Octoraro Greenway Feasibility Study

Concord Township
Chester Heights Borough
Delaware County, PA

2016

Pennoni

BOROUGH OF CHESTER HEIGHTS

Township of Concord
DELAWARE COUNTY

Octoraro Greenway Feasibility Study

2016

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Chapter 1
Background

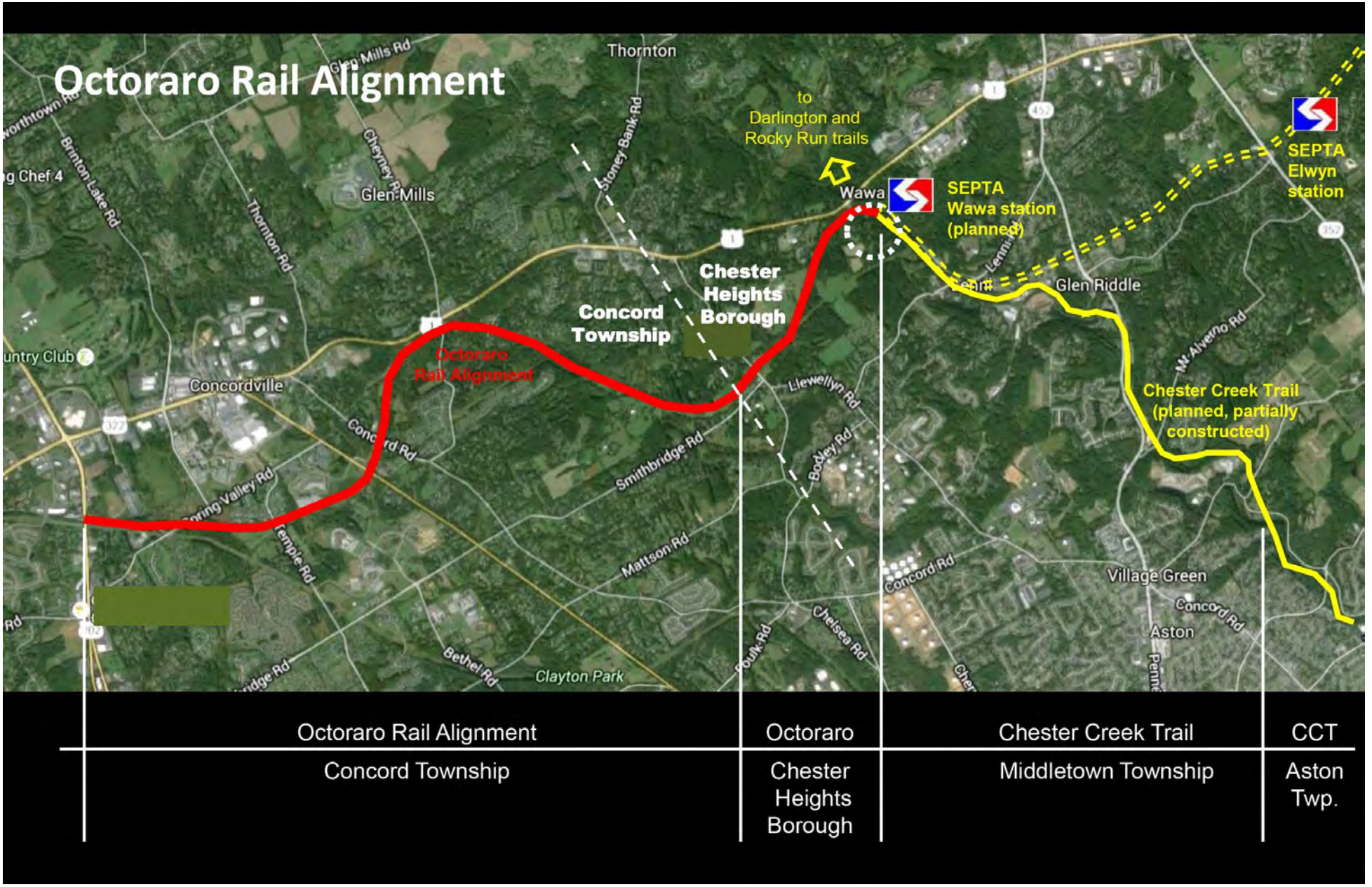
In 2015, Concord Township prepared a township-wide *Greenways and Open Space Network Plan*, as a tool to organize and prioritize its effort to develop local trails. The intent of the Plan was to identify opportunities to develop public trails and greenway corridors for the benefit of residents, while also capitalizing on the potential to connect into the broader regional trail network. The underlying expectation was that an integrated system of trails and greenways will improve the overall quality of life in the community, increase property values, and enhance the attractiveness of Concord Township to new businesses and residents.

Planning for a high-quality local greenway is representative of a broader effort to promote sustainable transportation infrastructure in our region and beyond. The last two decades have seen a proliferation of multi-use recreation trails in the United States. Throughout the country, trails and greenway corridors have become increasingly seen as highly valued public amenities, providing opportunities for recreation, environmental education, transportation, and physical linkages between destinations.

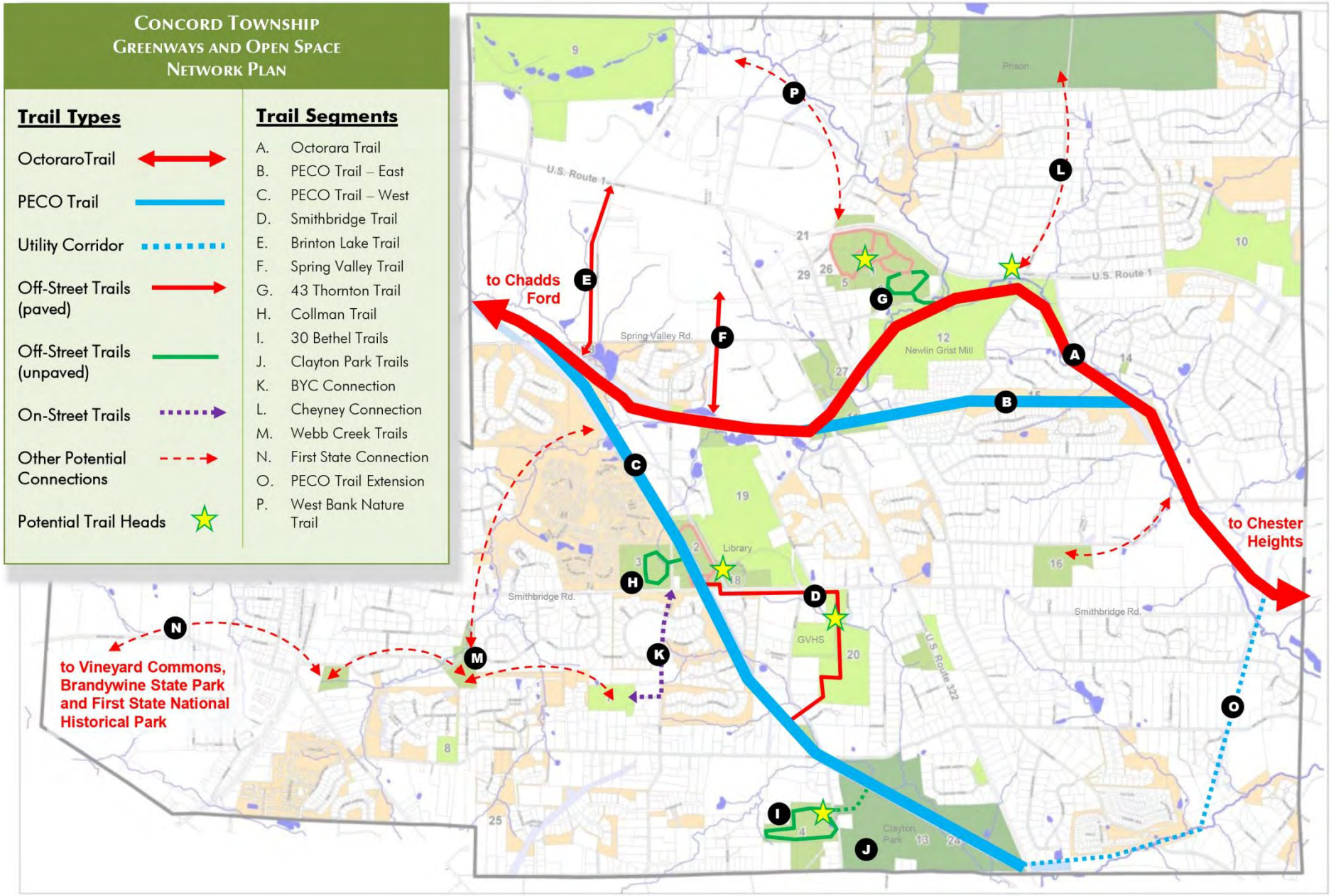
A primary recommendation of the *Greenways and Open Space Network Plan* was to investigate the feasibility of building a pedestrian/bicycle greenway along the alignment of the former Octoraro Railroad. It was noted that this route represents an outstanding opportunity for development of a continuous trail across the entire township, connecting a variety of existing recreational facilities as well as the promise of broader connections to neighboring municipalities such as Chester Heights. The Octoraro has for decades been considered to have high potential for a recreational trail. It is currently promoted by Delaware County as one of the highest-priority trail routes in the county, and is included in the planned "Circuit" regional trail system.

With this in mind, Concord Township and Chester Heights Borough in Delaware County have collaborated to prepare this feasibility study for the Octoraro Greenway, a key segment of the planned regional trail network in southeast Pennsylvania. Identified as a priority project by Delaware County and regional stakeholders, this potential trail alignment is seen as the main spine of a proposed local trail network connecting numerous existing recreational and community facilities. East of Concord Township, the trail is envisioned to run through Chester Heights Borough and connect to the Chester Creek Trail, now under construction in Middletown Township. It would also connect to the planned SEPTA regional rail Wawa train station, allowing for a true multi-modal transportation connection.

A primary recommendation of the Concord Township Greenways and Open Space Network Plan was to investigate the feasibility of a trail along the former Octoraro Railroad.



The Octoraro alignment connects to the planned Chester Creek Trail at the planned SEPTA Wawa station.



The Concord Township Greenways and Open Space Networks Plan (2015) identified the Octoraro as a central spine of a potential trail network.

Plan Goals and Context

The essential goal of this feasibility study is to investigate the opportunity for a high-quality bicycle greenway along the approximate alignment of the former Octoraro Railroad. This trail is seen as a valuable recreational amenity for local residents, and as part of the overall implementation strategy for the expansion of the trail and greenway network in Delaware County and throughout the region.

Specific objectives of the Study are as follows:

1. Identify alternative alignments for the greenway;
2. Identify property ownership along the proposed route and assess the steps necessary to establish public rights-of-way;
3. Identify technical constraints to construction;
4. Identify potential connections and adjacent resources;
5. Describe public benefits of the greenway,
6. Establish design standards for the greenway;
7. Recommend an implementation strategy;
8. Provide order-of-magnitude cost estimates for implementation.

With these goals in mind, this Study is organized in the following chapters:

- Chapter 1: Background
  Overall project goals, objectives, and context.
- Chapter 2: Community Characteristics
  Description of the local community and its social and physical characteristics.
- Chapter 3: Existing Conditions
  Description of the rail alignment, including property ownership rights, physical condition, technical constraints, and adjacent land uses.
- Chapter 4: Recommendations
  Alternatives for alignment of the trail and potential design features.
- Chapter 5: Greenway Impacts
  Description of potential benefits and concerns.
- Chapter 6: Implementation
  Action plan outlining a realistic approach to implement the trail, including costs, phasing, and responsible parties.

Throughout the region and the country, recreation trails have proven to be a key ingredient of sustainable transportation infrastructure.

Stakeholder Involvement

This Study was developed through extensive outreach and dialogue with a wide range of interested stakeholders, including local public officials, local institutions, adjacent property owners, and the general public. The study was conducted over an 11-month period from December 2015 through October 2016. Community outreach took place on several levels. An ad hoc Steering Committee, comprised of key representatives of the municipalities and other relevant stakeholders, was established to review and guide the progress of the study. Formal meetings of the committee took place on five occasions, in December 2015, and February, March, June, and September 2016. Steering Committee members are noted in the Acknowledgements section at the beginning of this document.

Additionally, numerous other meetings took place with individual agencies, planning officials, local institutions, and property owners which could potentially be impacted by the greenway alignment, to seek input and gauge response. *(See sidebar)*

Public meetings were held in both Concord Township and Chester Heights Borough, to present the design alternatives and solicit feedback.

The reactions of stakeholders to the plans presented in this study were generally positive. Overall, there appears to be widespread support for the Study's underlying goals and principles, including general agreement on the value of promoting local trails and connected open spaces. Commercial, institutional, and public-sector property owners expressed an appreciation for the goal of increasing connectivity to the local community and in promoting access to alternatives modes of transportation such as walking and biking.

Residential stakeholders have a slightly different perspective. Residents are generally supportive of the ideals of trail planning, but those residents most directly impacted by the potential trail expressed legitimate concerns. The predominant concern was the proximity of proposed trails to residential properties, and the potential impact of public use on personal privacy and public safety. While the potential Octoraro Greenway alignment lies mostly on public, quasi-public or institutional property, several segments are closely adjacent to residential properties. Some residents expressed concern and even outright opposition to the idea of a trail. Specifically, many residents in the Pole Cat Road area worried that a trail would violate the tranquility of their neighborhoods. Also, several Homeowners Associations expressed concerns about privacy and security. Some property owners along the potential route in Chester Heights voiced their opposition in the form of a letter drafted by an attorney.

In several cases, access easements from these property owners would be needed to allow a continuous route for the trail. Therefore, opposition from property owners is a critical issue that has the potential to diminish the feasibility of the trail.

These concerns are discussed in Chapter 5 of this Study.

Stakeholders Contacted for Input

Type	Stakeholder
Utility	PECO
	Chester Water Authority
Residential	Concord Woods HOA
	Meadow Run HOA
	Sharpless Farms HOA
	Fox Valley HOA
	Steven Conrad
	Mill Race Place/Pole Cat Road Adjacent residents
Institutional	Newlin Grist Mill
	Garnet Valley School District
Commercial	Spring Valley Business Park
	Main Line Health
Public	Concord Township
	Chester Heights Borough
	Chadds Ford Township
	Delaware County Planning Dept.
	PA Dept. of Conservation and Natural Resources (DCNR)
	Delaware Valley Regional Planning Commission (DVRPC)
	SEPTA
Other	Pennsylvania State Police
	Friends of Chester Creek Branch

Planning Context

The idea for a recreational trail along the Octoraro Railroad alignment has been around for decades. As early as 1988, planning documents prepared by Concord Township, Chester Heights Borough, and Delaware County all identified the Octoraro as having high potential for trail development.

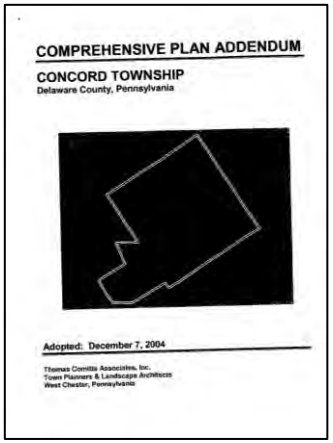
Similarly, planning for trails at the regional level has always included Octoraro as a high-prioirty regional trail spine. This study is therefore consistent with and an extension of these earlier planning efforts. Related plans and policy documents include the following:

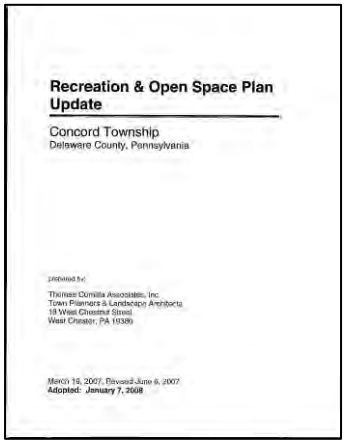
Local Township Planning

Concord Township Recreation & Open Space Plan (1995) and Plan Update (2007)
http://townshipofconcord.com/open-space-and-recreation-plan-update/

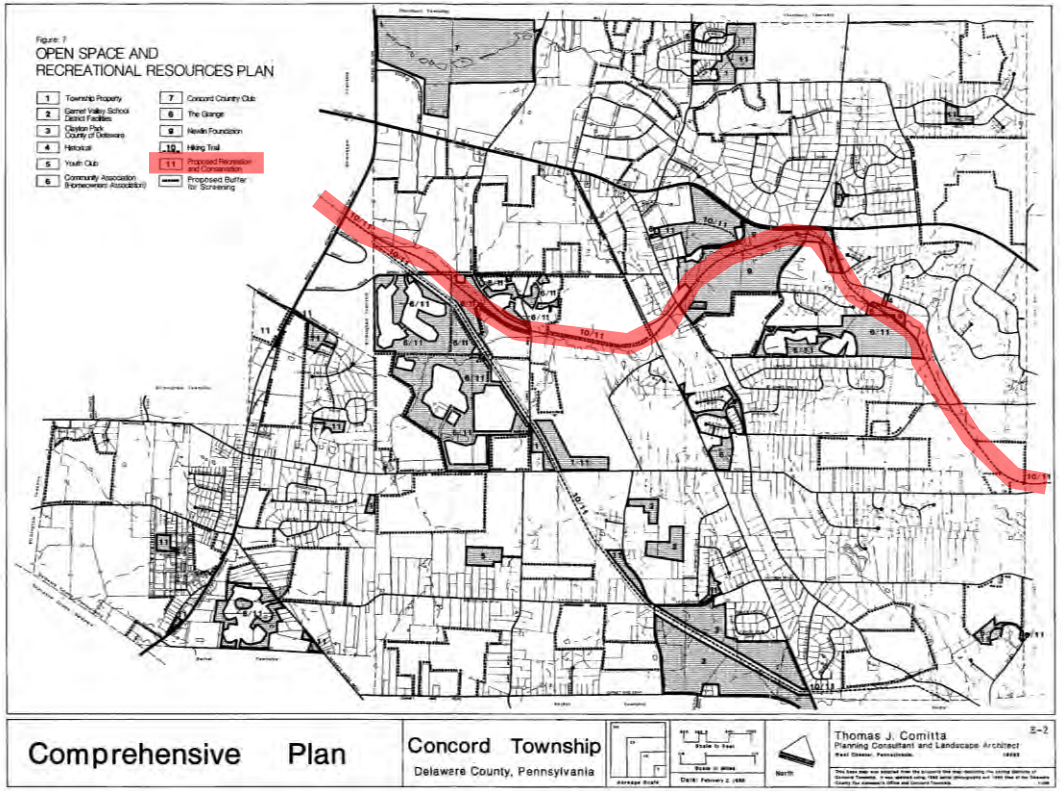
As early as 1995, the *Concord Township Recreation & Open Space Plan* recognized trails as an important component of community recreation and natural resource conservation, and identified the development of a "linear open space system," as an important objective. The 2007 Plan Update identified the Octoraro alignment as a potential "hiking trail", one of two opportunities so identified. The Plan featured several specific trail recommendations, including:

- Establish a trail connection from the municipal complex to Newlin Grist Mill.
- Expand the trail system to connect neighborhoods to parks and open space areas.
- Provide links to trail systems in adjoining municipalities.
- Establish greenways along streams that can accommodate trail connections.
- Utilize locally significant sites as destinations along the trail system.





Previous Concord Township planning identified the development of trails as an important objective. (color added below for clarity)



Concord Township Comprehensive Plan (1988), Plan Update (2000) and Plan Addendum (2004)
http://townshipofconcord.com/comprehensive-plan-update/

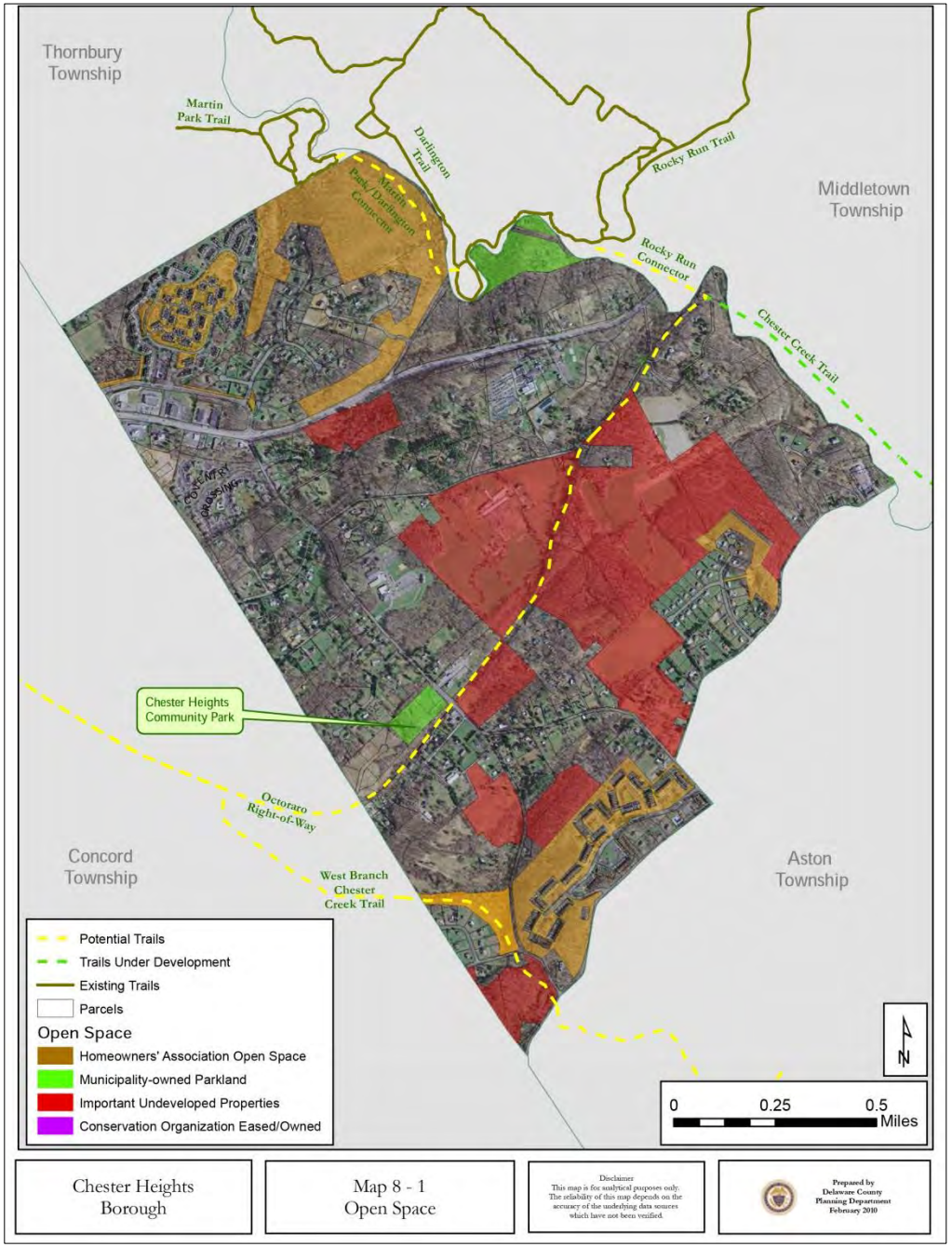
The *Concord Township Comprehensive Plan* echoes the recommendations of the *Open Space Plan*, and states as a goal that, "The Township should pursue opportunities to expand its open space and trail network." Specific objectives cited in the Comprehensive Plan include establishing trail linkages between open space and recreation areas. As early as 1988, *the Township Comprehensive Plan* identified the Octoraro rail corridor as a potential hiking trail.

Concord Township Ordinances
http://townshipofconcord.com/the-code-of-the-township-of-concord-4/

The *Subdivision and Land Development Ordinance* of the Township Code (160-52) provides that residential subdivisions must provide land set aside for recreation purposes and that provisions be made for trails and pathways, or pay a fee-in-lieu of land dedication. Open space provisions (Article XXXII) addresses open space requirements for various residentially zoned areas of the Township.

Chester Heights Borough Comprehensive Plan (2000, 2013)
http://elibrary.pacounties.org/Documents/Delaware_County/1045;%20Chester%20Heights%20Borough/ChesterHeightsBoroughMCP.pdf

The recent (2013) *Chester Heights Borough Comprehensive Plan* identifies the "Octoraro Branch Rail Trail" as one of several greenway opportunities within the Borough, and references a similar assessment made in the earlier 2000 Comprehensive Plan. The Plan notes that the Octoraro "...could become the backbone of the County Trail Network in western Delaware County."

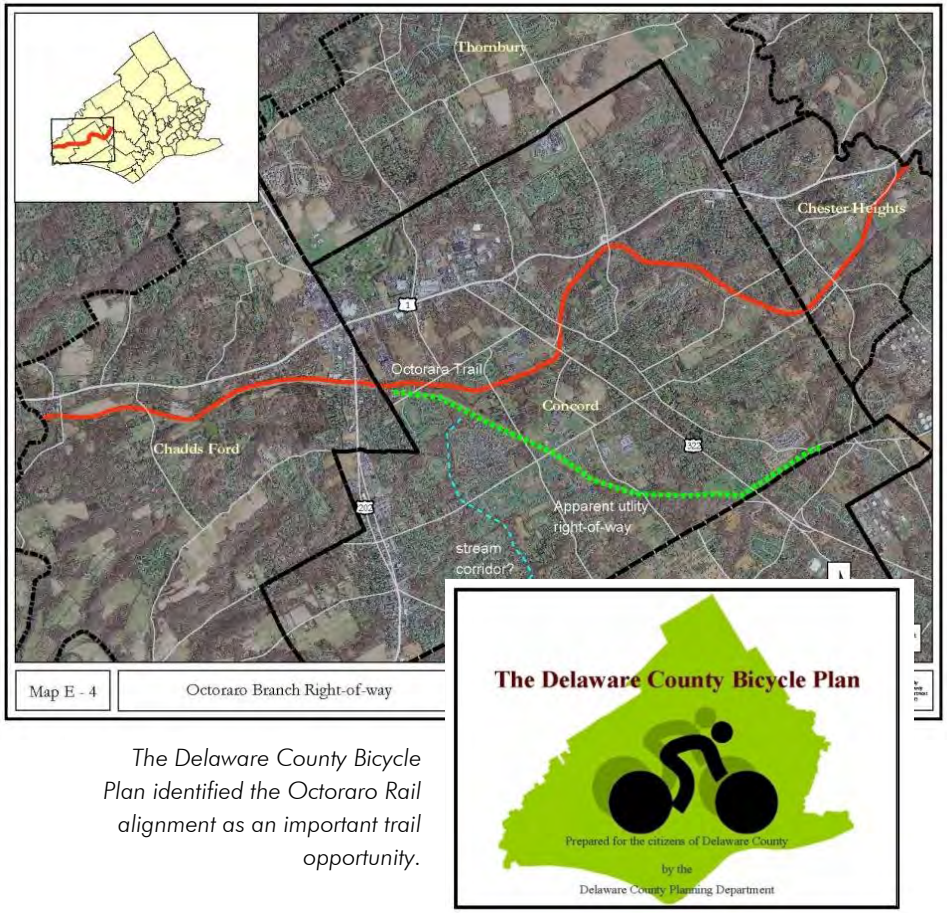


The Chester Heights Borough Comprehensive Plan (2013) identified the Octoraro alignment as a potential trail.

Regional Trail Planning

Delaware County Bicycle Plan (2009)
http://www.co.delaware.pa.us/planning/pubs/bicycleplan.html

The *Delaware County Bicycle Plan* was completed in 2009 by the Delaware County Planning Department in order to support and coordinate improvements to the safety and effectiveness of bicycle transportation in the County. While the Plan focuses heavily on on-street bike lanes, trails are recommended as potential opportunities to supplement on-road bicycle facilities. In Concord Township, the plan identifies the Octoraro Branch railroad right-of-way as one of the "best remaining rail-trail opportunities in Delaware County."



The Delaware County Bicycle Plan identified the Octoraro Rail alignment as an important trail opportunity.

Source: Delaware County Open Space, Recreation and Greenway Plan

Delaware County Open Space, Recreation, and Greenway Plan (2015)
http://www.co.delaware.pa.us/planning/pubs/delco2035/openspaceandrecreationplan.html

In 2015, the Delaware County Planning Department prepared a county-wide Open Space, Recreation and Greenway Plan to address all facets of parks and recreation planning in the county including municipal, public and private land, and trails. Volume II of this plan represents the county's first true Greenway Plan. It identifies a county-wide primary trail network which connects recreational and cultural hubs via trails, as well as conservation greenways along stream corridors. The Plan identifies 25 Primary Trails within the county, including the "Octoraro Rail Trail." The county plan urges local municipalities to design and construct those primary trail segments that are within their boundaries.

The Circuit (2012)
http://connectthecircuit.org/

In 2012, a regional effort was formalized to coordinate trail building efforts and promote the concept of a regional trail network. A coalition was formed, which branded the Greater Philadelphia regional trails network "the Circuit." When complete, the Circuit will be a regional network containing over 750 miles of bicycle and pedestrian trails. The Delaware County Planning Department is an agency partner of the Circuit Coalition, which also includes many non-profit and foundation partners. DVRPC's Regional Trails Program, which was funded by the William Penn Foundation, used incorporation into and connection with the Circuit as a way to evaluate applications for trail funding in the region. Building the network and filling its gaps is the Coalition's first priority. The "Octoraro Rail Trail" is identified on the official Circuit map as a potential segment of the regional trail network. This important designation enhances the eligibility of the Octoraro Trail for grant funding allocations.

National Trail Planning

East Coast Greenway
http://www.greenway.org/

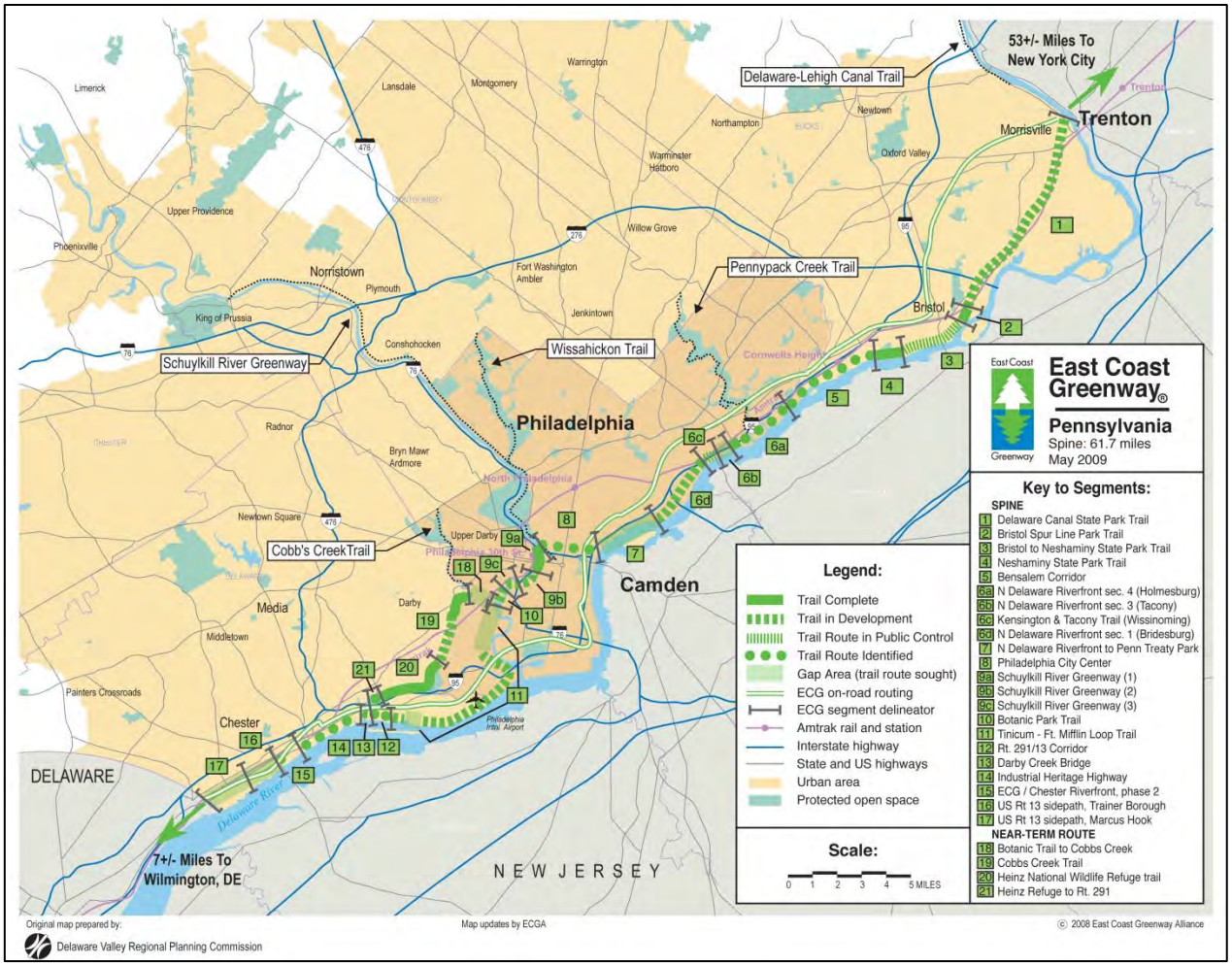
At the national level, ambitious efforts are underway to create a continuous bicycle trail along the entire east coast. The East Coast Greenway (ECG) is a planned 3,000-mile long recreational greenway linking Maine to Florida through some of the nation's most densely urban spaces. Upon completion, the greenway will not only provide additional recreational opportunities for a large portion of the nation's population; but will also have helped revitalize old abandoned waterfronts and urban residential areas.

Despite its ambitious scope, more than 20% of this 3,000 mile long route has already been constructed, with new sections completed every year. In Pennsylvania, 31% of the 67-mile permanent route is currently constructed, and another 61% is in development.

The Circuit Coalition is an umbrella organization launched in 2012 to promote development of trails in the region.

In Delaware County, the proposed alignment of the East Coast Greenway would roughly follow the Delaware River waterfront through Ridley Township, Eddystone Borough, Chester City, and Marcus Hook. A trail along the Octoraro alignment could connect directly to the East Coast Greenway. The Octoraro Branch rail-trail is intended to connect to the Chester Creek Trail (already under construction in Middletown Township). The Chester Creek Trail leads south toward Chester and a direct connection with the planned ECG.

Overall organization of Greenway planning is done by the East Coast Greenway Alliance, a non-profit organization with a central national staff along with volunteer committees in each state that spearhead and coordinate the trail-building effort. The Alliance does not own or directly manage any portion of the trail, but works primarily to ensure continuity and a consistent quality of route.

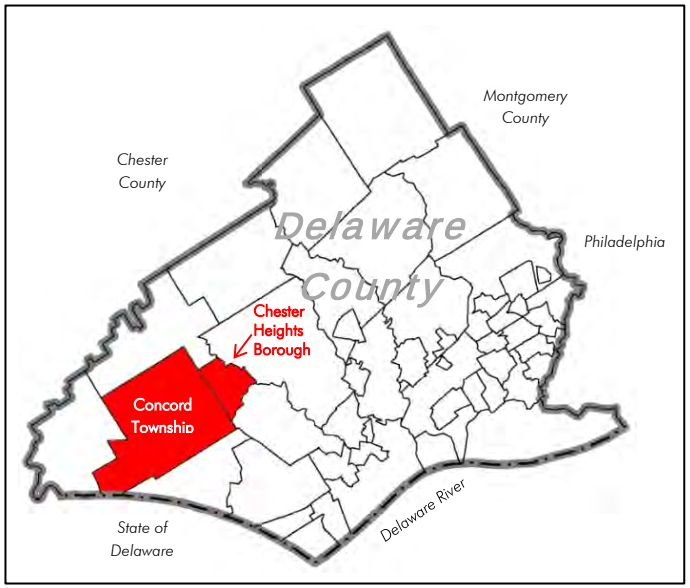


Left: Schuylkill River Trail in Philadelphia is a designated segment of the East Coast Greenway.

Above: The East Coast Greenway is planned to run through Delaware County on its way from Maine to Florida.

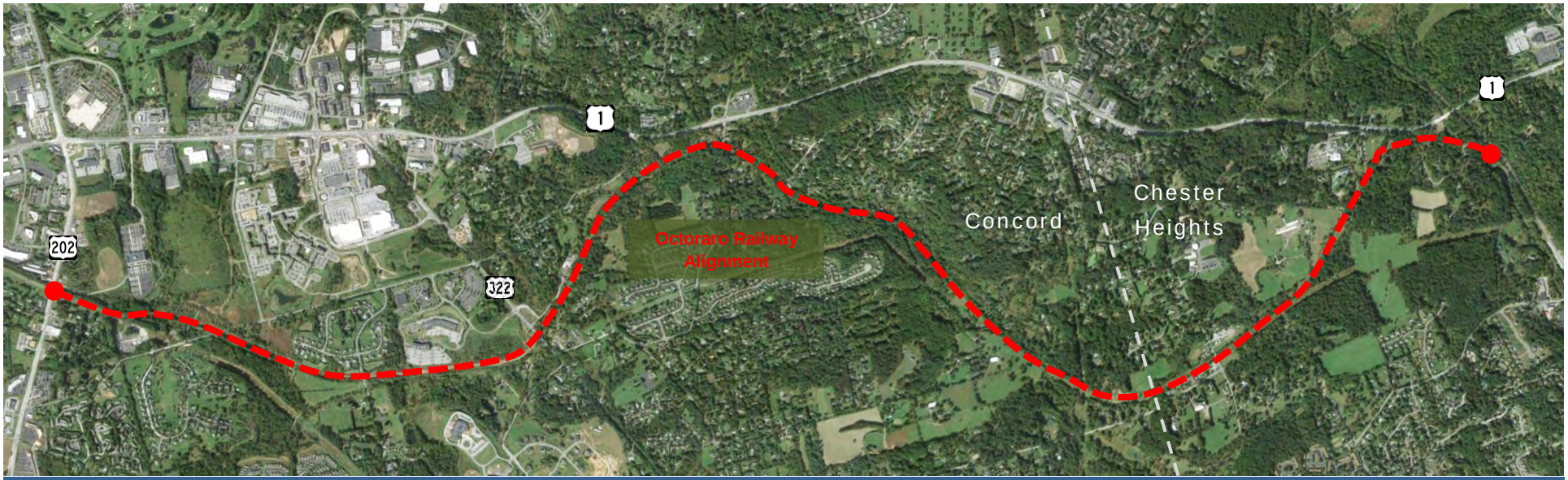
Chapter 2
Community Characteristics

One important goal of this study is to develop a proposed trail design that will appeal to local residents and lead to a well-used recreational facility. The intent is for the trail to be compatible with nearby land uses and with the overall character of the landscape. Therefore it is important to understand the physical and social context of the local communities.



Municipal Profiles

Concord Township and Chester Heights Borough are located in western Delaware County, which is generally suburban in character. Like much of the surrounding region, both municipalities have seen steady growth in recent decades, as suburbanization pushed out from Philadelphia and gradually transformed what had been a rural landscape. Baltimore Pike (Route 1) is the major transportation artery that links the communities and spans the county east to west. Proximity to PA routes 202 and 322, Interstates 476 and 95, as well as to SEPTA regional rail service, makes commuting viable to Philadelphia and other regional employment centers. Yet Concord and Chester Heights both have their own local economies and institutions that make them more than bedroom communities. In both municipalities, the median family income is substantially greater than the median for the county as a whole, and indicates a high percentage of educated and skilled workers.



Concord Township

One of the fastest-growing municipalities in the five-county Greater Philadelphia region, Concord Township occupies 13.7 square miles in western Delaware County, about 20 miles west of Philadelphia. Today the township is an active and diverse community, with a bustling commercial corridor, leafy residential subdivisions, abundant parks, progressive local government, vibrant senior citizen community, and an outstanding public school district.

Concord Township has seen considerable growth during the past 30 years. During this period, retail and commercial activity along Baltimore Pike has exploded, and residential subdivisions have replaced most of the original farmland. The township population of 17,231 (2010 census) more than doubled during the preceding 20 years, and the pace of growth continues to accelerate. In the most recent period, during the years 2000-2013, Concord Township added the greatest number of new residential units of any municipality in the county, as well as the greatest amount of commercial square footage.

Despite the recent surge of growth, portions of the original community fabric remain. Historic properties still feature prominently in the local landscape, and century-old development patterns are still very much in evidence. In the face of these development pressures, residents have recognized the importance of conserving open space, and the township has made strides to protect and acquire undeveloped property for future use as public open space and recreation land. In 2004, Concord voters overwhelmingly approved a $6 million bond initiative to protect and acquire strategic open space resources.

Excerpt from a 1911 map of Concord Township. The Octoraro rail line is indicated as Philadelphia & Baltimore Central.

Source: Historical Archives of Delaware County

Chester Heights Borough

Located immediately to the east of Concord Township, Chester Heights is a relatively small residential community. The borough occupies 2.1 square miles and has a population of 2,481 (2010 census). It was incorporated in 1945, however the roots of the area's founding and settlement date back to the late 17th and early 18th centuries. The borough remained primarily rural in character until relatively recently. Between 1970 and 1990 Borough population more than tripled, due to residential subdivisions and townhouse developments. Growth leveled substantially in the 1990s and has been modest since. A substantial portion of borough land area is currently open space, including public and private areas of scenic and undeveloped land and includes both wooded and forested areas as well as meadows, clearings and riparian areas along streams and creeks. In some cases these areas have been preserved as open space through restrictive easements or covenants and in other cases they are simply undeveloped. These uses are a critical element that helps to create the borough's rural character and feel.

While residential development has contributed to growth in recent decades, Chester Heights retains a strong rural and historic character.

Parks and Open Space Resources

In Concord Township, parks and open space resources include dozens of separate properties totaling almost 2,000 acres of land. The existing parks and open space resources accommodate a broad range of activities, including a variety of sports and active recreation, playgrounds and informal recreation, and simple passive recreation such as walking and bike riding. These include a number of highly popular walking trails, which can be considered a starting point from which a broader connected trail system can develop:

- Township Municipal Complex on Thornton Road: More than one (1) mile of paved and grass walking paths and hiking trails. Ample parking is available, as are restrooms located in the Municipal building.
- Concord Township Park: Paved walking trail 0.6 miles long. Ample parking is available, along with other amenities.
- Newlin Grist Mill: Private non-profit historic site and 160-acre facility dedicated to historical preservation and environmental conservation. Newlin Grist Mill offers a wide range of educational and environmental programs for all ages, and the park is open to the public with more than eight miles of walking trails. The Octoraro alignment runs through the entirety of the grist Mill property from east to west, making this a critical property for trail planning.

Chester Heights owns and maintains one public park, known as Chester Heights Community Park (4.7 acres). This park borders on the former Octoraro alignment where the former rail bed crosses under Valleybrook Road just north of Smithbridge Road. Also within the borough, there is a 21-acre extension of Middletown Township's "Darlington Tract" passive open space property, which contains extensive unpaved walking trails. The borough also contains several homeowners' association open spaces associated with local housing developments, but these open spaces do not contain recreational facilities.

