronary heart disease). According to 2016 County Health Rankings data, 27.3 percent of adults (108,470 persons) over 20 years of age living in Camden County are physically inactive, and 29.0 percent (102,110 persons) are obese. Both the rates of physical inactivity and obesity in Camden County are higher than those found within the State, overall (24 and 25 percent, respectively).

Medical professionals agree that prevention of obesity requires not only healthier diets, but substantial increases in physical activity. For decades, car-focused transportation investment has contributed to a steady reduction in physical activity. A regional trail network in Camden County has the potential to help transform Camden County into a healthier, more sustainable, and less car-dependent place to live and work.

Percent Value Change Assumptions



Healthcare Cost Savings

- A 2008 national study found that obesity-related absenteeism cost between \$79 and \$132, per obese individual, in productivity costs per year.² With 142,750 obese persons in Camden County, this translates into between \$12.7 and \$21.4 million in annual obesity-related costs (equivalent to between \$89 and \$150 per person per year, in 2017 dollars).
- A 2004 study in Lincoln, Nebraska found that every dollar spent on bicycle and pedestrian trails (including construction, maintenance, equipment, and travel) yielded \$2.94 in direct medical benefits.³ A 2011 study in Portland, Oregon found that every dollar invested in bicycling yielded \$3.40 in healthcare cost savings.⁴ These studies suggest that for every dollar spent on bicycle and pedestrian trails, there is a return on investment of at least two dollars, when considering healthcare cost savings.
- A 2004 national study found that the annual individual medical cost of inactive people (\$622) is more than 2.5 times the annual cost per user of bike and pedestrian trails (\$235).⁵ With 151,640 physically inactive persons currently living in Camden County, this translates into \$121.6 million in medical cost per year (equivalent to \$802 per person per year, in 2017 dollars).

Healthcare Cost Reductions

Using population estimates provided by Esri along the proposed trail and a conservative increase of between one and five percent in the number of new exercisers (highest for those living immediately adjacent), it is projected that implementation of the Cross Camden County Trail could yield approximately 8,520 new exercisers in Camden County. Multiplying this number by the health cost of physical inactivity (\$802 per person) conservatively yields an estimated a cumulative healthcare cost reduction impact of over \$6.8 million per year, as a result of implementation of the Cross Camden County Trail. As healthcare costs continue to soar, and as individuals' healthcare burdens are increasingly interrelated, these healthcare cost reduction impacts will continue to increase in importance. The provision of an accessible outdoor recreation amenity provides a very real benefit to local residents, and, in turn, to the healthcare coverage groups of which they are a part.

² Trogon JG, Finkelstein EA, Hylands T, Dellea PS, Kamal-Bahl. Indirect costs of obesity: a review of the current literature, 2008.

³Wang et al, Cost Effectiveness of a Bicycle/Pedestrian Trail Development in Health Promotion, Preventive Medicine, 2004.

⁴Gotschi, Thomas, Costs and Benefits of Bicycling Investments in Portland, Oregon, Journal of Physical Activity and Health, 2011.

⁵Wang, G., et al., Cost Analysis of The Built Environment: The Case of Bike And Pedestrian Trails in Lincoln, Nebraska, American Journal of Public Health, 2004.

Number of New Exercisers

Share of New Exercisers	Adjacent 5%	1/4 Mile 4%	1/2 Mile 3%	1 Mile 2%	Outside 1%	Total
West Camden	61	438	700	427	1,078	2,703
Central Ave Atlantic Rail Corridor	111	801	1,281	781	1,972	4,947
East Winslow	20	141	226	138	348	873
Total	192	1,381	2,207	1,346	3,398	8,523

Estimated Health Care Cost Reduction Impacts

	Estimate per Person	Estimated Savings
Inactivity Costs per Year	\$802	\$6,835,778

Source: Wang et al, Cost Effectiveness of a Bicycle/Pedestrian Trail Development in Health Promotion, Preventive Medicine, 2004; Esri, Award Planning Inc., 2017

