

CHAPTER 6 - IMPLEMENTATION AND COST

This planning document represents a vision for how the trail network can provide recreation and transportation alternatives for the township. Development of the trails and bicycle facilities network will require capital expenditures, the need for acquisition of right-of-ways via easements and other mechanisms, the coordination of many agencies, and the dedication of township staff.

IMPLEMENTATION PROCESS

Although there is no standard template for how trails and trail networks get developed, there are some actions that are fairly common. Some or all of the following actions may be necessary to implement this plan and to build the trail network. These include:

- Requiring trails as part of the development process
- Acquisition of right-of-way
- Securing funding
- Design and Engineering, Permitting and Construction

Requiring Trails as Part of the Development Process

One of the easiest, most cost effective and timely methods for achieving the development of the trail network envisioned in this plan is to require developers to construct trails and pedestrian facilities as part of the development process. This will eliminate the need to secure funding for these improvements. A site that would be greatly served by this would be the vacant Bucks County Roses facility. Its proximity to the SEPTA rail corridor would make this a prime example of how requiring this from developers would develop an extensive township trail and bike facilities network.

Currently the Northampton Township Subdivision and Land Development Ordinance requires the installation of sidewalks as part of the land development process.

- Ordinance 22-403.2.B Sidewalk
Sidewalks shall be required on both sides of all existing and proposed streets.

To take full advantage of this ordinance, the township needs to:

- Ensure that the proposed improvements within this plan are included in all new land development and roadway improvement projects.
- Ensure that trail alignments proposed within this plan are included in the land development plans proposed by the developers as part of the land development process, and in the design plans for roadway improvements.
- Review roadway design projects to ensure that adequate area is reserved for bicycle and pedestrian facilities proposed in this plan, including bicycle lanes or routes, shoulder improvements, bicycle safe grates, signage, and crossing improvements.
- Mandate that this plan be referenced in the review of all land development applications and roadway design projects.
- Add language to the Zoning and/or Subdivision and Land Development ordinances to require developers to add trails and bike facilities as part of the land development process.
- Stop the practice of providing developer the option to pay a fee in lieu of providing sidewalks for neighborhood residents.

In those situations where trails cannot be obtained as part of the development process, the township will need to take a more complex approach to the development of trails involving the acquisition of right-of-way, securing funding, and undertaking the engineering, permitting and construction of the trail.

Acquisition of Right-of-Way

Prior to the development of any trail, it is necessary to have control of the land. Much of the Northampton Township trail network would be placed on land already under the ownership of the township. However, as is often the case with trail projects, it might be necessary to obtain the rights to use privately-held land to achieve the development of some trails. Some of the more common techniques for the acquisition of the right-of-way for trails include:

- **Easements:** This is the most often used technique for acquiring the permission needed for a trail to cross private property. This is the preferred method as it is less costly than acquiring full ownership of the land. Specific to trails, an easement modifies the deed to a property to allow the use of a portion of the property for the construction of the trail and permanent use of the trail. Local examples of easements include the gas pipeline easements which cross multiple properties in the township.
- **Fee simple purchase:** Purchasing the needed land is an alternative to easements. However, fee simple acquisition of the land can be much more costly and time consuming as compared to easement. Additionally, fee simple ownership gives the owner complete control of the land, including all public access and conservation practice decisions.
- **Lease:** Similar to easements, a lease agreement can be negotiated authorizing the use of the land for construction of the trail. In contrast to easements, leases have a specific time frame associated with them. Although this type of arrangement would allow for construction of the trail, if a private property owner opts not to renew the lease upon its expiration, this may leave a gap in the trail network.
- **Donations:** Land or an easement on the land is frequently donated by a private owner, organization, or corporation. Local governments should encourage the donation of land or easements by pointing out benefits of such actions, including possible federal income and estate tax benefits and public relations value. In addition to land, corporations and other private parties also frequently provide cash donations for worthy causes, including land preservation.
- **Eminent Domain:** Although not desirable, and therefore not used very often, eminent domain can be used to acquire land. Eminent domain is the power of government to acquire property for public use so long as the government pays just compensation. The government can exercise the power of eminent domain to acquire property even if the property owner does not wish to sell the property. Government taking of such property is called a condemnation, or a taking. It is seldom used in part due to the need to show that the taking of the land does constitute public use.