There is also a large amount of undeveloped agricultural land, some of which is protected by conservation easements. Much of the undeveloped land area that could be used for future parks and public open space uses is held in private, institutional, or commercial ownership.

As described in the 2013 *Chester Heights Borough Comprehensive Plan*, it is a high-priority to make open spaces accessible to the public, one of the most effective ways to do this being the development of greenway trails. The Comprehensive Plan recommends that the borough participate in Delaware County's greenway network planning, and consider implementing portions of the county's *Open Space, Recreation and Greenway* plan within the borough. This includes specific study of the Octoraro rail right-of-way, as well as opportunities to develop trails along local creeks.

The Concord Township Municipal Complex (above) features recreation fields as well as a paved walking trail.

Chester Heights Community Park (below) has a playground and soccer field.

Natural Resources

The development of trails and protection of natural resources often go hand-in-hand. Natural areas offer undeveloped open space that can be an opportunity for trails – especially along stream corridors that are linear in nature. Trail development can bring public attention necessary to prompt protection conservation measures for sensitive resources.

Though Concord Township is heavily developed, there is nevertheless a significant presence of natural resources, including wooded areas, wetlands, floodplain areas, and natural flora and fauna habitat. Concord lies primarily within Chester Creek watershed, except for the southwest portion of the township, which is the Brandywine Creek watershed. While the Chester Creek itself lies to the east of Concord, and flows through Wawa, Lenni, and Thornton, a primary tributary – the West Branch Chester Creek – flows through Concord, and can be seen in Newlin Grist Mill, along Pole Cat Road and flowing south into Chester Heights.

Chester Heights possesses a wealth of undeveloped open space and well-preserved natural features, including unspoiled woodlands, large tracts of farmland and shady creeks, and possesses perhaps the highest percentage of open space in the county. The undeveloped parcels of the Borough feature woodland and farmland soils, and several of these areas also have intact stands of forest. Chester Heights is located within the Chester Creek watershed, which runs the length of the Borough's border with Middletown, and the West Branch of Chester Creek, which passes through the southern part of the Borough.

It is likely that a future trail could bring the public into close proximity to sensitive natural areas. This could be a strong positive feature of the trail network, providing the potential for educational and interpretive engagement of the public. However, such interventions must be handled sensitively to ensure the integrity of the natural resource. Protection and conservation of these sensitive areas should remain a priority.

Natural resources in the area are associated mainly with stream corridors, which are natural locations for future trails.

Historic/Cultural Resources

Despite steady growth and development that has occurred in recent decades, local history remains in evidence with the presence of numerous significant historic properties. Several historic properties are along the alignment of the Octoraro Trail. The possibility of linking these properties as part of a trail network is a valuable opportunity to promote the area's cultural heritage. Notable historic properties include the following:

The ***Newlin Grist Mill*** complex in Concord dates to 1704 and is one of several working grist mills in Pennsylvania. The mill was in operation until 1941 and the original dam and mill race are still supplying power to the mill today. The mill's interior gears and machinery have been reconstructed to 1700 operational standards and is fully functional. The Philadelphia and Baltimore Central Railroad was built through the property in 1859; this allowed the mill to market its flour in Philadelphia and Baltimore. A railway station was built in 1868, which remains today as the current park office. The 160-acre property includes twelve historic structures, including the mill, station, warehouse, miller's house, Trimble House, and others.

The ***Polecat Road House*** is an early tenant house for workers at nearby mills. Built prior to 1750, it is a simple, small, stone structure, originally built for two families. This house was donated to Concord Township in 1967 and restored by the Concord Township Historical Society.

The **Ivy Mills Historic District** represents a significant period in the history of the township and county. The district includes two contributing buildings and one contributing structure. They are the ruins of the Ivy Mills paper mill, erected in 1829; the clerk's house, dated to about 1830; and the Ivy Mills Mansion House, built in 1837. The original paper mill was erected in 1729, and the original mansion house in 1744. Both of the original buildings were replaced in the early-19th century by the present buildings. The District was added to the National Register of Historic Places in 1972.

In Chester Heights, the Borough's heritage is reflected in its many historic homes, natural landscapes, and remnants of rural industry. Of primary importance, especially with respect to the Octoraro, are the large properties associated with the Wawa Dairy. In 1900, George Wood bought three adjoining tracts of land. One had remnants of buildings from the Rocky Run Dairy Farm and this became the nucleus of an expanded farm operation. **Wawa Dairy Farms** opened in 1902 to sell milk bottled under sanitary conditions from cows certified as healthy and free from disease. Efficient transportation on and off the farm made all the difference in bringing a perishable product to market. Bottles crated at the dairy and sent by wagon to the Wawa Station went for transport to Philadelphia markets and beyond. Today the properties are home to Wawa corporate offices, and are proximate to the Octoraro alignment.

Local historic resources include:
Newlin Grist Mill (top);
Ivy Mills Histiric District (middle);and
Forge Hill (bottom).

Chapter 3
Existing Conditions

The former Octoraro Rail alignment crosses the entire length of Concord Township and Chester Heights Borough east-to-west, and is located just south of and roughly parallel to Baltimore Pike. The route covers 4.5 miles in Concord and 1.4 miles in Chester Heights, for a total length of 5.9 miles. Inactive since the early 1970's, the tracks remain visible along the great majority of its length, especially in Concord Township. Since the inception of local trail planning in the 1980's, this rail line has consistently been noted for its outstanding potential for trail development. Nearly every trail and greenways study at the local and regional level has cited the alignment for its ideal potential as a key segment in a connected regional trail system.

Historic Legacy as a Railroad

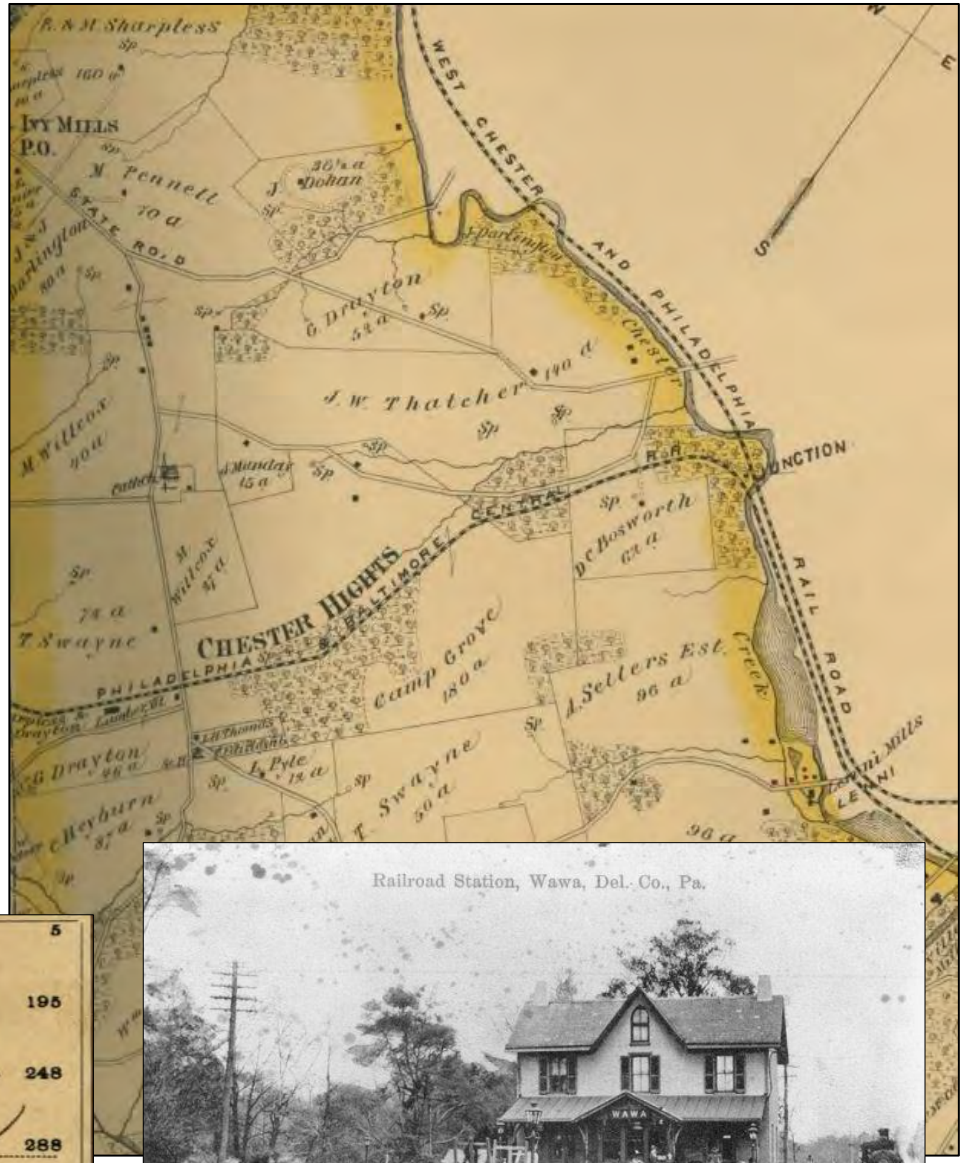
Historically, the line was part of the Chester Creek Branch of the Pennsylvania Railroad (PRR). It connected with the main PRR line southwest of Philadelphia at Chester, PA, and traveled north through Aston and Lenni. The Chester Creek Branch was constructed shortly after the Civil War and largely parallels the scenic Chester Creek as it runs through Aston and Middletown. The Chester Creek Branch was vital to the economic development of southern Delaware County. During the industrial revolution, this railroad served the mills and other local businesses in the region, and created opportunities for new growth and development. Mills, factories, and warehouses located adjacent to the rail while new communities sprouted near rail depots.

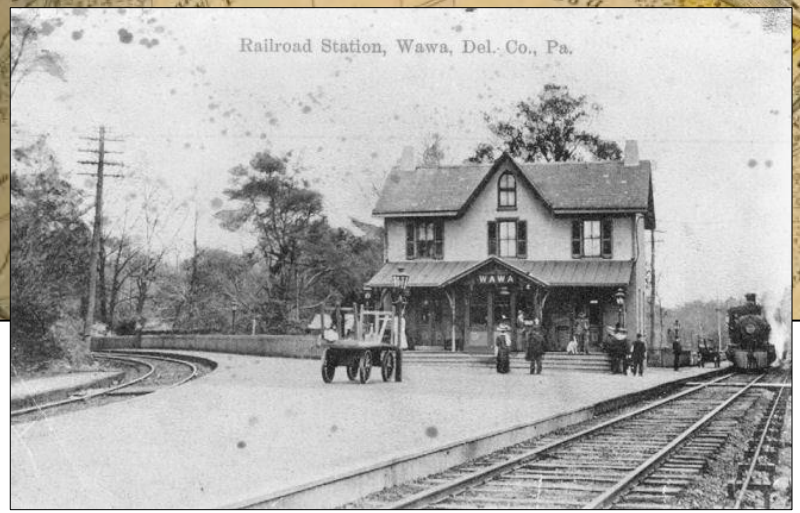
At Wawa Junction, the line diverged. The Chester Creek Branch continued north and the Octoraro Branch turned west through Chester Heights, Concord, and Chadds Ford. Further west, the rail line ran through communities such as Kennett Square and Oxford, PA, and terminating in Rising Sun, Maryland, at the Susquehanna River. Construction on the rail line was begun in 1855 by the Philadelphia and Baltimore Central Railroad (P&BC). The first section of the line, between Wawa Junction and Chadds Ford, opened in 1859. Rails reached Oxford, Pennsylvania by the following year, and steadily extended south into Maryland, where it reached Rising Sun, MD in 1865. By December 1868, it reached 46 miles and its southernmost point at Rowlandsville (along Octoraro Creek), where it connected with the Columbia & Port Deposit Railroad (C&PD).

During that time period, numerous independent railways operated in the general region between Philadelphia and Baltimore. Through a series of mergers and acquisitions, these gradually were absorbed into the Pennsylvania Railroad (PRR) system. The term "Octoraro Branch" dates to approximately 1916, when the P&BC was purchased by the Philadelphia, Baltimore & Washington (PB&W) Railroad. Passenger train service continued until 1935.

In 1961, the PRR abandoned the Octoraro Branch south of Colora, Maryland. Tourist rail operator Wawa & Concordville Railroad leased the line between Concordville and Wawa in 1967 and 1968. The PRR merged with the New York Central Railroad in 1968 to form the Penn Central, which was bankrupt by 1970. Ownership first went to Conrail, then to SEPTA, which leased it to short-line freight railroad companies. Hurricane Agnes caused several washouts in 1972 and rendered the line unusable north of Brandywine Creek in Chadds Ford. The portion of the rail lines through Concord and Chester Heights have remained inactive since that time, and have since fallen into disrepair.

West of the Brandywine, the Octoraro Railroad provided service between Oxford and Chadds Ford Junction from 1977 to 1994. In succession, the Delaware Valley Railway, the Brandywine Valley Railroad, and the Morristown & Erie Railway operated the line between 1994 and 2004. The East Penn Railroad bought the line from SEPTA in 2004, and currently operates between Nottingham, Pennsylvania and Chadds Ford Junction. Presently, the East Penn Railroad (http://www.eastpennrr.com) operates 109 miles of freight rail in Southeastern Pennsylvania.





At Wawa Junction, the Philadelphia & Baltimore Central branched off from the West Chester and Philadelphia Railroad. It was later re-named the Octoraro Railroad.

Physical Condition

Along the route of the former Octoraro railway, there are a variety of physical obstacles that will factor into the determination of a final trail alignment. Some of these will place physical limitations on the space available for the trail. Others, while surmountable, will require engineered solutions that will add to construction cost.

Existing conditions were observed during spring of 2016. Site observation was not an exhaustive or comprehensive field survey, which was beyond the scope of this study. Rather it was to gather general information concerning the location and condition of the rail corridor, and the general character of the surrounding landscape, as may be related to potential for trail development. The majority of the route was directly observed, with the exception of portions of the alignment on private residential property. Where access to private property was not obtained for all properties, evaluation was made through publicly-available documents and aerial photography.

Specific conditions of the potential trail route are described as follows:

Rail Bed: Most of the rails remain and are visible throughout the study area. The rails can most easily be seen at Newlin Grist Mill, but are also apparent almost everywhere the line crosses a street. The rail bed itself varies in condition. Along most of the length, a level engineered rail bed is intact, with a width of 8 to 10 feet. The major exceptions are in proximity to streams, where the bed was damaged by flooding caused by Hurricane Agnes in the early 1970s, and never repaired. This is evident particularly where the route crosses the West Branch Chester Creek alongside Pole Cat Road, in the areas dedicated as open space associated with the Fox Valley neighborhood. Along most of the route, the rail bed is intact but overgrown with vegetation. Through most of Concord Township especially, the areas immediately alongside the rail bed have been mowed, maintained, or otherwise tended, while the tracks themselves have posed a nuisance that has remained untouched.

Topography: As typical of former rail lines, the Octoraro alignment is relatively flat and level, particularly with Concord Township. This creates a high degree of accessibility for public use as a recreational trail, since there are no areas of steep slopes, and few locations where significant grading would be required. This natural characteristic of rail lines is one of the factors that has made the rails-to-trails movement so successful.

Rails are visible along most of the route, though overgrown with vegetation.

Encroachments: There are remarkably few physical obstructions that have been placed over the former rail alignment, even though the property belongs almost entirely in the hands of private owners. As described below, several utility providers have above-ground and below-ground transmission lines located parallel to the tracks in close proximity. These utilities generally pose a benefit to trail development rather than a hindrance, since service access along the utility lines is generally well-maintained.

Hydrology: In several locations, it will be necessary to cross major or minor streams and drainage swales, which in some places will require construction of culverts or bridges. Several former rail bridges remain in apparently good condition. In most instances, new decks would be required but the overall steel structure appears sound. Formal inspection and analysis of existing bridge structures would be required to determine the level of integrity of these structures, and the nature of required repairs. Water crossings are identified in the table below. In addition, the alignment crosses at least one wetland area, located roughly behind the Spring Valley Business Park, east of Temple Road. The trail will need to skirt this area, or mitigation of some form may be required. Other wetland areas may be encountered depending on the final trail alignment. Further investigations will be required to determine necessary mitigation measures.

Potential Water Crossings

Dwg.	*Crossing*	*Adjacent Property*	*Crossing Condition/Type*
1	Swale	PECO	culvert needed
3	Swale	Meadow Run HOA	culvert needed
3	Swale	Meadow Run HOA	culvert needed
5	Swale	SEPTA/Station Rd.	culvert needed
6	Concord Creek	Newlin Grist Mill	existing steel trestle
7	tributary of Concord Creek	Newlin Grist Mill	culvert needed
8	West Branch Chester Creek	Newlin Grist Mill	existing steel trestle
9	tributary of W.B. Chester Creek	private residence	culvert needed
11	West Branch Chester Creek	near Ivy Mills Rd.	bridge needed
11	West Branch Chester Creek	near Ivy Mills Rd.	bridge needed

In many locations, existing railroad bridges remain over stream crossings.

Road Crossings: The rail alignment crosses active public streets in seven locations. In most instances, the crossing is at-grade. Existing rails are visible on either side of the street in many of these locations. Formal pedestrian crossings will need to be established to accommodate trail use, including appropriate signs, pavement markings, barriers, and other safety infrastructure. At two locations, existing underpasses are in place and provide excellent passage for the trail beneath existing roadways. The underpass at Conchester Highway (Route 322) is slated to be replaced in the coming years by PennDOT as part of a roadway widening project. Where Cheyney Road bisects Newlin Grist Mill, an at-grade crossing exists which already accommodates substantial use from visitors. This crossing would need to be upgraded to improve safety and accommodate trail use.

Individual road crossings are identified in the table below.

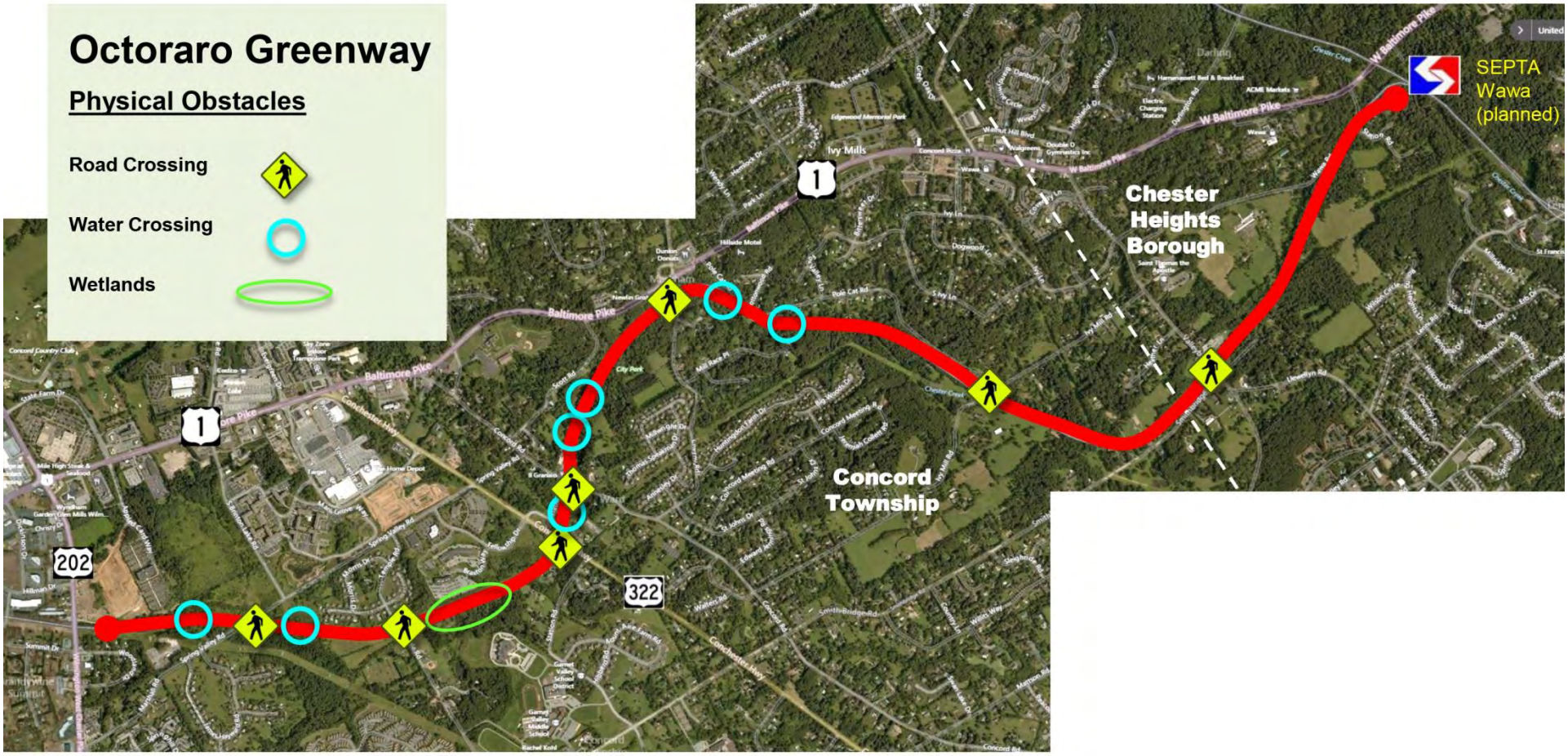
Potential Road Crossings

Dwg.	*Street*	*Adjacent Property*	*Crossing Type*
2	Spring Valley Road	PECO	at grade
3,4	Temple Road	Concord Twp.	at grade
5	Conchester Hwy (Route 322)	SEPTA	below-grade underpass
6	Concord Road	Newlin Grist Mill	at grade
7	Cheyney Road	Newlin Grist Mill	at grade
11	Ivy Mills Road	Wilcox property	at grade
13	Valleybrook Road	PECO/SEPTA	below-grade underpass

Landscape Character: While the alignment runs through heavily-developed suburban communities, the character of the landscape immediately surrounding the Octoraro alignment is predominantly rural. Surprisingly, the route is situated in such a way that most of the neighboring properties are barely visible, buffered by trees and adjacent topography. The alignment traverses stream corridors, utility corridors, farmlands, and remote "back yards" of commercial developments. In some instances, the route approaches near to residential properties, particularly along Pole Cat Road, along with a few other locations.

Above:
An existing underpass allows passage beneath Route 322.

Left:
Rails are visible where the alignment crosses streets in many locations.


Octoraro Greenway
Physical Obstacles
Road Crossing
Water Crossing
Wetlands
SEPTA
Wawa
(planned)
Chester
Heights
Borough
Concord
Township
Baltimore Pike
W Baltimore Pike
Ivy Mills
1
202
322

Adjacent Utilities

The Octoraro alignment is a major utility corridor. Numerous utility providers have above-grade or below-grade services that parallel the rail tracks in close proximity. The presence of these utilities can serve to facilitate trail development. The utility providers generally maintain service access along their lines, usually in the form of mown grass to provide vehicle access. These form open linear corridors that have many of the physical characteristics desired for trails. In some locations, it may be possible – even beneficial – for the trail to be located along these existing utility corridors, rather than along the specific alignment of the former rails. In this case, trail development must not pose an interference with utility operations, either during construction or when in use by the public. Significant negotiations with utility companies must take place to reach mutually satisfactory terms and agreement for trails along utility corridors. Utility providers in proximity to the Octoraro include the following:

PECO: The major electricity provider in the area, PECO operates two major high-voltage power lines in the study area. One of these lines runs roughly north-to-south through Concord Township, and has already been converted to a walking trail where it runs through Concord Township Park. The other power line runs roughly east-to-west, alongside the Octoraro rail line west of Route 322, then through the Concord Woods

PECO power lines provide a good opportunity for potential trail development, as they are along open maintained corridors.

neighborhood and into Chester Heights to the east. Both PECO alignments are generally open and unencumbered along their length, to allow for service access. The PECO line closely parallels the Octoraro between Route 202 and Route 322. At that point, the Octoraro bends north into Newlin Grist Mill, while the PECO line continues to the south. The Octoraro and PECO line converge again behind Concord Woods neighborhood, from which point they travel in parallel fashion east into Chester Heights. They cross Valleybrook Road in unison, and continue together east for another 1/3 mile, where the Octoraro splits off to the north and PECO continues east. While the Octoraro connects with the SEPTA Regional Rail at a point near Baltimore Pike (location of the future Wawa Station), the PECO line intersects at a point about ½ mile further south. The PECO line offers an excellent opportunity for trail development, especially where is parallels the Octoraro. Where it diverges from the Octoraro, the PECO line offers the opportunity for an alternative trail alignment, with further study required.

Chester Water Authority (CWA): Chester Water Authority is the main provider of domestic water service in the area. CWA maintains a water main parallel to the Octoraro along the majority of the rail alignment within Concord Township, from Route 202 all the way through Newlin Grist Mill to a point south of Ivy Mills Road. As with the PECO line described above, the CWA line provides a potential opportunity for trail development. CWA maintains a mown grass access pathway along almost the entire route, which could potentially be upgraded for trail use.

Level 3 Communications: Underground fiber optic telecommunications lines belonging to Level 3 are located directly parallel to the tracks along almost the entire route within both municipalities.

Gas Pipelines: Multiple underground active and inactive gas and oil pipelines bisect both municipalities. These often cross private residential property, therefore are not thought to have high potential for trail development.

Utility corridors occupied by PECO, Chester Water, and other providers may provide valuable opportunities for greenway development.

Property Ownership

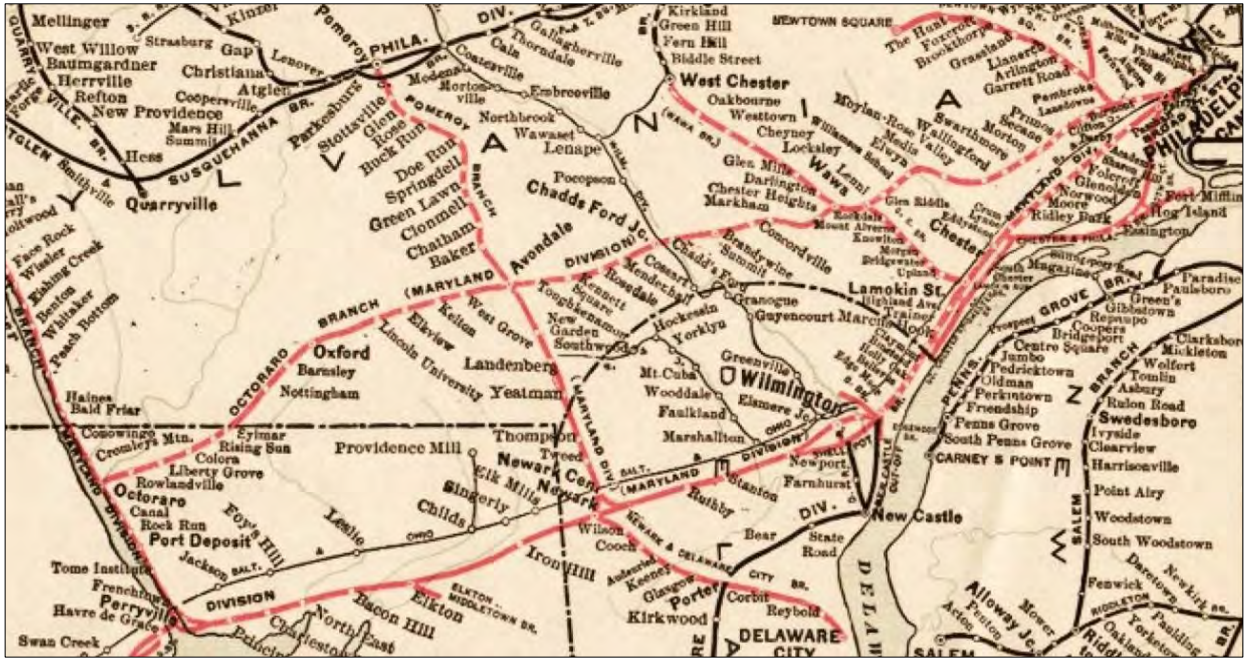
The great majority of the Octoraro alignment within Concord and Chester Heights is on private property without public access. This lack of public right-of-way along the alignment is perhaps the most important overriding factor in considering the feasibility of future trail development. For a trail to be implemented, rights would need to be acquired from numerous individual and unrelated property owners. The likelihood of successful acquisition varies from property to property, depending on land use and other factors. Specific circumstances related to each property along the route are described below.

Railroad Right-of-Way

Rights to operate a railroad along the Octoraro alignment passed from one entity to another numerous times over the years. As described in Chapter 2, the original Philadelphia and Baltimore Central Railroad (P&BC) gave way to the Philadelphia Baltimore & Washington (PB&W) in the early 20th century, which itself was later absorbed by the Pennsylvania Railroad (PRR). The PRR merged with the New York Central Railroad in 1968 to form the Penn Central, which was bankrupt by 1970. Ownership first went to Conrail, and later to the Southeastern Pennsylvania Transpor-tation Authority (SEPTA). SEPTA has never operated service along this line. The agency retains the rights in perpetuity, and current agency policy is never to sell, abandon, or otherwise give up such rights.

However, it is understood that any current rights held by SEPTA are only applicable to operation of a railroad, and are not transferrable to another entity or for any other use. **Simply put, the easement for rail use cannot be directly converted to provide public access for a recreation trail or any other type of use.**

The Octoraro alignment is not part of any railbanking program, such as was provided for the National Trails Systems Act of 1983. Railbanking is a voluntary agreement between a railroad company and a trail agency to use an out-of-service rail corridor as a trail until a railroad might need the corridor again for rail service. Railbanking takes place during the rail corridor abandonment process. It is understood that SEPTA's policy is to never abandon its rail corridors. Many former SEPTA rail corridors in southeastern Pennsylvania have been converted to use as public trails. In these instances, SEPTA typically owned real property, which was then leased to a public or non-profit entity for the purpose of administering a trail, with SEPTA maintaining rights to resume rail service. In these instances, SEPTA leases the inactive right-of-way to a public or non-profit entity for the purpose of construction, administering and maintaining a trail with SEPTA maintain the rights to resume rail service. Issues regarding defense of title, indemnification, utility access and insurance are negotiated on a case by case basis. Public support is critical for a lease agreement to be undertaken with SEPTA and it is the responsibility of the proposed trail entity to gauge and muster this support.



The Octoraro Branch is shown on this 1920 Pennsylvania Railroad map. Wawa, Chester Heights, and Concordville Stations are shown.

Properties Along the Octoraro Alignment

The historic alignment of the railroad traverses approximately 37 separate properties, 30 in Concord Township and 6 in Chester Heights Borough. The majority of these properties are currently undeveloped or otherwise characterized by open space that has the potential for development as a public trail.

Relatively few of the properties are in public ownership. For an off-road trail to be developed that follows the basic alignment of the Octoraro Railway, consent of the owners would be required, along with acquisition of easements or other forms of right-of-way for public access. The general likelihood of obtaining the necessary right-of-way was assessed for each property, based on land use, property characteristics, and perceived receptiveness of the property owner based on feedback received. A majority of the property owners were consulted as part of the outreach phase of this study, including face-to-face meetings with many owners. However, not every property owner was personally contacted.

Actual negotiations for rights have not yet taken place. But for the purpose of assessing project feasibility, properties were divided into three categories, based on the expected likelihood of obtaining right-of-way (easements). These categories are:

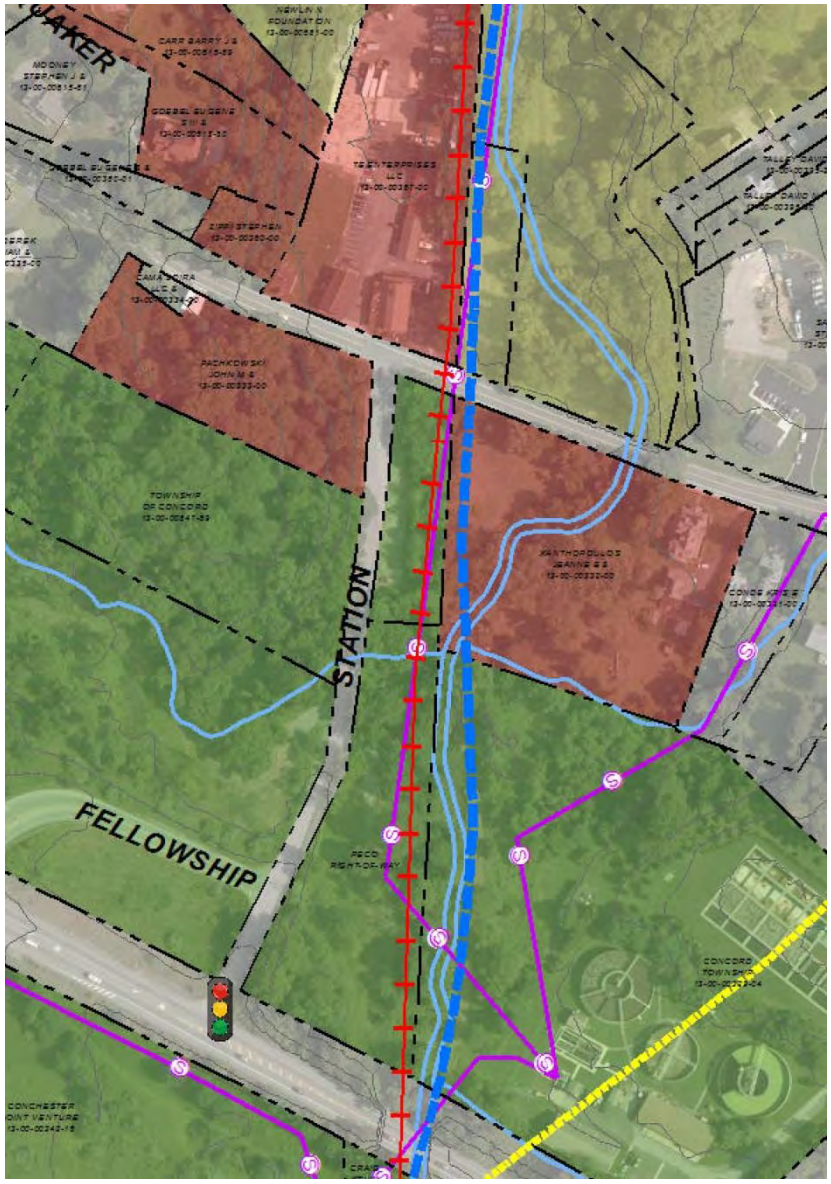
Feasibility of Right-of-Way Acquisition:

High: Properties that are owned by a municipality, public agency or utility provider. Also commercial properties that would derive a clear benefit from improved public access, and have expressed interest in facilitating trail development.

Medium: Properties that may derive a benefit from improved public access, but which have concerns regarding potential impacts such as security, privacy, environmental impact, and other factors. These are generally institutional properties, and open space dedicated to homeowners associations.

Low: Private residential properties, for whom privacy is an overriding concern. For some smaller properties, public access for recreation would be impractical. For larger parcels, public access may be workable under certain conditions, but owners have expressed an initial opposition to the concept in some respects.

Each individual property crossed by the Octoraro alignment is described below. Information is taken from Delaware County tax records as of 2015. Further analysis is provided in Chapter 4 – Greenway Recommendations.



On the Existing Conditions Plans (Appendix A), properties along the Octoraro alignment are depicted in colored shades according to the general likelihood of obtaining right-of-way for trail development.

HIGH Feasibility of ROW Acquisition:

- **PECO** (Appendix A, sheets 1, 2, 9, 10): While most PECO overhead power lines are located in the public right-of-way, or occupy easements across private property, PECO owns some property outright, including several along the rail alignment at the western edge of the Concord Township. These properties contain one of the overhead power lines that span the project area, as well as an electrical substation. PECO has traditionally allowed public trails to share space with overhead power lines, such as at Concord Township Park on Smithbridge Road. The power lines split at this point, with one line running east-west roughly parallel to the Octoraro, and the other running southeast toward Clayton Park. The potential for trail development beneath these power lines is discussed in the *Concord Township Greenways and Open Space Network Plan*. Similarly, PECO also owns a narrow parcel at the western edge of Chester Heights Borough, where the Octoraro crosses Valleybrook Road at Smithbridge Road. This narrow property carries overhead power lines. At ground level, the rail line crosses Valleybrook Road through an existing underpass.
- **Main Line Health Inc.** (sheet 1)**:** The Octoraro skirts the southern edge of this property that has been recently developed as a medical office building. The rail line is separated from the main developed part of the property by a wooded stream and sloping topography, and has poor potential for future development.
- **Concord Township** (sheets 2, 3, 4, 5): The township possesses two unimproved undeveloped parcels on either side of Temple Road. The parcel to the west of the road, is particularly well-suited to be developed as a trail head access point with parking and other amenities. The parcel is large enough for further expansion as a public park, if desired.
- **Garnet Valley School District** (sheet 3)**:** The rail line crosses along the rear of property owned by Garnet Valley School District and associated with the Garnet Valley Elementary School. This part of the property is landlocked on the opposite side of a stream corridor, and is unlikely to be developed for any other purpose.
- **Spring Valley Business Park** (sheets 3, 4): Opposite the school district property, the rail line crosses along the rear of the Spring Valley Business Park. This area of the property is also occupied by utilities including the PECO overhead power lines. A recreation trail would be seen as a potential amenity for office workers, both as recreation and as a transportation option.

Above: PECO owns several parcels that could be utilized as part of the trail route.

Below: Concord Township owns two parcels along the Octoraro, which could be utilized for trail head access and parking.

- SEPTA (sheet 4): The agency owns two small parcels on either side of Route 322 (Conchester Highway). The parcel along Station Road holds promise as a potential trail head access point with off-street parking. It is currently used as overflow parking for the Il Granaio restaurant across Concord Road.

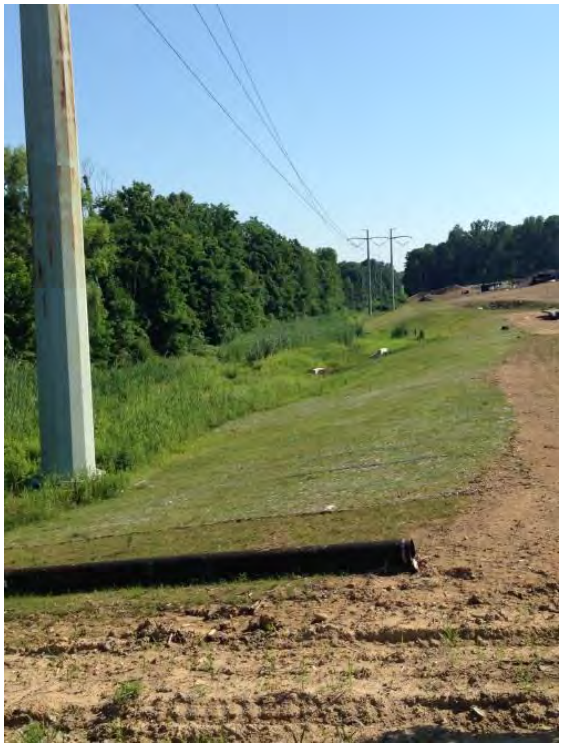
MEDIUM Feasibility of ROW Acquisition:

- Chadds Ford Investors LP and Circle R Investments LLC (sheet 1): These two narrow properties represent the terminus of the rail alignment in Concord Township, at the western boundary with Chadds Ford Township. They provide an opportunity for a trail head access point along Route 202, and a direct connection to the retail services at the Brandywine Mills shopping center. These properties also provide a potential future linkage to Chadds Ford Township, and potential future westward trail expansion.
- Newlin Grist Mill (sheets 4, 5, 6): The centerpiece of the Octoraro Rail alignment is the Newlin Grist Mill. This historical and natural preserve is an important cultural attraction in the township, and a popular destination for hiking and a variety of recreational, educational, and environmental programs. The rails and former railroad station building are fully in evidence at the park entrance, as a striking reminded of the functional history of the site as a working mill and the railroad as essential transportation infrastructure that allowed early settlement and commercial development of the local area. The distance the rail line covers on Newlin Grist Mill property is approximately one (1) total mile. Any proposed trail development would need to fit appropriately within the historic and environmental context of the property. (This is discussed in more detail in Chapter 4 – Recommendations)
- Meadow Run Homeowners Association (sheets 2 and 3): The rail line crosses dedicated open space belonging to the Meadow Run HOA. The open space is presently unimproved, and the rail line is approximately 175 feet from the nearest residential property. While residents have expressed concern regarding the proximity of the trail, this proximity would also afford residents the benefit of easy access to the potential trail.

Above: Newlin Grist Mill is the centerpiece of the Octoraro alignment, and an important local destination.

LOW Feasibility of ROW Acquisition:

- Residential Properties along Station Road (sheet 3): For a distance of about 0.25 miles, the rail line occupies the area between the Spring Valley Business Park and four residential properties along Station Road. It is assumed that any potential trail would be located entirely on business park property, and would not encroach on residential properties. Of these residences, only one of the homes is closer than 300 feet from the potential trail.
- Fox Valley Homeowners Association (sheet 7): The rail line crosses dedicated open space belonging to the Fox Valley HOA. The open space presently is occupied by a sewage treatment facility, and is crossed by two separate underground pipelines. It is also crossed by the West Bank Chester Creek, which is a significant stream approximately 30 feet wide at this location.
- Concord Woods Homeowners Association (sheet 7): The rail line passes along the back edge of open space dedicated to the Concord Woods residential neighborhood. The open space is unimproved, and its dominant feature is the PECO overhead high voltage power line. As described in the 2015 *Concord Township Greenways and Open Space Plan*, this PECO line has potential as a recreation trail in its own right, distinct and separate from the Octoraro.



Above: The rail line crosses open space belonging to Meadow Run HOA, and is paralleled by an existing overhead power line.

Left: The rail line skirts the edge of the new Brookfield at Chester Heights development.

- **Residential Properties along Pole Cat Road** (sheets 6 and 7): The former rail alignment crosses along the rear boundary of approximately 9 residential properties situated along Pole Cat Road and Mill Race Place. The rails are located immediately adjacent to several of the houses. For other properties, the rails are located on the opposite side of the West Bank Chester Creek or tributary. It is presumed that a recreational trail would not be located on private residential property without the permission of the property owners, therefore an alternative route that avoids these properties will be sought. Residents have expressed vocal opposition to the idea of a trail in this vicinity, as it is perceived as a threat to the quiet serenity of the neighborhood.
- **Residential Properties in the Vicinity of Ivy Mills Road** (sheets 8 and 9): West of Concord Woods, the Octoraro alignment travels through several private residential properties in Concord Township. The rail line is paralleled by water mains operated by Chester Water, and the PECO overhead power lines. The utility companies have maintained access along these properties. These properties are generally rural in character, with primary residence and outbuildings in a setting of farm fields, meadow, and woodlands. Some of these properties have strong ties to local that date back to the 1700s. As they are located in a somewhat remote part of the township, away from major streets and known destinations, these properties have been susceptible over the years to trespassing and various undesirable and illegitimate activities. The current owners are understandably sensitive to the prospect of use for public recreation of these private and historically significant properties, and are therefore opposed to the idea of a trail in this or any other nearby location.
- **Brookfield at Chester Heights** (sheet 10): This new townhome development is under construction in 2016 on the former site of the Chester Heights Camp Meeting. The Octoraro alignment skirts the northern edge of the property. A walking trail is planned as part of the development, which has the potential to be integrated with the Octoraro trail.
- **Residential Properties in Chester Heights Borough** (sheets 10,11 and 12): The Octoraro alignment through Chester Heights lies almost entirely on private residential property. While the route has long been considered high priority for a recreation trail, the property owners have strong concerns about privacy and other issues regarding public access. Some property owners in Chester Heights have sought legal representation to assist in expressing opposition to the idea of a trail. A letter sent by an attorney representing these owners is found in the Appendix.