Key Findings

- **Relatively high levels of physical inactivity and obesity:** Medical professionals agree that prevention of obesity (BMI of 30 percent or more) requires not only healthier diets, but substantial increases in physical activity. According to 2016 County Health Rankings data, 27.3 percent of adults over 20 years of age in Camden County had not participated in a leisure-time physical activity, and 29.0 percent were currently obese. Both the rates of physical inactivity and obesity in Camden County are higher than those found within the State, overall (24 and 25 percent, respectively).
- **\$802 per person in annual medical costs due to physical inactivity:** A 2004 national study found that the annual individual medical cost of inactive people (\$622) is more than 2.5 times the annual cost per user of bike and pedestrian trails (\$235). With 108,470 physically inactive adults currently living in Camden County, this translates into nearly \$87.0 million in medical cost per year (equivalent to \$802 per person, in 2017 dollars).
- **\$79 to \$132 per person in annual obesity-related absenteeism costs:** A 2008 national study found that obesity-related absenteeism annual cost between \$79 and \$132, per obese individual, in productivity costs. With 102,110 obese persons in Camden County, this translates into between \$9.0 and \$15.3 million in annual obesity-related costs (between \$89 and \$150 per person, in 2017 dollars).
- **Trails have a significant ROI when considering healthcare cost savings:** A 2004 study in Lincoln, Nebraska, found that every dollar spent on bicycle and pedestrian trails (including construction, maintenance, equipment, and travel) yielded \$2.94 in direct medical benefits. A 2011 study in Portland, Oregon found that every dollar invested in bicycling yielded \$3.40 in healthcare cost savings. These studies suggest that when considering healthcare cost savings, for every dollar spent on bicycle and pedestrian trails, there is a conservative return on investment (ROI) of at least two dollars.

Operations, Maintenance, & Security

The operations and maintenance of the Cross Camden County Trail will be vital to the long-term success of the corridor. Upkeep of landscaping, removal of garbage, lighting replacement, clearing of tree branches, and cleaning up after heavy rains are just some of the responsibilities that must be assumed by an involved party along the trail.

It is assumed that most of the trail segments will be owned by the individual municipalities through which the trail will pass. However, these individual municipalities may not think they have the manpower or financial resources to take on the task of trail maintenance. According to the Rails-to-Trails Conservancy, who produced a manual entitled *Maintenance Practices and Costs of Rail-Trails* in 2015, typical maintenance costs of the 95 trail managers that responded averaged about \$2,000 per mile per year to maintain. What does this cost include? Mowing and vegetation management are two of the highest costs, followed by surface clearing of the trail.

So who takes care of the trail? There are several options:

- Current borough/township maintenance staff can add weekly trail maintenance tasks to their duties
- Camden County could assume trail maintenance duties
- “Friends of” groups can perform weekly or monthly cleanups, with the local borough/township performing major maintenance, such as pavement replacement or tree removal
- A non-profit 501(c)(3) can be tasked with maintenance, operations, and programming efforts along a portion or the entirety of the trail. Examples of this type of arrangement include the Schuylkill River Development Corporation or the Delaware River Waterfront Corporation in Philadelphia. Funding for a group like this comes from local government entities, private groups such as the Knight Foundation or the William Penn Foundation, and partnerships with local employers and businesses. Sponsorships for programming on or along the trail can also help supplement funding efforts.

Maintenance Activity	Percent of Budget
Surface clearing of trail	10.8%
Mowing	12.0%
Vegetation management (leaf clearing, pruning, etc.)	11.2%
Keep trail-side land clear of trash and debris	11.5%
Whole tree removal	5.4%
Application of herbicides or pesticides	2.3%
Clearing of drainage channels and culverts	5.4%
Surface maintenance of parking areas	2.7%
Litter clean up, trash cans	2.7%
Maintenance of toilets at trailheads	13.0%
Maintenance of toilets along the trail	1.2%
Trailhead parking snow removal	1.1%
Repair/maintenance of signs	6.3%
Recovery from illegal acts of vandalism/dumping	5.3%
Other trail maintenance activities	9.1%

Based on a 2015 survey, the Rails-to-Trails Conservancy calculated budget percentages for typical trail maintenance tasks. Some of these activities may not be applicable to the Cross Camden County Trail.

It is encouraged that Camden County and local municipalities communicate maintenance concerns and responsibilities before the design stage of each segment of trail. Each segment may see varying degrees of maintenance. For example:

- Cooper’s Ferry Partnership or private property owners may assume maintenance responsibilities in Camden.
- Municipalities along the Conrail portion of trail may find it easy to maintain their individual segments, since they will be relatively easy to access, and should have low maintenance needs beyond what is already being performed.
- Camden County may assume maintenance for segments of trail located on county or NJDEP property in Winslow Township.