These techniques may be used separately or in combination to facilitate acquisition.

Securing Funding

Securing funding for the development of the township-wide trail network will require funding at every step of the process including planning, design and engineering, right-of-way acquisition and construction. There are multiple sources of funding, each with their own requirements, specific criteria regarding eligible projects, funding cycles, match requirements, etc. The sources of funds include federal, state and local funding sources, as well as private foundations and donations. Government funding programs change frequently. Those mentioned here are in place in 2019, but will likely change in the future.

Federal Funding Sources

The Federal Government provides funding for transportation projects through various funding programs. These are typically in the form of block grants provided to states through funding formulas and are typically administered through the state or the Delaware Valley Regional Planning Commission. On December 4, 2015, the President signed the Fixing America's Surface Transportation (FAST) Act into law (Pub. L. 114-94). There are several new programs under this bill as described on the following page:

Surface Transportation Block Grant Set-aside Program (STBGSP)

Formerly known as the Transportation Alternatives Program (TAP), this program sets aside federal transportation funds for community-based projects designed to build infrastructure for cyclists and pedestrians. Planning, design and construction of on-road and off-road facilities including sidewalks, trails, bicycle lanes, and pedestrian and bicycle signals are some of the eligible projects. <http://www.dvrpc.org/tap>

Surface Transportation Block Grant Program (STBG)

The FAST Act amended the Surface Transportation Program (STP) contained in 23 U.S.C. 133, and changed the program name to the Surface Transportation Block Grant Program (STBG). This program has the most flexible eligibilities among all Federal-aid highway programs. In general, STBG projects may not be on local roads or rural minor collectors. There are a number of exceptions to this requirement including recreational trail projects eligible under 23 U.S.C. 206, pedestrian and bicycle projects in accordance with 23 U.S.C. 217, and Safe Routes to School projects under Section 1404 of SAFETEA-LU (23 U.S.C. 402 note). <https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.pdf>

Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. HSIP funds be used for safety projects that are consistent with the State's strategic highway safety plan (SHSP) and that correct or improve a hazardous road location or feature or address a highway safety problem. <https://safety.fhwa.dot.gov/hsip/about.cfm>

Congestion Mitigation and Air Quality Program (CMAQ)

CMAQ is a transportation air quality improvement program that provides funding for both design and construction of bicycle and pedestrian facilities that serve to reduce automobile travel. A municipality/applicant must complete a CMAQ Air Quality Analysis Worksheet for Bicycle and Pedestrian Projects to document a quantifiable reduction in auto emissions and/or congestion to be eligible under this program. Under this program, the project cost is funded 80% federal and 20% state or local match. <http://www.dvrpc.org/cmaq>

In addition to federally funded transportation grant programs, there are other federal funding programs available for trails and recreation funding.

United States Department of the Interior - National Parks Service (NPS) - Rivers, Trails and Conservation Assistance (RTCA) Program

This is a National Parks Service program that provides technical assistance to establish and restore greenways, rivers, trails, watersheds and open space. <https://www.nps.gov/orgs/rtca/apply.htm>

Land and Water Conservation Fund

Created by Congress in 1965, the Land and Water Conservation Fund (LWCF) is a bipartisan commitment to safeguard natural areas, water resources and our cultural heritage, and to provide recreation opportunities to all Americans. The program uses revenues from the depletion of one natural resource - offshore oil and gas - to support the conservation of land and water. This is accomplished by using royalties paid by energy companies drilling for oil and gas on the Outer Continental Shelf (OCS). These royalties are placed in the fund for the purpose of creating and protecting national parks, areas around rivers and lakes, national forests, and national wildlife refuges from development, and to provide matching grants for state and local parks and recreation projects. <https://www.lwcfcoalition.com/lwcf-programs/>