Along Pole Cat Road and some other locations, the rail line crosses private residential properties in close proximity to homes.

Chapter 4
Greenway Recommendations

This study is focused on determining a preferred location, design characteristics, and overall project feasibility for the Octoraro Greenway. The former rail alignment represents a valuable opportunity to link the local municipalities and western parts of Delaware County into the growing regional trails network. Ultimately the Octoraro Greenway is envisioned to extend through Concord Township and Chester Heights Borough and terminate at the planned new SEPTA Wawa regional rail station. From there the trail can to connect with the planned Chester Creek Trail, which extends south to points beyond.56

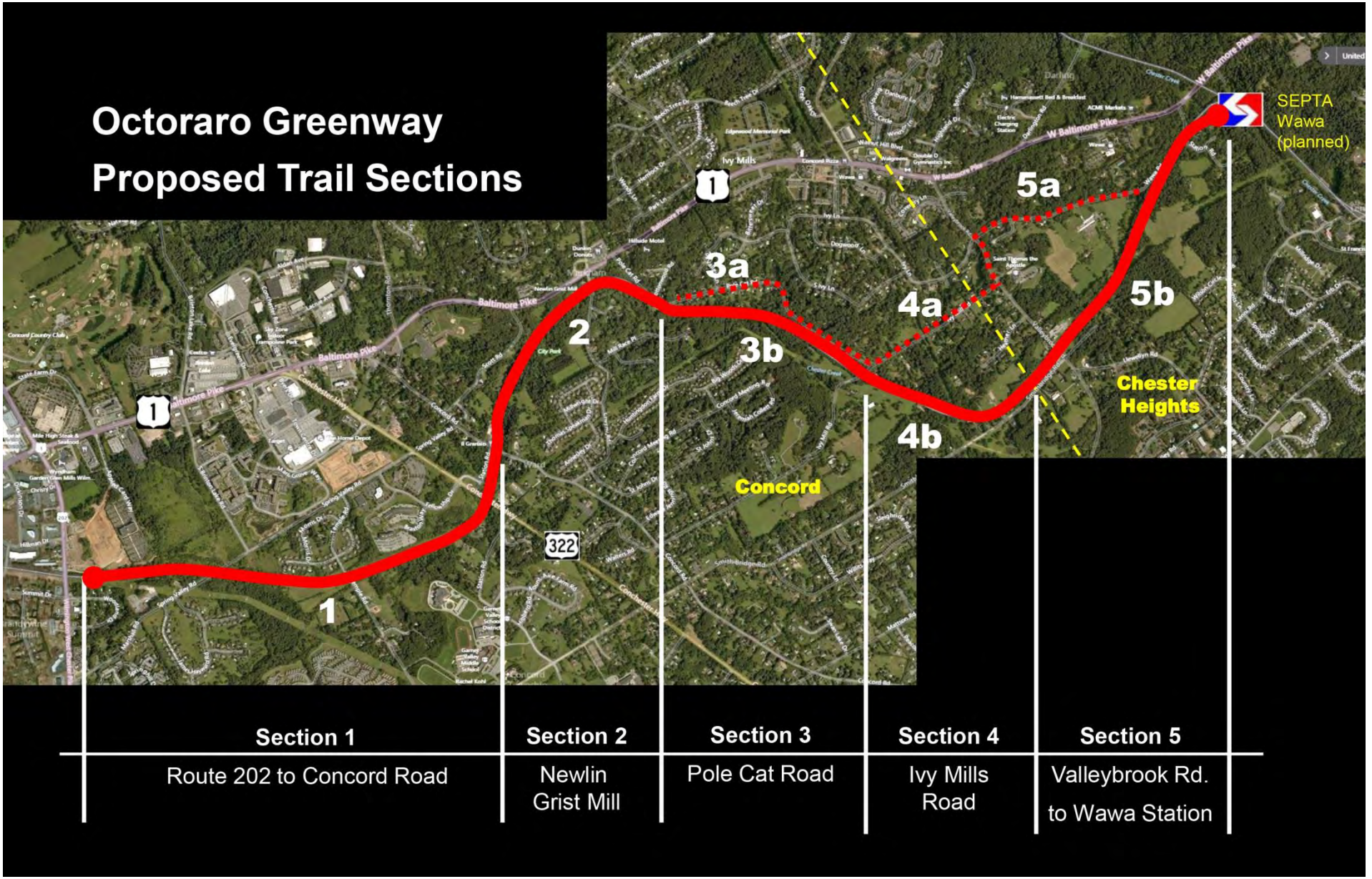
Feasibility is Dependent on Right-of-Way Acquisition

As stated in earlier chapters, the key obstacle to development of the Greenway is that the historic rail alignment lies almost entirely on private property. There is no public right-of-way that can be utilized for recreational purposes. To build a trail, the public acquisition of easements or property will be required along most of the trail's length. The ultimate feasibility of this trail is largely dependent on successful acquisition of right-of-way.

The preferred greenway configuration is for a continuous off-street route that closely follows the path of the former railway. However, the difficulty of obtaining property rights may make this goal unachievable. Where the likelihood of obtaining rights along the rail alignment appears low, an alternative alignment is proposed. *The likelihood of obtaining access through each property is described in Chapter 3, pages 28-32.*

This chapter outlines detailed recommendations for the entire length of the proposed Greenway. The route is divided into five distinct sections, based on right-of-way characteristics and other factors.

Along much of its length, the Octoraro travels through existing open space, and it is easy to imagine how the former rail bed (top) could be re-purposed as a trail (bottom).


Octoraro Greenway
Proposed Trail Sections
SEPTA
Wawa
(planned)
Ivy Mills
Baltimore Pike
Concord
Chester
Heights
1
2
3a
3b
4a
4b
5a
5b
322
Section 1
Route 202 to Concord Road
Section 2
Newlin
Grist Mill
Section 3
Pole Cat Road
Section 4
Ivy Mills
Road
Section 5
Valleybrook Rd.
to Wawa Station

Section 1: Route 202 to Concord Road

Working west to east from the Concord Township border with Chadds Ford, the first proposed trail section is approximately 1.9 miles long, from Route 202 to Concord Road. This segment promises the best chance of near-term right-of-way acquisition. Property owners on this section are primarily commercial, institutional, or public, and therefore more inclined to see public access for recreation as a benefit. With cooperation from Chadds Ford Township and property owners, this section connects to several desirable destinations, and will provide a meaningful recreational benefit to the public that can build support for the Greenway and facilitate implementation of future segments. Properties traversed by the trail within this section are as follows:

- Circle R Investments LLC
- PECO Energy
- Main Line Health
- Meadow Run HOA
- Concord Township
- Garnet Valley School District
- Spring Valley Business Park
- SEPTA

A trail head can be established off Route 202, parallel to an existing PECO power line. Accessed from the new entrance to the Brandywine Mills shopping center, there is room for a small parking lot and trail head.

View looking east from Route 202, with rail tracks visible. Brandywine Mills shopping center is just out of the frame to the left.

Segment 1 stretches from near Route 202 to Concord Road.

From here, the trail alignment can follow existing easements for PECO and Chester Water Authority, which generally run parallel to the former rail line. The land is fairly flat and clear of obstructions. It is easy to imagine a trail along much of this section.

Physical constraints along this route will include two at-grade road-crossings (Spring Valley Road and Temple Road), several minor water crossings, and an apparent wetland area located east of Temple Road roughly behind the Spring Valley Business Park.

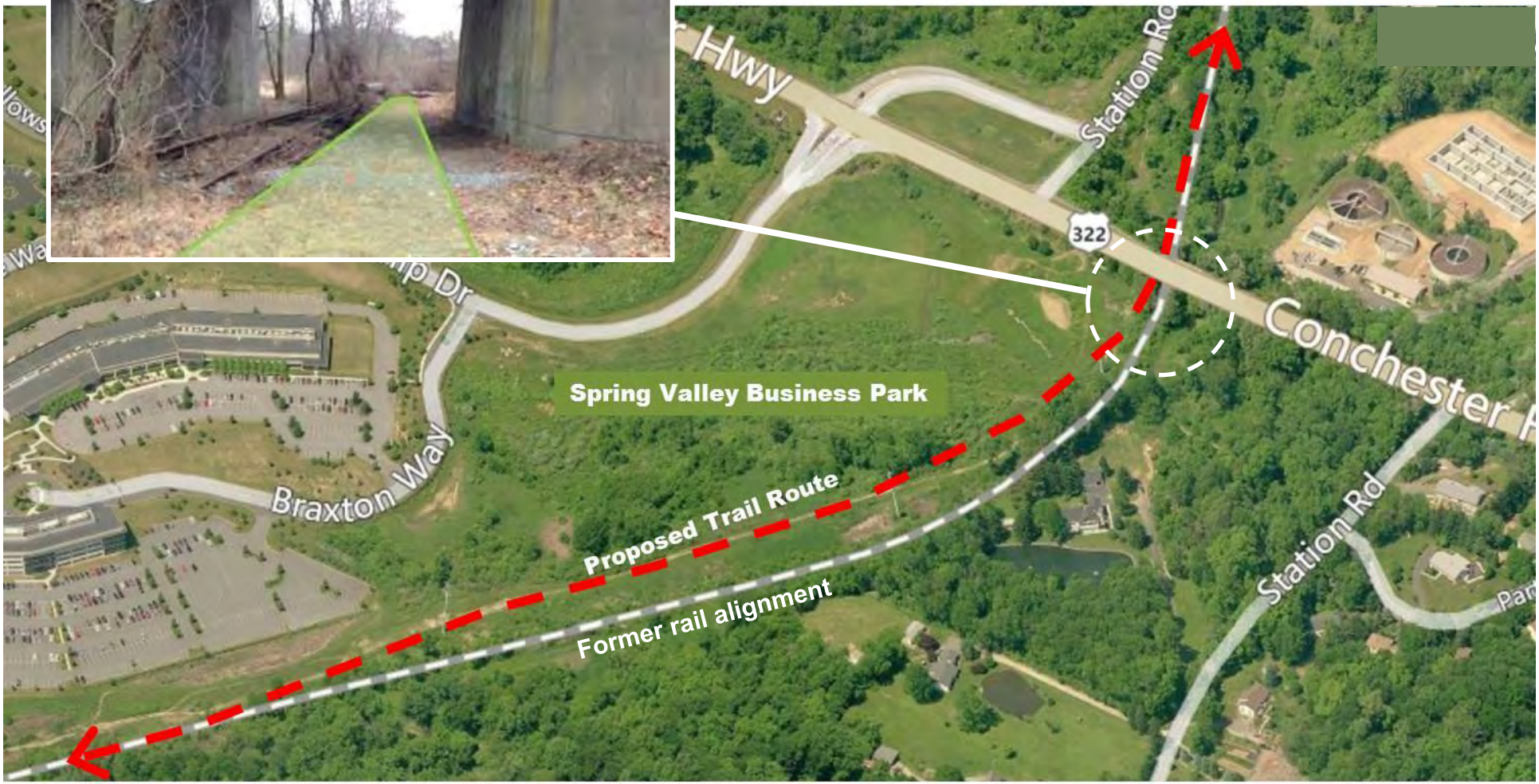
As noted in Chapter 3, the proposed alignment crosses open space associated with the Meadow Run neighborhood, as well as several commercial office properties.

The trail can follow cleared corridors maintained by utility companies, closely parallel to the former rail alignment.

The Octoraro alignment travels along undeveloped open space behind several commercial properties and residential neighborhoods.

An existing underpass beneath Conchester Highway (Route 322) is generously sized to allow the trail to pass through. Rails remain and are readily visible throughout the entire segment.

East of Conchester Highway (Route 322), the trail can be routed onto a small piece of property owned by SEPTA, which could serve as trail head access and parking. It is anticipated that rights to this property can be acquired from SEPTA for public use associated with the trail.



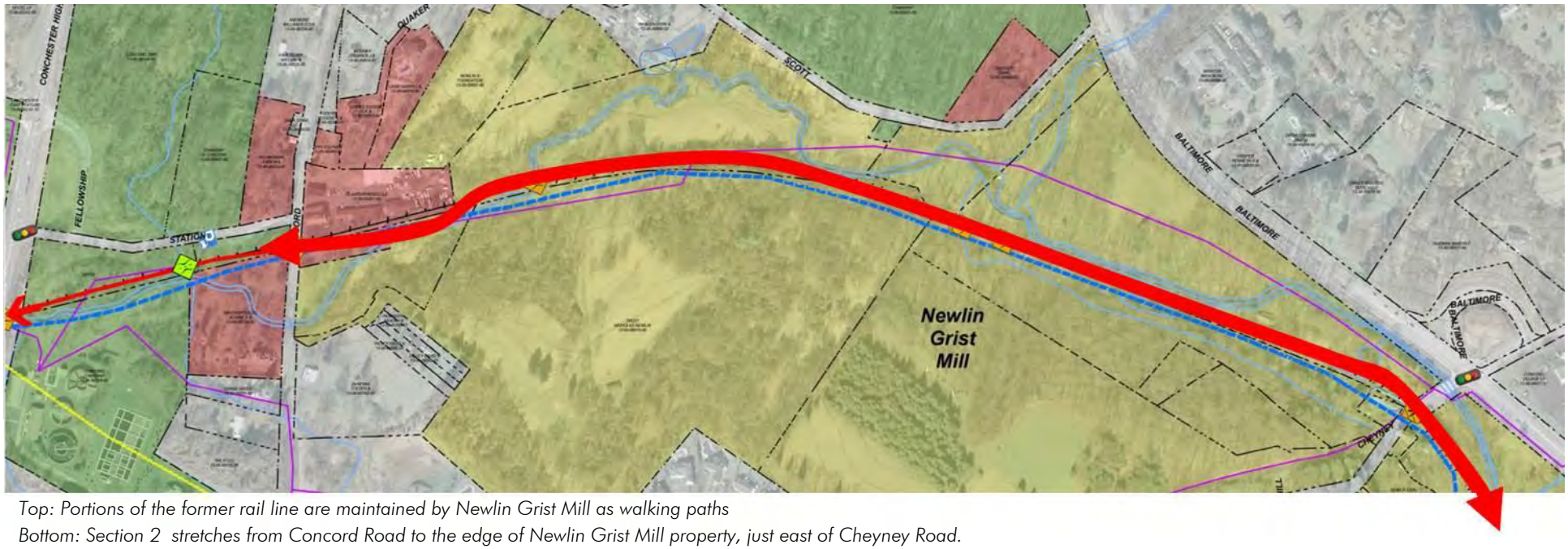
Top: The trail can utilize the existing rail underpass beneath Route 202.
Bottom: Spring Valley Business Park is one of many private land owners from which trail access will need to be negotiated.

Section 2: Newlin Grist Mill

This section formalizes the trail connection through Newlin Grist Mill property, approximately one mile in length. As noted earlier, Newlin Grist Mill is an important centerpiece of the Greenway. Evidence of the former railway is apparent throughout the property, and it is easy to visualize a working railroad serving the working historic mill. As a non-profit institution, Newlin Grist Mill encourages visitors and maintains several miles of existing soft-surface walking trails. If sensitively designed, the Octoraro Greenway can complement the existing trails and enable broader connections. Given the historic nature of the property, a soft-surface trail is envisioned rather than a paved asphalt trail that will be the design standard for other greenway sections.

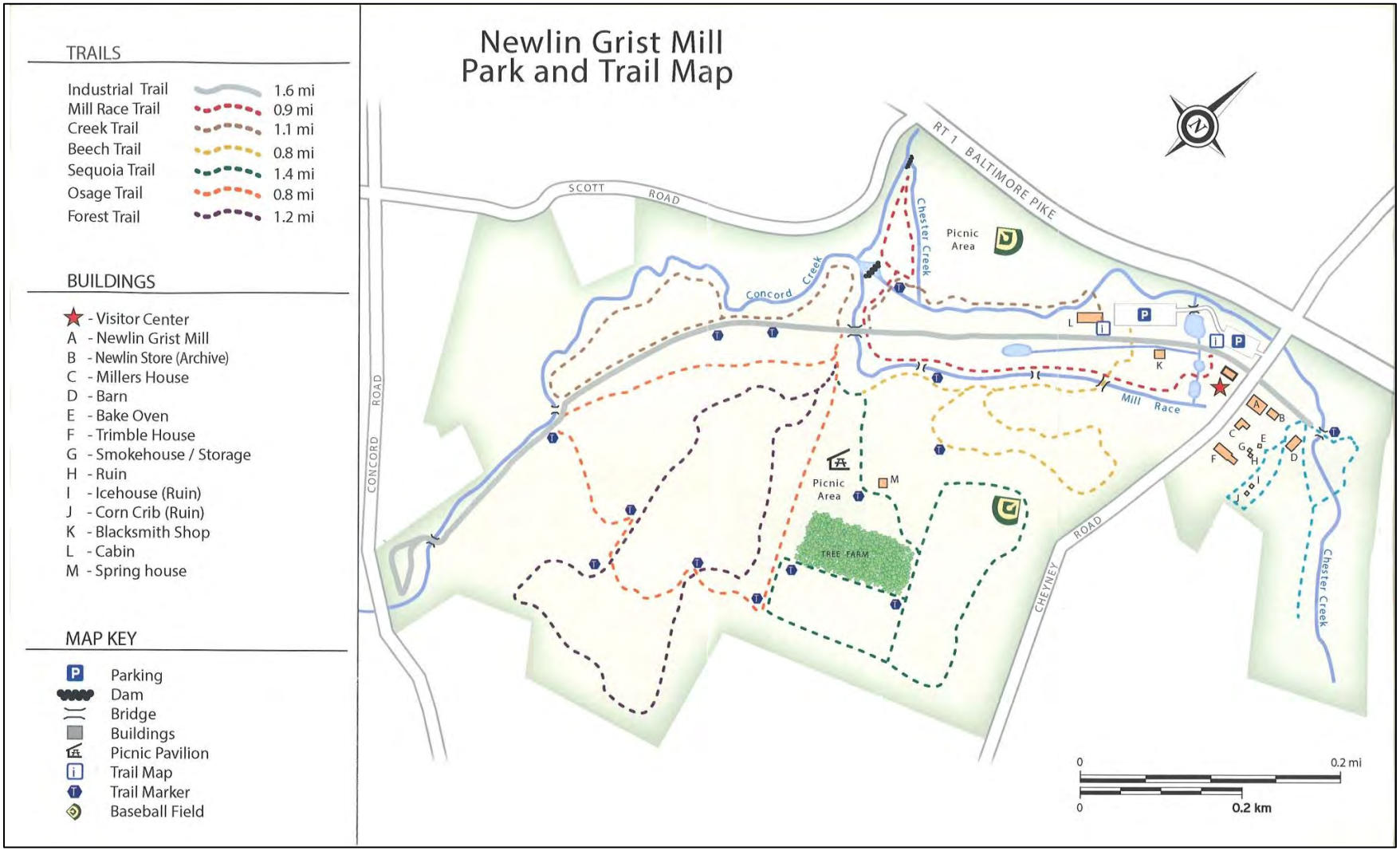
There are several possible routes through the property for the Greenway. Primarily, the trail is proposed to follow the path of the former railway, utilizing several remaining bridges. In some areas, the trail may follow the path of the Chester Water Authority easement, which is kept clear and accessible.

The rail line crosses directly in front of the current visitor center. To better manage circulation in this busy zone, it may be preferable for the trail to diverge to around the edge of the parking lot, or other alternative, to be further studied in collaboration with Newlin Grist Mill.



Top: Portions of the former rail line are maintained by Newlin Grist Mill as walking paths
Bottom: Section 2 stretches from Concord Road to the edge of Newlin Grist Mill property, just east of Cheyney Road.

An existing unsignalized pedestrian crossing at Cheyney Road will be necessary to enhance pedestrian safety. The property spans both sides of Cheyney Road, and important elements of interest are on both sides of the road. Already, the existing crossing is a concern, as site distance for vehicles is poor coming around a blind approach from the south. If pedestrian volume increases due to the greenway, additional safety features will need to be designed to improve the function of the crossing. In fact, the Township and Newlin Grist Mill have recently partnered to apply for a grant from PennDOT to improve this busy pedestrian crossing.



Newlin Grist Mill maintains several miles of existing walking trails. The pathway marked "Industrial Trail" is the Octoraro alignment. (Graphic courtesy of Newlin Grist Mill.)

Above Left: The pedestrian crossing at Cheyney Road would need to be upgraded to improve safety.

Above Right: In addition to the former rail alignment, an easement maintained by Chester Water Authority may offer an alternative trail location through the property.

Left: Several bridge structures remain and can be incorporated into the greenway plan.

Section 3: Pole Cat Road

East of Newlin Grist Mill, the rail alignment passes through a number of residential properties along Pole Cat Road. At several of these properties, the rails are impractically close to private homes. Based on feedback from these neighbors, it is not considered viable for any public trail to maintain the original rail route across these properties.

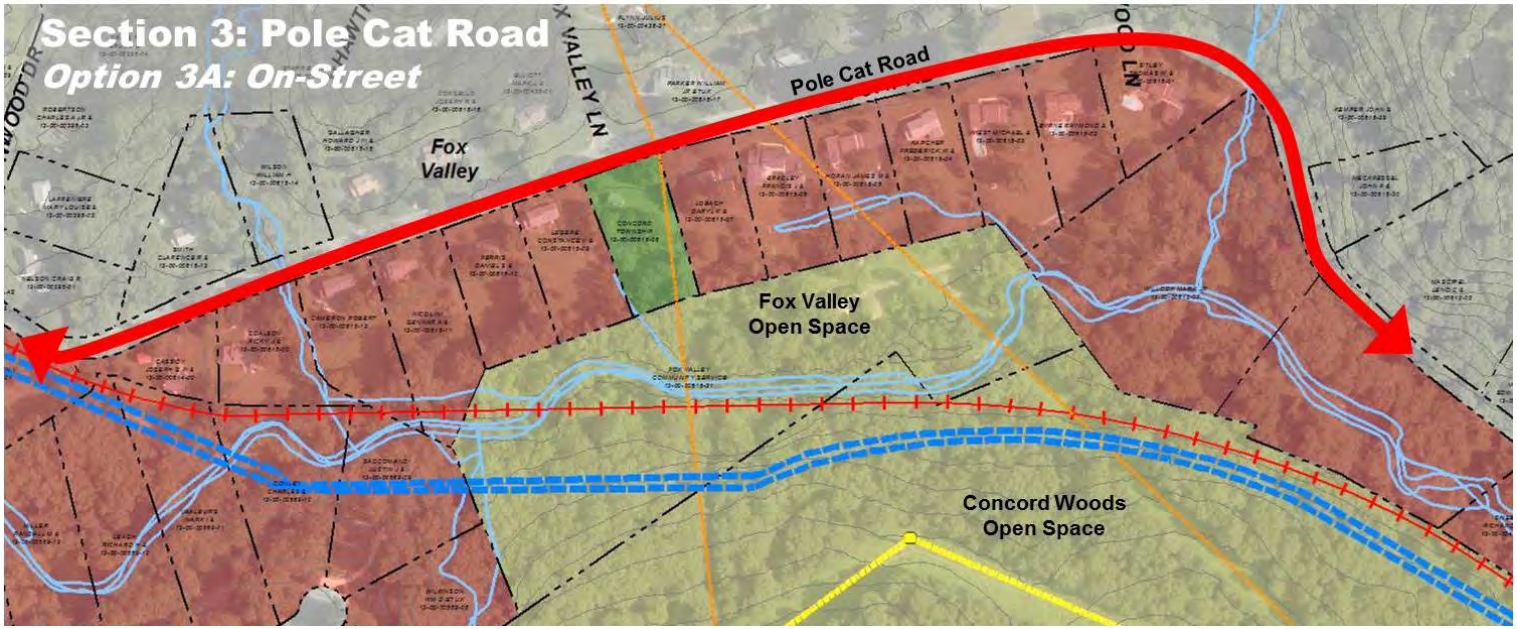
Two alternative routes have been identified. Option 3-A is an on-street trail alignment on Pole Cat Road, by means of shared lane markings. This option is relatively low-cost, but does not offer the typical recreational character and features of an off-road trail. Since it would place the trail within the public right-of-way of the existing street, easements would not be necessary.

Option 3-B is an off-street alternative. This option utilizes the township-owned Pole Cat Road House as a trail head access point. This alternative would require that the trail cut across open space dedicated to the Fox Valley and Concord Woods neighborhoods, and intersect with the alignment of the former railway as well as PECO power lines that run east and west. This open space area is generally screened from view of nearby homes, and occupies a scenic wooded setting alongside Chester Creek. For this to be a viable option, property rights must be obtained not only from these owners, but also from the owners further east.

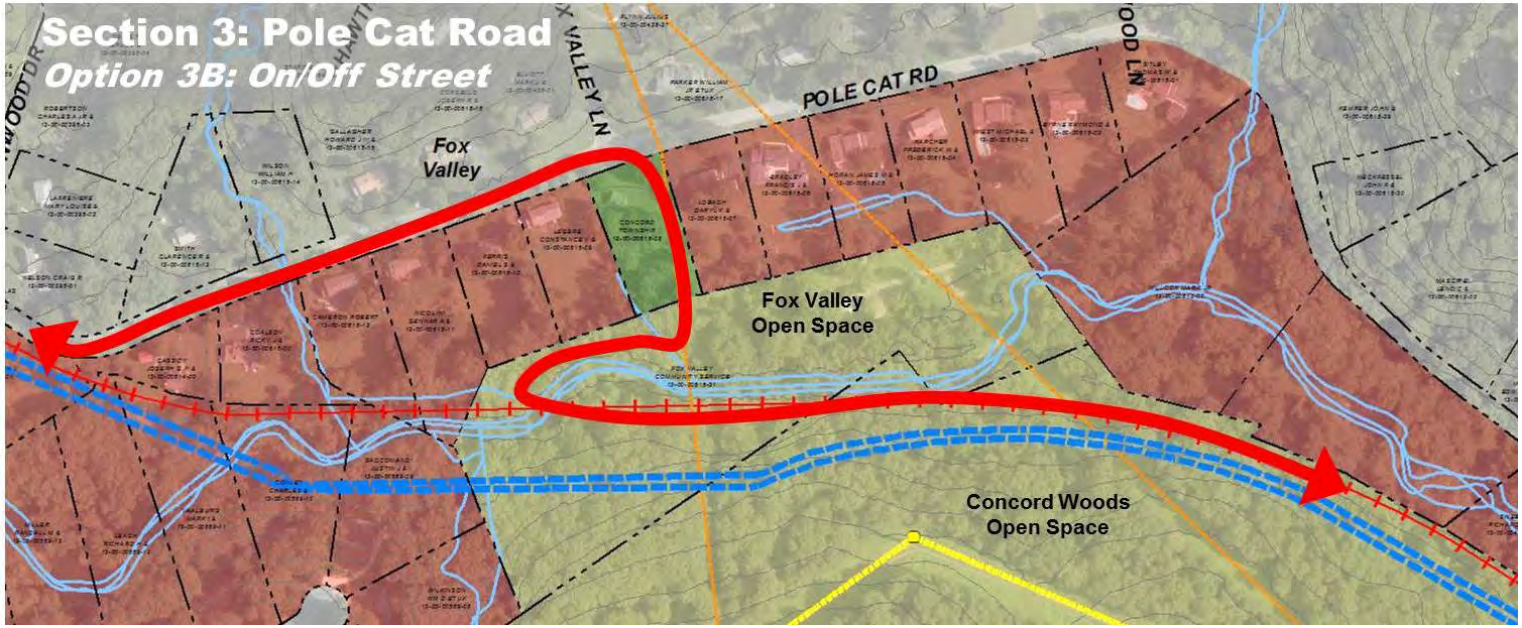
Top right: Rail alignment is very close to some homes along Pole Cat Road.

Right: The Pole Cat Road House could be used as a trail head access point.

Above: Along Chester Creek, the rails occupy a scenic wooded setting.



Option 3A is an on-street alternative that uses shared lane markings on Pole Cat Road.

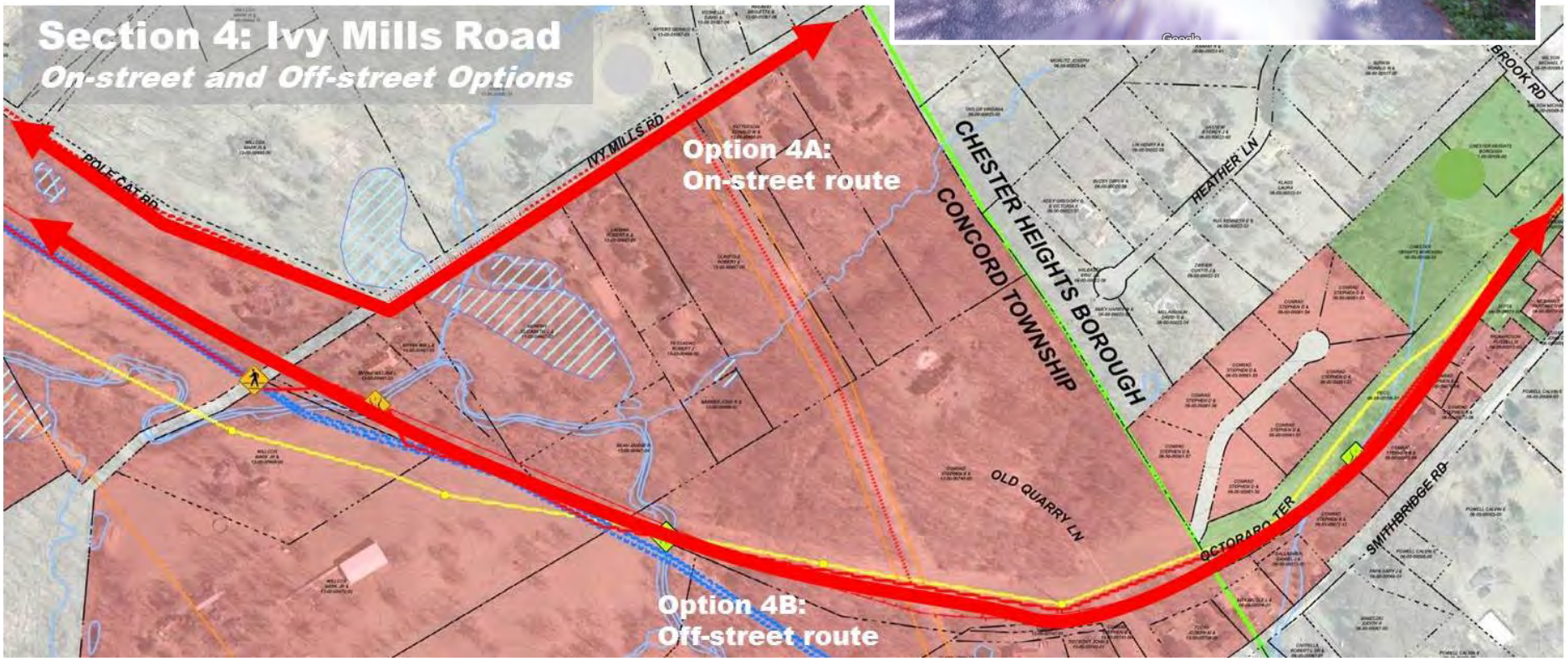


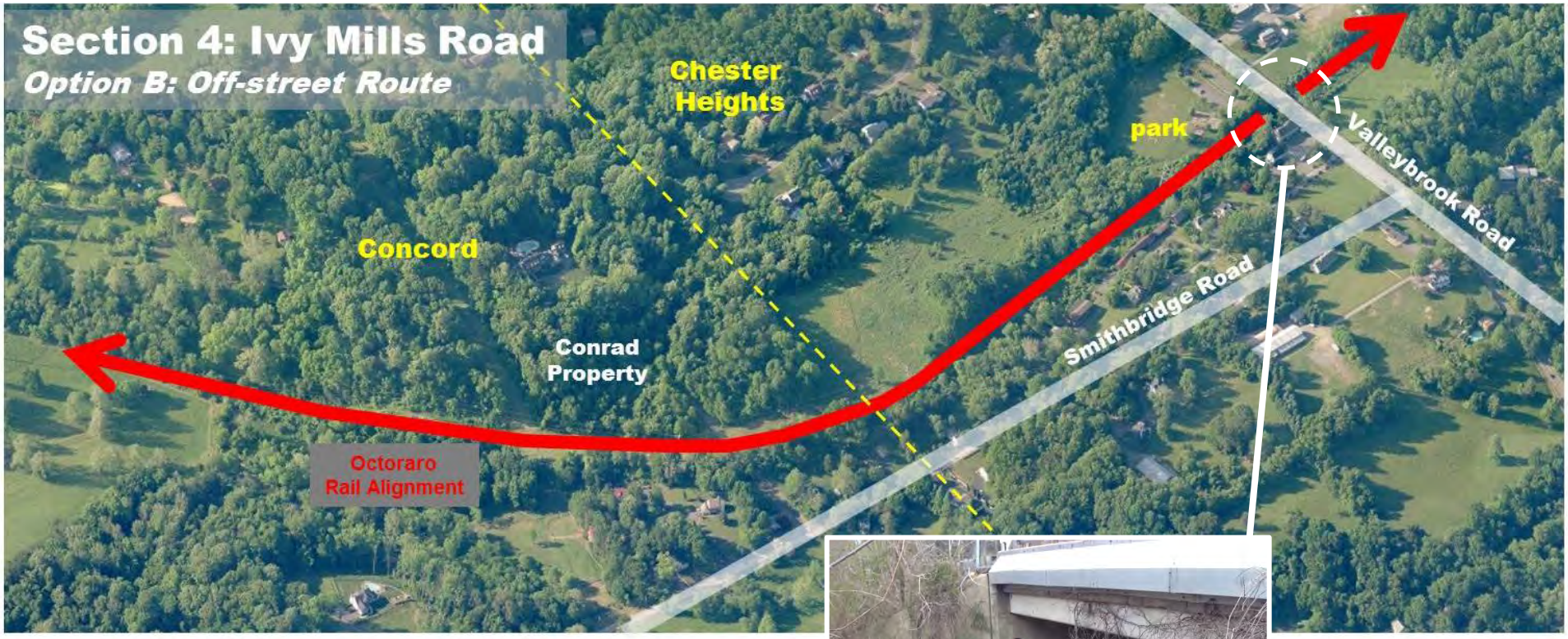
Option 3B uses the Pole Cat Road House to connect back to the original rail alignment along Chester Creek.

Section 4: Ivy Mills Road to Valleybrook Road

One of the most challenging segments of the Octoraro alignment is the Ivy Mills area in Concord Township, roughly from Pole Cat Road to Valleybrook Road. In this area, the rail line runs entirely through private residential property. As noted in Chapters 2 and 3, these properties are part of the Ivy Mills Historic District, which are historically significant in that they represent local development patterns of the 18th and 19th centuries.

As with the previous section, this section has two potential alternatives. Option 4-A continues the on-street shared lane markings from Pole Cat Road, east on Ivy Mills Road, then north on Valleybrook Road to Wawa Road. Pole Cat Road and Ivy Mills Road are low-volume residential streets. Though narrow, they could potentially accommodate shared lanes. In contrast, Valleybrook Road is a higher-volume collector street where shared lanes may not be appropriate. Widened shoulders would be needed to allow for separated bicycle lanes for approximately 1,100 feet. Pole Cat Road, Ivy Mills Road, Valleybrook Road, and Wawa Road are all state routes, and modifications to these streets would be subject to PennDOT approval.





Option 4-B continues the off-street alignment following the PECO power lines south from Ivy Mills Road to Smithbridge Road. While the off-road alignment is preferable, this route traverses several larger private residential properties, as noted above. The historic rails generally share the same alignment with several utility services. PECO and Chester Water Authority both have major lines that roughly parallel the tracks. As in other locations across the township, access along the utility lines is generally clear and accessible. It is easy to envision a recreation trail sharing this alignment with the utilities.

Further east into Chester Heights, the proposed route follows PECO overhead lines and connects with the Chester Heights Community Park. This park could serve as a trail head access point, with available parking. One of advantages of this route is that it leads to an existing underpass that crosses beneath Valleybrook Road, allowing the trail pathway to extend east without crossing at grade over the busy street.

Facing Page:
On-street bike lanes would follow narrow, low-volume streets such as Ivy Mills Road.

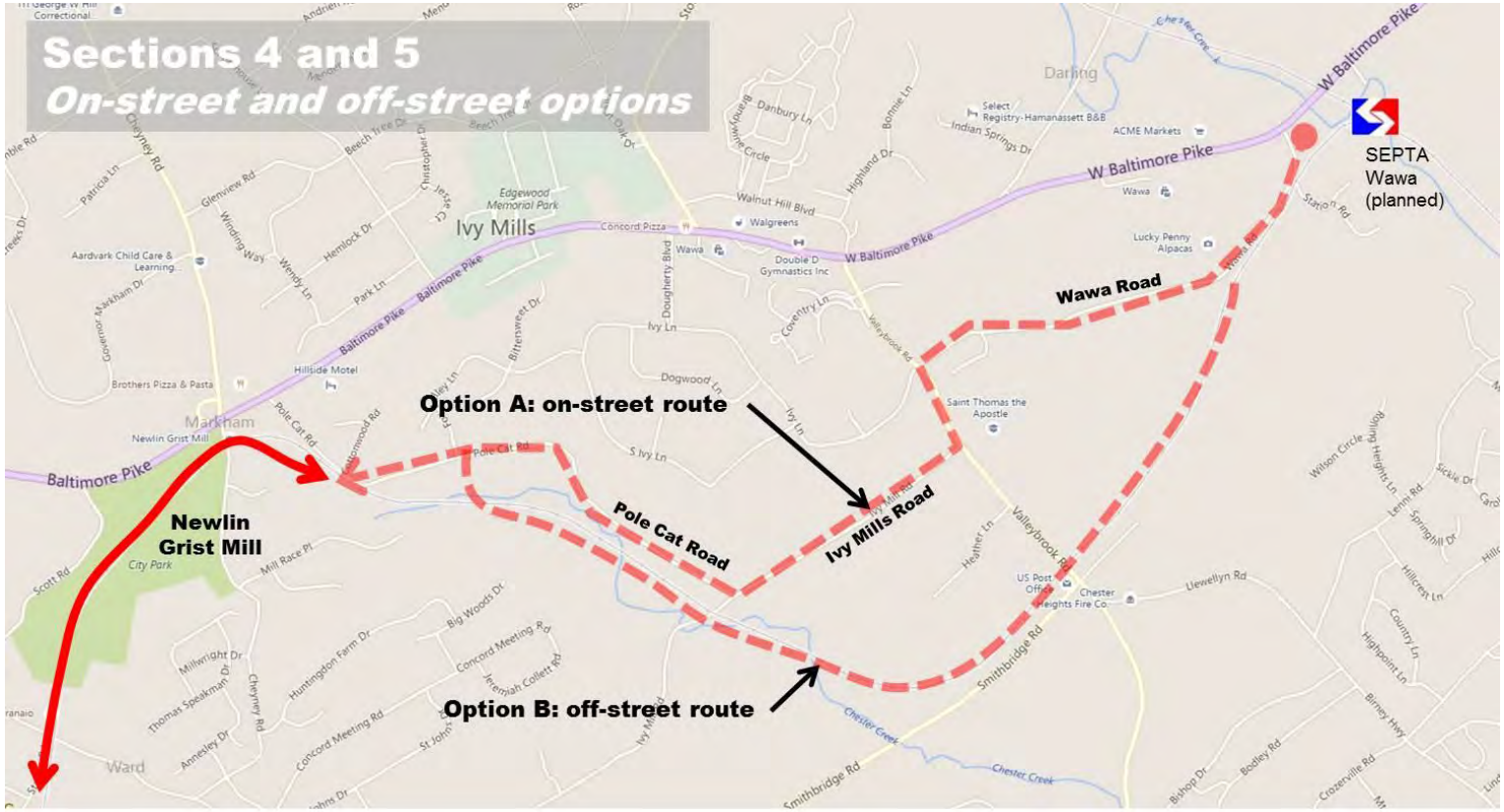
This Page:
The off-street route occupies private residential property where no right-of-way exists, but benefits from railway features such as an underpass beneath Valleybrook Road.

Section 5: Valleybrook Road to Wawa Station

As with previous sections, there are on-street and off-street alternatives for Section 5, which crosses Chester Heights Borough from Valleybrook Road to the planned SEPTA Wawa Station. Both options are intended to connect with the future Chester Creek Trail and SEPTA station.

Option 5-A continues shared lanes along Wawa Road from Valleybrook Road. Wawa Road is similar to Ivy Mills Road as a narrow low-volume street with no shoulders. However, where portions of Ivy Mills Road are relatively straight and flat, Wawa Road hills and curves create poor sight distance for vehicles. It is not an ideal street for bicycle traffic. In general, it is recommended that the on-street alternative should be considered only a temporary solution until a more permanent off-road route is implemented.

Option 5-B follows the original rail alignment across privately-owned rural areas of Chester Heights. As with the Ivy Mills area, these are relatively large historic properties with owners that value privacy. The former rails generally occupy a tree line distant from actual homes. With appropriate vegetative screening and buffers, it may be possible to accommodate public access discreetly while preserving the privacy of residents.



Sections 4 and 5 both have on-street and off-street options. An off-street route is preferred, but the acquisition of right-of-way is unlikely.

Section 5: Valleybrook Road to SEPTA Wawa Station

In section 5, the Octoraro alignment is entirely on private residential property. Tracks are still evident and the route is mostly unencumbered.

Design Guidelines

The landscape setting for the Octoraro Greenway along its proposed 6-mile length is diverse. As a result, the ultimate trail configuration is expected to vary along the route, in response to the range of conditions that will be encountered.

The general design standard is for an asphalt, 10- to 12-foot wide, bi-directional shared use path. Where the trail can be accommodated outside the street right-of-way, this standard should be achievable in most places, particularly Section 1. Along most of this section, the trail will be relatively free from constraints, and can follow a gentle curving alignment to take advantage of natural topography.

This design standard may not be possible or appropriate along the entire route. Newlin Grist Mill, in particular, is understandably sensitive to the impact of the trail on the historic nature of the property. It is likely that the trail through this property is a soft-surface such as crushed stone or similar material. Also, depending on the specific conditions along the route, it is likely that a narrowed trail may be necessary in some specific locations.