Strategically placed bollards can help keep unauthorized vehicles off most of the trail system. (Photo courtesy Google Street View)

One consideration, particularly in the City of Camden, is keeping ATVs and other unauthorized vehicles off of trails. It is recommended that a bollard system is used at any trail heads to deter ATVs if possible. On some segments of trail it may be impossible to keep unauthorized vehicles off the trail, but these segments may also have an easier access for police observation.

Crime and Safety

Crime is typically a major concern of any new trail construction. Examples of crime on trails, such as muggings, assaults, and private property theft, are often used by trail opponents to discourage trail construction. A recent study in Chicago has found

that trail construction has actually helped reduce crime. According to a study performed by researchers at Clemson and North Carolina State, the crime rates around Chicago's 606 Trail fell. According to lead researcher Brandon Harris, "Rates of violent, property and disorderly crime all fell at a faster rate in neighborhoods along The 606 than in similar neighborhoods nearby. The decrease was largest in lower-income neighborhoods along the western part of the trail."

A principal known as Crime Prevention Through Environmental Design (CPTED) can be used to create settings that deter crime from even happening in the first place. For example, creating trail corridors that are open to public view will keep more "eyes on the street" and deter crime just from the presence of other trail users and motorists passing near by. Creating vibrant, well designed corridors that attract high numbers of trail users at all times of the day is one of the best ways to prevent crime. Another tactic is to avoid fencing on both sides of a trail to prevent the opportunity for someone to become trapped by a person or group of people. Where necessary, LED lighting can be used in areas that are open at night. Lighting can also help prevent graffiti and other property damage and theft.

Cameras and emergency call boxes are also being installed on urban trails across the country. While rarely used, they can also help deter crime merely from their presence.

Much of the Cross Camden County Trail within the urban and suburban sections of the county are close to street traffic. These sections of trail will be relatively easy for police and emergency personnel to reach to do regular patrols and access for emergencies. The sections of the trail in the southern, more rural portions of the county are more isolated and cutoff from local streets. Local, county, and state DEP patrols may occasionally be required in these sections.



Locations signs along the trail can be used for wayfinding and mileage markers, but can also be used in an emergency to let dispatchers know where trail users are located. (Photo courtesy PlanPhilly)

Enviromental Impacts & Access

One of the major goals of this project is to connect Camden County citizens to publicly owned open space and parks. Camden County completed an Open Space and Farmland Preservation Plan in 2004, and since then, has acquired more open space to preserve land for public use. Currently, some of these open spaces, especially in the southern portions of the county, are not easily accessible. The Cross Camden County Trail will connect citizens in the urban and suburban sections of the county to parks near their home, and to the open spaces in the rural areas of the county.

An important aspect of this connection to these publicly owned areas is the relationship to our watersheds. The trail will help provide public access to streams and wetlands, where educational programming can take place to help inform citizens about how crucial these areas are to the ecological health of our environment. The very construction of the trail itself can help institute enhanced stormwater infrastructure where it is needed, such as along existing streets. Trail construction can be performed with permeable pavement, and the addition of trees and other plantings in urban and suburban settings can help create healthier watersheds, and reduce the peak rate of flow during a rainfall event.

This proposed trail, with its central location and connections to the Ben Franklin Bridge, PATCO, and other employment centers, can help reduce car dependency in Camden County. Some nearby residents of the trail may find it easier to commute by bicycle and transit, thereby reducing automobile emissions.

Inventory of Parks and Open Spaces within ¼ mile of the Cross Camden County Trail:

- Delaware River Waterfront
- Johnson Park
- Pyne Poynt Park
- Cooper River Waterfront
- Cornelius Martin Park
- Farnham Park
- Cooper River Park
- Knight Park
- Newton Lake Park and Newton Creek Greenway
- Old Newton Friends Burial Ground
- Haddon Heights Park
- Albertson Memorial Park
- North Branch Big Timber Creek Greenway
- Laurel Lake
- Pillings Lake
- Pine Hill Boy Scout Reservation & Lake Lekau (privately owned)
- Albion Field
- Great Egg Harbor River Greenway
- New Brooklyn County Park
- Oak Pond
- Winslow Fish and Wildlife Management Area
- Blue Hole



Funding Sources

Federal Funding Opportunities

FAST Act

In 2015, the Fixing America's Surface Transportation (FAST) Act was signed into law as an updated transportation bill. The FAST Act increased funding for bicycling and walking and covers transportation spending through the year 2020. A major change from the previous MAP-21 (Moving Ahead for Progress in the 21st Century) bill is the formation of a Surface Transportation Block Grant (STBG). The former Transportation Alternatives Program (TAP) becomes a set-aside program in the STBG, as does the Recreation Trails Program (RTP), Congestion Mitigation and Air Quality (CMAQ), and Safe Routes to School (SRTS) programs.