State Funding Sources

The Commonwealth of Pennsylvania offers multiple funding sources in support of open space, historic and cultural resource preservation, natural resource protection, recreation and park facilities, and greenways implementation. Similar to the federal funding programs, these programs are administered by a variety of different departments. The Pennsylvania Greenways Toolbox's Funding Guide provides additional

information about these programs.

http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20028922.docx

[Pennsylvania Department of Conservation and Natural Resources \(PA DCNR\)](#)

DCNR administers the federally-funded Recreational Trail Program and the state-funded Community Conservation Partnership Program (C2P2).

[Recreational Trails Program](#)

The Pennsylvania Recreational Trails Program (PRT) is an assistance program funded through the U.S. Department of Transportation's Federal Highway Administration (FHWA). FHWA provides funds to states to develop and maintain recreational trails and trail-related facilities for motorized and non-motorized recreational trail uses. The Department of Conservation and Natural Resources (DCNR) has been designated as the state agency responsible for administering this federal program in Pennsylvania.

http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/d_001241.pdf

[Community Conservation and Partnership Program \(C2P2\)](#)

These grants are awarded to municipalities and authorized nonprofit organizations for recreation, park, trail and conservation projects. These include planning for feasibility studies, trail studies, conservation plans, master site development plans, and comprehensive recreation, park and open space and greenway plans; land acquisition for active or passive parks, trails and conservation purposes; and new development and rehabilitation of parks, trails and recreation facilities.

<https://www.dcnr.pa.gov/Communities/Grants/Pages/default.aspx>

[Pennsylvania Department of Community and Economic Development \(PA DCED\)](#)

[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.

<http://dced.pa.gov/programs/greenways-trails-and-recreation-program-grtp/- .V9i0amOMFmg>

[Multimodal Transportation Fund \(MTF\)](#)

The PA Department of Community and Economic Development (DCED) administers 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.

<http://dced.pa.gov/programs/multimodal-transportation-fund/- .V9i0oGOMFmg>

[Pennsylvania Department of Transportation, Bureau of Maintenance and Operations](#)

[Automated Red Light Enforcement \(ARLE\) Program](#)

Provides opportunities for transportation enhancement grants through revenues generated by the automated red light enforcement program to improve safety and reduce congestion. No matching funds are required for the ARLE grant program. Relevant eligible projects include pedestrian safety improvements at signalized intersections such as count down timers, easily accessible and quick response pushbuttons, crosswalk striping, pedestrian signing and pedestrian mobility improvements with a combination of eligible features.

<http://www.dot.state.pa.us/portal%20information/traffic%20signal%20portal/FUNDARLE.html>

The township should utilize its municipal funds to leverage additional grant funding from state and federal sources. In order to develop proposed trails that will not be constructed as the result of land development and roadway projects, the township will need to apply for and receive grant funding from local, state and/or federal sources. Many state grant programs can be used as a designated match for other federal grant

programs and vice versa. By leveraging funds, the township will be able to maximize the amount of constructed improvements per municipal dollar.

Local Funding

There are a number of other government initiatives that can provide funding for implementing trail plans.

Bond Referendums

As evidenced by the successes of nearly \$180.0 million approved by 18 county municipalities, two Bucks County Open Space Program bond referendums totaling \$146.0 million. Both in 1998 and 2004 the township held and passed two referendums to preserve open space within its limits. The township could consider using this same model to develop its trails and bike facilities network.

Property Tax and Earned Income Tax

Pennsylvania's Act 153 of 1996, which amended the Pennsylvania Conservation and Land Development Act, expanded the authority of municipalities to fund open space projects through local taxes. Under the Act, two different taxation tools were identified that can be used to purchase development rights or open space lands.

Property Tax - This is a tax charged to real property owners based on a percentage of the assessed property value, not to exceed the millage authorized by voter referendum. Property taxes provide a steady source of revenue. However, because communities are limited in the total level of the millage rate, the use of property taxes to fund open space activities may inhibit the ability of the municipality to raise money for other needed activities.