When designing each segment of the Greenway, careful attention must be given to its "look and feel," so that is designed appropriately to its specific setting.

- In wooded natural materials used wherever possible. Trees will be retained, and invasive plant species should be removed, so that the native ecosystem can be allowed to flourish.
- In open areas, naturalistic meadows can be employed. This low-maintenance approach can utilize native perennials and wildflowers to create a beautiful, sustainable, and environmentally-friendly landscape.
- Where the trails are associated with other active or passive recreation areas, the trails will have a park-like appearance, with mown grass and shade trees that are familiar staples of park and picnic sites.
- Along stream banks and wetlands, trails may narrow to disturb as little area as possible. Boardwalk sections and other devices may be employed to allow for uninterrupted flow of water. Stream bank edges will be restored, to remove invasive plants and allow proper access for the public to the water's edge.

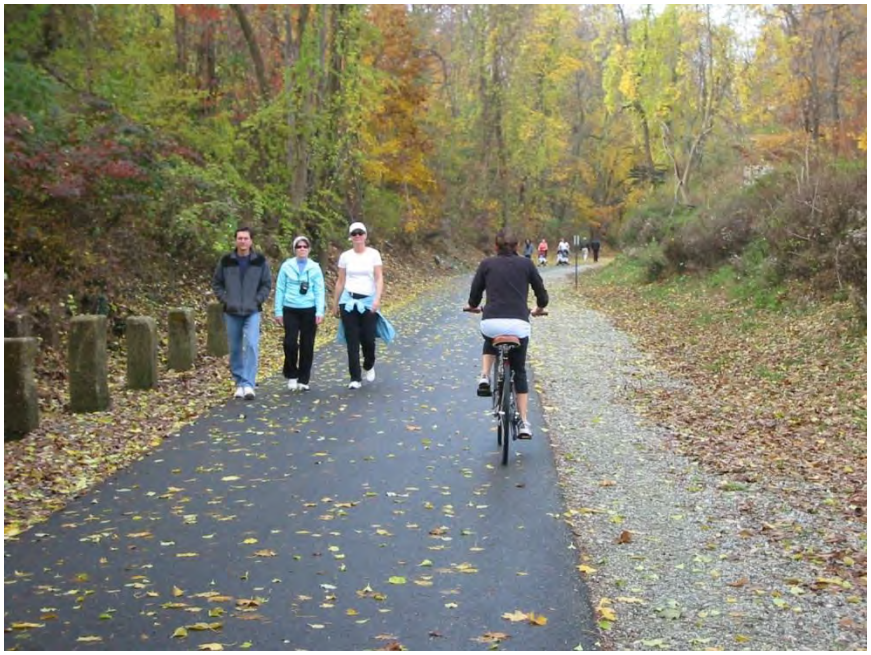
Greenway Design Standard (Off-Street)

Individual greenway segments will be designed to fit in with their specific setting.

For the majority of the proposed greenway, where a reasonable amount of usage is expected, a paved surface is recommended. In certain high-traffic zones, it may be advisable to construct an unpaved "soft" shoulder on either side of the paved trail, where those on foot can walk and not compete for space with bicycles.

For heavily-used areas, pavement markings can help manage congestion. Center striping and directional arrows help to separate users traveling in different directions, and sometimes are used to separate portions of the trail width designated for faster speeds (ie, bicycles) and slower speeds (ie, walking).

For certain segments, a surface of compacted aggregate is an environmentally-friendly alternative. Compacted aggregate is typically less expensive to install than asphalt, and it provides the users with a more forgiving tread due to its resiliency under foot. One drawback of an aggregate surface is that it is susceptible to erosion in heavy rains, even though the particles are held together with a liquid binding agent. This type of surface will require more routine maintenance than a paved surface.



The standard greenway surface will be asphalt, but soft surfacing is expected to be used in some areas.

Trail Access and Amenities

The **trail head access points** will have the highest level of design detail and amenity. These places are the "first impression" most users will have of the greenway, and should have a welcoming and well-maintained appearance. Trail heads should include such amenities and features as parking, restrooms, tables and benches, trash receptacles, bike racks, lighting, welcome signage, maps and directional signs, information kiosk, drinking fountains, and vending machines. Ease of maintenance and resistance to damage should be high priorities in the design of the trail, and materials should be selected that are as durable and vandal-resistant as possible.

A high-quality **sign system** is a valuable feature for many reasons. "Welcome" signs announce the trail and identify the location of trail head access points. Directional ("wayfinding") signs and maps reassure users that they know where they are and know the relative locations of nearby features and connecting streets and paths. Mile markers are a useful feature that allows users to mark their progress. Interpretive signs can enhance the user experience by illustrating the history, ecology, and meaning of the place. Overall, the visual character of the signs conveys the trail's identity to the public, and can be a highly distinctive feature.

Trail heads should be welcoming and well-maintained.

A sign system can include identity signs, directional signs, interpretive signs, and maps.

There appear to be adequate opportunities for trail head access and parking along the proposed route, especially along the western part of the Greenway in Concord Township. In some instances, existing parking lots are available that could be used by trail users, such as at Chester Heights Park and the Concord Township Municipal Complex. Opportunities to create new access points exist at several street crossings, where the trail would be located on public property. These opportunities can be examined in more detail as the trail design advances. These access locations are illustrated in more detail on the site plans found in the Appendix.

There are numerous opportunities for trail head access and parking along the proposed route. This does not include existing parking located at the Newlin Grist Mill.

On-Street Segments

In some places where an off-street route is not available, it will be necessary for some trail segments to be located within the right-of-way of the street. Depending on the available width and general traffic volume and use of the roadway, provisions for bicycles and pedestrians can take several forms.

Within the street right-of-way, trail and pathway design must be in accordance with standards developed by the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA). These standards define required lane widths, striping and lane marking dimensions, sign and signalization recommendations, and other features.

Shared Use Paths

Shared-use paths (also sometimes called "side paths") are widened sidewalks that are intended for use by bicycles as well as pedestrians. Since the accommodate users moving at different speeds, these pathways should be 10-12 feet wide under most conditions, with a minimum two-foot wide shoulder on both sides. Depending on the general speed and volume of adjacent vehicular traffic, and the closeness of the side path to the road, a buffer between the street and pathway may be advisable. Sometimes this buffer takes the form of a guard rail or fence, but often it is simply a landscaped buffer. In locations with high volumes of pedestrians, it may be appropriate to separate bicycle and pedestrian traffic.

Striped Bicycle Lanes

A bicycle lane is a pavement marking that designates a portion of a roadway for the preferential or exclusive use of bicycles. Bike lanes should be a minimum of 4 feet wide, with 5-foot width preferred. Bicycle lanes are usually located directly adjacent to vehicular travel lanes, so may not be ideal for children or novice bike riders. Where that type of user is expected, a separated facility such as a side path is desirable.

Shared Lanes

Shared lane markings, or "sharrows" are road markings used to indicate a shared lane environment for bicycles and automobiles. Sharrows are suitable on low-volume, low-speed residential streets, where there may not be available width for dedicated bike lanes parking. While bicycles are always permitted to share vehicular roadways, sharrow markings reinforce that bicyclists are legitimate road users, and when used in combination with appropriate signage will alert drivers to the potential presence of bicycles.

Shared Use Path ("sidepath")


Striped Bicycle Lane


Shared Lane Markings


Shared Use Path ("sidepath")

Street Crossings and Intersections

At-grade street crossings will be necessary at several locations along the Octoraro route, where it will be necessary to provide a safe well-marked crossing for trail users, while restricting access by motor vehicles. At the same time, occasional access must be provided for emergency and maintenance vehicles. Since conflicts between vehicles and trail users may arise at these junctions, it is important to design crossings carefully, in order to maintain orderly movement of traffic. There are a wide range of design features that improve pedestrian and bicyclist safety at intersections.

- *Traffic Control Features:* Additional signage and pavement markings to alert drivers to the trail crossing a simple measure of traffic control on low-volume roads. On more developed roadways, traffic signals may be used to allow safe crossing similar to the familiar pedestrian "walk" signal. Such signals can be push-button activated so they are only triggered when necessary.
- *Intersection Treatments:* The opening of a trail at a roadway should be at least the same width as the trail itself, and a curb ramp should also be the full width of the trail, to provide a smooth and accessible transition between the trail and the roadway. On unpaved trails the design of a trail-road intersection should include paved aprons that extend a minimum of 20 feet from paved road surfaces.
- *Chicanes:* Trails sometimes employ "chicanes," or horizontal curvatures, to reduce trail users' approach speeds at intersections where sight distance is limited or where users should stop and yield. Sometimes these can be in the form of physical barriers that force cyclists to stop and dismount.
- *Restricting Motor Vehicle Traffic:* The preferred method to restrict motor vehicles entry is to split the trail access into two sections, by using low landscape features. Each section should be half the nominal path width; for example, split a 10 foot path into two 5 foot sections. Emergency vehicles can still enter if necessary by straddling the landscaping. Another method is to install a physical barrier such as a gate or bollard, which can be removed as needed for access by authorized vehicles.
- *Crossing Islands:* For wide streets, raised medians provide a "refuge" for pedestrians and bicycles that may find it difficult to cross the entire width of the street at once. Crossing islands particularly benefit trail-roadway intersections with high speeds, multiple lanes, or excessive roadway width.

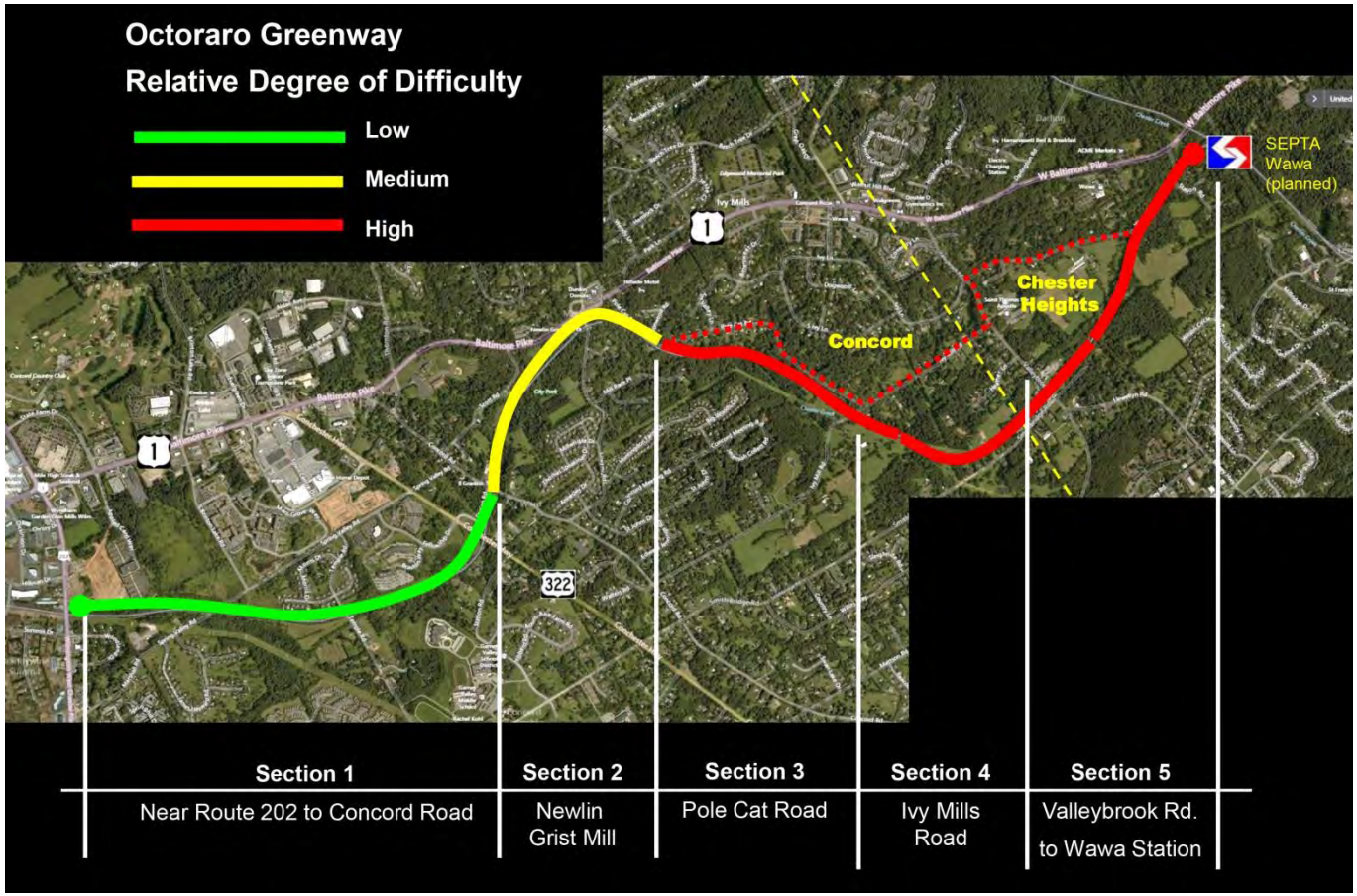
Road crossings must be carefully designed to alert both trail users and motorists. Signs, pavement markings, push button signals, and other features may be utilized.

Project Phasing

The presumption is that based on several considerations such as cost, right-of-way, and other factors, the possibility of building the entire 5.9 mile length of the greenway at one time is unlikely. It will be necessary to build the greenway one section at a time, as funds and opportunity become available. If that is the case, then it becomes prudent to define and prioritize individual sections of the trail, and to establish a logical sequence of implementation, so that resources can be allocated accordingly.

The Plan identifies five distinct trail segments, based on specific design characteristics and constraints. For the purpose of this phasing plan, we are proposing that these five sections be implemented sequentially from west to east, based on a variety of factors.

- Availability of Right-of-way: Significant portions of the preferred alignment lie outside the public right-of-way. These will require property easements and/or acquisition. Therefore, easily-acquired properties have the greatest chance for near-term implementation. More difficult acquisitions may take longer.
- Public Interest and Benefit: Certain sections may offer the highest immediate benefit to the public, and may have stronger support of nearby residents. It makes sense that these segments be developed first if possible, to establish the trail as a valued public amenity.
- Construction Cost: Technical challenges exist in certain locations. These may include the necessity for stream crossings, roadway modifications, and potential wetlands mitigation. All of these have associated costs. Trail sections that have a higher relative cost may require more time to identify funding.



Recommended Implementation Sequence

In consideration of the statements above, we propose the following project phasing for implementation of the Octoraro Greenway. See accompanying Phasing Diagram. In general, it appears to be most expedient to work generally west to east.

Section 1: Near Route 202 to Concord Road

This section of the trail is approximately 1.9 miles long, and promises the best chance of near-term right-of-way acquisition. Property owners on this section are primarily commercial, institutional, or public, and therefore more inclined to see public access for recreation as a benefit. Overall, there is a reasonable likelihood that easements can be obtained from each property.

This section of the Greenway can potentially connect to the Brandywine Mills retail shopping center; a future PECO trail following the overhead power lines south toward Clayton Park; employment centers at Spring Valley Business Park and Main Line Health; Garnet Valley Schools; and residential neighborhoods of Meadow Run and Sharpless Farms; among others. A potential spur up Brinton Lake Road could connect the Greenway to major retail destinations along Baltimore Pike.

Section 2: Newlin Grist Mill

This section formalizes the trail connection through Newlin Grist Mill property, approximately 1.0 mile in length. As noted earlier, there are specific design concerns that must be skillfully addressed to fit a public trail of this type sensitively within the historic, cultural, and environmental context of the property. If these and operational issues can be successfully addressed, the trail through the property can be a significant benefit to all parties. The Newlin Grist Mill gains increased exposure to the public, and potential influx of construction funding to address ancillary improvements associated with the new trail. For the overall Greenway effort, this is a singular opportunity to complete an entire mile of trail by coordinating with only a single property owner.

Section 3: Pole Cat Road

Through this section, the original rail alignment traveled through what are now private residential properties along Pole Cat Road and Mill Race Place. Based on discussions with these neighbors, it is not considered viable for any public trail to maintain the original route across these properties. As described in Chapter 4, two other alternatives have been identified, an on-street options and an off-street option.

Section 4: Ivy Mills Road to Valleybrook Road

As with the previous section, this section has two potential alternatives. Option 4-A continues the on-street shared lane markings from Pole Cat Road, east on Ivy Mills Road, then north on Valleybrook Road to Wawa Road. Option 4-B continues the off-street alignment following the PECO power lines south from Ivy Mills Road to Smithbridge Road. While the off-road alignment is preferable, this route traverses several larger private residential properties. Easements for trail access may be difficult to obtain.

Section 5: Valleybrook Road to Wawa Station

Here again, there is an on-street and off-street alternative. Option 5-A continues shared lanes along Wawa Road from Valleybrook Road. Option 5-B follows the original rail alignment across privately-owned rural areas of Chester Heights. Both options are planned to connect with the future Chester Creek Trail and SEPTA Wawa rail station.

As noted elsewhere in this report, residents along Sections 3-5 have expressed strong opposition to the idea of a public trail in their neighborhoods. For any trail design proposal to succeed, residents must be heavily involved in a collaborative planning process, so that specific local concerns are fully addressed.

Chapter 5
Greenway Impacts

Trails and greenways are known to have a positive impact on communities, by providing not only recreational and transportation opportunities, but also by influencing economic and community development. While the prospect of something new sometimes raises understandable concerns, trails provide a wide range of community benefits, sometimes in ways beyond what first meets the eye. It is no wonder the construction of trails has become a high-priority activity in communities across the country. The positive impact of trails and greenways is nearly always boost to a community's economic, environmental, and social health.

Expected Benefits of the Octoraro Greenway

The expected benefits of the Octoraro are similar to those found for trails in general locally and across the country.

- ***Recreation Benefit:*** The Greenway will create a new recreational opportunity for local residents and visitors, by providing a means for a longer-distance journey than is currently available. The route of the proposed Octoraro is approximately 6 miles long through Concord Township and Chester Heights Borough. Additional recreation options will be enhanced by providing off-road linkages between other trails, parks and other public destinations.
- ***Health Benefits*:** The expanded availability of new recreational activities associated with the Greenway will result in a direct public health benefit to the community by providing safe, attractive and convenient opportunities to integrate exercise into one's lifestyle. Several residential neighborhoods are directly adjacent to the Octoraro, and stand to benefit greatly from easy access to the trail.
- ***Transportation Benefits:*** In addition to providing a safe place for people to enjoy recreational activities, the Greenway can function as a viable transportation corridor. Ultimately, the Octoraro is intended to connect to the Chester Creek Trail in Middletown, and from there to the extensive East Coast Greenway system, which connects to numerous trails throughout our region, as well as nationwide. As part of a local multi-modal network, the Greenway

may connect to important roadway arteries including routes 202, 322, and 1, as well as to the Regional Rail system at the new proposed Wawa Station.

- *Environmental Benefits:* Linear in nature, trails and greenways have conservation benefits of preserving green space. As tools for ecology and conservation, greenways and trails help preserve important natural landscapes, and provide needed links between fragmented animal and plant habitats. In addition, they can allow humans to experience nature with minimal environmental impact. The Octoraro will connect numerous areas of natural environment that are currently unprotected from development.
- *Economic Benefits:* The economic effects of trails and greenways are proven to raise property values and increase the attractiveness of a community to new residents and businesses. Locally as across America, countless communities have experienced an economic benefit due in part to trails and greenways. The numerous residential neighborhoods and commercial properties that abut the Octoraro stand to benefit from this trend.
- *Social Benefits:* It is very common for trails to become sources of community identity and pride. These effects are magnified when communities use trails and greenways to highlight and provide access to historic and cultural resources. As it travels through many areas of local historic and cultural significance, the Octoraro will increase public awareness of our local heritage.

The Greenway is expected to provide many benefits, such as recreation, transportation, and environmental.

Adjacent Land Uses and Potential Connections

As a primary spine of the potential local and regional trail network, the Octoraro alignment is valuable not only as a recreation resource, but also for its potential to connect a variety of destinations with an off-road pedestrian/bicycle route. Thus it has the potential to function as a transportation resource as well as a recreation resource. Local places that can be connected to the Octoraro include a wide range of destinations:

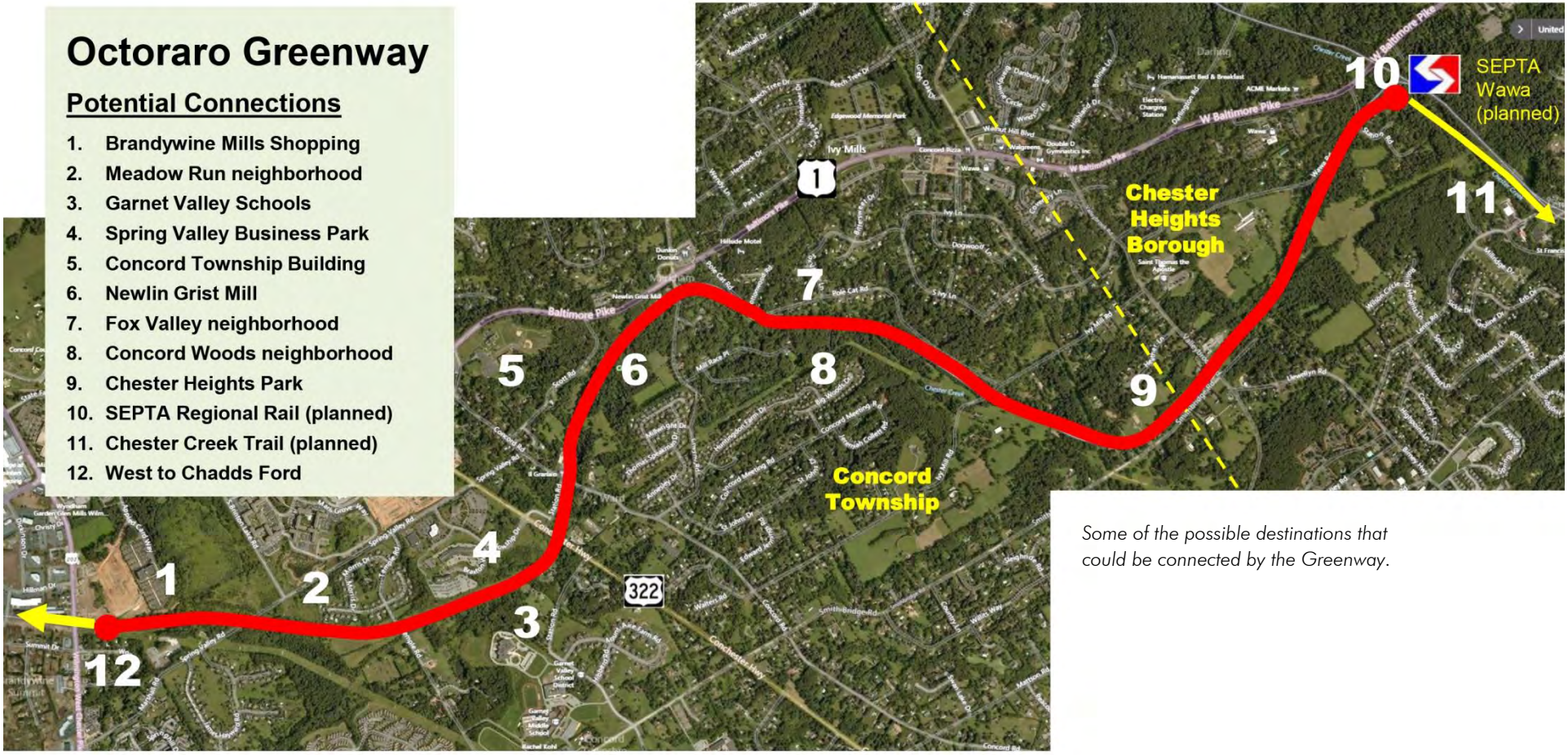
- *Parks, Recreation, and Existing Trails*: The Octoraro route connects directly to the extensive network of walking trails at Newlin Grist Mill. Recently-constructed walking trails already connect Newlin Grist Mill to the Concord Township Municipal Complex and the associated recreation fields and walking paths. In Chester Heights, the Octoraro connects directly to the Community Park on Valleybrook Road, and will connect to the extensive walking paths located on the Darlington Tract in neighboring Middletown.
- *Retail:* The route connects almost directly to the recently-opened Brandywine Mills shopping center on Route 202, which features a Wegmans store and other retail. There is also the potential to connect to retail on Baltimore Pike (Route 1), by developing a trail connection up Brinton Lake Road; and to Concordville Town Center, by connecting through Spring Valley Business Park. These potential connections are described in the *Concord Township Greenways and Open Space Network Plan* (2015).
- *Residential Neighborhoods*: The Octoraro connects directly to several residential neighborhoods, including Meadow Run, Sharpless Farms, Concord Woods, Fox Valley, and the new Brookfield neighborhood under construction in Chester Heights. Other neighborhoods can be connected to the network with secondary trails. The possibility to connect people to the places they want to go is a valuable feature of the Octoraro.
- *Historic and Cultural Resources*: One of the primary cultural attractions in the area, Newlin Grist Mill is envisioned as a central hub along the Octoraro Greenway spine. Other historic resources such as the Pole Cat Road House and Ivy Mills Historic District are along the route. The appreciation of our cultural heritage will only grow as more people are exposed to these important civic landmarks – some of which are passed on a daily basis who drive by in their cars unaware.
- *Natural Resources*: The Octoraro travels through natural settings that in many cases are otherwise inaccessible. In addition to the natural scenery found on the Newlin Grist Mill property, the alignment follows the bucolic Chester Creek corridor through the western part of Concord Township, and winds through the pastoral landscape of Chester Heights. Exposure of the public to these places will increase awareness and support for environmental conservation.

Some of the many community destinations that will be connected by the proposed Octoraro Greenway.

From top:

- *Brandywine Mills Shopping Center*
- *Concord Township Building*
- *Newlin Grist Mill*

- **Regional Trail Network:** The Octoraro is highly valued not only as a local resource, but also for its potential to connect to the broader regional trail network. The trail can connect to the planned Chester Creek Trail, now under construction in Middletown Township, and from there to other existing and planned trail segments that are part of the growing network. It would also connect to the planned SEPTA regional rail Wawa train station, allowing for a true multi-modal transportation connection.



Some of the possible destinations that could be connected by the Greenway.

Potential Concerns

Whenever new trails are proposed, homeowners in any location often express similar concerns and fears about proposed recreation facilities in their neighborhoods. But studies from all parts of the United States show that concerns about negative impacts of trails are unfounded. In fact, trails have consistently been shown to increase or have no effect on property values, to have no measurable effect on public safety, and to have an overwhelming positive influence on the quality of life for trail neighbors as well as the larger community. If issues of potential concern are addressed directly, public support for the Greenway is likely to build.

Property Rights

As noted, the majority of the length of the proposed route for the Octoraro Greenway is over private property. It is not the intention of the municipalities or trail planners to force the trail over the objection of property owners. The trail is seen as a positive resource for local residents, and it is only likely to move forward if the plan has the support of the public. This can only take place if permission is granted from the owners of properties which the trail must cross. Local governments have no desire to locate the trail on the property of anyone who objects. As a result, the overriding factor in selecting a feasible route for the trail is to identify those properties which are likely to grant access, and avoid those properties that will not.

Liability

For the Octoraro Trail to be implemented, easements must be negotiated with many private land owners to allow public access for recreational use. Land owners may be concerned about legal liability, and whether they as the underlying owner can be held liable for accidents or injuries suffered by the public. Fortunately current laws shield property owners from just such scenarios.

The *Pennsylvania Recreational Use of Land and Water Act* (RULWA), 68 P.S. §§ 477-1 to 477-8 (2003), limits the legal liability that landowners owe to entrants upon their land, when it is made available to the public for recreation free of charge. So long as no user fee is charged, the Act provides that landowners "owe no duty of care to keep the premises safe for entry or use by others for recreational purposes, or give any warning of a dangerous condition, use, structure, or activity on such premises to persons entering for such purposes." Pennsylvania's *Rails-to-Trails Act*, 32 P.S. § 5611 *et seq.*(1991), also set similar specific limitations on landowner liability, for the owner or lessee who permits trail use by the public.

Instead, liability is vested with the operational entity for the trail, which in this case is expected to be the local municipalities. In terms of liability, the Octoraro Greenway would be seen in the same light as other local public resources such as parks and ballfields. The Greenway should therefore be subject to the same risk management strategies that are adhered to for other sites. These include: designing the trail for safety, warning signage and posting of regulations and emergency contact information, developing medical emergency procedures, and covering the trail under the overall municipal insurance policy.

Can the government take my property?

Nobody, including the local municipalities, has the right to go on your property without your permission. There is no intention to invade anyone's property.

Does this mean people will be cutting through my yard and parking in front of my house?

The Greenway will be designed with ample public access points and associated parking and amenities.

Will the trail be a haven for crime?

Those who use trails are your friends and neighbors, who are out walking the dog, pushing the baby stroller, and going for a bike ride. They are among the safest and most wholesome places you could find. Crimes can occur anywhere. But people intending to commit crimes usually look for remote and hidden locations, not heavily-active public places.

Safety and Security

People who are unfamiliar with trails sometimes fear they will attract crime and lower adjacent property values. Numerous studies have refuted this; in fact, trails are generally safer than the communities surrounding them. Existing trails have shown that the more popular a trail becomes, the higher volume of user traffic it will see, making criminal activity and security much less of an issue. With the prevalence of cell phones, help can be reached relatively quickly in an emergency. Developing a formal trail will in some ways increase safety by providing easy access for emergency vehicles to otherwise difficult to reach places.

There are many efforts communities can undertake to ensure greenways are safe. Careful attention to the site planning and design of particular areas such as parking lots, trailheads, and restrooms are critical in reducing safety concerns. There is a balance between retaining or creating a natural setting that is safe while also preserving the naturalness of an area. Design strategies include allowing clear visual access, having appropriate lighting in key areas, providing multiple access and egress points, and organizing activities to increase the number of users and "eyes on the path". Many trails are highly popular with surrounding residents, which may lead to an effective neighborhood watch program to monitor the greenway.

Safety can be promoted by programming activities for users of all ages and interests. This encourages legitimate uses, and is especially effective when planned for time periods of lower usage. The more people there are on a trail, the safer it will be due to natural surveillance. The greenway should be designed to facilitate natural surveillance. This involves such strategies as locating parking lots and trail heads near streets and other activity centers so they are easily observable. In addition, emergency telephone systems can be provided at trail heads and at intervals along the trail.

People feel safer when they know where they are and what is nearby. Clear directional and informational signage should be provided to orient users to the greenway layout. Signs should clearly identify trail names, especially at intersections, as well as trail length and distances to facilities, location of emergency phones, and the characteristics of trails, such as wide paved trails or smaller isolated walking trails. Mile markers should be installed, as well as indications of the trails intended use.

In addition, consistent maintenance, just like with any park setting, will help keep the greenway safer. Good maintenance of the trails and facilities demonstrates that the community cares about the space and will not easily tolerate criminal behavior.

A variety of active and passive measures can be used to promote safety along the Greenway.

Privacy

Much of the proposed trail route is located on institutional or commercial property far from residences. However, some portions of the trail will of necessity be within view of nearby homes. In these locations, fencing and landscaping will be provided to screen the view from the trail to private homes. Where trails in our region have already been in place for a few years, it is not uncommon to find residents who at first wanted a fence to separate their yards from the trail, but later added a gate so make it easier to use the trail themselves.

Fences and landscaping can be used to screen neighboring residences. Neighbors usually view the trail as a benefit.

My property values will go down.

Numerous studies have shown that property values go up with proximity to recreation resources such as trails.

I bet there will be lots of trash.

Trash accumulates in neglected areas. The Greenway will be clean and safe, maintained to the same high standard as any other local park.

People will be able to look in my windows.

Trails will be located as far away from residences as possible. Wherever a trail is located in view of residences, ample screening will be provided to protect privacy.

Property Values

Trails are associated with higher property values, especially when a trail is designed to provide neighborhood access and maintain residents' privacy. Trails, like good schools or low crime, create an amenity that commands a higher price for nearby homes. Trails are valued by those who live nearby as places to recreate, convenient opportunities for physical activity and improving health, and safe corridors for walking or cycling to work or school.

Dozens of studies have been done across the country to corroborate this. According to the National Association of Realtors, trails have also been found to increase property value with recent home buyers ranking proximity to a trail second in importance out of 18 possible neighborhood amenities when shopping for a new home. In fact, nationally real estate associations often get involved to help promote trails projects, as the type of amenity that is good for business.

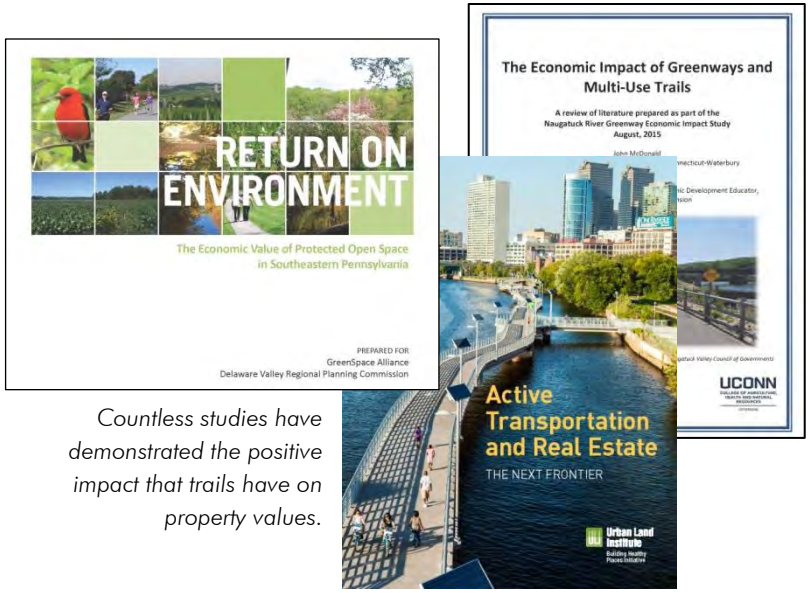
A study done in 2011 by the Delaware Valley Regional Planning Commission determined that locally, profound economic benefit was found near trails. The study found:

- Calculations based on home sales within Radnor show that homes within a quarter-mile of the Radnor Trail can attribute an estimated $69,139 dollars of additional value to this proximity.
- Calculations based on home sales near the Perkiomen Trail show that homes within a quarter-mile of the Trail can attribute an estimated $4,766 dollars of additional value to this proximity.
- In Bucks, Chester, Delaware, and Montgomery counties, homes immediately adjacent to protected open space can claim an average of $10,000 in additional value over comparable homes farther than one mile from open space, and homes a half-mile from open space enjoy an average increase of $5,000.

In New Castle County, Delaware, a 2006 study found that homes within 50 yards of bike paths in sold, on average, for 4 percent more than similar homes without bike paths. These results are consistent with other studies that have demonstrated a higher value for homes adjacent to trails.

These are just a small sampling of examples of the positive impact of trails on property values. The list of sources is practically inexhaustible. However, numerous studies and articles are cited in Appendix B.

Studies done on the impact of the nearby Radnor Trail (Wayne, PA) show that property values near the trail increased dramatically.



Countless studies have demonstrated the positive impact that trails have on property values.

Chapter 6
Implementation

This study is focused on determining a preferred alignment and overall project feasibility for the Octoraro Greenway. In this section, steps to implementation the potential greenway are described according to what actions are necessary, how they may best occur, who is best positioned to lead each effort, and which phasing order would be most beneficial for the greenway.

Perhaps the most important key to successful implementation is to foster opportunities for partnership between the public and private sectors. Since the great majority of the land along the proposed route is not within public control, it will take cooperation and collaboration with numerous parties to assemble the necessary rights-of-way for a trail, in the form of easements or, in some cases, outright property acquisition. While it will take effort to forge these partnerships, they can also be seen as opportunities that will benefit all sides, and result in "win-win" scenarios for all involved.

In general, the basic steps necessary to implement the recommendations include:

1. Acquisition: Since very little of the proposed trail alignment is sited on public land, it will be necessary to acquire easements or other rights to allow access across a significant number of individual properties.
2. Fund Raising: Total cost for constructing the trail will be several million dollars. The majority of these funds are expected to be raised from grants and other public sources, which must be competitively pursued.
3. Design and Construction: The design presented in this Plan is conceptual. Further planning as well as final design and engineering will be necessary to prepare complete design documents suitable for construction.
4. Maintenance and Operation: Once the trail is constructed, ongoing responsibilities will include maintenance, repairs, cleaning, security, and programming.

The Cynwyd Trail in Lower Merion, Pa, was successfully completed in 2011, and was funded almost entirely from grants. Construction (left), ribbon cutting (above), and finished trail (top).

Project Stewardship

Implementation of the Octoraro Greenway will depend on the continued effective collaboration of Concord Township, Chester Heights Borough, Delaware County, and other public and private partners. To date, the governing bodies and private-sector stakeholders have developed a productive working relationship that has laid the groundwork for further progress.

Concord Township is expected to be the lead entity responsible for design and construction. While the Greenway is intended to connect to neighboring municipalities and the broader region, within Concord Township it will function as a local recreational resource, and an amenity for township residents and visitors. The township has the institutional capacity to and expertise to build capital improvements. For these reasons, the township should expect to take ownership of those trail segments within its boundaries, and accept the consequential liability and maintenance responsibility.

Chester Heights Borough will have the responsibility to implement proposed segments within the borough. While the total length of trail is shorter than in Concord Township, the Chester Heights segment represents a critical link between the destinations in Concord and the broader regional trail system made available by connecting to the Chester Creek Trail and SEPTA Wawa Station. In order for these connections to be made, the borough must take an active leadership role.

Delaware County: With its 2015 *Open Space, Recreation, and Greenways Plan*, Delaware County has taken a strong role in advocating for the expansion of the county-wide trail network. The Octoraro Greenway is identified as a primary trail proposed as part of the County network. Through its Planning Department, the County can play an important role in coordinating the many independent planning initiatives that may be in play at a given time, and identifying opportunities for synergy. Furthermore, the County plays an important role in determining funding allocations for regional trails programs.

Responsible Parties

Within the municipal administrative structure, roles and responsibilities should be clearly defined and assigned so that specific actions can be carried out effectively. It is expected that the municipal personnel and appropriate boards and committees will all have roles in advancing the objectives of the Plan.

Given the breadth of the recommendations and focused attention that will be required to implement the major trail sections, it may be advantageous to establish a Greenway Committee comprised of municipal officials and key stakeholders, to be the lead point of contact for related matters.

In addition, the municipalities will need to the support of professional consultants and community partners to assist in carrying out the recommendations of the Plan.

- Board of Supervisors: Set policy, approve expenditures, and endorse recommendations of the Open Space Committee
- Greenway Committee: Spearhead community outreach, and make recommendations to the Board for budgetary expenditures.
- Township Manager: Oversee the hiring of professional consultants, oversee public works department in managing construction projects, oversee preparation of grant applications and other fundraising efforts.
- Open Space Committee: Advise the Board to ensure that Plan initiatives are consistent with the overall goals for open space conservation in the Township.
- Planning Commission: Advise the Board to ensure that Greenways Plan initiatives are consistent with overall land use objectives of the Township.
- Professional Consultants: Prepare feasibility studies, design trail improvements, oversee construction permitting required by regulatory agencies, prepare construction documents.
- Community Partners: Provide rights-of-way, raise funds, assist with maintenance.

A number of other agencies will need to play effective roles to facilitate implementation. These include:

SEPTA: The principal regional transit agency is the inheritor of historic rights to operate a railroad along the Octoraro line. The agency has no plans to resume rail service in the foreseeable future. However, the agency retains that right in perpetuity, and for this and other reasons should be considered an important stakeholder in any trail planning along the Octoraro alignment. To utilize the former rail ROW for a trail, those portions of the ROW would need to be leased from SEPTA. The lessee would need to agree to legal terms involving indemnification and defense of title, which may be burdensome.

SEPTA owns very little property outright, however does own one small parcel along Concord Road which could be utilized for trail head parking and access.

Also, SEPTA plans to extend regional rail service into Chester Heights Borough at the new Wawa Station, which will serve as the terminus point for the planned Octoraro Trail. Close coordination with SEPTA will be necessary to assure the trail is accommodated in station planning.

PECO Energy (Exelon): PECO is the major utility provider in the region, and maintains several overhead power lines that cross Concord Township and Chester Heights Borough. PECO has easements allowing access along much of the property these lines occupy, and owns some of the property outright. Portions of the proposed trail alignment follow these power transmission lines. Cooperation of PECO in providing access by providing new easements or modifying existing ones to provide for recreational use will be essential.

Chester Water Authority (CWA): The primary provider of domestic water service in the area, Chester Water Authority has easements for water mains across both municipalities. In Concord Township, a significant portion of the Octoraro alignment runs closely parallel to existing CWA water mains. In some places, it may be advantageous for the trail to be located in close proximity to the water mains. The cooperation of CWA to allow access across its own easements for public recreational use will be essential.

Right-of-Way Acquisition

The proposed greenway involves many individual segments to create linkages that are primarily off-road. While some segments will be on public land in existing parks and open spaces, many others must cross quasi-public, or private properties that are not within municipal control. To build these trail segments, it will be necessary to acquire rights-of-way (most likely in the form of easements) to allow access across a significant number of individual properties. Each specific section will need to be studied in greater detail to identify every direct and adjacent potential owner.

Methods of Right-of-Way Acquisition

There are several common mechanisms for the acquisition of open space land and right-of-way for trails, such as fee simple purchase, easements, and donations. They can be used separately or in combination with other techniques listed below to facilitate acquisition.

Easements/Deed Restrictions

An easement is a mechanism by which a municipality or conservation organization can obtain a legal interest in private land for public use or conservation purposes.

Conservation easements place restrictions or an outright prohibition on development at a lower cost than fee simple acquisition. Under a conservation easement, land remains in current ownership, but the property owner voluntarily agrees to donate or sell one or more rights attached to the land. In the case of a conservation or access easement, it would be the right to develop the land. The easement can be held by a municipality, county, or a private conservancy, such as Natural Lands Trust or Brandywine Conservancy, both of which are headquartered in Delaware County.

A conservation easement can also be combined with a ***pedestrian easement*** or ***right of public access easement*** to allow public access for walking, hiking, bicycling, and other activities. The easement language typically establishes rules and restrictions, such as limiting when, where, and how the easement may be utilized. PA Act 68, *Recreational Use of Land and Water Act* (RULWA), assures that the landowner is not held liable for any injuries, crimes, or death associated with public use of the land.

Implementation Challenges

In addition to the challenge of acquiring the necessary right-of-ways for the proposed trails, there are political and technical challenges that must be addressed effectively to bring the trails to fruition.