Large Metropolitan Planning Organizations (MPOs) such as DVRPC receive these STBG set-aside funds directly, rather than through the state DOT, although there will still be a competitive application process. Non-profits and NGOs are also eligible to receive these set-aside funds.

TIGER

The Transportation Investment Generating Economic Recovery (TIGER) program was created in 2009 as a way for municipalities to apply directly to the Federal government for large amounts of transportation funding that can show economic development and improve access to reliable, safe, and affordable transportation for communities. The city of Camden received \$16.2 million in TIGER grant funding in 2016 to reconstruct a network of streets north of the Ben Franklin Bridge. TIGER funding is highly competitive, and is typically granted to municipalities (or groups of municipalities) who have a well-organized application.

Transportation Alternatives (TA Set-Aside, or TA)

Originally created under MAP-21, the Transportation Alternatives Program, or TAP, was designed to foster more livable communities and promote alternative modes of transportation, such as bicycling and walking. As mentioned earlier, the FAST Act eliminated the MAP-21 TAP and replaced it with a set-aside of funds under the Surface Transportation Block Grant Program, referred to as the TA Set-Aside, or TA.

States and MPOs for urbanized areas with more than 200,000 people conduct a competitive application process for the use of TA funds; eligible applicants include tribal governments, local governments, transit agencies, school districts, and a new eligibility for nonprofit organizations responsible for local transportation safety programs.

The NJDOT Division of Local Aid and Economic Development administers the TA funds in partnership with DVRPC. Eligible projects for TA funds include the provision of bicycle and pedestrian facilities and the preservation of abandoned rail corridors, including the conversion and use thereof for trails. For more information, see

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

Congestion Mitigation and Air Quality Improvement (CMAQ) Program

CMAQ is a federal program that funds projects and programs that improve air quality and reduce traffic congestion. The construction of bicycle and pedestrian facilities that are not exclusively recreational (as they must reduce vehicle trips and therefore vehicle emissions), outreach promoting safe bicycle use, and other bicycle and pedestrian programs are eligible for funding.

The CMAQ program is a funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas), as well as former nonattainment areas that are now in compliance (maintenance areas).

NJDOT, in partnership with DVRPC, administers the CMAQ program. For more information, see <http://www.dvrpc.org/CMAQ/>

Safe Routes to School Program (SRTS)

SRTS funds are intended to enable and encourage children in grades K-8 to walk or bicycle to school. Eligible infrastructure projects include the design and construction of sidewalks, crosswalks, signals, traffic calming, and bicycle facilities within two miles of a K-8 school. SRTS also has a noninfrastructure component, which consists of programming to educate children about safe walking and bicycling practices and encouragement activities, such as walk to school days.

The NJDOT Division of Local Aid and Economic Development, in partnership with DVRPC, administers the SRTS Program and awards funds for SRTS projects through a competitive process. Local and regional governments, school districts and individual schools are eligible to be project sponsors and receive direct funding. Nonprofit organizations are not eligible to receive direct funding; however, they may partner with a Local Public Agency (LPA) that obtains and administers the grant. For more information, see <http://www.dvrpc.org/SafeRoutes/>

Recreational Trails Program (RTP)

The New Jersey Department of Environmental Protection administers the RTP under the Green Acres Program. The Recreational Trails program funds the development and maintenance of trails, including bicycle paths. Project costs may be funded up to an 80% federal share with a 20% local match. For more information, see <http://www.nj.gov/dep/greenacres/trails/grants.html>

State Funding Opportunities

NJDOT Municipal Aid

Under Municipal Aid program, each county is apportioned a share of the total funding based on population and the number of local centerline miles. Municipalities compete for portions of their county's share. NJDOT provides 75 percent of the grant amount when a town awards a contract and the remaining 25 percent upon completion of the project.