Earned Income Tax - This is a tax applied only to earned income, not to real estate assets or pensions. Because of this, it may prove to be more acceptable in municipalities with a higher percentage of retired senior citizens. Pennsylvania caps the earned income tax at 1.0 percent. However, Act 153 authorizes voters to approve the levy of an increased earned income tax beyond the 1.0 percent limit, exclusively for the purpose of financing purchases of open space.

Private Funding Sources

Grant funding is available through many private avenues, most of which have specific agendas. Key to obtaining such funding is a clear match of the project goals to the funding intent. Often, private grants require a non-profit entity to receive and administer any funds. Frequently, private funding can be used to meet the matching requirements of many public programs that require some amount of local funding as a good faith indication of local support. Finally there are in-kind gifts and cooperative partnerships that permit a right of way through private lands and develop a cooperative agreement for use, maintenance and safety. These can frequently be seen in rails-with-trails as well as trails that use utility rights of way and cooperative maintenance.

PECO Green Region Grants Program

Green Region grants are available to municipalities in amounts up to \$10,000. The grants can be used with other funding sources to cover a wide variety of planning and direct expenses associated with developing and implementing open space programs, including consulting fees, surveys, environmental assessments, habitat improvement, and capital improvements for passive recreation. The program is administered through National Lands Trust.

https://www.peco.com/SafetyCommunity/Community/Pages/Environment_OLD.aspx

William Penn Foundation/Delaware Valley Regional Planning Commission Regional Trails Program

The William Penn Foundation's mission is to improve the quality of life in the Greater Philadelphia region through efforts that foster rich cultural expression, strengthen children's futures, and deepen connections to nature and community. In partnership with others, the Foundation works to advance a vital, just, and caring community. The Foundation works to improve the quality of life in the Greater Philadelphia region by advancing dynamic and diverse communities that provide meaningful opportunity.

In 2011, the Foundation provided \$10 million in funding for The Regional Trails Program, administered by the Delaware Valley Regional Planning Commission (DVRPC), with the goal of capitalizing upon opportunities for trail development by providing funding for targeted, priority trail design, construction and planning projects that will promote a truly connected, regional network of multi-use trails with Philadelphia and Camden as its hub. In December 2014, DVRPC and the William Penn Foundation announced a renewed commitment to invest \$7 million in the Circuit Trails, a vast network of hundreds of miles of multiuse trails in the Greater Philadelphia region that is growing in size each year. Upon completion, the Circuit Trails will include over 800 miles of trails. In 2018, the Foundation announced another \$10.6 million in grant funding to assist in further the development of the Circuit Trails.
<http://www.dvrpc.org/Trails/RegionalTrailsProgram/>

American Hiking Association - National Trails Fund

Established by the American Hiking Society in 1998, this national grants program provides funding for “hiking trail improvement” grants to active member organizations of their Hiking Alliance. Once a year, Alliance Members have the opportunity to apply for a grant (value between \$500 and \$5,000) in order to improve hiking access or hiker safety on a particular trail.
<https://americanhiking.org/category/national-trails-fund/>

People for Bikes

The PeopleForBikes Community Grant Program provides funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bicycle facilities and rail trails, as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle advocacy initiatives. <https://peopleforbikes.org/our-work/community-grants/>

Donations

One often overlooked source of funding for the development and ongoing operation and maintenance of trail systems are donations. Donations may take several forms including:

- Monetary donations
- Donations of easements or land for the trail route
- Donations of goods such as landscaping and trail building materials
- Donations of professional services from architects and engineers for the development of grant applications and engineering consultant. The donation of these services can often be counted as part of the match contribution for grant applications.
- Volunteer labor from church groups, scouting organizations, civic groups, cycling clubs and environmental groups for help with fund-raising, security, trail maintenance and other support activities.