Political Issues

Trails and greenways are community-based projects, and every project needs broad community support to be a success. Outreach is one of the most important ongoing activities for any rail-trail project. Without support from community members, politicians and key businesses, even the best trail proposals can fail. It is to be expected that trails and greenways implementation may encounter some degree of skepticism and even opposition, most commonly from property owners living alongside or near the planned trails. Some common neighbor misconceptions can include confusion related to property rights issues, concerns that property values will drop and liability will increase, and fears of increased crime such as littering, trespassing, burglary and vandalism. If informed of the benefits of a trail early in the process, adjacent residents almost invariably become enthusiastic trail users and supporters within a few years of a trail's creation.

Technical Issues

Along the proposed trail segments there are a variety of physical obstacles that will place constraints on the final trail designs. Some of these will limit the space available for the trail. Others, while surmountable, will require engineered solutions that will increase construction cost.

Water Crossings: In numerous locations, it will be necessary to cross streams and drainage swales, which will require construction of culverts or bridges, or improvements to existing infrastructure.

Steep Slopes: While the proposed trail spines are fairly level, some of the secondary trails will be on steeply sloped terrain. Where steep slopes are encountered for paved trails, minor retaining walls and other structural solutions are sometimes necessary. For unpaved trails, design precautions must be taken to inhibit erosion.

Wetlands: Several areas along the trails have designated wetland areas. Though final trail layouts should be selected that minimize impacts to wetlands, there may be sections of trails where wetlands are unavoidable. Wetlands are unique natural resources that require protection. Any impacts to wetlands resulting from trail construction will require permitting from the Pennsylvania Department of Environmental Protection (DEP). Any loss of wetland acreage will be mitigated by expanding the footprint of the existing wetlands by grading and planting at the wetland-upland boundary.

Road Crossings: The proposed trail network is almost entirely at grade, meaning that trails will need to cross numerous existing streets. Design provisions will be made to facilitate safe crossing for trail users and sufficient warning for vehicles.

Technical challenges include numerous road and stream crossings.

Sources of Funding

Potential opportunities for capital funding to construct the Octoraro Greenway include federal, state, and local grants. Each has specific requirements, and is subject to certain limitations. These grant programs are almost universally competitive, and are awarded based on the merits of individual proposed projects and on the quality of grant application submissions. It is the expectation that all or most of the expense of constructing the greenway will be provided through these grant programs, and that little or none of the cost will be borne by local municipal budgets.

DCNR - PA Department of Conservation and Natural Resources

DCNR administers the federally-funded Recreation Trail Program and the state-funded Community Conservation Partnership Program (C2P2). The Recreation Trails Program is designed to develop and maintain recreational trails and trail related facilities for trail users. Project examples include development and rehabilitation of trailside and trailhead facilities and trail linkages and acquisition of easements or property for recreation trails. The Community Conservation Partnership Program is designed to provide grants for comprehensive recreation and park planning and greenway planning. Potential projects include development of public park and trail recreation facilities, acquiring land for park and conservation purposes, site development planning, and feasibility studies.

DVRPC - Delaware Valley Regional Planning Commission

DVRPC administers a range of funding programs to facilitate planning and design of trails and greenways. These programs evolve annually. In recent years, programs oriented toward multi-modal transportation have included the Transportation and Community Development Initiative (TCDI), Congestion Mitigation and Air Quality Improvement Program (CMAQ), and Regional Trails Programs (RTP). It is expected that programs of a similar nature will be offered in future years.

DCED - Greenways, Trails and Recreation Program (GTRP)

The PA Department of Community and Economic Development (DCED) administers this program, which allocates funds to the Commonwealth Financing Authority (CFA) for planning, acquisition, development, rehabilitation and repair of greenways, recreational trails, open space, parks and beautification projects.

DCED and PennDOT - Multimodal Transportation Fund (MTF)

The PA Department of Community and Economic Development (DCED) and PennDOT each administer this program, which provides grants to encourage economic development and ensure that a safe and reliable system of transportation is available to the residents of the commonwealth. Funds may be used for the development, rehabilitation and enhancement of transportation assets to existing communities, including lighting, sidewalk enhancement, pedestrian safety, bicycle circulation, connectivity of transportation assets and transit-oriented development. The two state agencies each have an independent funding allocation of the Multimodal Transportation Fund.

PennDOT - Transportation Alternatives Program (TAP)

The TAP program utilizes federal funds authorized through the Moving Ahead for Progress in the 21st Century (MAP-21) legislation. Funding is awarded by PennDOT as the authorized state agency, with program administration at the local region provided by DVRPC. Each County recommends to DVRPC its top priority projects requesting funding. TAP grants are intended for pedestrian and bicycle facilities, improved access to public transportation, safe routes to school, and trails projects that serve a transportation purpose, while promoting safety and mobility.

PennDOT – Transportation Improvement Program (TIP)

The "TIP" is the 12-year budget and forecast for the full range of transportation projects planned by PennDOT and funded through federal transportation money. It addresses all transportation modes, including highways and bridges, public transit, aviation, rail freight, as well as bicycle and pedestrian facilities. Projects become funded through the TIP by recommendation of the local county and DVRPC, and are evaluated in light of competing project needs across the state.

Redevelopment Assistance Capital Program (RACP)

RACP is a Commonwealth grant program administered by the Office of the Budget for the acquisition and construction of regional economic, cultural, civic, and historical improvement projects. The grant requires a 50% match, and eligible projects must have a total cost of at least $1,000,000.

PECO – Green Region Open Space Grant Program

Green Region grants are available to municipalities to cover a wide variety of planning and expenses associated with developing and implementing open space programs and capital improvements for passive recreation such as trails and greenways. The program is administered in partnership with the Natural Lands Trust.

Trails and Greenways Grant Funding Summary

DCNR - PA Department of Conservation and Natural Resources

Community Conservation Partnership Program (C2P2)
Recreation Trails Program (RTP)

- *Timing:* annual, April 15
- *Amount:* up to $250,000
- *Match:* 50% local
- *Activities:* Planning, design, construction
- http://www.dcnr.state.pa.us/brc/grants/index.aspx

DVRPC - Delaware Valley Regional Planning Commission

Transportation and Community Development Initiative (TCDI)

- *Timing:* 2018 anticipated
- *Amount*: up to $100,000
- *Match*: 20% local
- *Activities:* Planning only
- http://www.dvrpc.org/TCDI/

Regional Trails Program (RTP)

- *Timing:* rolling
- *Amount:* up to $200,000
- *Match:* varies
- *Activities:* Design and engineering
- http://www.dvrpc.org/RegionalTrailsProgram/

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

- *Timing:* 2017 anticipated
- *Amount*: unlimited
- *Match*: 20% local
- *Activities:* Design and Construction
- http://www.dvrpc.org/CMAQ/

DCED – Department of Community and Economic Development

Greenways, Trails and Recreation Program (GTRP)

- *Timing:* annual, spring
- *Amount:* up to $250,000
- *Match:* 15% local
- *Activities:* Planning, design, construction
- http://community.newpa.com/programs/greenways-trails-and-recreation-program-gtrp/

Multimodal Transportation Fund (MTF) - *See PennDOT*

PennDOT – Pennsylvania Department of Transportation

Multimodal Transportation Fund (MTF)

- *Timing:* annual - July 31
- *Amount:* up to $3,000,000
- *Match:* 30% local
- *Activities:* Design (10% max.), construction
- http://www.dot.state.pa.us/internet/web.nsf/Multimodal

Transportation Alternatives Program (TAP)

- *Timing:* 2017 anticipated
- *Amount*: up to $1,000,000
- *Match:* 20% local
- *Activities:* Construction only
- http://www.dvrpc.org/tap/PA.htm

Transportation Improvement Program (TIP)

- *Timing:* rolling
- *Amount:* unlimited
- *Match:* 20% local
- *Activities:* Construction only
- http://www.dot.state.pa.us/TYP/Index_files/TIP.htm

PECO /Natural Lands Trust

Green Region Open Space Grant Program

- *Timing:* annual – March 15
- Funding Amount: up to $10,000
- Match: 50% local
- *Activities:* Planning, design, construction
- https://www.peco.com/Community/CharitableGiving/GreenRegion/Pages/GrantDetails.aspx

Governor's Budget Office

Redevelopment Assistance Capital Program (RACP)

- *Timing:* rolling
- *Amount:* unlimited
- *Match:* 50% local
- *Activities:* Construction only
- http://www.budget.state.pa.us/portal/server.pt/community/redevelopment_assistance_capital_program

Anticipated Construction Cost

For the alignment proposed in this Plan, the expected construction cost is roughly between $5 and $8 million. However, as the design is at a conceptual level, this is an order-of-magnitude estimate. These costs are preliminary and are based on only a general understanding of specific site constraints and design responses that will ultimately be necessary to fully realize the trail potential. (See detailed cost estimate in the Appendix.)

Actual construction costs for each individual segment of the trail network will depend on a variety of factors, including:

Length: The total length of the Octoraro Greenway is approximately 6 miles. However, within this overall project area several specific options exist that could lengthen or shorten the total route. Depending on the length of the chosen greenway alignment, the cost of construction could increase or decrease accordingly.

Coordination with Adjacent Development: The cost of constructing the greenway may vary for some segments based on the contribution of adjacent property owners. If certain property owners are willing to share in the costs of construction, overall cost to the public will decrease accordingly.

Physical Constraints: Technical constraints are described in Chapter 2, and include bridges for several stream crossings, street crossings, wetlands, and need for screening. Where multiple options exist for trail alignment, the need to address these obstacles, and associated costs, may vary.

Property Acquisition Costs: Estimated costs presented in this report are for construction only, and do not include costs for acquisition of property and/or easements. Given the cooperative spirit of existing partnerships, along with the civic nature of the project, it is hoped that portions of the necessary acquisition will be donated. However, this is subject to negotiation, and tangible costs may result.

Specialty Features: The conceptual design and corresponding cost estimate assumes a modest level of amenity typical for a local or regional recreation trail. The cost of various materials and design details can vary greatly. The specific features and design amenities that will accompany the trail will be determined during the final design stage. These may include: trail head features such as benches, lighting, restrooms, and parking; security features; landscaping; adjacent park spaces; size and aesthetic treatment for bridges and other structural features; educational and interpretive features such as signage or seating areas.

Octoraro Greenway
Expected Costruction Cost (Order-of-Magnitude)

Section	Location	Alternative A	Alternative B
Section 1	Route 202 to Concord Road	$ 2,600,000	$ 2,600,000
Section 2	Newlin Grist Mill	$ 1,400,000	$ 1,400,000
Section 3-A	Pole Cat Road (on-street)	$ 115,000	
Section 3-B	Pole Cat Road (off-street) - follows PECO line		$ 1,200,000
Section 4-A	Ivy Mills Road to Wawa Road (on-street)	$ 450,000	
Section 4-B	Ivy Mills Road to Valleybrook Road (off-street)		$ 1,400,000
Section 5-A	Wawa Road (on-street)	$ 450,000	
Section 5-B	Valleybrook Road to Wawa Station (off-street)		$ 1,750,000
Total		$ 5,015,000	$ 8,350,000

Five Year Action Plan

Near-term actions should focus on tasks and projects that can achieve results quickly and effectively. Tangible results – such as actual new trail segments that the public can see and touch – will build momentum and public support, and demonstrate credibility with stakeholders and potential funding partners.

Other short-term actions should involve continued planning for the more ambitious segments of the greenway. Bigger, more complicated segments take time, since they involve many steps and many stakeholders. It is important to start the process as soon as can be managed, otherwise good will and cooperative spirit is easily eroded.

For many grant funding programs, grant awards are contingent upon right-of-way acquisition. In other words, funding will not be granted until right-of-way can be demonstrated. Therefore, acquisition of right-of-way is a critical first step to begin implementing segments of the Octoraro.

With an aggressive approach, it is conceivable that a significant portion of the recommended network can be built or underway within the next five years. Major tasks and milestones are summarized below.

Year 1-2

- Seek funding to support the effort necessary to pursue right-of-way acquisition.
- Acquire rights-of-way over private properties within Section 1. These include:
    - Circle Investments LLC
    - PECO Energy Company
    - Main Line Health
    - Meadow Run HOA
    - Garnet Valley School District
    - Spring Valley Business Park
    - SEPTA
- Coordinate with public agencies and utility providers within the greenway corridor to clarify design and access issues.
- Engage in dialogue with neighboring Chadds Ford Township for potential future greenway extension to the west of Route 202.
- Continue dialogue with property owners and stakeholders associated with Sections 2, 3, 4, and 5, to clarify issues of concern and develop solutions for overcoming potential obstacles to right-of-way acquisition.

Years 2-3

- Secure funding to prepare base topographic survey and preliminary design for Section 1 of the Octoraro Greenway.
- Acquire right-of-way for Section 2, Newlin Grist Mill.
- Perform a title search for all properties along the proposed greenway route, to identify legal title and possible encumbrances.
- Prepare preliminary design for Section 1 of the Octoraro Greenway.
- Secure funding to prepare final design for Section 1 of the Octoraro Greenway.

Years 4-5

- Prepare final design for Section 1 of the Octoraro Greenway.
- Construct Section 1 of the Octoraro Greenway.
- Secure funding to prepare preliminary and final design for Section 2 of the Octoraro Greenway.

Maintenance and Operations

A common characteristic of greenways everywhere (and public spaces in general), is that maintenance and operations is almost always a challenge. While the investment of time and money required to build a greenway is often huge, the task of finding resources to maintain and operate a trail is sometimes equally daunting.

Locally and nationally, one common model is for actual ownership of trails and greenways to be in public hands, usually a county or municipality. Maintenance, however, is often performed by, or in cooperation with, local non-profit organizations and community volunteers. This is a win-win relationship. Most non-profit groups wish to avoid owning property due to liability concerns. Local governments, having the capacity to own property and accept the attendant legal issues, benefit from reduced maintenance costs and responsibilities.

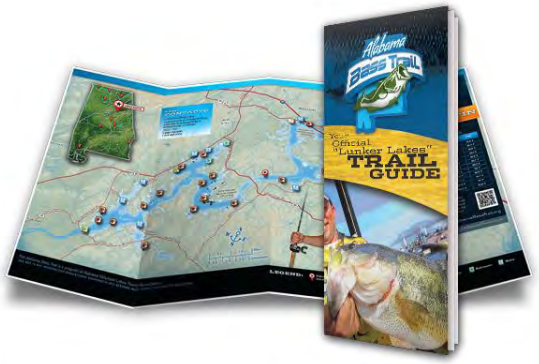
In Concord and Chester Heights, it is likely that specific responsibility for maintenance and operations of greenways may involve multiple private and public entities, and it is reasonable to expect that many stakeholders will contribute in some meaningful way to the effort necessary to carryout trail operations.

One scenario for trail operations is for the municipalities to take responsibility for aspects of the trail related to public safety, for reason of liability. These elements would include maintenance of the pavement surface, pavement markings, drainage facilities, curbs and other physical buffers, traffic regulatory signs, and operations of traffic signal equipment. These items fall generally within typical municipal maintenance regimens, and should be within municipal capacity to carry out.

Private partners may be sought to assist the municipalities with the provision and maintenance of "supplemental" greenway elements, which might include:

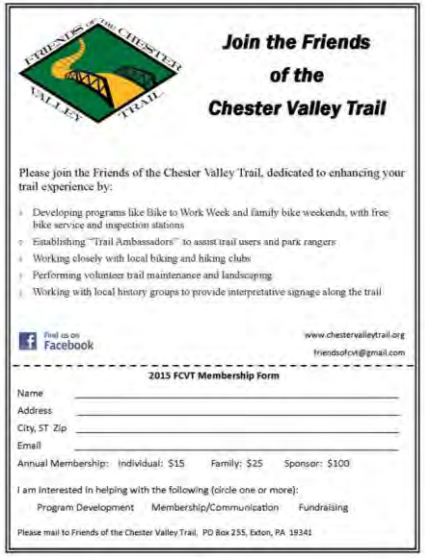
- Cleaning and trash removal
- Identity and wayfinding signage and maps
- Landscape maintenance
- Public communications and safety
- Marketing and promotional events

There is ample precedent in the region for public-private partnership for operations and maintenance of public open space. In many cases, basic services are provided by the municipality and supplemental services are provided by partners. These additional services can include volunteer labor, modest financial contributions, technical expertise, or other in-kind services. Just a few local examples are:



Landscape maintenance, security, and promotions are some of the operational tasks that are necessary to assure long-term success of the trail.

- In Lower Merion Township, the *Friends of the Cynwyd Trail* have provided a substantial amount of volunteer labor to beautify and maintain the Cynwyd Trail. Construction of the trail itself was by the municipality, while associated landscape maintenance and improvements has been by the Friends groups.
- The nearby Chester Creek Trail is supported by *The Friends of the Chester Creek Branch* non-profit organization (http://www.chestercreektrail.org/). This Friends group was heavily involved in conceiving the project and advocating for the trail in its early stages. Since the proposed trail alignment spans multiple municipalities, it was especially advantageous to have an organization distinct from the individual local governments. The Friends group secured the rights to the rail line and commissioned the early feasibility study. The group remains in a lead role now that the trail is under construction, and is expected to partner with local governments for maintenance and operations.
- The Chester Valley Trail, which roughly parallels route 202 between Exton and King of Prussia, is supported by the *Friends of the Chester Valley Trail* (http://chestervalleytrail.org/). The group provides financial support for maintenance through membership donations, and serves as a hub for trail information. They provide news, events, volunteer support and advocacy for trail growth.
- *Friends of Radnor Trails* (FORT) (https://www.facebook.com/pages/Friends-of-Radnor-Trails/160505950669234), was founded to advocate for the conversion of a former rail line into the Radnor Trail. The organization continues to advocate for trail expansion, and organizers volunteers for maintenance and upkeep.



Join the Friends of the Chester Valley Trail

Please join the Friends of the Chester Valley Trail, dedicated to enhancing your trail experience by:

- Developing programs like Bike to Work Week and family bike weekends, with free bike service and inspection stations
- Establishing "Trail Ambassadors" to assist trail users and park rangers
- Working closely with local biking and hiking clubs
- Performing volunteer trail maintenance and landscaping
- Working with local history groups to provide interpretative signage along the trail

Find us on Facebook

www.chestervalleytrail.org
friendsofcvt@gmail.com

2015 FCVT Membership Form

Name _____
Address _____
City, ST Zip _____
Email _____

Annual Membership: Individual: $15 Family: $25 Sponsor: $100

I am interested in helping with the following (circle one or more):
Program Development Membership/Communication Fundraising

Please mail to Friends of the Chester Valley Trail, PO Box 255, Exton, PA 19341

In Lower Merion, the Friends of the Cynwyd Trail programs events (above) to raise money to support maintenance, and provides volunteer labor to defray costs (left).

The Chester Creek Trail is supported by a non-profit group that takes an active role in trail planning and construction (below).

Octoraro Greenway Feasibility Study

Appendices

Appendix A:
Existing Conditions Plans

Key to Property Owners

Key Number	Owner	Key Number	Owner	Key Number	Owner	Key Number	Owner
1	SEPTA	42	WRIGHT LISA A & CHRISTOPHER D	83	PAPA GARY J &	124	TRUST NICHOLAS NEWLIN
2	HARRYS BUILDING SUPPLIES INC	43	PORTER DONALD E &	84	POWELL CALVIN E	125	TRUST NICHOLAS NEWLIN
3	WOODLAND DRIVE ASSOCIATES	44	WOOD RICHARD D III &	85	POWELL CALVIN E	126	NICHOLAS NEWLIN FOUNDATION
4	DAMBRO ANTHONY B &	45	TIERRA DU BOIS LLC	86	POWELL CALVIN E	127	HALL NATHAN C &
5	DAMBRO ANTHONY B &	46	TIERRA DU BOIS LLC	87	KEOSAYIAN JOHN C &	128	GALLAGHER STEPHEN &
6	CHADDS FORD INVESTORS LP	47	RUX KENNETH E &	88	CALVIN E POWELL LLC	129	DAVIDSON JAMES D JR&MARGARET M
7	CHADDS FORD INVESTORS LP	48	KLAUS LAURA	89	BOROUGH OF CHESTER HEIGHTS	130	NICHOLAS NEWLIN FOUNDATION
8	CIRCLE R INVESTMENTS LLC	49	SURKIN RONALD H &	90	POWELL CALVIN &	131	GROVES CHAD
9	MCGLINN ROBERT C JR & PAMELA J	50	SURKIN RONALD H &	91	CONRAD STEPHEN D &	132	MCGONIGAL WILLIAM R JR &
10	MOHR JAMES F &	51	PECO	92	CONRAD STEPHEN D &	133	STARR BLAKE &
11	FARROW JOHATHAN R &	52	CHESTER HEIGHTS BOROUGH	93	CONRAD STEPHEN D &	134	ELLIOTT MARK J &
12	ZIEGLER WALTER &	53	CHESTER HEIGHTS BOROUGH	94	CONRAD STEPHEN D &	135	CORSELLO JOSEPH R &
13	URBAN GARY N &	54	ONE SMITHBRIDGE LLC	95	CONRAD STEPHEN D &	136	GALLAGHER HOWARD J III &
14	YOUNG DAVID B &	55	ST THOMAS THE APOSTLE CHURCH	96	CONRAD STEPHEN D &	137	WILSON WILLIAM H
15	MCLAUGHLIN CHARLES ETUX	56	SEARL TIMOTHY R &	97	CONRAD STEPHEN D &	138	SMITH CLARENCE R &
16	DAWSON BARBARA A	57	PARSTUDY INC	98	CONRAD STEPHEN D &	139	NELSON CRAIG R
17	HOUSEMAN DENNIS E &	58	WILSON MICHAEL T	99	CONCORD TOWNSHIP	140	LAFRENIERE MARY LOUISE &
18	WAALS JAN L &	59	WILSON MICHAEL T	100	BRINTON MANOR INC	141	ROBERTSON CHARLES A JR &
19	SQUID INC	60	PHILA CAMP MT & EXCUR ASS	101	COOPER KENNETH R &	142	CRAIG T BRUCE &
20	SQUID INC	61	PHILA CAMP MT & EXCUR ASS	102	DREW LORAINE SMITH	143	MARINCHAK MICHAEL R &
21	NATURAL LANDS TRUST INC	62	WRIGHT LISA A	103	CMAJ EXECUTIVE SUITES LLC	144	MODES CARL &
22	NATURAL LANDS TRUST INC	63	NATURAL LANDS TRUST INC	104	RUDMAN MARTIN F	145	NEUMANN SCOTT A
23	FINK GERALD W &	64	NATURAL LANDS TRUST INC	105	HURST ANDREW D &	146	AMBROGI JOHN G &
24	CIAMBELLA MICHAEL &	65	NATURAL LANDS TRUST INC	106	CONCORD VILLAGE LP	147	HILBERT CHRISTOPHER P &
25	WAWA INC	66	WRIGHT LISA A & TRUSTEES	107	NEWLIN EARL M ETAL	148	WOLF PAUL J &
26	WAWA INC	67	HALBAUER ERIC J &	108	NICHOLAS NEWLIN FOUNDATION	149	SCHOFFSTALL JOHN
27	WAWA INC	68	AMEY HARRY W &	109	NEWLIN NICHOLAS FOUNDATION	150	KADAR EVELYN V
28	STANLEY MICHAEL I &	69	MCLAUGHLIN DAVID G &	110	TRUST NICHOLAS NEWLIN	151	CASSIDY JOSEPH G III &
29	STANLEY MICHAEL I &	70	ZWEIER CURTIS J &	111	TRUST NICHOLAS NEWLIN	152	COALSON RICKY J &
30	NATURAL LANDS TRUST INC	71	MAY NICOLE L &	112	TRUST NICHOLAS NEWLIN	153	CAMERON ROBERT
31	NATURAL LANDS TRUST INC	72	GALLAGHER DANIEL J &	113	TRUST NICHOLAS NEWLIN	154	NICOLINI GENNAR A &
32	NATURAL LANDS TRUST INC	73	RICHARDSON RUSSELL H	114	TRUST NICHOLAS NEWLIN	155	FERRIS DANIEL S &
33	RAILROAD P B & W	74	CONRAD STEPHEN B &	115	TRUST NICHOLAS NEWLIN	156	LEGERE CONSTANCE V &
34	DELAWARE COUNTY	75	CONRAD STEPHEN B &	116	TRUST NICHOLAS NEWLIN	157	CONCORD TOWNSHIP
35	KEENER CHARLES F &	76	CONRAD STEPHEN B &	117	TRUST NICHOLAS NEWLIN	158	LOBACH DARYL K &
36	JAMARA LP	77	CONRAD STEPHEN B &	118	TRUST NICHOLAS NEWLIN	159	BRADLEY FRANCIS J &
37	WOMENS ASSOC FOR WOMENS	78	SEPTA	119	TRUST NICHOLAS NEWLIN	160	HORAN JAMES M &
38	WOMENS ASSOC FOR WOMENS	79	MCMANUS PARTNERSHIP	120	TRUST NICHOLAS NEWLIN	161	KARCHER FREDERICK W &
39	COX CYNTHIA A	80	MCMANUS PARTNERSHIP	121	TRUST NICHOLAS NEWLIN	162	WIEST MICHAEL &
40	WOOD RICHARD D JR TRUSTEE &	81	CIVITELLA ROBERT L SR &	122	TRUST NICHOLAS NEWLIN	163	BYRNE RAYMOND &
41	WRIGHT LISA A & CHRISTOPHER D	82	GINIECZKI JUDITH A	123	TRUST NICHOLAS NEWLIN	164	SITLEY THOMAS W &

Key Number	Owner	Key Number	Owner	Key Number	Owner	Key Number	Owner
165	PARKER WILLIAM JR ETUX	206	GOEBEL EUGENE S &	247	PESSAGNO ROBERT J	288	PECO ENERGY COMPANY
166	FLYNN JULIUS	207	MOONEY STEPHEN J &	248	BARKER JOHN R &	289	PECO ENERGY COMPANY
167	SWEET RICHARD G &	208	KELLY MICHAEL J &	249	CLAYPOLE ROBERT &	290	MATHARU SUKHDEV S &
168	KEMPER JOHN &	209	ANEMONE WILLIAM R ETUX	250	CONRAD STEPHEN B &	291	KLING BRIAN &
169	MECKFESSEL JOHN F &	210	FINK DEREK WILLIAM &	251	CLARK JOHN J &	292	SLOANE JAMES G &
170	FOX VALLEY COMMUNITY SERVICE	211	FINK DEREK WILLIAM &	252	ESPINOSA ORLANDO &	293	MINNEBO JOHN M &
171	RYAN ANTHONY &	212	FINK DEREK WILLIAM &	253	ESPINOSA ORLANDO &	294	TRACEWELL CHRISTOPHER S &
172	SMITH ROBERT J &	213	PACHKOWSKI JOHN M &	254	ESPINOSA ORLANDO &	295	BRANT ROBERT A &
173	WILKINSON WM D ETUX	214	CAMA SDIRA LLC &	255	PECO ENERGY COMPANY	296	CAMPBELL MARK &
174	SACCOMANDI JUSTIN J &	215	TOWNSHIP OF CONCORD	256	CLARK JOHN J &	297	SHRESTHA SUNIL &
175	CONLEY CHARLES &	216	CONCORD TWP	257	CLARK JOHN J &	298	PADIEN PAUL P &
176	VAALBURG MARK I &	217	SPRING VALLEY HOTEL LP	258	SAUNDERS MICHAEL J &	299	IYENGAR MAHESH &
177	LEACH RICHARD H &	218	CONCHESTER JOINT VENTURE	259	HALPIN ROBERT	300	VALLONE JAMES A
178	MILLER RANDALL M &	219	SV BUSINESS PARK HOLDINGS LP	260	SIDORSKY JOHN &	301	PALO CHARLES &
179	WERNER K RALPH &	220	TE ENTERPRISES LLC	261	SIDORSKY JOHN &	302	CASEY CHRISTOPHER K &
180	PANTLE JOHN P &	221	HOWARTH SANDRA K	262	CONRAD STEPHEN B &	303	PECO ENERGY COMPANY
181	HALL C MICHELE	222	HOWARTH SANDRA K	263	TODAK JOSEPH M &	304	TOWNSHIP OF CONCORD
182	VO HONG &	223	TALLEY DAVID N	264	MARIANI FRANK J JR	305	TOWNSHIP OF CONCORD
183	MINK GREGORY S &	224	TALLEY DAVID N	265	MARIANI FRANK J JR	306	DELAWARE COUNTY
184	TRAUTMAN KIRK T &	225	SAREYKA STEVEN &	266	CIRCLE R INVESTMENTS LLC	307	TEMPLE ROAD DEVELOPERS LP
185	HALLY JOSEPH PATRICK &	226	SHL V LLC	267	PECO ENERGY COMPANY	308	TEMPLE ROAD DEVELOPERS LP
186	HALLY JOSEPH PATRICK &	227	SHL V LLC	268	PECO ENERGY COMPANY	309	SHEPANSKI STANLEY A JR &
187	HALLY JOSEPH PATRICK &	228	CONDE KRIS E	269	CHADDS FORD INVESTORS LP	310	SHEPANSKI STANLEY A JR &
188	MORGAN EDWARD R JR &	229	XANTHOPOULOS JEANNE E &	270	CHADDS FORD INVESTORS LP	311	RONAYNE SCOTT F
189	MASCIREI LENO C &	230	CONCORD TOWNSHIP	271	GELLERT JARED N &	312	DOSTILLIO FRANK G &
190	WILLCOX MARK JR	231	WERNER MARK E &	272	PAOLETTI JULES M &	313	NEUGEBAUER ANTON
191	WILLCOX MARK JR	232	PENNDOT	273	TOWNSHIP OF CONCORD	314	DAMBRO ANTHONY J
192	WILLCOX MARK III &	233	PENNDOT	274	OSTROWSKI JEFFREY R	315	CRAIG KEVIN
193	MOORE TIMOTHY JOHN &	234	TOWNSHIP OF CONCORD	275	FILOSA JOHN J &	316	GARNET VALLEY SCHOOL DISTRICT
194	WILLCOX MARK III &	235	KEOSAYIAN JOHN C &	276	ELLIOTT ROBERT &	317	GARNET VALLEY SCHOOL DISTRICT
195	PATTERSON DONALD W &	236	WILLCOX MARK JR &	277	LEWICKI GREGORY W &	318	CRAIG KEVIN &
196	J'S MVP REALTY LP	237	WILLCOX MARK JR &	278	WANG RICHARD &	319	WAWA INC
197	REDWOOD ERC CONCORD LLC	238	WILLCOX MARK JR &	279	CARTER KALEB F &	320	WAWA INC
198	MAIN LINE HEALTH INC (FINANCE)	239	WILLCOX MARK JR &	280	COFONE MARK A &	321	SOUTHEASTERN PA TRANS AUTH
199	SZELAK PAUL MICHAEL &	240	WILLCOX MARK JR &	281	GALLAGHER STEPHEN F &	322	SOUTHEASTERN PA TRANS AUTH
200	HANLON JOHN &	241	WILLCOX MARK JR &	282	GIFFORD BRIAN & NANCY CO-TRUST	323	WV PP TOWNE CENTER LP
201	NEWLIN N FOUNDATION	242	BRYAN WILLIAM L	283	PATEL YASHVANTKU &	324	WV PP TOWNE CENTER LP
202	COLEMAN BRUCE B &	243	BRYAN WM L &	284	PACIFICO MICHAEL A &		
203	CARR BARRY J &	244	MURPHY ELIZABETH C &	285	VARLEY SIMON &		
204	GOEBEL EUGENE S III &	245	BEAN JANINE R	286	FENGL RICHARD W &		
205	ZIPPI STEPHEN	246	LAYMAN ROBERT K &	287	PECO ENERGY COMPANY		

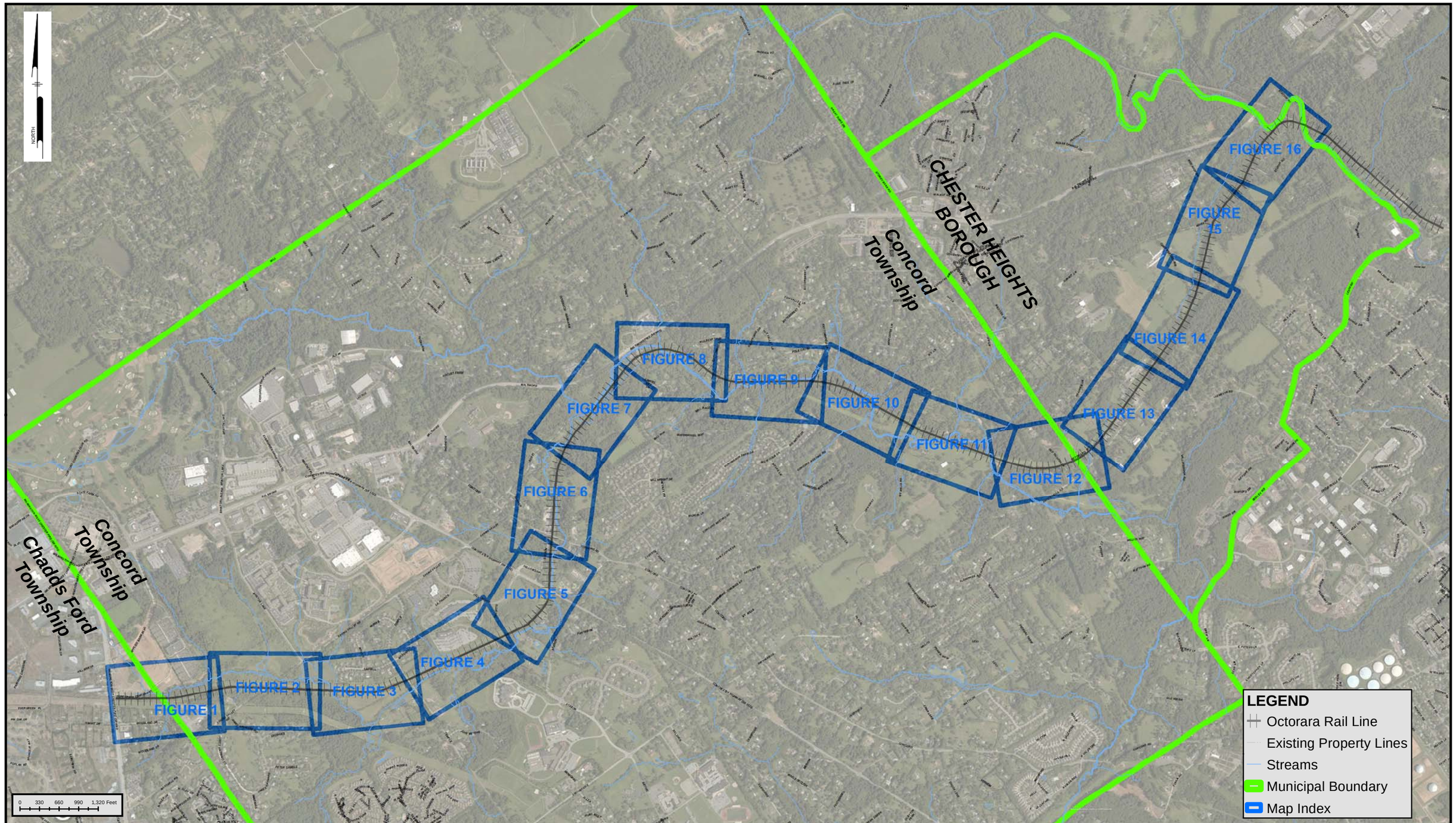


Figure K	Concord Township, Delaware County Octoraro Greenway OCTORARO GREENWAY - KEY MAP	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

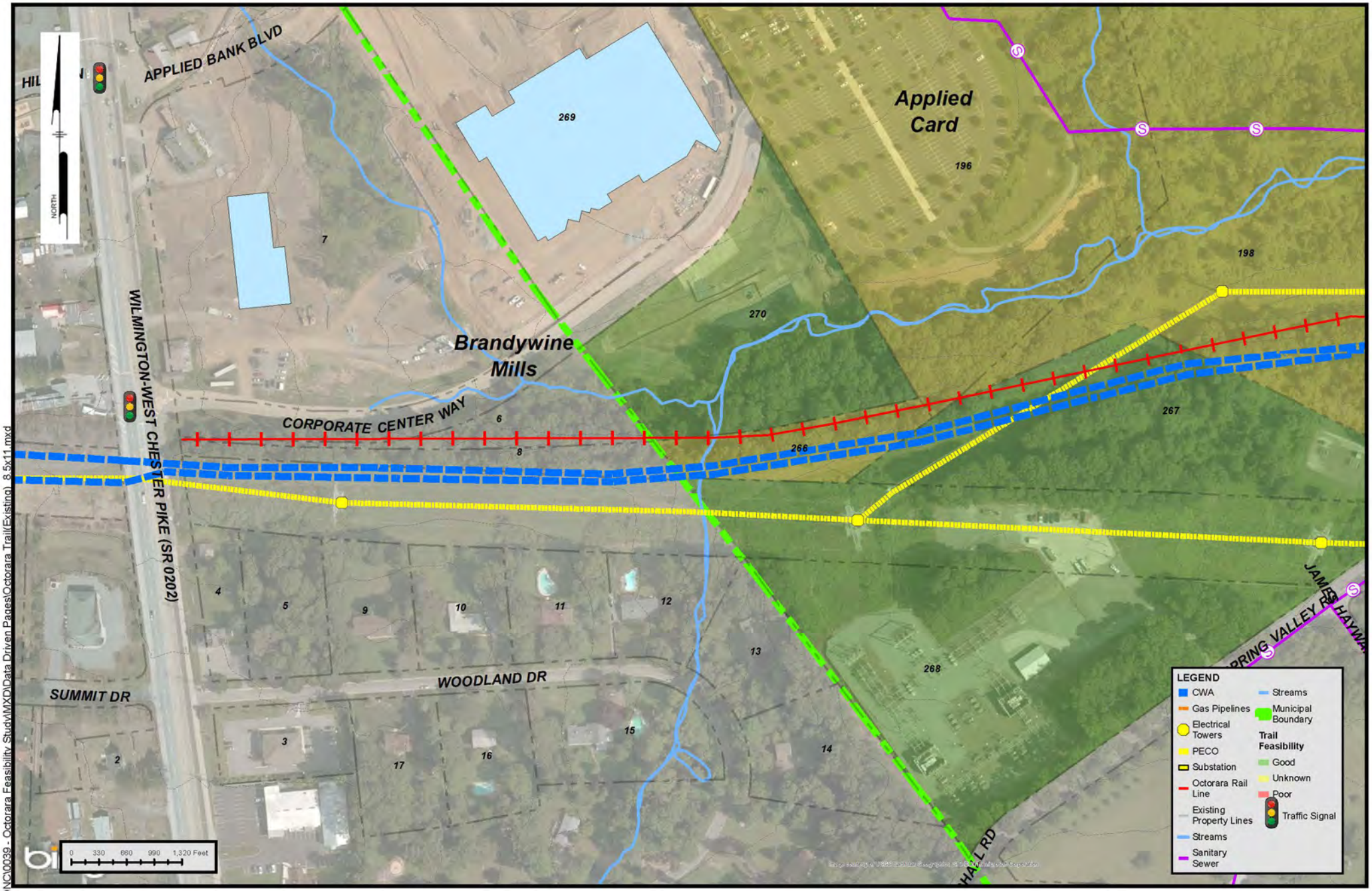


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Figure 1 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

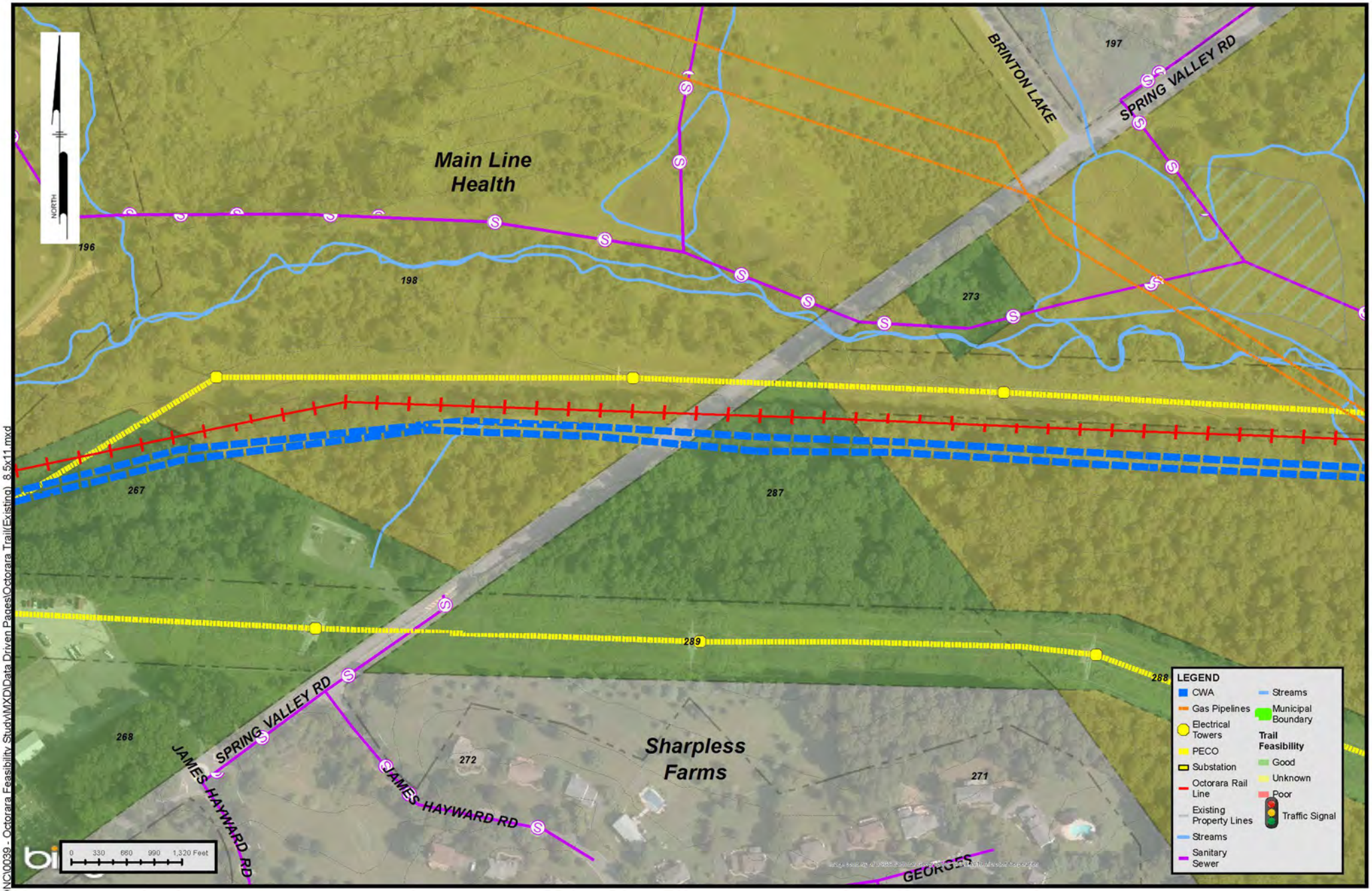

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Figure 2 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