Applications receive points based on various criteria including existing road conditions, Average Daily Traffic (ADT), safety improvements, and access to nodes (schools, residential areas, employment centers, etc). Other important criteria include the project's readiness to construct, whether the municipality has received an allotment within the last three years, and the municipality's award and close-out performance on previously awarded State grants. For more information, visit www.state.nj.us/transportation/business/localaid/municaid.shtm

NJDOT Bikeway Grant Program

The NJDOT Bikeway Grant Program provides funds to counties and municipalities to promote bicycling as an alternate mode of transportation in New Jersey. A primary objective of the Bikeway Grant Program is to support the State's goal of constructing 1,000 new miles of dedicated bike paths (facilities that are physically separated from motorized vehicular traffic by an open space or barrier either within the highway right of way or within an independent right of way

Although priority will be given to construction of new bike paths, the proposed construction or delineation of any new bicycle facility will be considered. Ineligible projects/activities include right-of-way purchases associated with any project, operating costs associated with any project, and planning activity costs. In order to be eligible, a project must place no restrictions upon hours of use by bicyclists (with the exception of dusk-to-dawn closings, as of some parks). Applicants must use the AASHTO 2012 Guide for the Development of Bicycle Facilities For more information, visit www.state.nj.us/transportation/business/localaid/bikewaysf.shtm

NJDOT Safe Streets to Transit (SSTT)

The SSTT program provides funding to counties and municipalities in improving access to transit facilities and all modes of public transportation. The objectives of the SSTT program are:

- To improve the overall safety and accessibility for mass transit riders walking to transit facilities.
- To encourage mass transit users to walk to transit stations.
- To facilitate the implementation of projects and activities that will improve safety in the vicinity of transit facilities (approximately one-half mile for pedestrian improvements).

Types of work eligible for funding under SSTT include:

- Intersection safety improvements
- Constructing new sidewalks, curb ramps, sidewalk widening and major reconstruction
- Traffic calming measures
- Pedestrian oriented lighting
- Traffic control devices that benefit pedestrians

Bicycle facilities are not eligible for funding.

For more information, visit www.state.nj.us/transportation/business/localaid/safe.shtm

NJ Division of Highway Traffic Safety Grants

The NJ Division of Highway Traffic Safety offers, on an annual basis, federal grant funding to agencies that wish to undertake programs designed to reduce motor vehicle crashes, injuries, and fatalities on the roads of New Jersey. Municipal, county, state government and law enforcement agencies, as well as non-profit organizations, are encouraged to apply for NJDHTS grant funding to address specific, local traffic safety issues. Grants available include:

Comprehensive Traffic Safety Programs (CTSP's)

Comprehensive Traffic Safety Program grants address multiple traffic safety concerns within a county or larger community. CTSP grants include numerous tasks and strategies involving enforcement, education and engineering. The potential grantee must provide a detailed Problem Identification section with extensive information about the community, motor vehicle crash experience (including pedestrian & bicycle), data analysis and creative solutions to reduce these crashes.

Pedestrian Safety

The goal of the pedestrian safety program area is to lower the pedestrian fatality and injury rates. In the Central Region, municipalities that are statistically high for pedestrian injury crashes are eligible to apply for our Pedestrian Safety Grant. The grant includes funding for overtime enforcement at pedestrian safety hot spots in the community and educational outreach throughout the community.

Other Eligible Programs

Grant applications may also be submitted that utilize enforcement, education or engineering counter-measures to address other specific traffic safety issues including:

- Speed
- Aggressive Driving
- Bicycling Safety
- Crash Investigation
- Distractions

- EMS Training - relating to crash response
- Motorcycle Safety
- School Bus/Pupil Transportation
- Traffic Engineering - primarily pedestrian pavement markings and pedestrian signs, but some traffic studies will be considered

New Jersey Healthy Communities Network Grants

These grants support projects advancing the implementation of policy changes and/or development of the built environment to support healthy eating and active living. Supported projects make the healthy choice the easy choice; make healthy food and beverages the affordable, available and desired choice; encourage and support physical activity by ensuring accessibility and safety; and make healthy school, work, and community environments the norm and not the exception. In 2016, up to 50 New Jersey-based entities will receive grants of up to \$20,000.

<http://njhcn.org/>

Hazardous Discharge Site Remediation Fund

The New Jersey Department of Environmental Protection administers the Hazardous Discharge Site Remediation Fund (HDSRF). HDSRF grants and loans are available to public entities, private entities, and non-profit organizations that perform a remediation pursuant to DEP's Site Remediation Program requirements. This funding could be used where the Cross Camden County Trail is located on contaminated sites (such as North Camden).