Design and Engineering, Permitting and Construction¹

The following outlines typical implementation steps for municipal trail development. The physical conditions, constraints, and adjacent and underlying landownership of the trail segment will further determine the action steps to develop the trail for public use.

- Complete deed research, boundary and topographic survey, wetlands delineation, and Pennsylvania Natural Diversity Inventory (PNDI) search, Phase 1 archeological study, as necessary, for the trail corridor segment(s).
- Develop construction documents that detail and engineer the trail improvements and associated amenities. Engineering may include structural design of bridges, culverts, railings, and pavements; traffic studies; and detailed crossing improvements. Prepare a project manual including technical and bidding specifications.
- Develop land development plans for submission and review by the municipalities affected by the trail, as required.

¹ [Tri-Municipal Master Trail & Greenway Plan](#) November 2010, p Chapter 5-3 to 5-4.

- Obtain approvals from the various governing agencies prior to construction. The following is a listing of typical approvals for a development of this nature but may not be all-inclusive.
 - Municipal approval for land development plans within the affected municipalities, if required.
 - Bucks County Conservation District approval for erosion and sedimentation control plans and National Pollutant Discharge Elimination System (NPDES) Permit.
 - Pennsylvania Department of Transportation approval for work within a PennDOT right-of-way.
 - Pennsylvania Department of Environmental Protection/US Army Corp. of Engineers approval for any work within the waters of the Commonwealth including delineated wetlands and stream encroachments and crossings.
 - Pennsylvania One Call. Pennsylvania law requires three working days-notice for construction phase and ten working days in design stage.
 - Approval from public utilities impacted by the trail.

Each of the above permits and approvals are typically involved and will require advance planning to facilitate the process. Adequate preparation and review time should be allotted.

- Upon receipt of all required approvals and permits and completion of the trail construction documents, the project can begin construction. This can be accomplished by either soliciting bids for construction, or utilizing in-house resources such as the township's public works department which has already completed several trail segments in the township.

TRAIL AND BICYCLE FACILITIES DEVELOPMENT COSTS

The cost to develop the various trails included in this plan will vary depending on the type of trail constructed, the sources of funding involved, the extent and complexity of constraints and environmental challenges encountered, and the number of easements. It is also possible that many of the trails may be built by developers as part of the land development process. As no detailed engineering work such as topographic or planimetric surveys, detailed grading and site engineering have been completed, it is not possible to provide a more detailed and accurate cost estimate at this time.

The costs included here are a general guideline for the purpose of preliminary estimation of trail costs and are based on time-honored practices in the construction industry. More detailed cost estimation will be obtained as one of the outcomes of the design and engineering stage. Utilization of in-house forces (e.g., township crews) can result in costs considerably lower than those presented in this plan.

The following is a summary of the probable costs of construction for various trail types as presented in this plan. Costs for design and engineering, construction management, right-of-way acquisition and contingencies have not been included in these figures.

TABLE 24 – PROBABLE COSTS OF CONSTRUCTION

Item	Estimated Unit Cost
8-foot wide Shared Use Asphalt Trail	\$95 per linear foot
10-foot wide Shared Use Asphalt Trail	\$110 per linear foot
10-foot wide Crushed Stone / Aggregate Shared Use Trail (Newtown Rail Trail)	\$75 per linear foot
Floating Boardwalk Trail	\$1,000 per linear foot
5-foot wide Concrete Sidewalk	\$100 per linear foot
Bicycle Sharrows (bidirectional) on Road (Recommended placement - immediately after an intersection and spaced at intervals not greater than 250 ft thereafter. Source: AASHTO Guide for the Development of Bicycle Facilities)	\$3.00 per linear foot
Bidirectional Bicycle Lanes	\$8.50 per linear foot
Trail Signage	\$1.50 per linear foot
PennDOT Road Crossings with crosswalks, curb cuts, and rapid-rectangular flashing beacon (RRFB)	\$60,000 each
Easement costs	\$1.50 - \$2.00 per square-foot of easement area
Design and Engineering Fees	15% - 20% of estimated construction costs