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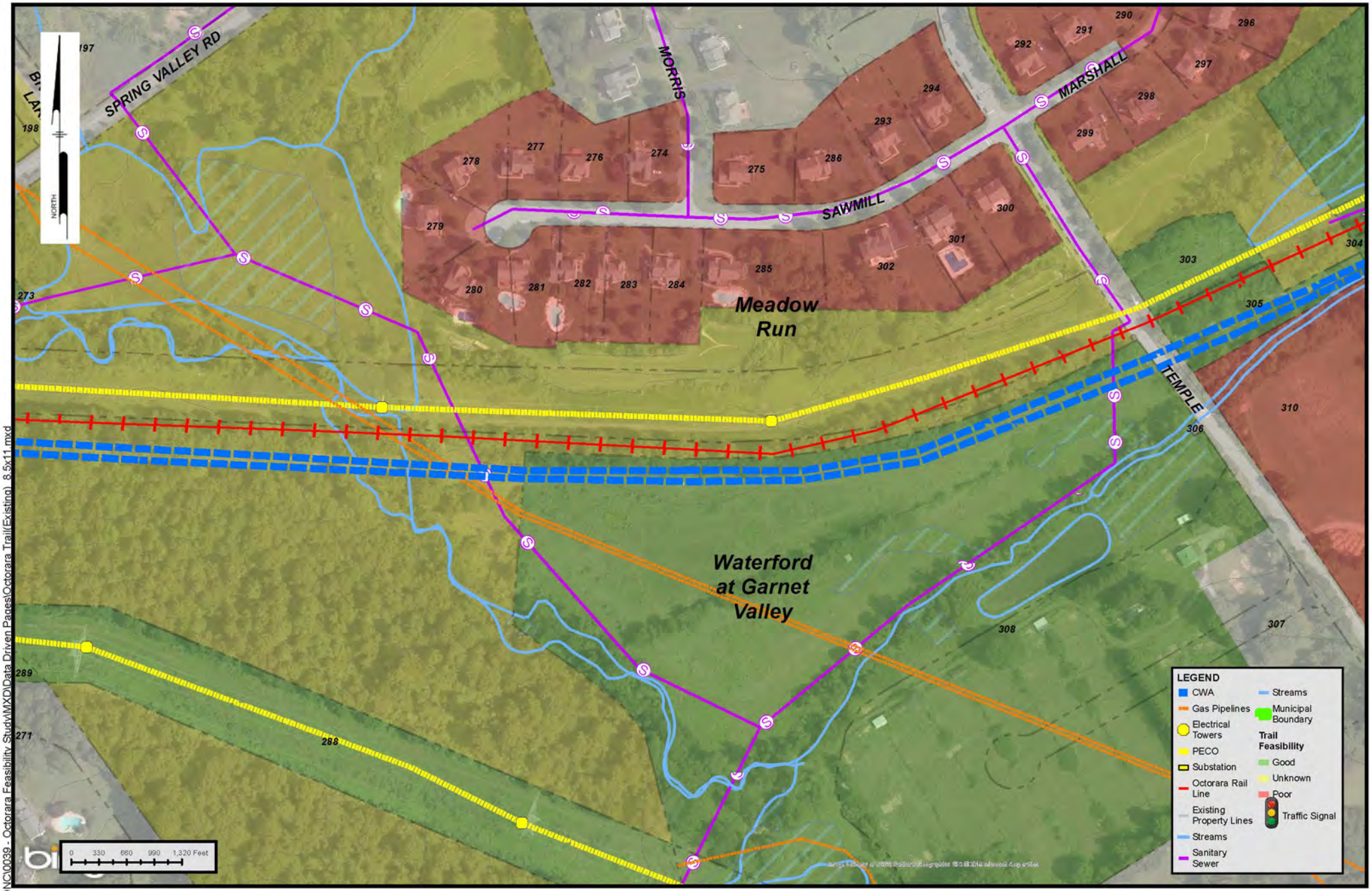

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Figure 3 of 16

Concord Township, Delaware County

Octoraro Greenway

Octoraro Greenway - Existing Conditions

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

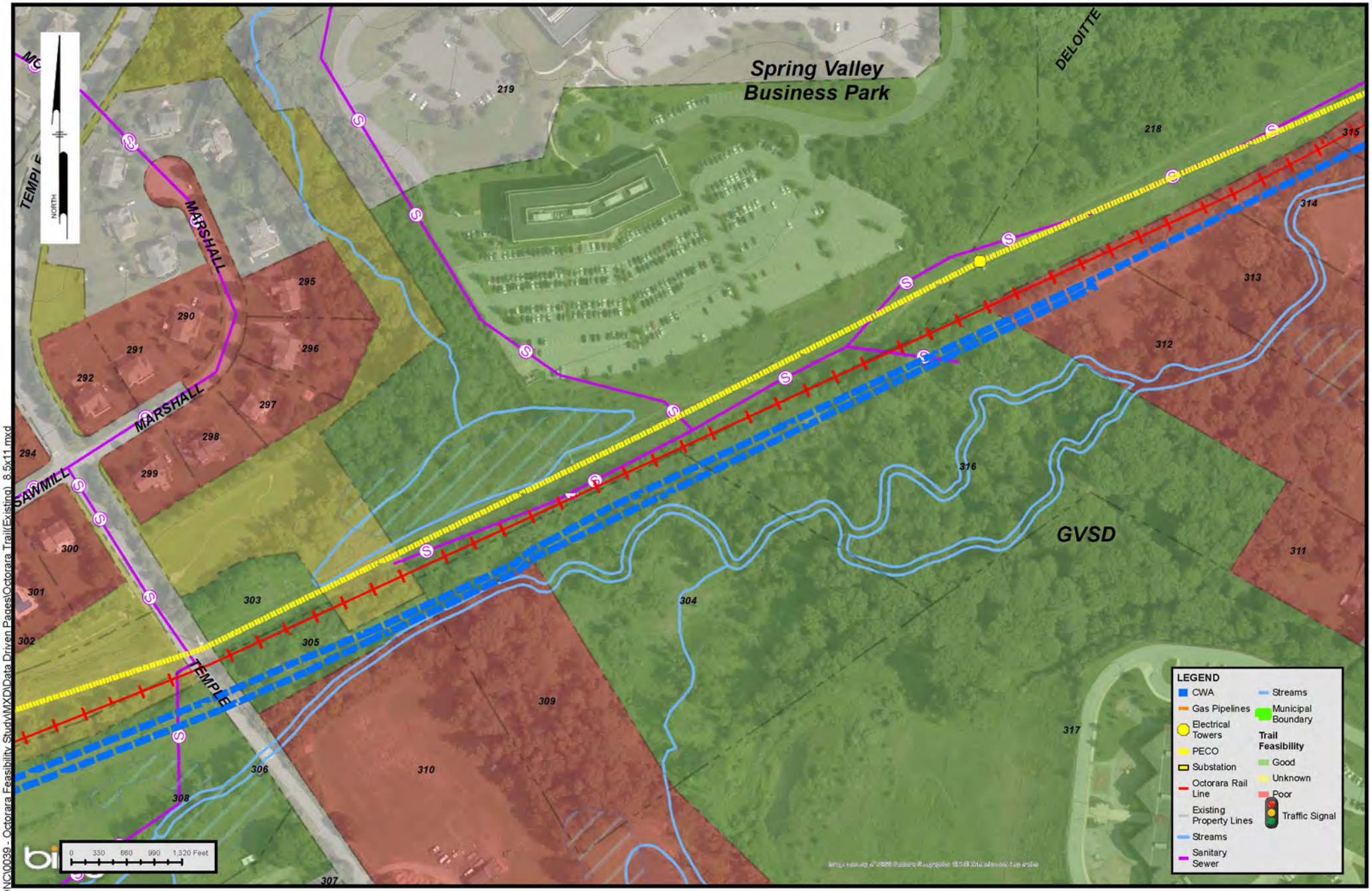

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Figure 4 of 16

Concord Township, Delaware County

Octoraro Greenway

Octoraro Greenway - Existing Conditions

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

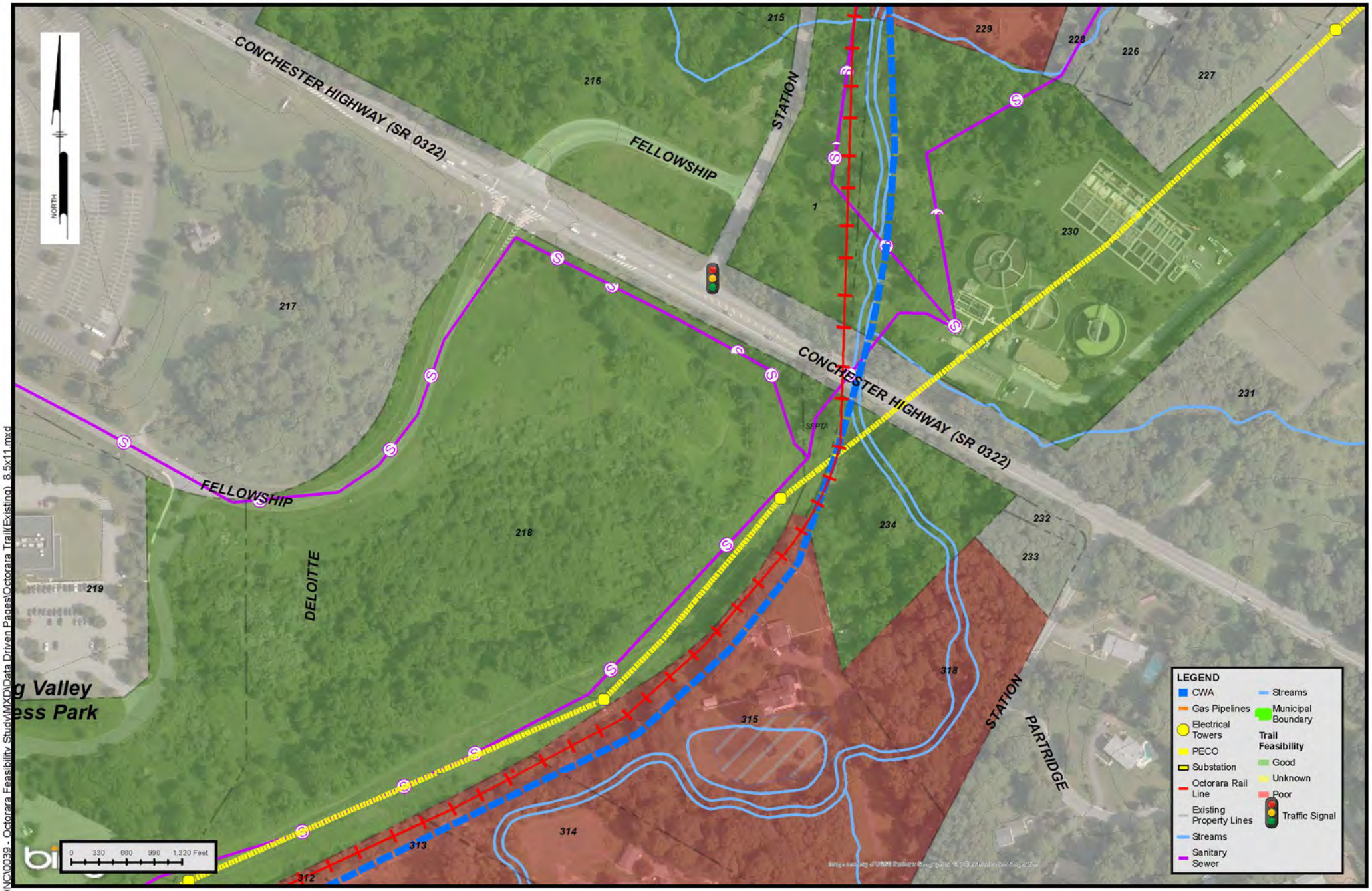

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Figure 5 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

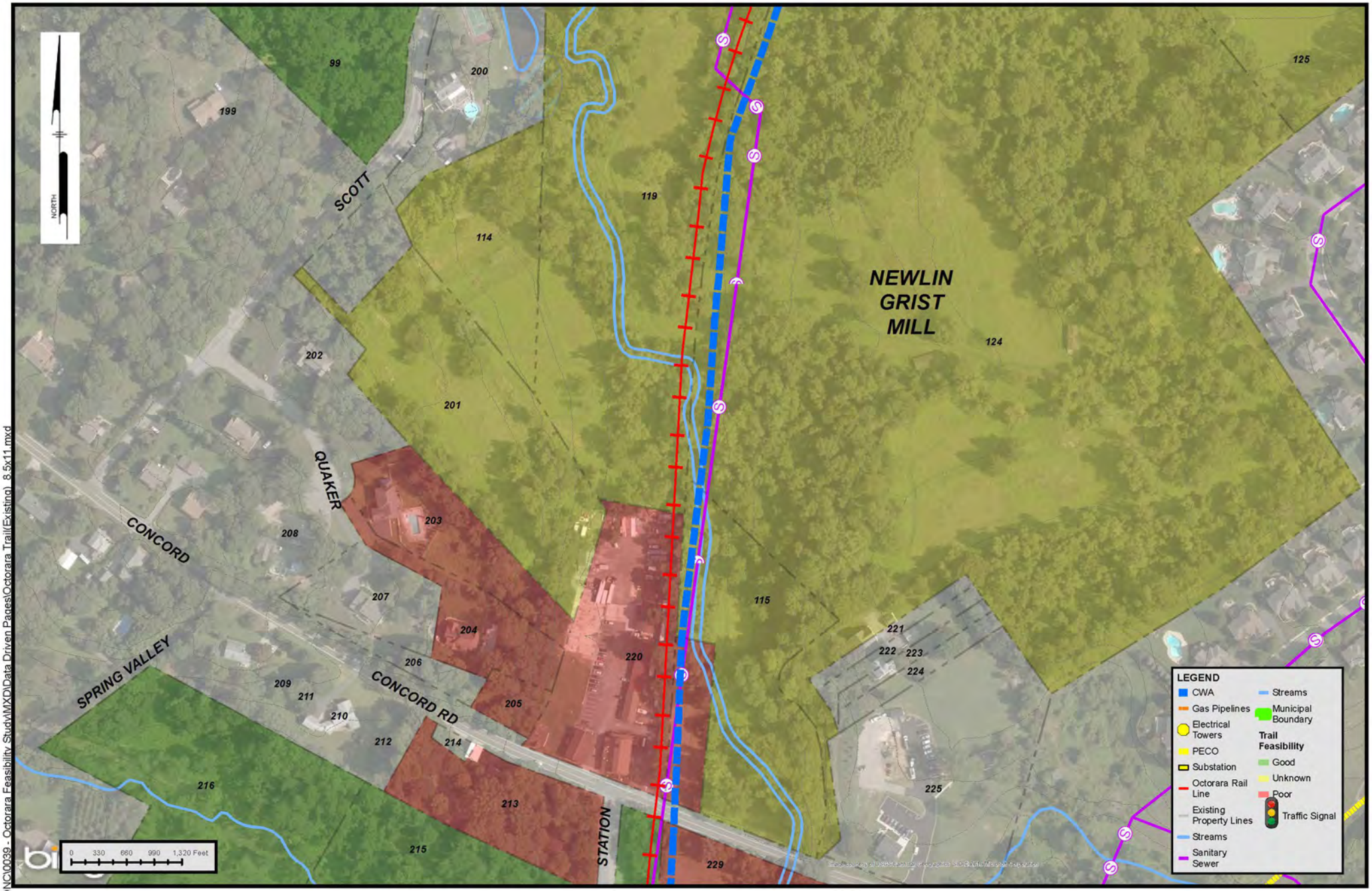

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Figure 6 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

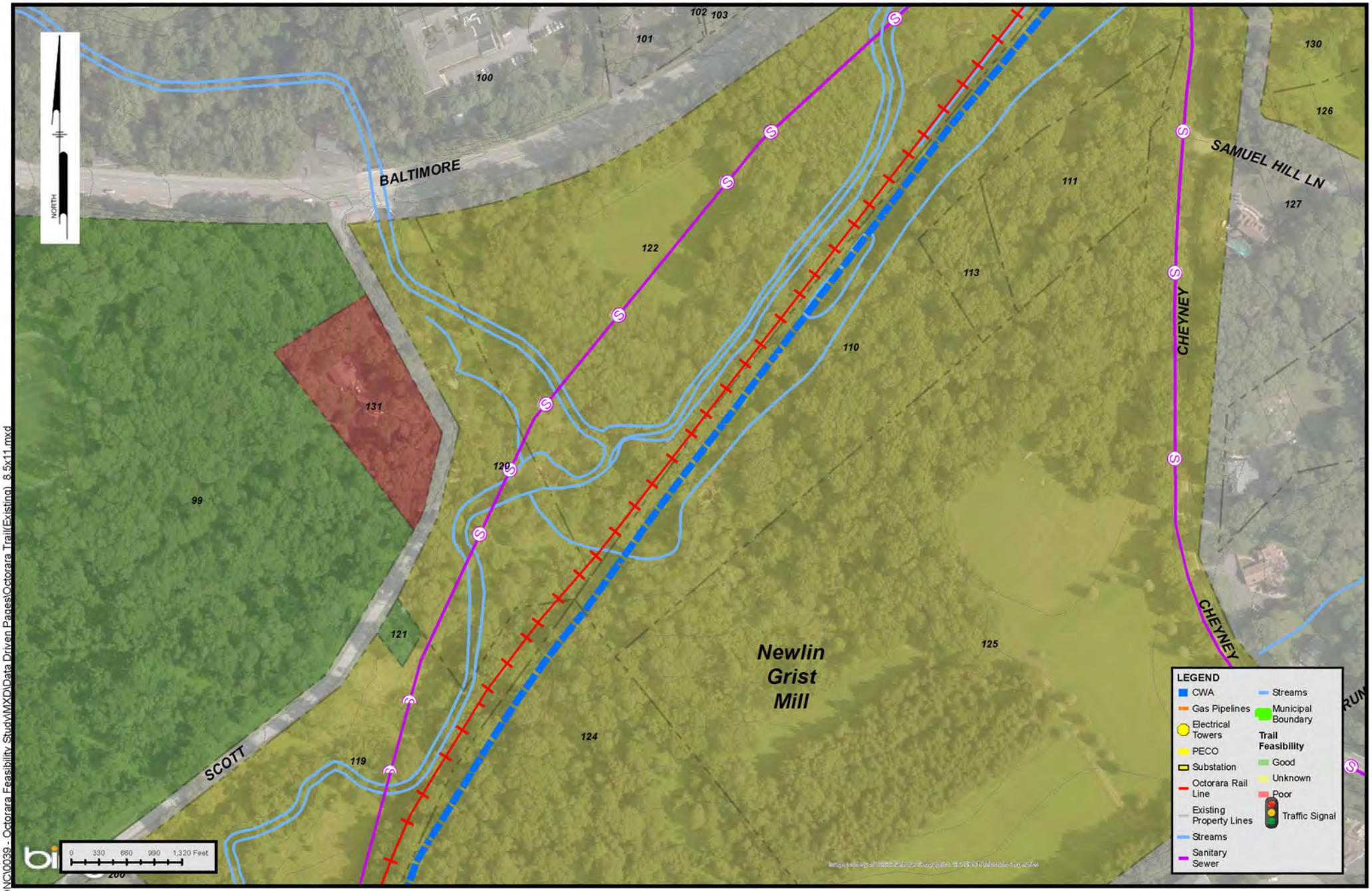

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Figure 7 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

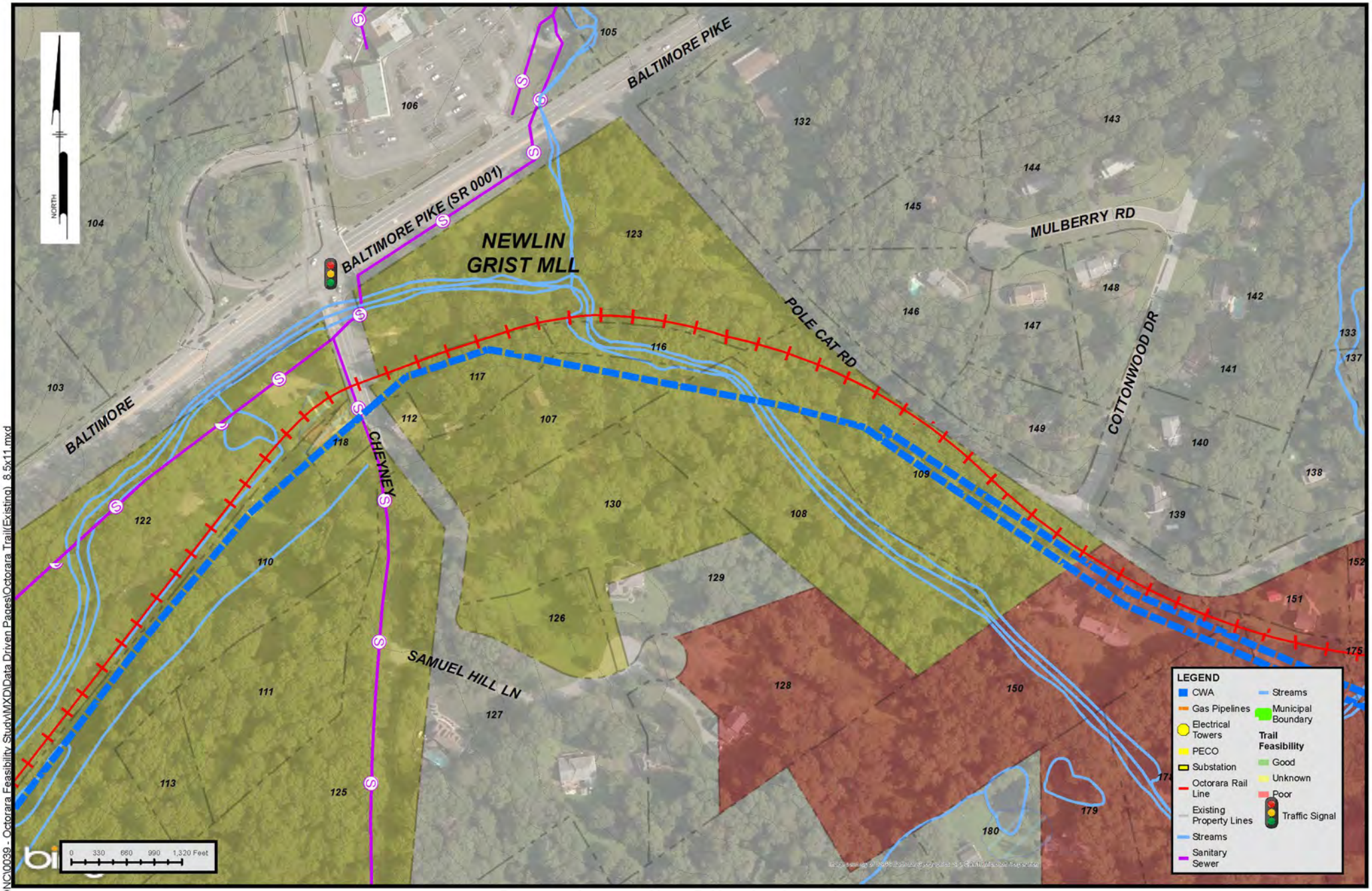

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Figure 8 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

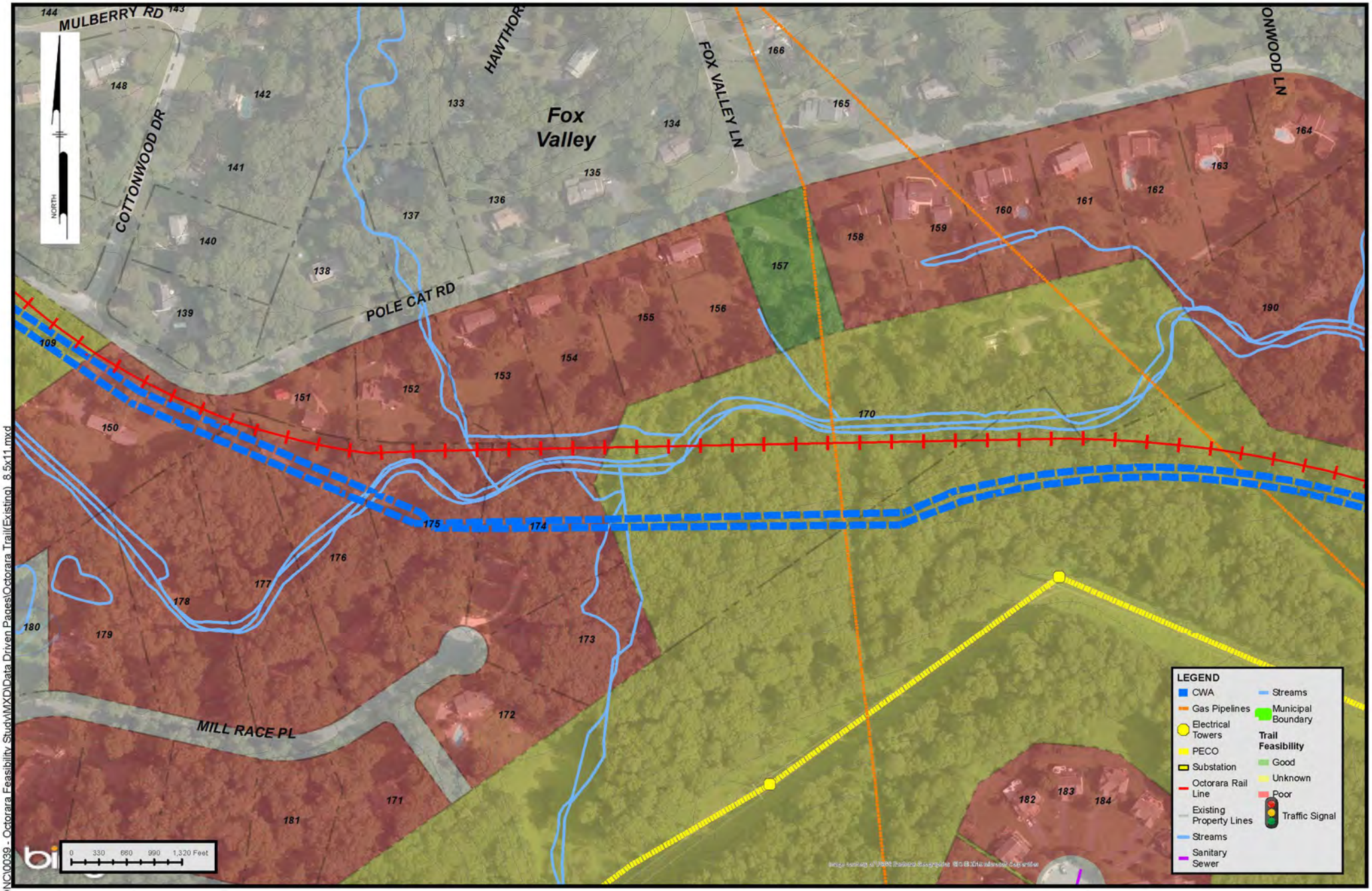

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Figure 9 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

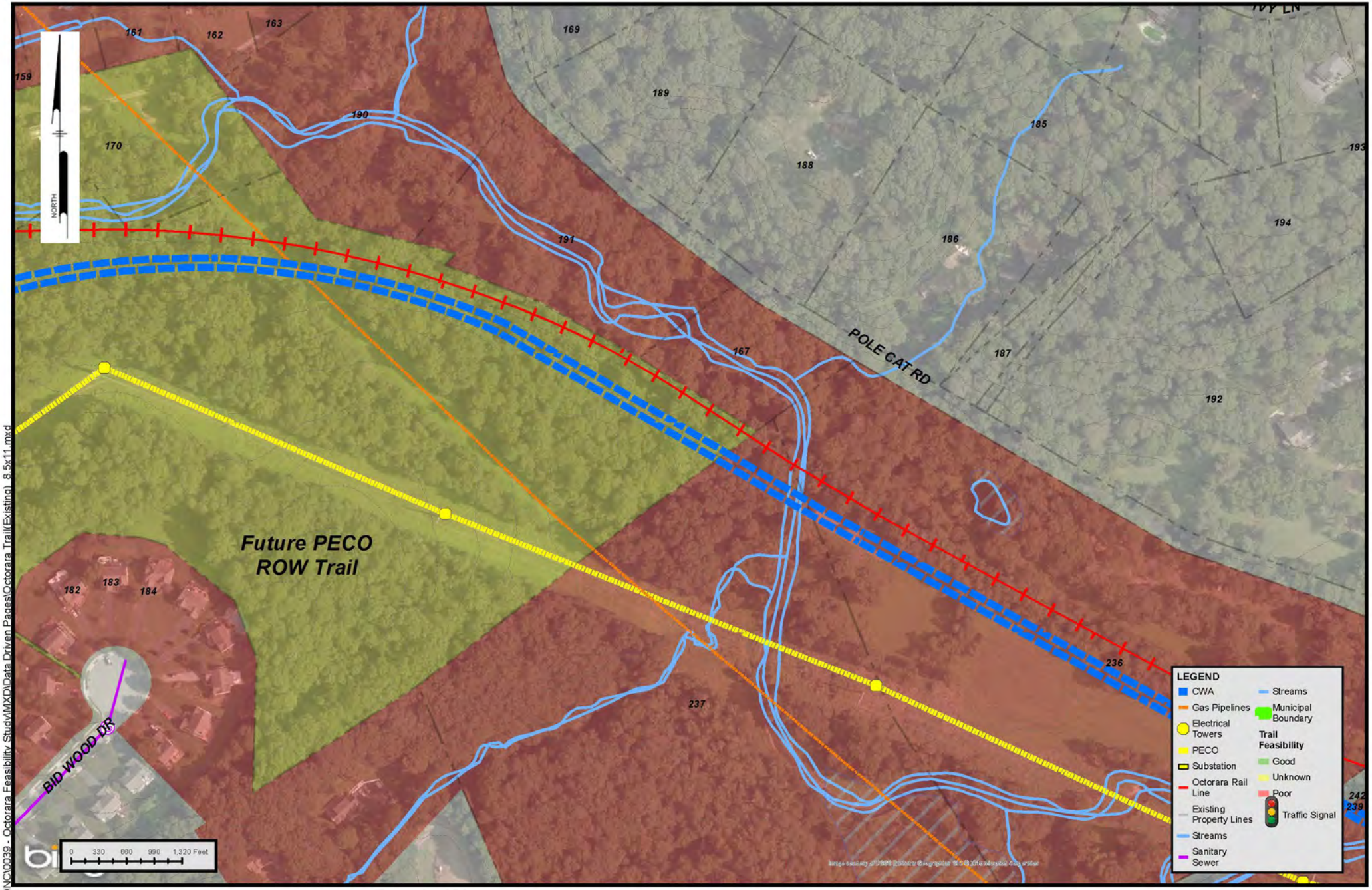

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Figure 10 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

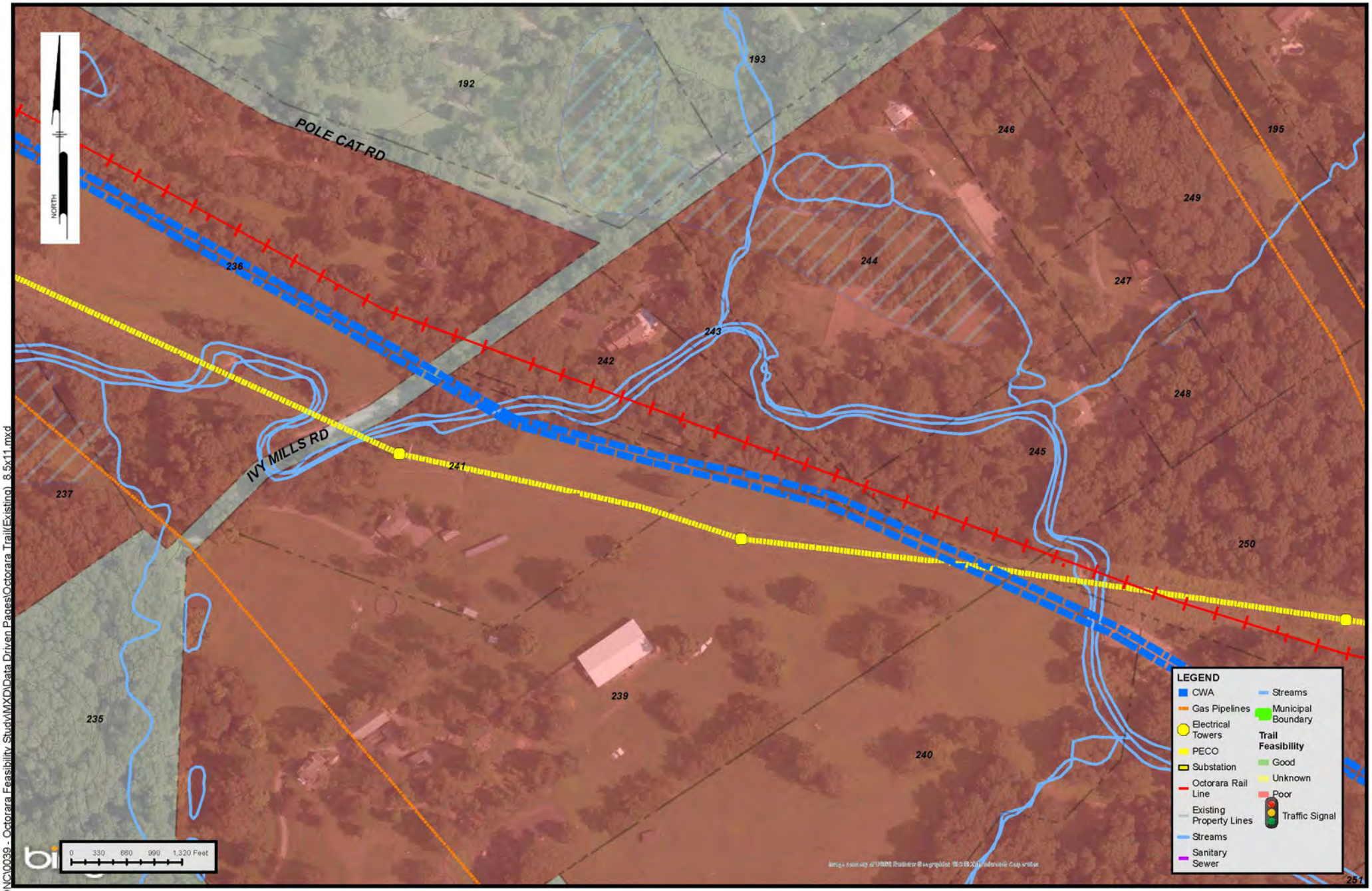

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Figure 11 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

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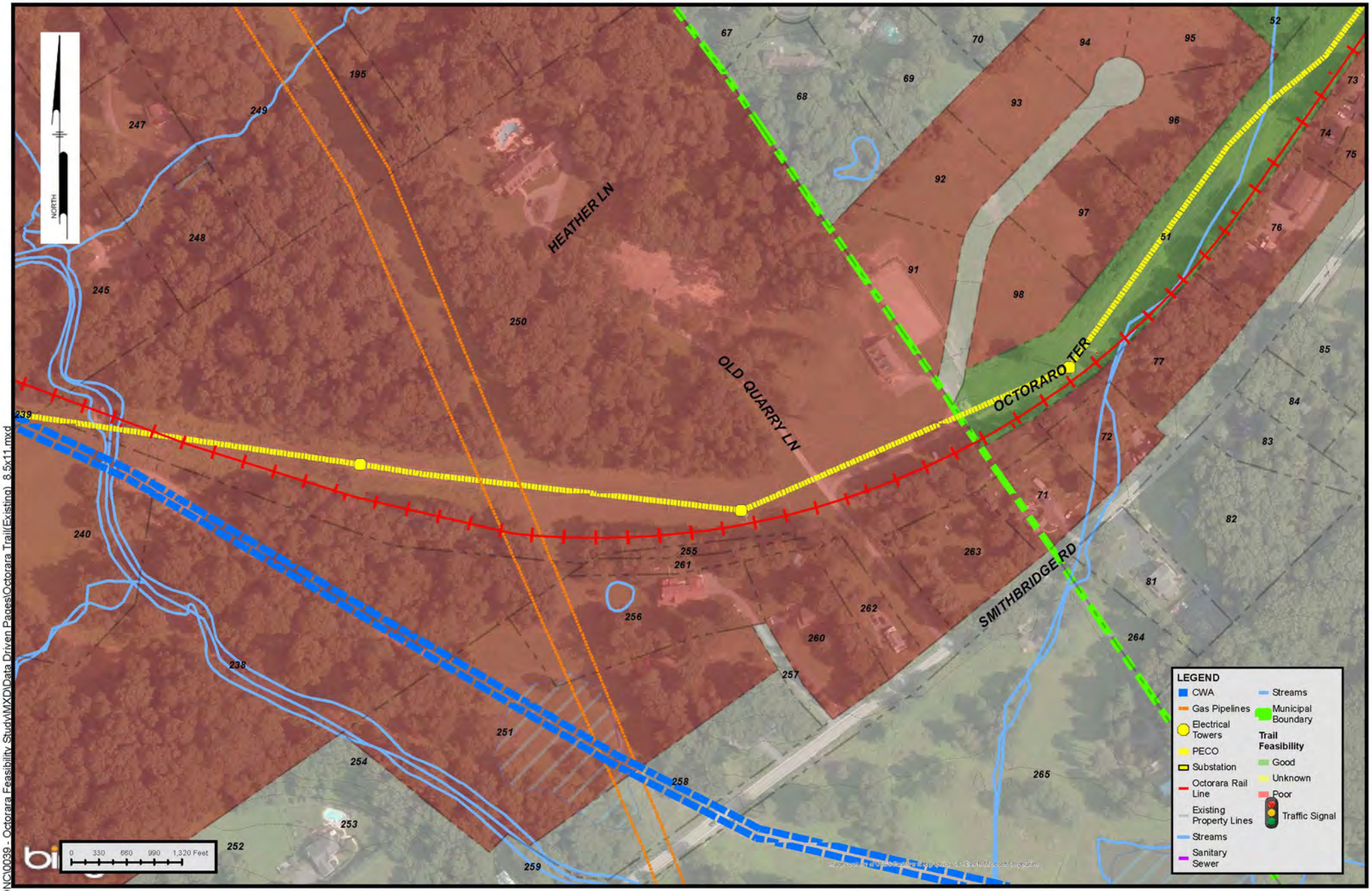

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Figure 12 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

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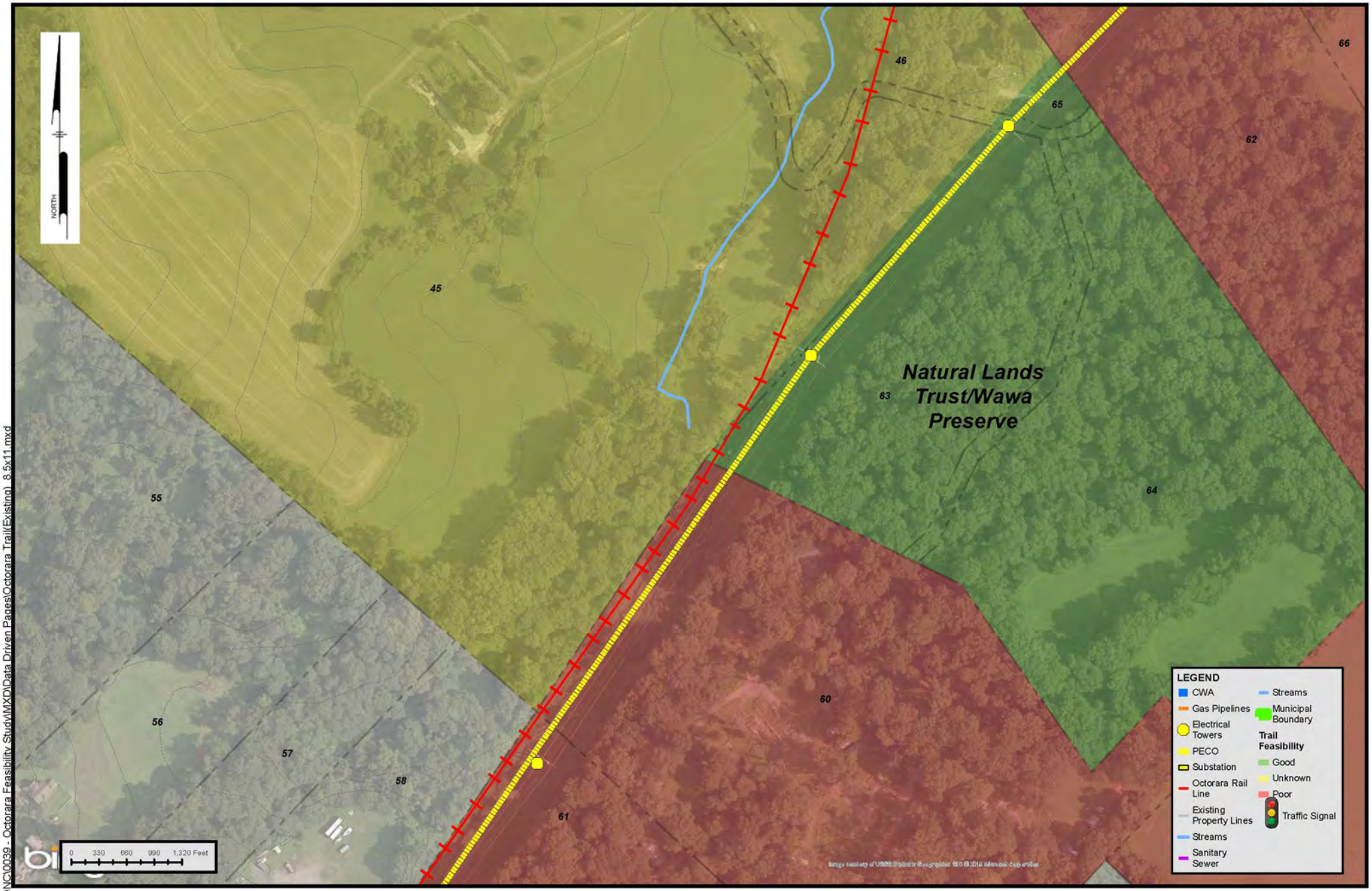
Figure 13 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

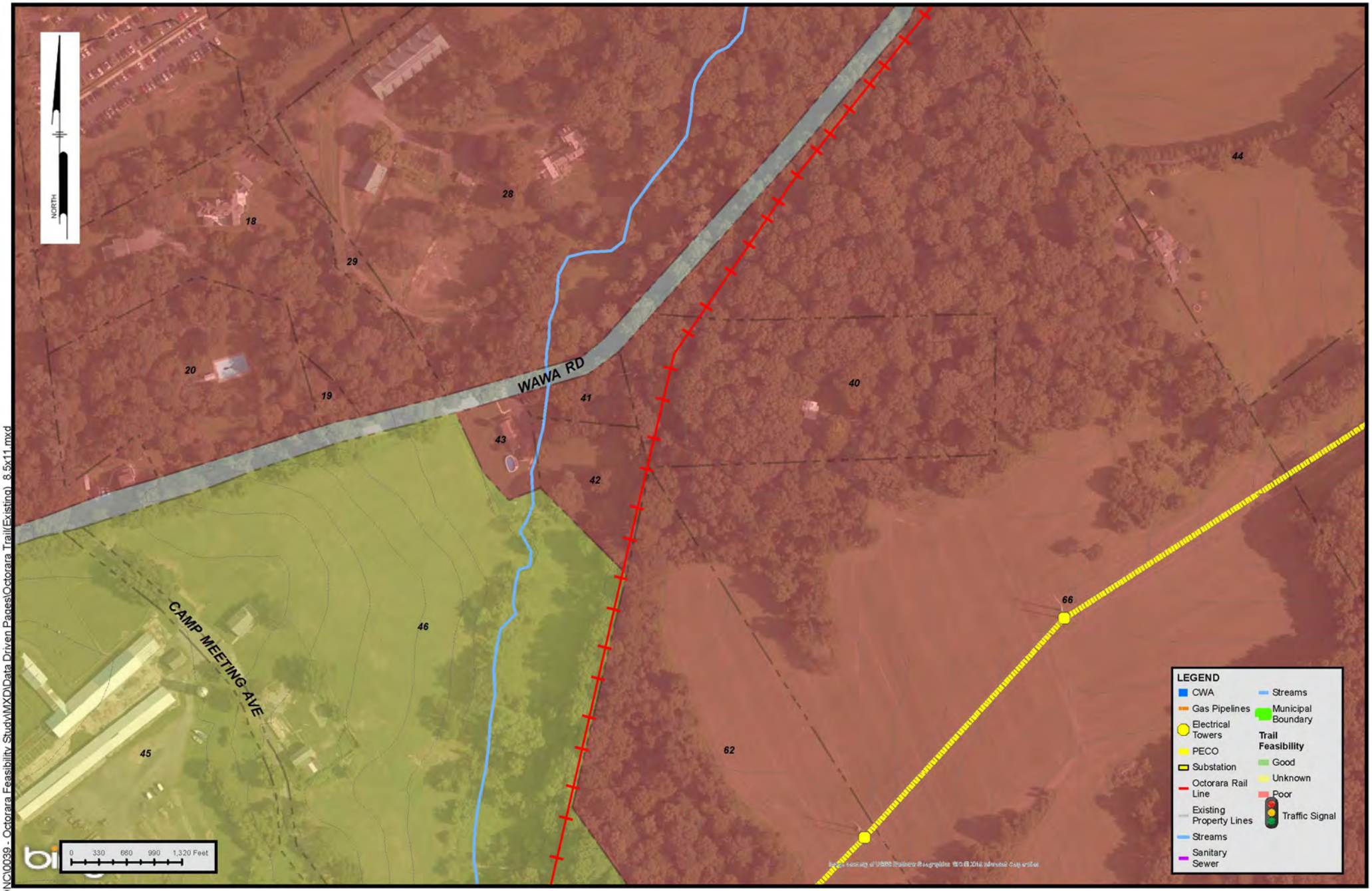
•All locations approximate, based on available Township and County GIS data.