New Jersey Environmental Infrastructure Trust

The New Jersey Environmental Infrastructure Trust is an independent State Financing Authority responsible for providing and administering low interest rate loans to qualified municipalities, counties, regional authorities, and water purveyors in New Jersey for the purpose of financing water quality infrastructure projects that enhance ground and surface water resources, ensure the safety of drinking water supplies, protect the public health and make possible responsible and sustainable economic development. Eligible projects include green infrastructure, stream stabilization, stormwater management, and open space acquisition.

Private and Non-profit Funding Sources

Sustainable Jersey

Sustainable Jersey registered towns get special priority access and notification of incentives and grants, and are eligible for the Sustainable Jersey Small Grants program. Over \$1.75 million in grants have been provided to towns for community-based projects to improve quality of life in New Jersey.

Eligible projects include actions that would score a municipality points toward Sustainable Jersey certification. This includes projects addressing issues from renewable energy and green building design, waste reduction, a sustainable master plan, water conservation, natural resources management, energy management, and transportation issues. Most projects also include public outreach campaigns and many have involved school children and community organizations. <http://www.sustainablejersey.com/grants-resources/sustainable-jerseysmall-grants-program/>

DVRPC Regional Trails Program

The DVRPC Regional Trails Program, which receives financial support from the William Penn Foundation, occasionally selects projects to help build out The Circuit regional trail system. Funding can be used for design and/or construction of trail projects. The William Penn Foundation is committed to accelerating the completion and increased use of the Circuit Trails system through building trails and creating programming, increased access, and awareness of environmental issues, especially watershed preservation, within the Delaware River watershed.

People for Bikes Community Grants

The PeopleForBikes Community Grant Program provides funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths and rail trails, as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle advocacy initiatives.

Since 1999, we have awarded 341 grants to non-profit organizations and local governments in 49 states and the District of Columbia. Our investments total more than \$2.9 million and have leveraged nearly \$670 million in public and private funding. <http://www.peopleforbikes.org/pages/community-grants>

Other Potential Funding Sources

The following funding sources for greenways have been identified by Project for Public Spaces, Rails-to-Trails Conservancy and the National Trails Training Partnership.

Municipal Allocations

The most common sources of funding at the municipal and county level include allocations from a specific department, such as the park and recreation department or public works department. Incorporating funding for maintenance of bicycle and pedestrian facilities into the annual budget guarantees funds are available to cover maintenance.

In some localities, a portion of an increase in the sales tax will be set aside for recreational trail or other conservation funding. Rarely, new taxes will be levied to exclusively support active transportation projects.

Impact Fees

Regulated by subdivision policies, impact fees require residential, industrial and commercial development project leaders to provide sites, improvements and/or funds to support public amenities such as open space and trails. Impact fees may be allocated to a particular trail or greenway from land development projects if the fund is a dedicated set-aside account established to help develop a county- or city-wide system of trail or greenway projects.

Local Private-Sector Funding

Local industries and private businesses may agree to provide support for greenway development through one or more of the following methods:

- Donations of cash to a specific greenway segment
- Donations of services by large corporations to reduce the cost of greenway implementation, including equipment and labor to construct and install elements of a specific greenway
- Reductions in the cost of materials purchased from local businesses that support greenway implementation and can supply essential product for facility development

Adopt-A-Trail Programs

These are typically small grant programs that fund new construction, repair/renovation, maps, trail brochures, facilities (bike racks, picnic areas, birding equipment).

Membership Campaigns

The return from this can be significant (The Pikes Peak Area Trails Coalition raises \$18,000 per year), but your effort must be repeated every year.

Case Studies of Similar Trails

Camden County would not be the first place to build a trail as ambitious as the Cross Camden County Trail. Let's take a look at a few other examples throughout the country that are comparable to this project, how they obtained funding, and what the successes are today.