Document Path: R:\Projects\CONC\00039 - Octorara Feasibility Study\MXD\Data Driven Pages\Octorara Trail(Existing) 8.5x11.mxd

Figure 14 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.



Document Path: R:\Projects\CONC\00039 - Octorara Feasibility Study\MXD\Data Driven Pages\Octorara Trail(Existing) 8.5x11.mxd

Figure 15 of 16	Concord Township, Delaware County Octoraro Greenway Octoraro Greenway - Existing Conditions	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

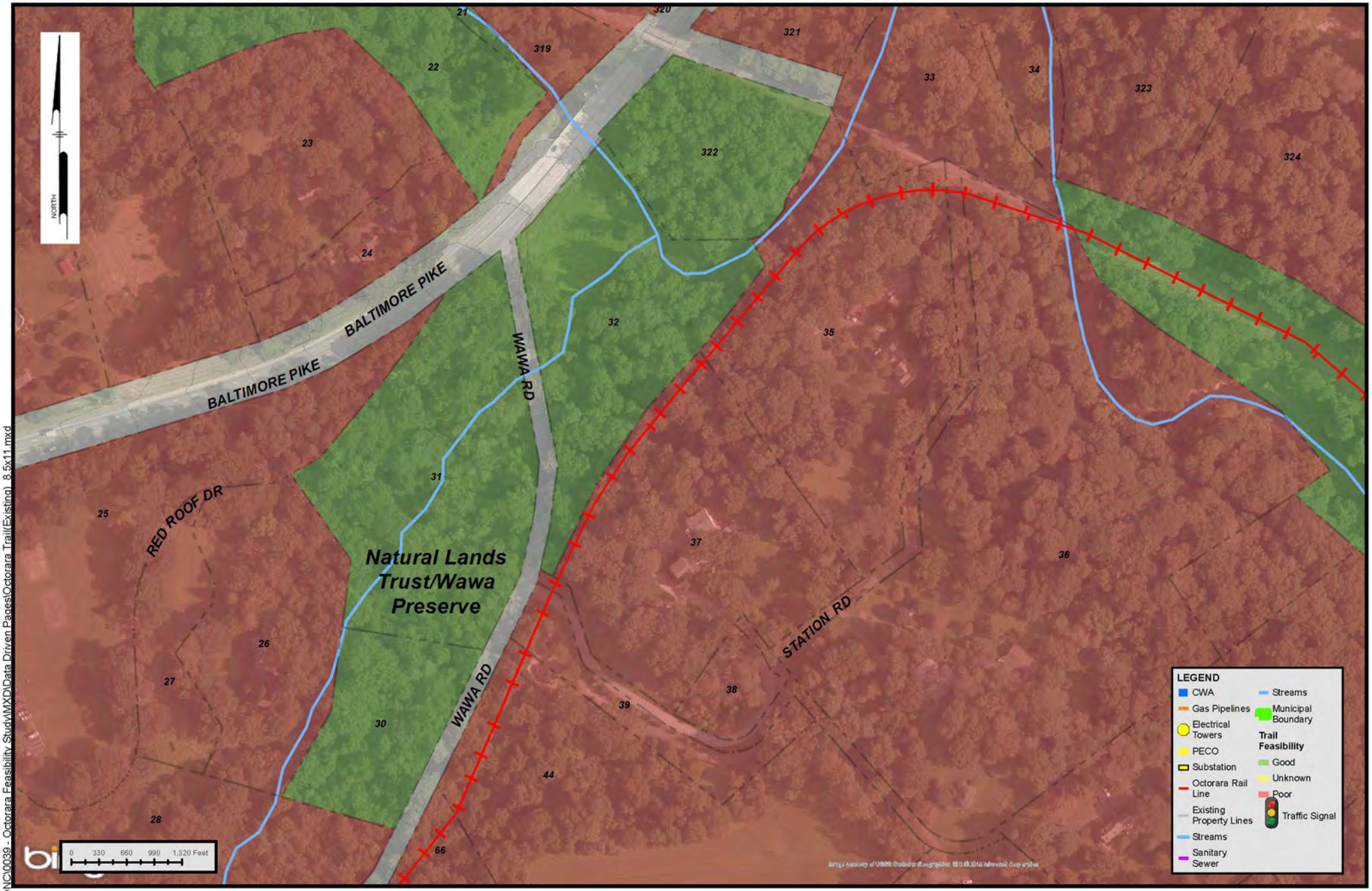


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Figure 16 of 16

Concord Township, Delaware County

Octoraro Greenway

Octoraro Greenway - Existing Conditions

Pennoni 50

One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

Appendix B:
Proposed Greenway Plans

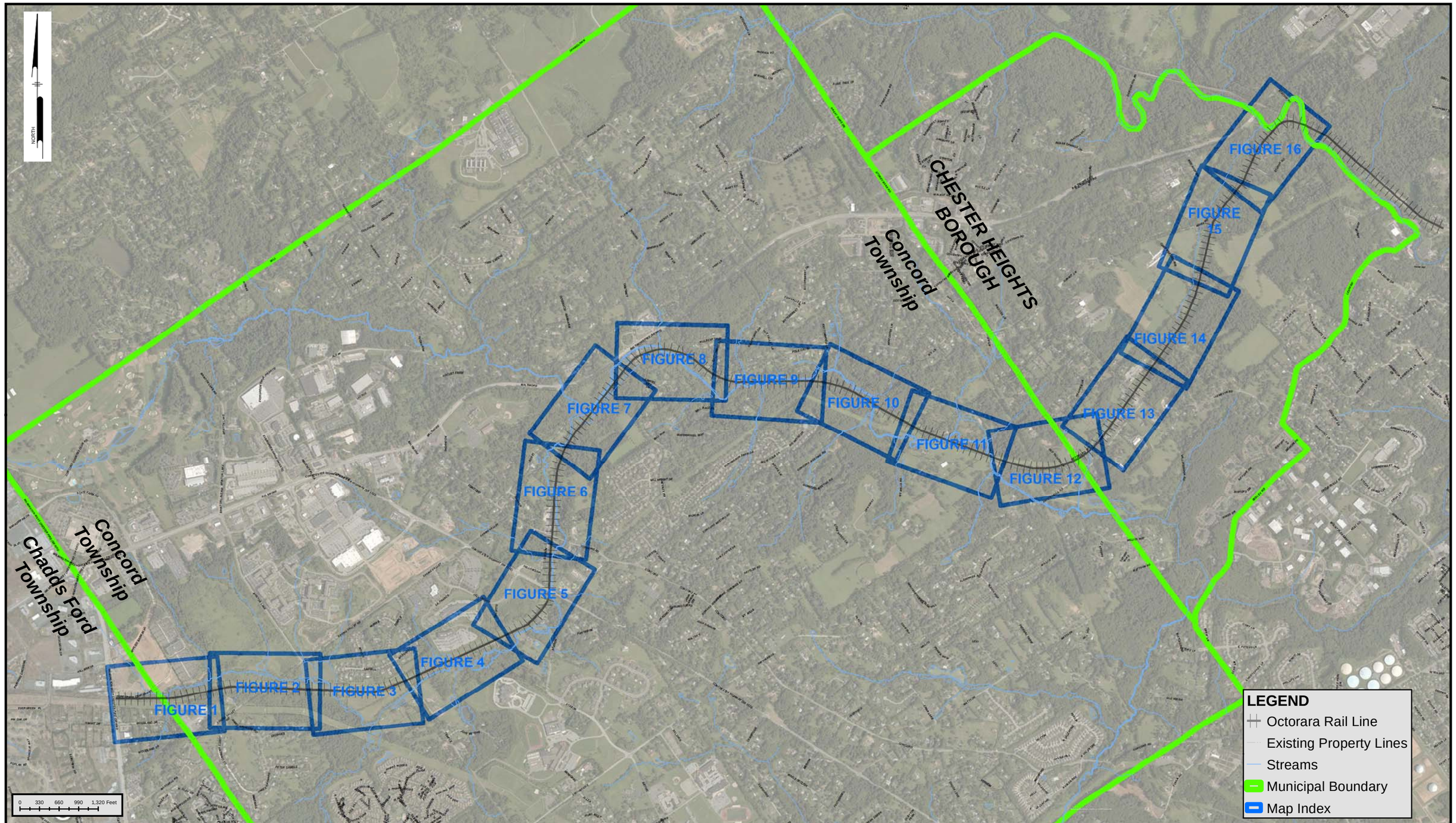

Figure K	Concord Township, Delaware County Octoraro Greenway OCTORARO GREENWAY - KEY MAP	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

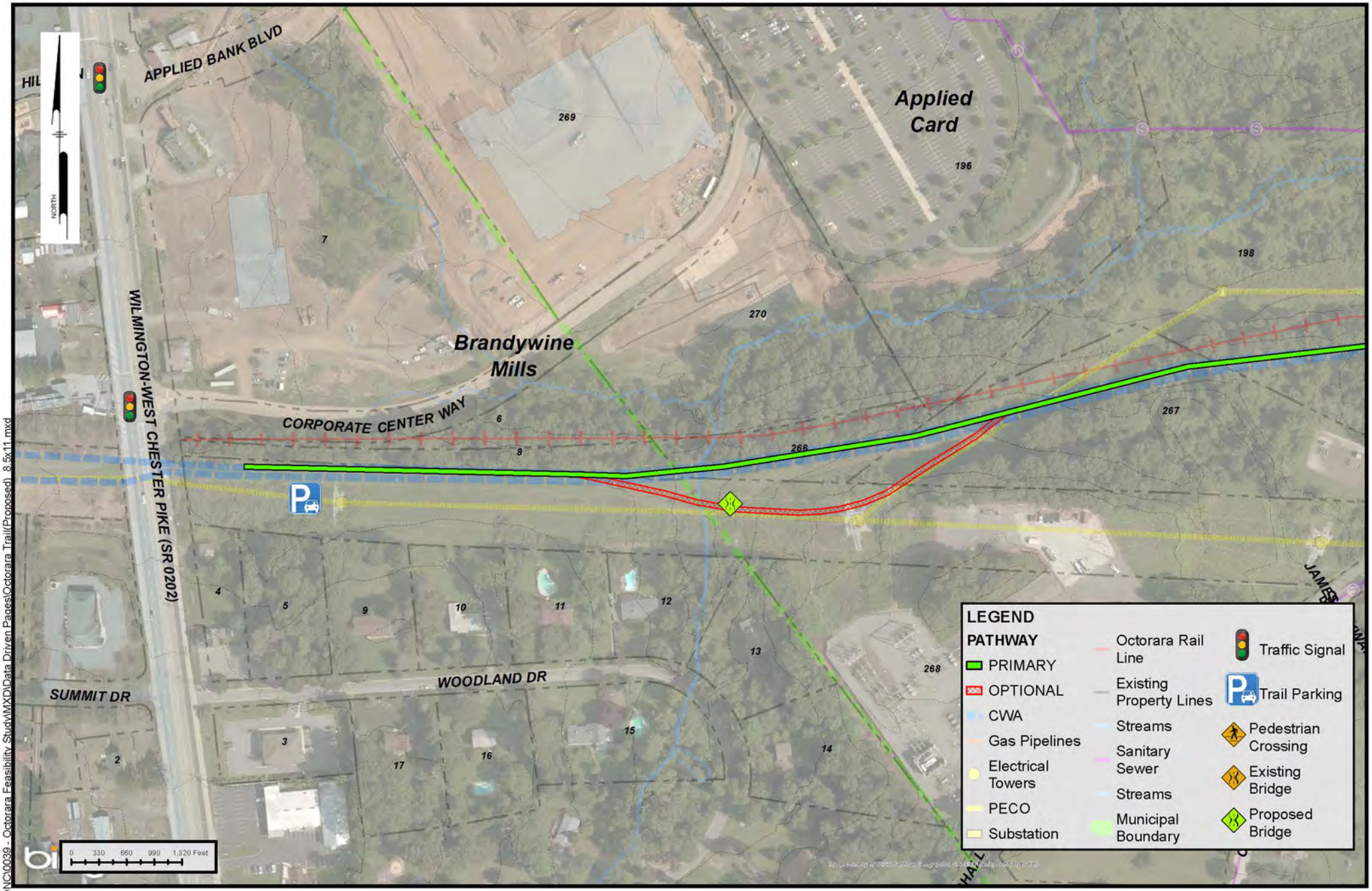

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Figure 1 of 16

Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

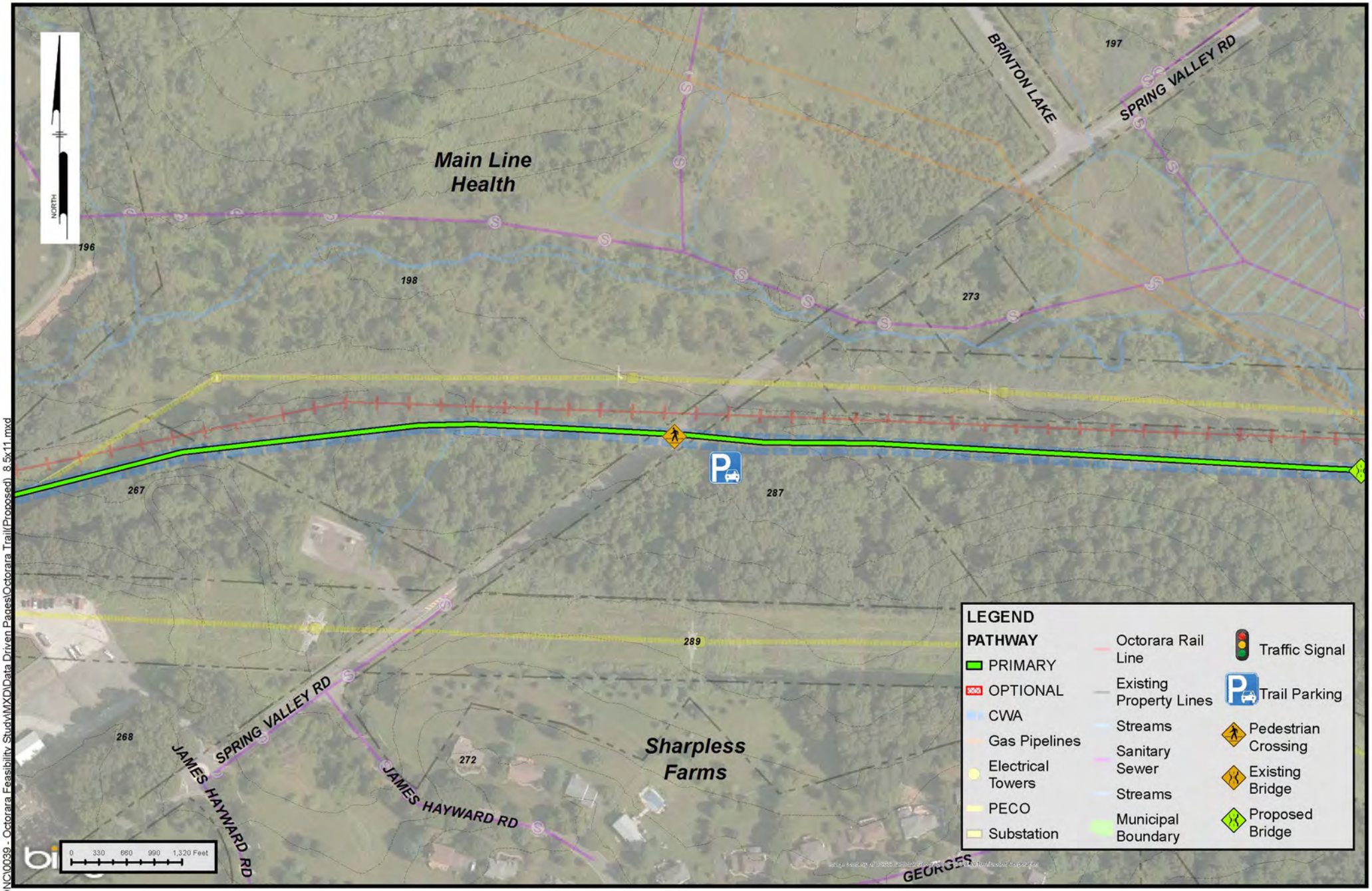

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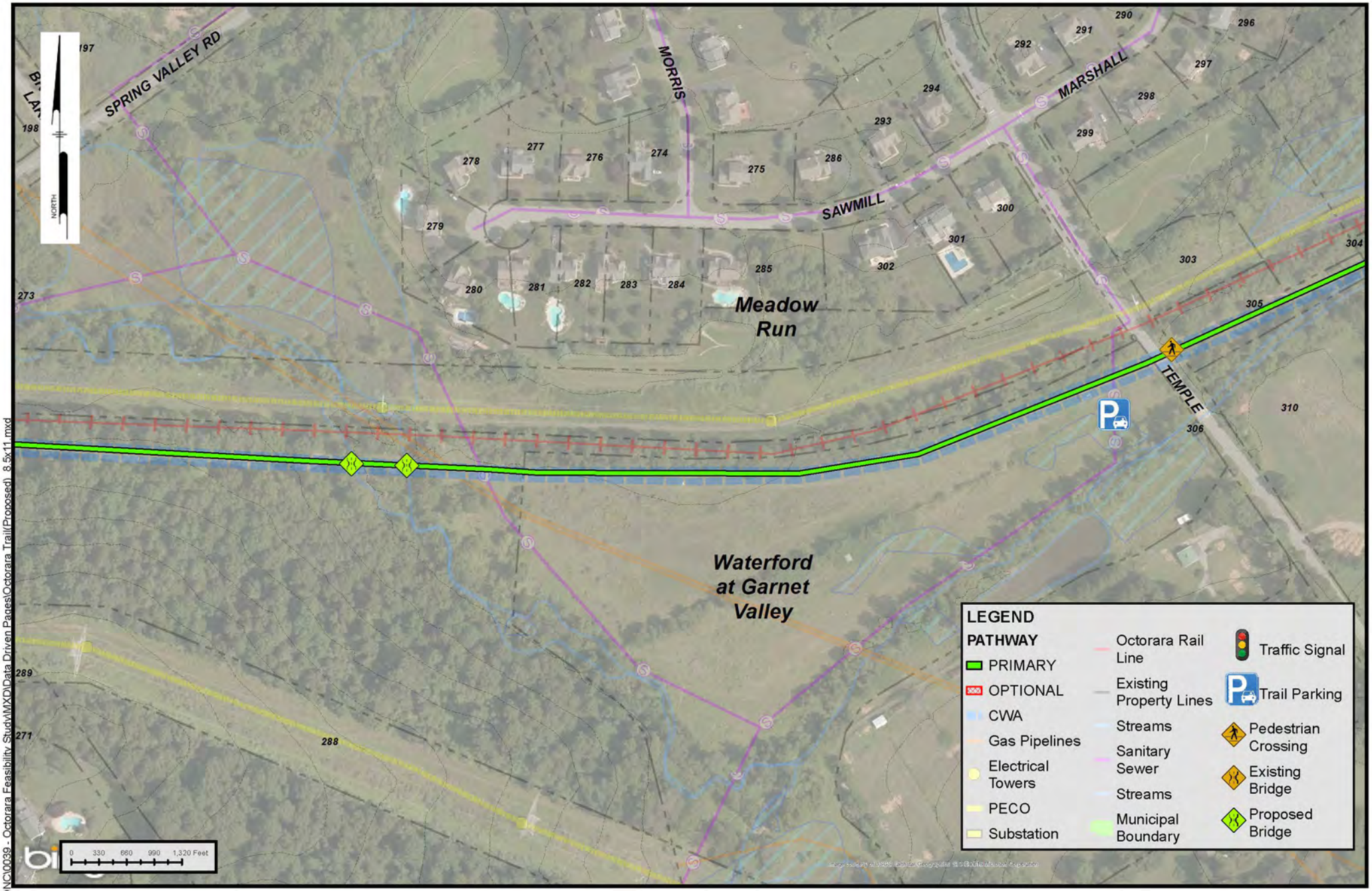
Figure 2 of 16	Concord Township, Delaware County Octoraro Trail - Greenway Proposed Greenway Layout	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

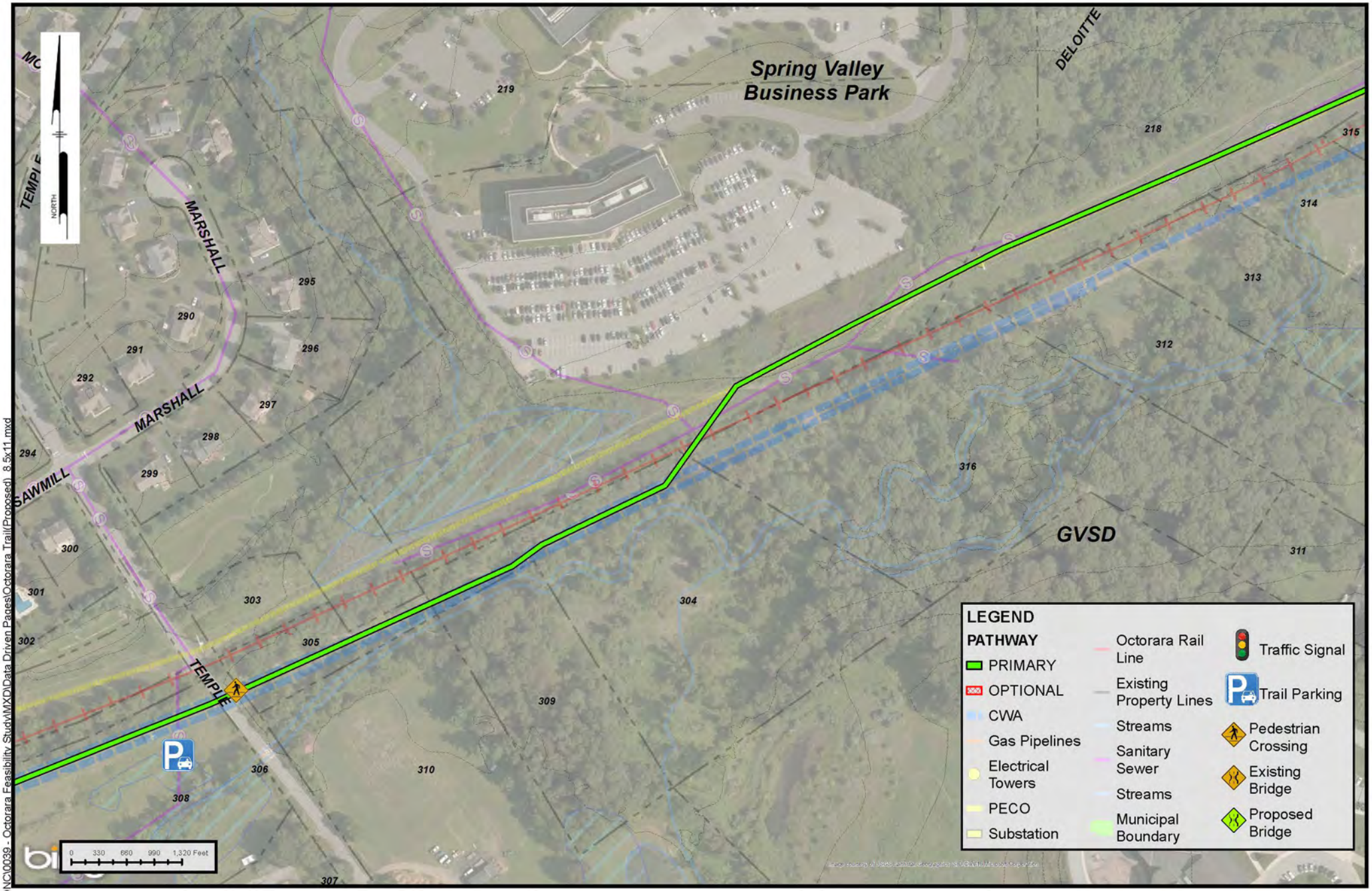
•All locations approximate, based on available Township and County GIS data.



Document Path: R:\Projects\CONC\00039 - Octorara Feasibility Study\MXD\Data Driven Pages\Octorara Trail(Proposed) 8.5x11.mxd

Figure 3 of 16	Concord Township, Delaware County Octoraro Trail - Greenway Proposed Greenway Layout	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.



Document Path: R:\Projects\CONC\00039 - Octorara Feasibility Study\MXD\Data Driven Pages\Octorara Trail(Proposed) 8.5x11.mxd

Figure 4 of 16	Concord Township, Delaware County Octoraro Trail - Greenway Proposed Greenway Layout	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

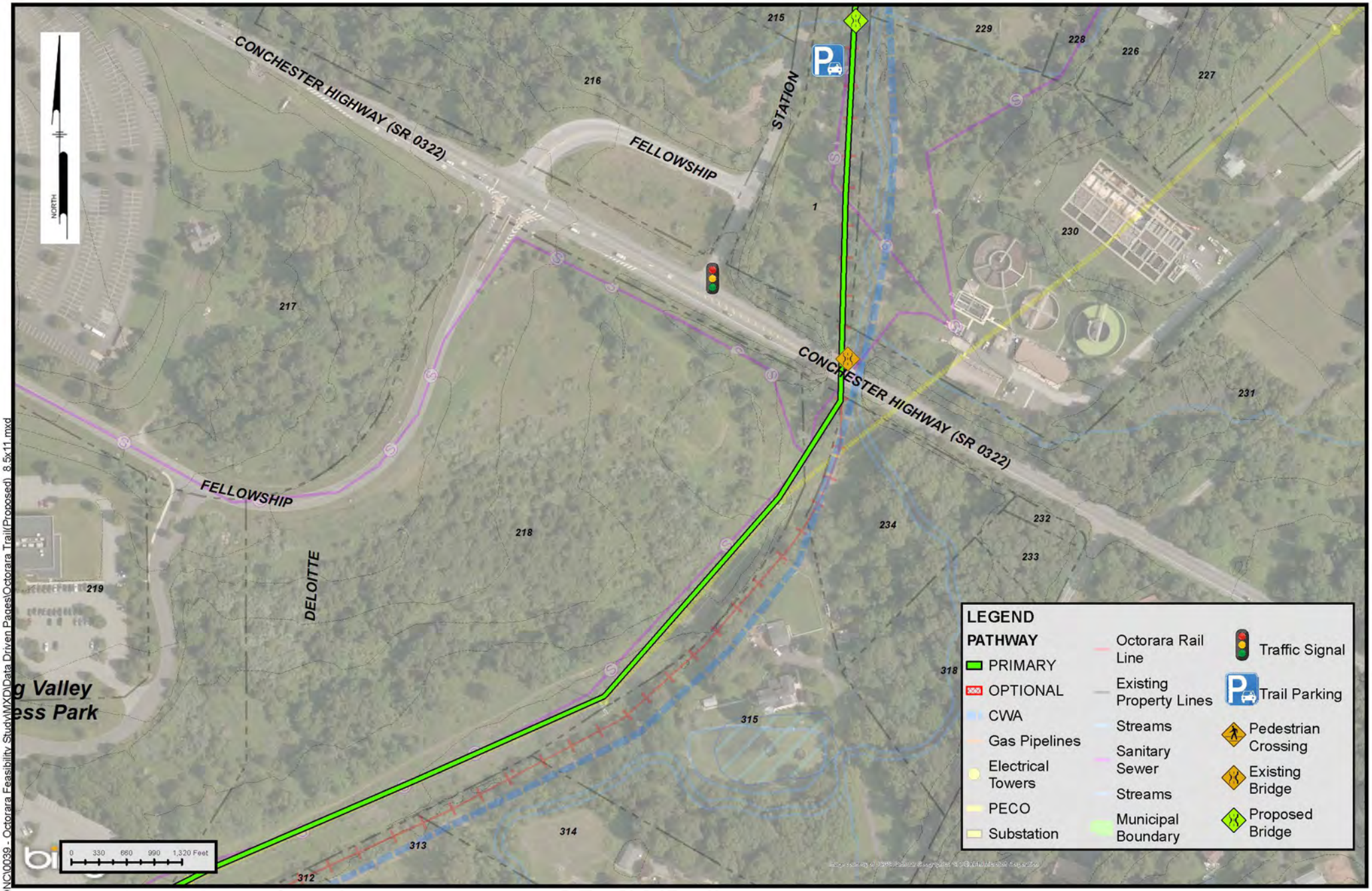


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Figure 5 of 16

Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

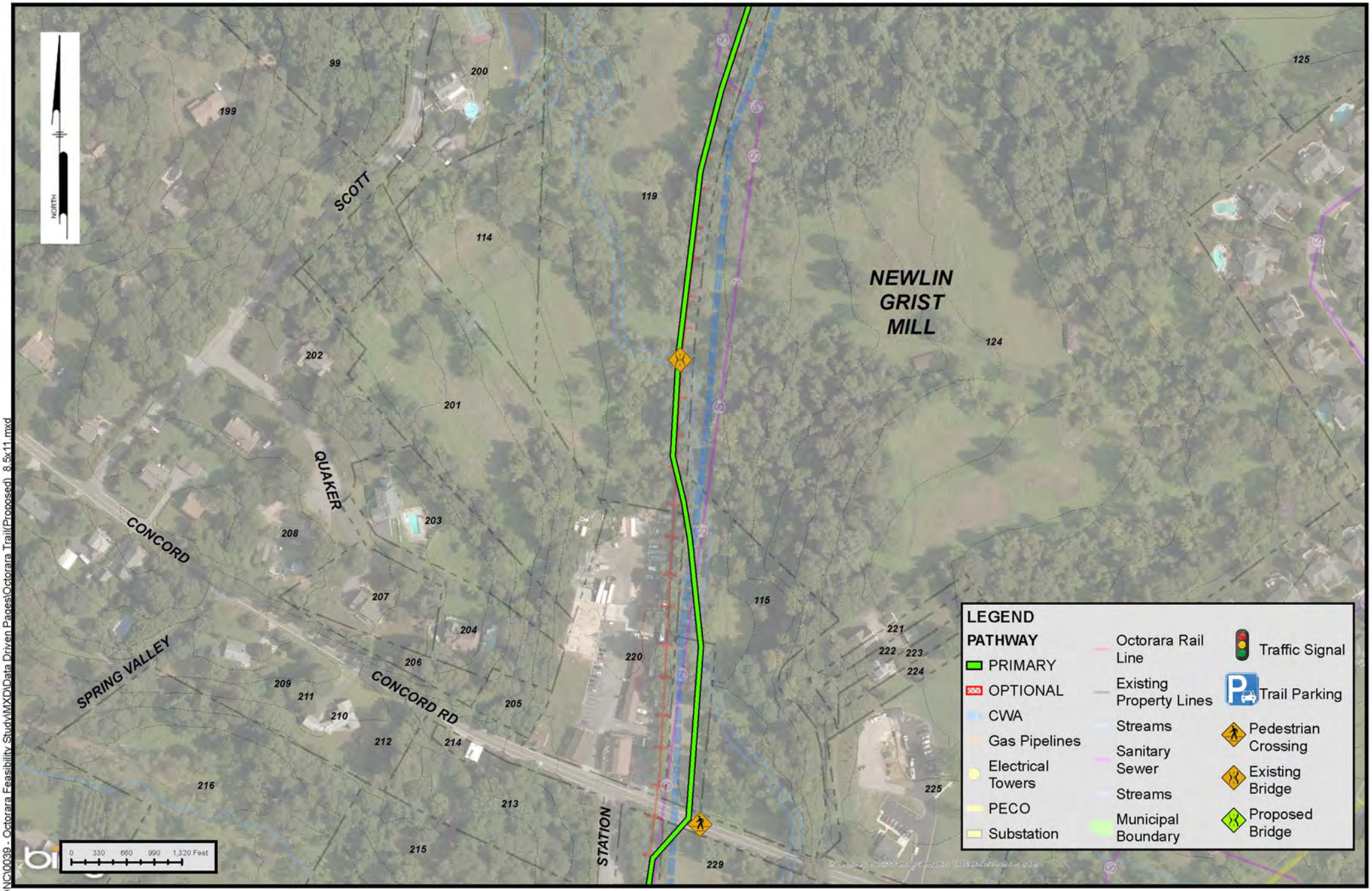

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Figure 6 of 16

Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

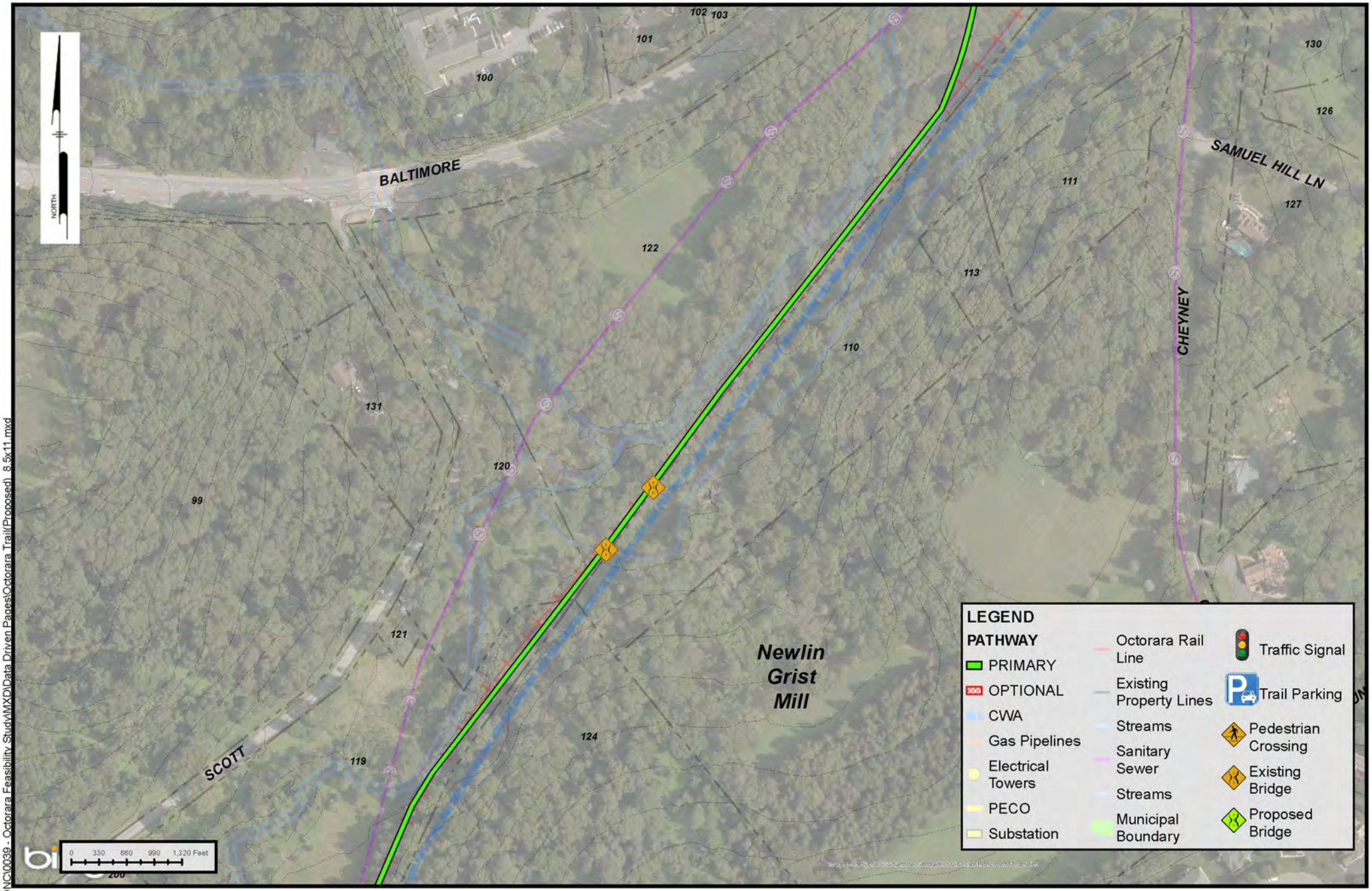

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Figure 7 of 16	Concord Township, Delaware County Octoraro Trail - Greenway Proposed Greenway Layout	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

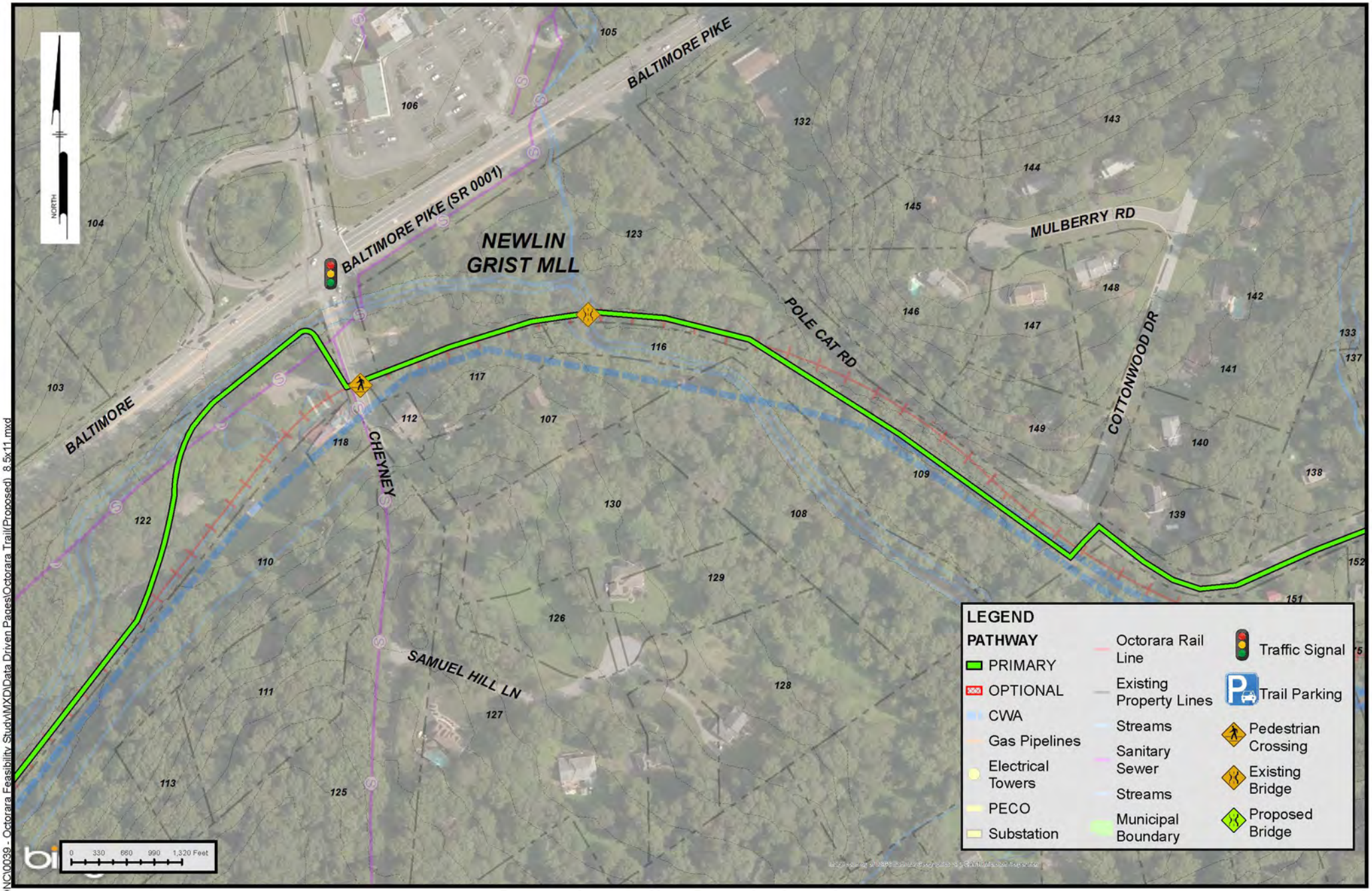

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Figure 8 of 16

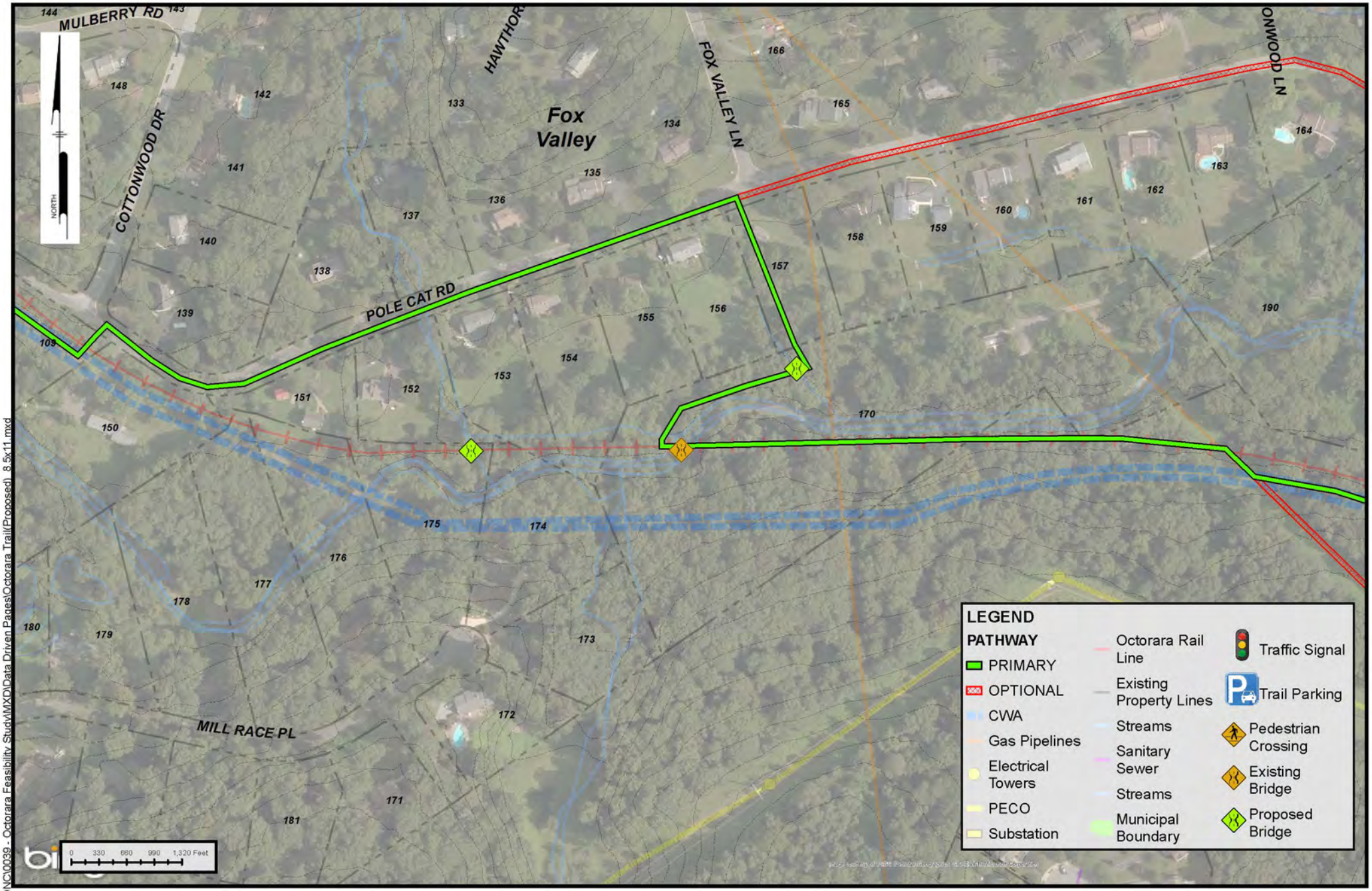
Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.