American Tobacco Trail, Durham, Cary, & Apex, North Carolina

The American Tobacco Trail (ATT) is a rail trail built on the former rail line that begins at the American Tobacco Campus in Durham, NC. The ATT is 23 miles long, and extends south through the city of Durham, and along the edges of Cary and Apex. Most of the ATT is a part of the East Coast Greenway. The ATT was first conceived in the 1980's after the rail line was abandoned, and a master plan developed in 1992. The American Tobacco Campus, which acts as the northern trailhead for the ATT, has been converted over the past 20 years to a mixed-use development which contains corporate headquarters, dining, apartments and condominiums, and the 10,000 seat stadium of the Durham Bulls AAA minor league baseball team. The trail and nearby redevelopment have acted as anchors for each other throughout the redevelopment process.

The last segment of the ATT was completed in 2014 with the opening of a 270' long bridge over Interstate 40 near the recently opened Southpointe shopping center. Much of the trail and bridge construction was funded through Transportation Alternatives Program through the NCDOT. A study completed in December 2014 by North Carolina State University found that the new bridge increased annual trips from 217,900 in 2013 to 508,100 in 2014, an increase of 233%. Also, it found that direct expenditures on groceries, retail and restaurants related to trips made on the ATT rose from approximately \$2.4 million pre-bridge to \$6.1 million post-bridge annually for a total increase of \$3.7 million or 154%.



The ATT bridge over I-40 is only the second arch-support, stress-ribbon bridge in the US. (Photo courtesy East Coast Greenway)

Cultural Trail and Monon Trail, Indianapolis, Indiana

The Monon Trail is also a rail trail that was built on the former Monon Railroad line. Construction of the trail began in the 1990's and it is now 18 miles long, and stretches from the northeast corner of downtown Indianapolis to Carmel and Westfield. The Monon Trail is used by over 1.3 million people annually. A study completed by the city of Indianapolis in 2014 found that median house values within a ½ mile of the trail rose 50.6% between 1990-2010, while the county average during that time period was 23.4%. The study also found that non-driving commuters rose 185.7% in that time period, compared to 7.4% in the rest of the county.

The adjacent Indianapolis Cultural Trail extends throughout downtown Indianapolis and now connects to the



The Indianapolis Cultural Trail has brought more business downtown, as well as alternative commuting options for northern suburb residents. (Photo courtesy Indianapolis Cultural Trail)

Monon Trail, creating an uninterrupted 26 miles of trail between downtown and the northern suburbs. Indianapolis won a \$20.5 million US Department of Transportation TIGER grant in 2010 to help fund the Cultural Trail construction. A study released in 2015 for the Cultural Trail indicated that property assessments in downtown Indianapolis within one block of the trail increased 148% between 2008-2015. And while the downtown trail sees a significant amount of out-of-town traffic, thirty percent of the users from Indianapolis indicated they planned on spending money while on the trail. Over half (63 percent) of those respondents indicated the spending would occur at a restaurant.

High Trestle Trail, Des Moines, Iowa Metro Area

The High Trestle Trail (HTT) is best known for its signature bridge across the Des Moines River valley, which features 43 weathered steel cribbings that glow a bright blue at night. This trail was completed in 2011, and used a variety of federal transportation funds, as well as funding from the Iowa Natural Heritage Foundation (INHF). The HTT is a part of a network of trails around the Des Moines region, and have helped to spur business in several small towns on the fringe of the metropolitan area. New bars, breweries, restaurants, and bed & breakfasts have sprung up as the area has turned into a destination for day and weekend trips. The trail attracts over 40,000 users per month during the summer months, according to the INHF.



The High Trestle Trail uses this former Union Pacific rail bridge to cross 13 stories above the Des Moines River.

The small town of Slater, Iowa has seen the true effects of the trail. From a May, 2016 Des Moines Register story:

Shawn Birdsall, owner of the Nite Hawk Bar & Grill, has seen the impact the High Trestle Trail had on the town of 1,500 people 19 miles north of Ankeny.

"I've had people from New Zealand, Australia, people from all over the world that we've met because they want to ride the bridge," Birdsall said. "We have the best trail in the country right now, and people want to ride it."

He opened the bar in 2012. He estimates that 50 percent of his customers come directly from the trail during the busy spring and summer months. And they're not just stopping at the Nite Hawk; cyclists are finding other activities in Slater, he said.

"There wasn't much of a draw in Slater before it," Birdsall said. "The streets were never full. The tennis courts, the parking lots were never full, because there was nothing for them to do in town. The trail has made a big difference."



Wayfinding signage in Madrid, IA lets trail users know where they can get a bite to eat or find a local pharmacy. The new business in the background is a gun store that also provides bike service.

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