Document Path: R:\Projects\CONC\00039 - Octorara Feasibility Study\MXD\Data Driven Pages\Octorara Trail(Proposed) 8.5x11.mxd

Figure 9 of 16

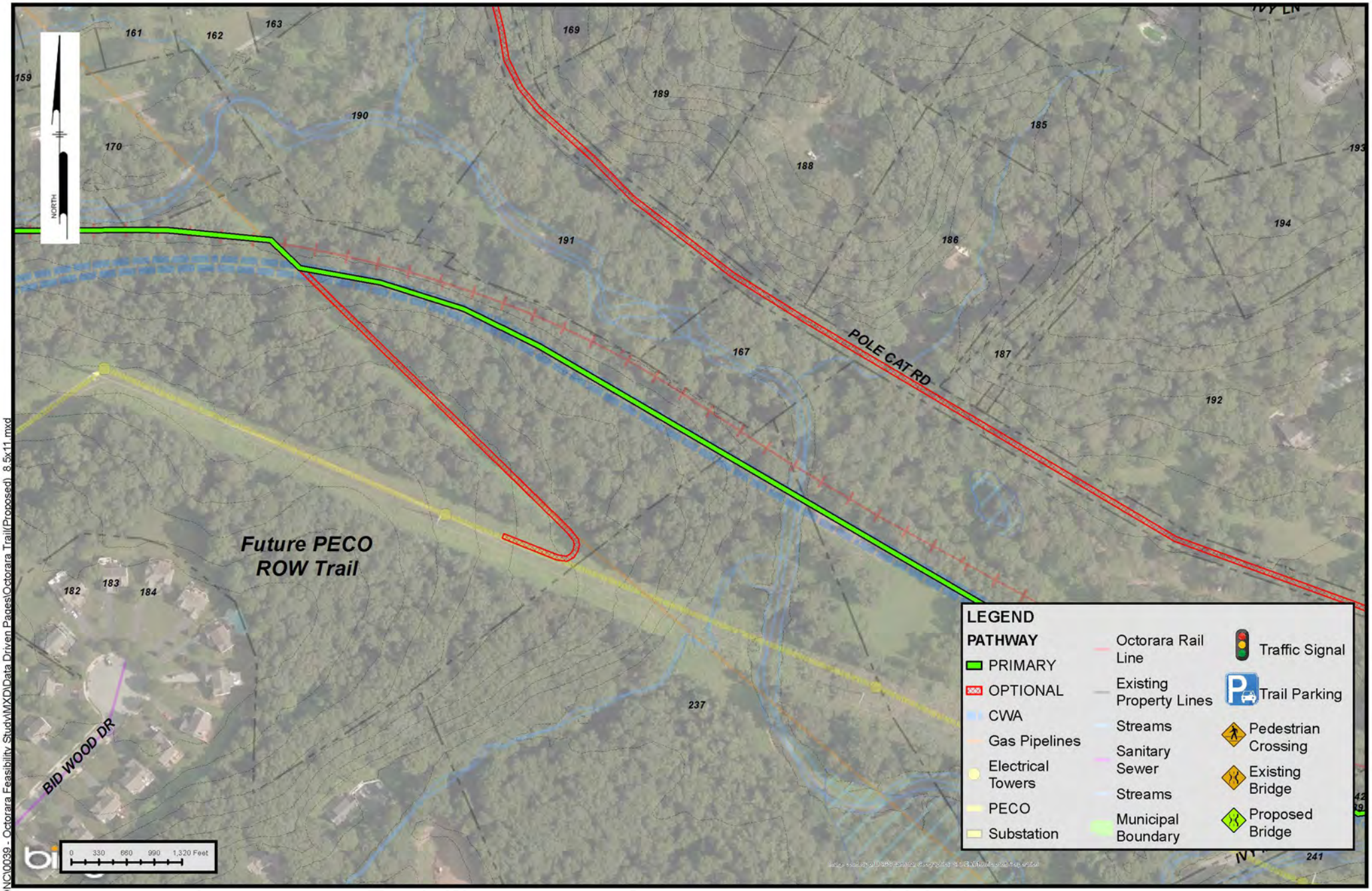
Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.



Document Path: R:\Projects\CONC\00039 - Octorara Feasibility Study\MXD\Data Driven Pages\Octorara Trail(Proposed) 8.5x11.mxd

Figure 10 of 16	Concord Township, Delaware County Octoraro Trail - Greenway Proposed Greenway Layout	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

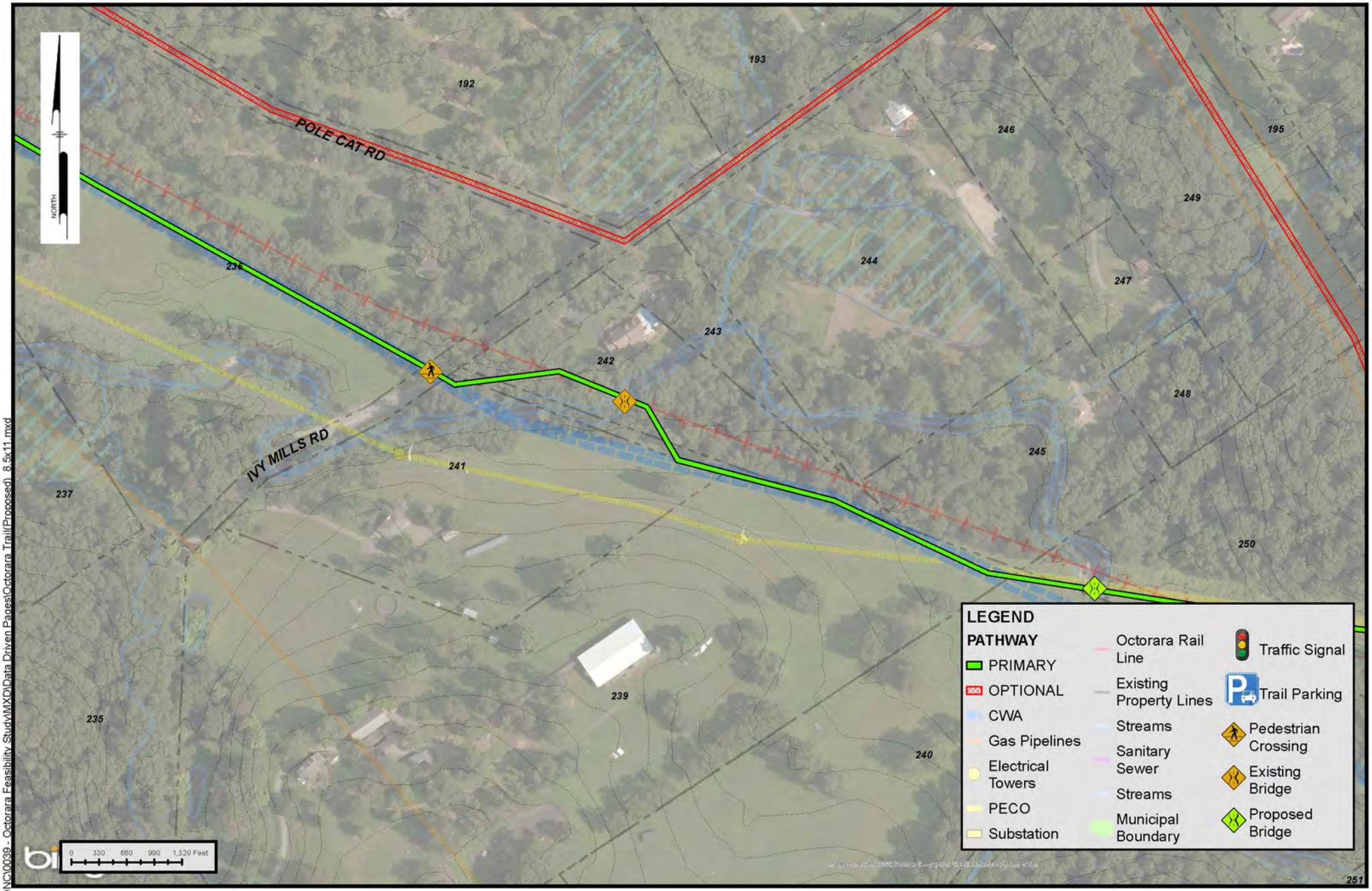


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Figure
11 of 16

Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

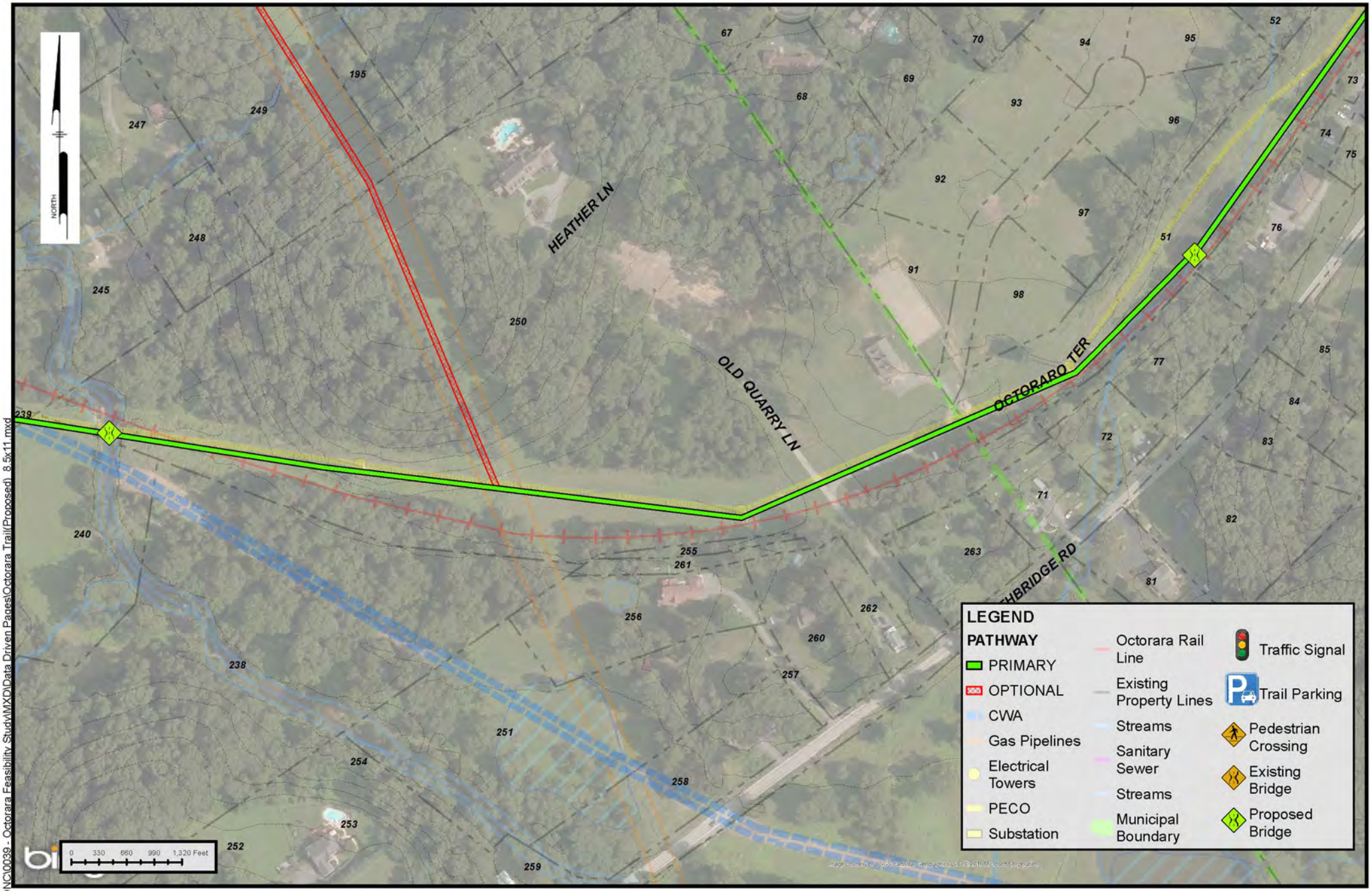

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Figure
12 of 16

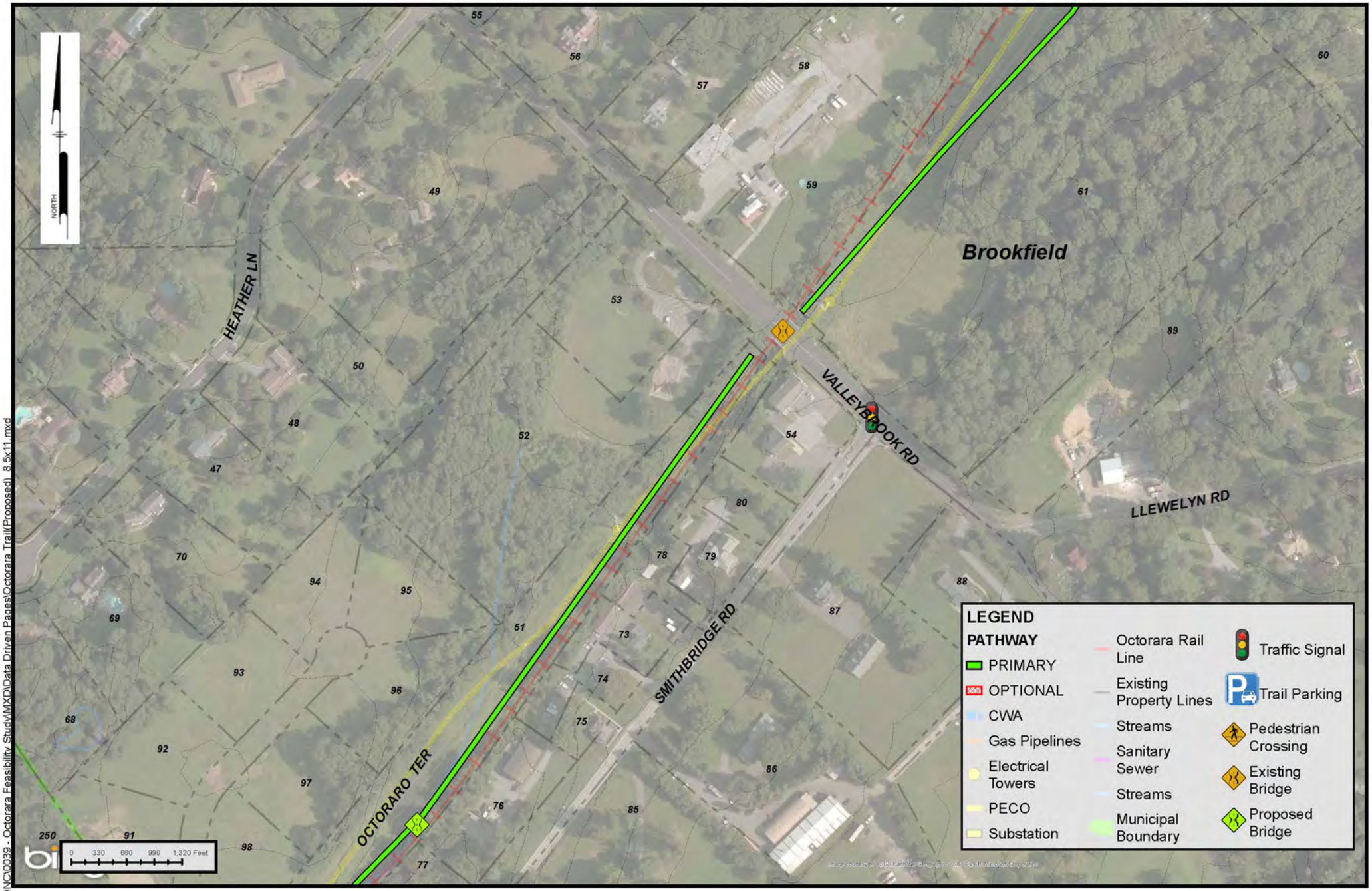
Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.



Document Path: R:\Projects\CONC\00039 - Octorara Feasibility Study\MXD\Data Driven Pages\Octorara Trail(Proposed) 8.5x11.mxd

Figure 13 of 16	Concord Township, Delaware County Octoraro Trail - Greenway **Proposed Greenway Layout**	Pennoni 50 One South Church Street 2nd Floor West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

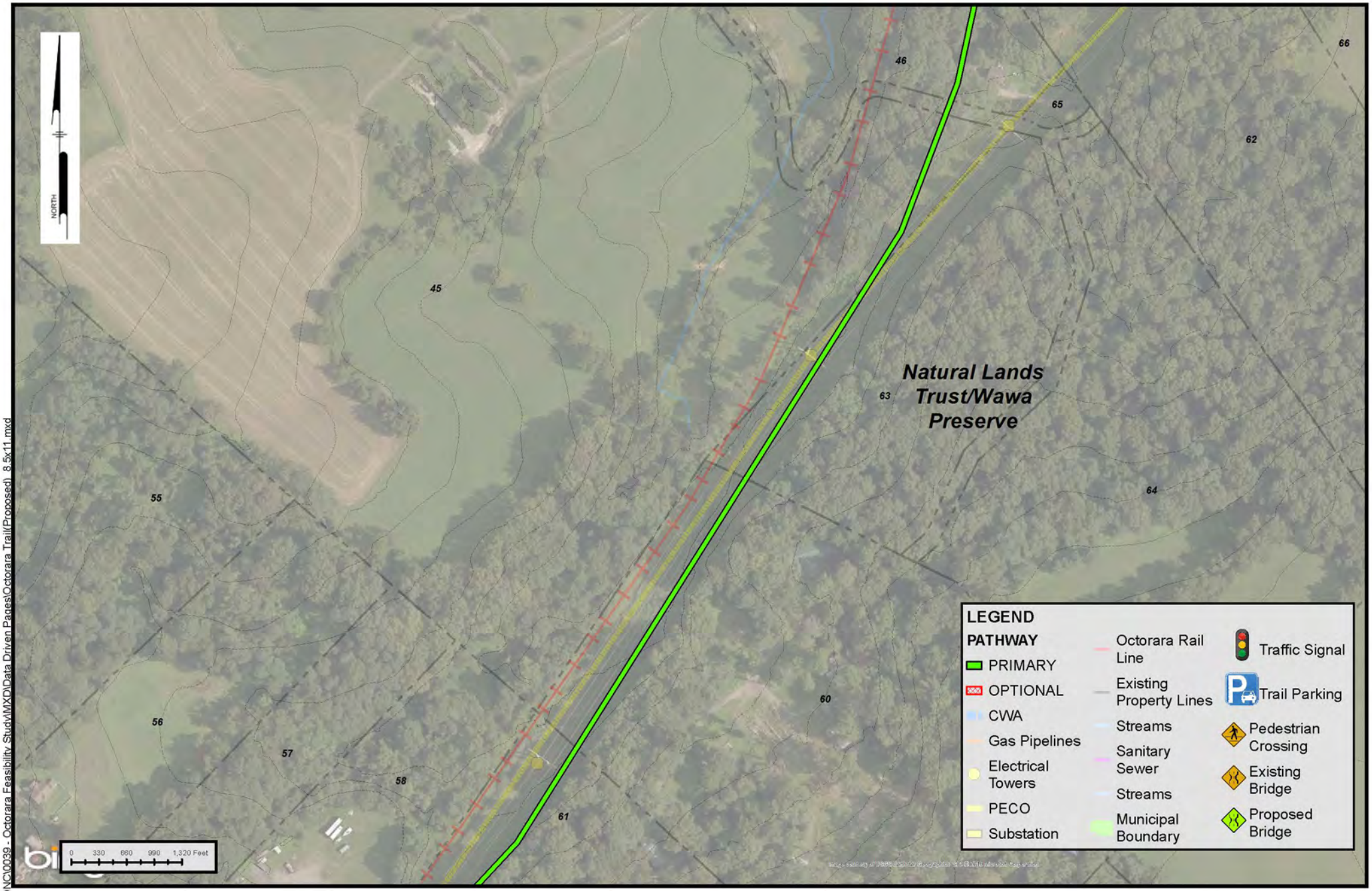


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Figure 14 of 16

Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

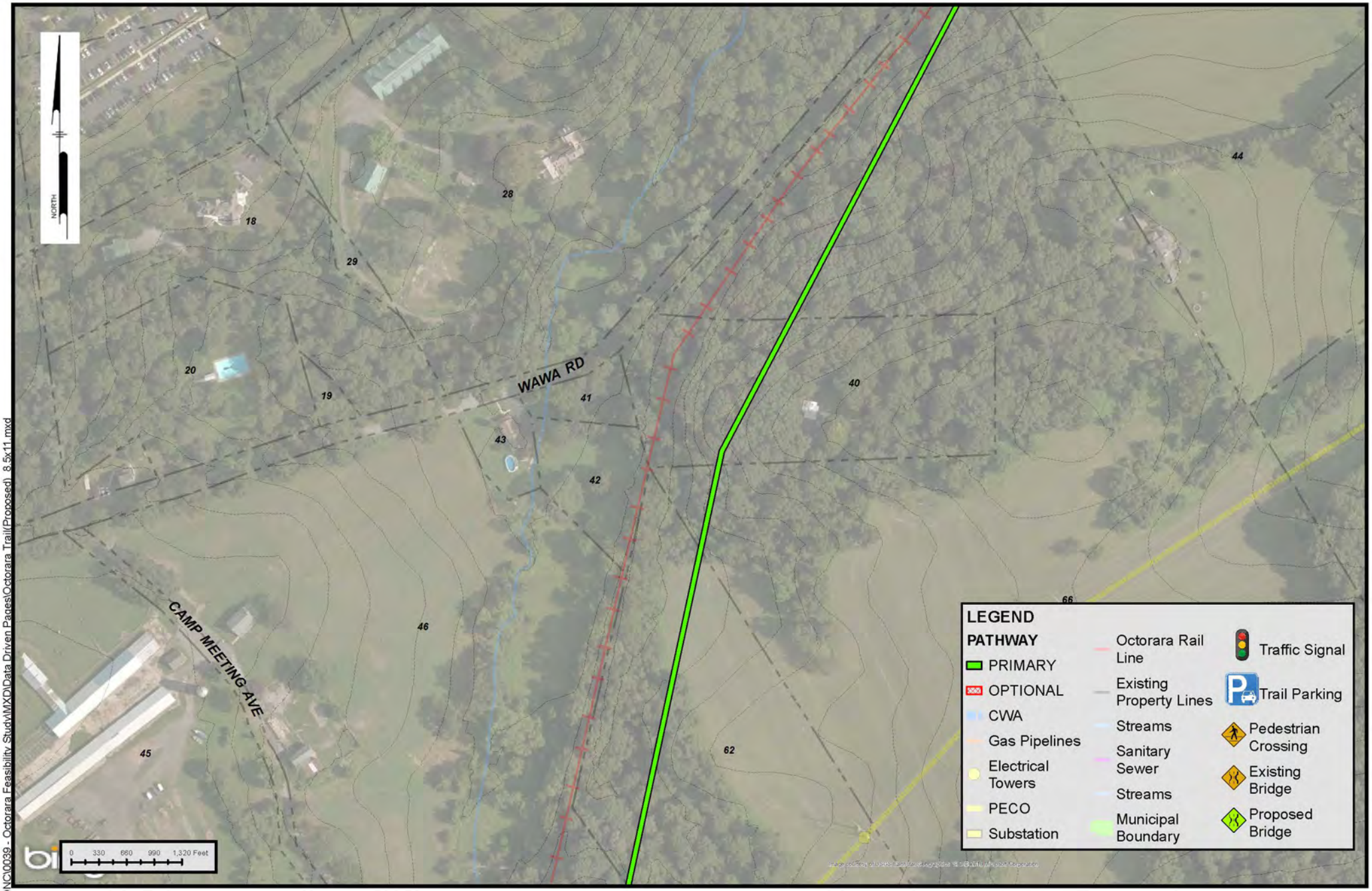

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Figure
15 of 16

Concord Township, Delaware County

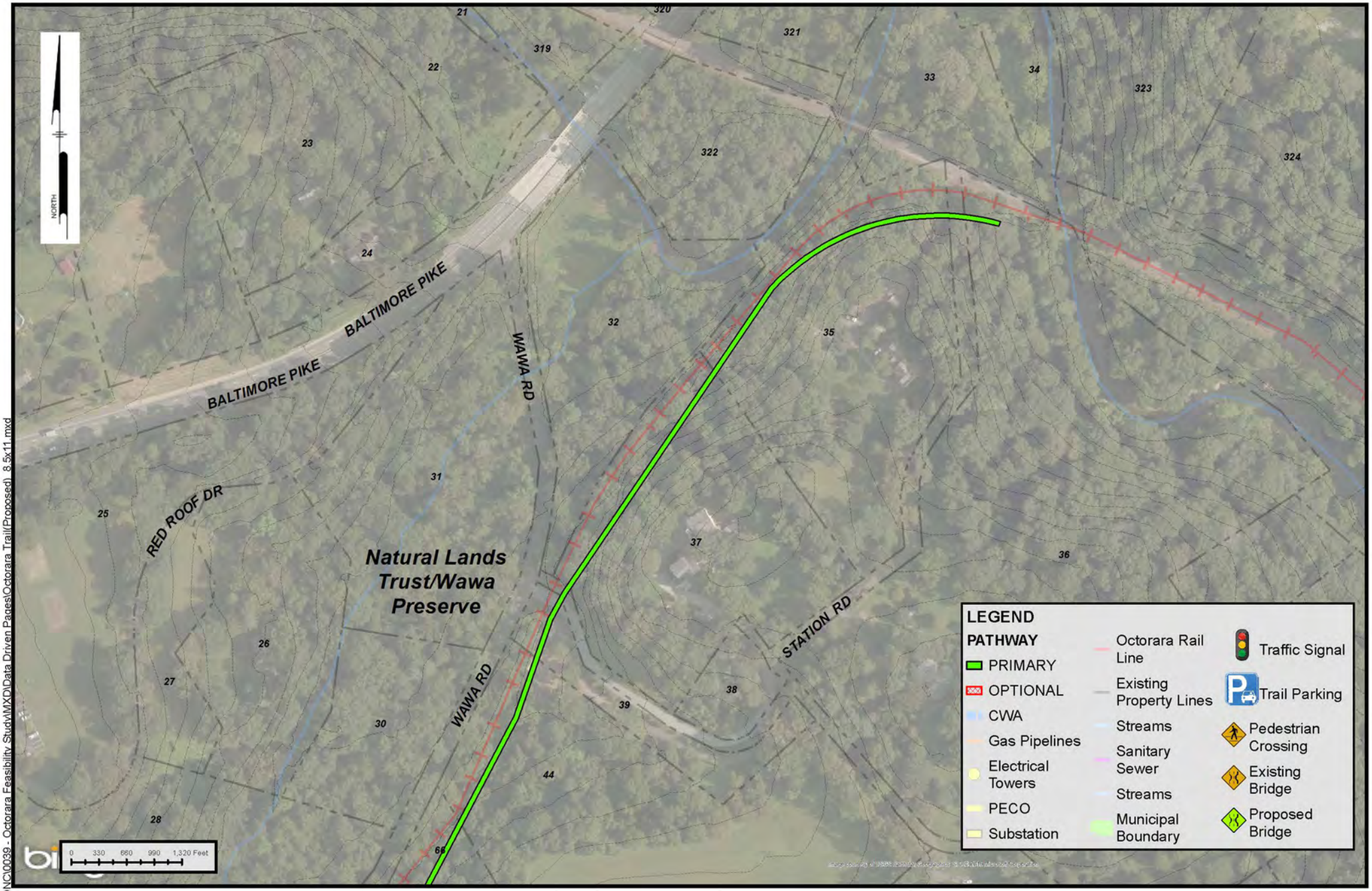
Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50

One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.



Document Path: R:\Projects\CONC\00039 - Octorara Feasibility Study\MXD\Data Driven Pages\Octorara Trail(Proposed) 8.5x11.mxd

Figure 16 of 16

Concord Township, Delaware County

Octoraro Trail - Greenway

Proposed Greenway Layout

Pennoni 50
One South Church Street
2nd Floor
West Chester, PA 19382

•All locations approximate, based on available Township and County GIS data.

Appendix C: Cost Estimate

Item	Unit Cost	Unit	SECTION 1 Route 202 to Concord Road 10,200 LF (1.9 miles) QTY	Total Cost	SECTION 2 Newlin Grist Mill 5,600 LF (1 mile) QTY	Total Cost	SECTION 3-A Pole Cat Road (on-street) 5,350 LF (1 mile) QTY	Total Cost	SECTION 3-B Pole Cat Road (off-street) *follows PECO ROW* 4,800 LF (0.9 miles) QTY	Total Cost
Paved Trail, 12' wide	$ 90	LF	10200	$ 918,000	5600	$ 504,000	0	$ -	3400	$ 306,000
culvert	$ 10,000	EA	4	$ 40,000	3	$ 30,000	1	$ 10,000	1	$ 10,000
ped bridge/structure	$ 90,000	LF	1	$ 90,000	1	$ 90,000	0	$ -	1	$ 90,000
street crossing	$ 30,000	EA	2	$ 60,000	2	$ 60,000	0	$ -	0	$ -
Fencing/Screening	$ 50	LF	2500	$ 125,000	550	$ 27,500	0	$ -	3500	$ 175,000
Trail Head Access (minor)	$ 50,000	EA	2	$ 100,000	1	$ 50,000	0	$ -	1	$ 50,000
Trail Head Access (major)	$ 100,000	EA	2	$ 200,000	0	$ -	0	$ -	0	$ -
Pavement markings	$ 3	LF	0	$ -	0	$ -	5350	$ 16,050	1400	$ -
Other	$ 20,000	LS	1	$ 20,000	4	$ 80,000	2	$ 40,000	5	$ 100,000
Mobilization	$ 5	LF	10200	$ 51,000	5600	$ 28,000	1000	$ 5,000	550	$ 2,750
Subtotal				$ 1,604,000		$ 869,500		$ 71,050		$ 733,750
Contingency 20%				$ 320,800		$ 173,900		$ 14,210		$ 146,750
General Conditions 10%				$ 192,480		$ 104,340		$ 8,526		$ 88,050
Subtotal Construction				$ 2,117,280		$ 1,147,740		$ 93,786		$ 968,550
Design/Engineering (15%)				$ 317,592		$ 172,161		$ 14,068		$ 145,283
Construction Admin (5%)				$ 105,864		$ 57,387		$ 4,689		$ 48,428
Easements/Acquisition				0		0		0		0
TOTAL PER SEGMENT				$ 2,540,736		$ 1,377,288		$ 112,543		$ 1,162,260

Item	Unit Cost	Unit	SECTION 4-A Ivy Mills Road (on-street) 4,250 LF (0.8 miles) QTY	Total Cost	SECTION 4-B Ivy Mills Road (off-street) *follows PECO ROW* 4,900 LF (0.9 miles) QTY	Total Cost	SECTION 5-A Wawa Road (on-street) 6,500 LF (1.2 miles) QTY	Total Cost	SECTION 5-B Valleybrook Rd to Wawa Station 6,500 LF (1.2 miles) QTY	Total Cost
Paved Trail, 12' wide	$ 90	LF	1075	$ 96,750	4900	$ 441,000	850	$ 76,500	6500	$ 585,000
culvert	$ 10,000	EA	0	$ -	1	$ 10,000	1	$ 10,000	1	$ 10,000
ped bridge/structure	$ 90,000	LF	0	$ -	1	$ 90,000	0	$ -	1	$ 90,000
street crossing	$ 30,000	EA	1	$ 30,000	1	$ 30,000	0	$ -	1	$ 30,000
Fencing/Screening	$ 50	LF	1100	$ 55,000	2500	$ 125,000	500	$ 25,000	3500	$ 175,000
Trail Head Access (minor)	$ 50,000	EA	0	$ -	0	$ -	0	$ -	0	$ -
Trail Head Access (major)	$ 100,000	EA	0	$ -	1	$ 100,000	1	$ 100,000	1	$ 100,000
Pavement markings	$ 3	LF	4250	$ 12,750	0	$ -	5450	$ 16,350	0	$ -
Other	$ 20,000	LS	4	$ 80,000	3	$ 60,000	2	$ 40,000	5	$ 100,000
Mobilization	$ 5	LF	1200	$ 6,000	4900	$ 24,500	3250	$ 16,250	550	$ 2,750
Subtotal				$ 280,500		$ 880,500		$ 284,100		$ 1,092,750
Contingency 20%				$ 56,100		$ 176,100		$ 56,820		$ 218,550
General Conditions 10%				$ 33,660		$ 105,660		$ 34,092		$ 131,130
Subtotal Construction				$ 370,260		$ 1,162,260		$ 375,012		$ 1,442,430
Design/Engineering (15%)				$ 55,539		$ 174,339		$ 56,252		$ 216,365
Construction Admin (5%)				$ 18,513		$ 58,113		$ 18,751		$ 72,122
Easements/Acquisition				0		0		0		0
TOTAL PER SEGMENT				$ 444,312		$ 1,394,712		$ 450,014		$ 1,730,916

Appendix D: Properties Along Proposed Octoraro Greenway Route

Properties Along the Octoraro Alignment - Chester Heights Borough						
Map Number	Folio Number	Municipality	Land Use	Site Address	Owner	Area (ac)
06-08-053:000	06-00-00106-01	Chester Heights Borough	Public - Tax Exempt	VALLEYBROOK RD	PECO	4.7
06-08-061:000	06-00-00090-00	Chester Heights Borough	Tax Exempt	320 VALLEYBROOK RD	PHILA CAMP MT & EXCUR ASS	30.3
06-08-024:000	06-00-00123-02	Chester Heights Borough	Residential	249 WAWA RD	TIERRA DU BOIS LLC	55.0
06-09-001:000	06-00-00122-02	Chester Heights Borough	Ground	WAWA RD	WRIGHT LISA A	18.0
06-09-001:001	06-00-00123-00	Chester Heights Borough	Ground	WAWA RD	NATURAL LANDS TRUST INC	6.0
06-09-028:000	06-00-00123-03	Chester Heights Borough	Residential	WAWA RD	WRIGHT LISA A & TRUSTEES	66.0
06-05-025:000	06-00-00076-01	Chester Heights Borough	Residential	501 STATION RD	WOOD RICHARD D JR TRUSTEE &	4.0
06-05-031:000	06-00-00075-01	Chester Heights Borough	Residential	504 STATION RD	WOOD RICHARD D III &	14.0
06-05-024:000	06-00-00075-00	Chester Heights Borough	Residential	505 STATION RD	COX CYNTHIA A	1.0
06-05-022:000	06-00-00080-00	Chester Heights Borough	Tax Exempt	519 STATION RD	WOMENS ASSOC FOR WOMENS	6.0
06-05-021:000	06-00-00078-00	Chester Heights Borough	Residential	526 STATION RD	JAMARA LP	16.0
06-05-020:000	06-00-00079-00	Chester Heights Borough	Residential	529 STATION RD	KEENER CHARLES F &	7.0

Properties Along the Octoraro Alignment - Concord Township						
Map Number	Folio Number	Municipality	Land Use	Site Address	Owner	Area (ac)
13-14-127:000	13-00-00569-10	Concord Township	Residential	101 MILL RACE PL	CONLEY CHARLES &	1.73
13-14-126:000	13-00-00569-09	Concord Township	Residential	105 MILL RACE PL	SACCOMANDI JUSTIN J &	1.64
13-23-014:000	13-00-00467-00	Concord Township	Residential	120 IVY MILLS RD	CLAYPOLE ROBERT &	6.71
13-23-007:000	13-00-00467-03	Concord Township	Residential	148 IVY MILLS RD	BRYAN WILLIAM L	2.9
13-27-053:000	13-00-00851-00	Concord Township	Residential	152 STATION RD	CRAIG KEVIN	7.19
13-27-023:000	13-00-00855-00	Concord Township	Tax Exempt	171 TEMPLE RD	TOWNSHIP OF CONCORD	6.55
13-23-006:000	13-00-00469-00	Concord Township	Commercial	200 IVY MILLS RD	WILLCOX MARK JR &	5.81
13-13-075:000	13-00-00015-00	Concord Township	Tax Exempt	213 CHEYNEY RD	TRUST NICHOLAS NEWLIN	14.24
13-13-075:000	13-00-00015-00	Concord Township	Tax Exempt	213 CHEYNEY RD	TRUST NICHOLAS NEWLIN	5.01
13-13-075:000	13-00-00015-00	Concord Township	Tax Exempt	213 CHEYNEY RD	TRUST NICHOLAS NEWLIN	3.56
13-13-075:000	13-00-00015-00	Concord Township	Tax Exempt	213 CHEYNEY RD	TRUST NICHOLAS NEWLIN	3.04
13-13-075:000	13-00-00015-00	Concord Township	Tax Exempt	213 CHEYNEY RD	TRUST NICHOLAS NEWLIN	0.89
13-14-063:000	13-00-00615-11	Concord Township	Residential	216 POLECAT RD	NICOLINI GENNAR A &	1.28
13-23-005:000	13-00-00470-00	Concord Township	Residential	226 IVY MILLS RD	WILLCOX MARK JR &	23.06
13-14-062:000	13-00-00615-12	Concord Township	Residential	226 POLECAT RD	CAMERON ROBERT	1.05
13-14-060:000	13-00-00614-00	Concord Township	Residential	238 POLECAT RD	CASSIDY JOSEPH G III &	0.63
13-23-015:000	13-00-00740-00	Concord Township	Residential	61 SMITHBRIDGE RD	CONRAD STEPHEN B &	26.16
13-21-002:000	13-00-00357-00	Concord Township	Commercial	711 CONCORD RD	TE ENTERPRISES LLC	2.55
13-14-128:000	13-00-00569-11	Concord Township	Residential	93 MILL RACE PL	VAALBURG MARK I &	2.06
13-19-018:000	13-00-00196-00	Concord Township	Commercial	BRINTON LAKE RD	MAIN LINE HEALTH INC (FINANCE)	91.09
13-21-053:000	13-00-00329-03	Concord Township	Tax Exempt	CONCHESTER RD	TOWNSHIP OF CONCORD	2.5
13-20-067:005	13-00-00242-15	Concord Township	Ground	FELLOWSHIP DR	CONCHESTER JOINT VENTURE	20.42
13-14-066:000	13-00-00615-08	Concord Township	Tax Exempt	POLECAT RD	CONCORD TOWNSHIP	1
13-14-122:000	13-00-00615-31	Concord Township	Ground	POLECAT RD	FOX VALLEY COMMUNITY SERVICE	9.17
13-13-074:001	13-00-00614-03	Concord Township	Tax Exempt	POLECAT RD	NEWLIN NICHOLAS FOUNDATION	3.11
13-27-054:000	13-00-00784-01	Concord Township	Tax Exempt	SMITHBRIDGE RD	GARNET VALLEY SCHOOL DISTRICT	7.84
13-25-005:000	13-00-00846-02	Concord Township	Public Utility - Tax Exempt	SPRING VALLEY RD	PECO ENERGY COMPANY	8
13-26-124:000	13-00-00841-02	Concord Township	Ground	SPRING VALLEY RD	PECO ENERGY COMPANY	5.55
13-27-024:002	13-00-00910-01	Concord Township	Ground	TEMPLE RD	TEMPLE ROAD DEVELOPERS LP	29.10
13-25-002:000	13-00-00846-01	Concord Township	Ground	WILMINGTON PK	CIRCLE R INVESTMENTS LLC	1.13

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